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**September  
2002**



**Keeping the  
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**Manilla State of  
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**Getting the Come  
And Get It Trophy**



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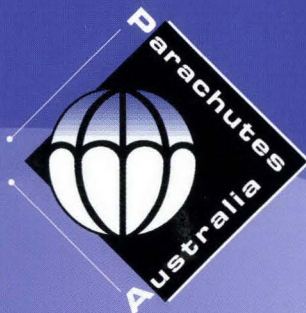
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Motor glider Ximango ZBF flown by Barry Bowerman over the escarpment near Wollongong  
Photo: Courtesy Henk Meertens



Official publication of the Gliding Federation of Australia (GFA) and the Hang Gliding Federation of Australia (HGFA).

## EDITORIAL CONTRIBUTIONS

Contributions for the combined magazine should be sent to the appropriate sub-editor:

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Editorial contributions and display advertising bookings to: HGFA sub-editor Richard Lockhart, c/o Blackheath Post Office, Blackheath NSW 2785, ph: 0418 130354, email: <skysail@ozemail.com.au>.

Photos and materials will be returned after publication only if a stamped, self-addressed envelope is supplied. Otherwise, photographs, whether published or not, will be filed and may be used subsequently in further publications.

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Hang Gliding Federation of Australia & HGFA Sales: PO Box 157, Hallidays Point NSW 2430, ph: 02 6559 2713, fax: 02 6559 3830, email: <office@hgfa.asn.au>, web: [www.hgfa.asn.au].



The Gliding Federation of Australia and the Hang Gliding Federation of Australia are members of the Fédération Aéronautique Internationale (FAI) through the Australian Sport Aviation Confederation (ASAC).

### CREDITS

Cover photo: Jimmy Hall & Stefanie Brendl of 'Sea to Sky Productions' [www.seatoskyproductions.com]

Design: Suzy Gneist, Gneist & Moffatt  
Printing: Pirie Printers, Canberra ACT  
Mailing: Pirie Printers, Canberra ACT

### FOR CONTRIBUTIONS TO HGFA WEBSITE USE EMAIL ADDRESS AS FOLLOWS:

CATEGORY	EMAIL ADDRESS	DESCRIPTION
Club News	clubnews@hgfa.asn.au	Information is forwarded to Soaring Australia and the maintainers of the HGFA website.
Competition News	compnews@hgfa.asn.au	Information is forwarded to Soaring Australia and the maintainers of the HGFA website.
Articles, advertisements	skysail@ozemail.com.au	Soaring Australia only content and other content

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HGFA advertising bookings and classified bookings to: Richard Lockhart, c/o Blackheath Post Office, Blackheath NSW 2785, ph: 0418 130354, email: <skysail@ozemail.com.au> or fax: 02 6559 3830.

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# AFRICA, STORMS AND LESSONS

Tom Claffey

I WAS FORTUNATE ENOUGH TO FLY FOR ALMOST 10 WEEKS STRAIGHT LAST SUMMER THANKS TO LONG SERVICE LEAVE. MY PRIORITY, OF COURSE, WAS TO PREPARE FOR THE 27TH WORLD GLIDING CHAMPIONSHIPS IN MAFIKENG AS I HAD BEEN JUST OUT OF THE TEAM LAST TIME AND WHO EVER KNOWS FOR SURE WHEN THEY WILL BE ELIGIBLE AGAIN WITH SO MANY TALENTED PILOTS AROUND!

**F**our enjoyable weeks were spent practising at Narromine thanks to the hospitality of Christiane and Shinzo Takizawa who put up with me living in their backyard for this time and again for the Australian Nationals. I had plenty of other pilots to fly with as in the first week the Keepit mob came through on their way to Temora. I tagged along for two nights there (they left a day before me to stay on time for Haddon Rig while I had to wait for the weather without a trailer – thanks to Geoff King for coming out mid-week and giving me a launch). The second week Bathurst club was in town for a camp. Unfortunately both weeks had blue weak lift, good practice as it turns out but frustrating! Week three was the Junior Training Week and Narromine Cup: very busy with Southern Cross Gliding Club

there in force as well as numerous others. The weather was getting better. I had Nick Gilbert flying my old Discus “FV” while I coached in the new ASW28 “TC”. We had a lot of fun, first struggling in the blue and later doing 300 and 500km flights under cumulus. Nick was able to get on top of me for a while – fast learner! The highlight of my week was experiencing John Buchanan’s ASW22: the 650km together with John in the ASH and Shinzo in his Nimbus was a dream with those long wings.

The last week was the rained out New South Wales comps: we got two days but then the forecast was poor so the comp was cancelled. I felt that after competing in Africa last year I would be better off here for comp practice and also my long suffering crew would get to fly. The glider I had organised

for Africa was an LS8 which was being flown by the Danish junior team till I arrived. In hindsight (with the exception of the cancelled comp) the decision was a good one as the weather at Mafikeng had been very wet with almost no flying, while I was very current, and used to scratching!

Kerrie, my other crew Mick and I had a pleasant trip over and enjoyed staying at François DeKlerk and Quentin Maine’s hangar/flats at Johannesburg’s local Orient gliding club. I can’t say enough good things about this pair. François was flying an ASW27 in the South African team and Quentin was South Africa’s team manager, yet they took time off to pick us up (complete with six-pack) and loan us Quentin’s “bakkie” (South African for ute!) and François’ Ventus Komet trailer!

After a jetlag-fixing sleep we were off to Mafikeng just in time for briefing and a huge storm – the first of many! We got all the little jobs done over the next few days, settling in, shopping, borrowing all of Griffio’s back seat instruments so I didn’t have to fly metric, and getting the wings sanded to remove bumps. The time taken to do all this, while still doing some small flights to get used to the glider and new oxy system, was needed more than flying too hard and getting stale over the three weeks. We also tried the LS8 in the Ventus trailer to see how it fitted, which it didn’t till we modified a few things – just as well as it turns out!

The second last practice day saw the best weather for some time. Probably over half the field did the 376km set task so I decided to fly with as many of the good guys as I could. Surprise surprise, I won the day at 118km/h! I found that the pilots here were not all supermen, although they make few mistakes. Some of the Europeans seemed under-confident in the blue but after the time in Narromine I was at home! In the overdeveloped rainy skies the British and French (and Couttsie) seemed to do better than the rest. I was at home on the big days but they were few and far between. Of course, the day of the opening ceremony and airshow was the best for a month!

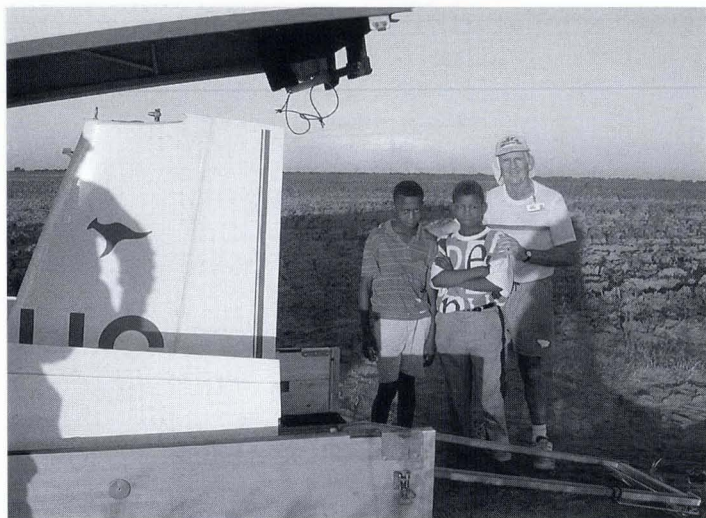
**At last, Day 1:** After a very difficult flight I outlanded with the almost-leading gaggle at 92km out! This would have been third place, however the day was cancelled due to less than seven aircraft past 100km.

Tom in UG

Photos: Kerrie Claffey







Helpful paddock crew



Packing UG in an already full Danish container

A four to five hour retrieve, including de-rigging delayed by a dust front and storm, left us in a fine state for Graham Parker's birthday party! On the next two outlandings my super crew got to me in nine and five minutes respectively! Next day was cancelled for Standard Class due to high winds damaging three tugs during launch!

**Day 1, take two:** A blue gaggle day. I was able to get to the front at the last turn but slowed down a little too much getting on to final glide so was passed by a Coutts-led gaggle for sixth at 101km/h.

**Day 2:** This was much better and with my confidence high from the last few days I really smoked along to almost final glide. I had started 10 minutes after the French and was with them struggling to find a climb. Again we were caught at the end so I finished 10th at 124.5km/h instead of a day win at over 130!

**Day 3:** I started early as I thought it would die early. I was probably just a little too early so finished eighth at 127km/h. The top pilots had been close every day but different ones kept dropping off the list. After three days I was in third place in my first worlds, pressure building!

**Day 4:** The first assigned area task for us was called on a day of huge overdevelopment from storms. These storms were the cold weak type, not the strong desert style we had seen last year (and were to see at Narromine later). As we drifted across the start line in a huge gaggle under 1,500ft I didn't think anyone would get away. At 17km from the start Laurent Aboulin of France outlanded, along with others. As we worked every bit of sun and then cumulus as we went further south, Kerrie, followed by the GPS-less Kiwis, started south in cars in the rain, hence the nine minute retrieve! John Coutts, Mac Ichikawa and I missed one climb coming back north but did okay: now still in third place behind John and Mike Young of

Britain who had used all his rain-front flying skills to win the day. Four days means a competition and I am in third place, cancel the rest! I had been in some pain from a back strain that day and then got little sleep. I was very happy to still be in third spot but was starting to feel stressed.

**Day 5:** Another difficult day with many relights and outlandings. The forecast was "no lift but if there is lift it will storm!" I had a forced relight after nearly an hour airborne, then a second to try to fix a loose undercarriage door. After dodging a car crossing the runway I ended up on my belly full of water on the bitumen! (first one in 14,000 hours!) I find the best way to release stress in a situation like this as the competition is starting overhead is to swear loudly and jump on my hat! I did that and then covered the holes in the belly with contact and ended up completing 280km of the 314km task. Kerrie was waiting down the Setlagole road again so this time she got to me five minutes after I glid off into the blue along the highway. Not as much of a disaster as it could have been due to the recovery but still dropped me down to eight place.

**Day 6:** Boxing day and, unfortunately, a slow day for me as I had gone further into the assigned sector than most and had a real struggle home. A slow 88km/h compared to 106km/h for Aboulin in the lead dropped me to 11th. For the rest of the competition I was in catch-up mode against the best in the world. We began the nightly ritual of de-rigging the glider for repairs to the belly, which ended up like new.

**Day 7:** I wished to start early, however Couttsie convinced me to wait. He tried a 'Claytons' start against his opposition and had such a good run he kept going! He was most sheepish that night as he won the day while I took another 20 minutes to get into position and go. Lesson – do your own thing!

Rooster one day – feather duster the next!

**Day 8:** Team Pacific (myself, John and Mac) had a scorching run on an assigned area task till the day just stopped an hour early! John lost the overall lead with an outlanding while Mac and I scraped home at 110km/h compared to Andy Davis' great 139km/h.

**Day 9:** Another straight-forward 900 pointer.

**Day 10:** The last, and one of the most impressive storms I had seen. Needless to say, after an exhilarating run at cloudbase we had a 40km glide in still air then had to break



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Opening ceremony




Closing ceremony – Oscar Goudriaan wins Open Class

through a front of light rain to find the lift to the north of the rain. I was sure I knew where the lift was, (confirmed by Mac on the radio) – it was just a question of how to get there! As I went for a gap in the rain a lightning bolt came down in front! After changing to another small gap a bolt came down again! Back to the first break (lightning doesn't hit the same place twice, right?), through into good lift and along the front to get into the 30km radius of the second turn. Although the lift was easy to find I got out of there as soon as I could! Everyone (who finished) came in under time but the French had gone right around the storm to do an extra 47km to me so I ended up ninth for

the day and 10th overall while Aboulin recovered from his day four disaster to win the competition – most deservedly! Many top pilots either outlanded or didn't get into the second sector that day!

A few weeks later I was to put the storm flying practice to good use to win the last day at Narromine (as in Terry Cubley's *"The Day"* article, *Soaring Australia* June 2002). That storm was the largest I had seen in Australia with a proper African dust front. Narromine had all the strong weather! On day two I went faster than I had ever been at 153km/h and came second to Andrew Georgeson by 5km/h! Storms can be dangerous but also fun if flown correctly. The

trick is to be very flexible in your thinking. No point at all in heading for home if home is where the storm is! If you need to outland you need generally to run downwind away from the storm as far as you can. Sometimes this will lead to the lift of the gust front and you won't need to outland anyway! I think those of us who made it round did an extra 70-100km that day to go right around the storm and wait (at 9,000ft in wave) until it passed. Landing at home on a bitumen runway with water all around was most satisfying!

Hopefully next season will bring more good days, new friends to fly with and of course – the occasional storm! 

## FINAL GLIDE – Gunars Braslins

Jon Millard and Bruce McKenzie

CANBERRA GLIDING CLUB LOST ONE OF ITS MOST VALUED MEMBERS, SUDDENLY, IN MID-JULY.

**W**e joke about 'rocket scientists', but Gunars Braslins was exactly that. Having immigrated from his native Latvia in 1949, he worked for the Weapons Research Establishment in Edinburgh SA and at Woomera, before coming to Canberra in 1971 to complete his career with the Department of Defence.

Gunars' technical skills also ran to gliders, and many a Form 2 inspection was conducted by him, to say nothing of ongoing maintenance of the club's fleet. Gunars was

always one to share his consummate aeronautical knowledge and ability with other pilots.

Such was his contribution to the club in these and many other ways, Gunars won the coveted Clubman of the Year Award on no fewer than four occasions. His ever-present good humour pervaded operations at Bunyan Airfield and its predecessors for more than 30 years.


Gunars is survived by Ailsa, his wife of 47 years, their children Susan, Phillip,

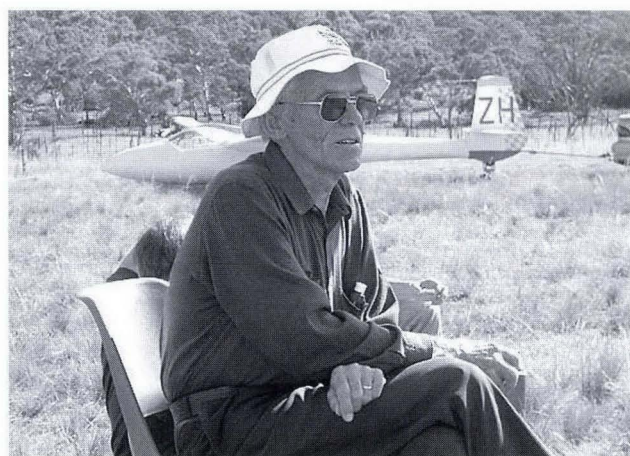
Cassandra and Dzintra, and grandchildren Lorrae, Amy, Matthew and Jardene.

He will be sadly missed by the members of Canberra Gliding Club. He was only 73.

A few short years ago, Gunars expressed his feelings about our sport with the words:

That's when I find God – among the clouds, with eagles soaring with me.

That beautiful image will continue to be shared by so many of us. 



Gunars Braslins





# Wave Camp – STIRLING RANGES, WESTERN AUSTRALIA

Jeff Woodward

**I**N recent years the Beverley Soaring Society and the Gliding Club of Western Australia have been combining efforts and resources in attempts to gain Diamond and Gold height awards at the Stirling Ranges in the south of Western Australia.

As eastern states' readers may know, the Stirling Range has provided a source of height gains for WA glider pilots for about 30 years. The reliable Bluff Knoll ridge will allow ridge soaring up to 8,000ft depending on the strength of the north/north-westerly breeze. Heights of nearly 30,000ft (FL300) have been achieved with numerous Diamond and Gold heights being secured from the wave lift which forms above the lower ridge lift. The current absolute record is held by Rob Duffy of Beverley Soaring Society with a height of 29,600ft.

The ideal scenario that glider pilots are seeking is the strong north to north-westerly wind striking the north-westerly face of Bluff Knoll (3,400ft amsl or 2,700ft agl) as a westerly cold front approaches the west coast. The more significant fronts are always potentially better. This usually occurs only once or twice during the nine day camp due to the weather pattern. Participants usually contend with two or three rained out days as the actual front passes through the region.

From 6 to 14 July, 2002 the two clubs again came to the Stirlings, which are located 350km south-east of Perth, in search of ridge soaring fun and perhaps those elusive heights.

This year saw an unusual situation in that there were no significant cold fronts crossing during the period, but rather three or four minor fronts being swept up from the south-west by a series of 'lows' in the Southern Ocean. These minor fronts created only two short windows of opportunity for significant height gains throughout the week.

On day one, as participants were arriving, Don Woodward in his Pik-20D (GWK) managed to soar the Bluff Knoll ridge then secure wave to 22,000ft (FL220), claiming his Diamond height. Darryl MacKay and Martin Davis, who had been ferrying on dual tow from Beverley, released and went straight to Bluff Knoll, reaching 18,500ft in Beverley Soaring Society's Twin Astir (KYK). Unfortunately wave conditions deteriorated by the time other gliders could be rigged and airborne.

However, on day four (9 July), the wind again was placed for potential wave conditions. Andrew Huggins in his Standard Cirrus (GOP) managed to reach 19,200ft but unluckily was just 700ft short of his Diamond height. He was closely followed by Patrick Dubois in his Jantar Standard 2 (UKO). The next few hours saw five Gold height achievements (provisional) as pilots used the brief wave conditions to reach heights of 14,000 to 18,000ft.

They were: Martin Davis – Astir CS (GDA); David Griffiths – Jantar Std 2 (UKN); Ian Cook – Twin Astir (KYK); Bryn Woodward – Puchacz (XQD) all from the Beverley Soaring Society, and Wayne Turner – Jantar Std 2 (IZS), the Gliding Club of Western Australia.

Unfortunately the wave on this day didn't permit these pilots from reaching a few more thousand feet and therefore

some Diamond awards. The remaining days were spent ridge soaring from both Bluff Knoll and Mt Trio. The windy conditions demanded precise flying and all pilots demonstrated fine airmanship throughout the week. Dual towing, using BSS's Pawnee (CSN) was employed most of the time.

Andrew Huggins (BSS) and Kevin Saunders (GCWA) sacrificed much of their own personal fun-flying time to ensure that safety standards were high and other pilots were appropriately endorsed for each day. The combined efforts of members from both Beverley Soaring Society and the Gliding Club of Western Australia made the 2002 wave camp very successful. Eastern States pilots may wish to participate in a future camps held in the July and October (Narrogin Gliding Club) school holidays.



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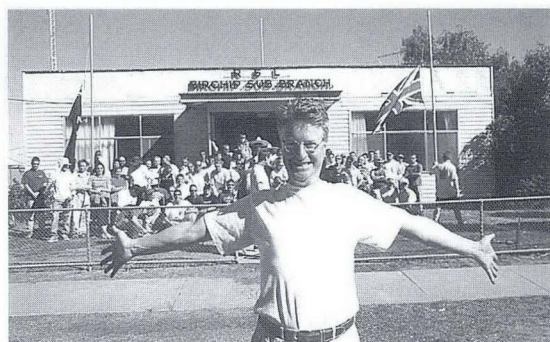
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# Birchip 2002 – Easter Flatlands Hang Gliding Competition

Scott Barrett



Peter Davies' "welcome to Birchip"

BIRCHIP 2002 WAS THE MOST FUN, SOCIABLE, EASY GOING, EASY FLYING COMP THAT I HAVE BEEN IN. BIRCHIP IS IN THE MALLEE OF NORTH-WEST VICTORIA – WHEREVER YOU FLY THE PROBABILITY IS THAT THERE WILL BE A LARGE FLAT WHEAT FIELD BELOW YOU, AND AT THIS TIME OF YEAR EITHER PLOUGHED OR STUBBLE FOR YOUR LANDING CONVENIENCE. I WAS INVITED TO DO THIS WRITE UP AND IMMEDIATELY SAID YES – I JUST HAD A BALL THERE AND WANTED TO SAY SO.

The comp is a flatlands towing event run over the Easter weekend. The tasks are elapsed time from tow release, directly to a down-wind goal. A GPS or camera is not required to compete, and the benign nature of the area allows pilots of all ratings to participate. It is a very popular event that draws heaps of pilots out of the wood-work, some who only fly the flats in the west I had not met before. There were also a considerable number of South Australians who competed. The Victorian vs South Australian challenge is also held as an additional section of the Birchip competition.

The caravan park accommodated the majority of competitors and provided a great atmosphere; it was sort of festive in a quiet way with a lot of talk, jokes, eating and drinking as you would expect from a bunch of hangies, family and drivers who have congregated for a good time. The entertainment was supplemented by the film night (The Blue Max) with drinks put on for free and the CFA cooked us up a nice BBQ on presentation night. Other features of note were the morning briefings where the Meat Head, Warwick, wore a propeller hat and Nicky his lovely assistant wore Bunny ears and handed out day prizes for pilots and drivers.

For the first two days, the wind strength prevented a task being called. Towards the end of the second day there was a significant amount of free flying. I had a fly for fun; it was short but gave me a chance to ensure that my equipment was working well.

The third day was Easter Sunday. Easter egg prizes were given out (they were very big eggs). Then small (and hard) eggs were thrown to all in the crowd. The place got a little excited at this, with kids, still on a high from a chocolate breakfast, dived amongst the sea of legs following eggs. Hats became catchers' mitts and with sufficient ammo gathered, the crowd returned fire. It was quite raucous.

The day turned out to be a good blue flying day; the task was set to Warraknabeal, 72.1km. It was late by the time the window opened.

Given the time that the previous day shut down (early) I was keen to get on course quickly, despite the day being blue and a little harder to read with no one ahead. I wanted give myself the opportunity for a tow or two and to get to goal. Two of us towed up side by side, the first in the air. The other guy got the better core, I moved into it, climbed out and flew to goal, without seeing another glider again.

Looking back on the third day, it was blue and inverted at 2,800ft, increasing to 3,100ft over the day. The average climb rate was in the order of 100 to 150ft/min and lift was difficult to work at lower levels. I was flying alone with no thermal markers, had slow average climb rates and all combined with the blue sky made my flying particularly conservative. I can climb my glider well, but this day it seemed to be over-banking one way. This unfortunately made

it tiring maintaining turns and following cores efficiently, handicapping me when mapping out and holding onto narrow and moving cores down low. It had me changing direction when the cores became solid and predictable so that I could maintain strength for the next thermal. I was surprised that my glider was misbehaving since the day before – I have it well preened with regularly profiled battens and the sail tension adjusted for shrinkage and stretch.

Goal was a little hard to find as

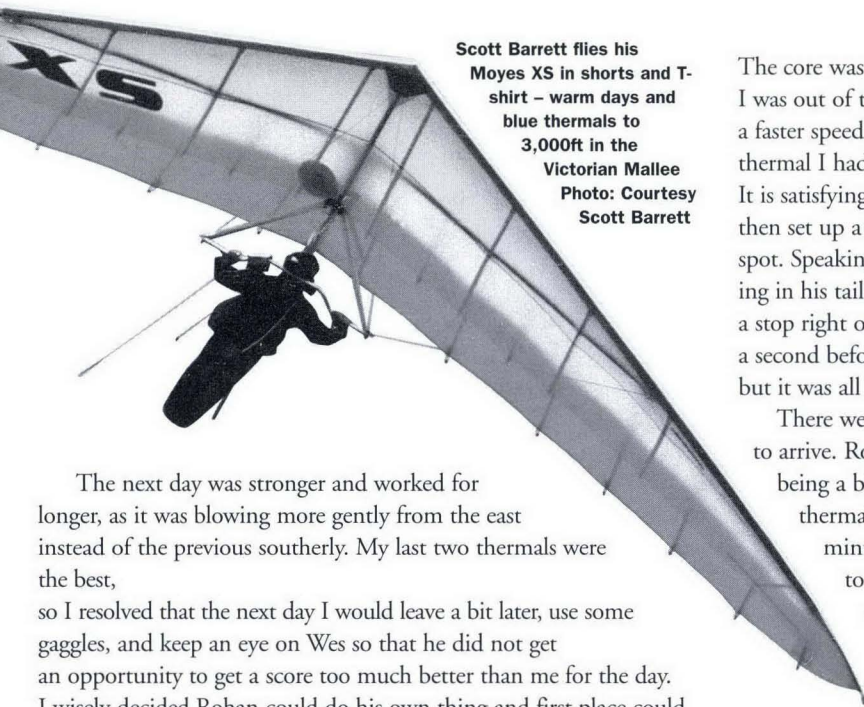
we did not know quite where it was until we got there. The GPS coordinates could not be relied on, and so after adding some extra search height onto my final, I was able to gas it a bit when I eventually got a visual on it. In the first five arrivals, we had Wes Hill, Trevor Sangster, Ian Rees and myself (all in our team) in goal. Trevor Scott, also in our team, made an admiral effort in the air and drove the rest of the way to join the celebrations at goal. It was a happy day for the team.

By the end of the day nine pilots made goal. Rohan Holtkamp had raced fast enough to win the day. I was in second place and Wes Hill in third. Rohan got to wear the competition leader's superman outfit.



Chris and Carolyn our goalies





Scott Barrett flies his Moyes XS in shorts and T-shirt – warm days and blue thermals to 3,000ft in the Victorian Mallee  
Photo: Courtesy Scott Barrett

The next day was stronger and worked for longer, as it was blowing more gently from the east instead of the previous southerly. My last two thermals were the best, so I resolved that the next day I would leave a bit later, use some gaggles, and keep an eye on Wes so that he did not get an opportunity to get a score too much better than me for the day. I wisely decided Rohan could do his own thing and first place could sort itself out. That night I did a batten profile, finding one tip batten was too flat. I then relaxed and had a great night out with the crew.

The fourth day was blue with a north wind. Our task was Laen North, 64.8km away. My departure was three-quarters of an hour later than planned, way behind Wes, following a weak link break and rope break on my first attempts to get away. On my next launch, I got a low save by the boundary fence, committed to it and got away; it was a long time before my priorities allowed me to zip up my harness. My glider was handling sweetly in turns following the tune up, the tip was not stalling so that I could pitch and turn hard, climbing with ease. Soon I had jumped two gaggles and caught my team mate Trevor Sangster. He marked a good thermal and we climbed out together. Trevor and I pulled in a couple of well spaced gaggles by doing some good team flying together. The lift in places was very widespread with some cores in there somewhere. While on glide and searching we were quite well spaced and we shared lift strength information that helped the two of us to use only the best of the lift. It is heaps faster to work as a team as you can sample so much more air as a pair.

Wes was already home and hosed and gave us a goal description as we called for it on the radio. Goal was in the general area indicated at briefing (the goalies choose a good paddock somewhere near the GPS coordinates issued). We were close, but there was one last piece of drama awaiting me. We were looking for our last thermal and I was calculating my observed glide angle on route. I do the calculations because I fly with a standard analog vario with positions to fly marked. I added 60ft/km onto my required height and I already had a bit of speed up that made it a conservative calculation to ensure I got there. We took a good thermal to final glide height before the last gagle, both confident of making it. Trevor had about 200ft on me and was going to make it in a bit faster. Monitoring my progress on final glide in 1km samples, my glide was consistently worse than previously. I slowed down to best glide and had it in the bag again – after another km I was still going to make it, just. But best glide is the best you can get and now I had nothing more up my sleeve except for the last gagle. I did not plan to go to them before going to best glide because it was a bit of a diversion, but now I needed them to avoid the risk of telling a “there I was, I almost made it” story.

Steve Townsend was in the last thermal and was banked up hard, marking what looked to be a strong core. I gassed it, raced over there, flew through some good lift nearby and joined straight into the circle that Steve was turning (at a tangent to his, as you do, mind you!).

The core was a good one and (as I was close to goal) after six turns I was out of there. I now went onto my absolutely final, final glide at a faster speed (using positions to fly) corresponding to the 400ft/min thermal I had just left. It feels very secure going into goal at speed. It is satisfying to get there, burn up the safety margin that you’d set, then set up a good landing approach and land somewhat close to the spot. Speaking of the spot, Beavo deserves a special mention for landing in his taildragger, just meters short of the tarp and rolling to a stop right on it amid cheers and jeers. I think it took less than a second before half the crowd was yelling protests about the rules, but it was all in good fun.

There were eleven in goal already and I was the last of our team to arrive. Rohan blitzed us all; he was really in his element with base being a bit higher, the lift a bit stronger and gaggles marking the thermals, all making it easier to race. Wes beat me in by one minute 32 seconds, and with early bird points had enough to take second place in the overall results. I placed third overall and won C grade. The last arrival for the day made it 25 in goal, which gave goal an incredible ambience for the final day. Late arrivals had a crowd of pilots there to congratulate them. There were so many elated people, thrilled with their success for the day. We saw it all, smiles, handshakes, hugs and jumping up and down. Packing up takes a real long time as it is way down on the priority list.

Our team results once again had four of us in goal. Trevor Scott bettered his previous day’s result, confidently heading out of the paddock and flying 22km. Our consistency won us the teams’ section of the competition.

We eventually made it back for the BBQ and presentation night. It was a great BBQ with plenty of good food so kindly prepared for us by the local CFA. There were lots of happy people. Rohan was still wearing his superman suit and would get to take it home with him again this year.

I believe that I performed well because of the preparation that I did with my equipment, a glider that was flying well and conditions that were well suited to its performance. I maintain a good attitude to my flying and I am not bothered by having to fly alone, as I have to so much when I practice anyway. I felt confident in the decisions I made and really enjoyed the gagle flying when it was there. Team flying was another highlight of this comp; it is another skill that I am practicing at every available opportunity. It feels good to have had such a good team result as well. The flying was conservative, with a low base and slow lift, which made it important to identify opportunities for racing when they arose. Rohan did this particularly well.

The area is great – it is always nice if a low save is required to unzip early and just keep on at it without concern about drift or landing areas. There are heaps of places to land and a good road network, so, although I have not ever succumbed to it, road suck need not be an issue. The area loans itself to low airtime pilots and there was a good showing from them. There were many admirable efforts made by many pilots, some personal bests and first time to goal. Some even made their first XC during the competition. It is a quick, safe and fun way to develop skills at any level, also to have a good time out with your mates and make some new ones. There is good company and social events, and as the comp runs over the four days of Easter I didn’t have to take any leave. Would I go again? Definitely – it is a great comp that has a great vibe. Fun, fun, fun.



*Thanks must go to Warwick Duncan, Beavo, Tracey Sandstrom, Wes Hill, Ian McClelland, Birchip RSL, the local CFA, the landowners we dropped in on and the town of Birchip which was really happy to have us. Thanks to our sponsors, Flytec Australia (Eichers), Clint’s Crazy Bargains, Dynamic Flight and Moyes.*



# Getting the 'Come And Get It Trophy'

## THE LONG WAY AROUND (TAKING THE PATH LESS TRAVELLED)

Stephen and Lisa Ruffels (Eagle School of Microlighting, Bright, VIC)



Over Lakes Entrance

We had both been waiting a long time for this trip, waiting for that rare window of opportunity in the weather that would allow us to achieve yet another of our flying dreams. A couple of years ago we spent our wedding anniversary camping and walking around Wilsons Prom. We talked about how fantastic it would be to fly from Bright to the Prom and see all the hidden beaches we had walked along, from the air. Wow, what a thought! What a trip! We knew it would take some careful planning and some patience to wait for the perfect time to do it... and last Tuesday, 30 April, it happened.

We figured that if the right conditions were to present themselves then it would most likely happen sometime in autumn, so we'd been keeping a close eye on the weather patterns. Finally the strong high-pressure system presented itself. It had been sitting unmoved over Victoria for four days and was likely to stay there for at least another week. This was it – we knew that if we were ever going to do it we had to make our move now.

We planned the trip over several nights, still uncertain of exactly when we'd leave. The night before departing we made some last minute but vital phone calls for fuel support, overnight hangarage and, of course, the Come And Get it Trophy. Due to weight restrictions the only personal gear we packed was a clean change of underwear, a toothbrush, a stick of deodorant, important in-flight lollies to keep us warm, and of course and the salt and vinegar chips. Two 10 litre jerry cans of fuel, oil, funnel, emergency beacon,

tools and cameras completed our equipment.

The route for our adventure would take us over terrain that no microlight had ever flown before. We took off at 9am, the first obstacle to get up to and over being Mt Hotham (6,500ft), surrounded by large sections of 'tiger' country. As we climbed up to 7,000ft our GPS indicated a slight tailwind of 10kt. Below, the only landing options were the large empty carparks.

Once over the Mt Hotham airport we breathed a sigh of relief as the country opened up to the east becoming lower in elevation. Our course continued south-eastwards towards Swift Creek (south of Omeo) then turned south to Lakes Entrance. Again we faced an even larger section of 'tiger' country, requiring us to climb back up to 6,500ft. With the light cross/tailwind it was not too daunting, however it was good to be able to drop down to a warmer level at Bruthen on the beautiful coastal plain.

We had planned a much needed toilet and refuelling break at Lakes Entrance airstrip. What a sight this area is with the inner lake separated by a narrow strip of land from the sea. From Lakes Entrance we headed south-west, flying low along the 90 mile beach (no guessing why it's called this). It's a remote section of coastline with only the occasional holiday shack – no roads, the only access by water. We were flying into a 10kt north-west wind, which changed halfway along this section to a south-west direction. At Loch Sport we entered the Sale Military MBZ, which required prior notification of our flight path along the VFR route 3.

On the horizon could be seen a plume of smoke ascending straight up. As we got closer, a pillar of flame 100ft high glowed at the base of the smoke. This turned out to be the ESSO gas terminal, where natural gas is piped to Melbourne. I was latter told this gas fire burns continuously, and I couldn't help wondering why do we spend huge quantities on developing oil and gas supplies only to burn them up and pollute the atmosphere?

Our next planned stop was to be Yarram

airfield where we had lunch and fuel waiting for us, however the headwind was taking its toll and it looked as though we would only just scrape in. Ahead of us was the coastal town of Seaspray, and as we flew beside it, shops could be seen, so we made a decision to land in a paddock and to take on board some extra precautionary fuel to relieve our tension.

Just before the Yarram airstrip we passed the amazing site of the Omega transmission tower, 1,700ft high. Definitely something not to bump into!

Yarram is an excellent airstrip, 10km inland surrounded by flat open paddocks – an ideal training and flying environment. We'd arranged to meet Jim Cristason here who'd brought 40 litres of fuel with him. The Yarram Aero Club is very active here, supported by Parkside Ultralight School where we were made very welcome. Jim had never been up in a microlight, so I offered to show him how they performed, with which he was impressed.

After getting the run down from the fellas (Robin Sidebotham and Jim) about landing options and local conditions at the Prom, we headed off on our most challenging leg more the wiser. Wilsons Promontory is renowned for it's windy location jutting out into Bass Strait. It is the most southerly point on the Australian mainland. Heading out to it required crossing a couple of stretches of water into a 10kt headwind. Again we climbed to a safe gliding altitude of around 4,500ft, crossing over Snake Island to the eastern side of the promontory, a remote isolated wilderness! Landing options were not a problem, as long sandy beaches stretched below us. However, I would not recommend flying without an EPIRB on board – a vital piece of emergency equipment.

Once across the water, Wilsons Promontory could be seen to truly be one of our most magnificent National Parks. It reminded us a lot of flying around Hinchinbrook Island. Scattered cumulus shrouded the peaks presenting a magic vista. At Sealers Cove we crossed to the western side, descending down to Oberon Bay. Below we could see the tracks and beaches we had once walked along.

As usual the top of Mt Oberon was capped by cloud. Twenty years earlier I (Steve), Peter Bachelor and Terry Roades had stood at the summit with our hang gliders waiting for the cloud to lift for a once in a lifetime flight from the summit. It never did. How-



**Photos: Courtesy Stephen and Lisa Ruffels**

ever, now here I was flying around in front of Mt Oberon, defying the cloud from above! People were looking up at us from the beach at Tidal River camp ground; we surmised that they would be very envious of us. To the west, the sun reflected off the ocean under the clouds giving them a silver lining – picture perfect scenery as we followed the coast westwards to Waratah Bay. The National Park again gave way to green farmlands beside the coastal beaches. Cutting slightly inland we followed a direct route towards Inverloch, where we landed to put in more fuel for the final short leg for the day – Philip Island.

Gradually the beaches became interspersed by rocky headlands jutting out into the sea. The sun low in the west gave the cliffs a golden glow with smooth green grassy fields on top. It was difficult flying directly into the sun; both Lisa and I had to be very watchful of other aircraft at this time. The wind was now calm and we made good time. We had told Ray James (our ex-student), who had his trike hangared at the Philip Island airstrip, that we would be there at 5pm. Five nautical miles from the airstrip we gave an inbound call and were greeted by Ray telling us he was in the air. Sure enough his silhouette could be seen just ahead of us and we were soon flying next to him. It was a great way to end the day, being escorted into his home strip. Always looking to kill two birds with one stone, I incorporated a check flight for Ray's passenger endorsement while we were there. Best of all he had space in his hangar for us! After a welcome meal at the San Ramo pub we then bedded down in a Cowes motel for much needed sleep. Our minds were filled with the myriad of images that we had seen that day.

Ray had assured us that we could have a nice long sleep-in because of coastal fog. Sure enough it was there, but we were keen to be up and about, so a walk along the beach was a good start to the day. It didn't lift till 11:30am, delaying and changing our plans slightly. After flying past the Grand Prix track we rounded the Nobbies before heading north across Western Port bay to Somers. Ahead of us was low cloud with hazy smog beneath. The cloud was only 1,000ft agl, so we flew at 500ft agl towards Tyabb. The GPS was indispensable, guiding us towards the airstrip plus giving us the distance to it. It was necessary to keep a constant lookout for other aircraft as well as monitor the radio frequency. It seemed that we were the only aircraft flying that morning, however we did not stop looking, listening and advising our position whilst flying.

Sure enough Tyabb loomed up ahead of us, were we had been assured by Ian Rees that the "Come And Get It Trophy" would be! September 2002 Soaring Australia 9




Ninety Mile Beach



Picking up this trophy was a very satisfying part of our trip, as it recognised our effort in getting it. I would encourage other pilots to plan a trip to Bright to Come and Get It, as that's what flying is all about – seeing sights along the way only visible from the air is a privilege that we will never take for granted.

Our old friend and early student, Peter "the good lookin' fella" Spillar, had kept an open invitation for us to visit him when we came down to Melbourne, so we made his airstrip at Officer our next port of call. Thank goodness he had given us his exact co-ordinates, as his house and three acre property don't really stand out from all the other properties in the area! We enjoyed lunch with Peter and Jan (who put on hot pasties and cakes for us), then Peter very kindly donated some fuel and we were once again on our way – northwards to Healesville. The cloud broke up and the countryside to Healesville was a patchwork quilt of small green properties; the Dandenongs and Yarra Valley are very pretty from the air. From Healesville to Narbathon it's necessary to climb to 5,500ft to cross the Black Spur. Once over, the land becomes dry with the impressive Cathedral Range ahead. This is a razorback ridge line with steep rocky cliffs on the western side. Skimming along the top, I was again realising past desires of flying along this ridge in a hang glider (without any launching points,

very difficult to achieve). Beyond this ridge Eildon Dam loomed ahead. Even well down in water level, it still covers a large area. The house boats that usually ply the many arms of the weir were all moored together down dry valleys. They didn't look very inviting from our perspective.

Up over the Fraser National Park we flew, then back down towards Mansfield where we landed to put in one more precautionary 10 litre jerry can of fuel to get us home safely. The last leg of our trip again had some sections of 'tiger' country interspersed by valleys with agricultural land in them. Height is the key for safety, so 7,500ft felt pretty comfortable. Mt Buffalo approached from the south; with the afternoon sun on it, it looked very spectacular. Once over the Horn we were in home territory. Idling past the Chalet, we waved to surprised sightseers on the lookouts as we flew by down to our airstrip in the Buckland valley below. When we landed at 4:45pm, the sun had set behind Mt. Buffalo and smoke hung in the air from burn-off fires on the ridgelines. We had just flown 402 nautical miles in a little under 10 hours over two fabulous days in our Airborne Streak. We had seen some of Victoria's best country, comparable to anywhere else in Australia, and could only think of ourselves as being very privileged to be able to have flown our route in our type of aircraft. 



# KEEPING THE DREAM ALIVE – At Barron Hilton's Flying M Ranch

Mark Bland

FOR THOSE WHO HAVEN'T HEARD OF THE BHC (BARRON HILTON CUP) YOU MAY LIKE TO READ ON AS I TRY TO INFORM YOU OF PROBABLY THE MOST FUN YOU COULD EVER HAVE AT AN AIRFIELD. HAVING JUST RETURNED FROM THE 2001/2002 CAMP HELD FROM 20 TO 27 JUNE, I FEEL VERY PRIVILEGED TO HAVE BEEN FORTUNATE ENOUGH TO HAVE WON AN INVITATION FOR TWO TO THE FAMOUS FLYING RANCH.

The Barron Hilton Cup was founded in 1981 by two men who shared a passion for gliding: US hotel magnate Barron Hilton, and the late Helmut Reichmann. Together they devised a pioneering points system which gives older gliders a fair chance of competing with the latest high tech models. By completing the longest triangular courses, pilots in five geographical regions of the world have the chance to win one of the most exclusive prizes in the sporting world – an invitation to the Flying M Ranch, situated in the desert to the east of the Sierra Nevada Range. This is an all-expenses paid trip to the luxury flying camp where the generosity of Barron Hilton leaves nothing to your imagination, and provides some of the best soaring conditions in the world.

For me the dream started in 1993 when my good friend and Libelle partner, Al Dickie,



sent me a copy of "Silence on the Wind". It remained a dream until January last year when Al inspired me to attempt a 750km from

Leeton. Never believing it would be far enough to win the allusive prize I tried to put it out of my mind until another good friend, Mike Pobjoy, broke the news of my win at our annual Easter camp at Mt Beauty.

Arriving in Los Angeles four days before the event, my wife Suzanne and I adjusted to a different time zone and the nightmare traffic with a visit to Universal Studios and Hollywood before flying on to Reno, Nevada, where we met up with the other winners from New Zealand, Europe and, of course, the US. Some of these winners were quite weary from their international flights, but everyone was excited as we boarded a coach for the two-hour trip to the ranch. On arrival we were all accommodated in luxurious motor homes before moving to the main house for a magnificent five star meal (the start of many) and an introduction to our kind host, Barron Hilton. Following after dinner drinks we were advised to retire early as the fun was about to begin.



Left: Mark and Suzanne prior to their departure for Minden from Barron Hilton's ranch

Above: Mark prior to his departure to Minden



## Photos: Mark Bland

Next morning, after a lengthy and very informative briefing by ops director Hannes Linke, professional met man Dan Gudgel and local gliding guru Carl Herold on the hazards of desert flying, a ballot was conducted to select sailplanes. Every day the order changed so that everyone got a turn at being first to choose the glider of their choice, very fair. In seven days I flew six new types, from an ASW20, LS3 and LS6 to Duo Discus and DG500, as well as the good old Schweizer 2-32 three-seater.

The next seven days went something like this: awake between 0530 and 0600 and decide if you wanted to go ballooning in one of four balloons or take a more adventurous ride in one of Barron's other toys such as a WW11 Stearman bi-plane, a 1940 fully restored Beech Stagger Wing, a Hughes 500 helicopter or an Extra 300. Following a scrumptious breakfast about 0730 was a comprehensive briefing at 0900 and then flight planning, or lazing about the pool until you wanted to be chauffeur-driven out to the flight line marquee for cold drinks and sandwiches before being assisted to your washed, polished, oxygenated and ballasted glider.

The flightline crew, headed by Tom Stowers (High Country Soaring at Minden), did a fantastic job of spoiling us and making us feel like VIPs. After landing, his crew, including Pasi Pulkkinen from Finland, would catch your wing, turn and push you off to the tie-down area before you even un-strapped. You would then be driven back to the bar for post-flight drinks before getting changed for dinner with Barron and his guests. These included academy award-winning actor Cliff Robertson, astronauts Bill Anders (Apollo 8) and Ulf Merbold, space shuttle payload specialist.

The Flying M Ranch airstrip is at an elevation of 5,000ft with mountain ranges climbing as high as 12,000ft on the edge of the valleys. It is in north-eastern Nevada just west of Walker Lake. The scenery is spectacular with visibility usually in excess of 100 miles. The valleys are vast desert landscapes with very few places to land except for airfields and the occasional dry salt lakes. If you were unlucky enough to outland the retrieve was done in high style with Barron's helicopter picking up the pilot soon after, while the line crew fetched the glider.

Although the BHC is renowned for record-breaking flights, this year was not one of them. However, some long and very enjoyable flights were done every day. Mike Gray from New Zealand did manage to break his national 100km triangle record at a speed of about 135km/h. On the last three days most pilots reached the 18,000ft amsl

airspace ceiling in thermal lift, and had a great time exploring the still-snow-covered peaks of the Sierra Nevadas and the White Mountains lying about 100km to the south. Personally, I did about 300 to 400km each day and flew about 25 hours in six days. At the end of the week all participants were praised for their camaraderie and safe professional attitude to a flying environment quite different to what they were used to.

For my wife Suzanne the Flying M Ranch was heaven compared to the typical glider field back in Oz. She was lucky to have the best balloon flight of the week when, together with Oscar (World Open Class champion) and Charlene Goudriaan, she accompanied Barron Hilton on a flight which won him the local balloon contest. In a remarkable feat, after taking off from the south end of the runway, Barron managed to steer his balloon around the valley in a large oval flight path which took him back towards the ranch and over one of his fish ponds, where he executed a 'splash and dash' to the amazement of all the onlookers, before recovering in an adjacent field. On another day, ranch manager Jack Hedger invited all the women to go clay pigeon shooting, but no one got to see the score sheet. You can ask Suzanne about her bruised shoulder! Tennis, swimming and trout fishing were also on the daily entertainment schedule for those who weren't flying.

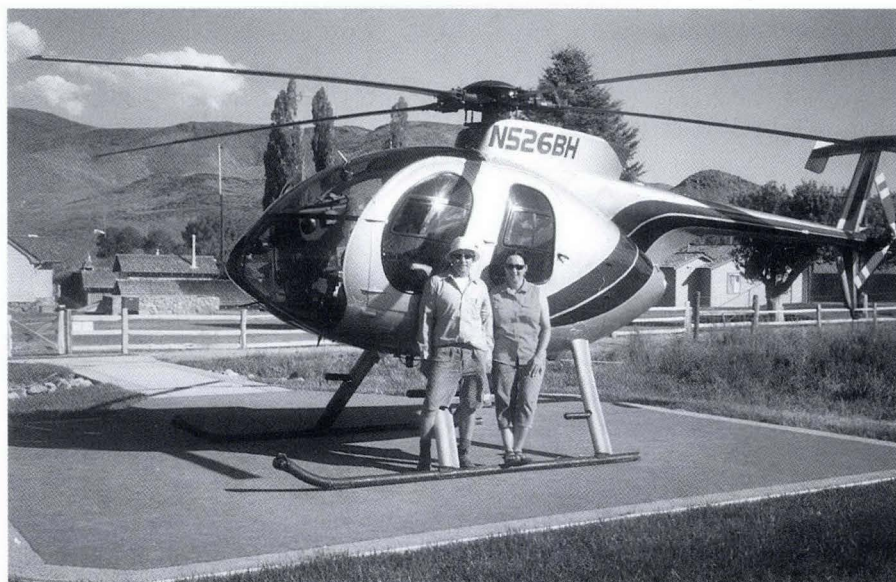
The week finished with the traditional presentation ceremony on the manicured lawn in front of Barron's Discus. Thanks to the partnership with Daimler-Chrysler and



Suzanne, Barron Hilton, and South Africans Oscar and Charlene Goudriaan about to head off for an amazing balloon flight

now with the European Aeronautic Defence and Space Company (EADS) the BHC has become the world's largest gliding competition encouraging pilots with international experience as well as newcomers. In my 25 years involvement with gliding the BHC would have to be the highlight. I think I have shown that with luck and determination, just an average club pilot can win this unparalleled reward. As each winner can only ever attend one BHC camp I now have to coach my son Adam so he can take me as a guest!

Early morning fun in Barron's chopper





# Alice and the Rabbit Holes

Robert Hart

ALICE IS MY GLIDER (WELL, A QUARTER MINE). SHE IS A NIMBUS 2C REGISTRATION VH-GAW (HENCE ALICE IN WONDERLAND) AND IS BASED AT THE DARLING DOWNS SOARING CLUB (DDSC) IN SOUTH-EAST QUEENSLAND.

Saturday, 27 July, didn't look too promising, but Alice and I launched with three other gliders to do a mini-task: Dalby, MacLagan and back to McCaffrey field.

After my previous rather dismal effort, I was keen to show Alice that I had learnt something. We found a great thermal on the way to Dalby and climbed beautifully. This meant we arrived at Dalby later than the other three gliders, but a couple of thousand feet higher. Whilst they were scratching away from Dalby, we found another good thermal and soon set course for MacLagan.

As we turned MacLagan, I could hear the other gliders setting course and hoped Alice felt as pleased with our performance as I did. The run back home to McCaffrey field was full of good lift and strong sink – sometimes quite close together and I called the other gliders to tell them of the conditions.

Switching back to our chat frequency when we arrived home (with about 4,000ft to spare – I couldn't resist another lovely thermal), I heard the other gliders were soaring lazily with an eagle at MacLagan and taking photos. I decided that as the day was still quite young, we would go back up to MacLagan and join them.

We were about five kilometres short of MacLagan when they called they were leaving – but I still had not caught sight of them. After orbiting I finally saw KO (Jenny's ASW 20) below and a kilometre or so towards McCaffrey. We had height to burn, so after a quick check below for the other gliders I slid into full negative flap and Alice accelerated to 95kt. Her rough air speed is 97kt and I felt that this was wise in view of the closely spaced strong lift/sink I had experienced.

Alice was catching up to KO when there were two huge negative G surges (possibly three – I seemed to 'hear' three bangs). I could feel my head hitting Alice's canopy and the cockpit atmosphere was filled with

every bit of grass, dried mud, breadcrumbs etc that accumulate in cracks even in the face of assiduous vacuuming. Amazingly it cleared quite quickly – through a new, large and impromptu ventilation hole just above me (through which it appeared my hat had also departed).

I had no idea what had happened – I thought that maybe we had hit a bird. My heart was running at full emergency boost and the adrenaline was surging. I did a quick visual check out along the wings and Alice seemed okay. Very gently I eased the speed back (the elevator response felt okay) and slid the flaps to neutral (no awful sounds, sudden rolls or unexpected trim changes). I called the emergency on the chat frequency we were working and got back acknowledgements – but the added ventilation also added a lot of noise, making it very difficult to hear the radio. I found that turning up the volume resulted in distortion which made the messages unreadable, but by flying at 45kt or less with the radio volume up, but not distorting, I could communicate with everyone except Jenny in KO.

I requested one of the other gliders to close with me and do a visual inspection – if there was visible damage I wanted to have the option of bailing out with plenty of height still beneath me. The report came back that there was no visible damage – a welcome message that did much for my morale, despite feeling awful about having damaged Alice. I decided I would fly gently back to McCaffrey field – a decision I relayed to my escorts. The final glide computer reassured me I had ample height for this – and a tailwind of about four knots.

It seemed that I couldn't have hit anything: no apparent damage apart from the canopy, which was done by my head. Alice and I must have encountered some very

strong clear air turbulence: we'd fallen down some rabbit holes in the sky!

There was now time for a more detailed check: the controls were responding normally, flaps and airbrakes worked okay, but I did not remember to check the undercarriage at this stage. I discovered my mints and mobile phone were missing from the pocket on the right side of the cockpit – and my water bottle had leaked out most of its contents. I could not see the missing articles anywhere and had to assume they too had exited through the new ventilation arrangements during the negative g.

At 10km out from McCaffrey field with 3,000ft agl I switched to the local frequency and I called in my situation and intentions. It was then I decided I should lower the undercarriage – to discover the lever would move only about one third of the way forward. My heart accelerated back towards emergency boost – not helped when a more 'assertive' attempt to lower the undercarriage halted in the same place.

At this point, the pressure began to tell as my radio procedure went somewhat awry. I think I just said, "*I can't get the undercarriage down!*" Despite the lack of call sign, everyone seemed to know who was calling. It transpired that this had apparently happened before – Alice's batteries had jumped out of their housings in the strong turbulence and were jamming the undercarriage. It had been cleared previously by doing a bunt (negative g) to lift the offending batteries and simultaneously selecting the undercarriage down.

As it was Jenny in KO who was trying to tell me this, the message was largely unreadable and had to be relayed to me. Initially I thought I was supposed to reach behind me and move the batteries that way (which, being behind the seat on which I was sitting, would have required I had the body and abilities of a contortionist and an escapologist – all done whilst still flying a glider), so I was a bit bemused and quickly decided a wheels up landing sounded safer!

Once I understood what I had to do, I decided we would find a thermal and climb out before trying anything other than gentle flying. I was very uncertain what would happen to the damaged canopy when I increased speed to do the negative g pull up and also of Alice's flight characteristics without a canopy if the increased speed resulted in it coming apart completely.

If everything went to hell in a handbasket I wanted as much height under me as possible to get clear of Alice if we had to part whilst still airborne.

Alice found us a thermal and one of my escorts climbed with me (the company was



most appreciated). I suggested he give me a bit of extra room as I was having some difficulty with speed control – the noise level in the cockpit made it feel that I was going much faster than I actually was and I did not want to risk spinning into him – he quickly gave me lots of room!

During the climb, I thought about things and decided I would take the thermal to the top and then start off the bunts gently – a 60kt pull up followed by a push over. If that didn't work I'd try 70kt and a harder push over. I also thought about a wheels up landing – and decided the recently ploughed paddock just north of the field looked the softest place – poor Alice!

Peter Bell, the CFI, called to suggest the same thing and having my decision endorsed did make me feel a bit better. During the climb I also moved the cockpit straps and tightened them down – the edges of the hole in the canopy looked quite sharp and I had no desire to become reacquainted with them during the bunt.

I'm sure I'd have followed that thermal to the edge of space if it had gone that high – reaching the top meant I had to try the bunt – with all the negative possibilities;

whilst I was climbing, I had a reason not to get on with it. All too quickly at about 6,500ft the thermal died and I advised my escort that I was going to head west (using the Warrego Highway as a marker to follow) and try the bunt.

A check round the cockpit and a quiet word with Alice, then gently down with the nose – at 60kt a firm pull up and transition to push over – and the undercarriage lever slid fully forward and locked with the most gorgeously reassuring “clunk”. My relief was such that it was, I heard after landing, palpably clear over the radio.

During the descent, I had plenty of time to ponder things – including the inevitable wondering if I had failed to secure the batteries – and also to wonder why, if this had happened before, a fail-safe way of securing the batteries had not been implemented.

On landing, I needed help to open the canopy (it had jammed on the instrument panel) and as soon as I was out I (somewhat shakily I must admit) removed the seat and looked at the batteries: they were both standing on their ends out of their boxes – but with the bungees entangled in the leads. I obviously had not forgotten to secure them!

I also found my mobile phone and two rolls of mints down the rudder pedal well: it's pretty gloomy down there and I had not been able to see them before. Luck had been with me that they had remained clear of the rudder pedals. Beneath the seat was a large puddle of water, which had of course leaked from my water bottle, not me (although at times...).

I've learnt a few things from this experience.

First of all, never fly with articles loose in the cockpit – and this includes never leaving the stowage pockets open with loose articles in them.

Secondly, the semi-prone position in most single-seaters is deceptive: even with the straps tight, really strong negative g can move you a long way – and I had a hole in the canopy to prove just how far! I am going to have to spend some time in Alice (when she gets her new canopy) sorting out a position that gives me more clearance.

Finally, my experience has reinforced my feelings about the sky: it is a great place and I love being in it, but you have to play by its rules. The sky is neutral about us – as well as filling it with thermals and sunset lit cumulus, it also harbours the occasional rabbit hole!



# Victorian Soaring Association Inc.

## 2002 Basic Airworthiness Course at Corowa Aerodrome

*From*

**13 October to 19 October 2002 Inclusive**

*Applications or enquires are welcome from all GFA members and should be made or forwarded before 5th September 2000 to:*

**Edwin Grech Cumbo**

12 Culgoa Court

Keilor Victoria 3036

Ph: 03 9336 2305 or

Mobile: 0419 542 761 before 10 pm.

Email: [egrechc@melbpc.org.au](mailto:egrechc@melbpc.org.au)

**Or**

**Eugene Blunt**

567 Noorla Place

Lavington NSW 2641

Phone: (02) 6025 4436 before 9 pm.

Email: [deird@optusnet.com.au](mailto:deird@optusnet.com.au)

### Course Fees

\$250.00 Make cheques payable to the Victorian Soaring Association Inc. The fee covers course notes, materials used during the course and a meal proportion

### Accommodation

Contact: Eugene Blunt (02) 6025 4436

### Venue

Australian Soaring Centre, Corowa Aerodrome, Redlands Road Corowa

### Meals

All meals will be subsidised by the VSA.

### Briefing Notes, etc

The fees include the course notes and a CD containing all the course lectures in PowerPoint, etc.



# MANILLA STATE OF ORIGIN 2002

**Paul Cox**

## STATE OF ORIGIN – WHAT'S IT ALL ABOUT?

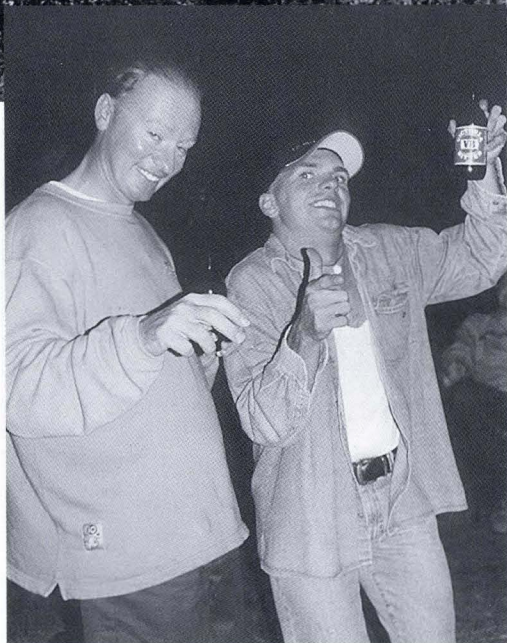
The goal of State of Origin is to encourage pilots to fly cross-country with an emphasis on team flying and fun. Many of the participating pilots may have had little or no experience thermalling, spending much of their time ridge soaring coastal sites. State of Origin is also a good stepping-stone for pilots interested in entering national competitions. Pilots are awarded scores for open distance flights according to their level of experience, eg: novice pilots are awarded three points per kilometre and advance pilots one point per kilometre. With this handicap scoring system it is possible for anyone to win, regardless of level of experience, just like in the National CMAC Cross-Country League. The beauty of State of Origin is that top competition pilots and local instructors are available to share information with new comers on cross-country flying and local site knowledge.

**T**he promise of 'Big Sky' flying and a four-day Easter long weekend saw over 60 pilots from throughout New South Wales, Queensland and Canberra descend on the sleepy town of Manilla for the 2002 'State of Origin' cup last April. Though the big sky became mostly a bleak sky during the Friday and Saturday of the competition, the mood that prevailed was happy and lighthearted as pilots touched base with old friends and partook of some

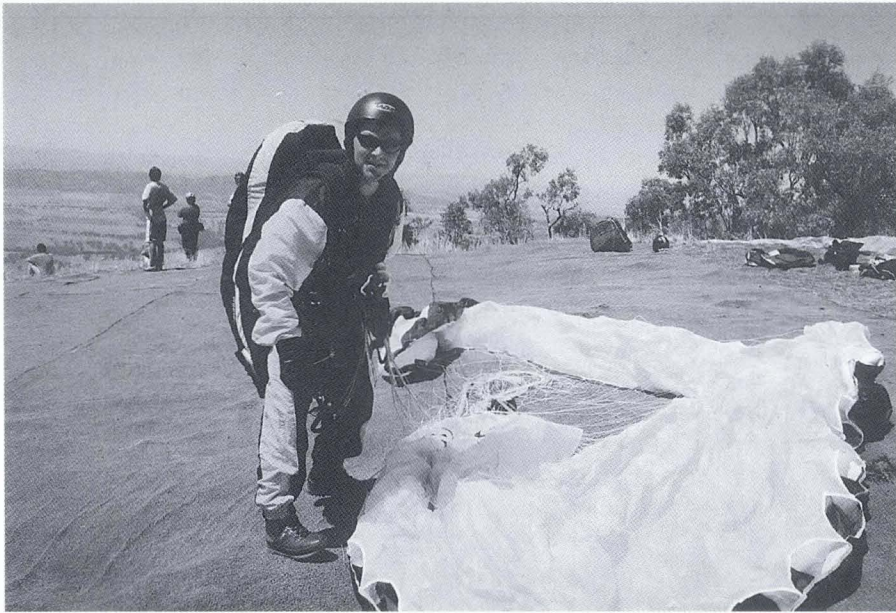
**Left: Coxy takes off from Borah north**

**Below left: Godfrey and Peter bombed out at the Bomb-Out Party – 3am**

**Below: The Bomb-Out Party, Borah east bomb-out**







The Bumble Bee at Borah north take-off. Pilot: 'Hoops'



Thermalling Borah west

serious socialising. Some pilots did manage to fly every day, but for most, Easter Sunday was the big redeemer with some excellent cross-country flights.

The cup was retained by New South Wales, but the winner of the day was Queensland pilot Geoff Sexton. Geoff flew 40km towards Boggabri, scoring 80 points for his Queensland team. Best distance was awarded

September 2002

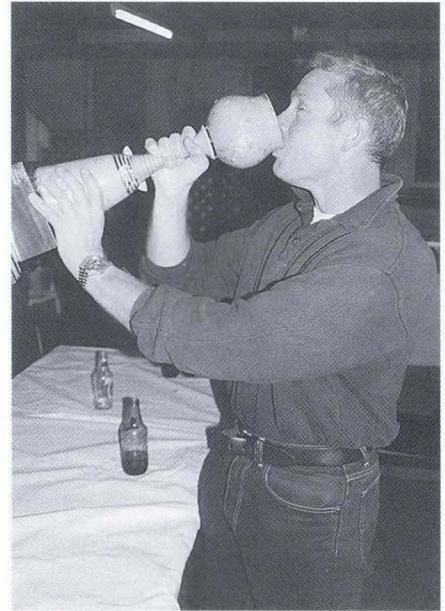
to our new National Champ, Rhett Rockman, who flew 55km. President of Sydney PG Club and competition organiser, Enda Murphy, disqualified himself by cloud flying while over launch.

Though flying is what they came here for, this year pilots made the best of trying conditions by enjoying some really great social evenings and alternative activities during the day. A reserve repack held on the Friday saw Manilla instructor, Karl Rust, repacking over 30 reserves. This was followed by a wonderful BBQ at the River Gums Caravan Park hosted by owners Eric and François. On both mornings Manilla instructor, Kevin Chisholm, ran full seminars for over 40 pilots on dealing with fear, but the real fear came later at 'The Old Mill' when competitive spirits took over on the volleyball

court. On Saturday night Karen and Rob Fakes of Stanwell Park filled the Imperial Hotel with fragrant aromas when they put on a huge curry night for the hungry hoards.

Easter Sunday marked the end of the competition and the presentation at the Imperial Hotel, which was well catered for by Vic and Tom. Those who kicked on afterwards got to enjoy an excellent outdoors party at the Borah east bomb-out, with DJ

Photos: Paul Cox



Cranny drinks from the State of Origin Mug

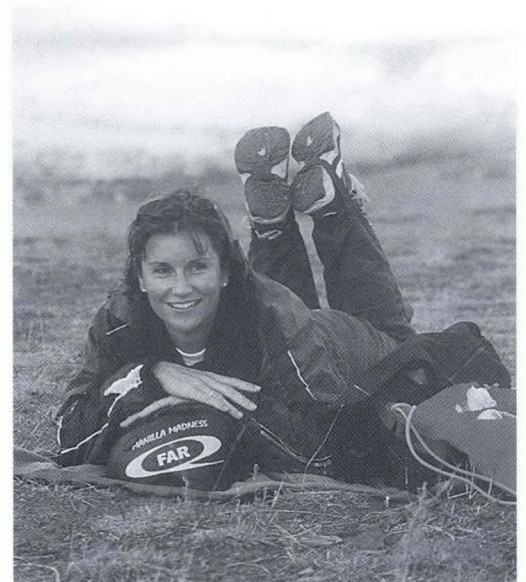
Basher Pete's sound system keeping them on their feet until the early hours.

Those who were awake on Monday got to fly a nice cross-country, or just thermalled around Borah before heading home.

This year's State of Origin had significant funding from the NSWHPG Association, courtesy of Steve Hocking and the NSW Department of Sport. This went towards pilot hill and cross-country retrieve transport using Godfrey's Borah Basher and mini buses, the fear seminars and reserve parachute repack clinics.



*The organisers would like to thank the following sponsors for their support: NSW Department of Sport & Recreation, Sydney Paragliding Club, Canungra Hang Gliding Club, Manilla Paragliding, High Adventure Air Park, Windworks, South East Queensland Paragliding Centre, Vic & Tom's.*



New student, Leslie, practises Parawaiting with style



## Paragliding "Manilla Mug 2002"

Your presence is required at Mt Borah, Manilla this October long weekend (5-6 Oct) for the Oktoberfest "Manilla Mug" competition.

Entry is FREE and open to pilots of all levels. Lots of day prizes are up for grabs, and we are offering FREE Borah Basher rides up the hill.

All tasks set during the weekend will be open distance flights. This competition will be scored the same as the State of Origin competition held at Manilla last Easter. Pilots are awarded scores for open distance flights according to the level of experience, eg, novice pilots are awarded three points/km and advance pilots one point/km. With this handicap scoring system it is possible for anyone to win regardless of level of experience, just like the National CMAC Cross-Country League.

The weekend includes a FREE Bavarian style BBQ on presentation night (Sunday) at "The Old Mill" to celebrate the "Manilla Mug" champion. There will be a prize awarded for best German dress, so strap on your old leather bib'n brace for some thigh slapping, beer swilling fun.

Registration will be held at the Imperial Hotel, Manilla between 9 and 10am Saturday, 5 October.

PS: If for any reason that we can't fly Mt Borah, towing is available at nearby Breeza with our National Champ, Rhett Rockman. Alternatively you can enjoy an ultralight flight with Willy at Lake Keepit Sky ranch or a tandem sailplane flight from the soaring club. See you at Manilla!

Regards, COXY, Central Coast  
Paragliding, Ph: 0417 355 897; email:  
<farqcoxy@hotmail.com>, HQ: The Old Mill, ph: 67851515.

## CLUB NEWS

### Canungra Hang Gliding Club, QLD

At a recent club meeting a new step towards securing the future of our sites was voted in. A proposal had been put to the members for a financial investment pool to be started and used solely for purchasing, leasing and securing the vital sites around Canungra. It was felt that with the ever threatening risk of land access closures, it was vital for the club to step up to the plate and be proactive about these possibilities. As development eats its way into our launch and landing areas, the risk to some of our premier sites is high. Land owner issues, crops, re-development of acreages into smaller sub lots and the ever sprawling mass of power lines, fences and houses, does

hang over the security of club sites. As it does to a pilot's access to safe launch and landing areas. With the club already having a secure launch at Beechmont and Mt Tamborine, plus a reasonably secure landing zone at Mt Tamborine, our focus is now on securing the future of the rest.

### Membership of the Canungra HG Club

Cost for 12 months from 1 July 2002 are:

- Membership Fee – \$20
- Site Acquisition Fund – \$100
- Non-flyer Membership Fee – \$20

The club has three sites for which a site fee is charged and pilots may choose to select only the certain sites they wish to fly: Mt Tamborine – \$20 valid for one year, for all pilots wishing to use the club's premier westerly launch. Beechmont – \$20 valid for one year, privately owned premier easterly site Hinchcliffe – \$15 valid for one year, privately owned south and south easterly launches. Ride to top – \$3, please contact Ken Hill or Phil Hystek regarding access to this launch.

Site stickers for the selected sites should be prominently displayed (eg, on helmet). If all sites are selected, the pilot will be sent one gold sticker for the three site membership.

Important: Please note that club imposed penalties will be enforced for height limit offenders.

- Visiting pilots can pay a \$10 per day fee for the above sites and must be in the presence of a club member to fly.

For further information please contact any of the following: President: Jon Durand Snr, 07 5533 3596, <durand@ausinfo.com.au>; Vice-President: John Ripley, 07 3289 8275 or 0417 507 906; Secretary: Karen Sexton, 07 5527 7636 or 0410 433 711; Treasurer: Shirley Lake, 07 5543 4047, <chgctreas@mac.com>; General Executive: Greg Hollands, 07 3253 4239 (w) or 07 3844 8566 (h); HG Instructor: Ken Hill, 07 5543 5631 or 0418 188 655; PG Instructor: Phil Hystek, 07 5543 4000 or 0418 155 317; Club website: [www.triptera.com.au/canungra].

### High Adventure Airpark, NSW – Europe and Back

Just to let you know that we are back and that our Tour of Europe was successful with 25 flying days out of 30. On our way back we flew to Langkawi Island off the Malaysian coast to fly Gunung Raya, an extinct volcano on the island of 800m agl. We were fortunate to get permission to fly from the local officials, thanks to a local pilot we met and know in KL. We were able to thermal soar and view the surrounding islands from the eagle's perspectives for

hours, which made it a real treat. Although we did fly there, we cannot just go and fly without the appropriate approvals due to the international airport being below the mountain just 8km away – we have to book well in advance of our coming to be assured of not upsetting the local DCA.

The local tourist authority was there to look on and they now see the potential of our sport on their island. I will be planning to return again next year to fly, so stay tuned for the coming flight tours as it is just a seven hour flight away from OZ.

Anyhow, I am off to Bali now – I heard the weather has been good and winds becoming more square onto the ridge, so sounds good so far.

Just also to briefly inform you that we will be running free tow seminars just four hours north of Sydney on the Breeza Plains in November for all our customers that have learnt and bought gliders from us. So please if you are interested just email me your interest as it will be 10 pilots maximum at a time.

Hope everyone is well and look forward to flying with you all in the coming spring time.

Lee Scott

### Cloudbase, WA

The club's AGM has resulted in a few changes to the committee. I'd like to thank Dave Humphrey for all the time and effort he has put into the club as President for the last few years.

The new committee consists of: President: Mark Wild; Vice-President: Robin Rankin; Secretary: Mike Dufty; Treasurer: Colin Brown; General Committee: Kelly Treloar, Wesley Zdanowicz, John Carman.

The winter has been wet so far, which has been good for the dams but not so good for flying (although Mosman Park has had very good conditions, even allowing out and returns over the river at 1,500ft – not bad for a 250ft ridge in the middle of the city).

Several pilots have travelled north to escape the rain. It sort of worked; there was no rain, but lots of wind. Still, some good flights were had in the evenings from Table Hill and Mt Nameless, and the Kennedy Ranges were flown for the first time.

By the time this appears the parachute repack day will have come and gone, along with the Bar Mitts Vuh dinner (organised by Western Soarers), and the thermal season will be starting again. The long weekend, 28-30 September, will be a good chance for another club trip to Geraldton. Check email and website for updates.

Michael Dufty  
September 2002





## Melbourne Hang Gliding Club, VIC

The consistent strong north, north-west, west and south-west winds of late have kept club members in the air this winter. Despite the low cloudbase, many members have been obtaining hour long soaring flights at places such as Ben Nevis, Flinders and Kilcunda, with towing also being done. The July meeting included the A GM with approximately 35 members in attendance. The core committee retained the president (Andrew Medew), the Secretary (myself), and one general committee position (Neil Hooke). A new treasurer and general committee person were voted in (Geoff Tozer and Peter Batcher standing down), being Leif Gorander and Gabriel Toniolo respectively, our two SSO's remain the same. Congratulations guys, and thanks to last year's committee for all the hard work and achievements made throughout the year.

The Melbourne HG Club continues to meet every 3rd Wednesday of the month at the Palace Hotel, Burke Rd, Camberwell, 6:30pm for dinner and 8pm upstairs for the meeting. See you there!

Vanessa Sparke

## Newcastle Club, NSW – Pilots Invited to Gulgong XC Classic

The Newcastle HG Club is running an aerotow hang gliding competition at the Gulgong glider strip, 16-20 November 2002. The competition promises to be an enjoyable event with safety as the most important issue. The maximum number of entries will be 50, with one tug allocated per 10 pilots. So get your entries in quick to secure a spot!

Gulgong is a small town with a population of 2,000. Located in the Central West of NSW and 28km north of Mudgee, the area is right on the edge of the flatlands and has produced excellent cross-country flights in the past.

The surrounding area is hilly to the south and east, undulating around Gulgong, and gradually changes to flatter landscape to the north and west.

The district, particularly around Mudgee, is renowned for its wine production and many local wineries are open to the public on a daily basis. So there's plenty to do for non-flying partners and family.

Basic unpowered camping is available at the airfield for \$7 per night. Toilets and showering facilities with hot water are adjacent to the camping area. Several pubs and motels are available in town, which is approximately 10km south of the strip.

When is it? Practice day is Friday 15th. Competition starts Saturday 16th with the last competition day Wednesday 20th November. Entry fee: \$135 per pilot. Late fee of \$50 will apply to entries received after 30 September 2002. Entry fee includes \$7 per competition day strip fee, T-Shirt and presentation dinner. Tow fees: \$15 per tow payable to launch marshal on a daily basis. Requirements: Current HGFA membership, aerotow endorsement, parachute and GPS. Registration: 8-10pm on Friday 15th. Competition format: Start circle around strip. GPS turnpoint and goal. Goal will be at the strip whenever possible.

Contacts: Bill Olive, 0412 423133, <william.olive@telstra.com> or Rick Duncan, 02 49449199, <RickD@airborne.com.au>.

Local accommodation: Ten Dollar Town Motel, 02 63741204; Goldfields Motor Inn, 02 63741111; Gulgong Motel, 02 6374 1122; Centennial Hotel/Motel, 02 6374 1241; Post Office Hotel, 02 63741031; Commercial Hotel, 02 63741206; Prince of Wales Hotel, 02 63741166; The Stables Guest Rooms, 02 63741668; Henry Lawson Caravan Park, 02 63741294.

## FAI NEWS

### World Record Ratifications

**Sub-class 0-1 (HG with a rigid primary structure/controlled by weightshift) – Feminine**

**Claim number 7053:**

Type of record: Straight distance to a declared goal

Course/location: Zapata, TX (USA)

– Rocksprings, TX (USA)

Performance: 353.4km

Pilot: Kari Castle (USA)

Hang glider: Wills Wing Talon

Date: 21/7/2001

Previous record: 306.72km (19/6/98, Tiki Mashy, USA)

**Claim number 7080:**

Type of record: Straight distance

Course/location: Zapata, TX (USA)

Performance: 403.5km

Pilot: Kari Castle (USA)

Hang glider: Wills Wing Talon

Date: 28/7/2001

Previous record: 370.87km (2/12/98, Tove Heaney, Australia)

### World Record Cancellations

**Sub-class 0-3 (Paragliders) – General**

**Claim number 7390:**

Type of record: Straight distance

Course/location: Zapata, TX (USA)

– Sonora, TX (USA)

Performance: 386km

Pilot: David Prentice (USA)

Paraglider: Ozone Proton

Date: 20/6/2002

Current record: 335km (16/11/98,

Godfrey Wenness, Australia)

Reason for cancellation: Claim withdrawn by the NAC.

**Claim number 7079:**

Type of record: Straight distance to a declared goal

Course/location: Zapata, TX (USA)

Performance: 309.4km

Pilot: Josh Cohn (USA)

Paraglider: Quarx 27

Date: 28/7/2001

Current record: 257.4km (23/12/00,

Jacques Coetzee, South Africa)

Reason for cancellation: Flight declaration: take-off and start points are missing; photo of the start point is missing.

## Final FAI Competition Results

**13th European HG Championship, 20 June – 6 July 2002, Bled, Slovenia**

CLASS 1	TEAM
1 Manfred Ruhmer, AUT	1 Austria
2 Guido Gehrmann, GER	2 France
3 Antoine Boisselier, FRA	3 UK

CLASS 5	TEAM
1 Thomas Schulz, GER	1 Italy
2 Franco Laverdino, FRA	2 Germany
3 Onorio Marsella, ITA	3 Switzerland

**7th European PG Championship 4-20 July 2002, Kobarid, Slovenia**

OVERALL	TEAM
1 Alex Hofer, SUI	1 Switzerland
2 Christian Tamegger, AUT	2 Germany
3 Jimmy Pacher, ITA	3 France

WOMEN
1 Louise Crandal, DEN
2 Caroline Brille, FRA
3 Elisabeth Rauchenberger, SUI

**8th World HG Championship for Women, 11-21 July 2002, Chelan Butte, WA (USA)**

INDIVIDUAL	TEAM
1 Kari Castle, USA	1 Germany
2 Claire Vassort, USA	2 USA
3 Natalia Khamlova, RUS	3 France

**14th World HG Class 2 Championship, 11-21 July 2002, Chelan Butte, WA (USA)**

INDIVIDUAL	TEAM
1 Manfred Ruhmer, AUT	1 UK
2 Robin Hamilton, UK	2 USA
3 Brian Porter, USA	3 Austria

**1st World HG Class 5 Championship, 11-21 July 2002, Chelan Butte, WA (USA)**

INDIVIDUAL	TEAM
1 Christian Ciech, ITA	1 Italy
2 Alessandro Ploner, ITA	2 Switzerland
3 David Chaumet, FRA	3 USA

Full results at: [http://events.fai.org/hgpg/results.asp].





# Lift – Making The Best Of It

Bernard Eckey

IN LAST MONTH'S ISSUE MATTERS RELATING TO THERMAL DETECTION, INCLUDING ONE VERY POPULAR METHOD OF CENTRING THERMALS WERE DISCUSSED. THIS TIME WE'LL CONTINUE TO LOOK FURTHER INTO THIS IMPORTANT SUBJECT.

## Part 2

**T**he second popular system of centring a thermal is the so-called 'Worst Heading' method. It is best employed if we find ourselves a fair distance away from the centre of the thermal – a situation not unlike Figure 2. If you think the sketch is too simplistic, you are right. The only thing certain about a thermal is that it is not of a circular cross section.

and should now be positioned substantially closer to the core. Whatever levelling time we decide upon depends on the diameter of the thermal, our speed, and our distance from the core, but the manoeuvre needs to be repeated as long as subsequent turns are still partly in sink. A good indication of being in the core is an even and relatively smooth climb relatively free of turbulence.

Here are a few figures to get a better handle on the issue. While flying at 50kt we travel at a speed of 26m/s which means that

For this reason most experienced pilots use a reference point and form a mental picture of the thermal. The reference point can either be the position of the sun or some feature on the ground. Personally I prefer the position of the sun, simply because it is useful even while flying over featureless terrain. It does not matter which reference point we use but it is of utmost importance to establish a mental picture of the lift distribution in our thermal. We must update our best estimate of the position of the core all the time using firm and precise control inputs to get back into the best part of the lift as quickly as possible.

Constantly forming a mental picture can become a fairly demanding mental task and tends to overload less experienced pilots, especially towards the end of a longer flight. Performing two large control deflections for a single shift of position not only becomes rather tiring but also generates additional drag. It is the last thing we want to do all day, especially in aircraft with heavy controls.

The more pilots we ask about their preferred method of thermal centring the more answers we get. Most glider pilots tend to be highly individual creatures with a rather firm mindset when it comes to their thermal centring method. The chosen method often comes down to personal preferences and the type of glider we fly. Some gliders are not as agile as others which brings control responsiveness into the equation as well. If our chosen method works well I suggest we stick with it, but if we are frequently left behind in a thermal I hope the above hints are of some assistance.

Finding and successfully working lift has anything to do with good luck. Only skill and ability to get as close as possible to the centre of the lift will make any difference. When flying competitively it's also important to get into the core as quickly as possible without wasting too much time on searching for lift.

My advice is emphatic:

**"Work on one particular aspect of your thermalling only and take one step at a time."**

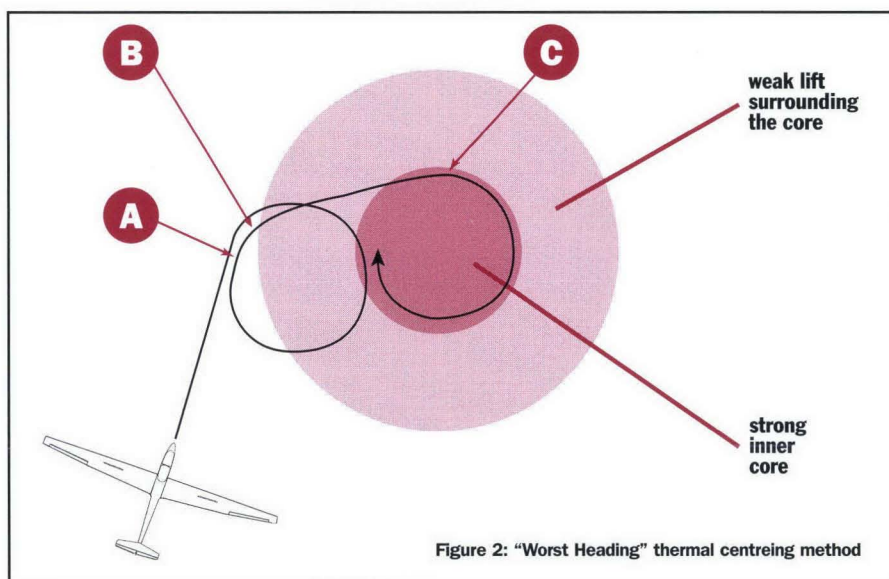


Figure 2: "Worst Heading" thermal centring method

Centring a thermal by varying the angle of bank is only advisable as long as we are just slightly displaced from the core but otherwise remain in weaker lift for a full turn. If our turn is partly in sink however, we have to take more drastic measures. A major position change is called for which involves a short-term levelling of our glider. Gently varying our angle of bank can only resume after we are back in lift for a full circle.

The 'worst heading' centring method requires that we make a mental note of our worst position in the thermal (Point 'A'). In other words we note the position of the strongest sink and wait for almost a quarter of a turn before we level our glider completely (Point 'B'). After a short while we roll the glider back in the same direction (Point 'C')

levelling the wings for two seconds theoretically shifts our turn by approximately 50m. However, we also need to consider the distance covered while rolling out of and back into the turn, which, dependent on the roll rate of our glider and our speed, can easily account for the same distance again. The exact distance is not really relevant here as long as we realise that a two-second levelling of the glider results in a position change of approximately 100m. Significantly bigger changes are very rarely required unless we are dealing with a monster of a thermal and have drifted a fair distance away from the core.

The timing of our control inputs is just as important, as levelling our wings too early or too late makes the glider point in the wrong direction and possibly into sink.





Finding thermals and centring them is difficult enough, and I suggest we develop this particular skill before we attempt to speed up the process.

### 1.3 Using other gliders as lift indicators

One of the best things that can happen to us is to be joined by another glider at roughly the same level. It is almost a blessing in disguise but only so long as both pilots know what to do and how to take advantage of the situation. If both gliders remain more or less opposite each other the pilots can compare their rates of climb and draw very precise conclusions on the strongest part of the thermal. However, it needs to be stressed that both aircraft have to remain in full view of the pilots involved. Then – and only then – our two gliders can indeed turn into first class variometers. In fact they turn into the most effective variometers imaginable helping us to climb efficiently simply by shifting our circle towards the most buoyant part of the lift.

However, as usual, theory and practice are sometimes miles apart. Although all glider pilots want to climb as fast as possible, it is only natural that differences in glider performance and pilot skills result in different rates of climb. On top of this we often operate our gliders at different wing loadings (just another jargon for the weight per square metre of wing) and therefore it is not hard to see why we often see one glider catching up with another circling above.

The faster climbing pilot is subsequently forced to fly at the same angle of bank in order to maintain separation. If he decides to sit on the tail of the glider in front of him he not only creates a safety problem but is also depriving himself of the advantages described above. It also becomes impossible for the pilot in the leading aircraft to keep an eye on the other glider. Needless to say, this is far from ideal from a performance point of view because both gliders fly through the same air-mass at roughly the same time and both pilots are unable to gauge the subtle differences in vertical airspeed.

In this context a word or two on safety is needed. Sharing a thermal with other gliders can be very rewarding, not only because it offers every potential to improve the rate of climb, but it also gives us a perfect opportunity to observe these beautiful and ever-so-graceful machines in their element and at relative close proximity. For the experienced pilot it adds a satisfying degree of pleasure to the sport but by the same token it demands a high degree of responsibility.

Whether we like to hear it or not, our beautiful sport can be potentially dangerous. However, it is only as dangerous as we make it and with the application of common sense

we can go a long way towards minimising this danger. The importance of a good lookout cannot be over-emphasised. Sharing a thermal with another glider undoubtedly increases the risk of a potential collision but this risk can be almost completely eliminated if we do our best never to lose sight of other gliders operating at roughly the same level. I'd be the first to admit that this is easier said than done simply because it takes 'two to tango' and becomes increasingly more difficult when several gliders converge at the same level.

This can be a serious trap for less experienced pilots, because flying in close proximity with other gliders dramatically increases the workload. As every instructor knows, lookout goes down as workload goes up – a fact we should all remember when sharing thermals with less experienced pilots. But even with the best intentions we cannot always remain in full view of each other and in such situations it is helpful to think of a co-pilot by the name of Mr Murphy. Remember, he loves to stuff things up and relying on other pilots to maintain adequate separation invites Mr Murphy to prove himself right again.

Particularly in competitions we are frequently forced to admire the bellies of other aircraft. Not only are they often a bit dirty but they also let us draw conclusions on the mindset of our fellow pilot. For a perceived gain of a few feet we witness gliders turning inside violating the golden rule of not losing sight of another glider at the same level. Safety must always take precedence over competitive advantage and if this means that we can not out-climb the other glider and keep him in sight at the same time we must choose between leaving the thermal or accepting the rate of climb dictated by the other glider.

For other safety-related issues I would suggest reading official operational guidelines but I would like to conclude this subject by recommending a few extra knots of airspeed for safety and improved control responsiveness in a crowded thermal.

### 1.4 Thermalling at an even rate of climb

Let's invest a minute or two on the importance of thermalling at an even rate of climb. Although easy to write about, it is far more difficult to implement out there in the real world especially on tricky days with broken and narrow thermals. In fact climbing at an even rate might almost be impossible under some conditions but we are nevertheless well advised never to give up trying. New glider pilots in particular, and occasionally even quite seasoned ones are often satisfied with an uneven climb rate in the thermal and tolerate it as long as there is a net gain of



Photo: Stefanie Schulte

altitude. For example, a pilot might climb at four knots for part of a turn and find himself in zero sink just moments later. Quite content with the situation and unconcerned while still showing positive rates of climb on the averager our pilot is in grave danger of losing the thermal altogether if he fails to react immediately. Let me explain why.

As long as our glider is an even distance away from the centre of the thermal the variometer indicates a fairly steady and even rate of lift. We have managed to keep the core almost exactly opposite our inner wing and can at least momentarily relax in the knowledge that we can't do much better.

However, from experience we all know that this ideal situation is likely to change with weaker lift developing in one corner of the turn compared to the other. Obviously for a part of the turn our orbit has moved further away from the centre of the thermal, but we are also likely to be nearer the core just moments later. On our very next turn we could well transit the exact centre of the lift and momentarily enjoy an exceptional rate of climb, but we are likely to transit sink at the exact opposite point. If this happens to us then alarm bells should ring because our subsequent circle is likely to displace us further and perhaps even to the extent that not the inner wing but the outer one transits the centre of the lift. This has the unwanted effect of accelerating our glider away from the core directly into the heavy sink next door. It's a bit like being thrown out of the thermal by exactly the same forces required to lift us up.

I'm sure most readers have already worked out what went wrong and why the thermal was lost. Yes, quite right, our pilot could have avoided this situation if only he had taken corrective action as soon as the rate of climb started to fluctuate. Instead he failed to shift his position early enough and procrastination not only led to the complete loss of the thermal but also to avoidable contact with heavy sink.

Experienced pilots know the pitfalls of uneven rates of climb only too well and make corrections as soon as the sound of their audio variometer changes. Their



response is a gentle variation in the angle of bank, which – more often than not – is enough to steady the rate of climb again.

### 1.5 Audio Variometers

In this context a word on 'audio varios' and a frank admission that I am dismayed to see that some glider pilots make no use of them at all. True, some of our gliders are not even equipped with audio varios and where this is the case clubs might be well advised to review their priorities. Even more disturbing are persistent rumours that some pilots simply turn the audio system off. Their reasons appear to be quite plausible on the surface and include a hindering of communication, unpleasant noise and some degree of distraction.

However, a real and serious problem occurs when audio systems are not used during basic training. It means that right from the very first day behind the controls of a glider our new student has no choice but to refer to his vario for indication of lift or sink. No wonder the eyes are focused on the variometer all too often and the instruments become a prime attraction. Sure, we always remind our student to scan the sky for other traffic. We also tell him never to keep his eyes in the cockpit at the expense of a good lookout and at the expense of safety. He or

she quite happily complies while performing circuits and while the instructor is watching closely from behind but one day our student turns into a solo pilot, only to be converted into a single-seater soon afterwards. Then, on one of the first solo flights our new pilot manages to find some weak lift. Working it without any help from the instructor is exciting and fills him with a great sense of achievement. He concentrates very hard indeed and is hell-bent on not losing this thermal. But guess where his eyes are?

Yes, quite right, they are stuck on the vario because this is the only lift/sink indicator our new aviator has been exposed to. Over the next few weeks or so our new pilot repeats this 'successful' technique not even realising that he or she is firmly on the way of consolidating a bad habit.

No good blaming the new pilot, he only does what he did in his pre-solo days, the only difference is that he does it more often and for longer periods of time. The gentle reminders of his instructor are history, our post-solo pilot does what he or she believes is easiest and what comes naturally. Perhaps unknowingly, but certainly unintentionally, we have just trained another pilot to focus on the pointer of his vario – in fact we gave

him little chance to avoid this potentially lethal trap.

Isn't it about time that we acknowledge the advantages of audio varios and train students in their correct use? After all, our sense of hearing lies partly dormant while soaring, a fact all top pilots have turned into a competitive advantage a long time ago. They have no doubt that audio systems make the job of finding and centring lift much easier, that their use frees up time for scanning and that flying by 'seat of the pants' allows a more instantaneous detection of air-mass movements.

Remember what we said right at the beginning. We must extract our energy from the air around us and audio variometers are a great help in this respect. Being able to focus on valuable hints for lift from sources outside the cockpit is an additional bonus definitely not to be sneezed at. The sooner we get used to this kind of flying the better, as it not only greatly improves safety but also enhances the enjoyment to be gained from our sport.

That should be enough for today. Next month we are going to look into the optimum thermalling speed and the effects of different wing loadings.



# Writ Large on the Stage of Life

Emilis Prelgauskas

THE HISTORY OF CIVILISATION IS THE TENSION BETWEEN THE FLUX OF INFLUENCE BY INFLUENTIAL INDIVIDUALS ON THE ONE HAND, AND REPRESENTATIVES OF THE PEOPLE ON THE OTHER.

**T**his doesn't just happen in governments. It happens every time people gather together for any mutual purpose. The variation in success of civilisation is most visible at a national or global scale. Methods move from form to form, democracies, economic autocracies, caretaker militaries, hard men and dictators. The change varies from place to place. Peoples' bloodless revolution, junta, invasion, coup. At other layers of civilisation, change comes in comparable forms. Hostile takeover, board restructure, stakeholder vote to migrate from building society to bank, from mutual society to corporation, from member cooperative to company.

And in sport such change is also visible. Internationally, the most striking change visible has been the Olympic movement, seem-

ingly transitioning from 'for the amateur' to 'for the television bids'.

The suggestion that change in the GFA is for the good of pilots should be viewed in this context.

Currently, pilots are represented at GFA Council by regional representatives.

Three per state. Therefore a matter of interest to a pilot-lobby can get up through a majority of such representatives. That is, pilot representatives equal to 3.6 states out of five. A straight majority without quirks like casting votes.

The suggested change is termed by its proponents to not change the current situation.

Bollocks. In the proposed Council structure more pilot representatives than four states of five would be needed to get a matter passed. And the new creation of a President

casting vote means that pilot representatives would need a clear majority on every occasion to get a matter through.

In the recognition of this inequity, further changes to the proposals already raised (May AG/SS) are proposed by the proponents. (Confusing, isn't it). There is talk of a three-layer vote, with casting votes for pilot representatives in there somewhere.

One rule of business is that when the methods being suggested get complex, there is usually some nub or simple solution which is being worked around.

Here the simple solution is to give only the pilot representatives from the states a vote on Council. End of story.

That, however, wouldn't recognise the needs of the proponents of change, who see the GFA heavies as the rightful holders of power. What was I saying about tension between influential individuals and representatives of the people.

Hard men re-appear throughout history in positions of power. And time and again the process of debate and mutual support amongst people re-asserts that democratic principles serve mutual interests best.





# GFA Development Officer's Report

Terry Cubley

## The Disadvantage of Solo

There are booklets around which give details on pre-solo and post-solo training. Adelaide University Club has such an example, as have Adelaide Soaring Club and a few others. The sport's coaches are collecting this information to publish it more widely.

More and more clubs are accepting that we should be actively promoting the achievement of the C certificate as the major goal NOT just going solo. It appears to me that we are perpetuating the old paradigm by splitting our training into pre-solo and post-solo.

## Solo or Soaring?

Feedback from the sporting coaches is that there are a number of people going solo who have little or no soaring experience or skills. It is suggested that some instructors actually fly through thermals deliberately in order to achieve an earlier solo flight. This is not a reflection on the individual instructors, it is simply an indication of the mindset that our sport has developed over many years. A mindset that sees solo as the ultimate goal.

Once the solo is achieved we then try to give the necessary post-solo training to deliver soaring skills. Hopefully soaring will be possible at this time and also the newly-solo pilot can gain access to a suitable two-seat glider.

In many cases the post-solo pilot is left to his/her own devices so that the new pre-solo pilot can access the glider and instructor. The cycle continues. As a result, we have many solo pilots who really struggle to learn the finer art of soaring, often in a trial and error situation.

## An Alternative View

My limited knowledge of power flying is that you will be sold a specific licence/goal. They don't appear to focus on solo except to say that a certain amount of solo flight is required to get the licence. Going solo is simply one step along the way to achieving the real goal.

What if we were to follow a similar approach and consider all pre-C certificate training (pre-solo and post-solo) as the total package of the training provided. Solo is something that happens at some stage along the way. An early solo is simply an indication that the weather hasn't been good enough to go soaring. Rather than talk about how many flights it took to go solo, we should be talking about the number of flights or hours to get the C certificate.

A typical training flight would include

a training sequence on thermalling or wave flying. Another element would include landing paddocks. Yet another would have a circuit into the airfield with a subsequent flight having a circuit into a paddock – showing that we consider the same issues no matter where the landing.

This would ensure better utilisation of the weather conditions available. It would also mean that instructors would be more involved in teaching the sport of gliding rather than just the mechanics of gliding.

Obviously there would need to be some recommended order given for the sequence of instruction – primary controls would come before turning which would come before landing which would come before outland-ing exercises, but many other aspects could be trained on an opportunity basis.

Instructor panels may want to consider what advantages such an approach would provide. It would certainly alter the focus of the training organisation of our sport.

## Instructing – Value for Money?

While we are talking about instructing, many of my previous articles have focused on attracting members to your club, and how you treat them.

One of the biggest criticisms that people make once they are in the club concerns the value of the training program. The old days of spending all day on the airfield to get a flight at last light are well gone, or they certainly should be.

People have much higher expectation on value for money and value for the time they put in. It is critical that the club provides value though its training program.

The view around the country is that trainees should receive a minimum of four flights per day, but preferably five or six. Talk to the people who have been involved with commercial courses regarding the number of flights provided per day. Given that a weekend operation provides more time between visits to the airfield for people to forget things, this minimum of four flights is critical if people are to make progress. One day per weekend for three month's membership should be able to get someone close to his/her C certificate. Once this has been achieved then there is a good chance that they will be looking for more and will stay on with the club. If after three months they have only achieved 30 flights and are still struggling with coordination and circuits, then they are probably already thinking about what other sport they can try.

## Setting Goals this Season

Summer is approaching and hopefully the weather is quite soarable at your site by

now. What challenges are you hoping to achieve this season? A few good ideas from a variety of clubs include:

**Bar charts** – record the distances achieved by individual pilots over the weekend. Let people try to exceed that achieved by others as the weather improves, try to beat your individual personal best. Some recognition for the better performances or personal bests achieved each month is a good idea.

**Club records** – keep a record of the best performances for a specific task or distance or height.

**Pylon races** – the Beverley Soaring Society runs a pylon race one weekend each month. This is a short task that anyone can attempt, gaining points for total distance or achieved speed.

**Decentralised cross-country event** – place the rules and application form for the DCE on your notice boards. Arrange for official observers to verify flights each weekend. Individual awards and club awards are available (see [www.gfa.org.au](http://www.gfa.org.au))

Clubs which would like to look at the concept of a C certificate training syllabus, please send me a copy. I will talk with the Operations panel to see if we can get a GFA-agreed syllabus and sequence and record. Who will be the first graduate for this type of training program?



## GLIDING FEDERATION OF AUSTRALIA

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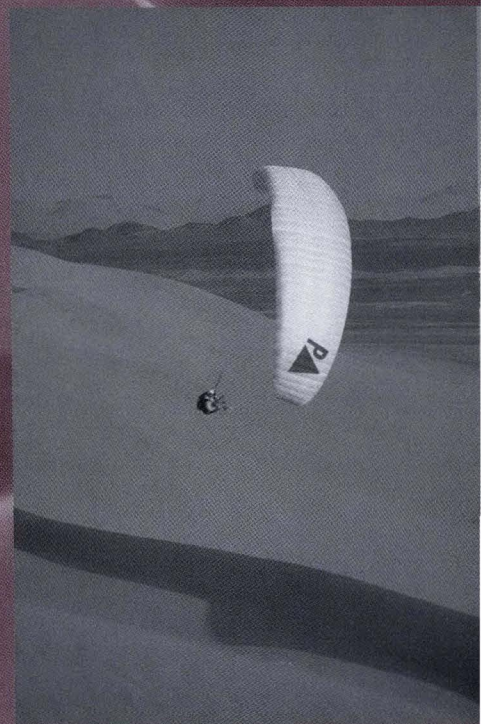


# PARA PERU 2002 – LESS IS MORE IN THE PERUVIAN DESERT

## Part 2

Stefanie Brendl and Jimmy Hall

AS SOON AS WE LEFT THE OUTSKIRTS OF LIMA, A DRASTIC CHANGE BECAME APPARENT. HIGH RISES TURN INTO SUBURBS THEN INTO SLUMS, WHICH STOP ABRUPTLY AND GIVE WAY TO AN UNHOSPITABLE DESERT LANDSCAPE. THE TRAFFIC AND NOISE SEEM TRAPPED INSIDE WITH THE MASSES. WE WERE HAPPY TO LEAVE IT ALL BEHIND. SOON WE FOUND OURSELVES CRUISING ALONG THE LONELY STRETCHES OF PANAMERICANA HIGHWAY WITH THOUSANDS OF MILES OF NOTHINGNESS AHEAD OF US.







Photos: Jimmy Hall or Stefanie Brendl of 'Sea to Sky Productions' [[www.seatoskyproductions.com](http://www.seatoskyproductions.com)].

**T**he nights were completely silent and other than stars and moon, no lights could be seen in any direction. The days were hot, dusty, and windy. The afternoons were as perfect as one could imagine. When the midday dust devils became less frequent, we would drive from dune to dune until we found one that suited our needs and whims. Out came the gliders, off went the shoes, and until it became too dark to see, we would frolic in an enormous sandbox that seemed custom made


to our fancy. At night we would camp in the same place. In the morning we would load up and set off in search of our next personal flying site. In this manner we travelled from one lonely site to another, all the way from Lima, Peru to Northern Chile. This part of Peru must be one of the most flyable places on earth. The desert seems to go on forever and the lack of trees or bushes means that you can launch anywhere. The lack of other pilots, or people for that matter, means that if you are just travelling in a random manner







and taking what comes along – as we were – you will be pioneering most of the sites that you fly. We found numerous places to fly, every one very different from the others, a variety you would not expect in an arid desert. By far our favourite site was our sea of dunes. And our dunes they certainly were. We were so alone that food scraps left out did not even attract bugs. By normal paragliding parameters our flights sucked, low and short in distance. But that did not matter a bit. Soaring in the warm air of a desert evening and skimming our bare feet across the unmarked sands of dunes that had never seen another pilot, was as fun as any flying we had ever done.

Peru has endless potential for any kind of flying: High Andes, deserts, rainforest, coastal soaring, long distance, thermal sites... you name it, and you can probably find it. All it takes is time, self sufficiency and a high tolerance of heat, dust and driving on rough to non-existent roads. If you would like to check out more photographs or need contact info for flying in Peru, go to our website [www.seatoskyproductions.com]. 



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- **all pilots** to have a realistic chance of **making goal** every day.
- new, **low airtime pilots** being able to **fly with the good guys**, but competing against their peers.
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- We have secured the paddock used in 2002 at Conargo, 15 minutes from the town of Deniliquin. This will accommodate ground towing as well as aero towing.
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# Wave and Dust Storms over North Central Victoria

Terry Bellair

I decided to base my DG-400 at Bendigo Gliding Club's Raywood strip in November 2001, after flying in BGC's annual cup weekend regatta. Raywood is an excellent cross-country site, providing excellent local soaring conditions, a choice of cross-country corridors over predominantly dryland farming areas to the north, north-west and west, and inconsequential airspace restrictions. I made a total of 22 flights from Raywood between November 2001 and March 2002 under a wide range of conditions, for an average cross-country distance of 290km.

Two of these flights stand out in my memory. The first was a shear wave/thermal wave flight on 23 December, and the second a 700km flight two weeks later, which involved climbing over a major dust storm.

## THE WAVE FLIGHT

The predicted meteorological conditions for 23 December 2001 were somewhat ambiguous, so my plan was to arrive at Raywood in time for an early start, on the chance that conditions may be suitable for a 600km (or longer) attempt. Because of the paucity of potential long-flight days in Victoria during the 2001/02 season, I wasn't about to let one slip past me if the day turned out to be better than forecast.

The MSL synoptic chart for 1010 hours (all times are EDT) showed a weak pressure gradient over south-east Australia, with a trough extending in a north-westerly/south-easterly direction across central Victoria. The Bureau's regional forecast promised 'a partly cloudy day with light wind tending moderate westerly' and a maximum temperature of 28°C. The aviation forecast was less encouraging, predicting broken stratus above 10,000ft (clearing by 1400 hours) and winds of 320/15 at 2,000ft, 300/30 at 7,000ft and 280/40 at 14,000ft. The atmospheric sounding for Melbourne at around midnight suggested that once the surface temperature reached 25°C, there would be strong thermals up to an inversion at about 8,000ft.

On arrival at Raywood at about 0900 hours, the aviation forecast appeared to be spot on, with 5/8 altostratus, a 15kt northerly surface wind and a strong westerly aloft. Some nice high-level lenticulars were present, indicating the presence of shear wave.

'Plan A' was shelved after self-launching at about 1015 hours and scratching around in weak lift for 30 minutes. I took off again for some cross-country practice after cumulus clouds (CUs) started appearing around noon.

I climbed out straight into a thermal, retracted the engine, and climbed to 4,000ft before heading off into a 25kt westerly. The thermals, which were broken with small four to five-knot cores, eventually took me to cloudbase at 8,000ft. Progress wasn't helped by some extensive overdeveloped areas, which required a couple of long glides to escape the cloud shadows. By this time the CUs were starting to line up crosswind, while some had bases with a crosswind 'corrugated' appearance. High lenticulars were still present.

These observations suggested that the thermals were being organised by the upper level shear wave, and I recalled Ingo Renner's advice on thermal waves in Maurie Bradney's excellent (GFA) publication: *Flying Further and Faster – Part 1*. Thermal waves are relatively common; however, relatively few pilots seem to have used them to soar above the clouds. I decided this was a good opportunity to have a go.

At around 1515 hours and about 70km west-north-west from Raywood, a five-knot climb took me to cloudbase, with the LNAV indicating the wind at this level was 290/30. I contacted smooth wave lift directly upwind from the cloud and a steady climb at three to four knots, while flying beats in front of the cloud, soon took me to 12,500ft. It felt just like flying in lee wave, although the wave was travelling downwind at about 20kt (measured from the logger trace). The smooth air made a welcome change from working broken thermals over the previous three hours.

HDE was now well above the CU tops (which were at about 11,000ft). The view was fantastic as I cruised above avenues of brilliant white CUs, many of which had distinct wave forms on their upwind and downwind edges.

I spent the next couple of hours exploring the wave, mostly well above the CUs. Initially I flew further west towards Charlton, heading off upwind at around 100kt, pulling up into the next line of lift, and then flying

along the wave to gain height before moving on again. The best climb, upwind from the sunny face of a particularly impressive CU, averaged eight knots. I had left the oxygen system in the hangar, and when I reached my self-imposed height limit of 14,000ft (checking fingernails for any tinge of blue every few minutes), some well-formed lenticulars were still at least 5,000ft above me. As the climb rate at 14,000ft was averaging five knots I believe that Diamond Gain could have been achieved in this particular wave system. Other pilots who had been winch-launched from Raywood were reporting eight to nine-knot thermals to 8,000ft (with some rain) around this time.

I then flew about 40km crosswind towards Boort along one wave, climbing again to 14,000ft at four to five knots on the way. A fast run back towards Raywood took me under the 12,500ft controlled-airspace 'step'. I then played around for a while in a couple of wave systems over the field, speeding up as necessary to stay below 12,500ft. As I had a pre-Christmas family dinner to attend, I opened the brakes and returned to the field by 1720 hours. Good thermal and wave conditions appeared to continue for at least another 90 minutes. The logger trace clearly shows the thermal and wave sections of the flight, and indicates the impressive climb rates above 12,000ft.

Relevant aspects of the atmospheric sounding for Melbourne Airport at 1100 hours on 23 December are summarised below:

- the wind speed increased with height from 15kt at the surface to 55kt at 14,000ft and above, while the direction backed from 010° at the surface to a relatively constant 285° above 10,000ft
- temperatures between the surface and 8,000ft closely followed the dry adiabatic lapse rate (DALR) – ie, this zone was unstable
- between 8,000ft and 18,500ft the atmosphere was weakly stable (representing the residue of a subsidence inversion which was evident 12 hours earlier)
- temperatures between 18,500ft and 35,000ft closely following the DALR.

My interpretation of the meteorological situation is as follows:





**HDE climbing (slowly) through 15,000ft over the Grampians on 9 June 2002**  
**Photo: Terry Bellair**



- the shear wave (which was responsible for the lenticulars observed before thermal activity commenced) was generated by the marked change in both wind speed and direction at about 8,000ft, where the atmosphere was relatively stable
- propagation of the shear wave was enhanced by the unstable zones below 8,000ft and above 18,500ft.
- as convective conditions developed, the shear wave tended to arrange thermals into crosswind rows
- the lines of thermals (and their associated CUs) reinforced the shear wave by generating thermal waves.

This experience has taught me a lot about meteorological and visual indicators of shear/thermal wave, and a strong desire for some repeat performances. It may be possible to achieve quite long flights under such conditions, despite the relatively strong wind, by flying laps of a 200km triangle, comprising two 'crosswind' legs (climbing out and back along a single wave) followed by an upwind leg back to the starting point.

## THE DUST STORM

On 5 January I headed north from Raywood at about noon in a light south-westerly with weak thermals, hoping conditions would improve. However, after reaching the Murray (about 60km out) without seeing anything over two knots on the average, I decided that flying further downwind wasn't a terribly good idea. Conditions on the return track were similar, but conditions looked better further to the west. The wind was forecast to go around to the northwest and strengthen ahead of a cold front the next day, and it occurred to me that there may be some logic in starting tomorrow's flight upwind from Raywood, as the wind would be too strong for a long closed circuit task.

So at about 1400 hours, near Mitiamo, I advised Raywood base not to expect me back until the next day, and headed for Nyah (about 170km to the north-west, where the Geelong Gliding Club was holding its annu-

al cross country camp). It was slow going until the first decent thermal, near Kerang, took me from 2,000ft to 6,500ft at four to five knots. I then had an easy run to Nyah, arriving overhead at 9,500ft and circumnavigating Lake Tyrell before landing at 1740 hours.

That night I planned a zig-zag 750km task back to Raywood, via Cowangie (near the South Australia border), Lake Boga and Albacutya, anticipating that the wind would back from north-east to north-west and strengthen during the day, and thermals would be broken but potentially strong. Despite being assured that there was no point in launching before 1300 hours (a self-fulfilling prophesy if I ever heard one!), I climbed out into a 15kt north-easterly at about 1045 hours the next morning. I set off on task at about 1130 hours, after scratching around the field mostly below 2,000ft.

The lift progressively improved and by 1300 hours I was at 10,000ft near Walpeup. However, by this time the wind had backed and strengthened to 345/25 and the area to the south-west looked very hazy and decidedly uninviting. As the prospects of completing the original task now looked slim, I pulled out the chart and ruler, and decided to head back to Raywood via Hay and Charlton, which would work out to a bit over 700km.

I spent the next five hours between 6,000ft and 13,500ft in a hazy, cloudless sky, circling in anything over five knots and generally cruising at between 80 and 90kt. Stronger thermals (averaging six to seven knots) were few and far between, and I made a few 30 to 45km cruises with no lift worth working along the way.

At around 1715 hours, as I approached the Murray from the north, some scattered CUs with bases around 12,000ft started to form about 20km ahead. Then an ominous shape started to appear through the haze. It was a most impressive dust-laden cold front, aligned in a north-west/south-easterly direction and extending as far as I could see in

either direction. The 'nose' of the front, which was clearly delineated by the dust, rose to about 15,000ft and had a curved, slightly scalloped appearance (like fingers gripping a railing). I caught glimpses of thick dust plumes coming off fallow paddocks immediately behind the front, which were being whipped up by what I estimated to be a 40kt south-westerly wind.

I had two options:

- (1) land at Kerang aerodrome before the front hit and hope that the tie-down pegs would hold; or
  - (2) climb up the face of the front, which should give me final glide for the remaining 170km of the task, and land at Raywood where I would have some assistance.
- Option two got the nod, and we climbed up the face of the front at six knots until I could see over it (at just over 15,000ft) and set course for Raywood via Charlton.

While cruising in smooth air at about 70kt, I tried to raise Raywood, but without success. By the time I was about 10km north of Charlton, I decided I'd better turn towards Raywood (90km to the south-east), so I would have sufficient height on arrival to plan my landing. Shortly afterwards, I was relieved to hear Phil Organ's voice: "Delta Echo – Raywood base" (having decided they'd better haul the pie cart out of the hangar so they could switch the radio on and find out what I was up to).

I reported that I was 50km to the north-west on final glide and requested the surface wind. Phil calmly advised that it was blowing 40kt from the west. While this did not come as a complete surprise (the L-NAV was indicating a tailwind component of around 30kt) it did tend to focus the mind, as Raywood has a single north-south runway, with only about 100m between the boundary fences. But no need to worry, because they would drop a section of the fence to open up the emergency east-west strip (an adjoining paddock). By the time I arrived overhead at about 3,000ft agl I watched them finishing this operation. It was extremely rough below about 3,000ft, but after a final approach at 80kt, Craig Dilks had hold of a wingtip before the end of the landing run, and HDE was back in the hangar within five minutes. Fifteen minutes later the fence was back up again and it was time for a cold beer.

Analysis of the flight log showed that I had covered 702km, which was a bit of a bonus, because the highlight of the day was definitely crossing the dust storm on the way home.







GLA take-off, Tyagarah

pilot can fly virtually hands-off – students find it very easy. You would definitely need to give a student a good check-out before he flies behind a Pawnee, etc – it is so different. The conventional towplane did not come out well in trials and other considerations are extra noise and costs.

Another advantage of a motorglider tug is its low speed and the fact that it leaves the runway sooner, except in a long, wet grass situation. Also, there is reduced risk because both the tug and glider have similar aerodynamic and handling qualities. There is no stage where both motorglider and glider cannot safely turn back with total engine failure at 300ft.

Towing times up would be very similar. For tows of 2,000ft and above it should be possible to have the engine (even an air-cooled Jabiru) fully turned off for the last part of the landing. Also, airbrakes can be used at the top of the tow to increase the descent rate thus increasing safety as the tug is not diving down at high speed. Tow pilot visibility in most motor gliders is very good. A problem with Pawnee visibility is the air to the left and down – exactly the air into which the Pawnee will descend after the glider releases.

The only problem I can see in using a Falke motorglider is that I lose the option of being able to drop the rope as I go over the end fence. The Falke has spring – loaded airbrakes that must be held open thus a hand is not free to dump the rope. A plus would be that there is no chance the tug pilot could take off with airbrakes unlocked. Perhaps we might have to use a rope winch or place the release knob on the airbrake.

Personally, I am keen to promote a Falke fitted with a Jabiru 3300 six cylinder 120hp engine. The Jabiru 2200 in a Falke could tow a single-seat glider and maybe a light two-seater but really the way to go is the J3300. The Germans are using the later C-Falke with Rotax 912S with great success, while the French (LorAvia) have been buying up the more vertical fin non-bubble B and C Falkes, fitting a 100hp Limbach and towing with them. I prefer this model as it has the 800 x 4 tyre whereas later models use 600 x 6 sprung wheel. The former is much better for the take-off roll.

Unfortunately, earlier Jabiru engines have had their fair share of problems and people tend to give them a bad name, unfairly. From serial No 710 on they have big finned heads and larger Bing carburettors, and there have been no problems with CHT and associated lean mixture. The great thing about our Falke J2200 is maintenance costs. It has

# MOTORGLIDER AEROTOWING – The Future

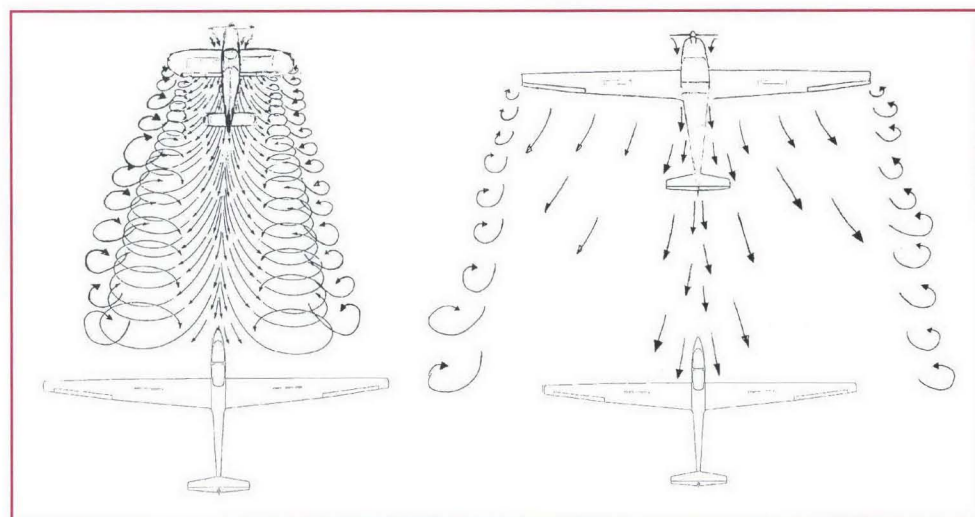
Ian McPhee

**N**ow before you jump to your own conclusions, let me say it is the way of the future and it is not like flying behind an Auster or an underpowered Supercub.

There are a few bonuses to which I have now been alerted (one of which should be self-evident from the drawings). May I say that the Samburo (a Falke look alike) with Rotax 914 turbo is approved to tow gliders to 750kg AUW, the same as any Pawnee. Other motorgliders have their limit based on the AUW of both the towing motorglider and the glider, and might discourage people from sitting in the spare seat while towing, which would be a good idea as it costs \$3 to \$4 per tow extra.

Glider towing with motorgliders was first introduced on a trial basis in the mid-90s in France and Austria. There have now been four years of regular use in Germany. Data has been collected comparing conventional towing aircraft with motorglider 'tugs'. The results, translated from German, were astonishing.

During the take-off roll, a crosswind can angle the prop wash towards the glider wingtip, pushing it into the ground. Also during both take-off run and climb, although the tug and the glider fly at the same speed, they are in very different sectors of their flight-performance spectrum. This has a decisive and different effect upon the handling characteristics of each aircraft. There is virtually no slipstream behind the motorglider and so long as the tow pilot flies smoothly the glider



Motor glider wake turbulence



done 400 hours of virtually trouble-free engine time (960 flight hours) in the past 16 months and the average cost for 100 hourly is \$93 each!! One problem, however, was the troublesome welding of the original Jabiru exhaust. I must admit that we were given a full credit for this so we built our own system with its own built-in Swiss muffler which has been trouble-free for 250 hours. For those unfamiliar with the Swiss muffler, it was first introduced in January 1974 and consists of fine stainless steel mesh wound with fibreglass rovings and jammed into the exhaust pipe. It really works. Our once moderately noisy engine is now the quietest on the airfield! Consider costs like \$108 for an ignition coil, or \$3 for a spark plug or \$12 for a distributor cap. We have never fouled up a plug from the lead in Avgas (we use Avgas but Jabiru say you can use premium unleaded). We had ignition failure in an LH coil which Jabiru replaced for free. We then added a 6mm tube to provide a flow of air to cool each coil... as suggested by Jabiru for their new six cylinder engine. The great thing: help is only a phone call away while parts can arrive overnight. We are lucky being in Australia with our engine maker being just up the road!

The next secret with Jabiru: CHTs. Mike Burns did us a great favour in marking our CHT green arc to 150°C and yellow to 200°C. (Actually Jabiru allow their green arc to extend to 175°C). So we have achieved a maximum of 160°C, measured digitally as well. That compares very favourably with Pawnees and the like, whose temperatures are often found at around 215°C. Cracking in cylinders and heads from shock cooling occurs in the rapid changes from high to medium temps not from medium to low temps. This is where the Jabiru really wins out over its big brothers. Another great safety feature added by Mike Burns was: one ignition kill switch while two separately mounted magneto kill buttons can be used for magneto checks. This prevents accidentally taking off on a single magneto setting, which has happened to me twice before in outlanding retrieves from paddocks – once behind a C180, the other behind a Supercub from the other side of the river at Waikerie.

I estimate that five litres of fuel would be used in a typical 2,000ft launch while the launch time would be no more than for that with a Pawnee. I would prefer to be towed by a glider pilot than by a power pilot just intent on logging up hours, who tows you downwind on a windy day because he forgot! It would be easier to train tug pilots of motorgliders and I believe fatigue levels would be low. I have done close to 2,000



Have motorglider – will tow... well, maybe next year!

**Right: B Falke in France showing tow release conversion done by LorAvia using 95hp Limbach L2400. Note mudguard to prevent small stones becoming lodged in Tost release. The German installation has a full cover over its release. Also note that rear of rudder is cut away a small amount**



**Photos: Ian McPhee**

hours in Pawnees and have done 82 tows in one day. I know Frank Deeth and I have done many days of 60 to 70 Pawnee tows during the good old days at Keepit. This can be done with safety in a Pawnee but not a 180 Cessna with its higher workload, look-out and fatigue factors. I believe you could do it in a Falke. Pilot training and aircraft maintenance could be done within the gliding movement (one bonus here would be a huge saving in costs).

One real problem is the lack of certification for Jabiru's J3300 in Australia (the J2200 is certified). There is a ray of hope in that it might gain US certification if the planned J3300 conversion for C150/152s goes ahead. We can tow with a non-certified engine with the exception of charter flights. This may not be a real problem as most Australian gliding clubs have not bothered with AOC renewals.

By the time you read this article, a Dimona with Tost rope retriever should be flying at Caboolture. It is a little hard to justify its cost, but I do believe that for less than \$60,000 you could convert a suitable Falke with a Jabiru 120hp and that might be our future... with cheap parts available at the local Repco or Autopro and a set price overhaul of around \$4,000!! Compare that with your O 540 B2B Lycoming overhaul!

Some people are thinking "ultralight" for glider towing. Okay, they are lighter and might tow up a little faster, but I like the

more solid, proven frame and undercarriage of the motorglider. If I am the tug pilot of a motorglider, I know I can turn back in the event of an engine failure and have the added feature of airbrakes and engine off for landing! Also, the long efficient wings of a motorglider mean less disturbed air and wingtip vortices which are not interfering with the glider's wings... as is the case with conventional towplanes and ultralights. For the record, trikes (ie motorised hang gliders), I believe, are just not suitable because of the hugely different momentum and the way they fly in lift.

I welcome people's direct communication with me, ph: 02 66847642 or <iankmcphoe@bigpond.com>, about this topic. Already I have sponsorship offers to get this project under way.



## REFERENCES:

*Data gathered by Helmut Gerbis-Berthge, instructor at Oerlinghausen, Germany*  
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*Samburo Nitsche Flugzeugbau GmbH D-38246 Unterwossen, Germany*  
*LorAvia SLF25R F-57907 Yutz, France*  
*"Voile a Voile" Issue 499.10.92 and "Luftsport" 6/2001*  
*In addition to Scheibe, Dimona and Jabiru.*



# SITUATIONAL AWARENESS

John Chapman (Technical Officer, Australian Parachute Federation)

To maintain situational awareness (SA) requires that you quickly detect, integrate and interpret data gathered from the environment. To maintain SA during flying activities requires you to constantly monitor your surroundings, being aware of and assessing each element such as:

- the weather – now and how it may develop
- other pilots nearby
- the terrain
- your height
- and relate all this to the ship you are flying

That is to say – “Are you aware of all the things that are going on around you ‘now’ that can or may affect you in the near future?”

You are said to have lost SA if something happens that you have not anticipated.

For example, you are flying in a fairly regular pattern with other pilots on a ridge and find yourself trapped against the terrain with a glider blocking your exit. Did this occur because you lacked the experience to anticipate the situation, or because you were focussed elsewhere and were not aware of the developing encounter?

The first is a skill problem, but if it was the latter then you lost SA and got somewhere that, if you had the option, you would rather not be.

Maintaining SA means constantly scanning and updating your awareness of your surroundings using all your senses and placing priorities against any elements that can affect you.

There are several factors that work against perfect situational awareness. These can be described as:

- internal noise
- external noise
- monitoring limitations
- habits and expectations

## INTERNAL NOISE

Reducing this depends on the observer’s ability to operate basic flying skills close to automatic, consequently reducing the amount of distraction by internal decision making. This is the aim of most training.

For example, if you still need to make basic conscious decisions about balancing your turns then this detracts from the amount of your consciousness that is available for scanning and observation so you may miss the clues that you are sinking out and getting low.

Operating at an almost automatic decision making level can be achieved either by flying at a relatively simple skill level (only easy, uncrowded sites, for example) or by complex, exhaustive training to an advanced operating level. Most of us are aiming for somewhere in between.

## EXTERNAL NOISE

This is the sum of everything that is happening around you. One measure of being considered an expert in any field is to be able to assess complex situations that to a novice would be just so much extraneous, confusing activity/noise. The expert can interpret what is happening at a glance and make the appropriate, correct decisions.

To reduce this initially to manageable levels is why novices in any sport start with simple, planned situations that are gradually allowed to build to be more complex and less controlled. We have all had the feeling of being overwhelmed by incoming information and the mind and body’s usual response is to become selective about the various stimuli. Training is also aimed at teaching which are the important factors to prioritise, slowly allowing us to expand our consciousness until it encompasses everything that is important.

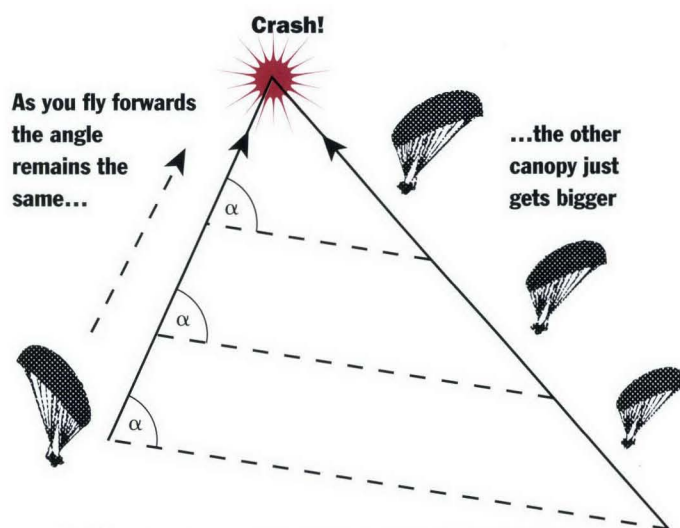
However, we have all seen the person who is completely overwhelmed with incoming information, causing performance to fall dramatically to the “mind blank” stage. This can also be referred to as sensory overload.

Another aspect of external stimuli is allowing a single item to take over your awareness – target fixation during landing is one example, or concentrating on a nearby wing to the exclusion of all else. Allowing any single input to distract you from your general scan is dangerous. Keep looking!

**Many situational awareness problems involve collisions and near misses. Following any collision there is often a long argument about whose fault it was. Quite often both pilots believe they were “suddenly hit” by someone from behind or the side who “snuck up on them.”**

**In this circumstance usually BOTH pilots have lost situational awareness when neither was aware of the other.**

**The old saying that it takes two to have a collision refers to the fact that if only one pilot maintains situational awareness and sees it coming then that pilot will take avoiding action. And with our wings it doesn’t take a great deal of skill to avoid a collision, just steer away.**





## MONITORING LIMITATIONS

Limitations to your scanning/detection ability include such things as your helmet (which may limit sight and sounds), your wing, the actual physical mobility of your head (it may be necessary to move your upper body in order to see behind or above), vision impairment (are you short sighted?), having the sun in your eyes, etc. Can you think of other limitations that affect you? Being aware of your limits is half the problem solved, then you can take active steps to compensate so you have no "blind spots".


A problem that is a special concern for pilots of faster aircraft is the fact that our eyes, when not looking at a specific object, tend to relax to a close focus. Scanning with your eyes focussed for distance requires a conscious effort, usually done by occasionally looking and focussing on a distant object and then continuing to scan.

## HABITS AND EXPECTATIONS


We have all been fooled by seeing what we think is a familiar scenario, but then been surprised by a different outcome. Usually, in the de-brief at the bar, some element comes to light that we missed. Most people like being in familiar, (relatively) safe situations and it is a fact that many people tend to interpret their surroundings optimistically, or in a manner that will suit them. Misplaced optimism – or in Australian dialect, "she be right!" – can get you killed.

Training is all about trying to make situations familiar, but we need to be constantly on guard in order to recognise the small variations that make some situation a whole new ball game, as well as bearing in mind that any form of entertainment is all about creating fresh situations that will maintain our interest.

If something doesn't feel right, it probably isn't right. Listen to your feelings as well as exercising your conscious brain.

A subsequent factor to consider is the time taken to make correct decisions. Situational awareness is only part of the process. Having taken in information we have to do something with it. Taking too long to make the correct decision is often as bad as making the wrong one. But this is another subject – decisionmaking – that I'll develop another time. 

**One of the problems with recognising an imminent collision is this: on a steady course a pilot flying to a collision with you will not move relative to the background you can see, they will just get bigger but remain on the same relative bearing.**

**Unfortunately this negates your eye's best feature for picking up objects – that is, movement against a background. Our eye's peripheral vision is very good with seeing something moving relative to the scenery, but unfortunately these are not the things that will hit us, unless they change course.** 

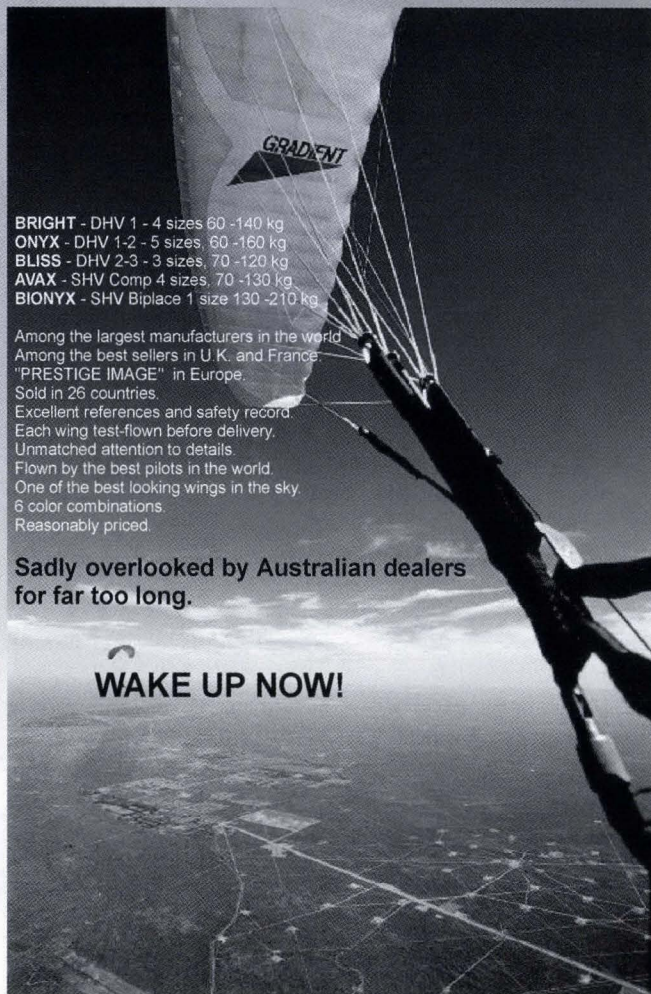
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# HGFA General Manager's Report . . . . .

**L**ast month you would have received notice of the HGFA Annual General Meeting to be held in Camperdown, Sydney on Sunday, 8 September 2002. I again invite members to attend. The Management Board will be meeting on both Saturday and Sunday of that weekend. As is usual, the meeting will be to discuss various federation issues and set policy for the administration of our sports. Given that all HGFA committee meetings are open to members, you are welcome to attend any part of the meeting. Assuming that most of you will have better things to do that weekend (like go flying), you are encouraged to put your opinion on any issues or offer suggestions to your nearest Board member prior to the meeting.

## Airworthiness Directive – Microlighting

An airworthiness directive was forwarded to all Pegasus microlight owners recently which related to a problem with the fuel primer bulb (fitted to some engines). Apparently the primer bulb outlet valve is held in place by a snap-in plastic ring. If the snap-in ring detaches, the valve can float around inside the primer bulb and block the outlet at random, causing engine failures and fuel starvation damage. The directive outlines a process of locking the snap ring with locking wire. Should any owners of aircraft fitted with a primer bulb not have received the advisory, please contact the HGFA office to arrange for a copy to be forwarded to you.

## Spinning Tendency – Rigid Wing Hang Gliders (Class 2)

During the past season several cases of spinning have been reported by pilots of

rigid wing hang gliders. Marcus Hoffman-Guben offers some valuable advice on how and why this phenomenon occurs in an article translated from German and now published on the CIVL website at [www.fai.org/hang\_gliding/safety/rigidwing\_spin.asp].

## Water Landings

It is of great benefit to practice water landings with a rescue diver handy (eg, at a club water landing clinic). Carriage of a hook knife certainly helps, but experience has found that generally to get out of the harness is a better option than trying to unhook or cut away from the glider. Obviously the best option is to avoid water landings entirely.

A recent fatality in Spain reinforces that it is not only hang glider pilots that are at risk when water landing. An experienced British paraglider pilot (200 hrs) was flying at a site in Spain with a group of pilots and a local guide. He was seen flying low down the hillside, below the briefed height required to glide to the landing area. Despite repeated radio requests to head to the landing area there was no response. Eventually the pilot headed for the landing area but was too low and landed in the water five to 10m from the shore of a rocky cove, 250m from the landing area. Rescuers reached him within 10 minutes, but were unable to revive him. The BHPA safety committee recommended continuation of their policy of recommending that water landings are considered unsurvivable and are to be avoided at all costs.

## Accident Reports

Each of the following incidents can only

be attributed to human factors. The man minus the airmanship equals an expensive (and often painful) lesson.

### No 1.

**Pilot:** Advanced HG certificate  
**Experience:** 180 hours total,  
 nil hours last 90 days  
**Glider:** High performance HG  
**Pilot Injury:** Cracked shoulder socket  
 & elbow injury  
**Glider Damage:** Broken upright  
**Location:** Inland mountain site  
**Conditions:** 10kt wind headwind,  
 moderate turbulence

### Description (by pilot):

First time at this launch for all the pilots present, so we picked a launch spot which was quite narrow (bushes on either side) and rocky under foot. There was also a four foot barbed wire topped fence 10 yards down from the launch start (believe it or not it seemed to be the best spot!). I started my take-off run but my left wing clipped a bush which I think killed my momentum. I got airborne but couldn't clear the fence, which my base bar hit, stopping me dead, breaking an upright and injuring my arm. The other three guys subsequently carried their gliders over the now flattened fence and launched safely.

### Comments:

What a way to clear a launch! It no doubt seemed "convenient" at the time.

### No 2.

**Pilot:** Intermediate PG pilot  
**Experience:** 88 hours total,  
 5 hours last 90 days  
**Glider:** DHV 2 rated paraglider  
**Pilot injury:** Fractured ankle & pelvis  
**Glider damage:** Nil



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**Location:** Coastal soaring site  
**Conditions:** 12kt wind, nil turbulence  
**Description (by pilot):**

I flew without incident for about 30 minutes. I was about 200ft above launch, and as part of routine practice I decided to apply "Big Ears" which I had previously done many times. On the Flight Design S1 this involves grasping the tops of the outer front risers and pulling them in to collapse the outer wing tips, thereby producing an increased rate of descent. I reached up, and without realising what I was doing grasped the rear risers and pulled. Something immediately felt strange and I released the risers. The wing was stable and I looked at my vario, noting that I had lost about 100ft. I was puzzled and wondered about stray turbulence. As I regained height, again to about 200ft, I had a single dominant thought, "I know how to apply big ears. Do it carefully and positively and it will work as it always has." Again at 200ft, with the wing stable and flying into wind I reached up and carefully, deliberately, watching my hands as I grasped first the right and then

the left rear risers. Despite all previous experience I failed to recognise what I was doing. The rear risers do not look anything like the front outer risers. The colours, shapes and number of lines rising towards the wing are all significantly different. I routinely use the rear risers upon landing to collapse the wing quickly and safely. This time I pulled very firmly with the predictable result. The next few moments are a blur, but I must have let go as the wing opened, although I was swinging wildly under it. On the third down-swing I hit the ground on my left side. I jumped up immediately to bring the wing under control and to assure approaching bystanders that I was uninjured. I had assured everyone that all was well and they departed leaving my wife and myself to complete packing my equipment. By this time I began to feel unwell and my wife drove me to a medical centre for assessment.

**Pilot's comment:**

To pull in the rear risers while flying at 200ft can only produce a full collapse and is obviously near suicidal.

It is very difficult to find an explanation for my woolly thinking leading to the collapse. I have worked hard over several years developing my wing handling and flying skills. I have been handling the wing well and flying well. My self-confidence has been rising, although meticulous care and safety considerations have always been absolutely the top priority. Although it is hard for me to believe, it may be that confidence had become over confidence leading to shortcuts in my thinking, and allowing some actions to be carried out on "auto pilot" with little conscious input. I am aware from other life experiences that it is possible when routine actions are done repeatedly on "auto pilot" for errors to creep in with obviously unsatisfactory results. If this is true, then I could not have chosen a worse moment to prove it. It is not possible to put an absolute value on the benefits gained from my flying boots and the well padded harness. Without them I would have been far more seriously injured and may well not have survived.

**Fly safely, Craig Worth**



# 2001-02 Paragliding Ladder

RANK	POINTS	PILOT	NAME	CLASS
1	3519	Rhett	Rockman	Open
2	3488	Enda	Murphy	Open
3	3413	Ron	McKenzie	Open
4	3025	Ian	Ladyman	Sport
5	2942	Phillip	Hystek	Sport
6	2856	Stewart	Dennis	Serial
7	2853	David	Worthington	Serial
8	2850	Fred	Gungl	Serial
9	2759	James	Lawson	Open
10	2736	Brandon	O'Donnell	Serial
11	2706	Brian	Webb	Serial
12	2617	Ivan	Annisimov	Open
13	2492	Karl	Texler	Serial
14	2442	Craig	Donnell	Sport
15	2335	Patrick	Roser	Serial
16	2253	Brett	Robinson	Sport
17	2249	James B	Thompson	Serial
18	2241	JJ	Bastion	Open
19	2143	Godfrey	Wenness	Open
20	2084	Andrew	Kemp	Serial
21	2080	Kevin	Chisholm	Open
22	2080	Peter	Bowyer	Serial
23	1984	John	Chapman	Serial
24	1957	Bob	Smith	Serial
25	1946	Paul	Cox	Serial
26	1902	Nigel	Hack	Sport
27	1824	Garry	Stevenson	Sport
28	1772	Rod	Harris	Sport
29	1688	Bill	Roberts	Serial
30	1533	Jon	Durand	Serial
31	1530	Andrew	Horchner	Serial
32	1464	Rob	Couper	Sport
33	1464	Bernie	Kelly	Serial
34	1394	Jason	Turner	Serial
35	1288	Gary	Clarkson	Sport
36	1249	Richard	Tuckwell	Serial
37	1242	Gerry	Gerus	Serial
38	1200	James	Ryrie	Serial
39	1193	Howard	Rogers	Sport
40	1141	Heinz	Bobner	Sport
41	1141	Lachlan	Fletcher	Serial
42	1122	Barbara	Scott	Sport

RANK	POINTS	PILOT	NAME	CLASS
43	1112	Heike	Hamann	Serial
44	1025	Peter	Wennersten	Serial
45	1013	Kevin	Gingell-Kent	Serial
46	1003	Andy	Abbott	Serial
47	913	Matthew	Cooper	Serial
48	859	Sharyn	Gingell-Kent	Sport
49	856	Jules	Sanderson	Open
50	845	Adam	Nienkemper	Serial
51	834	Geoff	Guest	Open
52	813	Michael	Bruce	Sport
53	799	Peter	Allen	Sport
54	759	Craig	Martinson	Sport
55	717	Robert	Wilton	Serial
56	617	Andrew	Polidano	Sport
57	593	Rick	Hendrics	Sport
58	555	Suzi	Smith	Serial
59	536	Darren	Liver	Serial
60	527	Mick	Renshaw	Sport
61	493	Gregory	Walsh	Sport
62	478	Phillip	Taylor	Serial
63	455	Geoff	Sexton	Sport
64	447	Rob	Fakes	Serial
65	388	Lee	Scott	Sport
66	287	David	Mills	Serial
67	284	Ted	Jenkins	Sport
68	226	Peter	Christian	Sport
69	193	Carolyn	Dennis	Sport
70	189	Zoltan	Toth	Sport
71	186	Greg	Hollands	Sport
72	186	Adam	Langsam	Sport
73	166	Martin	Wysocki	Sport
74	133	Geoff	Wong	Sport
75	124	Garrit	Verway	Sport
76	85	Joe	Rainczuk	Sport
77	79	Stuart	Banks	Sport
78	77	Ross	Lupton	Sport
79	75	Colin	Jeffreys	Sport
80	67	Dave	Frecheville	Sport
81	64	Giles	Johnson	Sport
82	59	Hakim	Mentes	Serial
83	54	Ian	McFarlane	Sport
84	45	Greg	Payet	Open

RANK	POINTS	PILOT	NAME	CLASS
85	45	Philip	Savery	Open
86	45	Duncan	Casswell	Sport
87	34	Mike	Duffy	Serial
88	31	Ricky	Keating	Open
89	30	Quentin	Smith	Sport
90	25	David	Russell	Sport
91	25	Neil	Sumpton	Sport
92	21	Clinton	Arnall	Sport
93	20	John	Archibald	Sport
94	17	Antje	Daehler	Sport
95	17	Brian	Sheppard	Serial
96	16	Paul	Skinner	Serial
97	15	Richard	Worton	Serial
97	15	Peter	Welsh	Sport
97	15	Owen	Jourdian	Sport
97	15	Bruce	Harrop	Sport
98	14	Brad	Tull	Sport
99	10	Craig	Papworth	Open
100	8	David	Cross	Serial
100	8	Brian	Clarke	Serial
101	7	Jim	Gaal	Sport
102	5	Alexander	Zangerl	Sport
103	5	Mike	Lowe	Open
103	5	Michael	Radja	Sport
103	5	Tim	Francis	Sport
103	5	Matts	Eliasson	Sport
103	5	Gavin	Zahner	Sport
104	3	Andy	Schurger	Sport
104	3	Rachel	Bending	Sport

**CHAMPIONS**

Open Champion: Rhett Rockman  
 Serial & Sports Class Champion: Ian Ladyman  
 Women's Champion: Barbara Scott  
 B & C Grade Champion: James Lawson

**RECORDS SET IN 2001-2002:**

Australian & National record distance to declared goal: 161km  
 Australian record distance to a declared goal – women's: 151km

See [www.hgfa.asn.au](http://www.hgfa.asn.au) for more details of ladders and records.

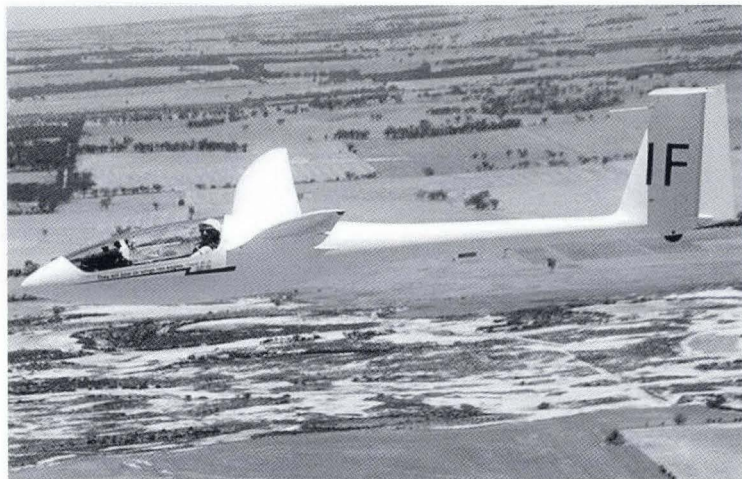




# I Prefer Long Flights

## – And Winning the Decentralised Comp

James Cooper



James Cooper 'In Flight'

During the week starting 17 November last year the Gliding Club of Western Australia held its cross-country week. The night of the 18th was very exciting with thunderstorms rumbling and lightning strikes as often as one per second over a period of an hour. At three in the morning, as one cell passed over Cunderdin, I got the camera out to take some shots it became a little frightening when the strikes were within a few hundred metres.

The 21st was a nice day with a 587km flight, but with the trough passing to the east and overcast conditions setting in I assumed, as I went to bed, that the good weather was finished and a lie-in was in order for the next morning.

### 22 NOVEMBER – 766KM

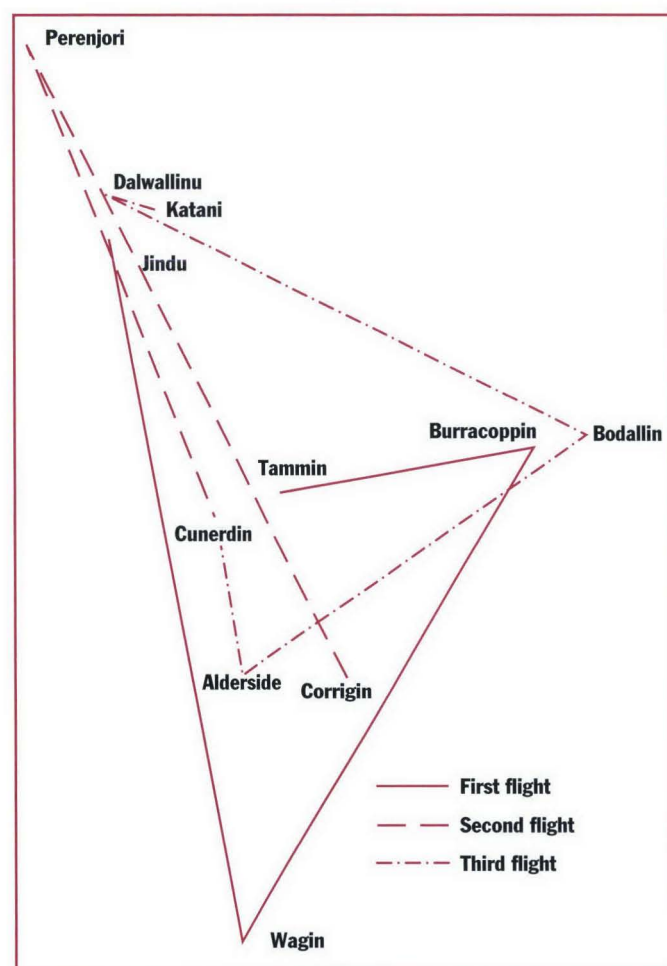
A lazy morning and at eight o'clock I looked out of the caravan window to see cumulus across the sky and a stiff southerly. By nine I was launched (no daylight saving in WA) with a 1,000km task declared. It has always been my policy on long flights to go north – it generally works. However, after 100km the cumulus was beginning to thin out, with a few puffs to the north that looked as if the day was going to pop again. Not sure if it was going to blue to the north and, as the cumuli were still good to the south, I phoned the met bureau to get a prognosis. "Go south." So at Ballidu 125km out I turned for a new task to Wagin. A 1,000km flight not possible in blue. As I passed Cunderdin the rest of the members were beginning to launch. Russell and Geoff promptly landed out, but Iain was getting into wave above the cumulus. I had a go but, impatient to push, on never found it. Wagin, the furthest from home was, of course, the low spot. I was calculating the task on the run to get 750km so I headed for Burracoppin. With a 15kt tailwind I managed to average 121km/h on the 240km leg, arriving there at 4:30 and still 120km to go. The wind was now a head component, and every thermal was at three knots. To find the core I used the classic technique of turning into wind in lift, pushing on and on until the air smoothes out and the strength increases, then turn and not before. Things looked possible until 30km from home when the last thermal failed to produce resulting in an outlanding with 766km under my belt.

### 17 DECEMBER – 922KM

Much of the details of this flight are similar to Andrew Repton's flight where he achieved the first 1,000km in Western Australia. The main difference is that whereas Andrew got a very nice thermal at about 9:15 to cloud base, it took me till 10:45 to do the same. I knew at that point I had blown it but still pushed on to go as far as I could. Some days things just don't run for you! We had asked the met office if there were any possibility of a sea-breeze and the answer was no, so on this basis we set Dalwallinu as our last turning point. Andrew managed to turn just as the sea-breeze came in; I had to fly 25km into the sea-breeze and then try to get back under the cumulus. No chance! If we had known we would have set a last turnpoint further inland and it may have been on. But that's gliding!

### 9 FEBRUARY – 673KM

With the previous flight it was worthwhile taking note of the decentralised competition and I knew I needed about 600km to sew it up. However, some days look as if everything is against you. On the morning of the 9th I was prepared for such a distance, but did not think it really possible as there was a strong wind and little possibility of cumulus. Iain and John, however, had the very latest results which indicated that I needed more than 600, so 680km was set. I checked a task-plan for a suitable FAI triangle and declared. Launch at 9:50



The three flight plans



and the vario showed 20kt: no, not that strong, just something wrong with the plumbing. I landed with water, greasing it on, and quickly took off the instrument panel to repair a broken pipe. Launch at 10:30 – things not going well. With the late launch I had planned to go to 3,000ft but at 1,800ft I saw John at the same height so I bunged off to be together. Up the first leg we went playing it cautiously, keeping high and continually topping up.

By Dalwallinu I was beginning to leave John. The next leg was into a strong head wind. Again, by using the classic technique of flying into wind in lift till you hit the strong stuff, crosswind in the sink, I was getting 49:1 glides with a 15kt headwind. Not bad for a Standard Class glider!

Progress appeared slow into wind. Well down the second leg over some rock I expected a thermal, but none for me! However, about one kilometre past the rock I saw a huge gust of wind go through the rubbish tip so, although it goes much against the grain to fly back-track and down wind, this had to be a good one and at 2,000 agl it felt the way to go. I climbed with one eagle and literally hundreds of pieces of paper and poly bags: it does make you feel inadequate when an expensive fibreglass glider is out-climbed by a load of rubbish! Still pushing into wind, the radio indicated that many other pilots were heading for home and the lonely feeling began to set in – 270km to go and 3:45pm.

With still regular four-knot thermals I pushed on to Alderside, turning at 5:30pm, then headed for home; topping up when I could but still being selective. No point in not having enough height and the day running out. The final leg from Alderside was lift all the way with a final glide of 45km and a loss of 4,000ft at 75kt – not bad at 6:30.

Delighted to cross the line with the impression that the decentralised comp was won, I was yet to find two more problems that day.

The flight I had just done was not an FAI triangle, but a slightly smaller one inside the flight path would work as an FAI triangle and so give me sufficient points to win the title.

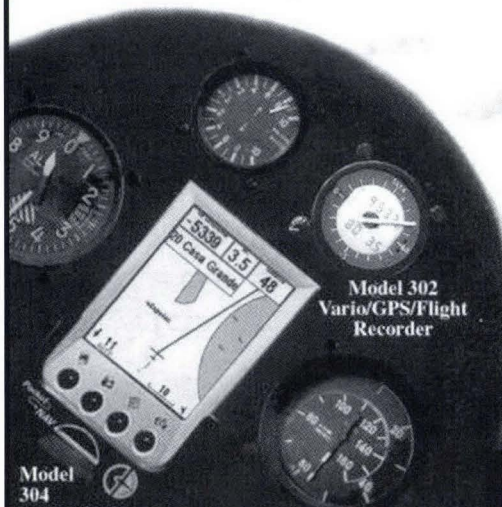
Later, looking at the results, I noted that one of my flights had been scored at 1.2 points per kilometre rather than just one so, not being prepared to win through an error, Chris Stevens, the DCC was informed. Well, I got second place anyway, and I suppose that if I looked at how things went that day from the first launch it was just not going to be.

I had not intended to have a push for the decentralised comps: my goal for the year was to do a 1,000km flight, but this having failed it's not a bad consolation prize, considering I just enjoy doing long flights.

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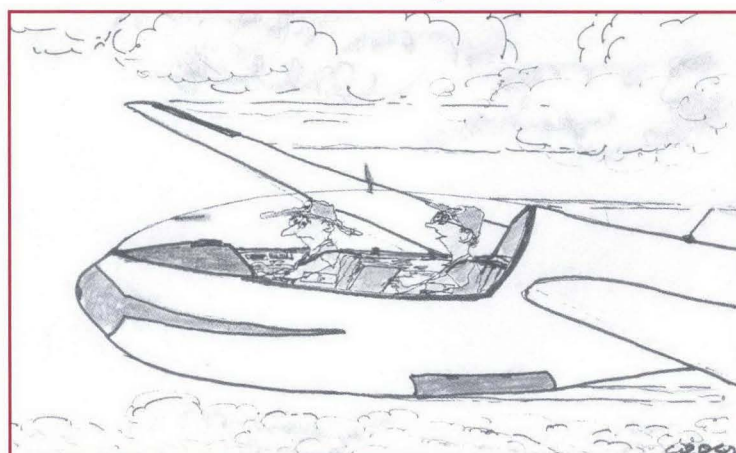
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# DINO BIRDS

## – The Natural History Museum Exhibition

### 18 July 2002 to 5 May 2003

**Martin Simons**

**N**ot many readers of *Soaring Australia* will have the opportunity to visit the Dino Birds exhibition which is currently running at the Natural History Museum in Kensington, West London. This is concerned with fascinating recent discoveries concerning the origin of birds. Some may be in London before 5 May next year and it is well worth spending an hour or two at the NHM. There is also some possibility that the exhibition will be taken on a world tour, so if it comes to your state, try to see it. (Of course you will choose a day when there is no possibility of flying yourself.)

Until very recently the earliest known bird of any kind was the *Archaeopteryx*. The first fossil of this creature was discovered at Solnhofen, Bavaria, in 1861. It is one of the museum's most important and precious possessions. Extremely fragile, it is rarely shown in public but you can see it now. The preservation is so good that the feathers and the structure of the wing plumage are clearly visible.

The conditions under which the Solnhofen lithographic limestones were formed were most unusual. Delicate structures like feathers would normally have been destroyed but in this case they survived. It is likely that other fossil skeletons came from feathered animals, but have been misunderstood in the past. There is apparently only one other complete *Archaeopteryx* anywhere. It is in Berlin.

Now there is much more to say. Some 125 million years ago, part of the region now called Liaoning in north-east China was subject to volcanic outbursts. During an eruption, in a matter of minutes gases and fine ash must have choked and killed all life in the affected area. Almost immediately the bodies were covered in layers of the finest possible dust, saving the remains from subsequent destruction by wind, weather and erosion. The material, now compacted into stone, is even finer than the Solnhofen limestone.

Continents have moved, climates have changed, oceans have advanced and retreated, but the Liaoning ash strata remain almost undisturbed. Fossils are abundant, to the extent that local farmers have established an industry, digging in quarries, splitting the rocks and selling what they find to museums and, illegally, to private collectors. Details of

the fossilised animals are most perfectly retained. There is a succession of skeletal forms that are correlated with other sites of similar geological age throughout the world. In particular, where there are feathers, and there are plenty, it is possible not only to see what they are but also to analyse their structures. Fluffy down and stiff tail feathers can be distinguished from the asymmetrical primary feathers associated with fully developed wings.

Each period of vulcanism, separated from one another by thousands and possibly millions of years, provides a kind of 'snapshot' of life at the time of the latest eruption. Most importantly there were small carnivorous, non-flying dinosaurs with plumage. It seems now incontestable that birds evolved from creatures like these. When the famous dinosaur extinction about 60 million years ago occurred, some, with feathers, were already capable of flying and survived. Perhaps they were saved, in the postulated bitterly cold climate, by the insulation provided by their plumage. (The contemporary pterosaurs could also fly but they had no such insulation, and perished.)

The NHM exhibition contains 13 fossils from Liaoning, as well as the museum's own *Archaeopteryx*. Each species displayed is a study in itself but the centrepiece, one of the most perfect fossils ever found, is the Feathered *Dromaeosaur*, the so-called 'Fuzzy Raptor'. (Anyone who saw the film *Jurassic Park*, knows what a raptor dinosaur can be. The Fuzzy Raptor was smaller but no less dangerous in relation to its size.) This was not a flying animal. It was a meat-eating predator, with teeth, sharp claws and powerful hind legs which must have given it a very good turn of speed over the ground. But it was covered in plumage and its feathered forelimbs would have been capable of evolving into genuine wings. In the Liaoning sequence at lower (ie earlier) levels, there are other flightless, but feathered, dinosaurs. In the gut of one of these are the remains of a small shrew-like mammal; the creature's prey partly digested. Later than *Archaeopteryx* came *Changchangomis*, which was a small bird resembling a modern form. The multiplicity of fossils in one thin layer of ash indicates that these must have lived in large

flocks, all being caught together, dying in thousands, and being buried in ash.

Many questions remain. Details are still to be filled in but the general story now is clear. Birds evolved from dinosaurs and the controversy that began in 1861 is apparently settled.

The first to fly? Not birds, nor pterosaurs. The first flying creatures were insects. Apart from cleaning their crushed bodies off wings and car windscreens we don't give them enough attention. They were already at it 300 million years ago, give or take 50 million. Much about their flight is still mysterious. The smaller ones paddle through the air like an infant child in water rather than relying on the Bernoulli equations. Some, it seems, sustain themselves in the air by generating a series of ring vortices, beating their wings to accelerate masses of air downwards, more than can be accounted for by standard aerodynamic theory. Newtonian reaction keeps them up. Probably the hovering humming birds do the same kind of thing.

The origin of bird (and pterosaur) flight remains a matter of some dispute.

Recent videos, shown at the NHM, demonstrate that wings can be used to aid birds to climb vertical surfaces such as tree trunks. By beating air down, the bird can generate an upward reaction allowing it to ascend swiftly with only the slightest touches of claw on bark. This is not true flying but might have been an evolutionary approach to it. It is very possible that the rudimentary wings of the feathered dinosaurs, were used in such a way. Then, likely enough, the animal could have launched itself from higher branches to glide, in the manner of a flying squirrel, from branch to branch.

Another possibility, illustrated by the same video, is that a fast running raptor with feathered forelimbs extended, would be able to make extended hops or gliding leaps, clearly an advantage in pursuing prey or evading other hunting animals. Longer wings and associated muscular growth, could have led to real flying take-offs from level ground.

None of the preferred theories seems to allow for the possibility that primitive birds (and probably the pterosaurs), were essentially not mere gliders, but soarers. A creature that could extend wings of moderate span and area, but which lacked the necessary musculature and supporting skeleton to flap,





could nevertheless take off by running a few steps from the crest of a low hill or coastal sand dune into the up-slope wind. It would then ascend in the manner of a modern hang glider or sailplane after a bungee launch. Remaining airborne for as long as it required, it could search for prey over wide areas and for many hours. It need never beat

its wings. In terms of lifting area and aerodynamic performance, radio controlled model sailplanes of about the size and layout of Archaeopteryx, but surely much heavier, are commonplace.

It would, in evolutionary terms and on the geological time scale, not be very long before soaring over windward slopes led to

thermal soaring, extending the search for food over vast areas in the manner of vultures and eagles today. The next thing could have been the development of efficient flapping mechanisms and greater manoeuvrability, allowing the smaller, swifter dino-birds to catch some of those veterans of flight, the insects.



## Feedback Forum



### Viv Drew

**A** current issue of importance to all members of the gliding movement is the future of State Associations.

The article below, compiled by Maurice Little, GFA Executive Vice-president, gives an in-depth picture of what a number of states are facing at present. This article is also reproduced on the GFA website under Feedback Forum. We would be interested to hear your views and questions on this issue, so send an email via Feedback Forum.

### The Future of State Associations

The GFA first round papers held amongst other matters a paper and motions from the VSA (Victorian Soaring Association) which essentially wound the Association up replacing it with a GFA committee.

Several members have asked for more detail on this and whilst there is a posting on the GFA website "Feedback Forum" and in the first round papers, the following is offered for those without access.

For some years now several State Associations have been struggling to meet their statutory obligations under either or both their own constitutions or the government Act. The main problem is attracting the necessary officers and attracting quorums to meetings. The essential business of the Associations continues to be performed by GFA officers, Regional Technical Officers (RTOs), but more recently attracting secretaries, treasurers and the like has proven difficult. It seemed timely therefore, to seek out alternatives to achieve the essential requirements and provide a suitable structure to support and monitor the various regions' clubs.

The present GFA constitution does not even recognise State Associations and therefore makes no provisions for them. That is, and has always been, a State matter. An often misunderstood fact is that the GFA's connection to members

is via the clubs and to the clubs via its officers such as the RTOs; these links being essential for MOSP compliance and in the best interest of gliding in Australia. What GFA does have is rules which attempt to oblige regions to comply with GFA requirements, which have never been fully observed, cannot be enforced and are therefore yet another good reason to move to a more sensible set of rules. Present GFA articles 62-71 are the section applicable. These rules simulate State associations as GFA Regional committees but it cannot force states to adopt these rules. A silly situation really.

What the GFA council can do is create any number of committees by regulation, and it makes sense to have a formalised regional committee to perform the essential GFA to club interface. This can be done within the existing articles without problems and can be constituted in exactly the manner required to suit both the needs of the region's clubs and the GFA's requirements.

Conversely the new proposed articles don't even mention regional committees or their officers nor does it mention State Associations. Its core theme is to keep the articles as flexible and broad as possible, whilst still providing the requirements of the Act and the ability to manage by Council decision. Regions are only referred to in the area of nominating from peer groups, the heads of department and hence three Executive Officers. They are also mentioned in the requirements for changes to the articles. This allows council to structure committees to handle regions as it sees fit with whatever structure it prefers and what one region (the VSA) is proposing is a suitable initial structure, but most importantly a quarantine of the assets for the specific purpose of that committee.

The concept of GFA Regional committees replacing failing State Associations

has considerable merit in that (if approved by Council):

- It safeguards the financial aspects to a specific committee, which can control its expenditure and income under guidelines set by the region.
- It allows a committee to be structured and varied as required to suit the member clubs evolution and for its members to be elected by the regional clubs key representatives annually.
- It removes any separate legal reporting requirement and hence removes the administrative and cost burden.
- It allows the committee to do all things a state association might do if it wants to continue in the same manner.
- It allows the essential GFA and regional functions to be continued with whatever structure is deemed suitable without having to meet for meetings sake (a major factor to the failing existing associations) whilst following the guidelines set each year at a Committee meeting of all the stake holders.
- It brings the regional activities completely under the insurance auspices of the GFA's schemes hence cost saving.
- It firms up a better line of understanding and communication between regional clubs and the GFA Council which to date has been completely territorially based and hence less than optimum.

Any solution which can reduce the administrative burden, reduce costs, maintain existing standards and audits, continue to manage its financial affairs in an independent way and possibly improve the relationship and understanding between Council and clubs, has got to be seriously considered when the alternative is no State Association and no mechanism for cohesion of the regions clubs.

What is being proposed recognises the present situation, deals with CASA and GFA requirements and offers a workable and cost effective alternative to servicing the member clubs. Further to this, nothing is irreversible. If circumstances changed there is nothing to prevent the recreation of a State Association if that was seen to be more appropriate some time in the future.





# Not As Skinny And Small Now

JIM DUNSTAN REFLECTS ON HIS GLIDING ACTIVITIES IN THE AVIAN GLIDING CLUB, BRISBANE, DURING THE EARLY 1930S.

Reprinted, with permission, from the Aviation Historical Society of Australia magazine, AHSA Aviation Heritage

Allan Ash's wonderful historical book *Gliding in Australia* contains on page 44 the following

*"New members joined the club once it became active. One of these was a small, skinny 14-year-old youth named Jim Dunstan. He was so light (about 75 pounds) that he had to carry ballast to fly the Zogling. On one occasion he forgot the ballast and the glider stalled sharply off a bungee launch and performed an inelegant tail slide back to earth. Young Dunstan required several stitches to a gash in his head, but the Zogling was only slightly damaged.*

*During repairs, opportunity was taken to fit the Zogling with a nacelle. On his first flight in the rebuilt glider, Jim found he was not tall enough to see over the edge of the cockpit, so made the entire flight staring alternately at the inside of the nacelle and the blue sky above.*

*Later, the club built a false seat to raise Jim's bottom several inches above the normal seat, thus allowing him to see where he was going."*

Well, the small, skinny 14-year-old youth was me and the year was 1932. The two episodes above were really typical of gliding in those early days and I could recount many more.

I had been interested in aviation for a few years – model making, hero-worshipping, trips on the bike to Archerfield, the odd Gypsy Moth joy flight – and saw an economical way to go flying by joining the glider club.

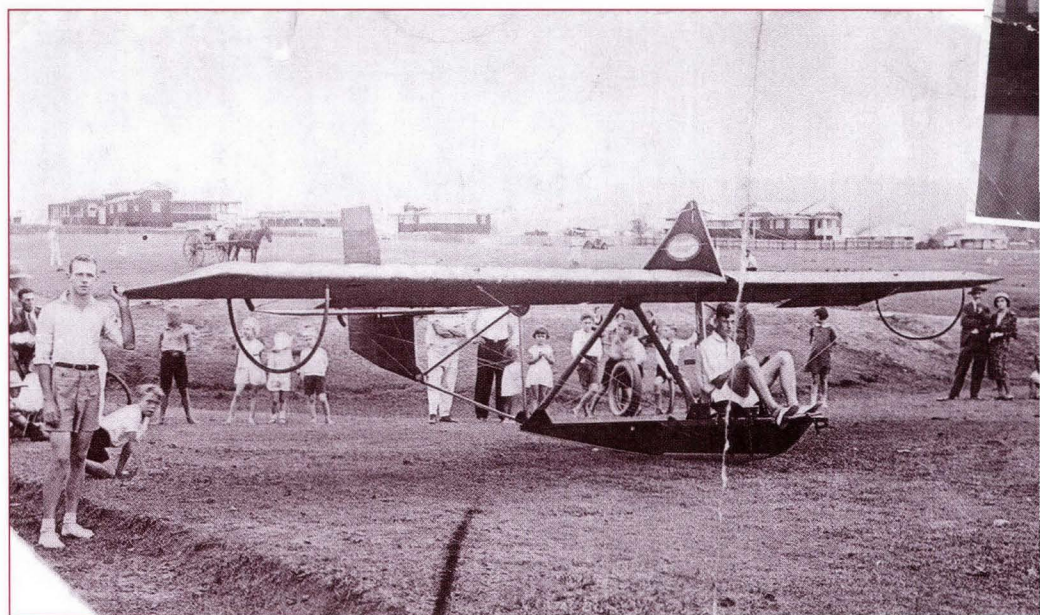
I was fortunate enough in those days to have a job, albeit a lowly copy boy for the Telegraph newspaper, but my weekly wage of 12 shillings (\$1.20) less two pence tax, meant I couldn't get into learning power flying. An "A" licence at the Aero Club cost £45, which was 18 months' wages. Before tax!

But gliding was a lot of fun and a lot of work – bungee cord launches and dragging the glider around – which kept us pretty busy. Most of us travelled to and from the club by pushbike – not many cars in those days. Building the aircraft, repairing it and maintenance

were all hard work with hand drills, foot-powered jig saws, Casco casein glue, etc.

I was certainly a bit on the light side in those days and ballast was necessary. As an

**Above and left:  
The Avian Gliding Club's  
Zogling at Graceville,  
about 1932**



example, one day I was caught in a pretty savage gust, got the aircraft down and then spent some time sitting in the thing while it stood vertically on its tail while the others were trying to return it to earth before it flipped onto its back.

We flew at Marburg, west of Brisbane, and down at the South (now Gold) Coast. Here at Burleigh I had another 'incident' when the auto-tow cable would not release from the nose hook. The driver of the tow-car reached the end of the beach, jumped out and cut the cable at his end, leaving me with about 1,000ft of steel wire attached to the aircraft's nose hook.

I returned to the beach very rapidly, but safely, surrounded by steel wire and a very sweaty aura. They said I looked like a bird in a cage!

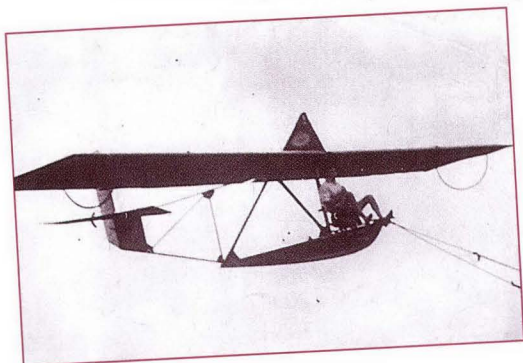
Training was done in primary gliders, all single-seaters, so training was very progressive. First, facing into the wind and learning to balance the glider with ailerons and rudder. Then ground skids, learning to keep level and straight, and then the first 'hop', a few feet only, usually followed by a thumping landing. After that, the student gradually moved up the slope for short hops, or if there was no slope, longer bungee launch hops on the flat.

This brings to mind another hazard for the student pilot – the occasional break in the bungee cord. This happened one day when we had a new member in the club doing ground skids.

The bungee cord was stretched out to about 15 paces but it broke at the crew end. Our new member received a face-full of returning bungee cord which rendered him unconscious. We revived him with copious hatfuls of water and adjudged him shaken but okay. He didn't come back for more lessons. I wonder why?

All sorts of gliders were being built by the enthusiastic amateurs of the day, but the most popular was the Zogling Primary of German design. A triangular 'king post' amidships, an open truss fuselage and a fin and tailplane made for a very basic machine.

The pilot's seat was a bum-sized wooden bucket with perhaps a pad about six inches square at the back, a joystick, rudder bar and that





Photos: Jim Dunstan



Photographs from a wingtip are not new. This is the Aviation Club's Zogling flying near southport, Queensland in 1933. Note the details of the aircraft – the seat belt made from a flattened piece of canvas fire hose, the chest-high stick, the rudder bar stirrups and the nose-mounted release. The pilot's left hand, seen behind the seat, has just pulled a string which operated the Box Brownie camera

was it. Some clubs added a removable nacelle to streamline things a bit. Fabric covering for the wing and tail assembly was as usually Egyptian cotton with aircraft dope applied.

A small book was produced in Germany for the guidance of student pilots. Among other words of wisdom were:

*To fly bare-headed is inadvisable*

*as accidents may happen and the head would then be totally unprotected.*

*Goggles, if worn, should be made of celluloid or triplex to avoid damage or wounds from flying glass.*

*Anyone wearing glasses should, in case of accident, try to take them off before the crash, as they are always a source of danger.*

It wasn't exactly an encouraging book for the beginner to read!

The glider was balanced to suit a pilot of about 12 stone or 80kg in weight. At around half that weight, I certainly needed that ballast!

Other gliders were being built and the Smith Brothers, of Graceville, near where the club flew, built a secondary glider that they designed, and we flew this at our club field. We also obtained the plans for a British-designed parasol-wing single-seater, the Scud 1, which we never finished building.

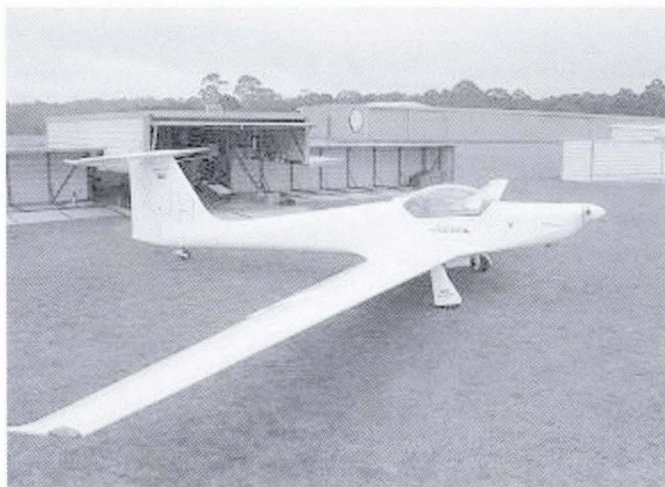
World War II service and, later, family life, kept me occupied after the 30s and although I did not participate in gliding any more, I retained an interest in the sport. In the late 1960s the Darling Downs Soaring Club staged a veterans' weekend at its field at Oakey and I flew up from Melbourne to join in. It was a wonderful nostalgic weekend for the old-timers and club members did us proud.

An interesting sidelight to the visit was to meet John Bange, a grazier of Clifton, who came to the carnival. John was the proud owner of the Porterfield that originally belonged to my boss, Reg Ansett. I went to John's home to see the aircraft and spent the night there with the intention of flying in the Porterfield the next morning. Alas, the black mud of the Darling Downs and the spatted undercarriage of the Porterfield didn't combine well so we had to scrub the flight, to my deep disappointment. John also owned a Ryan STM, Gypsy-powered, and I was able to fly in that later in the day. A beautiful aeroplane!

On my return to Melbourne I was able to tell RM that the aeroplane he bought in 1936, and in which he won the Brisbane – Adelaide air race, was still in excellent condition, well cared for and quite flyable. He did know however that it had been re-engined, with the Le Blonde radial being replaced by a four-cylinder Continental. RM didn't miss much!

Like all aviation, gliding has advanced far beyond our most fanciful dreams. One must applaud that. But I think it is sad that aviation has no 'characters' now. No Kingsford-Smith or Hinkler or Hudson Fysh

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or Lester Brain. Real people, real flyers, real aviators, who fascinated us all in the 1920s and 1930s.

I suggest that was the golden age of aviation and I will always be grateful I was able to live in it and to see, and even meet, some of those wonderful flying people.

(Incidentally, I'm not as skinny and small now!)











Another software package commonly available is 'SeeYou', available from [www.seeyou.ws/]. This software costs \$213 Australian to register, so I trialed it until the free time ran out! It is quite an elaborate package and works well with the 'vector' type maps, which are offered free. Vector maps don't have all the detail of 'raster' images (such as above), however they have other advantages (eg, when zooming out with long XC flights). It does offer 3D flight logs, however doesn't seem to do 3D landscapes, but don't quote me on this. Once

again, like CompeGPS, the flight evaluation capabilities are mind boggling! 'See You' is certainly a very good flight evaluation package and seems to be the preferred choice of Davis Strawberry. Comparing the two popular choices, CompeGPS is certainly better value for money and works just fine.

By the way, don't spend too much time in front of the computer, or you might forget to go flying!



## Stratos-C at Sea

Christian Cieck (translation by Saskia Cavotta)

TOP COMPETITION PILOT, CHRISTIAN CIECK, SETS HIS RIGID TO TASK UNDER STORMY SKIES  
AT THE MILLAU CLASSIC, FRANCE, THIS YEAR...

After participating in this competition last year, I was amazed by the beauty of the area and the excellent organisation of the event. The weather conditions were very good and the themes of the competition were appropriate, not to mention the well organised and quick pick-up of the pilots and the good money prizes (only for the flex wings seeing that there were only two rigid wings at the comp).

For these reasons, I decided to compete this year as well, with the hope of finding some more rigids. Ignazio Bernardi decided to come with me as well; he had been impressed by last year's comp too.

To our big surprise we discovered that we weren't the only Italian pilots competing, as it happened last year. There were another 10 Italian pilots who had the same idea: to be more precise there were three rigid and seven flex wing pilots who came to the beautiful place where this event takes place.

This year the weather conditions were not merciful to us, allowing us to fly only three days out of the seven. These three days we flew there was a limited extension (compared to the potential of the area) due to big possibilities of sudden downpours which were given by the weather forecast for these days. The flights were 80, 90 and 96km, with a take off every 15 minutes. The window for the take off of all the pilots was two hours.

In the first task the conditions were distinguished by an instability, which brought us for a short period to the first part of the day where the sky was almost completely clouded till the first turnpoint. Nevertheless, there were enough thermals which allowed us to finish the task without many problems.

Thanks to the cumulus, which I found after my start, and also thanks to the excellent flight characteristics which the Stratos-C has, it was possible for me to make a glide of 20km losing about 700m.

The only difficult part of the day was the glide after the first turnpoint where the excessive clouds covered the sky. Due to this condition there were not a lot of thermals, and the few which were formed were very weak.

After having passed this part of the route calmly, the return from the last turnpoint to goal went very fast, allowing me to realise an average of 54km/h.

The forecast for the second task indicated a crossing of a stormy front in the afternoon, and apparently, observing the cumulus which were developing, it seemed that the 90km task would have been feasible at an even higher average than the day before.

Apart from the first two thermals which were exploited in the plateau (4m/s), the task turned out to be much more difficult than expected. The first two turnpoints were placed in an area where the

air was rather stable so that most of the pilots were forced to land in between them.

And the difficulties were not finished yet. The cumulus base between 1,700 and 2,000m and a target set at 1,050m and also the presence of another area with few cumulus at the entry of the last and highest plateau, finished off another big selection of the remaining pilots. Being able to count on a better efficiency, I managed to enter the plateau with a better flight altitude than the others and, although not without difficulties, managed to close the remaining 30km of this difficult task in more or less one hour, with a total time of approximately three hours and 15 minutes. The only other pilot who managed to get to goal that day was Gerolf Heinrichs, with an approximate total time of three hours and 45 minutes.

During assignment of the last task there were a lot of sceptical faces amongst the pilots. We changed the take off because of the moderated north wind which would rotate to the west in the beginning of the afternoon. Richard Walbec, the director of the competition, assigned a task of 96km with one of the worst skies seen during the last flying days.

Practically nobody believed the task would be possible until, under an almost blanketed sky, the first pilots started to climb at 2-3m/s.

The sky cleared up more and more, and in order to avoid remaining on the ground with the crossing wind, everybody rushed to take off. 50km out the thermals got to 5m/s, but only in the middle of the valley (or should I say canyon?). Those who tried going back and forth in flat cut at the first three turnpoints, by leaning on the mountain ridge, were disappointed and went down after a few kilometres.

Those who remained in the air, and who had an easy flight for the first 50-60km, found themselves facing up to a clear blue sky (or almost) for the last 30 or more kilometres, flying though with the wind from behind.

I said "almost clear blue sky" because while I tried to keep as high as possible and let myself get driven by the wind, I saw a small cloud form then disperse. When the zero I was in finished, I went forward to that point and to my big surprise I began a nice climb. This event repeated itself a few times and I got to goal 22 minutes before the second pilot arrived.

The next day we were under water again, so we could all go home, some more satisfied than others. As far as I am concerned, I won the competition in the Rigid Class and of course I look forward to returning to this nice place next year.

I am very happy with my Stratos-C and I can't wait to compete against the top pilots who will be at the Worlds in Chelan.



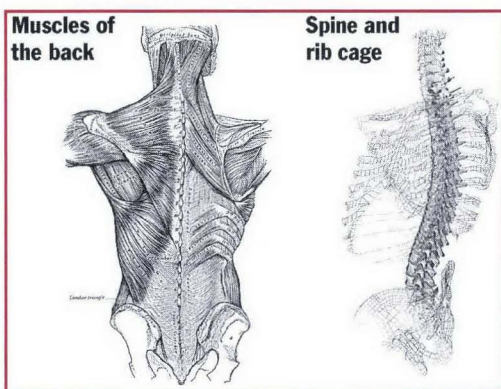


# BACK PROTECTION

Richard Hadfield, NZHGPA Paragliding Training Manager (Reprinted with kind permission of Airborn NZ)

**H**ave you ever sat down and really thought about what makes a good back protection system? Or wondered why a big squashy piece of foam costs so much while all it seems to do is take up more room in the bag than the glider? And what ever happened to those flash looking bulletproof plastic jobbies, with the interlocking alligator spines that were all the rage a few years back? Surely they were better than these chunks of foam everyone seems to have these days, after all something as cool as “interlocking alligator spines” must do something... right?

To look more closely at the issue of impact survival we will need to employ the aid of a theoretical test pilot whom we'll call Trevor. Trev has very kindly volunteered to take a really good wallop on the ground while we sit back and examine the effects.



## THE BACK

Before we get to the crash we have to start with a look at what it is we are really trying to protect – the back.

Your back is composed of 33 bones called vertebrae, 31 pairs of nerves, 40 muscles and numerous connecting tendons and ligaments running from the base of your skull to your tailbone. Between your vertebrae are fibrous, elastic cartilage called discs. These ‘shock absorbers’ keep your spine flexible and cushion the hard vertebrae as you move. While damage to the back can include painful muscle, ligament and deep tissue injuries, what we all really worry about is the spine. The spine works as the main support for the spinal cord and nerve pathways that carry information from the arms, legs, and rest of the body, and carries signals from the brain to the body. When the spinal cord itself is damaged the prognosis for full recovery is often not good.

## A BRIEF HISTORY

As you will soon see, every impact involves energy created by the motion of a heavy

object (the pilot). How the protector deals with that energy determines its type. I can recall only three true varieties of back protection and each of these has superseded the last.

### Type 1. Displacement

The most basic thing you can do with the energy of a fall is displace it over as much of the back as possible. This was the idea behind the very early hard shell protectors, which was all good and well in theory, but with this type the energy is only displaced over as much of your back as is actually in contact with the protector. Which would be okay if they were custom moulded, but alas most of the models I have seen are “one size fits all”. What subsequent studies have shown is that due to their shape these types of protectors act like a lever by transferring large amounts of energy to the upper spine. This can cause more damage than having no protector. We shall speak of these types no more.

### Type 2. Deflection (with interlocking alligator spines!)

Then came the very cool looking ‘interlocking alligator spine’ types. Originally pioneered by Air Bulle, these work on the principle of deflecting the energy away from the spine via a series of interlocking shells that run parallel to the back. As with the hard shells, these types worked better in theory than in actual tests. There were also a number of imitations produced around the same time, most using questionable materials or manufacturing methods.

### Type 3. Absorption – dissipation

The most common type of back protection used today, whether inflated airbag or foam, employs absorption and dissipation of energy as the primary means of reducing shock, and it's this style that we will look at more closely.

## PHYSICS IN ACTION

To fully appreciate the dynamics of impact and impact survival we have to resort to the realms of physics, so to spare you (and me) the significant pain of abstract formulae and meaningless algebra, let's look at a practical example.

*“Strap on your goggles Trevor, you're going in!”*

Here's Trevor, ridge soaring at his favourite site. Once in flight, Trevor, who weighs a nice round 100kg with all his gear on, flies horizontally at a speed of 36km/h (10m/s) relative to the ground, and because it's a good day is just maintaining so he has a

sink rate of exactly zero. While Trevor is busy enjoying his flight he is blissfully unaware of the forces at work on and around him. Due to his forward movement through the air he has kinetic energy (KE) and because he is a mass elevated above the ground Trevor has potential energy (PE). This potential energy relates to the pull of gravity and how much speed Trev can build up before impacting the ground, so the higher he goes and/or the more he weighs the greater this potential is.

Friction is also ever present as we move through the atmosphere, and while it may seem like a drag (no pun intended) in normal flight, this resistance comes in very handy if the glider is to stop flying.

As Trevor floats past take off at a height of 10m he fails to notice a topless hang glider (let's say an Aeros Stealth) bearing down on him. In a flash the razor thin profile cuts through his lines and Trevor is suddenly aware of one of those forces that he was previously ignoring: gravity (the big G). If we disregard the effects of the atmosphere for a moment, then a falling object will accelerate at a rate of approximately 10m/s – per second. Since he was only 10m off the deck it takes Trevor just one second to get to the ground. During that one second Trevor's previous forward speed is lost and the potential energy (100kg, 10m above ground) is unleashed, which in turn becomes kinetic energy as he accelerates up to 10m/s (approximately 36km/h) before the ground stops him.

Now we come to the critical part, the deceleration.

Every pilot has heard the saying, *“It's not the fall that will kill you, but the sudden stop!”* This saying is in fact very much correct. It doesn't matter how big you are or how fast you fall, what really matters is how long you spend slowing down and this is where your back protector comes in.

Acceleration/deceleration is the action of changing the velocity of an object, and since the technical term ‘velocity’ refers to speed in a set direction, then any change to either of these factors (speed or direction) is counted as acceleration. In Trevor's case he is now travelling vertically at 10m/s toward an essentially immovable object (the ground) and is about to make the mother of all decelerations. As he strikes the ground another force, which was omnipresent throughout the flight, starts to have dramatic effects. This force is called momentum, which is the propensity for a moving object to keep moving in the direction that it was last heading. As with kinetic energy, this force increases with





mass and velocity. In this case it has the effect of driving Trevor harder still into the ground.

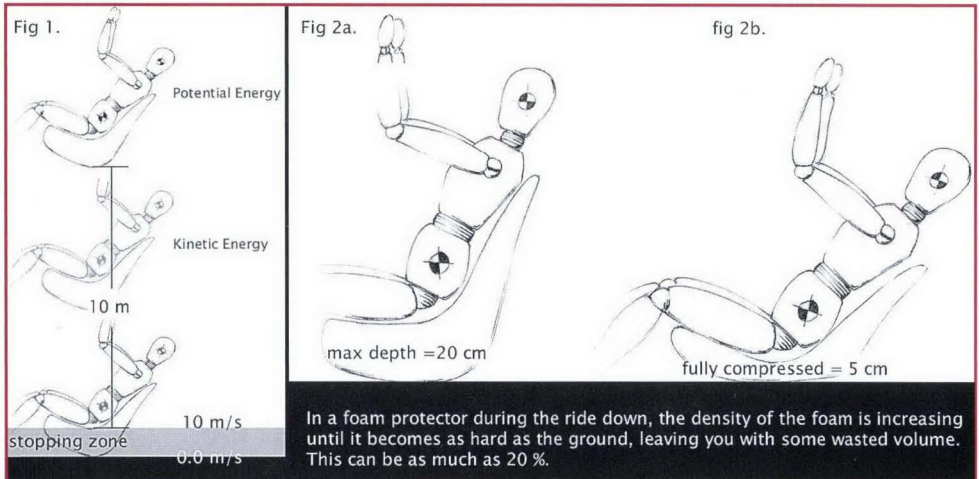
### BACK TO THE CRASH.

Ignoring the fact that he should perform a parachute-landing roll, Trevor lifts his legs, screams like a girl and comes in full throttle on the back protector. As the foam/bag starts to deform, the kinetic energy of the fall is now transferred to the protector and some of the energy transfers from kinetic to a number of others (sound, heat, etc). In an airbag type back protector (either foam or inflated) most of the energy stays kinetic as it is transferred to the air in the bag. This energy causes an increase in air pressure that in turn increases the temperature (heat energy). This increased pressure forces the air out of the bag, either through the openings in an inflated model or through the material itself in a foam design. Whatever the type, the design should control the release of air so that the pressure remains constant throughout the impact. One of the critical factors in the dissipation of energy in a back protector depends on how the air is released from those openings.

At this point we need to consider the properties of a good back protector. If you take a standard foam protector and stand on it, what happens? It *slowly* rides down until it is fully compressed (see Figures 2a and 2b). If you jump on it then it compresses faster because of the kinetic energy of your jump. As you step off you should notice that it slowly returns to its normal shape. This is due to a design feature which is primarily to provide the 'ride down' function on impact, but which comes in very useful after you stop decelerating. In contrast, imagine falling on a trampoline; when you hit, not only does it slow you down but it also sends you back in the opposite direction. This rebounding is an extreme case of acceleration where you not only change speed but also direction by 180 degrees due to the elastic energy of the trampoline springs. Elastic energy is a relatively complicated subject in itself, but for now all you need to know is that in an elastic situation the energy can be stored (even if it's only for a brief moment) and then released in the opposite direction... which is bad! This is why you don't see stunt men jumping out of the 12th storey onto trampolines. This rebound effect is also undesired in a back protector.

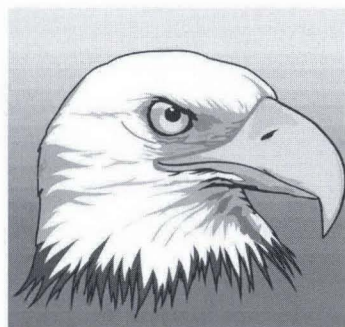
To work out how hard Trevor will hit the ground we need some pure physics. The 'hard' part relates directly to force, and to figure force we need to use Newton's second law which states that force is equal to mass times acceleration, or more simply put,  $F=Ma$ .

In our example above we know the mass



of Trevor is 100kg, but we don't know his deceleration. To work that out we need to know how fast he was falling at point 'A', which is the moment the back protector first made contact with the ground (36km/h in this case). And again at point 'B', which is the moment that all downward movement stops (zero km/h). So no problems there, but the last element is the time taken between points A and B and this is a big unknown. In Figure 1 Trevor enters the 'stopping zone' at 10m/s. If he were to continue down unobstructed (ie, with no protection) then he would make pass through the 20cm stopping zone in under .02 of a second! So given that he has had 10m to build up speed and the force of gravity will be a factor

throughout the impact then a mere 20cm (2% of the drop height) is a short distance to slow down. Still, the foam helps considerably and the longer Trevor spends decelerating the lower the final force. In his case this relates directly to how thick the back protector is and what density of material is used. If the back protector were only slightly softer than the ground then it would compress in an instant transferring most of the shock directly to his back. Alternately, if the protector is as soft as the surrounding unconfined air then it would bottom out equally fast with the same result. Then we have the issue of pressure. If at any time during the ride down phase the internal pressure of Trevor's protector rises too high it will have the same



## "Ol' Eagle Eyes" Flight Glasses

From North Coast Avionics Pty. Ltd.  
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email [cummings@nor.com.au](mailto:cummings@nor.com.au)

Check out our web page

<http://www.nitroaustralia.com.au/eagleeyes.html>

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effect as already being on the ground and hence any residual force will be transmitted to his back.

So now you can see the dilemma facing the designer of back protectors. Firstly they must carefully balance the internal pressure to provide the optimum ride down. However, they don't know what forces will be involved, people come in different sizes (mass) and impacts come in different speeds. And there is one more important point to think about and that is the displacement of the energy that isn't absorbed by the back protector. Basically this is the energy divided by the available surface area. The higher the energy and/or the lower the surface area, the greater pressure per cm<sup>2</sup>. This is the principle behind why a knife cuts and why pointy things hurt. In the case of a falling pilot you want to spread the load of impact over the maximum possible surface area. Typically, if during the fall Trevor maintains the sitting position then the surface area of his normal sitting behind will be what takes up the residual energy.

Recall if you can the stunt man falling into the absorption bag. After performing the standard arm waving and leg kicking befitting someone falling to their death, the stunt man flips onto his back and lands, feet slightly up, taking the brunt of the impact on his prostrate back. The bag then pressurises enough to blow out special doors in the sides, which release the air at a set rate (okay, so I've been to a stunt man website!). This is a great example of the perfect energy absorption for a falling person. The stunt

man has the distinct advantage of knowing the fall is coming and being able to control most of the variables.

### PUTTING IT IN PERSPECTIVE

In researching for this article I had hoped to gain a definitive answer as to how much force a spine can withstand before you can expect to suffer permanent damage, however I might well have asked "how long is a piece of string?", as the number of variables involved make predicting this next to impossible.

The current world record for surviving G forces is 179.8 G's, held by a race car driver who's car decelerated from 173km/h to zero in the space of 66cm. On the other hand, jet fighter pilots try not to exceed 8-9 G's when flying tight manoeuvres, and if you're sitting there thinking "bunch of bloody blouses", then try to recall that hell spiral you did last week. Remember the roar of the air, the feeling of incredible weight in all your extremities and head? Well, just to be a kill joy, you would have been very lucky to have pulled more than 3 G's. What we have to realise here is that there is a difference between momentary and sustained G forces. A human body can withstand a lot more force as long as it is only momentary. In fact, let's take that same jet fighter pilot and now assume that his 8 and 9 G turns weren't enough to shake the missile that's about to give his \$60M jet the proverbial rodgering. As the missile closes in the pilot pulls the ejection handle and the ejection system accelerates him out of the jet at over 23 G's! According to the military this is

acceptable "non sustained" G's. In this case what the fighter pilot has is a custom moulded suit that fits to every curve of his body, especially the back, and during the ejection he is held rigidly in place by the harness.

As far as paragliding goes, the DHV have decided that less than 20 G is an acceptable standard and protectors will only receive the DHV stamp of approval if they test below this in a drop from 150cm. Exactly how the test is performed remains something of a contentious issue, as are most safety tests performed in controlled circumstances on items for use in the unpredictable real world! An important point to remember is that only companies wishing to sell into Germany will pay for the test (the same with gliders), so just because a certain model doesn't appear doesn't mean it wouldn't pass.

At this stage it is still the best indicator available, you can check out the results at [www.dhv.de].

So, let's just re-cap quickly so you can move on to reading other interesting articles. The key points to reducing the force of an impact are:

- **Deceleration distance**

*The height above the ground that you start to slow down. Effectively this means the thicker the back protector the better.*

- **Deceleration time**

*The density of the back protection, or more precisely, it's ability to absorb/dissipate impact.*

- **Displacement of energy**

*The area that the force is spread over.*



## Angkor Microlight Survey – ROYAL INTEREST



**Ian Brookes**

**W**hilst servicing the Greater Angkor Project – Angkor Ultralight Survey Australian Airborne Trike, T2-2465, at Siem Reap International airport, Cambodia, recently, a helicopter alights very close to us and out steps HRH Prince Norodom Ranariddh, one of the sons of King Norodom Sihanouk, *President of the National*

HRH Prince Norodom Ranariddh with Donald Cooney, project pilot and also President of Concept Aviation, TN, USA. Donald has donated his services and made his trike available to the project. The prince's one star pilot standing to attention directly behind Donald Cooney! Photos: Courtesy Ian Brookes

*Assembly* and leader of the FUNCINPEC Royalist Party, and his wife Princess Marie. To the consternation of the official party there to welcome him, not to mention our own, he and the princess come directly over to us!

Prince Ranariddh is a very keen pilot and regularly flies fixed wing and rotary wing aircraft in the course of his official duties. He owns five aircraft, including two helicopters, an Alouette and a Squirrel, as well as two Italian tri-phase ultralights. He and the princess spent close to 20 minutes talking to us in detail about the Greater Angkor Project and the Australian Airborne trike whilst the official reception party maintained a discreet distance! Such is the brotherhood of ultralights!



HRH Prince Norodom Ranariddh in deep discussion with Donald Cooney, project pilot and Eddie Smith, co-pilot, engineer and photographer





# Soaring Calendar

## AUSTRALIA

### Picolight Annual Paramotor and Hangmotor Flying Event

21-22 September 2002

Milbrulong, NSW. For the 5th year in a row we're organising this very successful get-together, and this year it'll be bigger and better than previous years. The event will be hosted again by Jeff Hoff to have made part of his farmland available for take-off and landing. The location of the event is again Milbrulong, a small village 10 minutes east of Lockhart, NSW. The first pilots are expected to arrive on Thursday, 19 Sept to practice, but the weekend following (21-22 Sept) will be the highlight with both fun events and serious flying. For the less experienced pilots we will have qualified instructors present to assist and advise, and for those who want to compare equipment we will have thrust testers, noise meters and practical workshops. Although the event is mainly targeted towards foot launched powered flying, our friends with powered parachutes or lightweight trikes will also be made welcome. Camping as usual on the Milbrulong sportsground at a small fee for use of facilities. For more details contact: Jos Weemaes, ph: 02 60265658 or <jweemaes@albury.net.au>.

### QLD Teams Challenge

22-27 September 2002  
Practice day: 21 September. Venue: Kingaroy Soaring Club. Contact: Lisa Turner ph: 07 3876 7958 or <lb.turner@student.qut.edu.au>.

### QLD State Competition 2002

28 September – 6 October 2002  
DDSC Jondaryan. Practice day: Saturday 28 Sept, comp days: 29 Sept to 5 Oct. Final dinner: Saturday 5 Oct. Ph: Libby Matuszczak 07 46344879 (h) or <libbmat@optusnet.com.au>. Entry form on our website: [www.ddsc.org.au].

### St Bernards Canungra Classic 2002

28 September – 5 October 2002  
Canungra, QLD. Registration: Friday 27th. Entry fee: \$120 (\$150 if paid after 31 Aug) plus \$40 site fees. GPS mandatory. Intermediate with inland experience. Cheques/money order to Rod Stead, 9 Griffith St, North Tamborine QLD 4272. You can pay by Visa/EFTPOS; call Vicki at St Bernards to use their payment facilities. Entry inquiries: Rod 0428 132 215, 07 55450969 or <canungrahg@mac.com>. Register at [www.triptera.com.au/canungra] and follow the links. Last year's accommodation and meal deals available; call Vicki on 07 55451177 to book and obtain prices or visit their website at [www.stbernardshotel.com.au].

### Narromine Aviation Expo and Air Show 2002

4, 5 & 7 October 2002  
Year of the Outback Event & Glider Grand Prix. All welcome. Total prize money \$1,500. Contact Terry Cubley for more information, ph: 03 53608275 or <cubtv@netconnect.com.au>.

### Manilla Mug 2002

5-6 October 2002  
Mt Borah, Manilla, NSW. Long weekend Oktoberfest "Manilla Mug" competition (see also 'Club News' this issue). Entry is free, open to pilots of all levels. Lots of day prizes and free Borah Basher rides up the hill. All tasks set to be open distance. Scoring same as the State of Origin comp held at Manilla last Easter. Scoring according to level of experience,

eg: Nov pilots are awarded 3pts/km and Adv pilots 1pt/km. This handicap scoring system lets anyone win regardless of experience level. Weekend includes free Bavarian style BBQ on presentation night at "The Old Mill". Prize awarded for best German dress! Registration at the Imperial Hotel, Manilla, 9-10am Saturday, 5 Oct. Towing also available at nearby Breeza with Rhett Rockman. Contact: Coxy, Central Coast Paragliding, 02 43858593 (w) or 0417 355897 or <farqcoxy@hotmail.com>. HQ: The Old Mill, ph: 02 67851515.

### Canungra PG 2002

12-19 October 2002  
Canungra, QLD. AAA sanctioned by HGFA, CIVL Cat. 2 status and the first sanctioned PG event of the Australian season. Entry fee: \$150 (if received before 6 September, \$30 late fee thereafter) including maps, comp T-shirt, presentation dinner, site fees for the duration of the event and the chance to win up to 450 national ladder points each day. Organised retrieve system (\$160 for the eight days of the event) on offer – to reserve a place notification must be made on the registration form and payment received before 6 Sept. For more information visit the website [http://home.iprimus.com.au/plenderleithm/canungracup/], email <canungracup@hotmail.com> or ph: Karen Sexton 0410 433711 or Robert Wilton 0418 732325.

### Renmark Gliding Club 50th Anniversary

Weekend 2-3 November 2002  
Come help the Renmark Gliding Club celebrate 50 years in gliding. Bring your own glider or hire one of the clubs for some local soaring. Join in the Saturday night celebrations at the Renmark Hotel, three course meal, easy listening live band, dine dance or just relax with friends till late. For more information contact the Renmark Gliding Club, ph/fax: 08 85951422 or 0417 890 215, <renglide@riverland.net.au>; Leon Warren ph/fax: 08 85951043, <warrenlb@riverland.net.au>.

### Gulgong XC Classic

16-20 November 2002  
Gulgong Gliding Strip, NSW. The Newcastle HG club runs this aerotow comp, which promises to be an enjoyable event with safety as the most important issue. Maximum number of entries: 50, one tug allocated per 10 pilots – so get your entries in quick to secure a spot! Gulgong is right on the edge of the flatlands and has produced excellent cross-country flights in the past. Basic camping available at airfield for \$7pn. Toilets and shower facilities adjacent to camping area. Pub and motel accommodation available in town (see 'Club News' this issue), 10km south of strip. Practice day: Friday 15th. Entry fee: \$135 (late fee \$50 for entries received after 30 Sept). Entry fee includes \$7 per comp day strip fee, T-Shirt and presentation dinner. Tow fees: \$15 per tow payable to launch marshal on daily basis. Requirements: Current HGFA membership, aerotow endorsement, parachute and GPS. Registration: 8-10pm on Friday 15th. Comp format: Start circle around strip. GPS turnpoint and goal. Goal will be at the strip when possible. Contacts: Bill Olive, 0412 423133, <william.olive@telstra.com> and Rick Duncan 02 49449199, <RickD@airborne.com.au>.

### 2002 Outback Shootout

16-30 November 2002  
International gliding competition for Open Class gliders at Tocumwal Aerodrome, NSW. Contest director is Eddie Madden (CFI). The competition will run over 15 days. First practice day: 16 Nov, official practice days: 17 & 18 Nov. Competitors must fly on one of the official practice days. Real contest starts on 19 Nov and ends on 30 Nov (12 days). Competitors must have previous contest

experience at Nationals level. Both single and two-seaters can enter. The competition is open for pure gliders, sustainer equipped gliders and self-launching gliders. Number of entries may be restricted depending on registrations received. Competition scoring will be based on data provided by approved dataloggers. Entry for non logger equipped gliders is not possible. Wearing a parachute whilst in flight is compulsory for competitors.

### Narromine Cup

23-30 November 2002  
Orana Soaring Club. All welcome. Decentralised scoring. Best three flight performances. Contact Beryl Hartley for more information, ph: 02 6889 2733 or email <hartley@avionics.com.au>.

### Corryong Cup 2003 (The 20th Anniversary!)

12-18 January 2003  
Corryong, VIC. Celebrate 20 years of Victoria's best flying with the biggest and best Corryong Cup! Party with 10,000ft days and PBs by the dozen! Share this Anniversary event with the friendliest pilots from VIC, NSW, QLD and beyond. Registration/practice day: Saturday 11th, comp start Sunday 12th. Mt Elliot, Corryong is one of the most reliable and spectacular flying sites in the Eastern highlands. It's a hill launch set at the base of the Australian Alps on the VIC/NSW border. Tasks are generally 50-100km with up to four turnpoints to make pick-ups easy. The comp is scored on a handicap basis according to glider type and flying experience, so everyone entering has a chance of taking out the top prizes. You must have an intermediate rating (preferably with inland experience) and UHF radio. Scoring will be with GPS or camera, whichever you prefer. Still the cheapest comp in the HG calendar at only \$100 if you register before 30 Nov (\$120 thereafter). Cheques made out to 'Blue Mountains HG Club Inc'. Fee includes comp entry, 20th Anniversary T-shirt, turnpoint film, colour topo map of the area and a presentation dinner with floor-show. Places are limited so don't miss out! Register with: Steve Bell, PO Box 110 Woonona NSW 2517, ph: 0412 686812, <spbell@earth.net>.

### Australian National Club Class Championships

13-24 January 2003  
Temora Gliding Club, Temora, NSW. Contact Geoff King for more information, ph: 02 6977 4424. Snail Mail: PO Box 206, Temora NSW 2666.

### Australian National Multi-Class Championships

2-15 February 2003  
Benalla, VIC. Gliding Club of Victoria. Contact Gary Brasher for more information, email <brash@eisa.net.au>.

## OVERSEAS

### Nepal Air Sports Festival 2003

15-30 January 2003  
Kathmandu, Nepal. Deepti, the Avia Club Nepal, invites all fans of Aviation Sports to the Kingdom of Himalayas for breath-taking cross-country flights in your own flying apparatus (microlights, etc) during a two week event starting 15 Jan. Be part of a unique and historic event and experience the stunning thrill. This is the first time Nepal has opened its territory to foreigners to fly. Don't miss this opportunity! If you're interested contact our website [www.avianepal.21bc.net].



# Classifieds

## NOTICE TO ALL ADVERTISERS

We are planning a full colour print-run for this December 2002 issue of "Soaring Australia".

If you are interested in placing a colour advertisement in this special Christmas issue, GFA advertisers please contact Fiona at Angel Administration (PO Box 1163, Penrith BC, NSW 2751. Ph: 0407 593 192 Fax: 02 4739 0185. Email: <frowe@optusnet.com.au>) and HGFA advertisers please contact Richard Lockhart on ph: 0418 130354, or email: <skysail@ozemail.com.au> to register your booking.

If enough expressions of interest are received by 1 October 2002, bookings will be confirmed before a colour issue can go into production.

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PO Box 1163, Penrith BC, NSW 2751.

Ph: 0407 593 192 Fax: 02 4739 0185.

Email: <frowe@optusnet.com.au>

Advertisements may be emailed in high resolution (300dpi at 100% size) using TIF or EPS formats.

Photographs may be provided in either photo print or slides. Disk photographs are not suitable. Photographs, slides or disks may be returned. Please include a self-addressed and stamped envelope for the return of any promotional material.

All GFA advertisements must be paid for prior to publication. (Payment by cheque, money order or credit card). Don't forget Classifieds deadline is the 25th of the month, for publication five weeks hence.

## Single-Seater Sailplanes

**PEGASE 101 VH-HDJ.** Excellent condition, fully set up for cross-country with all equipment, superb handling & performance, ideal first single-seater. Priced to sell. Ph: Joe Luciani 03 5382 5735.

**JANTAR 2B VH-IUG.** 20.5m Open Class in excellent condition, very attractive outfit with good reconditioned road trailer & all gear. \$33,000 ono. Ph: Joe Luciani 03 5382 5735.

**MOSQUITO XJQ,** 1,600 hrs TT, Oxygen, ATR720, enclosed fibreglass trailer & tow-out gear. \$35,000. Ph: John Ashford (Alice Springs) 0409 679867, <john.ashford@santos.com>.

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**BG 12A.** Excellent condition. Radio, parachute, open trailer. \$9,500. Ph: 02 4373 1147.

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**PW5.** 860 hrs. Basic instruments plus B40 vario & Dittel ATR720 radio. Includes trailer, tow-out gear, etc. Ph: GCV, Bob Gray 03 5762 1058, <glidingbla@cml.com.au>.

**NIMBUS 2C.** 3,600 hrs. Basic instruments plus B50 vario, B57 computer, TerraTX760D radio. Wiring for Garmin12XL & EW logger. Factory trailer, Tow-out gear, etc. Ph: GCV, Bob Gray 03 5762 1058, <glidingbla@cml.com.au>.

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## Publications

**AUSTRALIAN HOMEBUILT SAILPLANE ASSOCIATION:** James Garay, 3 Magnolia Ave, Kings Park VIC 3021. Ph: 03 93673694, [www.geocities.com/capecanaveral/hangar/3510].

**FREE FLIGHT:** Bi-monthly journal of the Soaring Association of Canada. A lively record of the Canadian soaring scene & relevant international news & articles. \$US26 for one year, \$47 for two years, \$65 for three years. 107-1025 Richmond Rd Ottawa, Ontario K2B 8G8 Canada, email: <sac@sac.ca>.

**SOARING:** Official monthly journal of the Soaring Society of America Inc, PO Box 2100, Hobbs, NM 88241 USA. Foreign subscription rates (annually): \$US43 surface delivery; \$US68 premium delivery.

**SAILPLANE & GLIDING:** The only authoritative British magazine devoted entirely to gliding. 52 A4 pages of fascinating material & pictures with colour. Available from the British Gliding Association, Kimberley House, Vaughan Way, Leicester, England. Annual subscription for six copies £17.50.

**SAILPLANE BUILDER:** Monthly magazine of the Sailplane Homebuilders Association. \$US29 (airmail \$US46) to 21100 Angel St, Tehachapi, CA 93561 USA.

**TECHNICAL SOARING/OSTIV:** Quarterly publication of SSA containing OSTIV & other technical papers. Annual subscription: 70DM. OSTIV c/- DFVLR, D82234 Wessling, Germany.

**GLIDING KIWI:** Official bi-monthly publication of the New Zealand Gliding Association, edited by John Roake. Specialises in up-to-date overviews of the world soaring scene & Omarama the NZ base for many of the current World Records. \$A44 annually (Send \$A25 for 12 months back issues). New Zealand Gliding Kiwi, Private Bag, Tauranga, NZ.

**AIRBORNE MAGAZINE:** Covering all facets of Australian & New Zealand modelling. The best value modelling magazine. Now \$60pa for six issues. Plans & other special books available. PO Box 30, Tullamarine, VIC 3043.

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Classifieds are free of charge to HGFA members up to a maximum of 40 words. One classified per person per issue will be accepted.

Classifieds are to be delivered directly to the sub-editor, by email or post, not by phone. The deadline is 25th of the month, for publication five weeks hence. Submitted classifieds will run for one issue. For consecutive publication, re-submission of the classified must be made, no advance bookings.

When submitting a classified remember to include your contact details (for perspective buyers), your HGFA membership number (for verification) and the State under which you would like the classified placed. (Note that the above does not apply to commercial operators. Instructors may place multiple classified entries, but will be charged at usual advertising rates.)

## Hang Gliders & Equipment

### NEW SOUTH WALES

**AIRBORNE CLIMAX 14** adv, only one season new, flown 55 hrs fully logged, most inland. All original, September 2002



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**AIRBORNE SHARK 144** adv, immac, low hrs, incl. spare DT, \$2,900 ono. Ph: Jeff 0413 273809; 02 49461993.

**AIRBORNE SHARK 2 144** adv, only 2 seasons old, flown 90 hrs mostly inland with wheels, never pranged, no hard landings, all original even the DTs, fastidiously maintained, waterproof UV bag & comp spares, \$3,200. Ph: Craig 0412 108630.

**AIRBORNE SHARK 156** adv, 2 1/2 yr old, GC, 160 hrs, mostly inland, orange stripped US, waterproof UV glider bag, \$2,500 (will go lower if pushed). Ph: Peter 0418 435204.

**BOOTS** - Crispy "Airborne" brand new! One size 8 & one size 10. Designed for flying - ankle support, waterproof, protective edging made of Kevlar, etc. Weighs 850g (size 8). \$300 (+ postage). Ph: Peter 0418 724840.

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**MOYES XT-PRO 165** int/adv, VGC, great colours (fl. orange LE, blue/green US). Rubber-backed fared Aerosafe DTs, speed bar, scrim LE with Mylar, complete with owner's manual & batten profile. Flies great. \$1,500. Ph: Gabriel 0407 544511.

#### VICTORIA

**GARMIN ETREX VISTA GPS**, 24MB memory for downloadable maps (note: Australian street level maps being released this month by [gme.net.au]). Incl. internal electronic compass, barometer, US base map (currently with downloaded Australian map). VGC, 12 mths old (1 small scratch on case). C/w PC cable, manuals. See [www.garmin.com/products/etrexVista/index.html] for more details. \$550 (\$860 new). Ph: Michael (Melbourne) 03 9809 2483; <mbruce@spamcop.net>.

**MOYES XTRALITE 147** adv, EC, approx. 60 hrs, \$2,000 (offers considered). Moyes Xtreme harness, VGC, black, suit medium build around 5ft10in (177cm), \$500. Moyes Mission 170 (int) experienced glider, suit less experienced pilot, offers. Leave message on 03 57551040 or <pands@netc.net.au>.

#### QUEENSLAND

**AIRBORNE STING 2 140** int, perfect condition, as new, flown 4 high glides only, US lavender/fluoro yellow with black batten pockets. Spring tip battens, fared DTs, 2 spare DTs. Looks & flies fantastic. Suit smaller pilot. Regretful sale due to illness. \$3,200. Ph: Sue 07 55435093.

**EXPLORER POWERED HARNESS**, 30 hrs, \$3,300. Shark 156 adv, 100 hrs, spares, \$2,500. Danny Scott harness & chute, \$300. Tow bridles, \$30. Bar mitts, \$20. GPS bracket, \$25. Vario 3030 & windspeed indicator, \$350. Video camera bracket, \$30. Aluminium double HG tube, \$180. Combat 152 adv, with pod, chute, helmet, vario, radio, & spares as package \$1,200. Ph: Clint 0415 181042; 07 47747650 (h).

**MOYES CONTOUR HARNESS**, internal chute compartment, black/purple, with chute, \$800 ono. Helmet, VGC with PTT, mic & speaker, \$150 ono. Icom IC40 handheld UHF radio & charger, \$100 ono. GME Electrophone handheld UHF radio & charger, \$100 ono. Moyes pod, black, \$80 ono. A. Cumulus alt/vario, altimeter stuck in metres mode, \$100 ono. Ph: 07 55298793.

**MOYES SX4** adv, Power Rib, 90 hrs, EC, royal blue with orange 'SX4', handles well, easy to land, \$2,500 ono. Ph: Tim 07 5543 5093.

**MOYES VENTURA 190** nov floater, great for coastal, recreational or novice pilot. Very low hrs. VGC. Cheap at \$1,750. Ph: 07 55434258.

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#### NEW SOUTH WALES

**SWING ARCUS XL** only 3 hrs old, blue M2 harness XL & reserve never used, XL helmet with microphone & earpiece. \$4,000 ono. Ph: 0416 111741; <powhiro@hotmail.com>.

#### VICTORIA

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#### General

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# Classifieds

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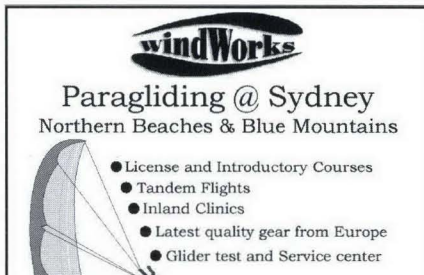
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### NOTICE TO ALL ADVERTISERS

We are planning a full colour print-run for this  
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If you are interested in placing a colour  
advertisement in this special Christmas issue,  
GFA advertisers please contact Fiona at Angel  
Administration (PO Box 1163, Penrith BC, NSW  
2751. Ph: 0407 593 192 Fax: 02 4739 0185.  
Email: <frowe@optusnet.com.au>) and HGFA  
advertisers please contact Richard Lockhart  
on ph: 0418 130354, or email: <skysail@  
ozemail.com.au> to register your booking.

If enough expressions of interest are received  
by 1 October 2002, bookings will be confirmed  
before a colour issue can go into production.

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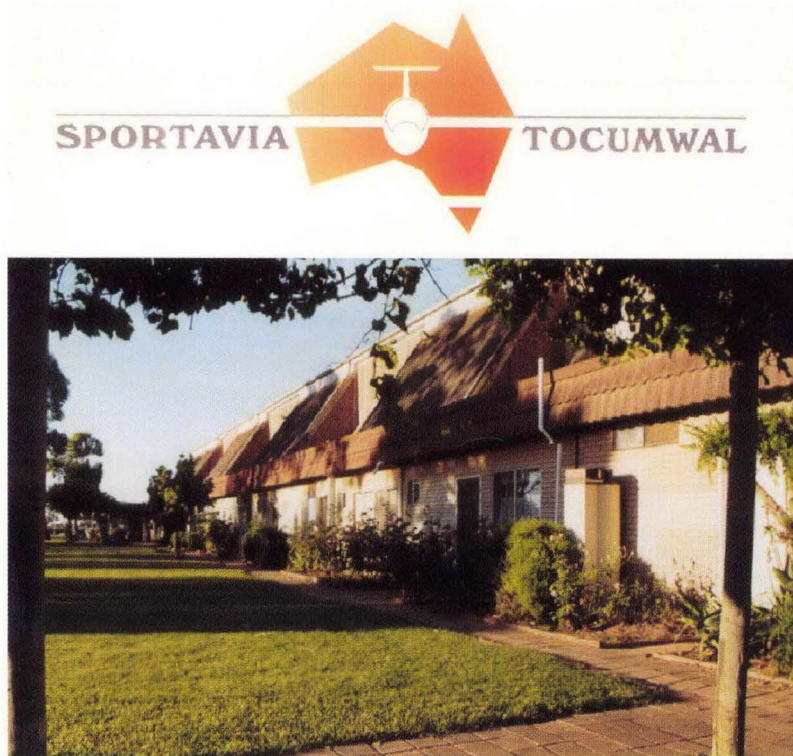
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# MOYES

# LITESPORT

## Manilla NSW State Titles 2002 Results

- 1 Jon Durand Jnr - **LITESPORT**
- 2 Len Paton - Litespeed 4
- 4 Conrad Loten - Litespeed 4
- 5 Glen McLeod - Litespeed 4
- 6 Tasha McLellan - Litespeed 3

LATEST RESULTS

## 2002 Brazilian Nationals Results

- 1 Betinho Schmitz - Litespeed 4
- 2 Antoine Boisselier - Litespeed 4
- 3 Jean François Palmarini - Litespeed 4
- 4 Gustavo de Araujo Saldanha - Litespeed 4
- 5 Kraig Coomber - Litespeed 4



### Specifications

	LITESPORT 4
SAIL AREA	13.75 sqm 148 sqf
SPAN	9.7m 31'9"
NOSE ANGLE	127°
DOUBLE SURFACE	70%
ASPECT RATIO	6.84
BATTENS MAIN	10
BATTENS U.S.	3
GLIDER WEIGHT	31.8 kg 70lbs
HOOK IN WEIGHT	68-110 kgs 150-240 lbs

### Options

- Moyes Zoom-A-Frame with carbon or Fast Speed Bar
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