Newsletter of Aberdeen & District Soarers **February 2002**

ADS Short Finals

A Canadian Adventure (we get around)
Another Bumper Photo Issue!
A Stonehaven Adventure
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Towlines
and.....

Sartorial Splendour in the Park!

EDIFICATION *Derek Robertson*

A happy new year to one and all. With the hangovers now a distant memory, I hope that 2002 has started well for you. No doubt some of you will already have started assembling those new models that Santa delivered. Alas, my Xmas goodies came in the form of socks, underpants and a bottle of hair restorer, which I'm disappointed to report doesn't work, despite drinking it all in one go (tasted bloody awful too ... think I'll stick to red wine!). Looking forward to the influx of new models at the flying site, with anyone wishing to see my prezzies having to settle for a private viewing only!

Now, I can guess exactly what crossed your mind as you pulled this newsletter from its plain brown envelope. "What the hell's John Barnes playing at?", you no doubt exclaimed! Back to boring old black 'n' white again ... not a hint of colour ... no fancy graphics!

Seriously though, the superb Xmas edition, which featured the front and back pages in colour, was a one-off special which required a chunk of PC time and a marathon session with both ink-jet and laser printers. Well done John, very much appreciated if the many favourable comments I've heard are anything to go by.

On the winter flying front, activities have continued throughout the festive period, at times even between snow showers. The New Year's Day fly-in took place on a crisp, frosty, but calm afternoon for those keen beans on the phone round list. I have been reliably informed that conditions at Calder Park were excellent for the 6 members who turned up (unfortuately, not all at the same time!), with at least one of the company being armed with a hip flask.

Keith Donaldson and I made a couple of pre-Xmas trips up Brimmond's snow covered slopes, flying off the usual NW face. By way of a "scoop", your chairman demonstrates that he doesn't even need to have a model in order to enjoy a spot of slope soaring! By gum, it was cold though ... unhappy fingers and toes forcing us back down to the car park after only 40 minutes of swooping and diving (my old boots made very efficient "heat sinks" in those arctic conditions)

You don't have to be mad to be club chairman but it certainly helps! Did he jump or was he pushed?

The latter part of January through into February brought severe gales, which as far as I'm aware brought all flying activities to a complete halt (cue sitting at home and getting a lecture from the wife, eh chaps?). On the odd occasions that I've ventured across to Calder Park it's been for a quick couple of flights with an electric model. The end of November was the last time the club winch saw the light of day, the gentle art of thermal soaring having definitely taken a back seat recently!

Roll on those summer days. Back to wearing only one jersey, jacket, scarf, hat, boots etc. Unlike some members of the club, you won't catch me wearing shorts, even on the best of days. I have so many varicose veins on my legs that they could easily be mistaken for a road map of Britain.

Our second annual appearance at the Model Railway Exhibition, held in the AECC in mid December, saw a healthy support from club

Cover Pic: *Ah, they don't make 'em like this anymore. Er, the Centiphase, that is! Sartorial elegance as the 80s kicks off. The old club soaring site at Seaton Park, guess-who winning the flight-line fashion trophy yet again. More on the meaning of life, the universe & Centiphases in this issue.*

The ADS stand at the Model Railways exhibition in the AECC, mid December 2001. (photo: Mike Pirie)]

members who either provided models for display and/or made themselves available to man the ADS stand over the course of the weekend. Some of the old favourites were on show again, with a smattering of new planes making an appearance, notably Brian Ord's dinky little 60" slope racer, a home brew electric aerobatic low-winger from Graham Donaldson and a nearly completed thermal soarer with unusual trailing edge spoilers from the George Whelan factory. We've already persuaded one of the above trio to immortalise his "baby" in print and hopefully we'll get more information on the other two as the new season gets underway. Thanks to all who took the time to participate.

I'll cut short my usual ramblings to briefly introduce a couple of other items featured. We have yet another tale of a lost model, from George Whelan. In actual fact, George sent me the text for this one over 3 months ago but because his AWOL escapade with the "Typhoon" at Calder Park was current, the "Stonehaven Adventure" was held over for this issue. In view of the number of times that George's radio gear has had to be stripped and cleaned, expect to be dazzled by the shine from his rec/servos next time he removes a canopy!

Roving reporter Keith Donaldson brings us news of how they do things in Canada. In a country where everything is bigger, Keith was shocked to discover that a Canadian "moose" was substantially larger than the Scottish one he'd chased out of his Potterton kitchen a week earlier!

The back page features details of the ADS winter programme (the first of which will have taken place by the time you read this), and the usual calendar of events for the summer months. If only the weather could be so easily booked, eh! The new committee would, I'm sure, appreciate your support over the next 12 months, so come on guys and gals, make a real effort this year.

Fees reminder!

The club secretary would like me to point out that this will be the last issue of the newsletter sent out to those members who have not yet paid their fees for 2002 !!

Electro Watt

Graham Donaldson

What is it that promotes interest in a new model? I am not sure. However I am sure that in common with most ADS members, I have more aircraft either complete or under construction than I will ever really need. However 'want' is what drives us on and of course keeps the manufactures and suppliers happy. Of course, sometimes – on those extremely rare occasions – we do break an aircraft and have a genuine excuse to create something new.

One dreich, wet Friday morning at the end of September last year, I decided to spend some time drawing out a possible own design electric aircraft. Having recently badly damaged my semi scale Jodel D112, I decided that I should try a straightforward model next. Nothing in the adverts had grabbed my attention, so I suppose that my subconscious had been working away in the background giving me the idea to do my own thing. Now up to this point, I have always built from kits and plans, preferring to let the designer and manufacturer have the responsibility of success or failure. So nothing ventured, nothing gained I set about my task.

I had a geared Speed 700 motor and reckoned that 10 cells would be sufficient. A few other bits and pieces were lying around the workshop – an old Wot Four undercarriage and a Wots Wot canopy. So with tracing paper, set square and tee square, I set about my task. I suppose the eventual shape is an amalgam of a number of different aircraft that I have owned, with the aim of keeping the building simple. Having owned a few of Chris Foss's kits, I suppose it does have a resemblance to these – hence the name Electro Watt. I decided that a symmetrical wing section should be used – Eppler 168 looked about right. Using the Wingfoil programme I was able to print out each rib in the tapering wing. Now how should the wing incidences be set? I was hoping that the aircraft would be capable of the limited aerobatics I can perform so decided on 0° - 0° on the engine thrust line. Would this work?

Next day I set about cutting and gluing. Now even in retirement there is a distinct shortage of time and so my plan to complete the model in a couple of weeks extended into just over four, despite the simple construction adopted. Solarfilm from stock produced a quick and simple finish. Now I inserted all the gear, looking for a CG at about 28% (calculated of course!). Nothing <u>like</u> it, and no way to move the cells any further forward. The only solution was to move the motor forward. Now it so happened that I had an old Wot Four cowl, so decided to construct an aluminium engine bearer that would bolt onto the original nose bulkhead and be covered by the Wot Four cowl. Now the CG was theoretically correct and the additional length did not look out of place with the cowl fitted.

I decided to wait for a reasonable day of weather and eventually, with batteries fully

charged, set out to the field. The grass was fairly long and wet and the 10 cell pack was just not sufficient to achieve flying speed. Now it so happened that I had a 12-cell pack for the F16 charged and with me, so no more ado than use it. Well, it fitted OK, just. This extra oomph made all the difference and flying speed was easily achieved. A smooth, steady climb out followed. No problem at all. This DIY works just fine. After a few circuits to familiarise myself with the aircraft characteristics, I decided to try a roll. Right round first time, but what was that I saw fall from the plane? Very quickly I realised that the 12-cell pack had parted company and was rapidly falling to earth (sorry, the bog at Banchory Devenick), never to be seen again. Luckily I had a separate Rx pack, so still had control,well, sort of, because by now, with full up elevator, she was descending fairly quickly out of the sky. The CG was now

somewhere near the nose! She almost reached the field but not quite. Some 10 yards short she hit the only tree on the flightpath and hung up there. Luckily she was only some 3 or 4 metres up so should be easily retrieved. I wasn't counting on the bog. However, after some careful footwork, I managed to reach it and remove it only to find that the port wing had been sliced clean in two!

There must be a moral here somewhere. After some puzzlement, I discovered the reason for the fall-out. I use Velcro to retain the cells in the fuselage. Now if you examine Velcro, there are two different types. One consists of hooks and the other of eyes. Now it is obvious even to a blind man that hooks will not grip hooks. I had been using hooks on the Electro Watt's fuselage and eyes on the cells, but on the F16 it is the other way round!! No wonder the F16 cells fell out – I was trying to fix hooks to hooks!

After a fairly straightforward repair, she was ready to fly again and has done so now on several occasions. I am well pleased with my efforts. Would I have done anything differently you ask? Yes. I would have paid more attention to MotoCalc – the software that will analyse the airframe and components. This would have told me that I would need 12 cells. I would also have given myself more opportunity to adjust the position of the heavy components (motor and 12-cell pack) to allow a CG to be achieved without structural changes. I could also have made weight savings during the building process. ***GD***

(Compliments to the chef for getting it more or less right the first time round, Graham! Just as well no-one was hit by the falling cell pack ... assault 'n' battery charges would have followed. Watt a pickle! - Ed.)

Back to School

Mike Pirie

Do you really understand the terms, VOLTAGE, RESISTANCE and CURRENT, and the relationship that exists between them (as defined by Ohm's Law). If this seems like school stuff, then you're right, but no harm in a little refresher course. I came across a cunning little analogy in the 'Guide to Electric Flight' (the beginner's booklet issued by BEFA, the British Electric Flight Association). It goes like this …..

Imagine that you have in your back garden, a tall water tower of specific dimensions, with an outlet pipe at ground level which can be turned on and off and whose diameter can be adjusted at will. Now suppose the tank is half filled with water, then it is clear that the water at ground level will be under considerable pressure due to the weight of water above it. The outlet pipe is now opened, and water flows through the pipe at a certain 'rate of flow'. Filling the tank to the top will result in a rate of flow twice as great as it was before due to the increased pressure. Alternatively, the same result can be achieved by increasing the diameter of the outlet pipe thus reducing the resistance to the free flow of water. In this case, the tank will empty more rapidly.

Mike in the process of rapidly emptying his `tank` during an aerobatic session with the Magician

In our analogy then, the water pressure can be likened to VOLTS, so that when the water level in the tower is low, we have a low voltage, and when it is high, we have high voltage.

The constriction, or resistance, to the free flow of water imposed by the variable diameter

outlet pipe, can be likened to RESISTANCE. Electrical resistance is measured in OHMS.

The rate of flow of the water, of course, is the CURRENT and is expressed in AMPS.

So we can see that, in a given arrangement, the CURRENT in AMPS may be altered by changing the voltage (filling up the water tower or partially draining it), or by changing the RESISTANCE (altering the diameter of the outlet pipe). Increasing the VOLTAGE will increase the CURRENT and vice versa. Increasing the resistance will reduce the CURRENT, and vice versa.

This takes us on to OHM's LAW which states that: One AMP is that current which will flow through a resistance of one ohm under the pressure of one volt. The basic formula in Ohm's Law is that the current is equal to the voltage divided by the resistance, or I = V/R. From this we can evolve two other equations: V = IR and R = V/I.

Note: The 'Guide to Electric Flight' can be downloaded free from the BEFA web site (http://members.netscapeonline.co.uk/gordontarling/index.htm) and is a very worthwhile booklet for anyone starting out in electric flight. ***MP***

Stonehaven Adventure

George Whelan

Whilst reading about Derek's romantic sojourn on the cliffs above Stonehaven a couple of issues back, it brought to mind an event which happened there about 15 years ago on a club outing and I relate it here for the readers' amusement.

It was Sunday, April 1st and the clocks had gone forward 1 hour during the night, thus it was the first day of a new flying season. The day dawned bright and sunny but with a 15-knot cold easterly wind straight from Scandinavia that would bring a tear to a glass eye. After the phone around all the usual suspects turned up at the cliffs just south of Stonehaven, the wind was spot on for a bay just south of the memorial. After the initial leap of faith throwing a perfectly good model off a cliff over the sea (a very invigorating form of flying), the lift can be spectacular and extend a good way out over the bay.

Fairly soon there was a goodly amount of air traffic zipping about the flying zone in the clear blue sky, although the wind was biting we'd all had the good sense to wrap up warmly. I had on a thermal boiler suit under a set of oilskins and a good hat.

Watched by adoring fans, Bill Stark gets his ever reliable Sonata electric glider into the air on a fine October afternoon. Not a jacket in sight ……. global warming had finally reached Altens!

Castle Haven Bay, just south of Stonehaven, the ruins of Dunnottar Castle in the background

After about 10 minutes flying my Aquila, it suddenly dropped its nose and spiralled into the middle of the bay. 'FLIP', says I! 'GOSH, how did that happen?' As the model hit the sea, both wings jumped off the dowels, clapped together and remained afloat, one on top of the other. Of the fuselage there was no sign, it being glass with a built up tail. Having thought that the next time the wings made landfall would be Norway or thereabouts, I was interested to see that they might just catch the northern edge of the bay.

After a bit of scrambling around I found a precipitous goat path to the beach and managed to get down without breaking anything. I made my way round to the northern edge of the bay and sure enough after about 15 minutes the wings drifted on to land at my feet. At least I would get something back. As I was about to leave, a splash of colour caught my eye about 5 meters offshore, this turned out to be the tip of the Aquila's tailplane. It seems that the fuz was hanging vertically in the water supported by the tail. Because the fuz is something over a meter long, the nose was obviously grounding on the seabed and this was stopping it coming ashore. As I stood weighing up the situation, I could see that there might be an opportunity to grab the fuz if I could time it right and run in behind an outgoing wave. The plan worked. As a wave receded I was right behind it and grabbed my fuz. Victory!! Unfortunately, I forgot to run back out before the next wave and in the blink of an eye the water was around my waist. 'DRAT', says I, and strolled out of the sea to the thunderous applause of fellow clubmates.

As batteries and salt water don't mix, the first thing I did was disconnect the battery, then clutching my prize made my way back up the path. Surprisingly I was still bone dry; it seems that as the water came up my body it squeezed my oilskin against me preventing water from coming in.

The next phase was to stabilise my receiver and servos. To this end I stripped them out of the model, jumped into the car and drove down to the pub in the harbour where I ordered a pint of lager and a bucket of fresh water. The landlord had the good humour to serve up this round and I plunged the radio equipment into the bucket, then settled down for another couple of pints. *(pre drink driving laws, was it George? - Ed)*

When I got home, I opened the receiver and servo cases and repeated the fresh water exercise until Sunday evening. As I was going offshore the next morning, I took the gear out of the water and put it on a tray and into the airing cupboard while I was away. Upon returning ashore a couple of weeks later, I reassembled the radio gear, plugged in a new receiver battery (the old one had a duff cell hence the crash) and used that radio set for the next 14 years without a hitch! ***GW***

A Dash 7 buzzes Calder Park. The Robbe kit with four Speed 400 motors, fed by an 8 cell, 2400 Nicad pack. The cows in the next field were unimpressed! (photo: Mike Pirie)

Another miracle on Brimmond Hill, the Editor persuading John Barnes to have a bash at slope soaring, JB's 2nd flight ever from an incline. 3m span, 5lb Mako thermal soarer too light to do anything other than go up in the stiff breeze. It's just visible cruising by at 500' while the Ed. launches his Folland Gnat. Body language. Note the Ed's relaxed flying posture looking straight ahead at the Gnat, while JB bends double trying to focus on the Mako, now at 1000'! More fun with the Mako on landing approach, where JB discovered that his crow brake settings (80 degrees flap +elev. compensation) for flat field landing merely resulted in the model attempting a small diameter loop! (photos: Mike Pirie)

Check out that sky! Jim Ruxton getting his Middle Phase airbourne during a November sortie off Brimmond, beautifully captured by Mike Pirie.

Summer days! Unaware of the distraction to passing motorists, John McConville boldly exposes himself on the 'Cairn'. The low pass with his trusty "Algebra" was quite daring too!

Four of the brave souls who ventured out on the 1st of January. George, Jim, Dave and Mike (behind the lens), all took to the air at the appropriately named Calder Park, before icing on the wings and an empty hip flask stopped play.

Canadian Adventure

Keith Donaldson

I work for a small Engineering firm in Aberdeen called Trihedral UK Ltd - we only have four staff in the Aberdeen Office. Our head office is based in Bedford, a small suburb of Halifax, Nova Scotia on the East coast of Canada. I was fortunate enough to be asked to visit the head office on a seventeen-day trip in October last year.

One of my Canadian colleagues, Georgeta's husband, Rob Bauer is an aero modeler, and during my visit I was invited to go flying. The first thing that struck me was where? Although I consider Aberdeen and Scotland's countryside to be green, it is no comparison to the east coast of Canada – there are trees everywhere. There are some great hills that would make fantastic slope sites, but they are all (and I mean ALL) covered in trees!

One of Rob's aerial photos. A great way to get the neighbours on your side re flying near them. Just take an aerial pic of their houses for 'em! Noise? What noise!

I arranged to follow Georgeta after work one evening, to meet Rob at the flying site. We travelled for about 30 Minutes heading North East of Bedford, ending up at a bluff, projecting into the Atlantic, just north of Brunswick and Halifax.

It appears that Murphy's Law also applies to our North American colleagues, as arriving at a fantastic cliff location we were greeted with a beautiful twilight sunset and not a breath of wind! Rob had taken his Electra electric glider, but hadn't bothered to charge the NiCads as we were hoping to soar.

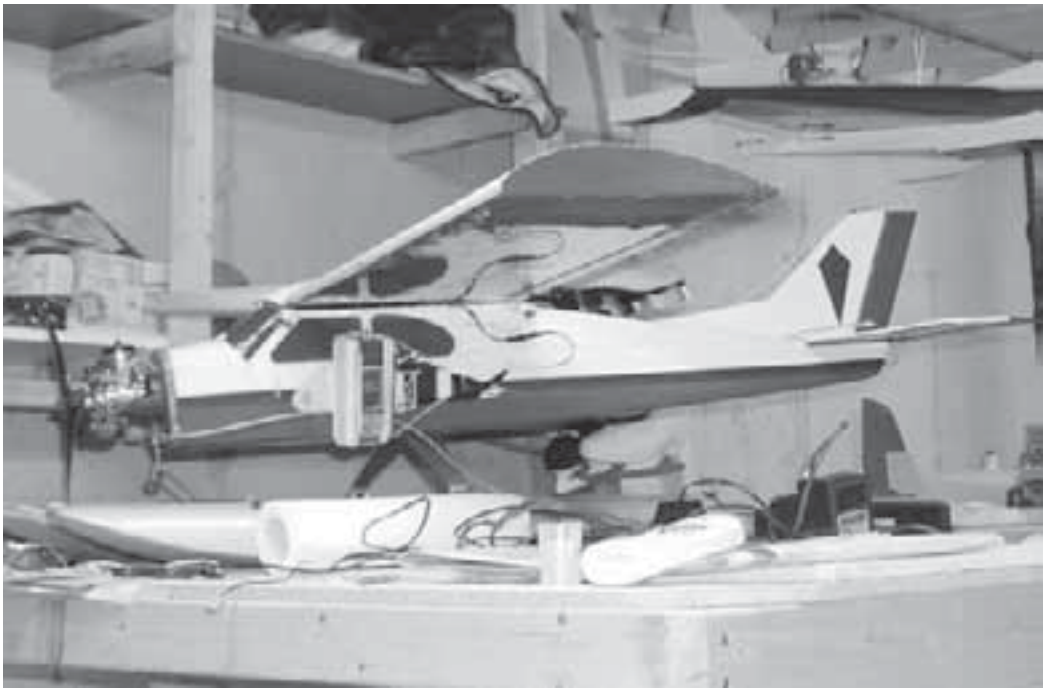
Part of Rob's seaplane collection. Looks like a North Star, a very popular US model from the pen of prolific delta designer Laddie Mikulasko.

We decided to adjourn and I took advantage of Rob and Georgeta's hospitality. After a fantastic meal, Rob showed me around his basement where he keeps his other models. Rob is primarily a powered plane flyer and the majority of his planes are adapted to seaplanes. This makes perfect sense when you realize that they live on a small island surrounded by lakes – it's the only place that doesn't have trees! During the winter months Rob can fly off the frozen lake. He has strapped a small camera to the side of one of his planes to take photos of himself flying the plane, his house and the frozen lake.

I promised Rob that I would send him a copy of the club magazine, so I'd like to take this opportunity to thank Rob and Georgeta for their hospitality and hope to some day return the favor. Knowing Murphy, there probably won't be any wind then either! ***KD***

A low pass over a frozen pilot. Or is it? Hard to say. If that's a Tx in hand, it's Rob. If it's a bottle, it's definitely Keith.

A calm and tranquil evening, miles from the madding crowd, great scenery. What better way to unwind at the end of a long day on the cocktail circuit than a few gentle flights to calm the little grey cells. If only we'd remembered to charge the motor nicads .... ratz!



The camera plane. Just shows what can be done with a straightforward compact camera installation. Also note that the model for such ventures doesn't have to be a big one. Just mount all the sensitive bits on the opposite side to the exhaust, otherwise you may have trouble explaining to momma why her camera appears to be covered in body lotion.

John Stevens designs and sells the delightful Eliminator range of soarers. John is also a member of Soar Valley Soarers, one of the keenest thermal competition clubs in the country in recent years. The success of the club is down to practice, teamwork and development of very reliable methods of launching. This latter item is very important in thermal competition, where the launch is part of the flight time. Towline breakages, requiring landing and relaunching, can be very costly in terms of achieving a good score.

The following summarised article first appeared in the SVS newsletter in 1988. The methods outlined here work as well today as they did then, so have stood the test of time very well. Nylon line is very fragile stuff. The comments about minimising stress points in a line apply just as much to power winch use as they do to hand towlines.

Hopefully the article will help anyone who hasn't tried towing a soarer to altitude yet. Yes, there is more to the wonderful world of soaring than simply chucking 'em off the side of a hill! ***JB***

Towlines

John Stevens

The key to a good towline setup is ensuring that the line does not travel around any sharp corners when under tension. The ideal drum allows the line to be attached using the standard method, i.e. passing the end of the line around a screw in the side of the drum. A maximum of four wraps around the drum spreads the tension, followed by a large diameter pin (c. 10mm). This ensures that there are no stress raisers at the hand winch end. At the other end, the line passes around an oval tube. Such a setup allows lower line strength to be used. This gives lower drag during launch and more elasticity, leading to more height gain on release.

Tow Line Ring

Fig. 3 shows the materials to make one ring. 1/2" of approx. 1/4" diameter brass tube (slightly flattened into an oval shape), 7/16" of 1/8" diameter brass tube and about 3" of bowden cable.

Slide both tubes onto the bowden cable, Fig. 4, and form the cable into a loop, pushing both ends into the smaller tube until they protrude slightly, Fig. 5, then crimp the smaller tube, sliding the larger tube over the top, Fig. 6. Seal one end of the large tube with tape and fill it up with epoxy, Fig. 8. Definitely an item it takes longer to write about than to make!

The Hand Winch

Fig. 9 shows the drum with one side plate removed. Note:- the centre piece has a slice removed. The winch drum sides are made from 1/8" birch ply and are 8" in diameter. The centre piece is 4" to 4.5" in diameter and between 1/2" to 5/8" thick (any wider than this and the line will tangle the drum).

Fig. 10 shows the line passing through a small hole in the side of the drum and secured under the head of a self-tapping screw. Wrap four turns of line around the drum and put in the locking pin, a 3/8" diameter brass tube which is a push fit in the drum sides and is held in place with tape. This method takes the stress away from the point where the line is secured.

The Knot

Fig. 11 shows the knot I use in fishing. It is known as a Grinner Knot. It's best to practice with string rather than struggle with springy nylon line until you have it worked out. When pulled tight it should look neat, with the turns of the line fitting snugly together. ***JS***

Using the methods outlined here, John has found that 70lb breaking strain line works very well for the wind conditions under which the Eliminator 134 is normally used. Another advantage is that it is much easier to knot than the 120-240lb(?) line often used by others.

So, here we are, 2002 now and everyone seems to be using winches in Open competitions (hand tow is mandatory for the 100S class). So hand towing Open models must be a thing of the past, uncompetitive, etc? Well, while it might seem that way on the surface, I don't believe this to be the case at all. It's true that winches might give better launches when there's no wind, particularly if a model hasn't been set up properly for towing, but a well-setup model will launch very well whether winched or handtowed. The winch launch may be faster, but only by a few seconds. When you take into account the other factors which come into play during a comp slot, like trying to stay aloft (tricky) and getting the landing bonus (graduated tape these days), that 3-4 seconds difference at launch looks pretty tiny in comparison. Nope, handtow isn't necessarily uncompetitive, just unfashionable! ***JB***

Fig. 3

Fig. 4

Fig. 5

Fig. 6

Fig. 7

Fig. 8

Fig. 9

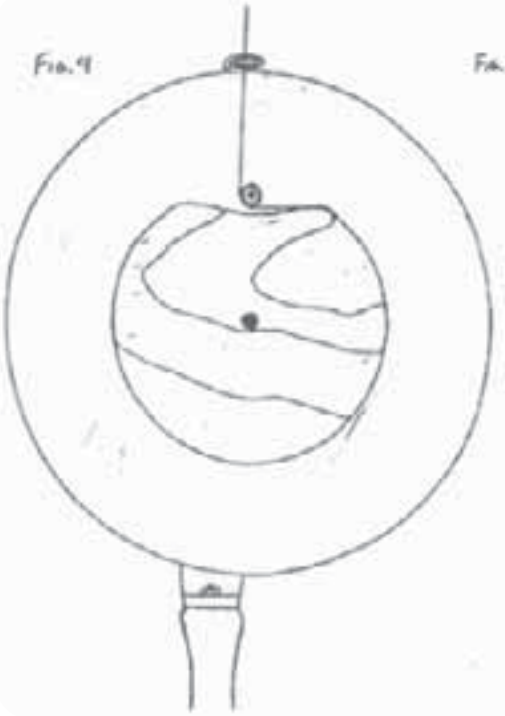


Fig. 10

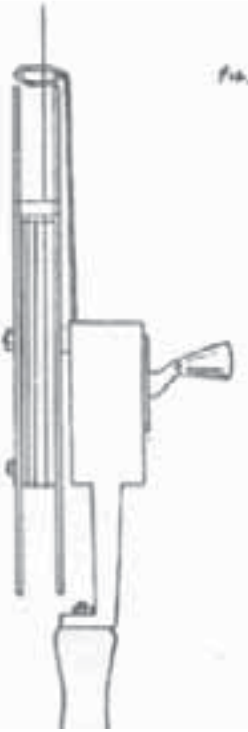


Fig. 11

J.A.S.

An unusual photo of a 30year old man holding a 50 year old model ... or is it the other way round? Norrie attempted to fly this odd looking beauty at last year's BBQ, but had to abort because of problems with its releasable tow-hook. Incidentally, it's a fully built-up 100 incher, called a 'Wind Freak'. (photo: George Whelan)

Ho hum, another successful club aerotow.....

Ho hum, another successful power line avoidance on approach.....

"...and then the ground arose and smote me, officer"!

Starting out

John Barnes

The sound of the model's rapid descent reaches ear level. A medium pitched but rising, rapidly increasing whistling sound, reducing distance and Doppler working hand in hand. 'Pull it out verrrrry gently', a calm voice from the group says. The glider curves slowly into level flight and, still at good altitude, whistles across the upturned faces. One of the faces contorted by a huge grin, the attached brain musing 'Bloody Nora, this seems like it could be entertaining'. Blondie rides high in the charts, satellite TV, credit cards and the internet part of a distant, future world.

The calm voice is Tom Taylor's, the keenest of soaring enthusiasts and the man responsible for persuading the pilot, a power-only flyer until that day, to give soaring flight a go. That day had arrived, perfect weather and a thermal soaring competition run by the Elgin Club. The newcomer had been allowed one test flight before the competition started to get a feel for things, the things being, (1) never flown a glider before, (2) it was the model's first flight and (3) had never done a towline launch before. The minor matter of the pilot also not having the faintest idea about the rules, timing, towing or anything else to do with the day's planned activity was considered irrelevant. The only important thing was making the effort to come along and support the event, have a go, give it a whirl, never know 'til you've tried it, etc. Tom had been very quietly and motivationally persistent.

The model, which miraculously survived this first flight, was (I think) a Chris Foss "Centiphase", an elegant 100" span rudder/elevator glider. On its embryonic first flight the model had lucked into a very active thermal and become very small, very quickly as it elevatored heavenwards. The pilot didn't realise then that there are better ways to loose height safely with a soarer than by simply diving vertically! It turns out to be a great day's flying for everyone, many ADS members participating. A relaxed event, with time for Tom and others to patiently try and explain to the new boy what it's all about, bemused no doubt by furrowed brow and endless 'what/why/how/me again?' questions.

I come away from the event with the huge grin and model intact, the faintest glimmer of comprehension about the rules, timing and towing, and a very strong desire to do it all again. This feeling is not so much because of the actual flying but because of the attitude of the experienced participants towards a complete and utter novice to such things. No politics, bull-shine or isolationist prima donnas, just a patient, warmly positive interest in ensuring that I get all the help I need. I'm won over by such an enthusiastic atmosphere, the seeds of an interest in discovering more about soaring matters sown, cultivation assured by soaring events to come which show that the engagingly supportive ambience of this first event is not a one-off, not a fluke combination of good weather and low taxes on alcohol, but an integral part of the soaring competition arena culture. The future is to bring attendance and participation at two world championship soaring events, where, even at this level of international excellence, I am to discover there are expert exponents of the art only too happy to talk about, demonstrate and promote the techniques, subtleties and nuances of their equipment, knowledge and passion for the sport, disparate cultural paths merging in the sunshine of a shared interest.

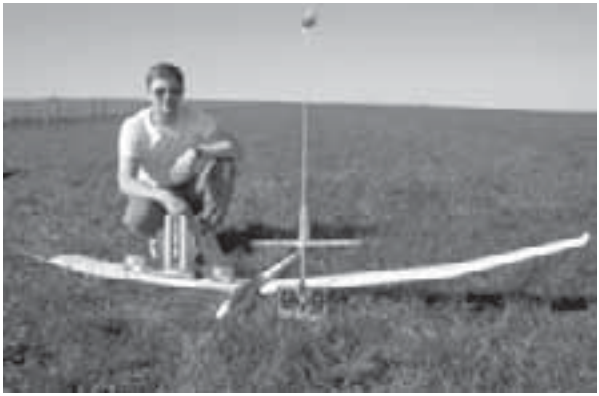
Simpler times at Elgin though, everyone flying two or three function models, control by rudder and elevator and, in some cases, an adventurous third servo to operate air brakes. Such straightforward models are easy to set up and once trimmed tend to perform very consistently and reliably, a matter aided greatly in those days by the equally straightforward radio equipment in use. Non-computerised, not a menu in sight. Back then, top-of-the-range transmitters qualified for that position by providing the luxury of servo reversing at the flick of an internal switch. Really esoteric versions also allowed the amount of servo travel to be reduced, with a switch provided in some impossible-to-reach-while-flying location on the case to allow switching between the full and reduced servo travel settings in flight. Such inherent simplicity allowed for lots of time for helping others, fellow competitors with a minor between-flights problem (there was always someone who'd had the foresight to bring along a screwdriver and glue!), but most particularly and importantly, newcomers.

Life is a whisker more complicated for experienced competitors these days, which brings the possibility of less time available for Newcomer Aid at a competitive event. Model, and particularly radio technology, has evolved into something altogether more demanding of a competition enthusiast's time, and not just at an event. Modern radios can have more computing power than NASA had available to it to pop Neil onto the Moon in '69, enormously capable equipment which allows for a virtually unlimited amount of pre-defined model control options. Hand-in-hand with such radio equipment, developments in model construction technology have led to a wonderful choice of sophisticated, highly versatile soaring machines, able to comfortably handle flat calm and strong winds with equal aplomb, undreamt of capabilities in Blondie's heyday.

Also undreamt of then was that anyone would have to spend months getting to grips with the basic features of a radio set, let alone the advanced chicanery which only becomes less transparent as experience with a set is gained and the errors and omissions in the set's instructions start to become apparent! This is not rocket science; it's much more complicated than that. Ultimately hugely rewarding, but oh, so time consuming. As with any acquired skill, constant application is a mandatory part of sustaining that skill. The simple radios didn't require any skill to speak of. Same with the models really, rudder/elevator being easy to set up. But make that wing trailing edge waggle up and down with flaps and ailerons and, wow, do the options and time for setting up a model go exponential!

All of which requires considerably more focus and attention to detail than the old Centiphase did, whether flying informally or at a competition, potentially lessening the opportunity for spending adequate, good-humoured, non-critical, unrushed supportive time with those in need of a helping hand.

No activity survives or prospers without



Happy daze! Early 80's. Pilot and model survive to this day, both somewhat wrinklier. Model is an "Aquila", a US design. Rudder/elevator for control. 100" span allows it to be used in 100S & Open thermal comps. Low cost, easy to build, steam-age wing section. 100% unfashionable these days so obviously not suitable for competitive flying any more. Can't be, can it? Even if this design did win the first ever multi-task World F3B soaring champs. Duration tasks, distance tasks, speed tasks....Still a competitive 100S design? Do wizards wear pointy hats? Pity about the pilot's design though....!

Equivalent designs - lots. Equivalent kits includes John Steven's great Eliminator 100 design, an Aquila for today. The main difference twixt designs of yore (70's) and now is in the wing spar design. Modern models have much stronger wing spar systems. Same materials basically, just a better understanding of how to use 'em. Now the only limitation to flying in windy weather is not being able to get enough ballast in!

newcomers. With regards to modern thermal soaring comps, these days it seems to me potentially less likely that someone in the position I was in at that delightful Elgin competition will experience the "Elgin effect" that I was so fortunate to enjoy and which had such a profound effect on me continuing an interest in soaring flight. Apart from a choice of NASA transmitters and models with everything waggling, today's newcomer to the world of soaring also has to contend with radical changes in employment practices (the loss of certainty, ever-longer hours….) and a seemingly ever more frenetic family pace just to keep up.

Well, nowt to be done about that here, modelling lads and lasses, but one thing which may aid a tentative interest in discovering whether thermal soaring comps are as much fun as they're cracked up to be might be to have some idea about the basic concept and timing requirements beforehand. Armed with this insightful knowledge, you'll then be delighted to discover that there isn't an advanced concept/timing bit! This just leaves you with one or two teensy weensy matters to focus on, but you'll be familiar with these already if you've been flying gliders of almost any description for informal pleasure.

In lift a model goes up, in sink it comes down much faster than it should. It doesn't matter how shiny or how many waggly bits a soarer has, this is how it happens. Mother Nature at work. In thermal competitions there's no impediment to enjoyment or possible success such as "works" models to contend with. Completely irrelevant that the rest of the models present might look like something out of "Star Wars" compared to your simple rudder/elevator controlled aircraft with the odd bubble in the covering (I've yet to overcome all of 'em!) and a corner lifting here and there. It doesn't count for a rats. If Mr SW hits sink and you hit lift, you win! You don't even <u>have</u> to find lift, just stay airborne a bit longer than your fellow competitors and land well. The trick is simply to be able to do that consistently.

[A pause for clarification. If it "doesn't count for a rats", why are people using such exotic equipment? In a nutshell, versatility. Gone are the Elgin era days, when thermal soaring models were restricted to operating at very modest wind speeds because they weren't strong enough for anything more potent, as well as such weather really showing up the limitations of rudder/elevator-only controlled wing configurations under turbulent wind conditions. These days it's possible to run comps successfully and safely over a much wider wind speed range. Unlike their rudder/elevator controlled counterparts, full-house ships, i.e maximum number of waggly bits, can be smoothly controlled through a gale without noticeable loss of directional dignity. When <u>you</u> first give thermal soaring competition a go, it'll more than likely be at a local site and run by your club. Too windy to fly your model? Ah, well, another day then. Short toodle home. Experienced thermal soaring pilots travel great distances to many competitions during a

season. The full-house type moulded models which many use these days have the strength, controllability and ballast capability to handle calm to very windy conditions without a murmur, greatly reducing the chances of a long, ultimately wasted journey because it was considered slightly too breezy to fly one's particular model safely. They are not necessarily the optimum bet for occasional users (trying to re-learn a computer transmitter every six months redefines the 'F' in frustration), nor the ideal model under <u>all</u> conditions, but as effective all-rounders they are outstandingly good.]

The value of uncertainty. I believe it is the magical uncertainty factor of thermal competition which has made it such a popular event world-wide. Outcomes are never guaranteed. Peter Perfect can blow it all by simply turning the wrong way, or being in the right place when it suddenly turns into the wrong place, all part of the gloriously entertaining after-flight autopsies and banter. It's very enjoyable when it's all going well, very frustrating when it's all going wrong, but hugely enjoyable and rewarding when it all seems to have gone wrong but you've recovered magnificently to royally thump (score-wise, that is) your previously chortling opponents! It is this infinitely variable, unpredictable ebb and flow of fortune, the always-present chance of major upset to the form book which, for me, makes thermal soaring competition such an interesting, highly entertaining and rewarding experience, and with Elgin-like support and assistance still hopefully alive and kicking, a most worthy addition to one's breadth of exposure and experience in the world of aeromodelling. It certainly has been for mine.

Thanks for the persistence, Tom.

Thermal Competition Basics

Easy, this bit. Stay airborne longer than everyone else on every flight and land with greater precision and you waltz off with the silverware. Oops, sorry, that's the primary personal intent, not the basic organisational bit of how a competition functions!

A thermal competition of any type (there are numerous flavours) comprises a number of initial flights which competitors make in small groups. Depending on the number of entrants, these small groups may contain up to a dozen or more pilots flying against each other at a time. Each small group flies in an organised time period called a SLOT. The collective name for the number of SLOTS which have to be flown to give all pilots their first flight is called a ROUND, i.e. when every pilot has flown once, ROUND 1 has been completed. Yes, you're ahead of me already. Your second flight, or SLOT, is therefore part of ROUND 2, your third flight….etc.

After ROUND 1, for each following ROUND an organisational musical chairs trick (called matrixing) tries to ensure that you are flying against a different group of pilots in each of your subsequent SLOTS.

Your flight in ROUND 1 will give you a personal score figure. This figure, a numerical value on a scale from 0 - 1000, is derived from your flight time (in seconds), to which may be added a handsome landing bonus figure if you've landed with sufficient precision (or in my case got very lucky), referenced against the highest score of your SLOT. If this is yours, you will have 1000 points. If it isn't, your figure will be a percentage of this value. If you land in the next county your score is automatically zero. Whatever your score is after ROUND 1, it is added to the result you achieve from each subsequent ROUND. This includes the zero…

In effect, these ROUNDS are qualifying entities. What you are attempting to qualify <u>for</u> is a place in something called a FLY-OFF (a fancy name for a slot with a much longer timeframe).

The number of ROUNDS which are flown depends on (a) the type of competition you are flying or (b) whatever the competition director (CD) dreams up on the day! There may be three ROUNDS (Open rules), five ROUNDS (100S rules) or nine ROUNDS (F3J World Champs). What happens in every case is that completion

of all of the qualifying ROUNDS generates a results table showing how everyone has done so far, highest score at the top, lowest at the bottom. A time of great joy or analytical sorrow for everyone, this point in the proceedings!

Prior to the competition starting, a CD will have advised competitors of how many pilots will go forward to the FLY-OFF. This may be anything from four to a dozen or so depending on the size of the entry. Getting into a FLY-OFF is therefore simply a matter of having a high enough score at the conclusion of the qualifying ROUNDS.

There may be one or more FLY-OFF flights, FO1, FO2, etc, but they are basically just another SLOT with a longer timeframe. The 10 minute timeframe (Open and F3J) of the qualifying ROUND SLOTS is increased 50% to 15 minutes. Hah, and there's you thinking 10 minutes was a bugger to achieve!

If there is more than one FLY-OFF flight, the score a pilot achieves from each flight is added together, just the same as happens during the qualifying ROUNDS. Highest score wins. And this is the score achieved in the FLY-OFF(s) only. It doesn't matter if you just squeezed into a FLY-OFF by the skin of your qualifying teeth while top qualifier had a score in the next galaxy. Come that first FLY-OFF flight, the qualifying pilots are all starting from a level playing field again. Which is, of course, terrific for Mr Teeth and those above him who may have equally skinned molars, but a real pressure cooker for Mr Adjacent Galaxy! All part of the wonderful tapestry of uncertainty of thermal competition.

It's as simple as that, whether at club level or at a World Champs event.

So, how do we get the numbers bit which makes up the score figure in a SLOT?

Timing

Here's a well-kept secret. People who fly in thermal competitions live longer. Never mind all that scientific stuff about needing to travel at the speed of light to harness relativity. That'll be available at a Tesco's near you once super-conducting unobtanium behaves itself at room temperature. Providing you're not allergic to the cream used to remove quantum hydration wrinkles of course.

Thermal soaring competition pilots have enjoyed the transcendental enlightenment of relativity for decades. Mmm…I can see you look doubtful. Well, you'll have to take my word for it or try a thermal competition for yourself. Quantum practice is not required. This outstanding effect will become apparent during your first-ever competition flight. Just enjoy it. And like all good things, it never wears out. You'll still be enjoying it to the brim after decades of competitive abuse. How will you recognise it? Don't worry, it'll find you. Not long after your model has parted company with the towline. Once you're in that happy position, you will truly not believe how long it now takes for a minute to pass. War & Peace was written in less time. And after the first minute has crawled by, there's just 9 left to go! An extended lifetime. And no cream required.

Now, timing. Every pilot has someone who times and talks for them. The talky bit is simply keeping an eye on what the opposition is doing while the pilot flies the ship. If someone in a different piece of sky suddenly doubles their altitude, it's possible this information may be of some value to the pilot. Ditto if the opposition suddenly loses 50% of its height.

There are two things which have to be timed during every flight:-

1. The **slot time** (slots are always started with a hooter, buzzer, or scoregirl whipping off her mini-skirt if the PA system is down), because if you manage stay airborne long enough you need to land as close to the end of the slot time as possible. A whisker under it, ideally. Flying one second past the end of the slot time loses all landing points and brings penalty points. Towards the end the talker will give a pilot very regular updates on the approaching end of the slot time. So, the stopwatch or countdown timer used for timing a slot is started when the hooter goes and left alone after that, simply a reference tool for landing requirements should a pilot fly out the slot.

2. The aircraft's **flight time**. In thermal competitions, the launch (hand tow, winch, Harry Potter's broom) is commenced on or after the hooter has gone off to start a slot's 10 minute timeframe. BUT, the aircraft's flight time doesn't commence until it parts company with the towline (that's what the pennant or chute on the towline is for, to make the release point easily visible to the timer). In other words, the launch phase of a flight is carried out within the slot time, is part of it. An aircraft's flight time commences when it leaves the towline and terminates when it touches down. The timers used for this are simply started and stopped accordingly. Timers? In general, two stopwatches are used to time a flight, just in case one of them fails. If one watch is used and it quits part way through a flight, zero score.

The final thing to complete the scoring data for a flight is to determine the landing score by checking the aircraft's position (using the tip of the model's nose as reference point) against a graduated landing tape (Open/F3J).

When a pilot has completed his flight, the timer takes himself and the stopwatches to the score tent and gives the scorer the flight times from the watches (don't reset them until this is done) and landing bonus details.

That's it. Well, almost....

There are other types of thermal competition in which one's actual flight time is used in the scoring system. No jiggery-pokey with percentages, just the actual times achieved. Your total score is simply your individual flight time from each round added together. This type of event means the form book can be thrown in the bin. If a slot is flown in heavy, inescapable sink conditions, tough luck! If the lift is good, Whoopee!

The finest example of such a target-time based competition that I flew in was the delightful Taylor Trophy event. With fiendeshly simple rules invented by Tom Taylor, it was an event which an absolute beginner to soaring could win. It's primary purpose was to simply have FUN with soarers. An annual event, the entry level sometimes rivalled that of the soaring Scot Nats. Lots of grub supplied by Marj Taylor and other ladies, BBQ, caravan marqee, a brilliant family day out. Such deceptively simple rules. 3 flights to make a total of 15 minutes. 7 minutes max for the first two slots and 2 minutes for the third. Massive penalty points for overflying. Hero to zero in a second! Not possible to have fun with only 15 minutes airtime? Ho, ho, think again! A laugh a minute (greatly aided by the complaints/sob stories from those actually taking it Very Seriously!). Unrivalled banter. Unlimited aid for newcomers. As perfect an introduction to soaring as it's possible to achieve in my experience. Wonderful stuff.

The Chris Foss "Centiphase" attached to Mr Learner. Curly up tips all the rage then. Aerodynamic superiority assured according to the experts. The experts didn't mention how easily damaged they were in transit or explain how to get Solarfilm around tight curvy bits. The model survived a couple of seasons until another dive from height with ballast on board was completed with a flourishing attempt at a loop. The wings decided they'd had enough and folded together instantly, the structural limits of the simple spar system in the foam and veneered wings now discovered. Saved from the bin by another modeller who considered the bits repairable. High quality kit, delightful flyer, idiot pilot!

Fancy giving it a go but just have you, a soarer and a tranny and none of the other bits and pieces like towlines and stopwatches? That's the position I was in at Elgin. As a newcomer, I got loaned everything I needed, including the explanations about what was needed and why it was needed.

Hopefully it's still that way. It is with ADS.

ADS & SCOTTISH SOARING EVENTS CALENDAR 2002

Month	Date	Event	Venue	Organiser	Tel. No.
MAR	31	International Postal	Mossmorran	Brian Sharp	01738-626589
APR	7	Fun Fly	Fairley	B. Shaw	01294-602686
	14				
	21				
	28	***ADS Slope Fly-in***	TBA	Mike Pirie	01224-323640
	28	Open/100S	Mossmorran	Dave Bradbury	01592-782906
MAY	5	Open/100S	Warrick	Harry Merrick	01563-526980
	12	Electroslot/Mini Glider	Mossmorran	Dave Bradbury	
	19	***ADS Thermal Fly-in***	Calder Park	Mike Pirie	
	19	Open/100S	Mossmorran	Dave Bradbury	
	26	Open/100S	Mossmorran	Dave Bradbury	
JUN	1,2,3,4	RadioGlide	Oxford		
	8, 9	***ADS Hazlehead - fun-fly 8th - Open/100S 9th***	Hazlehead Park	Mike Pirie	
	16	Open/100S	Mossmorran	Dave Bradbury	
	23	Electroslot/Mini Glider	Mossmorran	Dave Bradbury	
	30	***ADS Slope Fly-in***	TBA	Mike Pirie	
	30	Open/100S	Boldon	Brian Johnson	01915-368178
JUL	7	Test day/Electroslot/Mini Glider	Mossmorran	B. Sharp/D. Bradbury	
	14				
	21	***ADS Electric Fly-in***	Calder Park	Mike Pirie	
	21	Open/100S	Mossmorran	Dave Bradbury	
	28	Anything goes Fun Day (?)	Mossmorran	Dave Bradbury	
AUG	3,4,5	Scot Nats - Open/100S/E-slot/ScotSlot/Mini Glider	Mossmorran	Dave Bradbury	
	11	***ADS BBQ & Fly-in***	Calder Park	Mike Pirie	
	11	Open/100S	Mossmorran	Dave Bradbury	
	18	Open/100S	Mossmorran	Dave Bradbury	
	24,25,26	British Nats			
SEP	1	International Postal	Mossmorran	Brian Sharp	
	8	Electroslot/Mini Glider	Mossmorran	Dave Bradbury	
	15	***ADS Slope Fly-in***	TBA	Mike Pirie	
	15	Fun Day	Fairley	B. Shaw	
	22	Electric Fun Fly	West Calder	Tom Laird	07761-645644
	29	Electroslot/Mini Glider	Mossmorran	Dave Bradbury	
OCT	6	Standby Date			
	13	Standby Date			

Winter Programme - 12th Mar/Cove Bay/19:30 - How To Score!

(Okay, really a talk on Running a Competition, rules, scoring, directing & making the mini-bar pay)

Movers & Shakers

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ADS welcomes any material of modelling interest for publication, so a few words (& photos please) about one's latest aeronautical creation/experiences/hints'n'tips will be warmly welcomed. The Ed has fitted an extra large letter box in anticipation of being overwhelmed with information!