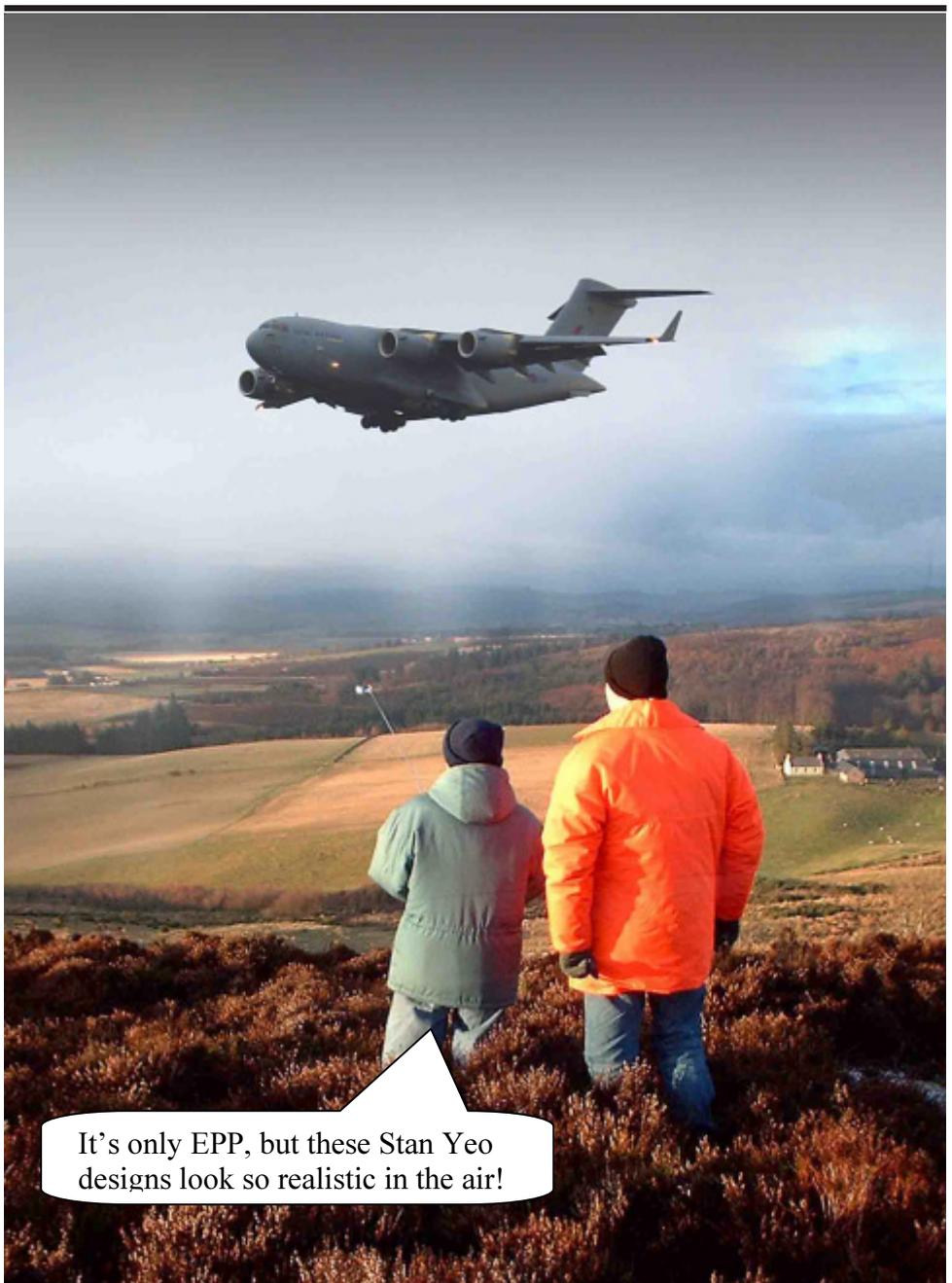


ADS Short Finals



It's only EPP, but these Stan Yeo designs look so realistic in the air!

Greetings and salutations to all, on this the first issue of the newsletter for 2004. Flicking through my 2003 diary, I was struck by how few flying opportunities had come my way in the months leading up to Xmas - a combination of bad weather, work and “domestic bliss” having ensured that I missed most of the good days. However, one entry for a Saturday at the beginning of October merits a string of expletives and went something like this....

Bad news earlier that week had indicated that a very dear, close friend was about to expire! Yes, my trusty old “steed” had failed its MOT test, so this fine morning (the first for ages) seemed like the right time to sort out the problem with the rear brakes. No driveway or garage at my house, so repairs have to be

carried out on the street. With the sink piled high from the previous day’s dishes and the wife in front of the telly watching a recording of the “Pop Idol” show, I stick the ramps under the back of the car, muttering to myself that a programme entitled “Bone Idle” might be more appropriate in the circumstances!

This is where things started to go pear-shaped. I reversed the old Primera up the ramps, but forgot to stop! The vehicle rolled straight off the back and crashed down, the raised stops on the end of the ramps punching straight through the sills. Instant banana-shaped car! Decades of DIY, and I’d never done that before! No doubt the neighbours were amused at the sight of a middle-aged has-been leaping around an impaled auto, exhibiting behaviour that’s best described as “throw-

ing a wobbly”. It took me the best part of an hour to extricate the ramps.

OK thinks I, it’s a nice day and my car’s bugged, so why don’t I commandeer the wife’s motor and spend the afternoon enjoying a bit of relaxed thermal soaring across at Calder Park (introduce a bit of “Karma” to my day). The missus and I skip lunch and her car’s mine, provided I collect a carry-out meal on the way home from the flying. Deal!

By the time I arrive at Calder early afternoon, there’s half a dozen familiar faces at the flying site, all armed with electric soarers. After a bit of a blether I set up the winch, getting my Norrie-built Phoenix 100-inch into the air. Lovely, breezy, but nice! By the time I land, the 10 mph wind has shifted through 180 degs. I patiently wait all of 5 minutes before relocating the winch at the turnaround position

and visa versa, meanwhile the electric flyers just pivot half a turn and launch.

Everyone else seemed to be coping well in the conditions, but my Phoenix had become a “sink” magnet, so after yet another short-ish flight I landed out more or less where I intended, i.e. the same field. Well, blow me, if the wind didn’t shift back through 90 deg! With hindsight I should have carried on regardless, but decided to move the winch and turnaround yet again. Sometime during the course of these movements I became aware of



Jim Ruxton ponders just how he managed to cyano his thumb to the fuselage while Brian Allen and Graham Irvine proffer expert advice on just how fast skin can regrow with daily Real Ale implants.

Cover Pic:

First experience of winter slope soaring for Terry Shields, who joined ADS towards the end of last season. We cheated a bit here Terry was actually flying a Phoenix Models EPP Fun Start and the unusual sight of a Galaxy transport was captured on approach to Dyce! (photos from Neil Davidson & Mike Pirie)

another, altogether unwanted “movement” - a large dollop of dog poo firmly embedded in my boots. Well, by this stage I was starting to froth at the mouth. Unlike the rest of you guys, my wife refuses to clean my footwear, so there was some dirty work ahead for me!

Third launch of the afternoon and with the

Phoenix only just released, the line breaks. Bloody hell, what else could go wrong? Fortunately I got the plane down in one piece, decided to call it a day and packed up. Now, I’m not a superstitious guy, but maybe if I’d

offered tea and crumpets to the old dear pedalling the “Watchtower” magazine instead of setting my son’s gerbils on her, things might have been so very different....

On the return journey I picked up an Indian carry-out for the wife and myself. At least the day would end on a high note! Or so I thought. Turns out that the restaurant had inadvertently given us someone else’s order - no pakora, no nan bread, no lamb madras nor chicken tikka. Just some vegetarian mush (apologies to any

vegetarians in the club!). By this stage we were so hungry and completely hacked-off that we ate the lot, including the foil dishes!

The only consolation in an otherwise depressing day was that my thermal soarer didn’t require gluing back together. Diary entry for Sunday, “went to church”!



Still with last year, Bill Stark passed me the above photo showing the club tent and a handful of those who attended the annual BBQ. The tent had been out of commission for several years because the aluminium frame was in a state of disrepair, but as you can see it’s been fully restored. A big thank you goes to Abby Smith, who took care of the welding work.

Mike Pirie would like to pass on his thanks to Brian Allen, Neil Davidson, Graham Donaldson, Terry Shields, Bill Stark, Alan

Stewart and Jim Ruxton for helping out with the ADS “stall” at the November 2003 Model Railway Exhibition in the AECC. A reasonably pleasant and simple way of earning a few bob to help swell the club coffers. Well done lads!

Moving on to this year, and we’ll be well through the winter evening meetings by the time you read this. These get-togethers depend on your support, so please make every effort to attend those still remaining. Also, the increasingly popular indoor flying



Some of the models on display at the Model Railway Exhibition event, with Brian and Terry taking care of the PR on this occasion.

events organised by Quentin Mayberry of the Inverurie Club saw half a dozen ADS members test their piloting skills in the company of 20 or so other “wall dodgers”. Some successes and a few failures, but always a barrel of laughs! A very welcome visitor this time was George Shering. George a highly experienced competition electric modeller among other things,



Aware of JB's comprehensive experience in such matters, George Shering attempts to explain the more complex and subtle nuances of indoor electric flight requirements to John Barnes... "The whirly bit normally goes at the front while the waggly bits are generally at the back..."

having won the 2003 UK F5B league (F5B = the most powerful electric soarers on the planet). George arrived with an armada of indoor models, including some delightfully tiny home-built models. He demonstrated that the seemingly large Ikarus Bleriot is a perfect indoor slow-flyer, with some very neat transitions from airborne figure-of-eights to on-the-floor 8's and back again!

George flies the same wacky transmitter mode as John Barnes so bravely offered JB a bash on the sticks with the Bleriot. With this being John's first ever indoor flight attempt, and the first time in years he's been faced with a throttle stick — normally uses a LH switch on the tranny for motor on-off control — it was more luck than judgement that ensured the Bleriot survived almost unscathed, especially

as JB managed to shoot down Inverurie club member William Finlay's electric helicopter by neatly removing the main rotor head!

The aerobatic Depron 'And Now' models which some of us were flying proved to be exciting indoor flyers, although mine is better housetrained now with a healthy application of exponential on its massive ailerons to make it behave! Hopefully we'll have a few photos to give you a flavour of the occasion.

Oh, I should also mention that George is one of the organisers for the 2004 Electric World Champs, which is being held in the UK for the first time in York at the Knavemire (York racecourse), the same venue as used for the 1983 World F3B championships. Date for this event is on the back page. JB will be there to report on the event for ADS if he can get a new kitchen installed in time!

Finally, thanks again to those who contributed articles or photos for this issue, but as usual we need lots more! Some interesting stuff to come, so read on..... **DR**



Richard Dawson (head of the famous Huntly MFC) shows the advantage of yoga techniques for helicopter pilots, although ideally the knees should be straight. R/C i/c helicopters generally enjoy a high tinkering-to-flight ratio. Electric helicopters appear no less demanding!



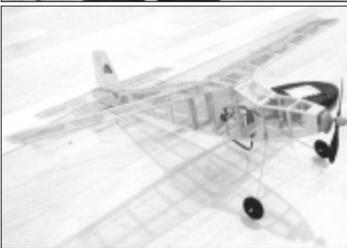
Luke Mayberry and Ben Hobbs showed the older pilots just how to control the very popular r/c balloons in use! The lads also explained that the transmitter range of these is just a few metres, a real restriction on the flight envelope. Come on manufacturers, lets have 40-50m so at least an entire hall can be flown in.



Jim Ruxton gives scale to the popular 'And Now' aerobatic ship. The model is created out of one £3 sheet of 3mm, 700mm wide Depron, 3 tiddly servos/rx/esc, GWS geared motor and a wee nimh pack. Plan (pdf file) is downloadable from www.flyelectric.ukgateway.net



Your Ed's version sporting a scale colour scheme from Kamikaze Air. Good ship for flying outdoors on calmer days as well.



George Shering's tiny free flight electric model. No battery pack. Motor runs off a capacitor (under the wing), which is charged from the Black Box seen behind the plane. Whole thing weighs about as much a pound note and the trimming flights undertaken showed great promise. Beautifully built.



Eric Stephen's remarkable control line gyrocopter. Much development work has resulted in a model which can now be flown with just intense concentration 100% of the time! Eric uses 6m lengths of insulated 24g wire, power for the Speed 400 motor coming from a 7Ah 12v battery housed in a rucksack. As an ex C/L flyer, I was watching Eric's body language as much as the gyrocopter and can vouch for the unblinking concentration required to fly it. Impressive.



The Ed's tiny Bristol Scout. Once a control line model, now converted to electric r/c with a Speed 400 crammed into the nose. Flown successfully outdoors, it proved a mite fast for the hall and returned home for a little TLC to get the wings back on.

Symmetrical section all-foam aerobatic ships could really benefit from a larger hall, although this version seemed to bounce off the walls without a murmur.



George looks a little apprehensive about the ADS Ed's suggestions for suitable poses for a forthcoming edition of 'Gay Flyer'. The tiny r/c controlled model in front flew very well, although George indicated it could be a handful. Not a lot of dihedral but it flew with authority well within the hall confines. The much larger Ikarus 'Bleriot' which George flew proved to be a great slow-flyer, much easier to see and an excellent choice as a first indoor model.

An Aeromodelling Expedition

Jim Ruxton

One of the benefits of owning a caravan is that you can set off to an area of the UK without having the hassle of seeking B&B accommodation at a hotel or a boarding house. There are hundreds of caravan sites in the UK and the Caravan Club itself has quite a spread in its network. As well as conventional sites the Caravan Club has hundreds of “lesser sites” known as Certificated Locations (CLs). These are places which can take up to five caravans and provide only the basic services of a water supply and a place to empty your chemical closet. They can be located behind pubs (very handy), on farms, or even in large private gardens. Some CLs even have toilet blocks with showers and are really mini caravan sites.

can be thoroughly recommended. After I retired and came back to aeromodelling, we visited a number of model airshows. Some years back we went to a Large Model Association week-end at Longhorsley just north of Morpeth. It was absolutely fabulous and our caravan site was only 10 miles away. In 2001 we went to the Sandown Show south of London. In 2002 it was Woodvale near Southport and in 2003 we were at the Clwyd Soaring Association (CSA) scale rally in North Wales.

It is this latter event I want to expand on. In the October 2002 edition of RCM&E I read about a scale soaring event which took place near Llangollen. As it was some years since we had been to Wales we decided to go there. We stayed a few nights in Cumbria then went on to Caernarfon doing the usual holiday things. Outbase for the soaring event was the



Eric Burke is on the left with his Harbinger and John Watkins is on the right with his Olympia.

So what has all this to do with aeromodelling? Well Jane and I have caravanned all over the UK and invariably we have landed up near an air-show or an aeronautical museum. We have been three times to The Shuttleworth Collection at Old Warden and to various other museums. Elvington near York

Caravan Club site at Chirk, which is about 6 miles south of Wrexham. Earlier in year I had been in touch with the Secretary of the CSA – a very helpful chap called Vic Steele. Vic gave me instructions on how to get to the site (e-mail is great for things like this). I had to meet the pilots at the Ponderosa Café at the

Horseshoe Pass. We set off on Saturday morning, good and early. With these names in mind I fully expected to meet up with John Wayne! It was a beautiful July day but with little wind. We got to the café and we waited and we waited. I think the lack of wind had put people off. About an hour after the agreed rendezvous time Vic turned up. I knew this because the back of his car was packed with models. During the course of introductions another two cars turned up. We now had four potential pilots. In one car was Ray Jones, the Chairman of the CSA, and in the other John Watkins and Eric Burke from the Wolverhampton area. I couldn't fly as it was strictly a scale event. After pleasantries (and a cup of coffee) we set off in convoy to the slope. Ray explained that the CSA has about five sites they can use in easy reach of the Ponderosa. Eventually we started to climb up the Llantisilio Mountain on good tarmac but a very, very narrow road. We eventually reached a spot where had the choice of two slopes. Unfortunately there was little or no wind but the intrepid Ray and John launched. John's Olympia descended down the slope and I fully expected a long retrieve. But John persevered and he eventually brought the Oly back up the slope again. A very skilful pilot indeed. The lack of wind a bit disappointing. Jane and I went back to Chirk for a meal in the local Indian.

Sunday however was totally different. A call on the mobile to Ray confirmed we would be at the same spot but using another slope. When we arrived there was a large turnout. Umpteen cars and some really large scale gliders - ancient and modern. Vintage names like Wiehe, Olympia, Harbinger, Rhonbussard and the modern ASWs, Discus Pilatus. The wind was about 12 knots from the south-east and there was plenty of sun. The soaring was out of this world and the camaraderie was excellent. I met up with RCM&E reporter Alex Whittaker and he was interested to hear that I was there because of his review in that magazine in 2002. After a very satisfying day we headed back to Chirk. The next day we set off for home. Another aeromodelling expedition completed. *JR*

FOR SALE

Four 10 cell battery packs for sale, as follows –

- 1 x 2400 Sanyo Nicad pack - £24
- 1 x 3000 Panasonic Nimh pack - £24
- 2 x 3300 Panasonic Nimh packs - £29 each

All in mint condition, having been used less than half a dozen times!

Also up for grabs is a Herobo indoor contra rotation helicopter, with 4 boxes of blades - £95.00

Contact **John Masson**, tel. **01224 647585** or E-mail **jam@masson71.fsnet.co.uk**

1. ROBBE "VECTRA" 100" (2.5m) glider 3-channel (ailerons, elevator, rudder, no airbrakes though). Has Fleet ball-raced servos (FPS 15B's micro wing servos in each wing and FPS 18B's on rudder and elevator). Wing servos FPS 15Bs cost £24.95p each and FPS 18Bs cost £18.95p each when new, and the kit approx £100. Offers of around £160 considered.
2. FLEET 7 CHANNEL PCM TRANSMITTER (non-computerised) Offers of around £50-£60 mark acceptable
3. HOBBY-LOBBY "TELEMASTER 66in" power trainer (yellow wing/ tail/fin, red fuselage) 4 channel with aileron, elevator, rudder, motor, controls. Sell (less engine) for £70 o.n.o (including PCM receiver, switch, 4 x FPS20B servos.)
4. WEBRA SPEED 40 ABC (2-stroke) run only twice from new, now inhibited, excess to requirements. £50 (including silencer)
5. INWOOD "IMPROVER" 4 CHANNEL INTERMEDIATE AEROBATIC TRAINER (56" span), fitted with Super Tigre G21/29 2 stroke glow engine and silencer. Has no radio installed, never flown. Finished in RAF red/white training colours. £70 o.n.o
6. GREAT PLANES "SPIRIT 100" (2.5M) GLIDER KIT. Cost £ 76.94 two years ago. Kit is untouched and will sell for similar price!

Graham Irvine can be contacted at :- 16 Egie Avenue, Balmedie, Aberdeenshire, AB23 8WG Tel: 01358 743561 OR by email(BT changing over to BT Yahoo shortly so try BOTH e-mail addresses in case the first may be inactive at some point):- graham.irvine@btopenworld.com or graham.irvine@btYahoo.com

Very Interesting Performance

Brian Johnson

Ah, the **VIP**. Some time ago I obtained one of these Speed 400 pylon racers. Very nice. There are 9 bits in the kit, 1 wing, 1 fuselage, 1 elevator servo mount, 2 screws to hold it in, 1 elevator pushrod (already set to length in my case), 2 aileron pushrods (they need adjusting on the screw thread for length) and 1 wing bolt.

The wing is fully moulded with a very good finish; the tailplane and fin also glass skinned balsa are already mounted on the fuselage, and the whole thing feels very light. This model is designed to use Nano servos or their equivalent. Luckily for me I had two on the shelf (a fairly

rare occurrence as I usually have the ones I don't need).

As I said earlier, this model is designed for a Speed 400. I haven't got one of those on the shelf, so put the aeroplane away, do something else and ponder the problem (who is going to get my liver).

Difficult one to solve this as a couple of weeks went by before an idea came into my head. The plan was formulated. In for a penny, in for a pound. Motor, speed controller, and Rx were now decided.

The Rx was to be a Schultze mini alpha 435 (£29.00 approx, PLUS £9.00 for a mini crystal) but I was assured that this was a full range 9 gram Rx. For those of you unfamiliar with this it is about 30mm long, the width of two servo plugs, and the thickness of the same two plugs. Looked awfully wee to me!

As for the power train – well, I just happened to have a 45 amp brushless speed

controller not paying for it's keep, but unfortunately to use it I needed a brushless motor. When changing from brushed to brushless, the motor can size reduces, but to get one of the small can motors meant a Hacker B20 or similar. Light, fast, but circa 70 quid. Rapid thinking now, a glimmer of light, Mega 16-15-3wind!!!!!!!!!!!!!! The same size as a speed 400, 3000 rpm/volt, only 48 quid, that'll do nicely.

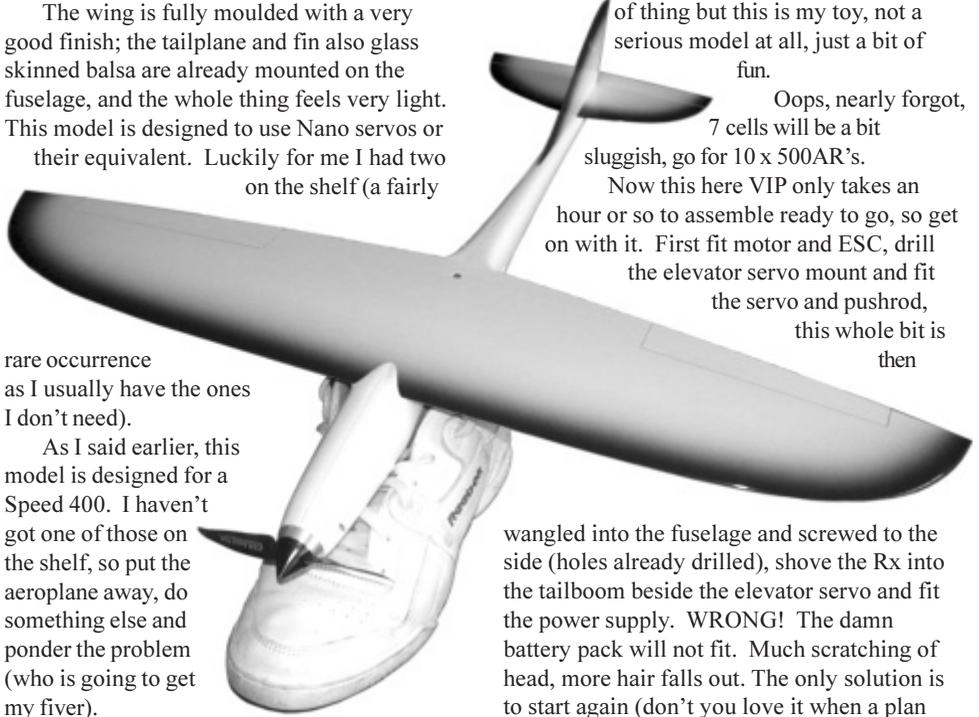
I know you're not supposed to do this sort of thing but this is my toy, not a serious model at all, just a bit of fun.

Oops, nearly forgot, 7 cells will be a bit sluggish, go for 10 x 500AR's.

Now this here VIP only takes an hour or so to assemble ready to go, so get on with it. First fit motor and ESC, drill the elevator servo mount and fit the servo and pushrod, this whole bit is then

wangled into the fuselage and screwed to the side (holes already drilled), shove the Rx into the tailboom beside the elevator servo and fit the power supply. WRONG! The damn battery pack will not fit. Much scratching of head, more hair falls out. The only solution is to start again (don't you love it when a plan comes together).

So the assembly time just went into overtime, back to the start. First fit the bl—dy 10 cell pack that caused all this trouble, push that as far back as possible and the motor will only just fit through the gap. Only just is good enough for me, motor and ESC mounted, battery pushed as far forward as it will go, and the real neat trick is the Chinese puzzle of how to get the elevator servo and pushrod in. Believe me it's not hard once you've practised a bit. Rx in last and the fuselage is finished. Next sort out the wing, drill 2 servo screw holes in the nicely moulded mount, fit the



servo and pushrods, adjust for length and we can now set it all up ready to go and test fly. Don't ask where the CG is, it's immobile, but the truth is about 3mm too far back and I can live with that.

I set the elevator movement to about 2mm each way, and the ailerons t about 3mm each way and hoped that would do. Prop is a Graupner Cam speed 5.5 x 4.3, so charge off to the field and charge the model. Will it work? How fast will it go? It's very small, will I be able to see it OK? What if it's slow? All of these and more questions going around my head while that 500AR pack takes what seems like a fortnight to charge.

To repeat myself, in for a penny.....

Fully charged, launcher at the ready, range is OK (that was a surprise), nothing left but – what WAS the name of that Indian? Then it was gently moving away from the launch with steady acceleration until about 30 feet away, then — WARP 9!

Yes it's fun. It seems quite rapid, and I almost forgot, I had to fit a 0.5mm trim tab about 30mm long on the underside of one tip to counteract the torque roll.

The performance really is good, but I will leave that to Mr. Barnes to describe. He who refused to fly it at the Scottish Nationals. *[Mr Smug flies mode 2, moi mode 1, so as much chance of me having a bash on the sticks as there is of Norrie taking up line dancing. JB]*

Get yourself one from Soarhigh. They are great fun, and there are others. Watch this space for details of the "Quick". It's only just arrived, but it looks faster than the VIP. I wonder if I can get 12 cells in.....? **BJ**

*Rumours had hinted at the performance of BJ's model, but the mental image they formed proved to be an understatement. Don't attempt this until you can control your blinking. Brian reports about 60 secs of motor run time from a 10 cell 500AR pack. In this time the tiny VIP has probably covered the best part of 3 miles. The model has to be turned back on itself every second or so to keep it in sight. It is blisteringly rapid, even standing with Brian and watching it proving a great neck and eye exercise, and everyone stops to watch it. With a Speed 400 setup it's also very nimble but a lot easier to fly. An absolute cracker of an eye-opening fun-fly model. Outstanding, BJ. **JB***



From the sublime to..... something distinctly nautical! Mike Pirie lets his Hovercraft loose on the deserted Duthie Park boating pond, late summer 2003.



Mike P. completes a couple of handbrake turns before firing the Hovercraft straight at the cameraman. These new fangled things will never catch on though! (photo Alistair Urquhart)



A scratch built 3D electric ship from John Masson, kitted out with a brushless motor up front fed by a 10 cell 3300 Nimh pack. Impressive speed range either way up and wildly aerobatic, but not quite enough power to prop hang!

2003 AGM

Last year's AGM was held at the Cove Bay Hotel on the 13th November and was attended by 14 members. Apologies for absence were received from John Donald, Jim Masson, Sandy Tough and George Whelan. A full account of the meeting can be obtained from the Club Secretary, but a summary of the main points is given below:

1. The minutes of last year's AGM were approved.
2. Chairman's report: Mike gave a resumé of the year's activities. He reported on a good year for all disciplines of flying. Strong winds during the summer months slightly curtailed flat-field flying but kept the slope flyers happy. There had been little or no enthusiasm for tasks and competitions. The club helped at Satrosphere's 'Flight' weekend and Mike thanked all who had helped. The 25th anniversary of the Club was celebrated in March at the Cove Bay Hotel with a buffet evening. Many past members were present and an enjoyable time was had by all. Weather had adversely affected the Hazlehead weekend, except for the Sunday afternoon which developed into an excellent afternoon's flying. There had been problems with footballers using Calder Park for training sessions on Tuesday evenings and at weekends. Aberdeen City Council has now confirmed in writing that ADS have the use of Calder Park on Tuesday evenings and at weekends. All members have been issued with a copy of this letter to carry with them when flying at Calder Park. The barbecue in August was successful despite strong winds. Mike concluded his report by thanking the committee and all club members who had helped make the year a success.
3. Treasurer's report: Jim reported that the Club funds now stand at £773.27, a surplus of £104.72 over the year.
4. Safety Officer's report: John Mc. reported that the problem associated with flying on Brimmond Hill had been resolved. The helicopter companies and the Flying Club now know that ADS members fly models there and will take the necessary precautions. He stressed the need for extreme awareness of what is going on in the sky at all times while flying.
5. Election of new committee: Mike Pirie remains as Chairman, Jim Ruxton as Secretary/Treasurer and John McConville as Safety Officer. A sub-committee comprising John McConville, Brian Ord and Norrie Kerr has been formed to organise and run the Hazlehead weekend.
6. The revised constitution was approved.
7. Club fees revised - £12.00 ordinary member, £6.00 junior.
8. An accounts auditor was appointed. John Barnes agreed to do this for 2004 as part of his numerical dyslexia therapy .
9. Under A.O.B. Brian Ord raised the matter of car parking at Calder Park and the failure to designate a pilot's box during flying sessions. It was agreed that these safety issues would have to be addressed. The committee to look into this. In the meantime, members are requested not to over-fly the road wherever possible and to make use of the car park.
10. A draw was made for the winner of the 'oldies' photo competition. Jim Ruxton won the bottle of whisky which had been generously donated by Derek Robertson.





IC and electric fan, John Masson checks the mixture on his "aerobatic trainer". With a full tank lasting 20+ minutes, John was happy to volunteer use of this model to one of our trainee pilots, but was less than delighted when a few minutes into the flight, it spun to the ground before he could get his hands back onto the tranny! Life's like that sometimes, isn't it!

One of the many mysteries of electric flight is why, when using a gearbox, we are apparently able to extract more power from our motor. In a nutshell, it is because when we fit a gearbox we are allowing the motor to run at its maximum efficiency while at the same time allowing it to drive a larger diameter propeller, which for gliders, sport and vintage models, provide more thrust than would otherwise be provided by a smaller diameter propeller. One way to think about it is to consider that gearing changes the size of the propeller not the size of the motor. It does not matter to the motor, whether it is driving a small diameter prop at high revs, or a gearbox at high revs.

More important to the success of a particular model is the matching of propeller to model. Large, slow flying models perform best with large slow turning propellers, whereas small fast aerobatic or pylon type models perform best on small fast turning propellers. The thrust from a large slow propeller and a small fast propeller could be the same, but the speed of the airflow could be vastly different.

The cheap ferrite motors we like to use in our models like to turn at very high rpm [*Not any more! See postscript. JB*]. The use of a small propeller allows the motor to approach its best operating speed. Not a problem in a small fast flying model, but in a powered glider or vintage model there is a loss of efficiency due to the drag of the model which simply cannot travel through the air as quickly as the motor/propeller combination would like it to.

Allowing the motor to spin quickly and efficiently, yet driving a large, more efficient propeller results in more of the 'input energy' being converted to 'output energy', i.e. thrust. This extra 'output energy' can be used in a number of ways. For example, a powered glider could have a longer motor run from the same battery, and an aerobatic model could have more thrust for steeper climbs and larger loops. A cabin type sports or scale model could be a little larger or heavier and still fly with the same motor and battery. The reasons behind

these improvements can be found by looking at the current being consumed and the watts being developed.

Remembering that $VOLTS \times AMPS = WATTS$, consider the following examples:

- ◆ Put a larger propeller on the motor. The Amps will increase. The volts are the same, but the energy available to power the model will increase. Because of increased current draw, the battery will drain more quickly.
- ◆ Add an extra cell to the battery pack. The voltage will increase. The amps will also increase as the motor will now be trying to spin faster under the increased voltage. The watts will again increase providing more energy to power the model, but at the expense of motor 'on' time.

In both cases extra energy is produced, but if this energy is not required to fly the model the current can be kept at lower levels thus increasing motor 'run' time and flight duration. Care has to be taken here that current levels don't exceed the limits of the motor. The amount of current that a motor can take varies between motors and sometimes this information is not always readily available. A Speed 400 has a limit of about 9 amps, the Speed 600 should not draw more than 20 amps.

We've already established that for a given motor and battery, the current will decrease after fitting a gearbox and larger diameter propeller. Assuming that the motor had previously been drawing just under its max current, it is now working at less than its optimum power. Now comes the magic bit. To bring the current level back to its previous level we can add two or three cells to the battery pack, thus increasing the watts dramatically, i.e. there is now more energy available to power the model, without decreasing the motor 'run' time.

Finally, a reminder of the rule which says, "up a cell, down a prop" (or the converse). Hopefully it should now be clear why this is so. If not, go back and read this again!

Don't smoke your motor! **MP**

POSTSCRIPT

There is at last an inexpensive **direct drive** ferrite 'buggy' motor which has been specifically developed for sport electric flyers by Glyn Ward, electric car race whizz and supplier of cells to the nobility (and Mike's Lanc).

The motor is a 40 wind (single) unit with a standard 3.2mm output shaft. It weighs c. 6.3oz and will handle 25A continuous. It has adjustable timing and replaceable brushes. I'm told that.....

On 8 cells it swings a 11x5.5 APC-E prop at c. 25A.

On 10 cells it swings a 9x5 at c. 25A

This is a great specification for sport flying purposes. For comparison purposes, the direct drive much more expensive **brushless** motor in my 3.5lb 2m soarer pulls 24A average on 8 cells and a 12x6 prop and whisks the model aloft with authority. Remember this new motor is a direct drive unit, so from an installation standpoint it doesn't get much simpler or compact (and I'm reminded that one of the fastest climbing 7 cell models I've seen—many moons ago now—was Bruce Flockhart's Electroslot soarer with a 19turn (single) ferrite buggy motor and Graupner FG3 3:1 gearbox. A monster prop and 50A whisked the model to almost towline height in 10 seconds. Still hard to beat).

This new motor, called the **Fanfare Powermax**, is available from ever helpful John Swain of **FANFARE** fame, supplier of zillions of bits and bobs for ferrite fans (01227-771331). Cost of the motor is £38.



Tough as old boots these new guys, but hardly surprising considering they're both ex SAS (Salvation Army Singers that is, so well-used to carol singing in the worst of weather!). Terry (left) with a fully built up Sp 400 pusher from a Cyril Carr plan, and Ian Manson with a Ripmax ARTF Firebird XL.



1400mm of pure fun! No, not Abby his Thunder Tiger ARTF Hawk! Very conveniently sized little electric soarer comes complete with a 380 motor, 6x3 folding prop and all for a tad under £60. The V tail is elevators only, so no mixing required, with ailerons providing directional control.



An atmospheric Mike Pirie photo taken at Kerloch, the Banchory Club site, last summer, as father and son ready the "Stewart" Tiger Moth for another Deeside sortie. Excellent site and hospitality.



New year's day – Three "firsts" in one photo from Neil Davidson!

1. Flying at Calder Park early afternoon on 1/01/04. Only Neil turned up!
2. First solo flight with the *Twinstar* - he intimated that a change of underwear was required mid flight! (An interesting manoeuvre on its own, but requiring great skill with a tranny in one hand! Ed.)
3. First solo portrait with his new digi-camera, using self-timer and the Audi roof as a tripod. Nice one, Neil.



Back at Kerloch and the *Sunday Flyer* biplane makes its approach at thistle top height. Once landed, a contented Mike Pirie remarked that "It was one of those special flights where you could literally feel the wind blowing through your hair". (I didn't have the heart to tell him that his flies were undone!)



Both Terry Shields and his Stan Yeo foamie survived their first slope soaring adventure at Brimmond, despite being under the less than watchful eye of "Re-Kit" Robertson. Damned cold January afternoon on the NW face! (photo Mike Pirie)

Father John

The pain is intense but steady, breathing synchronised with the pace, shallow. Eyes staring at the grass a yard ahead, each shuffle of a leg requires an unnatural concentration to complete. Sweating profusely, a cumbersome, slow rhythm is established, upper body swinging gently side to side to encourage each foot forward. Not new, this pain, this rhythm. Memories re-awakened.

In '94 he'd lost the ability to walk. He was 48. It happened quickly, a matter of weeks until leg movement involved severe pain. Arteriosclerosis, a circulatory disorder, among other things the precursor to strokes, heart attacks and the driving force behind bypass surgical procedures. And amputation, the only option for limbs when pain became unbearable. He was introduced to amputees to show the seriousness of the problem, taken aback by them all much younger than himself. The hospital ran a surgical production line to deal with the problem. A facet of life he didn't know existed until then.

It's taken almost five laborious minutes to complete the first 100m, but each orchestrated step brings the distant tunnel closer...

He was lucky, he was told, an active lifestyle revealing his problem at an early stage. Maybe it was containable. 'Maybe' turned out to be a common medical term associated with the disease. Teamwork, support. His wife studied dietary matters, initiated changes. Trying to understand more about the condition, people he spoke to in various fields proffered quiet words on where he might look for detailed information, which avenues he may wish to focus on, avenues not necessarily on NHS approved maps. He learns of the autopsies carried out on every US soldier killed in Vietnam and returned home, one of the autopsy objectives to determine the incidence of arteriosclerosis in young Americans. Early signs of the disease are found in 100% of the autopsies. No connection between fitness and health, two words used together so commonly he'd never questioned the fact that they might not be linked at all.. He learns of countries, previously free of the disease, which embrace Western dietary styles and develop the same problems. Not a new problem, this diet. He learns the story of the ocean raider 'Kronprinz Wilhelm'. In 1915 she puts into the US port of Newport Mews, no longer able to operate because of crew sickness. At sea for 255 days, in that time she's sunk twelve ocean liners, stocking herself full of rich food, meats, tinned and processed foodstuffs. For months the German crew gorge themselves handsomely

before succumbing to the effects of malnutrition, brought down by white bread, white sugar, meat, refined corn and a host of other denatured foods. An extreme test of the nutritional poverty of what he'd always regarded as a 'normal' diet.

...the grass changes to gravel as the edge of the huge field is neared. He hopes he looks like someone walking very slowly, deep in thought. Relief that he hasn't been approached, disturbed, because it would be difficult to sustain the illusion of calm now and he's uncertain of his ability to remain upright without support if he stops moving. Another age passes before the darkened tunnel is reached. Sanctuary.

He tests himself at home, walking very slowly. He discovers what's on the other side of the pain mountain. Nothing. No pain, but no sensation, no legs, the mind's awareness of the body now terminating at lower hip level. Arms on the rails, a strange feeling that he's hovering in mid-air. Grip released from the running machine he crumples, surprised, to the floor. Recovery involves stillness, the tape running backwards, back over the mountain and down to the tranquil valley below. Initially his absolute limit for very slow walking occurs just over three minutes into 'Bat out of Hell'. A daily routine is maintained. Early in the routine nothing appears to be changing. The pain too easy to avoid, he'd have quit after a week or so if it wasn't for the recording heart rate monitor on his wrist. Every day the results downloaded and plotted. Contrary to everything he's feeling, within a few days the heart monitor results show that things are happening, very slowly, but happening, things too subtle to be registered by his senses yet. It's the motivation to continue, faith now in measurement rather than feelings. As the weeks and months roll by, so do the targets. The first, and most important, is to the end of 'Bat out of Hell'. 9 minutes 47 seconds. Quiet celebration.. Then to the end of the next number, the next, then the complete tape. Progress, but too slow for his employer. He undergoes surgery to help speed progress, told the effect is temporary, a handful of years if he's lucky, improves enough to handle the physical requirements of his job and returns to work in '96. By now he can walk at a modest pace for some distance before his legs start to complain. Always the same distance. Not cured. He's been told there is no cure. Contained, stabilised for the time being. He's thankful for that.

It's taken over fifteen minutes from the far side of the field. He leans on the tunnel wall, legs splayed, hands on thighs, head down, cursing his stupidity. A long, welcome rest to let the legs recover a bit before attempting the gentle, torturous incline to the caravan site beyond, time to pray again for a special place in Hell for his friend.

1998. The inaugural World Championship for thermal soaring competition, the new F3J class, is to be held in the UK in August. Early in the year a friend calls him. His friend is to be Team Manager for one of the countries at the event. Asks if he'd like to be on the team. He explains to his friend that he can't run, can walk, carefully, reasonably well, doesn't know what he could do to help. Tea boy. The team needs a tea boy. Can he make tea? The team has tow men and timers already, well-known very experienced UK soaring enthusiasts, but don't have a tea boy. Ho, ho. He agrees to be tea boy, the chance to watch the best thermal soaring pilots in the world in action irresistible.

The incline behind him, he crosses a road and enters the small caravan park, his friend's mobile home, where he's sleeping during the Championships, in view at last. He leans on the gate, a final rest for composure, then heads for home.

He arrives at Upton-Upon-Severn the evening before the flying starts, much later than planned, result of a drive shaft seal failure. He misses the opening ceremony, the official registration, the official team photo session. Officially he doesn't exist. He parks at the end of the huge caravan line along one side of the field bordering the river. Most of Europe appears to be parked there. His search for his friend the Team Manager takes him over the little bridge from the site and into the Upton waterside pub area, the warm, calm evening ensuring that the outside tables are packed with soaring teams of the world. Instinct directs him to the most raucous group, where his friend is entertaining the German team. The entertainment extends to him being introduced to the team as Father John. The Germans seem impressed. A man of the cloth with an interest in soaring competition is a rarity anywhere apparently. He goes along with the joke, tired from the long drive.

But it's no joke the next morning just before the competition gets under way, when he's introduced to his own team, told by his friend he has to tow. One of the UK tow men hasn't appeared. He guesses, correctly, which one. He quietly reminds his friend he can't run and has never two-man towed before. No-one else, the event's about to start, says his friend. He knows that two of the three pilots in his team have flown half way around the world, self-sponsored, for the event. Commitment. He understands commitment. He agrees to try. He's given an official team helper placard to pin on somewhere, acquires a new identity.

By his standards it's a long walk to the flight line, then a further 150m to the tow men's position. Keeping up with the pilot, helper and fellow tow man is not easy. Thank God for the five minute prep time window. It gives the hint of soreness in

his legs the chance to subside, while the stake is banged in and lines and pulley prepared, before the hooter sounds to start each slot. A pulley-tow run is brief and explosive. He matches his experienced towing partner pace for pace. Just. More time is taken for the long walk back, last to arrive at the team site. As the day progresses, more tows behind him, the pains worsen, last longer. His footwear is perfect for tea making, socialising, not designed for walking on knotty grass fields, running. He's afraid of reaching the point where all sensation in his legs suddenly goes, collapsing on the field, becoming a distraction. His world narrows to control his actions, cope with the pain, only half an ear on the team discussions which follow every launch. His friend the Team Manager and one of the pilots take an instant dislike to each other. He's thankful for the shouting matches, the rest of the team's attention focussed on this unexpected but entertaining Punch and Judy show. He needs the background for protection, recovery.

By the end of the first day's official flying the pain is constant, legs feeling not quite attached to him. But he's happy with the days work. He's already learned much about F3J towing dynamics, the safety implications, the effectiveness, both from his towing partner and the tow men of other teams while out on the flight line, the Dutch, the Germans among others, enthusiastically and patiently helpful, informative, despite the competitive heat of a World Championship event. And no-one has noticed he has a problem. Perfect. As everyone disappears, one of his team pilots asks for a few tows so he can work on dialling in a model. F**k it. He'd suggested bringing a winch with him to the Championships, anticipating evening practice sessions, had been told it wasn't necessary. A long walk into the field. His pilot lacks experience of single-man pulley tow mechanics. The pulley holder feels twice the load that the person holding the aircraft experiences. He strains on the pulley, hears the pilot shouting, understands the pilot is waiting for more line tension. He hobbles back 150m to the pilot and explains to him how he'll have to release his aircraft at a much lower tension than he's used to. No worries, it'll be okay. Hobbles back to the pulley. He manages two very painful single-man pulley tows before it becomes almost impossible to move. Enough. Lines gathered, stake retrieved, he rests, prepares...

... begins the trek back to the caravan park just outside the Championship site.

He tells his Team Manager friend of his problem, swears him to secrecy. His friend has a hip problem, understands. It'll be better tomorrow. They both hobble into Upton that night to continue raising Hell with the ebullient Germans, the Junior Team demonstrating an impressive capacity to drink everyone else under the table. It's uplifting, memorable stuff. But that night he doesn't sleep,

the pain and soreness too dominant to allow comfort on the narrow bed. This is new. In '94-'96 the pain, identical then to the sensations experienced now, had always disappeared when he'd rested. Now it's constant and he doesn't know why. He considers, quietly alarmed, if it's a new, permanent state. He reflects on many things before dawn light makes it possible to put the kettle on without switching on the lights and waking his friend. He tries to remember, the research papers, the stories, he'd read a few years before. He'd remembered his father's recovery story. An all-round athlete when younger, his father had been badly injured at work. Almost immobile, unable to move his spine, his father had been told that there was nothing that could be done. He was crippled for life. His father had started exercising, trying to painfully move. He couldn't, but he kept trying. Nothing had happened at first. Then, within a few weeks, his father had said, he could move an eighth of an inch each way, a few more weeks a quarter of an inch, a few more weeks and it was half an inch, a year and he'd regained full mobility. He'd remembered his father's unprintable, derisory fury at expert medical opinion. He's considered quitting, but not walking hasn't made the pain diminish. He decides to see how things go for the second day of the Championship.

Day 2 is a re-run of Day 1, only now the steady pains are there from the start. He survives, again unnoticed, his Team Manager friend quietly supportive throughout the day. He learns more about F3J, hobbling around to meet some of the teams, a juggling act, social skills diluted with inner focus demands. The cheerful Greek lads, one of them flying a museum-finish *Bird of Time*. He compliments them on the superb paintwork, raises laughs as he's shown how Profilm can work in the hands of master modellers. He remembers to visit the South African Team with a rude message of support from his SA email friend. Almost gets a Team T shirt for half-price from the lads before Michelle, indignant, intervenes and demands serious money. It's worth it for the lecture on international exchange rates. Another excruciating night with no sleep. Another dawn decision.

Day 3 sees the arrival of the absent tow man, the reason for his plight. Acquaintances renewed, the absent tow man has come along to show off his new motorcycle leathers, his new bike. Oh, and how are things going for the team? Apologies for the no-show but work and all that. Graphics studio hectic and the publishing world frenetic. His pain is undiminished, feet killing him, but he survives again, his friend still the only one aware of his situation as far as he knows. His face aches from the teeth-gritting. It's becoming harder to socialise, to take an interest in anything other than the pain and his team's performance. He's increasingly concerned at the continuance of the pain, concerned he may have caused something serious. But it hasn't been serious enough to prevent

another satisfactory towing effort, personal situation contained, unobtrusive. He doesn't dwell on longer term implications. His interest in the Championship, his team, soaring, learning, dominates his decisions. That night, some sleep, fatigue jostling pain for dominance.

He survives until the final day for Championship qualifying flights for his team. It's the last day he'll have to tow, thank God. Fatigue has again brought with it disturbed sleep. At least dawn has happened before he rises this time, like an old, infirm man. The pain, the soreness, the quiet cursing now a familiar accompaniment to the breakfast his friend prepares, taken outside. A review of the past few days exploits, a final coffee before departure to the field.

He stands carefully, stretches slowly, waiting for his friend who's back inside the motor home. The pains, the soreness, suddenly disappear. Gone in a matter of seconds, so quickly he's caught unawares, unbalanced. A switch has been thrown somewhere. Disbelief, then alarm that the abrupt change signifies a transition to something worse. He waits, silent, suspended animation. A tentative step, then another, a sense of wonderment, then amazement, a grin developing, an excited call to his friend. His legs feel strange, different somehow. Part of him waits for the bombshell to fall while another part chatters excitedly to his friend as they walk to the field. But there is no bombshell. For the first time in years his stride feels purposeful, unrestrained. He feels as if he can tow for every team today. The walks to the flight line, then to the towing position, are easy. He matches his towing partner's stride when the hooter goes, careful not to outrun him. He arrives back at the team site with the team, not well behind them. Back and forth, back and forth, elation unbounded. Sudden disappointment when it's all over. He doesn't want to stop now, definitely not now, please not now for chrissake...

His team starts packing up, thoughts on its performance, lessons learned the best way, the hard way, the only way, the fly-offs and the Championship banquet ahead. His friend and Team Manager for New Zealand, Jack Sile, the only one who knows of his predicament during the week, his remarkable recovery that morning, but doesn't know how much the quiet, considered support when they've been alone has helped him towards this moment. Cheerful Sydney Lenssen, Mr Fix-It for the Team, organised, unflappable, nothing too much trouble, Henry Kissinger for the Punch and Judy show. Sean Walbank, White Sheet editor and publisher, launcher and primary pilot talker/timer, the man with the moves. Nick Evans, his delightfully charming fellow tower, a shared and humorous sarcasm about life in general, Nick the closest to him during the week, the occasional "You okay?" at the cracks in his strived-for demeanour, not entirely convinced by "Yup". The

New Zealand pilots, Andre Borowski, Stu Grant and Ross Biggar, a huge personal investment in time and money to follow their own dreams, exposure to world class competition a priceless opportunity for learning more, to see the best of the best in action, to redefine their own reference points of what's possible, necessary. Sorry for only two practice tows on the first night, Andre. And Dave Jones, editor of QFI, the no-show tow man and ultimately the reason for his experience, who looked super cool in his new motorcycle outfit, tickled pink with his new bike, an hour spared to pop by and say Hi to the team. It's the last time he'll see Dave.

Later that evening, time for contemplation, the realisation of what's happened, how incredibly bloody lucky he's been. So lucky at being invited to attend the Championships, so lucky at knowing a garage prepared to move heaven and earth to get a drive shaft seal fixed in record time, so lucky at the non-appearance of one of the team tow men, so lucky for not doing the sensible thing and quitting early. And so lucky at being given the chance to discover the error in his interpretation of the signals his legs had been giving him since '96.

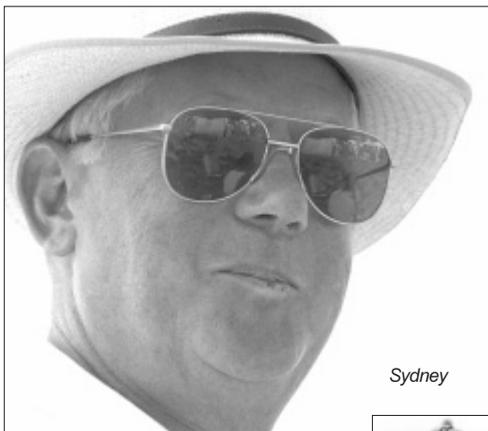
His mobility restrictions had been self-imposed by the deceit of identical pain patterns, one associated with a genuine loss of mobility, the other, later pattern with a severely atrophied muscle condition brought about by the former. Since '96 he'd interpreted the onset of leg pains when walking as a limit, a sign that the previously severe condition hadn't been moved that far away. The pain onset patterns had been identical, so identical he'd never considered other explanations. His unexpected Championships towing involvement had created an intensive exercise regime which ultimately brought back the muscle tone his legs had lost, were simply waiting to regain if he'd pushed himself over the mountain again repeatedly. Without his Championships involvement he'd never have discovered this. Would never have put himself through the physical torment voluntarily again. Would, could, so easily have spent the remainder of his life at tickover, never realising that the dream was so close, so achievable, so heartbreakingly and easily missed.

A future price to be paid?

2004. Wearing a kilt, Father John still looks like a lampshade perched on a couple of pipe cleaners.

There's no sign of an invoice yet....

John Barnes



Sydney



Nick



L to r, Ross, Stu and Andre. Sydney in the background wondering why the photographer is starting to tilt alarmingly. The horizon line is 20 degrees off in the neg!



The UK team had it all



Sean



Better half Jenny, with the two nephews, seems reluctant to let go of Neil D's Nebula electric soarer. They needn't have worried; Neil's piloting skills have improved vastly and after several flights on this pre-Xmas outing, the plane was driven back home unmarked. Our man reckons this is an excellent training platform because damaged components can be replaced individually if necessary. Fuz £22, canopy £5, tail £12 & wing £40! (photo Neil Davidson)



Proving that you don't need an all moulded, carbon reinforced or ARTF model to enjoy successful electric soaring, a simple box shaped balsa fuselage and built up wing works just as well. Aberdeen Aeromodeller and ADS member John Donald takes a break, hangs up his boiler-suit, trading IC for sub C.

ADS 2004 Events Calendar

Mar 9 th	Cove Bay Hotel	Winter Meeting
May 8 th /9 th	Cairn'o'Mount	Slope Outing
Jun 5 th /6 th	Hazlehead	Fun-Fly/Soaring Comp
Jul 17 th /18 th	Knock Hill (Between Huntly and Banff)	Slope Outing
Aug 6th-15th	York - The Knavemire	2004 F5B/F5D World Electric Championships
Aug 15 th	Calder Park	Club BBQ/Fun-Fly
Sep 18 th	Kerloch (Banchory Club)	Club Outing
Nov 20 th /21 st	Aberdeen Exhibition Centre	Model Railway Exhibition
TBA		AGM

Which way do you think I should turn for a leaner setting?

Atkins?



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