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AERO

MODELLER



p.17



p.45

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Cover: Wings, stringers and struts – that's Pete Iliffe's own-twelfth scale Fokker Dri for Knight and Pridham electric power. Full-size construction is copied right down to the sprung tailskid. We watch progress p.55. For contrast, our Free Flight Eurochamps report – colour, too! – begins on p.20.

HANGAR DOORS	News, views and What's On	4
ANTONOVOS AND AQUARIA	Twin-engine compressed-air topics discussed by Doug McHard	6
SHOP AROUND	We call in on a trio of top shops	9
VINTAGE CORNER	Alex Imrie amplifies past researches	10
1990 INDOOR WORLD CHAMPIONSHIPS	Laurie Barr goes Stateside and reports a remarkable victory	14
SNOWMAN	Here's a winter warmer – full-size plans for John White's Coupe d'Hiver contender	17
BALSA CUTTINGS	Cyano de Bergerac on the loose again	18
1990 FREE FLIGHT EUROCHAMPS	Bernard Aslett reports from Domsod	20
1990 CONTROL LINE NATIONALS	Part Two – Racing and Combat	45
MIND THE LINES	Ron Prentice examines response to the topic of engine eligibility	47
FREE FLIGHT SCENE	Dave Hipperson on top contests and Trials – Trevor Grey's there too	50
VOSS UP?	We review progress of a super Triplane project	55
THINK MULTI	An individual approach to control-line scale	56
SCALE MATTERS	Bill Dennis at Barkston Heath	58
WHAT A NORTH AND SOUTH	Galas at the top and bottom of the country attended by John O'Donnell	60

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HANGAR DOORS

Aeromodeller League Update

For some time now *Aeromodeller* has featured a review of the season's overall top placers in SMAE F/F events. This was prompted originally by a rule which invalidated the SMAE Senior F/F Championship if some of the qualifying events were cancelled, or not run as advertised. Realising the frustration this caused to those who had centred their year's efforts on achieving a place in this championship, Aeromodeller stepped in and produced its own ratings (based incidentally on the same system and data as the SMAE).

Like Topsy the whole thing grew and we now have no need to publish separate results as the official SMAE ones are now, as far as is possible (you can't please all the people...) a fair reflection of the overall state of play. However, for those unaware, these results only include official SMAE outdoors events – published at the beginning of each season. Some, notably the Falcons clubs, felt we needed to record the achievements of those who flew in club Galas as well. So, three seasons ago the Falcons League appeared and is now hotly contested.

Sadly, though, neither system incorporates all events flown. The Falcons League, effective though it is featured only events it nominates at the start of the year, and only allows one event per day to count with a maximum of eight scores from the year. It also ignores any 'Champagne Fly Offs'. In an effort to give a complete picture of the whole F/F contest scene *Aeromodeller* will be publishing an overall ranking for this season (1990), with, as it were, no holds barred. In practice we shall combine the results of the SMAE and Falcons Leagues and add to it the results of as many other events (Outdoor F/F Duration), as possible, including the Falcons events that don't usually qualify – for example, two scores on one day or 'Champagne Flyoffs', and, with as many scores as you have had the energy to clock up. All ex-

This splendid bronze figure, entitled Scramble, is the work of Trevor Faulkner, perhaps better known for magnet-steering exploits.



Who are the Aussie CLAMS? The control Line Aeromodellers Club in Southern Melbourne, that's who. And they fly the C/L Triathlon, where one plane (and engine and pilot) competes in Stunt, Team Race and Combat during the same afternoon. Victorious Jerry Copestake (left) beat over twenty others, including organiser Graeme Wilson (centre) and Mark Ellins. Below: Peter Martin with W.I. Barrett's APS Hoppity design – not The MA plan, as described in our Designs Day report. Full list of 1991 Old Warden dates next month.

tra events will be scored as per the Falcons system, which for reference is reproduced below, together with the SMAE system. Our only proviso for including the result of an event will be that it must have been advertised in a national publication; *Aeromodeller*, Free Flight News or Model Flyer, and open to all.

We shall publish the results of this compilation together with our usual review of SMAE and Falcons Leagues early in the new year. For next season (1991) we propose to circulate all event organisers with a pre-printed form to enter their results, together with the scoring system, as soon as we receive details of their 1991 events (or our What's On column). To remind you for 1990 the system used was as follows:

SMAE Events

1st place	9 points
2nd place	6 points
3rd place	4 points
4th place	3 points
5th place	2 points
6th place	1 point

Falcons League Events

1st place	8 points
2nd place	6 points
3rd place	4 points
4th place	2 points

Other Events – including Falcons League Events where scores are discounted

1st place	8 points
2nd place	6 points



3rd place 4 points
4th place 2 points

In all cases, where an event has less than six or four entries respectively, then the points are reduced from the top. Example: Falcons League Event with three entries: 1st place, 6 points, 2nd place, 4 points; 3rd place, 2 points.

Obviously, we shall only be able to publish a short form of the complete results. However for those interested we hope to be able to provide a detailed copy of the computer printouts showing all places, competitors, events flown and points allotted. The price and details to be published in our review issue. Meanwhile if you know of any event results that we don't, please let us have them as soon as possible, addressed to Aeromodeller and marked F/F Leagues on the envelope.

Pylon the pressure

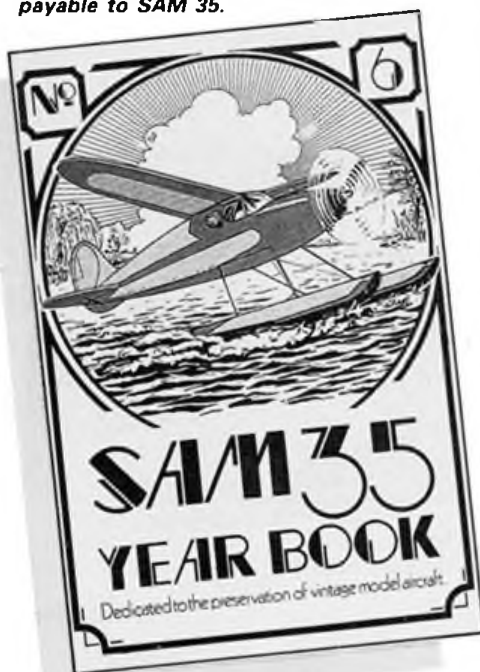
A timely warning. In our feature, 'One Push for Left and One Push for Right' (October issue) we published a photograph showing two modellers, a neat model and an HT electricity pylon... Geoff Crump was moved to write: 'I fly control line and keep well away from pylons, even if they are at a distance. No-one, whatever their interest in aeromodelling, should fly aircraft around, over or near them. Apart from possible damage to the model, the conductor itself may be damaged. In any case, HT power lines can kill!'

Yes. Even if the camera can often make distant lines appear closer than they really are, Geoff is quite right to reiterate the dangers of flying near power cables. Don't risk it!

Airflow anticipation

The feature on the Cambridge group's successful HPA (Human Powered Aircraft) has been excluded from this issue because of lack of space. It will appear in the February issue.

Hot off the press – SAM 35's Yearbook Number Six costs just £4.50 post free the UK from Ron Knight. 14A Enmore Gardens. London SW14. Cheques payable to SAM 35.



Above: Mike Beach's latest piece of work makes a change from Vintage models! This 1928 Hols der Teufel took three years to build, with 7,000 bits of wood in the wings alone. Won the Vintage Glider Club top award and the Desoutter Trophy earlier this year. Right: The late John Palmer with Lohner CI, fun-flying at the 1990 Nationals. John's sudden passing will come as a shock to many. We will publish a tribute in the next issue.



Error nautics

Catch-up time for a few editorial glitches, ably spotted by observant readers. Chris Jordan from Barnet was the first to point out that we mis-identified a Javelan as a Vultan in our account of the ASP Model Designs Day. Laurie Ellis designs both, so perhaps there's a slight excuse. Chris goes on to reveal that his own Javelan, built in the fifties, was so stable that it would fly just as well without fin and tailplane; he discovered this when they fell off at 100ft altitude (perished rubber bands being the cause) whereupon the model carried on as if nothing had happened.

And going back to our Free Flight Nationals report in the August issue. Mike Parker wrote from Hull to point out that we got a couple of names wrong – his and the model's. He notes:

'Whilst it would be churlish of me to complain about the change of Christian names after having fulfilled a lifetime's ambition by appearing in these hallowed pages, I feel I must right a more important wrong. As a founder member of SARM 90 (Society for the Appreciators of Ray Malmstrom), I must point out that the models pictured are examples of one of the master's greatest designs – the Mimi, not Mini (that was la-sonian!). I hope this correction will enable all

those potential, new members of SARM 90 to inundate Aero-modeller with requests for copies of the plan by quoting the right name and thus to fill the skies with fitting tributes to one of the movement's great originals. PS: Never, ever, let it turn right under power!'

Inundate away. We don't mind!

More Vintage vibes

Ken Staniforth's concerned about missing gaps – in Aeromodeller collections, to be precise. He comments on the success of Vintage Weekend (thanks, Ken) and applauds the idea of our Collector's Corner, which brings us to the point. Over to Ken:

'Many modellers would greatly like to complete their collections of Aeromodeller back to the first issue but despair of ever being able to do so. Some of my acquaintances have had recourse to filling vital gaps with photocopies of complete issues, despite this costing around £5.00 a time. Why not publish facsimile reprints, beginning with Issue One, perhaps on a monthly basis. I realise that there would be no revenue from advertising so this would have to be re-freshed in the cover price.'

This is an idea that crops up from time to time. There are a few snags, but we'll do some research...

ANTONOVS and



Doug McHard describes twin-engine C.A. techniques

I AM delighted to note that my correspondence tray clearly indicates a growing awareness of the exciting opportunities offered by the little plastic Z-Model compressed air engine. The flying meetings during 1990 have attracted some quite interesting models and in America, several prominent modellers are actively building and flying with this re-discovered power source.

For my part, my original 40in Comet Piper Super Cruiser is now a year old, and has accumulated a lot of flying time, the power plant continuing to perform faultlessly and just as efficiently as the day it was installed. The Piper was, of course, a quick way to check out the practicality of the system which function it has more than adequately performed. Since building the Piper, I have experimented with minimum size CA models, using a small quarter-litre bottle at high pressure, but although promising, success has to date eluded me, not, let it be stressed, as a result of any shortcoming of the power unit, but rather because of poor choice of airframe.

Ambitious Antonov

Currently, I am working towards something a bit more ambitious – a 48in span, twin-engined

Antonov 14 'Pchelka' (Little Bee) of 1958. The development of this model has spawned a number of new ideas, several of which are here described.

You may recall my reinforcement at the Z Model motor's cylinder head using a section of Pentel marker pen aluminium body (described in the May 1990 issue of this journal), I now have a simpler and neater way of achieving the same result. First, smooth out the ridge along the glue-line around the cylinder head joint,



T-piece joining pressure feed from bottle to twin engine pipes.

then take a 5/16in wide strip of heavy nylon, cut on the cross (diagonally to the weave) and, wearing a polythene glove, stretch the nylon around the head, allowing a little to overlap above and below the head rim.

Apply Cyanoacrylate adhesive and press the nylon in place, folding the narrow edge strips

The partly-built Antonov 14 airframe with engines and bottle installed.

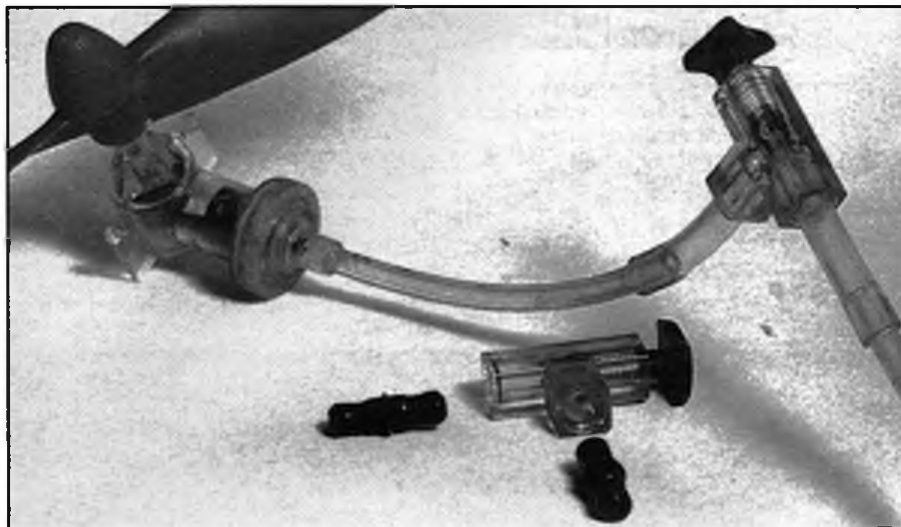
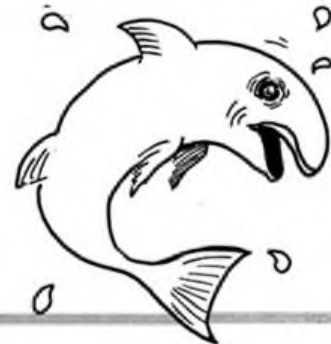
over and under the head. Be careful prevent any cyano from entering the three little exhaust ports under the head.

Some Z-Model engines have shown a tendency to crack across the webs of the crankcase main bearing. I prevent this occurrence by fashioning little inserts from 1/16in perspex that are then cyanoed in place to beef up the moulding. In USA that long-time practical modeller/journalist John Worth has achieved the same result with far less effort. He fills the spaces between the four webs with inert powder (borax), and then applies a few drops of cyano; Presto! an instant reinforcement and a perfect fit.



T-piece comes from pet shops, and must be grooved to take twisted soft iron wire securing bands.

d AQUARIA



Also from pet shops, a neat plastic needle-valve pressure controller. Discard black joint tubes and cyano neoprene pressure lines directly into valve body. Weight is only one gram!



To prevent air leakage at high pressure, wrap a couple of layers of PTFE tape round needle thread.

Using a single pressure line from the 1.1/2 litre bottle in my Pchelka's fuselage I needed a T-piece to divide the line to give a feed to each engine. I came across a ready made one in, of all places, our village pet shop! They are sold for use in connection with the aeration systems of tropical fish tanks. Now I hope that your fish tank doesn't operate at 8 bar, but the mouldings are adequately strong for our pressure systems. The plastic from which they are fabricated cannot be cyanoed so you must carefully file a shallow groove round each stem, using a round, rat-tail file. The tight fitting pressure line is then secured by a twist of soft iron wire. Wire from a champagne cork retainer is absolutely ideal for this purpose (well, it is Christmas, after all).

This brings me to another point. The makers of the Z-Model engine recommend that all pipe joints should be secured with cyanoacrylate. This works well as long as you remember that it only acts on genuine neoprene tubing. It does not work with the majority of clear plastic tube sold today by model shops, which is silicon based, and rejects cyano. I am told that neoprene is no longer manufactured in UK, so if you come across a source of supply – please let us know!

Rules for regulations

The two engines, running off the single air tank, seem to be very evenly matched for power, although one always runs for about 20 secs longer than the other. This is not at all important because the revs are so low that you can almost count them, and in any case, the models powered by these engines



Commercial components make up the main internals of the regulator and a lighter casing reduces the all-up weight – still quite heavy though at 25 grams.

tend to land a little before the props finally stop. Even so, some means of controlling the revs of these engines would be useful.

Our little pet shop again provided the answer in the shape of a beautiful little air flow adjuster

that measures just over one inch and weighs a mere one gram. The main moulding is a clear cyano-compatible moulding enabling neoprene tube to be permanently bonded in place. I have tested the units to 9 bar with no signs of distress. Just a little air leakage past the needle valve screw thread is completely cured by wrapping it with a couple of layers of PTFE sealing tape.

The needle valve type of flow restrictor provides an effective means of reducing the amount of air reaching the engine, but, of course, it does not provide a constant pressure regulation. For this purpose you need a true pressure regulator which can be pre-set to provide a uniform reduced pressure from a high pressure bottle. This gives you an extended run without excess power.

I have made up an experimental regulator, using the internal components from a small commercial unit. I discarded the heavy case, and fabricated a lightweight aluminium one, but still the weight comes out at 22 grams. It does, however provide complete control. It would be placed in the single pressure line close to the tank to give regulated air to both engines.

With all that pressure flying around it seems a pity not to employ some of it (without loss) to operate some in-flight function such as parachute dropping, bombing, glider release or undercarriage retraction. I solved the problem with the aid of a little nylon syringe from the chemist – no, not by hallucinating, but by adapting it to produce a powerful spring-loaded function actuator servo.

The photos show how to do it by sawing off the end and reducing the size of the cruciform plunger to pass through a powerful spring (from a Proops bag of mixed springs). The end of the shortened syringe body is closed off with a cap turned from nylon, cyanoed securely in place.

The spring must be very powerful. Remember it is required to operate at the

Left: A true pressure regulator controls output to engines, providing constant speed and extended running time without excess revs from high pressure source.

top of the climb in most cases, when there is still a lot of air pressure in the system against which it must move the syringe piston.

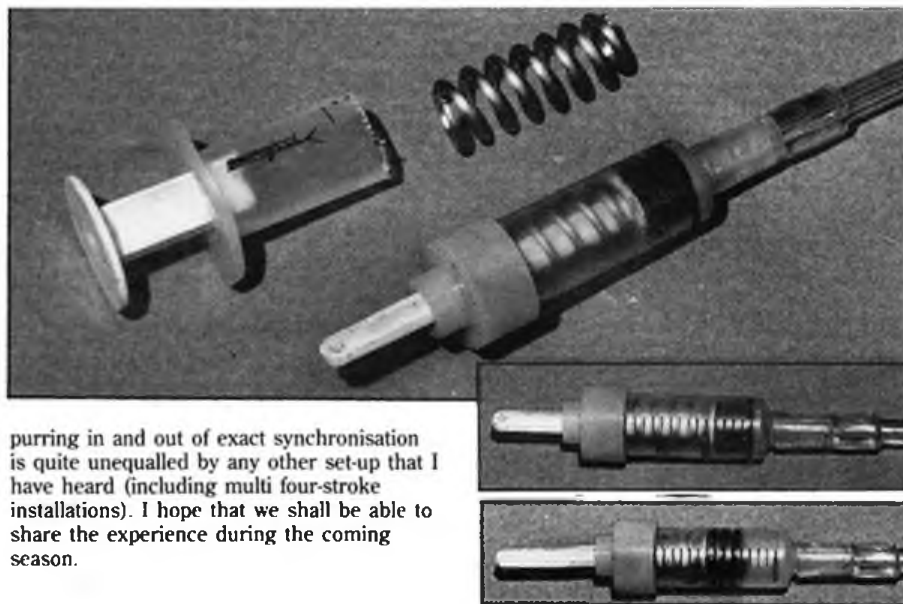
My little servo provides 3/16in movement,

sufficient to trip a mechanism and so powerful that it is not possible to hold the plunger out by gripping it in the fingers.

The servo is, of course, connected to the high-pressure part of the system, by means of an aquarium T piece and a length of neoprene tube. Being nylon, the syringe nozzle can be cyanoed directly to the neoprene tube. Weight of my servo is 1.5 grams.

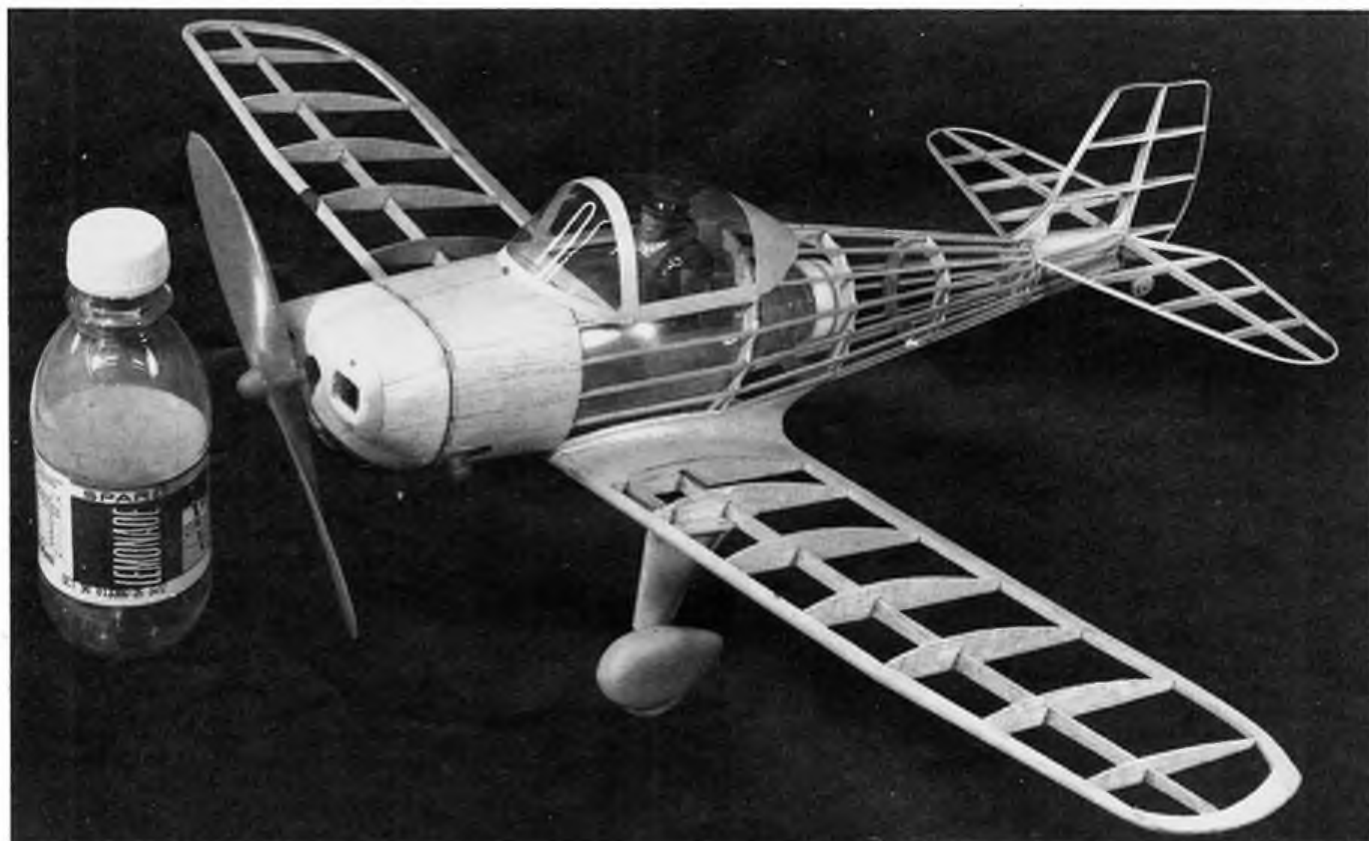
I hope that the foregoing notes may persuade some of you to try a few experiments yourselves, but if you do, please be responsible when using compressed air with untested gadgets. When checking them out for the first time, have some effective protection between yourself and the item being pressurised. Always check it out at a pressure higher than that which you use on the flying field.

The sound of two Z-model engines running in an airframe is really something to gladden the true modellers' heart! The total realism of the relatively low-revving engines



purring in and out of exact synchronisation is quite unequalled by any other set-up that I have heard (including multi four-stroke installations). I hope that we shall be able to share the experience during the coming season.

Top: Nylon syringe servo/actuator. Above: Servo spring compressed at 8 Bar (120 psi), and servo spring extended.



Something different - 22in Earl Stahl Luscombe 10 features 250cc bottle and de-rated Z-model engine under high pressure to extend run. Experiments curtailed by model instability; system works fine.

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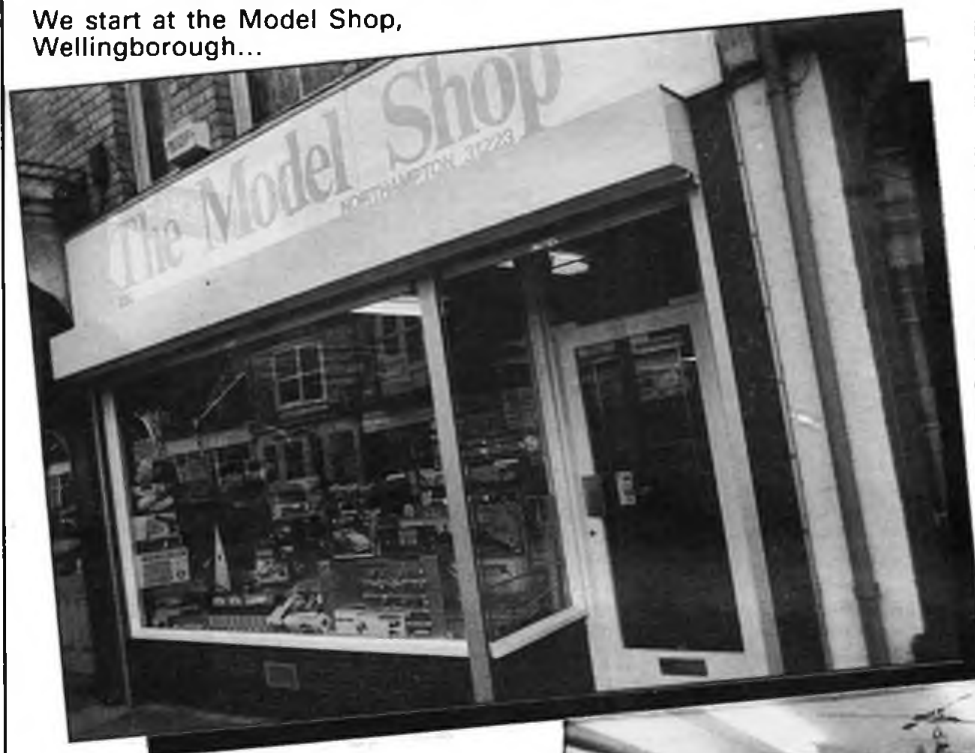
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Beginning an occasional feature on model shops of note

Shop Around

We start at the Model Shop, Wellingborough...



Nick Evans (Ted's son) became a partner in 1969 and in the same year the shop moved from 220 Wellingborough Road to its present address. Ted's untimely death left the shop in twenty-one-year-old Nick's hands...

The past 19 years have seen further alterations and expansions into R/C cars, helicopters – and games. Shop policy has always been to offer as wide a range of products as practical, and not to become entrenched in one area of specialisation. Nick's own interest in C/L Aerobatics led to a build-up of stock to the point where they now import SIG kits and lines. His best result to date has been sixth place in the CLAPA Championships. Two full-time staff are employed, with a 'Saturday girl'. Nick tells us that the local modellers scramble to be served by her!

The Model Shop, Northampton is at 230 Wellingborough Road. Tel: Northampton (0604) 31223.

The Model Shop, Northampton was opened in 1937 by the present owner's father, the late Ted Evans of Wakefield fame. Originally a part-time operation, its continued thriving permitted Ted to leave the motor trade to concentrate on Super Model Aircraft Supplies (as it was first known). During the war the shop closed, re-opening in 1945. Early post-war years saw Ted's greatest model flying successes; and his Jaguar design won the 1949 Wakefield Cup in the hands of clubmate Roy Chesterton. Early shop stock was limited to aeromodelling supplies and a few engines, but plastic kits and Hornby and Tri-ang railways appeared later.



...call in at the Aviation



As the name suggests, this is a bookshop dealing solely in the literature of aviation. The shop was founded in the late 1940s and has devoted itself to this speciality ever since. Founder Jack Beaumont retired in 1989 but the Aviation Bookshop continues under the ownership of Dave Hatherell, previously shop manager since the mid 1970s. Dave tells us: 'We have books and magazines, both new and second hand, from around the world. Do check your requirements with us, though we have no early copies of *Aeromodeller*. We are open Mondays to Saturdays and are near Archway underground station. By car we are on the A1, between the A400 and the A503. There are no parking restrictions in the adjoining side roads. For those not able to visit, we do mail order to all corners of the globe, and we accept most major credit cards. Why not combine a visit to us with a visit to Henry J's a mile further down the road. The Aviation Bookshop is at 656 Holloway Road, London N19 3PD. Tel: 071 272 3630

...and pop in to see Punctilio Model Spot Ltd

Punctilio Model Shop was established 17 years ago as a spin-off from Punctilio Propellers, the world famous wooden propeller company. Established by Dave and Dennis Nixon, the Model Spot is capably managed by Gordon Upton, a professional model maker who can provide from a wealth of stock and a width of advice, from model soldiers to R/C helicopters. That real model shop atmosphere has always been the aim, coupled with helpful and friendly personal service – and a faintly bizarre sense of humour... Local model clubs are fully supported. The shop is opposite Hinckley Leisure Centre, next to the bus station with car parks nearby.

Call in at Waterloo Road, Hinckley, Leics. Tel: 0455 230952.

VINTAGE CORNER

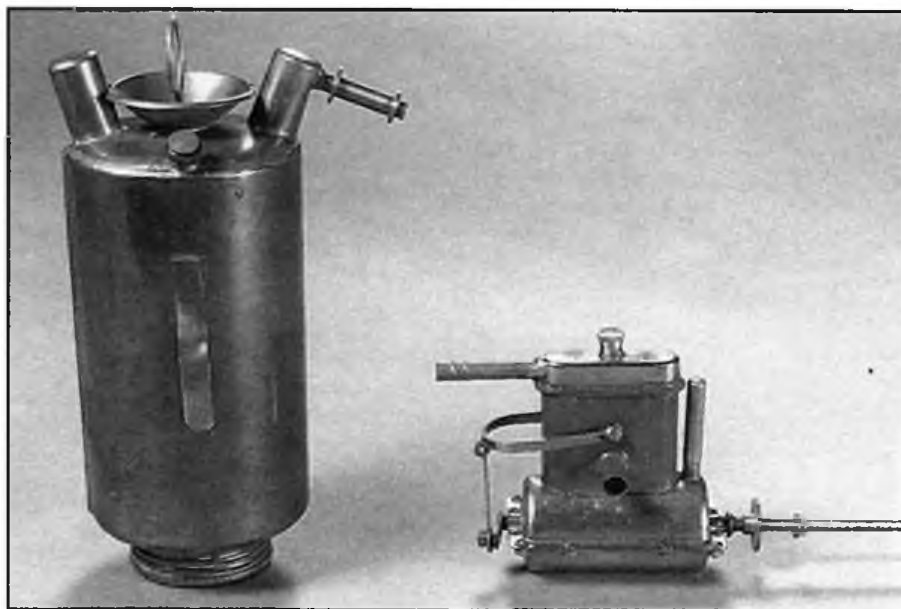
Alex Imrie's old-time miscellany amplifies earlier researchers

THIS month we touch upon one or two topics that have previously been mentioned in this column, and update what has gone before by including some recent input from readers. It is all very well researching a particular aspect via magazine advertisements and so on, but what really puts the icing on the cake is to hear from modellers who actually experienced the subject of our interest. Thus the information contained in the letters from Phil Smith and Bill Gaiser bring the AC-CO IMP Tornado S-2 (September 1990) to life (even though one of low rpm) and are a necessary embellishment to the advertising blurbs for this power plant. Equally, input from a number of well-read modellers whose reference sources and knowledge is greater than mine show *Celastic* (July 1990) in its true light. This hobby contains such specialist areas that it is



This photo was taken 50 years ago and the 11-year-old enthusiast with his partly built, 30in Burd Fairey Battle (which had a retractable undercarriage) was to become one of our most prolific modellers. No prizes are offered for his name – one clue only – he is still making Burd models! Actually 'tis Doug McHard!

impossible for any one person to research them fully and it is only by pooling resources that a true, balanced or otherwise historically correct account can be presented. So when you see



Right-hand view of the IMP Tornado S-2 AC-CO engine and its gas generator, that was described in September 1990 Vintage Corner; see text for practical accounts of handling (and flying) this power unit.

anything in this column that makes you wince, reveals my ignorance, or of which you know more, please put pen to paper. All such contributions will be received with thanks and used as opportunity allows.

IMP Tornado S-2

Phil Smith of Bournemouth was in the model trade from before the war but is better known for his work with Veron in post war years as the designer of many famous models. Phil never ceases to rise to the occasion when help is needed and he sent this amusing letter:

I once bought one of the IMP Tornado S-2 engines. I have a suspicion that this was mail-order from Gamages after having seen it in a Boys Own Paper advert. The reason I bought it was simply that no way could I afford one of those new fangled model petrol engines, and after all, compressed-air was the "in" vogue method of propulsion for model aircraft. But my lasting impression of the IMP motor was, and there is no better description of it – diabolical! At least it had a humorous side to its preparation. Dry ice for instance. Now, where does the average man in the street know where to pick up such a commodity, except (another piece of nostalgia that few may remember) – the Walls Ice Cream "Stop-me-and-buy-one" blue and white tricycles that pedalled their wares around the streets of Britain in the mid-thirties. Rarely would the uniformed vendors part with dry ice to kids, except when their mothers bought half a dozen triangular "Snofrutes" at a time and cadged a bit of dry ice to keep them cool – as nobody in our street had ever heard of fridges in those days! The carbide presented no problem, as father usually kept a carton of it in the garden shed, used to blow up moles that persistently dug tunnels through his best lawn. Apart from that I used it myself to stoke up the acetylene lamp on my racing bike – before the days of battery-operated or dynamo driven lights. My experience of carbide goes back even further, for my dad was the only man in the street to own a car during and after WWI – a Clegg-Darracq which he stored in a farm building

during that war, and on which stood two huge front headlights made of brass – and it was my job as a nipper to polish those brass headlights for my two pence a week pocket-money, one penny for the "Rainbow" comic, a ha'penny worth of "Dolly Mixtures" – and a ha'penny for the money box! But back to the IMP. In the first recollection – it stank like hell, as carbide always did. It always used to smell like a lavatory – God forbid that anyone ever put it in their best model! No matter how much oil was used, the carbide gas was laden with impurities which gradually choked the piston and brought it to a resounding stop.



Dick Sharphouse with his 22in Keelbild Hawker Fury from 1935...

We tried a variety of filters in the supply pipe, but they just blocked up and stopped the engine too. I don't think that I ever got more than about 500 rpm out of it. In fact, it never went into a model and eventually finished up in the dustbin! Only then did I acquire my first petrol engine, a build-it yourself 6cc Bunch Mighty Midget – and that never ran either!

Whether the American carbide was any better than ours I don't know, but Bill Gaiser of Lyons, Oregon experienced slightly more success than Phil and writes:

'Yes, the IMP S-2 did fly in its original configuration – sort of. It was my first engine and I put it into a four foot span Curtiss Robin. From an ROG launch, it would reach a height of 5-6 feet and cruise for perhaps 30 seconds. The second airplane was smaller and unsuccessful

due to having a higher wing loading. By that time I had an Ohlsson Gold Seal and a Brown Model B, so the IMP S-2 went into a boat. It is better suited to boats than aircraft. In spite of its tinny appearance, the IMP was a very free-running piece of machinery. I still have mine and can generate fair rpm on lung pressure alone. You are correct in that the clothes-line peg type of clip was the safety valve, which invariably blew with the first burst of pressure. A wedge of balsa to prevent the valve from opening, and a piece of windshield wiper vacuum hose to replace the hose supplied, helped to get successful runs. I used a 13 inch diameter low-pitch mahogany propeller. As you have guessed, it was a pain to operate with all of the things that had to be done between runs. The dry ice had to be freshly broken up into small pieces and mixed with the carbide. After a run the carbide sometimes formed a clinker which was difficult to remove. In the end it was the weight that did it in, but I am sure that it would operate well on one of the new plastic compressed-air tanks.'



...and here is the same model and modeller today! Fury still has original tissue covering but seems to have lost rearmost interplane struts.

Selly-Tex and Celastic

The thoughts expressed by G R Kay (and others) that Selly was a trade name for the material used in the moulded pressings in the kits of this name has been found to be incorrect. Jim Alaback advises that Selly was the name of the proprietor of Selly Manufacturing Company Inc and was a pioneer and famed American modeller: 'In 1913 Armour Selly of Brooklyn, New York attracted deserved recognition with a light and well designed model that flew for 2800 feet. This success was considered due to his use of coarse pitch wide-bladed propellers - the same model (a twin-pusher) fitted with floats established a world's record of 53 second ROW, more than double the then standing British record for this class.' The quotation is from Paul Garber's 1928 book *Building and Flying Model Aircraft*. Selly-Tex was the trade name for the 'closely-woven processed fabric' used in the kit mouldings and had been 'developed and manufactured exclusively for Selly' (1935). This material obviously had other uses and George Bushell of Enfield tells of his father, who was on the Atlantic Air Ferry during WWII, bringing Selly-Tex back from the USA at the time. He recalls that this material could be split for lighter



A chip off the old block! The columnist's son Alasdair with his 34in Corben Super Ace enlarged from plans in April 1935 *Popular Aviation*. Model flies well despite scale dihedral and tail areas.

mouldings and 'spooned' to get compound curves. What property Selly-Tex possessed to make it suitable for the lining of boxes containing highly delicate aircraft parts is not known, but it was certainly used for this purpose, and was sometimes light grey in colour - but more often black. Until we actually get a piece of Selly-Tex in our hands it is not possible to state whether or not it is the same as the later Celastic which seems to have first appeared in the early 1950s. Doug McHard has sent an introductory article on Celastic by Aubry Kochman that appeared in *Air Trails*, August

registered trademarks. It was used as a synthetic toe cap stiffener in the shoe trade. If soaked in acetone for about one minute, it could be moulded as required, and would harden to a very rigid component. The stiffening material was made from scrapcelluloid in the old days - toothbrush hands - with camphor as the plasticiser. The material that Doug McHard heard about was probably the same. I assume that SIG obtained their stocks from the American parent company of BUSM; that is, United Shoe Machinery. Another branch of the same group, SAMCo-Strong, used to market the material as SAMCo Weldex for car body repairs, until they found that the camphor was a fire hazard when in stock - it gives off highly inflammable vapours. Production of Celastic ceased about five years ago, but has been replaced by Fornasol, which is based on styrene rather than the original cellulose...



'English Number One Carpenter' at his lathe in Changi Japanese POW camp, 1942. See 'Once a Modeller...'

1953 which states that Celstic - a colloid-treated fabric was the trademark of the Celastic Corporation, distributed in USA and Canada by Ben Walters Inc of New York. He also sent (courtesy Bill Hannan) a page from the 1990 SIG catalogue that shows that Celastic is still available. A letter from Brian Bottrill of Leicester tells us more about this materials, which was: '...made by the British Shoe Machinery Co. Ltd. here in Leicester, it was and still is, one of their

Mario Gandolphi was also able to confirm the shoe toe cap application and also commented on the release of highly inflammable vapours when in bulk, saying that the mysterious disappearance of a cargo boat en-route to West Africa with a sizeable amount on board had never really been satisfactorily explained! Back to George Bushell to terminate this Celastic saga. Many years ago he bought a material from Southern Radio Control (who trade as Skyleader) called S-Former, the instructions for which read 'This is a new wonder plastic material with the same characteristics as the American Celastic material. It can be moulded to any shape and when it is hard, can be sanded and doped ... use for cowlings, fairings, battery boxes, field repairs etc...' Our interest in Celastic revolved around whether or not it was a suitable material with which to duplicate the Selly-Tex style of moulding: from examination of samples kindly sent by George Bushell (S-Former) and Brian Bottrill (Celastic) it appears that the materials are heavier than balsa. However, this weight comes from the amount of nitro cellulose absorbed, since an additional sample from Brian from which this agent has been extracted by acetone is indeed lighter than balsa... but, and here is the rub, will the necessary stiffening

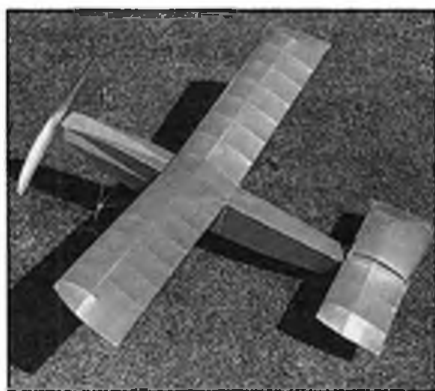
put the weight back on?

Dope plasticiser

Also from Brian Bottrill comes the information that the best substance for this is Di Butyl Phthalate – DBP. Castor oil migrates, makes the surface sticky, and the film finally cracks. Tricetyl or tritolyl phosphates have been replaced by triallyl phosphates Reofos 95 ex-Ciba Geigy. They are non-toxic, do not discolour and are not extracts by petroleum spirit etc. Normal clear shrinking dope should stand a 5% addition of CBP to become non-shrinking. (Brian is a chemist and advises that DBP may only be available from paint manufacturers).

Once a Modeller...

Dick Sharpouse from Thirsk was a keen modeller in pre-war days who, after first efforts with the ready-to-fly stick tractors of Warnford manufacture, built models from the magazines of the time and from various kits, mostly those produced by The Model Shop in Newcastle. When war came he found himself in the Royal



T H Newell designed Falcon by Norman Peacock was a reconstruction that employed several original components made by pioneer modeller F Bontoft.

Army Medical Corps and was soon on a troopship to India with the 18th Division. Moved to Malaya at the end of 1941 he arrived just in time to be captured at the fall of Singapore. He spent some time in Changi POW camp and during the first few months of captivity was able to live more or less 'normally' and rigged up a simple lathe made out of a bicycle wheel hub in his sergeant's bed space. Unbelievably he still had his camera and developer with him at this time and the photograph showing him treading the lathe is the result. Afterwards, during work on the infamous railway, things were less rosy and Dick was unable to model but he maintained an interest in making things with his hands and is quite positive that his survival was due to this activity. The Japanese were obviously impressed and called him 'English Number One Carpenter'. There was always an abundance of bamboo and he made a dentist's chair for the sick-bay, a painting of which exists in the Army Museum at Aldershot. After the war he continued with aeromodelling and also learned to fly, while in 1961 he started to build his biggest model and this took him 12 1/2 years to complete. The Volkswagen/ powered Luton Minor G-ATCJ is still flying today.

Dick's son James is a keen R/C modeller, but Dick, wanting something bigger again, has recently commenced the construction of a



Norman Peacock's second Rigby Condor of 23 inches span flies well: all-card construction. Model weighs 3.3 ounces.

Pietenpol Air Camper and the wings are well underway, although there is a temporary hold-up at present due to a shortage of Sitka spruce. He had built a Bowden Contest in 1948 fitted with an ETA 5, and flew this from the runway at disused RAF Dalton where only a few years before Wellingtons and Halifaxes of 6 Group took-off for Germany. Some months ago, 42 years after building, R/C was fitted to this model and James flew it from the self-same piece of cracked concrete. Dick was the owner of the IMP Tornado S-2 that featured in this column in September last – but like Phil Smith he never installed the engine in a model, running it only once.

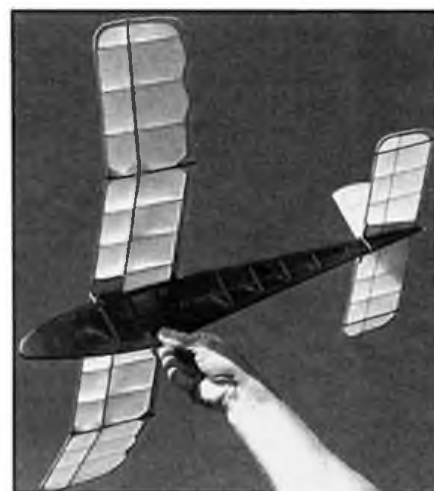
Card and silk

Over the last five years Norman Peacock of Wirral, Merseyside has pursued the card model concept of Wallace Rigby with a tenacity that can only be wondered at (see Vintage Corner March 1988 and November 1989) and he now writes to tell of his latest adventures:

'...you commented on my 36 inch span Rigby Swallow, suggesting that its poor performance might be due to the drag of its primitive single-surfaced wings. Well, a set of double-surfaced wings were made and they transformed the trim. Instead of having ballast aft, the model now needed nose weight, the resultant modifications also reduced the overall weight from 13 to 12.1/2 ounces and the model was now much more buoyant in the air, due I suppose to the reduced wing loading. On a few turns the model would perform a fine long powered glide, but as the turns were increased, it became impossible to control the torque. The 18 strands of 1/8 FAI rubber on, say, 300 turns, would produce a left bank after a few yards, which increased as the model went across even a light wind and it would side-slip in – this in spite of the 15 degrees of dihedral! Another pattern, with more right thrust, was a steep climb straight ahead followed by a stall with little recovery. Various combinations of down and right thrust were tried, all to no avail, and now a replacement model is planned to a weight of seven or eight ounces. Similar trim problems were experienced with the Condor Major I based on the Rigby design and have been overcome on the Mk II which weighs 3.3 ounces compared to the 4.5 ounces of the original. There

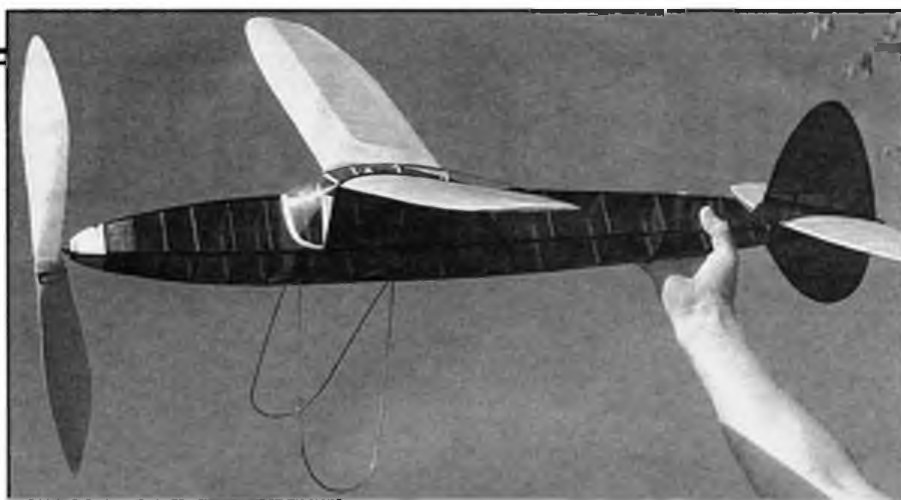
seems to be an optimum wing loading for small models which, if exceeded, makes them impossible to trim. Thinner paper was used on the Mk II and it flies well.

'I inherited the fuselage, propeller, gears and undercarriage of my all-hardwood silk-covered 41 inch Falcon from F Bontoft, but made the flying surfaces from a Model Engineer article kindly sent to be by Alwyn Greenhalgh. This T H Newell design won the first Wakefield competition in 1928 and once held the British Fuselage ROG record of 85 seconds. The triple gears are arranged side by side, hence the wide fuselage. My model has eight strands of 1/8in on the outer skeins and six strands on the centre hook, and with this power has a rather sedate performance on 300 turns. Dihedral has been increased on my version from 2.1/4 to 3 inches at each



As a change from vintage Wakefields John Meaney built this Elite No 1 Glider for the George Stringwell 'one-model' competition at Old Warden, which it won.

wingtip. Apparently the original model used three skeins of four strands of 1/4in, 36 inches long which could take 1000 turns. The distance between hooks is only around 25 inches, thus with pretensioning unknown at the time, one wonders where all the rubber went after the power run. I suspect that like my model, the flight



John Meaney's fine example of Ted Evans' Clipper has yet to be flown. Model covered in black silk with lightweight tissue on flying surfaces.

duration was only a little longer than the power run. The silver cellulose finish is Silver Fox (a Ford colour) from a spray can. It is now no longer possible to buy silver dope, it seems; I would far rather apply silver dope with a brush than use a spray which can be difficult to apply evenly, especially with silver, and to avoid runs.'

Captions chat

Compiling long and detailed captions is a risky business, since often due to lack of space they have to be drastically cut, and not infrequently what I thought to be a punch-line has been blue-pencilled by the editor! (*Senses of humour differ. GC*) Sometimes in order to safeguard information is necessary to supplement a prepared caption by mentioning the subject in the text. So it is this month. John Meaney, a Boeing 747 flight engineer with Virgin Atlantic, has been a vintage enthusiast for many years and we have periodically shown photos of his models in this column. The two reproduced here were taken by his wife Rita who certainly knows how to handle a camera. The Clipper's cabin was a bit of a job to cover neatly but eventually John managed it by using RC 56 glue, which dries absolutely clear. How

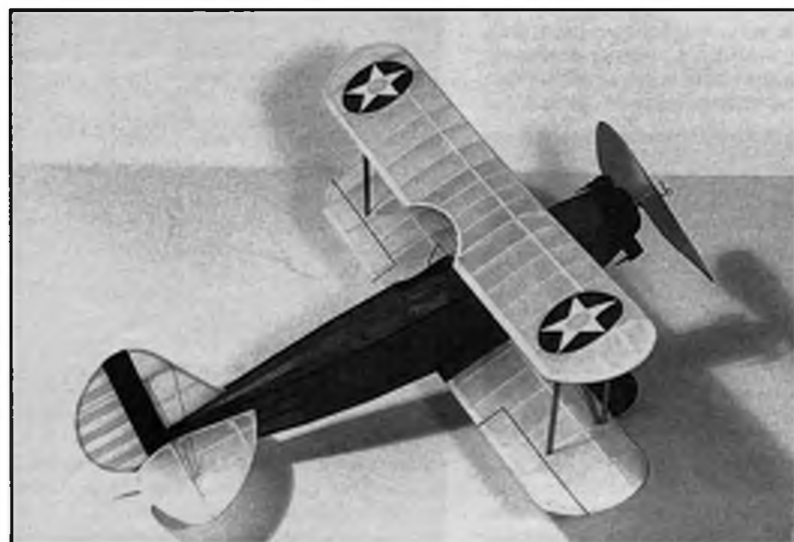
Evans managed it using the materials of the time is not known. The model was an interesting building experience due to Evans' habit of not using one bit where three would

do! John was both surprised and delighted when his Elite No 1 glider won the competition at Old Warden, his model being the only one from 20 entries to max-out, which he says sounds impressive until one realises that they were only one minute maxes. When one remembers the conditions this performance was impressive alright!

Somewhere in the pipeline we got our 'knickers twisted' in the October last issue by giving two photographs the wrong captions. It is Arthur Bradley in the heading photo with his Struhl Grasshopper (Taylorcraft O-57) made from plans in November 1942 Model Airplane News. Powered by the MFA Mini Olympus electric motor driven by Kyosho 270 mA 7.2 volt mini cad pack turning an 8 x 6 propeller. It is also Arthur, of course on page 563 with his Slicker Mite. Apologies to Arthur and to Andy Crumholt for this unfortunate slip.

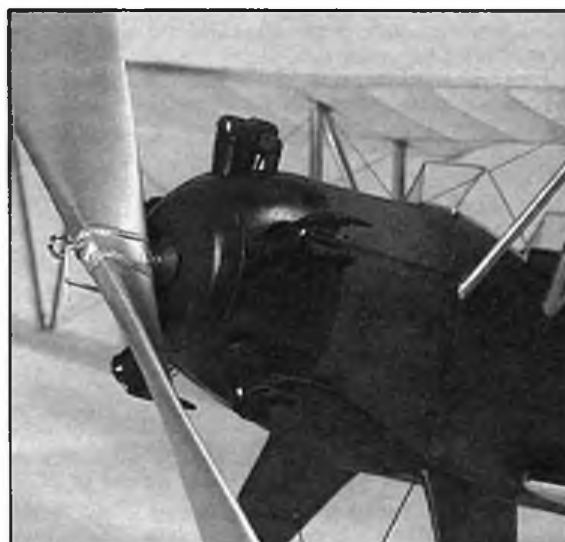


Derek Ridley with his Irvine Mills powered Miss Trenton III, half-size at 42 inches span.



Jim Alaback, Secretary of the San Diego Aeroneers (SAM 41) and Editor of the club's newsletter Aero-News built this fine Consolidated PT-11 from plans in the November 1937 Flying Aces. The model is covered in coloured tissue which is also used to make the insignia and markings. Jim Alaback studied an original Kinner

K-5 engine in the San Diego Aerospace Museum in order to get details for the model's engine which used Williams Brothers' plastic cylinder barrel mouldings, the remainder being built-up of scraps of balsa, ply and wire all painted over with a flat railroad paint colour called Grimy Black. The effect as can be seen is far better than a quick



attempt to wrap thread around balsa dowel, hoping that the lack of authenticity won't be noticed. The fact is that a dummy engine is most noticeable being right out there in front! Model is 24 inches span, being 3/4 inch to 1 foot scale. For more details check back to August 1990's Vintage Corner.

1990

INDOOR WORLD

**Back to 4-6th June at
Johnson City, Tennessee.
Laurie Barr reports**

JIM Richmond triumphs again. USA win team prize, and USA team member Bob Randolph makes all six contest flights over 40 minutes. The Brits had lots of luck, all of it bad...

The 1990 Indoor World Champs was, for the second year running, held at the East Tennessee State University mini-dome, which is a vast indoor sports dome, mostly used for indoor American football matches.

So easy...

Whilst everybody else found it hard going to get their models set up right for this tricky site, Jim Richmond of the USA, the five-times world and defending champion, did not even test fly his winning model from the last time he used it to win, two years ago. Moreover, it is rumoured that he even used the same rubber motor. By the time he had made his first two flights, the contest for individual honours was already over.

After the second round, some wag said, 'the good news was that Jim had broken that old piece of rubber, but the bad news is, he's stripping some fresh motors!'

The winning model was the well-known Flim Flam, equipped with a variable diameter prop. A pair of hinges at each end of a two-inch-sprung long centre spar, connecting two out-rigger prop spars with blades that are sprung by a tiny rubber band, to fold one above, and one below the centre spar, when the initial launch torque can no longer keep the blades in the fully extended position.

The time interval (and hence altitude climbed) before the prop folds can be varied



The Brits! Dave Yates, Bob Bailey, Laurie Barr, Bernard Hunt (Team Manager), Brian Kenny, Mrs Jessie Hunt, Mike Colling and Mrs Carol Kenny.

the 'fold' action rubber band. This meant that as drawn, a prop made to this drawing (as mine were!!) could never work as it should.

Another vital piece of missing information was how to struggle with a fully-wound motor (hard enough to cope with anyway) and at the same time try to get the blades fully open against the fold band energy?

The answer was so simple, revealed by your reporter having watched Jim closely for the first time with this set up. All he had to do was to release the prop in the folded position, and the drag at full torque made the blades open out smoothly before launch.

Runner-up review

The second place was again 'reserved' for Cezar Banks, flying much the same model as before, with a very neat variable pitch prop, incorporating small nylon adjuster screws for maximum and minimum pitch angles. Cezar had all sorts of misfortunes and collisions and



Cezar Banks was second yet again. Fourth-round flight of 41:05 used 1981 Pirelli, 0.052 ounces and 17ins long wound to 1880 turns. Average rpm was just 39!

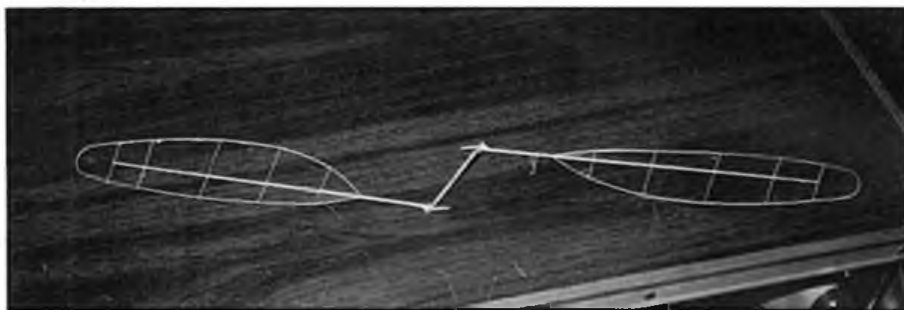
ing Pirelli rubber, which has been indispensable for some years now.

So once again, home advantage proved decisive, as did the abominable luck the Brits suffered.

To succeed at Johnson City, the record shows that you need a large-chord model and a hi-tech prop, either variable diameter, or variable pitch. Traditionally at Cardington, none of us had so far tried such models, as the prevailing conditions and ceiling height makes other combinations more attractive.

We needed enough time beforehand to build copies of our chosen designs, and to have calm weather to trim at Cardington beforehand. Both commodities were in short supply before we left for Johnson City, but all team members had burned the midnight oil to be as ready as we could for these World Champs.

Brian Kenny had used in the team trials a version of Bernard Hunt's well known Tandem design, which theoretically should be capable of doing well over 40 minutes in this 120 ft high site. He had built extra copies, but was unable to test fly extensively before leaving.



Winner Jim Richmond's splendid folding prop - the only one seen. Best flight of 44:18 was on 20in, 0.040 x 60in Pirelli wound to 2270 and backed off 20 turns.

by the amount of launch torque used, against the power of the little rubber band in the hub of the prop.

What is surprising is that no one else (apart from Richard Doig in the USA Champs some years ago) has either used this system, or had any success with it.

The drawing published by Jorgen Kosgaard three years ago was misleading in one vital respect regarding the placement and location of the small balsa 'peg' that anchors one end of

did not put in a good flight until Rounds Three. Subsequent flights were trouble-free.

Third place went to Bob Randolph, who also used a version of the V.P prop like Cezar Banks'. Bob achieved the world's best ever flight total, with all official contest flights being over 40 minutes duration. He also was the only one of the top contenders to use FAI Tan rubber; it is a great encouragement to all indoor and outdoor fliers that some available fresh rubber is here, to replace our scarce and age-

D CHAMPIONSHIPS



And here's our Team – Bob Bailey, Laurie Barr, Bernard Hunt and Brian Kenny. Look at all that Indoor space...

Catastrophe

Bob Bailey built some new models, improved from his existing design, except he made them with folding wing posts to make the box smaller.



Bob Randolph (USA) made history with all six contest flights over forty minutes' duration, but even the best two were good enough only for third place.

The snag was that in transit the models became so small (in pieces, actually) that he could have used a matchbox...

On arrival in Johnson City, it was found that the special cardboard jigs Bob had made to hold the wings in their folded state (the wings posts fold under the wing in plan view to save packing space) had come adrift in transit, and had been thrashing about inside the model box, so that only a couple of motor sticks had survived for future use.

The other team members volunteered whole or parts of their own models for Bob to use, but the Builder of the Model rule was interpreted by the Jury to prevent this, so we set about building overnight a couple of giant EZB type models of a type that Bernard Hunt, our esteemed Team Manager, had used with some success at Cardington. The rectangular plan-forms of the wing and tail meant swift construction, and no need for wing or tail bracing; and above all, no jigs were required.

These flying surfaces were covered in sections from film patch your reporter had with him and were added to Bob's own motor sticks after the 'night shift' produced some parts to add to Bob's own efforts for him to assemble.

Such extreme designs rely not on light wing loading (due to relatively small rubber motors which normally only double the weight of the airframe) but rather on thicker and much longer rubber motors which treble the overall flying weight. The wing loading is minimised as far as possible by using very large tailplanes, the size of which is unrestricted under the FAI rules, and putting the centre of gravity as far back as possible, to force the tailplane to carry a bigger proportion of this extra weight.

This set-up increases the total power output available, which is best utilized via a smaller

prop than usual, running at approx 60rpm average. 3000 turns will theoretically give you a flight time of 50 minutes if they are all flown off, but it is hard to use every last turn in a low ceiling, and you need lots of practice to get the best out of this arrangement.

...and team spirit

In the event Bob did pretty well, managing flights of 26:02 and 25:38 in Rounds Two and Five respectively, and it made a worthy contribution to the team score. Bernard Hunt had achieved a flight of 38 minutes with his own version at Cardington, during the recent team trials for the European Champs, but in this case it was with a fully integrated 'whole' model, built in a more sensible time scale and without the problems rushed models always bring.

As for the rest of the team, their models arrived safely, and they then had to tackle the problem of re-tuning the models to this particular site, which is lower than Cardington. The best propeller/rubber combination must be arrived at, and the correct launch torque found, before one can go to the start line in good shape.

In Round One, Brian was a little conservative with his launch torque, and his model never got above one-third of the ceiling height available, but still did a flight of 28:05.

Next round he wound harder and the model looked set for a really good flight, but it climbed a bit too high, and hung on the roof girders at 14:09.

In Round Three the model, with slightly less launch torque to avoid the roof, failed to get away, and stalled down in the turbulence at floor level, caused in part by too many people walking across the floor.

The motor stick bracing wire was then slackened slightly, to give more 'bow', and thus downthrust, to obviate this launch stall, and in Round Four he made a flight of 32:48, just 50 feet short of the roof, and landed with lots of unused turns. Good progress but well short of the score needed. He was running out of rounds as well, so a long test flight was made to check the latest adjustments, but when flown for real in Round Five the model got hung up again under the roof.

To cap it all off, Brian had the misfortune to have a mid-air collision high up with a Japanese model during Round six. This was no-one's fault, but some un-detected structural damage caused the re-flight, allowed under the rules, to be terminated after three minutes by a collapsing wing post.

While all this drama with Bob and Brian was going on, Laurie Barr had been successfully trimming his best model, fitted with a variable pitch prop, and on the final test flight the model was destroyed by an elderly French team member, who despite Laurie's effort of pointing to his model at low altitude, and shouting 'Regardez! Regardez!' failed to stop this kamikaze approach to civilized behaviour, and resulted in the all-too-predictable fatal collision.

The loss of his Number One model was a severe blow, since it had taken a long time to fine tune the trim and assess 'where the ceiling was' in relation to this model. Round One was about to start...

The Number Two model was brought out, but could only be tested at low power and low

1990 F1D World Championships Individual Results

			Rnd 1	Rnd 2	Rnd 3	Rnd 4	Rnd 5	Rnd 6	Best Round	Second Best	Total
1	James Richmond	1988 World Champion	43:18	42:15	02:30	38:30	44:18	00:00	Rnd 5	Rnd 1	87:36
2	Cezar Banks	USA	06:50	00:54	38:49	41:05	42:42	13:11	Rnd 5	Rnd 4	83:47
3	Robert Randolph	USA	40:23	41:20	41:14	40:46	40:16	42:07	Rnd 6	Rnd 2	83:27
4	Larry Cailliau	USA	12:41	39:21	37:43	39:21	38:19	16:38	Rnd 4	Rnd 2	78:42
5	Pentti Nore	Finland	26:06	28:01	38:02	39:20	38:58	38:01	Rnd 4	Rnd 5	78:18
6	Rene Butty	Switzerland	08:16	39:53	37:58	36:43	16:11	09:55	Rnd 2	Rnd 3	77:51
7	Hideyo Enomoto	Japan	38:19	38:42	38:15	35:28	35:56	34:08	Rnd 2	Rnd 1	77:01
8	Aurel Moraru	Romania	33:52	36:09	15:09	36:25	36:11	31:53	Rnd 4	Rnd 5	72:36
9	Mike Thomas	Canada	31:11	00:28	34:52	37:44	00:25	30:46	Rnd 4	Rnd 3	72:36
10	Ron Higgs	Canada	34:36	33:34	36:24	13:29	32:15	35:50	Rnd 3	Rnd 6	72:14
11	Peter Kuttler	FR Germany	29:30	34:16	34:21	34:14	35:23	35:25	Rnd 6	Rnd 5	70:48
12	Vasile Nicoara	Romania	33:40	34:20	34:24	35:46	12:18	32:03	Rnd 4	Rnd 3	70:10
13	Aurel Popa	Romania	10:29	28:01	33:05	35:20	27:53	31:48	Rnd 4	Rnd 3	68:25
14	Shigeyoshi Nonaka	Japan	07:10	31:14	33:33	31:13	33:38	30:40	Rnd 5	Rnd 3	67:11
15	Jack McGillivray	Canada	05:36	35:21	12:26	09:27	06:38	31:13	Rnd 2	Rnd 6	66:34
16	Robert Champion	France	29:59	33:51	28:21	00:18	32:03	12:11	Rnd 2	Rnd 5	65:54
17	Guy Cognet	France	23:10	27:23	25:45	31:56	15:26	31:55	Rnd 4	Rnd 6	63:51
18	Brian Kenny	UK	28:06	14:09	02:58	32:48	11:09	03:19	Rnd 4	Rnd 1	60:54
19	Bernard Trachez	France	06:49	10:08	13:29	29:43	29:40	30:42	Rnd 6	Rnd 4	60:25
20	Harri Raulio	Finland	23:46	29:04	08:45	18:15	28:52	15:53	Rnd 2	Rnd 5	57:56
21	Laurie Barr	UK	09:17	15:35	20:06	26:07	30:22	27:15	Rnd 5	Rnd 6	57:37
22	Yoichi Ichiyama	Japan	25:41	27:31	25:38	29:03	12:28	28:32	Rnd 4	Rnd 6	57:35
23	Leif Englund	Finland	28:41	24:36	12:46	26:31	25:29	06:58	Rnd 1	Rnd 4	55:12
24	Robin Bailey	UK	14:03	26:02	22:47	24:05	23:38	06:03	Rnd 2	Rnd 5	51:40
25	Rainer Lotz	FR Germany	19:24	07:33	12:58	24:59	12:12	20:38	Rnd 4	Rnd 6	45:37

Team Results

			Team Score
1	UNITED STATES OF AMERICA	Team Manager Andrew Tagliafico Cezar Banks 83:47 Larry Cailliau 78:42 Robert Randolph 83:27	245:56
2	CANADA	Team Manager Jim Moseley Mike Thomas 72:38 Ron Higgs 72:14 Jack McGillivray 66:34	211:24
3	ROMANIA	Team Manager Aurel Popa Aurel Popa 68:25 Aurel Moraru 72:36 Vasile Nicoara 70:10	211:11
4	JAPAN	Team Manager Shigeyoshi NONAKA Shigeyoshi NONAKA 67:11 Hideyo ENOMOTO 77:01 Yoichi ICHIYAMA 57:35	201:47
5	FINLAND	Team Manager Harro Erofejeff Leif Englund 55:12 Harri Raulio 57:56 Pentti Nore 78:18	191:26
6	FRANCE	Team Manager Andre Trachez Robert Champion 65:54 Guy Cognet 63:51 Bernard Trachez 60:25	190:10
7	UNITED KINGDOM	Team Manager Bernard Hunt Brian Kenny 60:54 Robin Bailey 51:40 Laurie Barr 57:37	170:11
8	FED. REPUBLIC OF GERMANY	Team Manager Rainer Lotz Rainer Lotz 45:37 Peter Kuttler 70:48	
9	SWITZERLAND	Team Manager Elisabeth Brugger Rene Butty 77:51	77:51

level before having to make a flight. The V/P prop from the Number One model was used. Unfortunately the crash must have loosened the ribs in the prop where they join the prop spar, and on full launch torque one blade became partially detached just after take off, giving a highly erratic flight pattern that endangered the whole model, so it was 'ballooned down' at nine minutes. For the second round, Laurie had made repairs and some trimming flights. He managed a good launch and climb

to level flight in a good position just under the centre of the ceiling, when along came a model (belonging to that same Frenchman). They got caught up together, and fell to the floor badly mangled. France 2, Great Britain nil!

The re-flight looked very promising. The model had been in level flight at maximum height for some three minutes when it touched a girder, and hung up.

By Round Three the stock of models was getting rather low. Most unusually, a motor

stick collapsed after hooking up the fully wound motor, resulting in the loss of yet another model, all before any flights of any note had been made. The last flyable model was taken from its box. Time allowed only elementary test flights to take place. A modest 26 minutes was the best that could be done.

The final day allowed a little more testing time, and in Round Five, Laurie Barr finally broke 30 mins, but well short of what was needed. Round Six saw the final straw of yet another collision (with guess who).

We did not always get our flying just right, and when we did, someone hit us...

Apart from the various flying misfortunes, the team spirit was good, and we enjoyed what was a well-run meeting with few glitches in the organisation.



Supreme champion Jim Richmond (USA) consults his 'little blue book' which details all past flights and model/prop/rubber combinations; invaluable!

Snowman



Brrr! Here's John White's all-weather Coupe d'Hiver craft

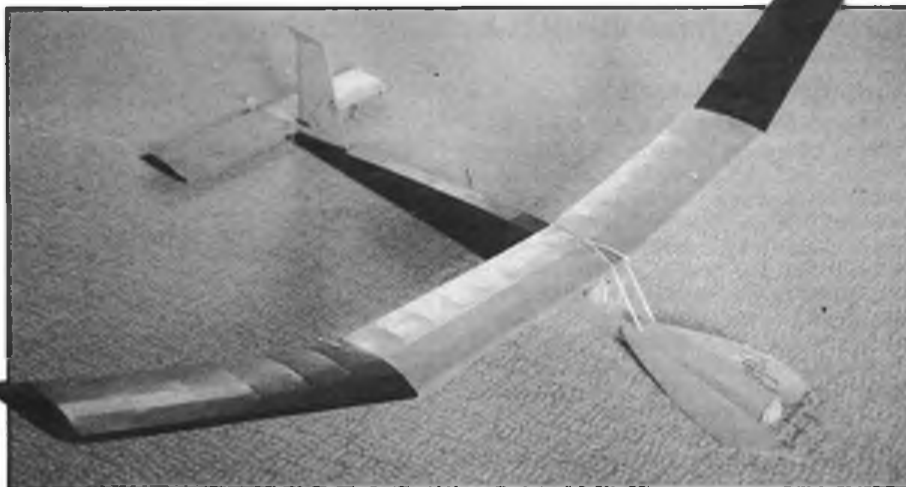
AFTER my usual poor performance at the windy, 1986 Aeromodeller Coupe I decided that I needed a crashproof, all-weather model. Snowman I and Ia, built early in 1987, had simple V-dihedral folding wings together with folding twin fins. Heavy commercial aluminium prop hubs and solid sheet underfins helped to bring the weight well above the 100g mark. The main difference between the two was the wing section, Snowman I using a Hipperson modified Davis and the Ia a homebrew flat-bottom of 8 per cent camber. While trimming them at Beaulieu, I managed my first ever two-minute flight in CDH.

Breaking with tradition I flew the models in the summer that year at both the Nats and the Oxford Rally but, even with the odd one-minute-plus flight, I was unable to come much better than last. The experience gained led to the building of lighter versions with one-piece polyhedral wings (Snowman II and IIa) in time for the 1987 Aeromodeller Coupe at Old Warden. The new flat-bottomed version, IIa, being intended for inclement conditions, was covered in John O'Donnell's silver paper (aluminised melinex) which proceeded to peel off due to my use of the wrong adhesive. However, I did manage to come 45th out of 55 in the 80g event with a relatively (for me) respectable total of 294 seconds.

Since then Snowman II has been my mainstay in CDH contests except when it's been calm enough for my Winter Cruisers. It's managed the odd max here and there and crossed the Thames on more than one occasion at Oxford but a full house has so far eluded me.

The extended wing and lower-powered (ten strands of 1/8in FAI) Snowman III dates from 1988 and although it managed over seven minutes (no d/t!) on a trimming flight at Beaulieu in 1989, it has yet to prove itself in competition. Early in 1989 an updated version of SMI (with redesigned fuselage to bring the CG further forward without sellotaping coins to the nose) was built and designated Snowman IIB. At first I was unable to trim it properly thanks to its insufficient dihedral, as pointed out by Andrew Crisp. On remedying this, I lost it in a 'boomer' on a trimming flight at the 1990 Nats. I have since replaced it with an identical model (except for the prop) and have built a second Snowman III. All the more recent versions use the 'Hippo 9317' section.

Like all my models, Snowman IIB and III suffer from one major handicap – they have me flying them! I am confident that, in the hands of a competent flier, they are capable of being really competitive.



Ten grams of rubber is the rule for Coupe d'Hiver competition. Make a start now!

Get building!

This is quite straightforward, apart from the fuselage. The motor tube is made from four pieces of 1/16in medium soft balsa one inch wide and chamfered to 45 degrees at the edges by careful cutting or sanding. The ply reinforcements are glued in place and the strips



assembled in pairs to form two L-shaped components. At this stage I give them three or four thick coats of dope on the inside to make them lube-proof and to counteract their tendency to bulge inwards. They are then glued together to form a one-inch square box which may be covered with tissue, lightweight glass fibre or whatever else is available to strengthen the motor tube without adding too much weight.

The box is then pinned to the plan (which

should be covered in thin polythene sheet) and the rest of the first fuselage side is built round it. When the glue has set, the structure is removed and the plan, laid face downwards, rubbed with white spirit to make it semi-transparent before building the second fuselage side on the other side of the motor tube. The two sides are then joined by spacers in the usual way together with a soft balsa tail block with the grain running horizontally. When dry, this is bored out to take the snuffer tube by a piece of sharpened aluminium tube of the same size. The Snowman pilot is carved and sanded from a piece of scrap expanded polystyrene salvaged from packing material. He should be glued in place with PVA glue, not balsa cement.

Cabin windows may be cut from thin sheet celluloid, sellotape, or Solarfilm with the colouring rubbed off with dope thinners. Fix with a heat-sensitive adhesive such as Balsaloc. Taking a leaf out of Dave Hipperson's book, I tend to laminate my leading and trailing edges for greater strength and rigidity. Make sure the glue is dry before you start carving them to shape with a razor plane.

The two top inner wing spars are from fairly hard 1/16in sheet. I cut a piece a fraction over the required length and then strip it down with a steel rule and balsa knife to make strips tapering from 1/8in to 1/16in, alternating the wider ends during the process. Wing ribs are cut from medium to soft 1/16in sheet while 1/32in medium soft is used for the tail and fin diagonals and ribs, apart from the 1/8in central rib. The tail diagonals are slotted together at their centres and trimmed to fit before gluing in place.

Covering Snowman

I generally cover the whole model in lightweight Esaki tissue obtained from Mike Woodhouse using the well tried O'Donnell method. That is, apply two coats of dope to the framework then, when dry lay on the tissue in suitable sections and brush on thinners, carefully pulling out wrinkles. The undercambered ribs may need going over more

than once; rub the tissue gently with thumbs to make them stick to the ribs. After water shrinking, apply two thinned coats of dope to the wing and fuselage and one to the tail and fin.

D/T fittings

The hooks are best epoxied in place after covering. A length of thin wire such as 5amp fuse wire with loops at each end is used to limit the travel of the tailplane to 45 degrees. It may be held in place by tiny lengths of plastic inner cable insulation.

Prop and nose assembly

The nose block is laminated from cross-grained 1/8in sheet balsa faced with 1/32in ply front and back. A Keilcraft 16swg brass bush is epoxied in place and a standard wire hub of 3in diameter is soldered to the bent over end of the prop shaft using a short length of flattened 12swg brass tube to hold the two pieces of 16swg wire together (or, if you prefer, bind with 5amp fuse wire before soldering).

In place of the traditional wood screw propeller stop I prefer to use a piece of 18swg piano wire bent double and then at right angles for about 3/32in. This is epoxied into the back of the nose block after drilling two suitable holes, enabling it to stop the prop where the blades can fold neatly either side of the fuselage. By hooking onto the back end of the prop hook the prop may be held after winding when lighting up the D/T fuse and waiting for good air.

I have tried a variety of prop blades of different shapes and diameters ranging from 16in to 22in, generally with the optimum pitch/diameter ratio of 1.3 to 1 (see G L Lawrence's feature in Zaic's 1935-36 Year Book). I have now produced new prop blades for both the current Snowman models using the latest Larrabee method as outlined in Reg Boor's recent article (October 1990 *Aeromodeller*). The side elevation and plan view of both props



What's going on? Builder/designer John White takes a close look at his latest creation.

the slightly oversize holes. When the epoxy is dry, cut the brass tubing almost flush with the blocks.

The backs of the blades may then be either carved flat or with under camber. For the latter, after roughing out with a Stanley knife (and trying not to get too many blood stains) I use a cylindrical sandpaper block of about 3in in diameter.

to slightly cross grain the laminations. I first soak the individual 1/32in pieces in hot water before binding them together tightly on the form block using two or three yards of one-inch cotton tape secured with a small safety pin. After cooking in an oven for up to one hour at 110 degrees C, leave to cool for a few hours before opening up and gluing the laminations together. Here I've taken a tip from Reg Uden: use Henkel Solvite overlap and repair adhesive, obtainable in yellow tubes from good decorating suppliers. Another hour's roasting with the form block covered in clingfilm, followed by cooling, and the blades are ready for drilling through the hole in the form block to take the brass hinge tubes. When the epoxy is dry they may be removed from the blocks and carved and sanded to a suitable flat bottom section.

By the way, it's a good plan to liaise with your wife or whoever does the cooking in your household in order to avoid unfortunate consequences!

To complete each blade I epoxy in place a piece of 3/32in bamboo dowel about 5/8in long to act as a stop and a small semicircular 22swg piano wire hook to attach the rubber band which folds the prop at the end of the power run. To make blade changing easy, I hold the blades on the wire hubs with short lengths of inner cable insulation.

Flying!

The CG should be at around 60 per cent of the wing chord. Ballast may be needed at either end to achieve this. Tail incidence can then be adjusted in the usual way by packing and the glide circle for right glide by the 'Croydon' method of adding strips of 1/8in square balsa to one side of the fin. Alternatively, fit a trim tab – but beware of moving it accidentally before releasing the model.

The climb is adjusted with a little right thrust to produce a right-right flight pattern. Oh, and by the way, don't forget the polystyrene Snowman – you can't expect the model to fly without a pilot!



Snowman rests between flights. Note seasonally appropriate pilot.

are shown on the plan.

Make thin ply or card templates and pin them to adjacent sides of the balsa block. Go round them with a felt tipped marker holding the templates close to the wood so as to produce a sharp outline. On removing the templates or stencils the block may be carefully cut to shape using a band saw or fret saw and smoothing off with a medium sandpaper block.

Before carving, drill the holes for the 15swg brass hinge tube and bamboo dowel stop and epoxy the former in place, after roughening with a file. Here I use Dave Hipperson's method of lining two or more blocks together flat on the bench and passing a length of tubing through

The blade fronts are then carved and sanded to shape to complete the desired aerofoil. Finished blades should weigh between four and six grams each, depending on how many coats of dope you give them and whether you cover them in tissue, silk, fibre glass or even the new Fibafilm. If you prefer laminated blades these may be constructed with three layers of 1/32in medium C-grain sheet cut from the blade shape template using one of Joe Maxwell's form blocks (25in pitch for the IIB or 22in pitch for Snowman IIB). These are obtainable at £7.50 from J H Maxwell, 14 Upper Craigs, Stirling FK8 2DG.

To improve rigidity (and appearance) I prefer

BALSA CUTTINGS

Cyano de Bergerac tries Eurospeak and thinks airily

What's Drop Dead in French?

You may have mastered 'Vo ist die Toilette, bitte?' and scratched together enough of your schoolboy French to translate Jean-Marie Piednoir, but are you really ready to Go Into Europe? Wants a bit of bottle, you know. Could you cope with the hardships of even the Inaugural International F3J meet held at Amay in 1990? Amay is in Belgium; you need to know that for a start. Right – first flight. You carefully lay out your 60lb line and measure off 150 metres, whatever that is, then are practically deafened by the screech which goes up when your model tows a hundred feet higher than anybody else's. Alas, your towline has stretched – disqualified. Second flight. Your model is wrecked in a mid-air. Third flight. Reserve model utterly shot down by (oh, dear – it was an *English*) gentleman on the wrong frequency. Tiptoeing reverently round the crumpled figure whose experience this was, let us ask if we could equal the stoicism of that dynamic duo, Rodney and Robin, a photograph of the backs of whose heads so enhanced the October issue of Radio Modeller? Rod Potts, ably assisted by Robin Sleight, settled his soarer in a thermal only to have a foreign F3B shoot across to share it and shear off his wingtip. Expertly landing the bigger bit, Rod leapt into Robin's car and in a precious between-rounds break they scooted off to the railway embankment, in the neighbourhood of which the tip had fluttered down. Zooming up the Belgian equivalent of Station approach in their numbered competition weskits and with GM plates fore and aft, they were met by an employee of the Iron road, waving the arms enthusiastically and crying 'Messieurs, Messieurs!' There then issued from Robin's lips (albeit in the accent Scots) fluent words in the French tongue – commonly understood in Belgium – explaining that they sought the end of a wing of an aeroplane *modele* which by the mischance *extraordinaire* had etc., etc. 'I have understood,' responded he of the Belgian Railways, conferring, as it turned out, more credit on his wretched powers of comprehension than they deserved – 'Follow me!!!' Flinging open the doors of a small garage hard by, he backed out therefrom with more verve than caution a car in which he then sped off, repeating by gestures of the hand that invitation which he had already impressed verbally upon the dynamic duo. And so they followed him. Right back to the flying field! Time, and their French, had run out, so they swallowed hard and thanked him. The only memorial to the wingtip they brought home was Robin's paraphrase of Rupert Brooke – 'that there's some corner of a foreign railway embankment that is forever England.' Delay deciding on whether you could hack this one until you learn that the F3B flyer won his slot.

An apprentice remembers

Ron (Mind the Lines) Prentice passes on a tip for soldering tanks neatly – run a wax crayon along either side of the seam to be sweated, and the solder will not creep out beyond it in

wandering waves the way it is otherwise wont to do. He goes on 'Two crayons taped together will draw both lines at once.' Obviously there was a time when, equipped with the schoolboy version of this device, Ron would hardly mind the lines at all.

The perfect cure

Although Wakefield wizard Bert Judge used to turn up in a winged collar, he never came near to snatching the title of World's Most Uncomfortably-Dressed Aeromodeller from D.A. Pavely who, with his uncreased linen, considerable boots, dignified 3-piece seemingly sewn up from slabs of dark cardboard and Homburg hat set up on head surely with the aid of a spirit-level, was a formal figure indeed when flying his air-powered jobs in the park. A fetchermite was said to be an essential part of his kit, and those who claim they once saw him *run* are simply not believed. By contrast, whilst he shares across the years a Christian name, expertise in compressed-air flying and a flair for the invariably elegant turn-out, Doug McHard has been seen to run, albeit not very fast, and always looks as much at ease as did Eddie (Shirtsleeves) Keil. (According to him, his tailor would only hand over the trousers when he had been paid for the last suit but one.) But Doug and Doug, those indefatigable pneumistatists, should share something else – a place in a Terry Rose effort with a joint thought-bubble overhead containing a big yellow Holman roadworks compressor unit. Though pumping-up is the healthiest aspect of flying ever. Not only do you not pollute the atmosphere with exhaust, from the very first

session you pack up fags as well.

Groundsheet's Great Glasnost

More about mistresses from Rollon Groundsheet, folks! Squinting excitedly through the yellowing Perspex of his little turret where the greenhouse effect cannot be good for his heated imagination, Hemel Hempstead's answer to the Me 110 now dismisses your 'stick-and-tissue stuff out of hand, and reveals that the kind of lady he has in mind for holding the size of models currently occupying his attention would be recruited from the Russian Shot-putting squad. (Use this space to write your own gag about Large Model Association and large model association.) Still obsessed with quantity rather than quality, he weaves in with his fruity fantasising a curious aside that *Aeromodeller* is the thinnest model mag around. (Is what David Boddington says about his nose true? What, *all the time*?). Yet the very issue of *Radio Meddler* in which this claim appears (October) has only 37 pages of non-advertising text/photo content (and that generously includes Groundsheet's Gripes) whilst the corresponding issue of the *Aeromodeller* has 41. No wonder he's looking for the navigator! Well, Tail Gunner, you're wrong in thinking it's old Scratchalot de Bedbug. He's further up the fuselage, facing for 'ard, left-hand side.

Fun for future fetchermitees

Mary had a monstrous Scram,
Which needed three to launch it,
And had the great advantage of
Upsetting Roland Gruanchet.



1990 Free Flight



**10-13th September, and
Bernard Aslett reports
from Domsod, Hungary**

THE pulse usually quickens at the prospect of a well-attended international contest – and particularly so on the occasion of a European Championship. There is the opportunity to see how the best 'put it together', thus providing a surge of motivation for that next design. For many though, the opportunity to meet with old friends and the making of friendships new would be most welcomed.

So it was that twenty-two nations, providing 165 competitors and a host of supporters, came to Domsod. The Domsod Puszta is well known to those familiar with the international circuit, but for the first-time visitor, its size is impressive. It is flat, approximately a mile wide, and very much longer – its full length never exploited by prevailing winds. It also has a north-south orientation. It is further enhanced by flat agricultural land on all sides. An incidental but pleasant feature is that it is liberally populated by attractive wild flowers of possibly a dozen different varieties.

The organisers – The Hungarian Association of Modellers, together with the Cavalloni Model Club – had found it necessary to use three



F1A leaders; Lepp (Soviet Union), Gobbo (Italy) and Ziober (Poland).

hotels, one of which, the Sport Complex was some 25km nearer Budapest, but all provided easy access to the flying field.

The Brits were allocated to the Sport Complex, which appeared to be used for National athletic courses – the facilities lending themselves suitably for the opening/closing ceremonies. Food was served in admirably large quantities and, if occasionally a little over-sweetened, left no-one hungry. Remarkably, a goulash never appeared! The local beer received regular attention and gained general approval at its modest price.

As many had arrived in rain, the subject of weather was continuously under discussion, and unfortunately it was to transpire that this concern was not ill-founded. Training and processing proceeded smoothly – the organisers gaining credit with a team of student interpreters who assisted with enthusiasm and excellent English. Stick-on recovery labels – this time in the national language – were also appreciated.

F1A: Monday, 10th September

On arrival at the field, conditions were dull with a complete (but high) cloud cover and a light to steady breeze. John Bailey had agreed to go first and heartened everyone with a competent, comfortable max. Several 'bunters' were on display, notably those of Rump. Makarov and current champion Tchop. Kochkarev also demonstrated this manoeuvre well, but despite vigorous flapping, quickly

Breaking the landscape – a well at the Domsod Puszta. Site ideal for F/F competition.

found poor air to dash his, and his team's chances with 105 sec Meanwhile, John Williams had taken a long time to find a good patch, with Chris Edge the assistant team manager, in attendance, the latter also not finding the air helpful. Finally he went away to max. Dave Oldfield had about eight minutes to go to the round end but displayed commendable composure. Noting lift to his left he moved over and circled twice to confirm, prior to a splendid zoom and max. A good start for the team. This



Victory in F1C went to 'local' flier Maczko (Hungary), followed by Korban (Soviet Union) and Thomas (Germany).

first round was particularly tragic for de Boer, who dropped five seconds; and even worse, his team-mate Hulshof (one second short) – the only time they were to lose in the whole contest! The wind was now rising...

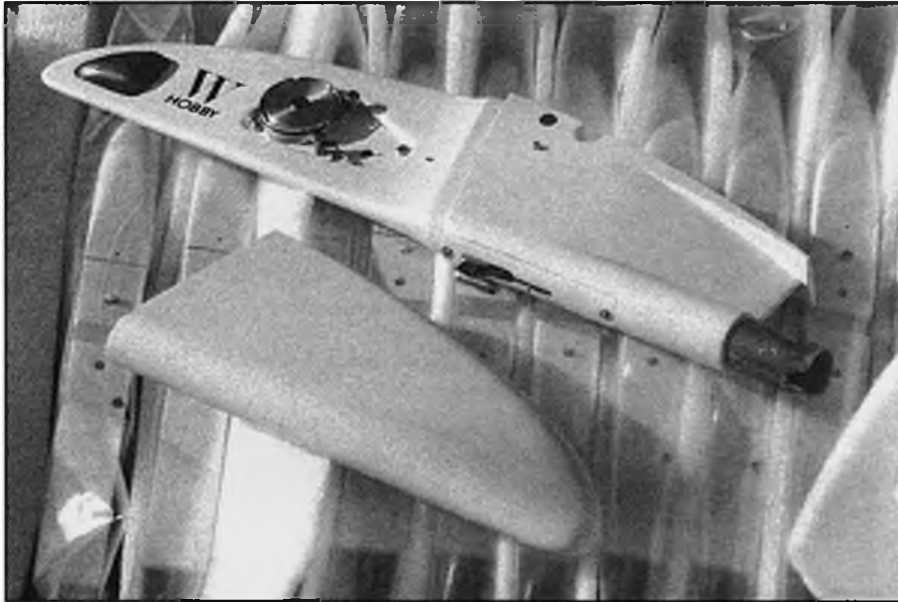
The second round gave more drama for the Russians. Makarov executed an impressive downwind bunt but could only make 158, and Tchop had something of a disaster with 74! John Bailey went early and needed flapping, but made it, and then further disaster – John Williams D/T'd on launch. A close examination of the model and timer could not explain this, the model thus having to be confined to the model-box for the rest of the contest. Dave Oldfield towed in but maxed on his second attempt. Altogether an uncomfortable round for GB.

Round Three was significant in that only five flyers dropped but Stefan Rump was among



Top three in F1B, Jordanov (Bulgaria), Gorban (Soviet Union) and Ruppert (Switzerland).

at Eurochamps



Many items on sale at Domsod, including Lithuanian glider front ends. Note front-scroll timer, noseweight, circle hook and nose shroud to keep the dust out. (Martin Dilly photo).

them for 142 after a mislaunch. At this stage only the DDR held a full house.

A score of 137 in Round 5 put John Bailey out from what had been a competent performance. Cenny Breeman at 107 fell too. We now had only David Oldfield intact and even he found Round 6 slip away from him. Victor Tchop untypically dropped another 11 sec to settle well down the field. At this stage in the team places, DDR looked very steady, nearly a minute ahead of Poland and Czechoslovakia, with the Soviet Union a further 17 sec behind. For the individual contest only eight were remaining with a chance to become Champion.

The weather in the final round had now become cold with a steadily increasing wind; conditions that would noticeably affect several flights and promote tension.

Pole Dariusz Stezalski experienced a different tension in the form of a line cross that unlatched him. He hung on and then suffered a line cut/break to give only 60 sec. Not unnaturally Poland protested, but the jury ruled the flight must stand. A max would have given them the team prize, for Preuss and Buff (DDR)



Gorban's F1B also featured tapered spar construction and Kevlar-capped ribs.



Evgeny Gorban's prop/front end units, with adjustable pitch gauge at rear.

had dropped 34 and 41 sec respectively. Hartmann (Sweden) had also dropped badly, 84 sec, whilst Siroky (CS) had been the only Czech to fall short on 168 sec, so suddenly Czechoslovakia were team champions by a slender four seconds from DDR, the Soviet Union just pipping Poland for third.

So now to the fly-off; Findahl, Gobbo, Lepp and Ziober to do battle. The Swede, without hesitation, went on the bell, followed by Lepp, then Gobbo. Two minutes later the Russian moved to the left of the line and was soon launching into smooth air. The Pole had waited four minutes and whilst he and Findahl searched diligently, Gobbo quite clearly was waiting downwind. Findahl launched to applause, and the Italian took the same air. A little later, in different air, Ziober evoked applause for a fine launch. From looking good, the Swede faltered and looked desperate. He picked up later and held on, but with 228 had finished his contest.

Tension was to increase further in the five-minute flyoff. Lepp, who went first, towed in with eight minutes to go. Gobbo then also –

incredibly – towed in! Ziober, comfortably on his own, felt the air and launched hard – too hard – causing a line break. The resulting flight never looked good and was down for 74 seconds. Lepp went away again, always looking good. Gobbo only just made it in time, going straight up and off and looked particularly bad, but somehow found good air to just make five minutes.

With the inevitable, long retrievals Lepp chose his AL38 for the six-minute round. Lift was by now becoming harder to find. Gobbo was happy to follow Lepp to make only 142, while AL38, clearly the better model on the day, made Lepp a worthy and popular Champion.

F1C: Tuesday, 11th September

The weather for Power day gave no room for encouragement; broken cloud cover, a temperature of 55 degrees F and an even stronger wind than at the commencement of the Glider competition. The chill factor was sufficient for most to require windproof clothing, and at least two individuals had employed a blanket from their bed to give a passing imitation of an Indian squaw!

The first round was set at four minutes. Our first man up was Ken Faux. In practice his model had looked particularly sharp, and away it went again, vertically, to great height, together with a copybook bunt transition – the max was never in doubt. Stafford Screen went second. In contrast he had suffered a torrid time trimming, such that we witnessed less than his usual immaculate transition. However, he glided his way out of trouble. Andrew Cordes, new to the team, now faced his first representative flight. Receiving much encouragement and support and displaying commendable control, he prepared and launched. Never in very helpful air, he just made four minutes – his smile indicated his relief and pleasure.

Others had not fared so well. Doring, the twice FIB World Champion, dropped 16 sec. Valery Strukov (reigning Euro Champion) dropping 29 sec. Also of note was Wachtler (DDR) losing 46 sec in this first round which was to turn out to be the only time the DDR team would lose in this competition.

Round Two and the wind was showing no sign of abating, despite the various national flags suggesting the opposite. Poland, who on recent performances had a strong team, found Czerwinski submax at 163 and Plachetka, who had dropped over a minute in Round One launched left but eventually improved to make his 180. Andrew Cordes lost much height on his transition, dropping a bare two seconds at 178, and providing disappointment for him. Both Ken and Stafford maxed comfortably.

By Round Three, frequent consultation of the anemometer was taking place. Somewhat surprisingly only five sub-maxes were to be recorded in this round, but alas; Andrew, possibly deflated by his previous round score, recorded his worst flight, barely managing 1.1/2 minutes and also demonstrating that if you don't get it quite right, an F1C is a very

Free Flight European Championships Dömsöd, Hungary 1990 F1A Individual

1	A. Lepp	SU	1260+	240+	300+	172				
2	M. Gobbo	I	1260+	240+	300+	142				
3	C. Ziobber	PL	1260+	240+	75					
4	P. Findahl	S	1260+	228						
5	W. Hulshof	NL	179	180	180	180	180	180	180	1259
6	P. De Boer	NL	175	180	180	180	180	180	180	1255
7	J. Vosejka	CS	166	180	180	180	180	180	180	1246
8	S. Makarov	SU	180	158	180	180	180	180	180	1238
9	M. Preuß	DDR	180	180	180	180	180	180	146	1226
10	S. Rump	D	180	180	142	180	180	180	180	1222
11	G. Popa	R	180	180	180	180	180	141	180	1221
12	M. Buff	DDR	180	180	180	180	180	180	139	1219
	= N. Nicolov	BG	180	180	180	180	180	139	180	1219
14	J. Bailey	GB	180	180	180	180	137	180	180	1217
15	J. Laureau	F	180	180	180	180	134	180	180	1214
16	L. Suroky	CS	180	180	180	141	180	174	168	1203
17	D. Oldfield	GB	180	180	180	180	180	140	160	1200
18	F. Adametz	D	180	180	180	180	112	180	180	1192
19	J. Horvath	H	180	180	180	180	109	180	180	1189
20	C. Breeman	B	180	180	180	180	107	180	180	1187
21	J. Nahlovsky	CS	104	180	175	180	180	180	180	1179
	= U. Rusch	DDR	180	180	180	180	162	117	180	1179
23	H. Hartmann	S	180	180	180	180	180	180	84	1164
24	K. Salzer	A	180	180	180	180	180	80	180	1160
25	V. Chop	CHA	180	74	180	180	180	169	180	1143
26	D. Stezalski	PL	180	180	180	180	180	180	60	1140
27	J. Melis	B	110	180	180	118	180	180	173	1121
	= K. Stezalski	PL	146	175	180	180	80	180	180	1121
29	J. Bodin	F	180	180	69	180	180	143	180	1112
30	N. Russev	BG	157	180	180	180	180	46	180	1103
31	D. Piber	A	180	180	180	180	67	128	180	1095
32	D. Petrescu	R	79	164	180	127	180	180	180	1090
33	N. Hendler	IL	180	180	180	180	61	115	180	1076
34	L. Nielsen	DK	176	116	180	180	148	180	94	1074
	= B. Hagag	IL	180	123	180	180	85	180	146	1074
36	H. Bleuer	CH	157	180	180	180	85	96	180	1058
37	H. Fuss	A	129	180	180	180	92	180	116	1057
38	J. Bodó	H	127	180	180	180	180	15	180	1042
39	P. Rahkala	SF	107	180	180	180	91	180	120	1038
40	H. Tähkää	SF	180	180	180	180	66	180	70	1036
41	E. Zalicha	IL	110	23	180	180	180	180	180	1033
42	J. Schellhase	D	165	180	20	180	180	180	127	1032
43	M. Kochkarev	SU	105	180	180	180	180	110	95	1030
44	D.E. Larsen	N	148	165	180	180	180	114	62	1029
45	C. Bognolo	I	180	180	180	109	19	180	180	1028
46	E. Sahinovic	YU	180	180	180	180	4	180	113	1017
47	R. Cal	I	180	129	180	180	98	180	66	1013
48	J. Nyhegn	DK	95	144	180	131	100	180	180	1010
49	A. Csabai	H	178	180	180	85	175	161	43	1002
50	C. Baki	TR	180	56	180	180	180	180	42	998
51	J. Somers	NL	80	180	180	180	180	60	132	992
52	V. Nereng	N	60	180	180	180	73	167	148	986
53	L. Danielsson	S	0	85	180	180	180	180	180	985
54	J. Williams	GB	180	18	180	180	180	180	63	981
	= M. Popescu	R	160	180	180	97	56	128	180	981
56	A. Ternholm	DK	48	144	180	180	56	180	180	968
57	A. Gaganelov	BG	103	150	180	180	80	180	86	959
58	L. Gaudin	F	117	129	89	180	70	180	143	908
59	L. Reynders	B	180	180	180	180	60	119	0	899
60	H. Jenny	CH	180	97	180	48	0	180	180	865
61	T. Bucher	CH	180	126	180	180	156	1	34	857
62	O. Yalcin	TR	180	123	180	16	93	82	180	854
63	T. Pajunen	SF	180	107	180	117	53	154	57	848
64	H. Mehmet	TR	180	131	180	152	98	84	15	840
65	Darko Drljan	YU	86	79	180	166	110	61	108	788
66	D. Krajina	YU	113	66	180	19	149	41	150	718

critical aeroplane. In contrast he had a super climb in Round Four to max and provide the second clear round for the Brits.

It was here that Verbitsky caused great drama. To all appearances he went away in the bunt mode causing a spectacular crash dangerously near the parked cars. The Russian team manager asked for an over-run, the jury consulted and the time-keepers held their ground; result, seven seconds, taking one of the leading contenders out of the running. By now France were leading the team results even with Trachez dropping 32 seconds in Round Four. However, DDR and Hungary were closely in contention respectively 12 and 20 seconds behind.

Despite excellent downwind retrieving by the Brit supporters, Ken Faux had lost a wing tip on landing in such windy conditions. He repaired it over lunch, but it was never to be quite the same aeroplane. Possibly with this in mind, GB team manager asked for wind speed

F1A Team Results

					Total
1	CS	1179	1246	1203	3628
2	DDR	1226	1179	1219	3624
3	SU	1260	1238	1030	3528
4	PL	1260	1121	1140	3521
5	NL	1255	992	1259	3506
6	D	1192	1222	1032	3446
7	S	1260	1184	985	3409
8	GB	1200	981	1217	3398
9	A	1160	1057	1095	3312
10	I	1028	1013	1260	3301
11	R	1221	1090	981	3292
12	BG	1219	1103	959	3281
13	F	1214	1112	908	3234
14	H	1002	1042	1189	3233
15	B	1187	1121	899	3207
16	IL	1076	1074	1033	3183
17	DK	1010	968	1074	3052
18	SF	848	1036	1038	2922
19	CH	857	1058	856	2780
20	TR	854	998	840	2692
21	YU	788	718	1017	2523
22	N	986	1029		2015

to be considered by FAI Jury. Careful consideration assessed the average to be within limits. The temperature was now 59 degrees F with sunshine, but the chill factor was still very noticeable. This round recorded the greatest number of submaxes – a physiologist might just put it down to the digestive process and full stomachs! Sadly for France, both Roux and Trachez dropped to eventually put them out of team considerations. The DDR by now took a firm grip on the team title and flew with great consistency, never to be headed.

In Round Six Napkori (H) made his only error (but a big one – 95 sec). Whilst conditions took their toll, one competitor dramatically parted company with his wings at the top of the climb.

Ten fliers entered Round Seven with the championship still in their grasp. Venuti, Boutillier and Fuzeev (who had looked particularly consistent) all narrowly lost time. Remarkably, Verbitsky was yet again to bunt in narrowly missing a clutch of parked Russian models. This flight was complicated by a discrepancy of nearly one second for the engine run, between the two timekeepers. Again the jury conferred but the flight time (10 sec) was adjudged correct. Seven would now go into the flyoff.



Sue Coy holds John Williams' model while GB Team Manager Martin Dilly advises the downwind team via walkie-talkie.

Ken Faux was one of the first of the qualifiers to get away. His good climb and transition still below that of the early rounds. GB hopes faltered with unhelpful air late on. It was possible he could have made the four minutes but was clocked off behind trees at 224. Rocca, launching into an untypically poor pattern, levelled below than 200 feet and continued so to score a lowly 147 sec. Glissman (DDR) also faltered for once and could only make 171 to come sixth. Meanwhile Stafford, still not on top form, had scored just three seconds less than Ken to make fifth to Ken's fourth. Stafford, clearly disappointed, was consoled somewhat by what most other Brits thought was a fine performance by these two flyers.

The five-minute flyoff now was down to three fliers. Korban launched first into an exemplary pattern evoking spontaneous applause. He was at great height. Maczko followed with a much more conventional model featuring wood-covered wings and (I believe) no bunt; he achieved only moderate height. Thomas followed and as with his team mate, faltered for the first time. A poor pattern and low altitude could only provide 143 and the bronze medal. Inexplicably Korban's flight was slipping away. When his timekeepers lowered their binoculars

F1C Individual

[illegible]

F1C Team

					Total
1	DDR	1274	1320	1320	3914
2	H	1320	1235	1268	3823
3	PL	1272	1303	1240	3815
4	F	1310	1204	1289	3803
5	GB	1320	1320	1125	3765
6	I	1089	1320	1305	3714
7	CS	1310	1090	1280	3680
8	SU	977	1320	1308	3605
9	D	1304	1265	826	3395
10	YU	651	1-06-	921	2632
11	S	1047	1221	15	2283
12	CH	671	1141		1812
13	A	1128			1128
14	SF	1006			1006
15	N	3			3

it was clear that Maczko was still flying and to the heightening excitement of the Hungarian supporters, he passed Korban's 236. Any attempts to photograph the local hero were quite impossible for a protracted period. His win was celebrated with a free ride in one of the 'retrieval' microlights. One wag suggested that to come second meant you had to take two such rides, and so on! Incidentally, I am reliably informed that a literal translation of Maczko is Bear – very appropriate one would have to say.

F1B: Wednesday 12th September

As we assembled for Wakefield day, the temperature stood at 52 degrees F with broken cloud cover. Irresistibly in the mind the view was formed: it must be windier!

Round One was set for a 3.1/2 minute max. Conditions were to be confirmed with 43 submaxes in a field of 60 – these were to include Andrukov, Hoffas, Cofalik, Eimar, Polla and Zeri! Significantly, all of the Russian team maxed. David Greaves went first for GB. Twenty seconds into his flight the model 'looped' in vicious turbulence which then induced a vertical dive under power, losing 50ft. Recovery from

this position was virtually impossible and led to a score of 75 seconds. Mick Chilton got away well in a brief lull only to D/T at 2:48. To record a time of 196 indicated the flight's potential, and Mick didn't need to have it explained what must have gone wrong. Later William Beales maxed in a quiet, competent manner. Downwind damage today was noticeably greater for these less sturdy models.

Round Two. The Jury declared a hold (initially for 1 1/2 hrs.) on three counts. Poor visibility due to upwind combine-harvesting; there were not two sets binoculars to each pole; and finally a doubt in the anemometer's



Stafford Screen levitates under the foil-winged F1C Silhouette 2. Placed fifth. (Dilly photo).

accuracy as it had just blown over! The hold was increased to 3 1/2 hrs. with further announcements delaying until 1700 hours.

This enforced halt in competition produced an amazing and unexpected spectacle. A sale of modelling items on an unprecedented scale, almost entirely from Eastern Europe. It must have been totally unco-ordinated, but gradually one became aware of a range of items, from screws to DPR front ends, winders to FIC front ends (engine included), timers to towhooks and even a complete box of competition-winning A2s. If there has ever been cause to doubt the outcome of *Perestroika* and *Glasnost* the ingenuity and industry displayed here



UK's Dave Greaves launches his F1B on a trim flight. (Dilly photo).

confounds such ideas.

Resumption was at 1700 hours. The wind had eased but a little. It was decided to fly two rounds – clearly the organisers wanted to enter the next day with every possibility of completing. In each of these two rounds, half the flights were to submax (180). So we were to enter Day Two with only five intact. William dropped in both rounds whilst Mick had a disastrous eleven seconds in Round Three. An unhappy day for the Brits. Guluganov had dropped 20 seconds in this round for the only time lost for USSR. This gave them a team lead of 88 seconds over Poland.

Thursday, 13th September

A completely different day: sunny, 35 degrees F, humidity at 100 per cent and light winds, so sub-maxes were to drop dramatically. Prior to commencement, the organisers approached the five 'full house' competitors, to see if they would agree to them flying for five minutes in this early morning round to help avoid a 'thermal' flyoff later. Complete agreement could not be obtained.

Round Four, and three Brits all maxed comfortably. Stefanchuk powerstalled, demonstrating that even a Russian can do it, but went on to max. Quite the most outrageous brinkmanship – and drama – was displayed by Guluganov's model. The delayed release failed to employ at launch. Instead of crashing nose first as had to be expected, the model recovered into a stally glide and inexplicably dampened out – remember VIT operates only after DPR. The model descended slowly with its owner bending forward in great anxiety, when

F1B Individual

[illegible]

suddenly after five seconds, and at three feet altitude, the prop burst into activity, evoking an audible surprise from all watching. As is fit for such a story, the model maxed.

With such improved conditions, the five survivors of Wednesday's winds, proceeded smoothly to Round Seven. It was here that Sanavio had a DPR failure to record 4 seconds and plunge dramatically half way down the results. He had been the one dissenter for the proposed five minutes for Round Four, but he accepted what must have been great disappointment with very good grace. Also of note was the small band (David Greaves among them) who consistently maxed out following the previous day's horrendous first round.

The team championship had now been convincingly won by an outstanding USSR team, over 2.1/2 minutes ahead of Poland with W. Germany third, the final day positions hardly changing.

The weather was still good for the four-minute flyoff and of the remaining four Jordanov wound without delay, employing a helper rather than a stooge. Ruppert followed him into well-chosen air. Later, Gorban launched, his climb continuing to be the most powerful on display. All made the max. Stefanchuk was last away, again experiencing

some power stall, and couldn't quite make max (230) to place himself fourth.

In the five-minute flyoff both Jordanov and Ruppert easily made the target. Gorbun, even with the help of the heater jacket, had not found the best air, and hung on to max with little to spare. The next flyoff was heralded by a slight increase in wind and a temporary band of cloud. Gorbun broke his motor late into the wind, damaging his propeller. The Russian backup moved in immediately and smoothly with the replacement, and little time was lost. In the air from different directions the remaining three all converged into the same lift. A seven-minute flyoff was assured.

Ruppert, always a model of decisiveness, went first, triggering Gorban to follow. The Swiss choice of air had previously been impeccable, but it was now clear they were in trouble, despite good climbs. Trouble leaned towards disaster to give Ruppert 104 and Gorban 115.

The Bulgarian flew minutes later, a modest climb to the right with a left glide (shades of Bob White). He had not assured himself of first place when turbulence gave a heart-stopping plunge of 50 feet. It was to be his day, however, which the model emphasized by recovering to make the max.

So ended a well-organised and well-run contest. The medal and closing ceremonies took place in style with banners and military band, back at the Sport Complex.

Later that evening the banquet took place at Budapest Airport with food and beverage to match the heartiest appetite. Most appropriately, a convoy of some dozen coaches was provided for the outward and return journeys.



Evgeny Kabaev was selling F1C front end assemblies for 600 dollars, including timer, home-made engine and folding prop.

F1B Team Results

					Total
1	SU	1290	1270	1290	3850
2	PL	1207	1227	1263	3687
3	D	1281	1060	1273	3614
4	S	1266	1097	1241	3604
5	BG	1290	1146	1062	3498
6	DDR	1029	1210	1141	3380
7	H	994	1107	1274	3375
8	SF	1104	993	1265	3362
9	GB	1058	1144	1165	3367
10	F	932	1212	1201	3345
11	DK	897	1151	1275	3323
12	CS	1097	1076	1086	3259
13	CH	825	1138	1290	3253
14	I	913	1114	1147	3174
15	IL	1042	877	1154	3073
16	TR	1174	831	867	2872
17	A	1035	977	779	2791
18	YU	768	159	1228	2156
19	R	973	607	2	1582
20	N	1075			1075
21	NL	54			54

Reflections

Reflecting on the British performance – it must be clearly headed by the fine performances of our top two power men.

The remainder flew with commitment and effort if not always the best of luck. The team was capably managed and backed up by a band of willing supporters. So how can we improve, and where should we go?

For my money, the individual excellence of the Russians has to be secondary to their outstanding commitment to team support. Even if you are an Andrukov or a Verbitsky, when another team member makes the flyoff, you are there to assist him, and most importantly, you are knowledgeable and practised in what to do.

It has been said before that our elected team should fly and practise together prior to a championship. Maybe we should try it.



Top left: B finalists Clarkson/Needham/Barnes, Gough/Ward and Smith/Yeldham. Next left: 1/2A runners-up Davies/Broadhead's CS .09 model. Far left: Langworth/Campbell. F2C runners-up. Left: Colin Brown prepares familiar wing. Below left: Ian Gardner refuels third-place F2C. Below: Laid-back Mervyn Jones enjoys his Nats.







Top left: Sasko Jordanov (Bulgaria), F1B winner, takes time to pose for the camera before the five-minute flyoff. Next right: Denmark's Jorgen Korsgaard, editor of Indoor News, prepares attractive straight-dihedral model. Above: Dittmar Meissnest (Germany) with conventional F1C craft. Above right: Front end of Mario Rocca's F1C features exquisite, carved one-piece cowl and pylon. Note single-blade, Hoerner-tipped prop; engine is hand-started! Complete model shown immediately beneath. Note wing tips. Mario is allegedly considering metal-covered surfaces. Far left: British Team displays sponsors' logos on model box. Next right: Mick Chilton is one of Britain's most energetic launchers, as this trim flight shows. Left: Andrew Cordes worked hard to support his two team-mates - here he launches for four minutes in the first round. Right, above: Kaarle Kuuka (Finland) with interesting F1C - not metal-covered; that's three-micron plastic over (presumably) wood. Bottom left: Roger Ruppert prepares for five-minute flyoff in F1B. Next right: Cheery Ken Faux before the four-minute flyoff. Below: Piotr Platchetka (Poland) prepares in F1C - model wnet left. Note blanketed figures in background. Bottom right: Eventual F1C winner, the very popular Oskar Maczko from the host nation. Maczko, literally translated, means 'bear' - not inappropriate!





Top left: Massimil Gobbo of Italy hooks up in the FIA flyoff; he took the Silver medal. Top right: Uwe Rusch's FIA, already hooked up, is held by a compatriot; the clock in the background eventually blew down – it was breezy... Above left: 1975 World Champion Viktor Tchop holds as Eurochamps FIA winner Andres Lepp checks the towhook latch in the flyoff. Above: Manfred Preuss (DDR) at launch. Left: Swedish Team Manager Lars Oloffson watches as Per Findahl prepares in the FIA flyoff. Smart uniforms were provided by sponsors Volvo.

1990 BMFA NATIONALS

Control line Team Race and Combat at Barkston Heath: Part Two

1/2A Team Race: Report by Dave Campbell

At last Barkston Heath showed another side to its character by providing ideal conditions for 1/2A racing over all three days. If only the number of entries and standard of racing had been as good as the weather! Eleven entries (of whom only nine recorded a time) and somewhat scrappy racing was not the shot in the arm that 1/2A desperately needs.

Perhaps a change of rules is required to make the class more attractive to newcomers to C/L racing. British Goodyear, and to some extent Vintage racing, has brought a lot of new names into the fold for the simple reason that the models are easy to build and do not require much in the way of high technology to be competitive. An increase in 1/2A model dimensions would help, as currently you need to be something of a micro-surgeon to cram in all the gubbins such as fuel shut-off, pressure filling valve, wobbly wheel, engine and tank within a space 40mm wide by 75mm high. The SMAE rules for domestic classes of C/L racing are not written on tablets of stone and should be amended from time to time to reflect trends and availability of suitable engines. If you have any ideas in this respect let a member of the C/L sub-committee know.

Anyway, off the soap box and down to the racing. As usual Heaton/Howarth led the way in the heats with a near-record-breaking run of 3:25.3. Maybe one day Don Howarth's engine will wear out and give the rest of us a chance! No one else managed to break four minutes in the heats, the closest being Dave Smith and Taffy Bollen with 4:05 from Taffy's own-designed (and manufactured) engine. One model which showed a lot of potential was Ev Davies' and John Broadhead's CS.09 powered device. This produced speeds of sub 18.5/10 laps airspeed on occasion for 50 laps range, but a really good setting eluded them all weekend. The motor is a basically standard Chinese CS 09 glow fitted with a Cox type carburettor and a cylinder from Ed Needham. All relatively simple and capable of top performance when fully sorted.

Because of the low entry, the semi-finals were run on Monday for only the fastest six teams. Once again Heaton/Howarth showed the way with a 3:27 one-stop race in Round One. Davies/Broadhead at last got a run out of the CS for a 3:45.6, John Broadhead pitting with his wrist still bandaged up to protect a nasty gash inflicted earlier from an errant F2C engine. The other four teams disputed the remaining final place quite closely, Lorrimer/Ross getting the verdict by less than two seconds from Thorpe/Banks.

The final produced a faultless run from Heaton/Howarth who finished in a fast 7:07.3, nearly a minute ahead of Davies/Broadhead. Lorrimer/Ross put up a game attempt but suffered from a systems failure to retire at 166 laps. So Derek Heaton and Don Howarth have now made it three Nats wins in a row, halfway to the Turner/Hughes record of six wins set between 1965-70, which will still take some beating.

F2C Team Race

An entry of just fifteen teams made for a nice schedule of five races in each round. Once again the organisational burden was taken on the able (and ample) shoulders of Dave Rudd who ran all the racing

Brown flying their newest model powered by a Cipolla and Langworth/Campbell using their homemade Burford-based engine. With virtually identical speed and range the result was close, Langworth/Campbell coming home in 3:27.2 with Smith/Brown half a lap behind on 3:28.6.

The second round saw some improvement in the times recorded, particularly from Salisbury/Whorton and Brewin/Haycock who made 3:42 in a cracking race with Smith/Brown, who three-stopped their old model to a very fast 3:26.2 to lead the field, the last place in the semi-finals was taken by Heaton/Woodside with 3:58.2 using their Howarth Dragon powered model which was not yet realising its potential.

The semi-finals on Monday produced some excellent racing and fast times again for Smith/Brown with 3:29.7 and Langworth/Campbell at 3:32.9. Third fastest were Sladdin/Gardner with 3:42.1 but this did not look too safe for the final. A big improvement came from Fry/Short who produced an excellent 3:45 from only 20.0/10 laps airspeed and 25 laps range, thanks to faultless stops from Richard Short. The second round of semis promised much excitement as seven teams were battling for the third spot in the



The Davies/Broadhead 1/2A runner-up again. CS motor, with Needham cylinder and Graupner prop. An accessible approach to racing.

events virtually single-handed and to whom much tanks are owed.

The only foreign entry this year came from Belgium, in the form of the Brussels team of Liber/Delrue, as the promised Russian entries unfortunately failed to materialise due to problems with entry visas. The Belgians were flying models based on the Dutch Van Uden wing design but with a glass fibre fuselage moulded by Jean Dessauy. Their engines were own designed and built featuring a steel front housing, machined from solid crankcase and ball raced drum valve *a la* Cipolla. Although they failed to make the semi-finals, all the Belgian contingent enjoyed the Nationals experience and will probably return again.

Early leaders in Round One were Davies/Broadhead using a Nelson for 3:45.6 from a two-stop race to set the standard for the competition. Other fast times came from World Champs UK Team Members Sladdin/Gardner, who managed 3:38.9 (also with a Nelson) and from the once-a-year team of Brewin/Haycock who rattled a few established names with a fine 3:49 race out of an elderly Nelson model. This year Dave Brewin actually looked like he was enjoying flying team race so perhaps a permanent pairing could be considered? The times in the first round were generally quite slow with 4:11 being good enough for the semi-finals.

The exception to this came in the last race of the round when the other two UK World Champs teams of Smith/Brown and Langworth/Campbell faced each other. Both teams were using two-stop tactics, Smith/

final, the first two places being effectively already taken. The first race saw Brewin/Haycock's and Salisbury/Whorton's chances fade away with poor engine runs but Langworth/Campbell reinforced their position with a one-second improvement to 3:31.9. Race Two was very fast and furious finishing with Sladdin/Gardner being DQ'd for gliding the last 2.1/2 laps and Smith/Brown retiring on 96 laps with an engine problem. Whilst all this was going on, Heaton/Woodside were at last getting a good run from the Dragon but 3:46 was not to be good enough. The last race was a do or die effort for Fry/Short to make the final but a 99 lap DQ was all their reward.

So the final on Monday afternoon brought together the three teams who represented the UK in Blenod and promised to be an exciting climax to the C/L Nationals programme. A large crowd gathered around the netting to watch the fun and they were not to be disappointed. Pre-race practice showed Smith/Brown the fastest at 18.5secs/10 laps for a bare 25 lap range with Langworth/Campbell going for 35 laps at 18.7/10 speed.

Sladdin/Gardner had set their Nelson up for 29 laps (six stops in the finals) and as much speed as they could muster. At the start all three models were away instantly and all motors were on song. The difference in the range of the three models meant that the pitstops could be performed without the risk to other landing or pitting models, allowing the pitmen to get on with their job as fast as possible. Colin Brown certainly showed how fast he is with an immaculate

display of one-flick stops. Smith/Brown had the fastest model but the longer-range racer of Langworth/Campbell was keeping pace and at the 100 lap mark both models were within half a lap with the time at 3:28.

Meanwhile Sladdin/Gardner were slipping behind at this stage due to their shorter range and a sometimes reluctant starting engine, but were close enough to win if the other two teams had problems. Langworth/Campbell lost a little time at their last pitstop when the engine flooded and this gave Smith/Brown the breathing space they needed to run out victors in a new British record time of 7:02.1. Langworth/Campbell followed on just five laps behind at 7:12.9 and Sladdin/Gardner came in a gallant third with 7:26.8 in what can only be described at the best and fastest F2C Team Race final ever seen in this country.

Class B Team Race

The new rules for this class of racing seem to be having a positive effect with five of the eight entries sporting models powered by a variety of .21 size engines. Suitable engines of this size are relatively cheap and easy to obtain being the standard size for R/C car racing worldwide. They need very little conversion work to adapt them for team race purposes. The rotational speeds of .21 powered models are no higher than most Open Goodyear model and following Dave Clarkson's excellent how-to-do-it article in the March 1990 Aeromodeller there is no excuse for not having a go.

Dave Clarkson and Ed Needham indeed did show 'how to do it' in Round One of the heats with a one-stop 3:33 from their Picco .21 powered Montezuma's Revenge. No one else could match this time and with the big banger .29 brigade all having problems of one sort or another, Clarkson/Needham looked the likely winners. One of the regular challenges was eliminated rather unfortunately when Mike Fitzgerald's OPS .29 model collided with Gordon Yeldham half a lap after take off in the practice circle. Luckily Gordon only suffered bruising to his forehead from the model's inboard wing, but if he had been walking a few inches further out from the circle the result could have been rather different. The Yeldham head proved far stronger than the Fitzgerald/Thomason model which was a total write off! The blame for this incident lies fairly and squarely with the organisers who had failed to mark out a proper practice circle for all the classes of racing. Practice areas at the Nationals are always tight on space and it is essential that adequate safety precautions are taken in future to avoid a repetition of this kind of incident.

Round Two of the heats on Sunday saw Gough/Ward (Rossi .21) pull up into second place with 3:41.7, leaving Smith/Yeldham holding onto the third place for the final at just over four minutes. The final itself was something of a disappointment with blown plugs, electrical failures and other maladies besetting all three teams. Clarkson/Needham did eventually emerge as the winners with a slow time of 8:37 but only after Smith/Yeldham/Bollen had retired with a flat battery when well in the lead. Taffy Bollen's comments about Gordon Yeldham's preparation for the Nationals are definitely not for printing in this magazine!

B Team Race (8 entries)

	Heat	Final
1 Clarkson/Needham	3:33.4	8:37.7
2 Gough/Ward	3:41.7	10:01.1
3 Smith/Yeldham/Bollen	4:04.5	RTD
4 McDonald/Husband	5:06.0	
5 Ross/Morrissey	5:16.4	

F2D Combat

As usual, F2D was the last combat event to start, with the first round commencing late on Sunday afternoon. The first problem was for the scores to adjust from the comparatively slow vintage combat models, with the unusual vintage scoring systems, to their faster (and louder) successors. The next problem was to occur in the processing area when it was discovered that a number of fliers had motors with venturis substantially over the regulation 4mm



diameter. These were traced to one supplier and after some negotiation, the organisers agreed to allow them through rather than disqualify the competitors for something outside their control.

The good weather seemed to be proving too much for some of the regular FAI fliers and Round One saw a few surprise losers. 1984 Nats winner Dave Harrison took John Ward's streamer all in one go and Ward then put on a competent display to take three cuts and win the bout. Mick Loughlin, a regular flier some years ago, chose the Nats as the competition to make his comeback and was drawn to fly Monique Wakkerman, fresh from her win at the Dutch International. Mick showed us what good, old-fashioned, clean attacking combat should be like. Unfortunately, he did not get the break with the cuts and was beaten by Monique. Brother Loet Wakkerman did not fare quite so well, losing to New Zealander

Above: Mike Whillance's Combat winner is fiddled. Below: Stunt reminder: Nev Dickinson and Northwind - pulled out too low once too often...



Lewis, as did John James to Nick Harkin.

Round Two is of course, the first round in which fliers get knocked out of the competition, which means the first round losers need to take things a little more seriously. First to go (in a rather unfortunate manner,) was Martin Leeper who was disqualified when his engine retaining strap came away. Dave Harrison made a recovery putting out Mervyn Jones when Mervyn made the mistake this time of removing the whole streamer in one go. Mike Whillance was showing good early form against temporary ex-patriate Tony Frost (he is with the RAF in Germany). He took four cuts in the first two minutes and after Tony took all his streamer, could not resist taking two more, gaining the highest score of the contest.

Round Three saw Mike Whillance beating Dave Harrison by two cuts to one. Team made Dave Willis was knocked out by Dave Willis in a rather scrappy affair. Ernie Burles also had a messy bout against Lewis, beating him by one cut to nil with Lewis spending a lot of time on the ground. Ken Miles and Nick Harkin, both flying Russian-produced models, had a fast and furious time. Cuts were one apiece, but Ken had less ground time and emerged the winner.

Round Four: there were only eight fliers left and the competition was hotting up, along with the weather. Ernie Burles suffered his first loss to Mike Whillance when his engines misbehaved themselves despite him being one cut up. Ken Miles also suffered his first loss, being beaten by Loet Wakkerman by two cuts to nil. Chris Pye, flying in his first FAI competition, lost to Monique Wakkerman. John James seemed to be recovering a bit of his lost form, flying a fast clean bout to beat Lewis by two cuts to one.

Round Five: only six fliers left. First up were Loet Wakkerman and Ernie Burles. The result was a fairly close bout with Ernie losing by a small amount of ground time, the cuts being one apiece. Next up were John James and Monique Wakkerman. A momentary lapse of concentration cost John two cuts, but despite a lot of close following, John could not get the necessary cuts back, losing by three to one. Last up were Mike Whillance and Ken Miles. Flying in his first nationals, Ken spent too much of the bout on the ground and Mike went through to the last three, guaranteeing him the top British placing. However, to become the Nationals winner he still had two Dutch fliers to beat. This he duly did in a most aggressive manner, beating first Monique and then Loet in very messy bouts. As this was the first time Monique had lost, Mike had to fly her again in the final.

The final was a much better affair with Mike showing us all how to do it properly. Although Monique defended as hard as she could, Mike kept the pressure up all the time and beat her by three cuts to one. This was Mike's third Nationals win and demonstrated how important it is to put in the time and effort if you want to be successful in combat.

Thanks must go to Vernon Hunt, Paul Stanley, Val James, Lynn Burles and Dave Thorpe for three days' hard work, running four events and finishing on time (although the weather helped a bit). There were many other helpers, but if I try to mention them all, I am sure to miss one out and offend somebody.

This Nationals saw one of the biggest changes in combat since Glows started their takeover bid, with many fliers using Russian influenced models. Whilst one or two fliers in the past have used Russian type models and Russian motors, this year the 'Foamie' was the exception with only four or five fliers using them, including the winner Mike Whillance. His choice of power was the Nelson 5 'front induction side exhaust.' Other Nelson users were John James, also with 'front induction side exhaust,' and Mervyn Jones, 'rear induction rear exhaust,' both flying large, heavy Russian copy models. These models seem more suited to the more aggressive style of combat flown in England, although both fliers are still coming to terms with their different flying characteristics compared to those of a Foamie. On the other hand, the Dutch were using their open frame, small, lightweight USE powered design. These were fast and manoeuvrable and suit their open defensive flying style. Yet another philosophy is that followed by Dave Willis and Dave Harrison who go for ultra lightweight, open-frame USE powered models.

As you can see, there are a number of different approaches to combat at the moment and there does not seem to be any one correct solution. All these designs work and of course each flier believes his is the best design. The only thing to do is look at any idea with an open mind and be prepared to try different designs until you find one to suit you.

1/2A Team Race (11 entries)

	Best Heat	Best Semi	Final
1 Heaton/Howarth	3:25.3	3:27.5	7:07.3
2 Davies/Broadhead	4:18.3	3:45.6	8:00.2
3 Lorrimer/Ross	4:24.9	4:06.2	RTD
4 Smith/Bollen	4:05.3	4:20.2	
5 Langworth/Campbell	4:21.0	4:18.3	
6 Thorpe/Banks	4:27.3	4:08.1	
7 Houlton/Cross	5:30.4		
8 Jones/Jones	5:39.6		
9 Robinson/Pickles	6:30.8		

F2C Team Race (15 entries)

	Best Heat	Best Semi	Final
1 Smith/Brown	3:26.3	3:29.7	7:02.1
2 Langworth/Campbell	3:27.2	3:31.9	7:12.9
3 Sladdin/Gardner	3:38.9	3:42.1	7:26.8
4 Brewin/Haycock	3:42.0	3:49.2	
5 Salisbury/Whorton	3:42.7	3:54.5	
6 Davies/Broadhead	3:45.6	3:51.6	
7 Fry/Short	3:55.4	3:45.8	
8 Fitzgerald/Thomason	3:56.5	3:56.8	
9 Heaton/Woodside	3:58.2	3:46.9	

MIND THE LINES

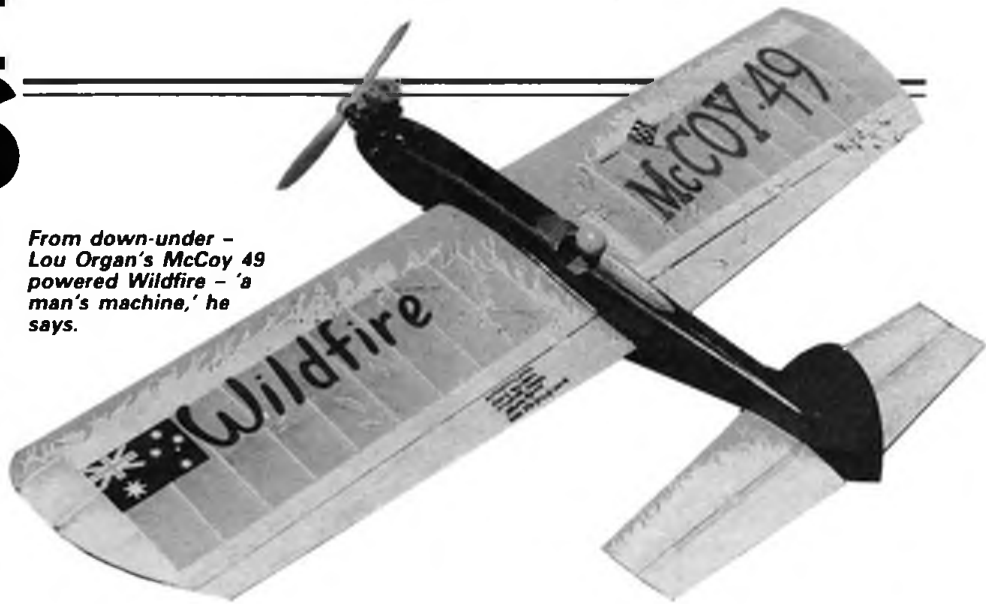
Ron Prentice examines engine eligibility – and sidetracks into kites

REGULAR reader of Mind the Lines may recall that in the August 1990 column, I included a letter from Bill Graham in which he claimed to be disappointed that there seemed to be no processing to ensure that people are using motors which conform to the rules for both Class A and B Team Racing. He ended with the comment 'Can we get some ruling on this, for if left to drift, it could, ruin Vintage T/R completely allowing a free choice of motors.' I asked for other active team race flyers to let me know their thoughts on the matter, and have been deluged with letters. So that there is still room for other items, I have selected just three this month.

Here we go, here we go

The first is from Tom Millar of Bolton who says, 'A number of us "Active Teams" discussed the pertinent comments aired by Bill Graham in your column. Having drawn the short straw it

From down-under – Lou Organ's McCoy 49 powered Wildfire – 'a man's machine,' he says.



the BMFA rules and partisan leanings are widely observed at many local competitions.

Interestingly, there seems to be two factions – the "Keep it original as (reasonably) possible" camp and the "Modernising is OK if it helps participation" camp. You can assure Bill that both are agreed there will be no schneurle ported ball race 'ringers' at any of the aforementioned venue.

Two aspects which could use a little exposure, are, firstly, the BMFA decision to restrict Vintage 'B' lines to 0.35 mm (solid) or 0.39 mm (seven strand) on safety grounds. Lightweight Laystrate is NOT acceptable in class 'B'. Secondly, current BMFA rules stipulate designs 'published' prior to

different to the original model (and, indeed, the published plan). I wasn't the only one who noticed this feature and it may well have set a precedent. Also, some entrants resented their models being scrutinised and did not turn up for the scrutiny. Their view was that if the BMFA accepted their entry money then we had no right to scrutinise their models. Whilst not entirely agreeing with this, I have to say in their defence there is nothing in the entry arrangements to cover this. The last and possibly most vexatious issue is the motor description and the loopholes it permits. Frankly, I would personally prefer that we start again. My own view is a very simple one. Everything should be pre-Dec. 57 and if it is not, it is out. In conclusions, if the rules are not amended I will personally turn out next year with an OPS29 and Nelson team race diesel, both with the front ballraces replace by roller bearings. Both these motors will be eligible under the present rules and I will insist on using them. Apart from making a sheer mockery of the event, it will also put the BMFA rules on noise and safety back 20 years or more!

The second letter on the subject came from Noel Stephenson, who says: 'Those of you who know me, know that this is a subject dear to my heart, so much of Bill's comments jerked me out of my usual Saturday morning lethargy and into early morning word-processing. The BMFA rules regarding "legal" engines for Vintage T/R are quite explicit.

(a) A Vintage motor is one whose design and Mark was advertised for sale prior to January 1, 1957 although the engine need not necessarily have been manufactured by that date.

(b) The motor used in a model in the vintage team racing classes shall either confirm to the above or, if of later manufacture, not be of a twin ball race design.

I do feel, however, that Bill makes a very valid point when he says that, although pleasure rather than winning is the prime objective in flying VTR, it's nice to know you're flying against equals. As a T/R enthusiast in the halcyon mid-1950s, I feel qualified to observe:

(1) Winning is important in any competitive activity.

(2) When Oliver Tigers hit the market, no other easily available motor stood an earthly. Much loved ED Racers became obsolete overnight, while exotic foreign and 'special tuned' engines were beyond the reach of the common herd.

'So there now appear to be three options:

1. Accept the status quo and the fact that if you haven't got an Olly you are unlikely to win.

2. Put Olly powered models into a Class of their own.

3. Publish a list of acceptable post-1957 engines,



Gorgeous Sheik by Jack Sheels; model took off with handle inverted. Inevitable result.

has fallen to me to pass on the following for the benefit of Bill and other interest parties.

(a) Rules do exist – BMFA Handbook section 4.3.9, Vintage T/R, Classes A and B. Essentially, they are a condensed version of the earlier Grantham rules.

(b) These rules are strictly applied at the following meetings: Rolls Royce Hucknall, Three Sisters the Nationals.

(c) Processing/Scrutineering prior to entry acceptance has been carried out at the last three Nationals.

'It is doubtful if a set of rules can be written with sufficient clarity to apply them in a 'hard and fast' fashion. Clubs are not obliged to follow

Jan 1 1958. This means that Charlie Taylor's original "Double Dice" model itself is completely eligible but versions from a 1990 published drawing would not be. This was clear enough even in the Grantham rules, although I am aware of at least three versions of Gordon Yeldham's M1 1 Voodoo, built to an only just recently published plan, all of which have flown in class 'A' meets. I am also aware that at the Nationals, top officials were obliged to make decisions concerning the event and this must place them in an invidious position, since they are not closely associated with the activity, such as Charlie Taylor's new model being officially sanctioned despite having a rearward undercarriage quite

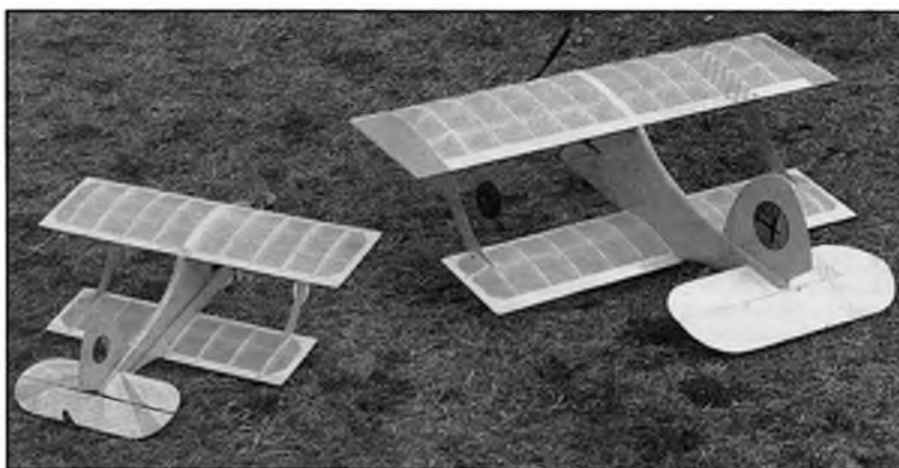
the criterion for which should be that they are of a performance not exceeding the Oliver Tiger Mk 3. This would exclude the "super class" Nelsons, Rossis, Bugs and so on. This, I am sure, would eliminate most of the present squabbling over legality.

'Incidentally, I attended the Three Kings Vintage fly-in recently and witnessed a completely authentic 1950s 'A' team race... poor old Derek Bird (CD) was on Valium by the end of it, but it was pure entertainment right through.

'I also saw a "special" based on an ED crankcase and shaft, with a PAW 249 liner and piston, which was, to say the least of it, very fast. Where does that fit into the rules?

Finally, a letter from Derek Round whose 'special' is mentioned in the previous paragraph:

You asked for comments on the subject of the use of "illegal" engines (e.g. ETA 15). Perhaps you would be interested in my comments, as a newcomer to this class of T/R and also because I actually ran a (technically) illegal motor at a Vintage meeting at Croydon. Having watched the Vintage Racing at the Nats for some years, my son and I decided we would like to participate in Vintage A and B T/R, because these classes were not TOO demanding on the pilot (my son, who is only 13 years old). The model was decided upon (Time Traveller), but what engine to use? In my penniless state, Olivers were ruled out. What did I have available? In my junk box I found a marine ED Racer. A quick strip down revealed a nice ball-raced bottom end, but



Real 'mind the lines' stuff. Ron Moulton's Baby Bipe and bigger brother, seen at Old Warden.

'So to summarise, I did race a model with an illegal engine (i.e. Schneurle port) but I sincerely believed that it would be slower than a legal 3 port version. The engine technically was an ED/PAW special, constructed in the spirit of the rules, on or about 1957. If we are to keep the spirit and ethos of vintage T/R we must certainly keep to a rigidly enforced cut-off date with vintage motors. Before a contest, engines should be "processed" and pronounced either acceptable or not by the C.D. If that meant that my own engine

was my name for it!). It most definitely does not date back to 1947! The Trixter name probably does as Lou Andrews flew a Trixter with two-speed control at the '49 Nats - in the Novelty stunt event! It was similar but definitely not a Barnstormer. It had clear dope and coloured tissue trim and also a sewed canopy, but the real Barnstormer showed up at the 1950 Nats. Andrews won 1st Open and Ferguson 1st in Senior with the very last flight of the day. In '50 I made my first official flight about 10am and delayed about 30 minutes putting in for my second official - and never got my last flight at close down at 5pm. There were that many flyers! In 1951 I flew the Nobler for its first Nats, placing 4th. Later at the Internats, under judging more favourable to my big slow manoeuvres, it won and Ferguson was down several places - and he never beat me again. As you can tell, this was quite a rivalry. Years, later Lou Andrews and I shared some fond memories of these years'.

That letter puts the onus on your Contest Directors to decide whether to give bonus points for 1948 or 1950. Remember they might make the difference between someone winning or not!



Our columnist admires Jim Mannall's own-design Phoenix stunt kite which took two months to make. RGM photo.

diabolical cylinder porting. I also found a PAW piston/cylinder and was pleased to find that with a little machining it would fit. Unfortunately the cylinder was a modern Schneurle ported one, but it's all I had, and it's physically identical to the earlier 3 port type and it's slower than the earlier type. So if the engine works, it will be slower than the 3 port type; so when I can afford a 3 port replacement to comply with the rules, it should afford a 3 port replacement to comply with the rules, it should go even faster. I didn't realise how well it ran until I took it to our first contest at Croydon, where, on song, it was faster than the best Oliver.

was unacceptable, then so be it! I do believe that vintage "Specials" should be allowed, as long as they comply with the rules".

Many thanks to all those who wrote in on this topic.

Aldrich answers

Whilst on the subject of last words, here are a few on the Trixter Barnstormer date controversy from George Aldrich in the USA.

I noted the comments in *Aeromodeller* and SAM 35 about the Barnstormer (Turkey-Buzzard

Talking of Contest Directors, David Baker of SAM 1066 (No! they're not Free Flight only!) has asked me to run a Stunt control line contest at their next Wakefield 'do' at Middle Wallop next summer. I readily agreed and as this will be my competition, I have decided to make it slightly different from the usually accepted SAM 35 and BMFA Vintage comps.

The rules for the SAM 1066 Old Time Stunt Competition will be:

- British designs only, published before 31st December 1950.
- Models must be designed size. No scaling up or down.
- Any engine, but bonus points for vintage engines of the period.
- No take-off points (to allow hand launch on small diesel models).
- With the exception of the above, all other SAM rules apply.

I personally feel that Vintage Stunt has gone down the road to being just another event for the pot hunters. It is getting too serious and is not the light-hearted type of competition I envisaged when I started the revival some years ago now. I hope that this 1066 event will bring back some of those flyers who used to take part, but have dropped out due to the changing

nature of the competitions. I do not know the date of the event yet, but will announce it as soon as possible.

Andy, 'andy over

Long-time Mind the Lines readers will, no doubt, remember that when the column first appeared it was shared between Andy Brough and myself. Andy decided to give up writing the column at a time when he was SAM Speaks editor and also going through a very busy patch at work. Since then Andy has enjoyed free flight and running Midge Speed events at Old Warden, Three Sisters, the Nats and many others. I recently had a letter from him telling me that after some seven years, he has decided to have a rest from these events and has passed all the rules and information on them to Mike Bennett who will be running the events from now on. Mike has taken part in the Midge competitions from the beginning and Andy is sure that with his enthusiasm Mike will do his best to keep the event going successfully. If you have any views on the competition regarding engines or any other matter, drop a line to Mike Bennett, 9 Burywick, Harpenden, Hertfordshire, AL5 2AQ.

Andy Brough asks me to thank everyone who has entered or helped in any way over the past years and hopes that he will still see you – but as a competitor the next time.

That man Mannall

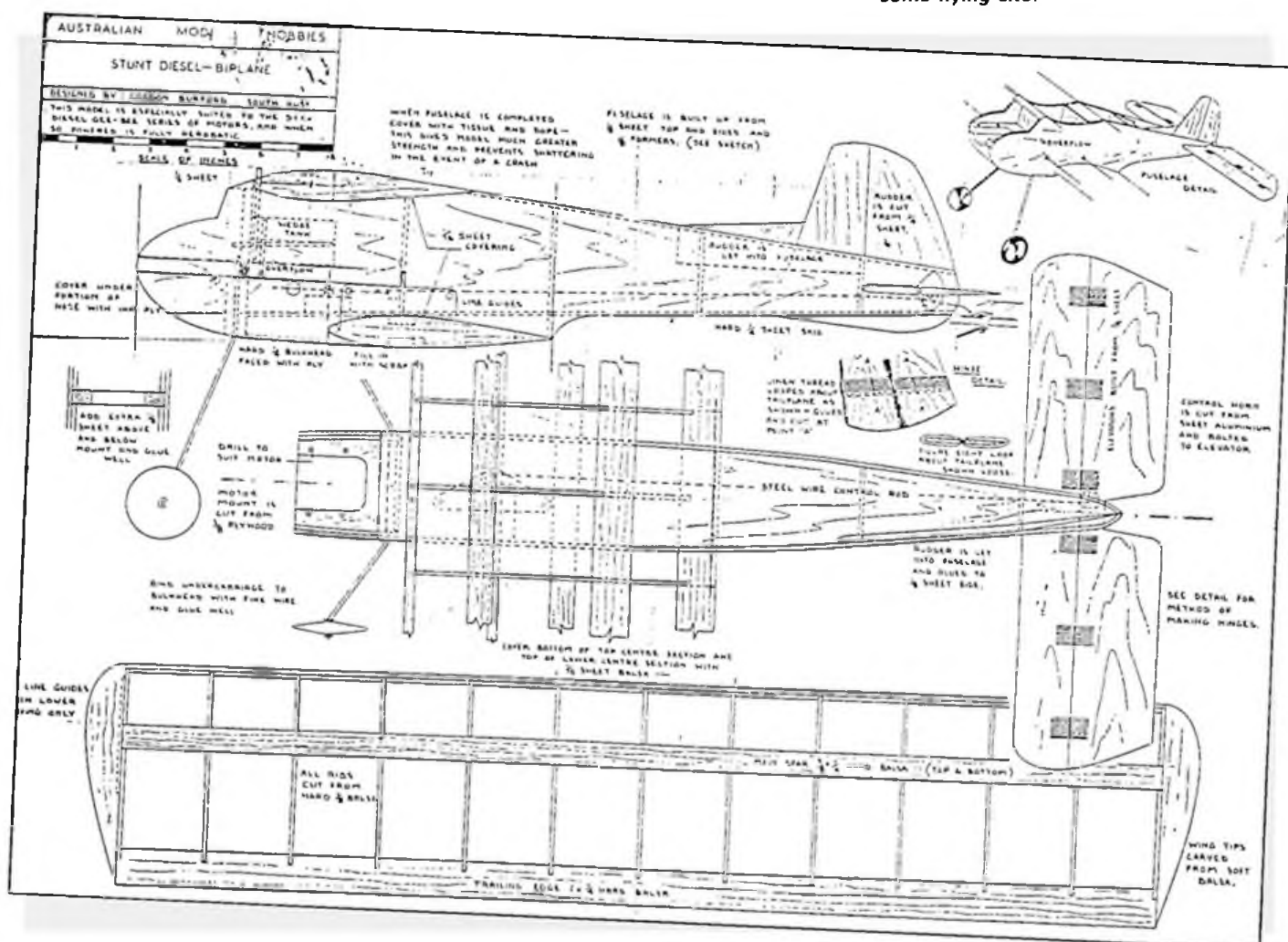
In the September issue of Aeromodeller, under the heading 'Kites now...' I mentioned seeing the name of former Gold Trophy winner Jim Mannall among winners of stunt kit competitions. Shortly after that magazine had hit the streets I attended an International Kite Festival at Bristol. I was truly astounded at the number of people attending – there were thousands and a non stop line of cars coming into the site all day long. I met up with Ron Moulton, who made the comment that it was rather like the Nationals used to be just after the war. Later I cornered Jim Mannall who had seen the piece about him in Mind the Lines and was thrilled to be remembered. He said that he had considered coming back into control line many times, but that there didn't seem to be enough time to restore his old models or build new ones. It really would be nice to have him back in the fold...

Finally, the BMFA has published a complete list of models eligible for both Vintage Stunt and Classic Aerobatics which could be very useful when wondering which models to build during the winter. Why not drop them a line and ask for a copy. The address is BMFA, 31 St. Andrews Road, Leicester LE2 8RE.



Above: Lloyd Carter's Venus (a Bob Palmer design) seen at the Vintage Stunt Champs at Tucson, Arizona. That's some flying site!

Below: More on the biplane theme. This Aussie offering by Gordon Burford dates from the early 1950s.



FREE FLIGHT SCENE

Dave Hipperson rounds up recent events and reflects on the Trials

First Trials: Barkston Heath, 20/21st October

It was inconceivable that during a season of such flyable weather all our Trials meetings would be blighted by gales. Yet gales it was again for the first set of trials for the 1991 World Championship Teams. The weather patterns had been forming up for a few days prior to unleash a mild but intense wind across the bleakness of Barkston Heath interrupted only by ferocious downpours. However, it did provide a perfect example of what the current, and recently much maligned Trials rules, are designed to allow. Despite what must have been intense pressure from within to avoid starting down the same road which led to the debacle of unfinished Trials for the European Team, the CD Phil Roughton, assisted by Bill Colledge most sensibly postponed flying on the first day.



Same event, and Bob Wells lights the fuse on his Gipsy – second in 8oz...

This was done not at a stroke, but in sections of two or three hours to allow competitors time to relax or do something useful rather than waste all day in limbo. When the chances of any flying were eventually abandoned at 4pm the wind was often 30mph or more, sometimes for long periods, with gusts probably in excess of 40mph and in the very worst and most turbulent direction Barkston Heath has to offer.

The following day saw far better conditions, as had indeed been forecast. With the passing of the low pressure system and various fronts that rode it, the wind had veered north-westerly



Russell Peers fighting the damage at Croydon Wakefield Day (see report later in text). All photos: Trevor Grey.

and was much abated, rarely above 20mph and 10mph in lulls. However, it was far cooler now (barely 50 degrees F) when flying commenced. Some lack of either local knowledge or belief in the forecast made a line move necessary after one flight as the wind was still swinging to the north and a hangar and various trees were penalising numerous close or slightly sub-max flights.

By the second round it was obvious that although people seem, generally, to hold Trials meetings in some sort of reverence they quickly become disenchanted when the wind gets up and things start to go wrong for them. Fewer than 20 attempted a second flight in F1B, a brave 15 in F1C but only 26 in F1A – and this for a World Championship Team place for an event very probably in Europe! What is going on?

The day could hardly have been described as bad, with a wind direction in Barkston's best. A minimum of turbulence and the downwind fields soft, dark brown and empty, stretching for miles! Retrieving was a pleasing if brisk march through the countryside. It would appear, however, that by the second round someone was pressurising the CD into making holds between rounds or lengthening them so that contestants could have time to return with their models. Surely now was the time to see if contestants had a flyable reserve in their box rather than give them time to retrieve just one. Sadly this opportunity – to put into practice an idea recently favoured by the FFTC to insist competitors use at least two models if they wish to qualify for a team place – was missed and various arbitrary holds were slotted in. These may have been useful for whoever suggested them but were of little help if you were downwind already searching and working to a timetable that was, unknown to you, now changed. (A PA system would have helped here as it would also have avoided the numerous and rather tedious 'meetings'; and would certainly have been audible downwind on such a day).

Because of the holds only four flights were

possible in F1B and F1C, and five in F1A, making it extremely likely that without very co-operative conditions the final ten flights now needed will not be possible on the two remaining days.

By the second day's end there were no full scores in Glider – nothing even close. Poor Dave Oldfield had a 25 second spin-in disaster in Round Three to go with four maxes but it only dropped him to seventh place! Likewise, Hipperson did 43 seconds in F1B's third round when he flew on the glide setting, and he still holds onto eighth place. Eye-opener of the meeting was Phil Ball in F1C. An early D/T sliced a second off the first flight but other than that his model was, in a word – sensational. This in his second F1C event – the first being the Yugoslavia Open (a week before the Junior



... and here's the 8oz winner – Ray Alban with Warring's Zombie.

Champs) at which he placed fourth in a big International field. Ten flights from now, is that one second going to matter?

Second Trials: Sculthorpe, 20th/21st October

Once again, difficult decisions for the



Own-design Wakefield is a notable feature of the Croydon 'do'. John O'Donnell took the spoils with his 1950s Fatima design.

organisation at the start. Only a light breeze this time but also fog! It all looked set to stay, but at around 11.30 the sky brightened enough to allow the first round. F1B was no problem and visibility went on to further improve throughout the day. By the second round there was actually a period of real, warm thermal lift before conditions cooled again for the last flights of the day in a steady 5 – 10mph breeze.

Attendance was a good deal down after the first four flights two weeks before at Barkston. Just a dozen thought it worth the trip in F1B, slightly fewer in Power and a mere twenty in Glider. Standards in F1B and F1C were quite exceptional. F1A was much more patchy. Poor Peter Watson, after a stutter in the run on his first power flight, had clipped twenty seconds off his perfect score came to grief with engine trouble and a premature cut on his third. His chanced dashed, it left seven others plugging away with clear maxes right through this first day. Screen and Faux were on rails and Phil Ball's model, although having transition trouble with insufficient bunt movement, was still higher than most after the stalls had damped out.

In glider the pattern began to settle down after Williams and Madelin had another good day. They were now joined by Andy Crisp after his shaky start in the first event. Andy actually hooked what must have been the best lift of the day on one flight when most were jogging along in buoyant patches for their maxes. Andy's model, after an unsensational release, climbed to model-losing height in less than two minutes and was a relative dot in the sky at D/T. Despite the later, cooling air Joe Flynn worked his way up too with a couple of useful maxes in Glider at the end of the day.

F1B changed around quickly with Cliff dropping off the leader board on the second flight and Wells slipping a number of places with three sub-max flights. The last round of the evening produced the best performances. Of the dozen still flying only one failed to max despite the unhelpful evening air.

The second day

The second day was much breezier – solid overcast but no fog. The wind direction was most convenient, for although it blew models

back over the many buildings that surrounded the entrance to the drome it at least allowed easy entry and exit for retrievers. The other pleasant surprise was the smooth air. Even when by mid-afternoon with gust touching 30mph turbulence was non-existent. The airflow could best be described as laminar. Models that climbed at all (and were on trim) seemed to maintain height as they crossed the drome, only dropping out the other side. In Power anything like a good climb was a max for sure. Roger Baggott was clawing his way up, at fourth despite that two-minute flight in the first Trials. Ball was safe at third and most of the remainder of the entry was maxing apart from Paul Chapman who had the most spectacular disaster of the day. His model, slightly flat on the climb, over-ran considerably. The bunt system executed a very fast outside loop – three-quarter the way around, after clearing the ground by quite a bit and as it was going back

event. In Rubber contestants picked the air carefully but one wonders if, in fact, it was necessary. Very nearly everything that flew maxed. Bruce Rowe who had been doing well had a spin in on the glide and Neil Cliff dropped disastrously when first a pylon sheared; then he mislaunched to crash on the reflight. Pete Gaunt had prop fold trouble when using new blades after some handling damage to stall into wind, but still managed 2:40. He held on to fourth position right behind the top three who had all maxed out with the minimum of model damage.

The contest was called off well before daylight should have precluded further flights but then, given that at least one flight would have been necessary on another day, rounding the classes off to require two flights each was probably the most practical solution. It was almost over with the last few moments of the final power round to be completed when it was



On to the Midland Fun Fly with Mick Page in characteristic action during the impromptu HLG competition.

up with the engine still running the VIT came in! The model then looped and spun, now travelling at an alarming speed. It was a wonder the wings hadn't parted with all the load reversals. The engine had just cut, the model swooped down and looked to be on a trajectory that might clear the ground when something else got in the way. Still flying very fast the model clipped the ironwork used to support sliding doors and protruding from the end of one of the vast hangars. The wings appeared to vapourise; tiny pieces scattering down between hangar and out building. Much of the model was never found!

Glider was tough in the wind and some not practised at circle towing at these speeds snapped wings. Andy Crisp and Jim Baguley had the best day maxing out on all three flights putting Andy into third and Jim still out of touch at eight – but not bad considering his very first flight was a zero. Pete Williams had an awful 50-second effort but still held onto third place, such was the up-and-down nature of the Glider

realised that Phil Ball had still not flown. He was having engine trouble after his model had clouted a hangar on the previous flight and sheared off the needle in the spray bar. As the seconds ticked away we realised that it wasn't going to come out and now time was too short to fuel up another model. His last-ditch attempt was to richen the mixture of a quarter of a turn with pliers on what was still protruding of the needle and try it in the starter again. Seconds to go – the engine coughed, started and then died again and with it Phil's hopes of a team place: he was out of time. This was bitter blow for someone with such a good model. It remains to be seen if he can reproduce the form with another, as it was hoping for a lot for one model to survive a windy Trials.

The results as produced here are, therefore, totals with two more flights to go – these should be taking place about time you read this and will realistically involve no more than the top five of each event. It remains to be seen whether the officials can spin two flights out to consume

an entire weekend!

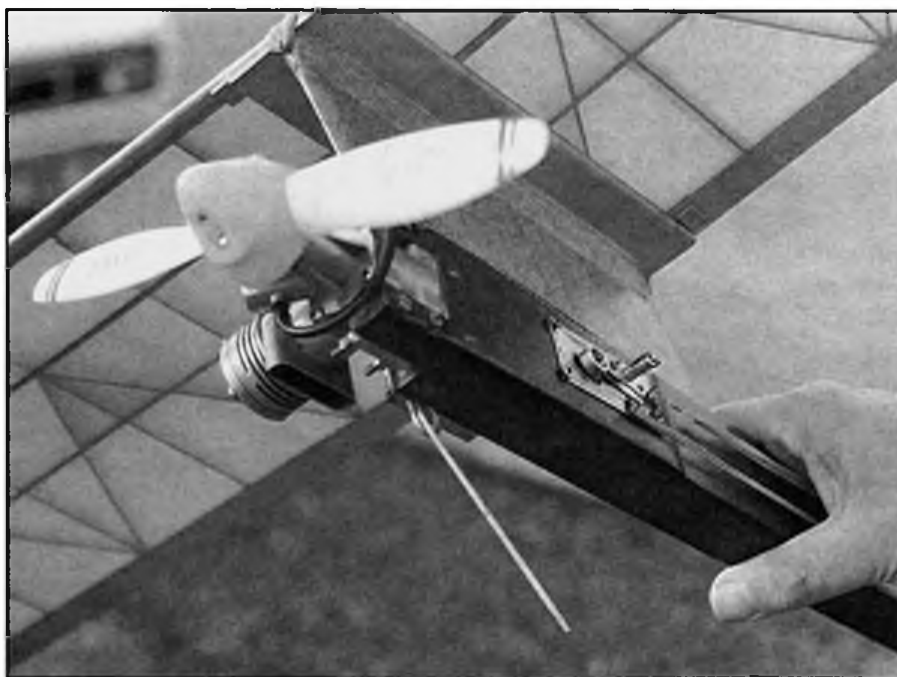
Appreciating that the Trials is a serious business we should not lose sight of the fact that we are supposed to be enjoying ourselves, as in any other sport, no matter how tough. Part of that enjoyment comes from the ups and downs of the day and the excitement of personal improvement contrasting with the crushing feeling of disappointment when one slips back down the list. For the full effects of this it is essential to know just where one is placed. Although this current series of Trials have been run within the rules, as incidentally were the last few sets, it was hardly with the effort befitting such an important meeting. I can remember when there would be score sheets on display of a size you could read and take in from a distance. A public address system to get around these tiresome meeting of contestants like little boys in the playground clustered around teacher and a CD with enough flair to make the contest interesting and stamp his authority on it. Some sort of count-down to the end of rounds, repeated announcements of the important changes during the day; even reading out of the leader board. It only takes a little forward planning and very little cash and it's hardly a chore. It actually makes running the contest more interesting work. I noticed the look of boredom more often than overwork on the faces of the organisers at this event.

What we had was a lower-key presentation than the average club Gala. I got the distinct impression that we were just the initial link in a chain of computer software. It was a *contest* for goodness sake! Scores on the diminutive score sheets were rarely totalled and when they were they were usually wrong. No one needed



That refugee from control-line again – Dave Clarkson enjoys an occasional bout of Slow Open Power, as at the Midland event.

to be an expert contest organiser for this function but times were religiously converted to seconds then not added up! There wasn't so much as a calculator in sight. 'I'll do it on the computer tomorrow' is no good. It wasn't tomorrow we wanted to know the scores – it was right then. Many people in contention went away having no idea where they were and what



Front end of Dave Clarkson's model. Note Selig 'Wakefield' timer.

scores they had done. A week later most contestants still had not received score sheets!

It is incredible that after all the fuss surrounding the Trials it should be run in such a casual manner. This could certainly be a contributory factor for the steadily lessening interest. The argument will be that costs are cut to the minimum so the Team Travel Fund can benefit but we owe it to all the contestants who pay their £10 to provide a decent contest. This one was rotten value. I have donated my share of the Team Travel fund back into contest organisation before – do I have to do it again or can what little cost there is be shared in future? Please, FFTC, take a critical look at how your contests are run – let's have a bit of professionalism.

Second Free Flight Trials : Sculthorpe, 20/21st October

Results after twelve competed rounds
– two left to finish

F1A (26 flew)

1	G. Madelin	33:53
2	A. Crisp	32:19
3	P. Williams	32:06
4	J. Flynn	31:15
5	J. Cooper	30:24

F1B (25 flew)

1	R. Peers	36:00
2	M. Chilton	34:56
3	M. Woodhouse	34:47
4	P. Gaunt	34:13
5	D. Hipperson	33:17

F1C (16 flew)

1	K. Faux	36:00
2	S. Screen	36:00
3	R. Baggott	34:58
4	A. Cordes	34:37
5	P. Ball	32:59

Afterthoughts on the Trials

Team selection has been a perennial subject of endless debate ever since we diverged from the straight and narrow system which controls

most contests. That is, scheduling the flights, however many, and sticking to the programme come fog or famine. It is understandable that this has happened as once it was seen that there was scope for 'tinkering' with established contest procedure; everyone put in their 'two pennorth', qualified or not! Some have suggested that if you asked twenty contestants for their favourite selection system you would receive at least forty different solutions. I certainly have a couple of favourites myself – inevitably different in detail to anyone else's.

No system will be perfect but it must be fair enough and feel fair enough to allow the best flyers to emerge. Despite the apparent unpopularity of the Team selection system last year and then when so much bad feeling was created by the SMAE Council ignoring their own rules and selecting a team before the end of the contest, we still have and will have next year, the same rules – just two fewer flights! So, not changing the rules, even after so much upheaval and debate suggests that we might, when looked at in the clear light of day, actually have something closer to a universally popular system than we thought twelve months ago!

Be that as it may the current rules and I must admit here to being their originator having drawn them up in '83 with the assistance of the FFTC of which I was then the Chairman, have their drawbacks. The freedom for the CD to hold up the event is very useful in cases of terrible weather. It proved its worth again this year. Real gales, then fog – the two worst scenarios and the very ones the system was designed to circumvent. However it does invest in the CD the power to materially effect the outcome of the contest. As it gets windy scores tumble and those that drop time hope to catch up, which they will always have more chance of doing in a wind. However the CD can stop the contest at this moment; quite legal, but it feels most unfair. As well as appreciating this possibility before one attends I would ask contestants and organisers alike to consider another aspect to their behaviour.

Understandably the top flyers want to



Chris Strachan launches for his last Vintage max at the Midland Fun Fly. Familiar Lanzo as reliable as ever.

compete in the Trials. This has invariably left a dearth of suitably experienced people to direct the contest. It follows that such incumbents are then more susceptible to 'advice' than, say, someone who has run many meetings before. There is no hard and fast rule precluding the flying of pilot models upwind of the line and thereby spotting thermals for friends but it has become accepted that to do such a thing deliberately is poor sportsmanship. In the same way I would like to see contestants 'advising' the contest director on how he should run the contest classed in the same category. Exceedingly poor sportsmanship. Too often we have heard and seen certain contestants advising a Trials CD on whether he should hold up flying, commence again after a break or cease altogether. Inevitably, contestants with something at stake. How can their advice, however well intentioned, be impartial?

It would be untrue to say this is a one-sided affair. Often the contestants are actually asked by the CD for their advice. In one case at least during the first Trials the entire entry was asked – cue for a loud and unnecessary debate. It would take a saint, even a fool, not to flavour one's reply with a suggestion that might help one's own position. Perhaps contestants who are currently prone to do this, and future CDs, can bear this in mind as even when it is done with no malice on either side it can look very

different through the eyes of a third party. Let the CD stay impartial and get on with his job; this way no one will get the impression that there is collusion or cheating going on.

If, of course, there are those that feel their advice is absolutely essential to the good running of every Trials they attend then I am sure we will all be delighted to see them in a non-competing capacity in future – perhaps even as CD themselves. Otherwise, perhaps they will be good enough to stop manipulating the contests to their own ends and concentrate on their flying to win like everyone else has to.

The Croydon Wakefield Day: Barkston Heath, 28th October

A contest blessed for so many years by calm weather and still scheduled for a time of year when such could be expected was unlucky again. It caught the sting in the tail of a windy October – a ferocious south-westerly. The very direction that earlier in the month had grounded the Trials, and this wind was just as strong and much colder!

Of course Barkston is infamous for turbulence when it blows hard from the south. Even the highly powered 8oz Vintage and own-design Wakefields had dreadful difficulty as the disrupted air covered the whole drome to quite an altitude. Many models that looked to be clear were thrown inverted and dumped, usually with

much damage, about 300 yards downwind. Both Russell Peers' last flight in F1B, when he needed a good one to win, and Trevor Grey's second in Own Design were so afflicted. With lulls rarely less than 25mph and a top speed in the gusts way off the clock of most anemometers wind strength could be best assessed by timing a model to the edge of the 'drome, assuming it got that far. At least one that did left in less than two minutes – and that was a distance of over a mile. Later in the day when the sky cleared the wind grew stronger still: and estimates were of over 40mph!

A swirl caught Steve Willis's own design model and then he had an immediate wing fold on his lovely Yankee VI's first flight. Phil Ball's trusty Ying simply disintegrated as he attempted to return upwind with it. He felt the model almost dissolving in his hands. It started almost whole and finished up small enough to fit in one pocket! Even Bob Wells' Gypsy was virtually intact until he picked it up to return – then, snap!

Brian Martin and Russell Peers put up a tough fight in F1B both managing two maxes and John O'Donnell reclaimed the Ted Evans Trophy with two high maxes from his 8oz own design. Both were recovered with the minimum of damage to make amends for last year when it broke every time. He needed only these two flights to secure the win, such was the destruction further down the results sheet.

It was encouraging to know there would be competent organisation in the form of Brian Spooner and Martin Dilly and perhaps last year's fine effort was what encourage more to fly this time despite worse weather. At the start there was even a man on the gate complete with notice advertising the contest. This was David Beales who had already produced an excellent series of plaques to complement the trophies awarded in all four events.

One interesting query that arose towards the end of the day – fortunately only a hypothetical case this time – was whether a vintage 8oz model would be eligible in Own Design class. After all who is to say that one's own design thinking hasn't coincided exactly with, say, Dick Kordas? Certainly the specifications would be legal and presumably one would be at a disadvantage with the pure Vintage layout. Rather the reverse of the usual vintage controversy when the owner is at pains to point out his model's authenticity. Could this be a case of only non-authentic models being legal? If so how much modification away from the original is necessary to qualify as own design? Food for thought, but worth considering before the next event – particularly if the weather is bad again.

Croydon Wakefield Day: Barkston Heath, 28th October

All maxes 2:30

Own Design to Pre-51 rules (4 flew)

1	J.O'Donnell	5:00
2	T. Grey	2:46
3	P. Ball	1:23

8oz Vintage (5 flew)

1	R. Alban Zombie	3:59
2	A. Wells Gypsy and Voodoo	3:41
3	J.Baguley Yankee VI	2:04

4oz Vintage: Fairlop Cup (2 flew)

1	P. Ball Ying	2:38
2	D.Beales Judge	0:51

F1B Modern Wakefield (4 flew) (4 flights)

1	B.Martin	7:46
2	R. Peers	6:33
3	P.Martin	1:25

1990 Free Flight Forum

This event is now drawing near. It will be held at the Raglan Hotel in Muswell Hill, London on Saturday, 29th December starting at 3pm (bar open from 2.30pm). If you have not got your tickets yet, contact Newham Beaumont, Spring Cottage, Spring Street, Ewell, Epsom, Surrey, KT17 1UH.

Tickets for the lectures and the meal which follows are £9.00 per head; tickets for only the lectures are £3.00 per head.

Tickets for only the meal are £6.00 per head.

Speakers expected include Mike Woodhouse and Pete Michel on high and low tech aeromodelling respectively; Pete King talking about his findings in FIG, and Bernard Sauter over from West Germany to talk about German F1B flying. Other speakers are still to be confirmed.

This is a very civilised venue indeed and the organisers can assure those that attend of a very comfortable time.

May I remind those with some interesting building project underway or complete that we would all like to see it, so please bring it along with you for display at the side of the lecture hall and later during the informal meal and party.

SMAE Midland Area Fun Fly: Barkston Heath, 14th October

This now traditional late-season event attracted the usual, hardened F/F regulars plus a fair selection of sport and vintage fliers. As the title indicates, the intention is very much towards the 'Old Style Rally' with Control line and Radio events as well as Free Flight. Certainly all three seemed to live happily together, the only exception being a group of very noisy FAI Combat fliers who decided the small space between the F/F car park and the perimeter fence was just the place to practice (incidentally, half this area was under crops). Perhaps their C/L colleagues thought them too noisy as well; if nothing else, this put F/F power noise levels in sensible perspective. The level produced by these combat models was literally 'painful'. If this is what the FAI have in mind as typical of F/F, then they need to think again. Mind you, having experienced this level of noise for five minutes at a time it's very hard to think at all...

Early arrivals for the F/F events were greeted by a fair breeze from Barkston's most unfortunate direction - South, veering South-west. Faced with a choice of turbulence or crossing the infamous compound there was a distinct reluctance to start until it was clear that both hazards could be avoided by careful selection of air and launch point. Vintage gave the least problems as most had enough performance to overfly the compound. Despite the 2:30 max only two managed a full score, the rest falling by the wayside with a range of troubles from straight crashes to just poor air. Slow Open Power seemed similarly affected, only Tony Hall getting the measure of the conditions nearly a minute ahead of Tony Rogers, and Colin Hickmott another minute-and-a-half further down.

In A1 John O'Donnell revealed his new secret weapon (no pictures yet - all to be revealed at a later date). Sporting foam, carbon fibre and lots of mylar it looked very much 'the business', even if it was clothed in a traditional O'D shape. Sadly he fell foul of some hurried air-picking on his first flight and compounded the error -

intentional pun! - on the third by D/T'ing into guess where... Some timely assistance from the RAF and eventual winner Jim Baguley retrieved the model with just enough time to take a fourth and maxed flight downwind of the compound.

Even without a fifth flight this gave John enough for third place, forty seconds or so behind Richard Clark.

Cd'H was a game of mixed fortunes. George Sharp, Ian and Dennis Davitt started well with two maxes apiece but then hit trouble, George and Dennis with poor air while Ian was another in the compound - retrieved later but not flyable. Winner Trevor Grey managed the only full house of the day, narrowly missing the hazards by some careful selection of launch points. Not to be outdone Sharp and Dennis Davitt produced a tie for third place on 8:44. Surprisingly over a minute. The remaining flyoff for vintage between Chris Strachan and Richard Bevan was delayed to allow Richard, a junior, time to find his model, lost on its last max. Both wound after the starting signal and waited, Chris keeping his nerve longer to see what young Richard would do. Unfortunately his 2:12 in the rapidly cooling air was not enough, Chris's 'Class E Lanzo' producing an easy if unspectacular 4:09.

Last but not least, the impromptu HLG comp was dominated by Mick Page who finished over two minutes ahead of nearest challenger Derek Richards. The conclusion of a pleasant contest was nicely rounded off with some excellent prizes (bottles of Scotch for first place) and the now usual Midland Area 'perpetual' trophies.

Report by Trevor Grey

SMAE Midland Area Fun Fly

Vintage (2:30 max:9 flew)

1. C. Strachan	7:30 + 4:09
2. R. Bevan (J)	7:30 + 2:12
3. J. O'Donnell	7:17
4. J. Baguley	7:03

Coupe d'Hiver (2:00 max:8 flew)

1. T. Grey	10:00
2. I. Davitt	9:39
3. D. Davitt	8:44 + 1:09
4. G. Sharp	8:44

A1 Glider (2:00 max:7 flew)

1. J. Baguley	9:34
2. R. Clark	7:44
3. J. O'Donnell	7:02
4. A. Chamberlain	6:21

Slow Open Power (2:30 max:6 flew)

1. A. Hall	7:30
2. A. Rogers	6:33
3. C. Hickmott	4:55
4. M. Parker	3:43

HLG 91:00 max: (9 flights, 6 flew)

1. M. Page	6:42
2. D. Richards	4:25
3. G. Percival	4:06
4. I. Clark	3:19



A1 winner at the Midland event was Jim Baguley, seen looking somewhat apprehensive about the prospect.

Close focus on Pete Iliffe's Interscale '91 contender

WHAT to do when jaded by working on a quarter-scale R/C Fokker Triplane? If your name's Pete Iliffe the answer's simple – build a one-twelfth version as a 'real' aeromodelling subject in front of the fire.

Drawings were speedily created from the excellent three-view which appeared in Volume One of *Scale Aircraft Drawings* (a Model Airplane News Publication). Pete decided to copy the full-size structure as far as was practical, which meant, for a start, creating three sets of box spars. Each was built, without jiggling but with substantial care, from four lengths of 1/32in sheet. Ribs were then slid into place, the whole lot being accurately lined up before gluing. Pete's enthusiasm extended to duplication of the original's undercarriage springing, including the tailskid which was bolted together with 20BA screws pilfered from an unsuspecting watch. That typically-Fokker cowling is carved from balsa, and home-made wheels add the final touch.

First idea was to equip the nifty Triplane with CO₂ power, but after a visit to the 1990 Indoor Scale Nationals at the Alumwell Centre, Walsall, Pete was less impressed with CO₂ reliability, so chose instead the excellent K&P geared electric unit. Thus fitted, model weight as shown, including batteries, is 2.1/2 ounces. Target is just half-an-ounce more.

What else can we tell you? All control surfaces are adjustable, not only for ease of trimming, but to satisfy Pete's opinion that they present as far more realistic than airbrushed shapes.

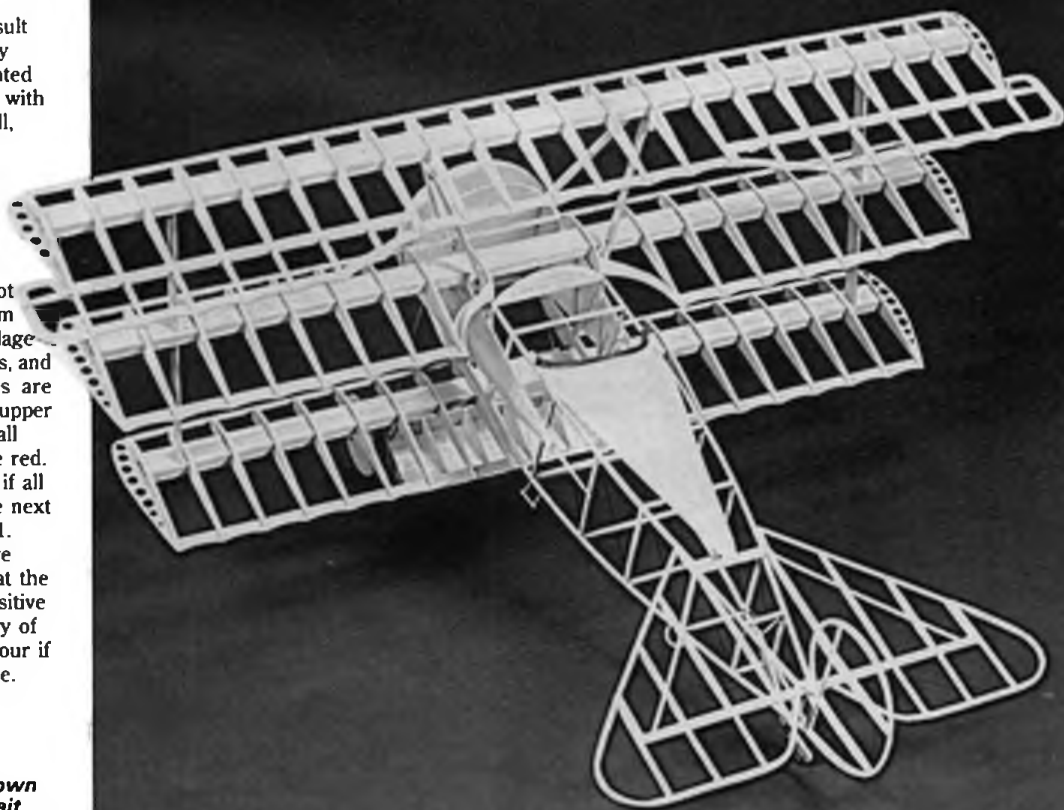
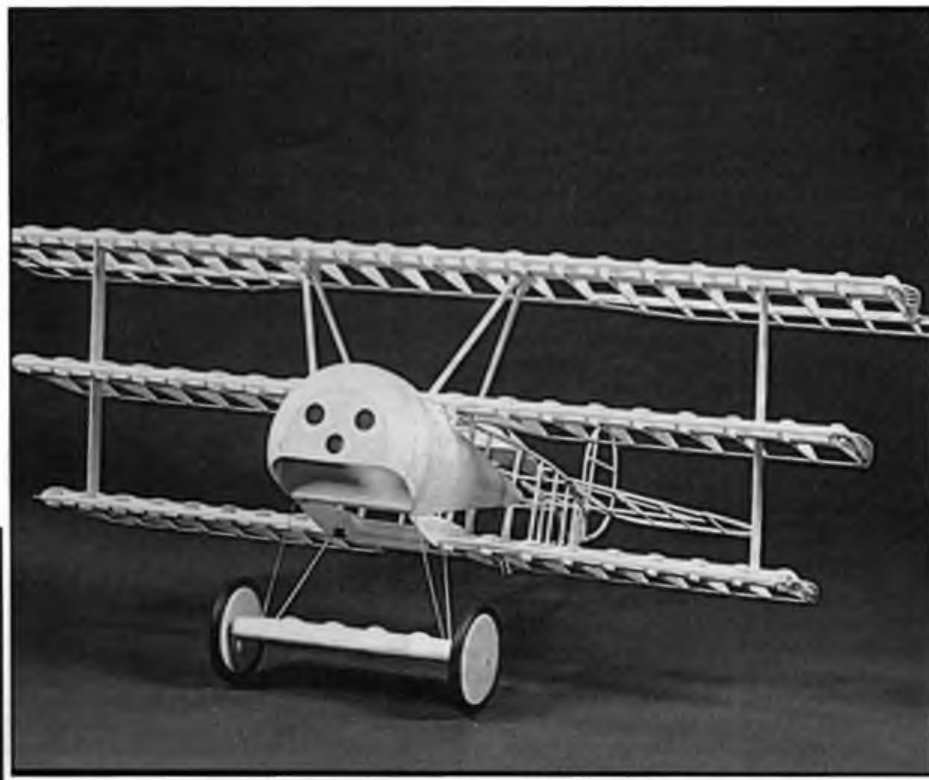
Voss wrong

When we saw this framework, the result of only five or six weeks' work, we really hoped that it would be finished and painted to represent Werner Voss's famous Drl, with facial decoration on the cowling. After all, what better excuse for a dreadfully punning article heading? Regrettably we have to report that the model is scheduled to appear as one of Manfred von Richtofen's four Triplanes – actually machine 152/17 from Jasta 11. Contrary to many beliefs, Von R's aircraft were not all-red. This aircraft's scheme, taken from the Drl Profile, feature 'streaky' camouflage on upper surfaces of mid and lower wings, and front fuselage sides. All undersurfaces are turquoise blue; remaining areas, namely, upper wing top surfaces, rear of fuselage and all tail surfaces, including lower surface are red.

So what's the aim? Pete tells us that, if all goes well, the Drl will be entered at the next Indoor Nationals, and then Interscale '91. Possible cause for concern is the strange rigging set-up. *Cognoscenti* will know that the Triplane's tail is set at a remarkable, positive angle of incidence. Let's hope that plenty of lift is generated by those three wings (four if you count the axle 'wing') to compensate.

We'll keep you posted...

VOSS UP?



Painstaking constructional effort shown to advantage here. Tail outlines await sanding to final section. Characterful Triplane is now covered and we await flight trials with interest.

THINK MULTI!

Norman Holme thinks only three or more motors will do for control line scale...

THE purpose of this article is to try to dispel some fears about multi-engine control line flying, and to encourage more modellers to try. Four-engined flying is very safe. In over fifteen years I have never crashed one; indeed, my Flying Fortress is still flying after fifteen years and hundreds of flights. The sight and sound of a four engined plane flying round is truly impressive, and actually to own and fly one is the ultimate in scale flying. But back when I flew twins, with all the hassle it involved, the idea of flying a four engined plane was just a dream. The ideal 'twin' flight is to take off with both engines at full power, fly round on the inboard until that cuts, then gracefully glide to earth. Mine invariably took off on full power, screamed round till the inboard engine cut, turned in and rolled down the lines, causing the pilot to dive quickly out of the way; then back the building board. If I had a good flight it would take off on full power, fly round till the outboard engine cut, wobble round on the inboard engine for a while, then, when that cut, glide to earth with all the grace of a manhole cover. Incidentally, my favourite twin was the Model Aircraft plan of the Messerschmitt 210 for two ED 2.46 diesels. That plane flew round on either engine and had a reasonable glide.



In autumnal setting, the writer's current fleet. From foreground: Avro Shackleton, SM 81, Ju 290, Fw 200 and B-17.

it round level waiting for one to cut, leaving the last one running to gradually descend in a powered glide to a very nice landing. The first thing I learned was that the size of the engine to be used is determined by the prop size. On the Halifax I used 7x6 props cut down to just over six inches. Starting the 1.5 diesels was quite difficult. I tried an electric starter but after breaking two crankshafts and a con rod decided electric starters and diesels did not mix...

After re-engining with four 1cc AM 10s the starting was much improved. If all engines are running sweetly there is virtually no difference in performance. Bear in mind that hours of running will accumulate. Power may then fall away, due to a build-up of carbon on the piston crown; gentle scraping with a razor blade will remove it. Thanks to Albert Briggs for first pointing this out to me!

More lessons

The second important lesson is to find a diesel that will restart after warming up without having to alter the needle valve - very few do. My favourites are Frogs and AMs. For a multi model we do not need high performance engines. If they start and run well that is all that is needed. I finally sold the Halifax to a friend after the outer wing panels snapped off following a rather heavy landing due, no doubt, to the very strong and rigid undercarriage. My conclusions were: although the Halifax was a very good flyer, it was over-complicated to build, too strong and heavy and too small. The lessons I learned with the Halifax were to be put to very good use on my next project - a Flying Fortress. It would be simple as possible to build,



Four Frog 150 diesels power the Focke-Wulf Condor which, like the other multis discussed here, is at least ten years old and has accumulated dozens of hours of flight time.

Converted

I got converted onto multis whilst drooling over the building and flying instructions of the APS Halifax. At the end I read, 'Let each engine cut in turn and power glide the model in on the last engine; after all, the real plane would hardly

glide!' The more I read it the more logical it seemed, so I sent off for the plans and built the model, fitting four assorted 1.5 diesels. It flew well, and after many flights, I learned quite a lot. It didn't seem to matter which engines cut first. After the first engine cut there wasn't much difference flying on three. On two I flew



Characterful Savoia-Marchetti SM 79 is converted from the Aeromodeller F/F plan. A Frog 150 and a pair of AM 10s provide the urge.

and as light as possible. Power was four Frog 150s.

As no kits or plans seemed to be available I purchased the biggest plastic kit I could find to scale up as I had done on numerous occasions when designing R/C scale aircraft. It was a kit of the Memphis Belle, a B-17F. A quick 'scale up' revealed that 7in props overlapping would give a span of about 58in. which seemed a bit on the large side. However, the plan was drawn and the model built, incorporating top half fuselage formers on a keel followed by planking, then adding the tail and fin. The wing and nacelles were built as one unit, offered to the top half of the fuselage, lower half formers fitted then the whole lot planked. Each leg was fitted to a plate then screwed to the engine bearers. Although a large model with a lot of wing area, the plane will fly round happily on two engines in quite a strong wind, no doubt helped by the large fin and rudder. The next thing I learned was not to use a high nitro fuel. Out flying at a rally one hot day I was using Keil Kraft Nitrex 15 but by the time I'd got to the third engine the first engine had stopped, very hot and smoking. With diesels in a multi I find it best to get each one running properly and not to back off the compression; your ear soon gets tuned to the one you're starting. We need a fuel which will allow an engine to run on the ground without overheating for as long as it takes to get the four running, and I find Model Technics D2000 ideal. D1000, for some unknown reason, makes for more difficult starting.

Glows, too...

I prefer diesels for multi flying but for my .049 powered Avro Shackleton and Junkers Ju290, which are both only 47in. span, I chose four McCoy .049 glow motors with the 3 blade 5in.x3in. props as used on the Keil Kraft and Cox ready-to-fly plastic planes. With four small glows very close together (and small props) an electric starter is essential. I acquired my Astro

Flight 049 starter some years ago. I built the Shackleton for my son Christopher who was about nine years old and had been flying control line models since he was about five. He had no problems. I flew it on occasions and liked it so much I designed and built the Ju290 for four Wen Mac engines. Christopher is now eighteen and the planes are still flying.

One of my favourites is the three engined Savio Marchetti SM81. It flies rock steady on its two AM 10s with a Frog 150 in the nose. I obtained the free flight plan from APS and

converted it to C/L. I redrew the wing after studying my data as it seemed to be an SM81 fuselage and tail on a SM79 wing.

Convinced?

I do hope I have convinced some readers that multi flying is certainly not as hard as it looks. The plane will fly perfectly whichever engines cut first. The last engine running on my Fortress is invariably the starboard outer after the three inner ones have cut.

There are some superb models in the Argus plans range just crying out to be modelled. But when flying, whether using diesel or glow engines, always start, warm up then stop each engine in turn before the first flight. I always set a diesel to run smoothly, back off the compression then stop the engine with a rag in the prop. There will be some raised eyebrows at this method but I have never damaged an engine yet... The other of stopping an engine is to place a finger over the choke, but with a diesel it will tend to flood it making for difficult re-starting. After all motors have been warmed up, a little squirt of fuel in each port, two turns of the prop with a finger over the venturi, up with the compression and your away. With small glows, after they have all been warmed up, back off the fuel needle a fixed amount on all engines; then on re-starting you know it has to be screwed in half a turn or whatever you've set it at. Usually up to one turn is sufficient. With glow engines up to .049 size Model Technics GX16 fuel is well worth the little extra you'll pay for it. Do not use heavily nitrated fuel on diesels; they start easy on it but get very hot and stop before you've got them all running. Once all engines have been warmed up and set you are set for a good day's flying. Always take off on all engines; it doesn't matter if one cuts shortly after take off. Make sure you use the right lines. For 1.5cc powered planes I use heavy or seven strand 55ft. lines, .049 models require 40ft. light or three strand lines. When down to two engines fly it straight and level, then help it down with elevator when you have only one left.

Once you have flown a multi successfully, you will be as hooked as I was!

Fancy a plan? The following multis are all available from our Plans Service

HP Halifax	54in	up to 2.5cc	CL 919	£7.35
Avro Lancaster	52in	1.5cc	CL 1081	£10.70
Avro Shackleton	61in	up to 6cc total	CL 746	£6.60
Vickers Viscount	63in	up to 7cc total	CL 701	£7.35
Dakota	47in	1.5cc	CL 765	£6.60
OV-10A	30in	up to 2.5cc	CL 912	£5.10
DH88	29in	up to 1cc	CL 694	£5.10
Aero Commander	53in	up to 2.5cc	CL 733	£7.35
DH Mosquito	40in	4cc total	CL 570	£7.35
Dornier 215	44in	up to 3.5cc	CL 627	£7.35
Me 210	44in	up to 2.5	MA 395	£5.10
A-26 Invader	46in	1.5cc	CL 520	£5.75
Fokker F-27	47in	up to 1.5cc	CL 856	£6.60
Beaufighter	39in	up to 2.5cc	MA 275	£5.10
P-61 Black Widow	49in	up to 3.5cc	CL 1092	£9.20
Catalina	63in	4cc total	CL 606	£6.60
DH Dragon Rapide	42in	up to 1.5cc	CL 981	£6.60
Henschel Hs 129	36in	up to 1.5cc	MA 330	£5.10
P2V-7 Neptune	37in	up to 1.5cc	CL 783	£5.80



Junkers Ju 290 is a neat subject for Wen-Mac 049 power. Multi-engined flying need not be expensive...

SCALE MATTERS

Bill Dennis reports from Barkston Heath's end-of-season autumn Scale F/F meeting on 23rd September



Andrew Hewitt cranks the Sopwith Triplane; model placed fourth at the end of a damp day.

THIS was the first autumn Scale meeting for quite a while, since the demise of the Southern Gala in fact. The omens were not good, with strong winds forecast, and it was raining heavily in the early morning. Nevertheless an encouraging number of enthusiasts had gathered by 11am, at which time the rain had stopped and only a light breeze was blowing. These conditions were maintained all day in spite of some dramatic clouds passing over. There was a short delay while the duration flyers (through whose co-operation we were sharing the field) set up shop with regard to the wind direction, which also stayed constant.

What often happens at these non-Nationals meetings is that a thin entry is spread across the classes to the detriment of all. However, this time the recent trend continued, with seven entries in power while the rubber and CO₂/Electric enthusiasts could not muster either the numbers or the enthusiasm to make an event viable.

The unpredictable weather and threatening clouds lent a welcome urgency to the proceedings and two rounds were flown in the morning in pretty short order. A good flight from Terry Manley's 1.1/2 Strutter more or less clinched the contest from the off since it has a margin of superiority over anything else around at the moment. My own Hawk Moth again acquitted itself well, given its 'sport scale' origins although, irritatingly, it bent the shaft on the Mills in a tumbled landing.

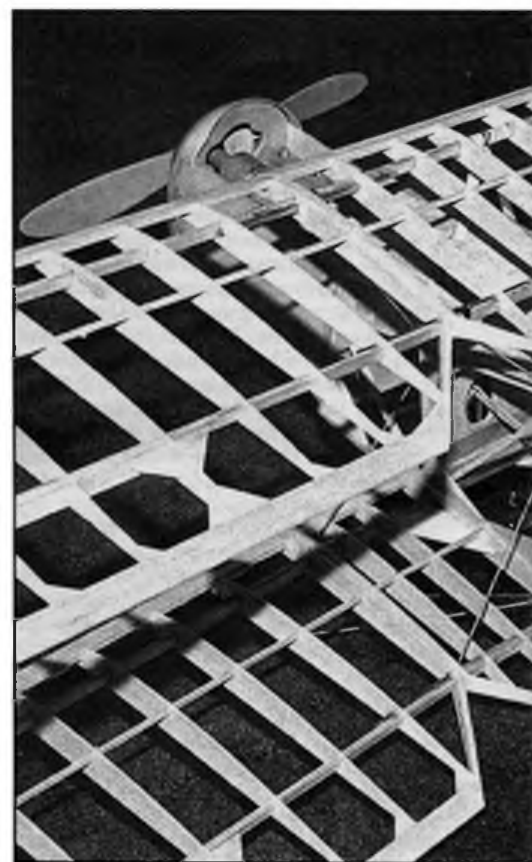


Winner was Terry Manley with One-and-a-half Strutter.

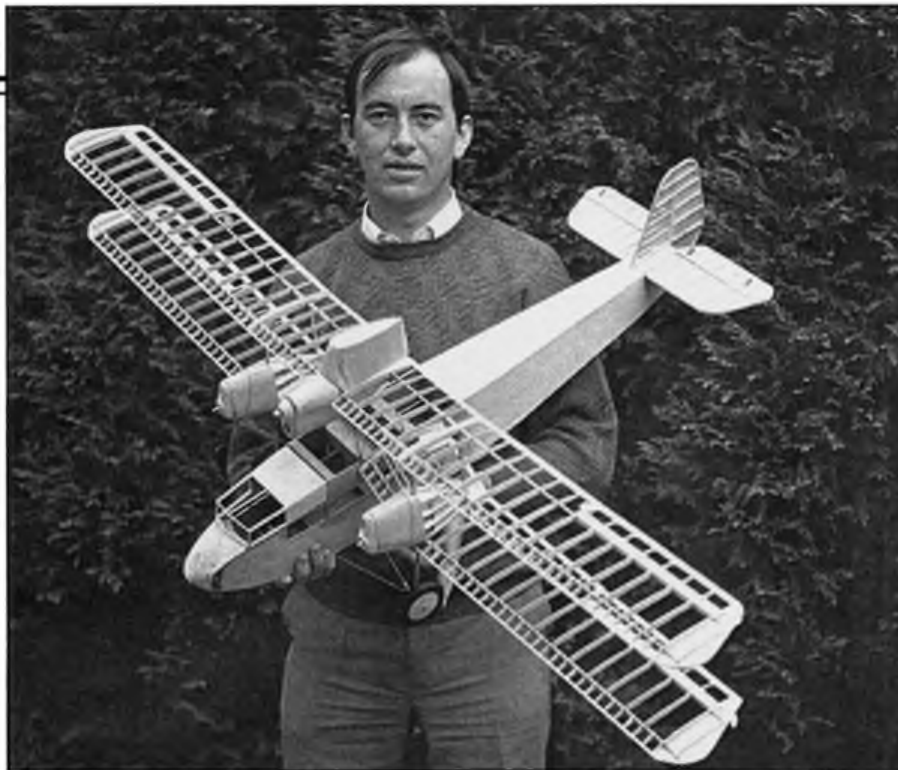
Ernie Whitehouse qualified from a hand launch with his large Husky, but thereafter went on to demonstrate that a high wing monoplane with 15 degrees of dihedral is not necessarily stable! Andrew Hewitt's Sopwith Triplane was flying to good effect despite the rather tenuous connection between the fuselage and the port wings which were trailing at around 20 degrees. Mike Allen's Sopwith Schneider remains underpowered although it got nearer to taking off from the runway once it had hopped off its dolly. Maybe if the rain had continued long enough... Finally, Derek Knight's electric Tiger Moth went well once in the air, but it lacks that little extra power to give it a positive, straight take off and climb-out.

The judges then retired to a sealed tent for static judging, done in record time (possibly because all the models are fairly well known by now) and then we had two more rounds. These didn't change anything, except for Terry's wing when the Strutter glided off course into a car tailgate. At least he says he will now take the opportunity to re-spray the model, the colour of which is held by all to be a rather appalling shade of gunge.

This meeting brought the 1990 outdoor season to an end, a season which has on the whole been well treated by the weather. While there have been few new models of note, the flying has been most enjoyable. As my main interest is power I have been encouraged by the definite increase and I am looking forward to a fascinating 1991. I am even building a



Lovely woodwork in evidence in Andrew Hewitt's new model; 'tis a Blackburn Sprat.



Mike Smith with triple electric-powered Airspeed Ferry; what an undertaking – and what an achievement when she flies!

'proper' contest model! The situation in the other two classes is less rosy, and if they were not already official classes, it would be difficult to justify making them so. I feel the future for CO2/Electric lies in the larger electric model, which will probably be entered against the power models anyway. As for rubber, I'm afraid its credibility as an interest class is disappearing fast and will remain so until people can make their models fly well for 20 seconds.

Results					
Static	Flight	Total			
1 Terry Manley	11/2 Strutter	1032	1051	2083	
2 Bill Dennis	DH75	978	859	1837	
3 Derek Knight	DH82	1034	652	1686	
4 Andrew Hewitt	Sopwith Triplane	864	806	1670	
5 Mike Smith	1.1/2 Strutter	720	912	1632	
6 Ernie Whitehouse	Husky	244	603	847	

New Models

One of the keenest new power scale flyers is Andrew Hewitt of the Nottingham club. His recent Camel was a major advance in quality over his previous Triplane, so his new project should be a potential Nationals winner. The Blackburn Sprat was a prototype torpedo bomber which failed to go into production, and like most Blackburn aircraft of the period has

an extraordinary ungainly aspect. Terry Manley did a Sprat in the late 70s and although it was less than successful, being overweight and prone to ground looping, it was a masterpiece of detailing.

Andrew's model is larger than Terry's and though only 44in span, the wide chord, long fuselage and huge tailplane make it look very big indeed. It is very light at the stage pictured, but it will be much heavier when all the extensive detailing is applied. There are a number of structural problems to be overcome, not the least being the peculiar shape of the lower fuselage behind the wing root. The tailplane and fin are both attached to the fuselage via struts in a rather flimsy manner and the wide track undercarriage is mounted on a lower wing centre section in order to clear the torpedo; this has been cleverly arranged to swing back on impact.

It's intended power is a Mills 1.3 which may prove marginal but at least there is plenty of room to fit a larger engine if necessary.

Another contender next year should be Mike Smith's electric Airspeed Ferry, a model that has been under construction now for quite a time. The structure is almost complete and ready for covering, and the motors have been tested, reportedly making quite a draught. The Ferry is large at 55in with a voluminous fuselage, although the wings are of high aspect ratio. It is built rather like a power model, with spruce spars and sheeted fuselage, but in spite of this the weight so far, without batteries, is 26oz, so hopefully the final weight will be within reason.

The motors are three Mabuchi 380s which at a guess will need about six 350 mAh cells. One area of difficulty in the construction was the lower wing centre section which sweeps down and forward, while twisting through seven degrees.



Ernie Whitehouse qualified from a hand launch with his Husky; came 6th eventually.

What a Nort

John O'Donnell on Galas up and down the country

OUR domestic free-flight calendar contains a multiplicity of meetings arranged by the SMAE. Obviously they are not all of equal importance, but second only to the Nationals must be the Southern and Northern Galas. Yet these two major meetings are held close together in the crowded early autumn. This makes for convenience in reporting, but has few other advantages.

Southern Gala: Friday, 31st August: Little Rissington

The very term 'Southern Gala' has become something of a contradiction. When Odiham was available (up to 1986) the meeting was run and staffed by the Southern Area. With the controversial move to Little Rissington, linked with flying on a Friday, the Gala became very much the prerogative of the Free-Flight Technical committee. They did start off with a Southern Area contest director, but this no longer applies. This year saw Dave Greaves acting as CD, with back-up assistance from Gerry Pink. Both fly for Bristol & West. Dave hails from Cirencester and as the local contact for Little Rissington he was the obvious choice to run the meeting. Fortunately the programme of events does not include his F1B speciality! Between organisation and location, what we now have looks suspiciously like a Western Gala.

Attendance at the Friday meetings has appeared more dependent on the weather than the day of the week. Perhaps it means that a poor forecast discourages prospect entrants from having a day off work! This year saw reasonable weather, and a very respectable



turnout by present-day standards.

Flying was slow to start, as the wind started off variable prior to settling down in a rather awkward direction. Little Rissington is 'humped' and the most straightforward upwind position on the peri-track came in a hollow. This gave only a couple of hundred yards (metres, if you must!) to the immediate horizon – hardly acceptable for timekeeping purposes. Control was eventually pitched just where described, with competitors walking sufficiently far downwind to fly from a position where visibility was better. A few participants still preferred to fly at the side of the airfield, and retrieve down the peri-track.

The weather was good enough for the open events to be run to a three-minute max, instead of the safer limit of two-and-a-half. Although the Rubber and Power flyoffs filled up rapidly enough, Open Glider was another story. Indeed, all the glider events were decided without the need for a flyoff.

John Carter won Open Glider with the contest's only treble – although Brian Nicholson failed to match only by a couple of seconds. He said that having a taller timekeeper would have done the trick, as his dropped flight was not seen down to the ground! Pete Williams, at third, lost time because of setting his D/T Timer at 2:30 'from habit'.

Brian Lavis provided the only perfect score in A/1 with the next three competitors a good half-a-minute behind. Andy Crisp had an equally comfortable lead in HLG. Noteworthy was Geoff Smith, branching out from vintage and taking third place in both these events.

The somewhat abbreviated flyoff sequence went in the order Coupe d'Hiver, 1/2A Power, Open Rubber, and Open Power. Presumably the underlying idea was to reduce the lift available for the open models.



Brain Nicholson (left) and Pete Williams, second and third in Glider, discuss their mistakes.

Coupe was rather an anti-climax, with Peter King suffering DPR failure giving him effectively a zero score, and Phil Uden misjudging the air to miss any lift that was about. This left Gerry Ferer in a good position. He made no mistakes to win yet another CDH event. The 1/2A flyoff was a two-man affair between Tony Hall and Stafford Screen. Both did very respectable scores, with Stafford in front by a clear minute. There were several near-misses in this event, the third to fifth place



Same event: Phil Uden, second in Coupe d'Hiver, waits for the flyoff. Note small tailplane.

h and South!



Andy Crisp shows how to win Chuck Glider at the Southern Gala. This enthusiast never has quite the conventional approach to model design.

men all failing to max out by only a few seconds.

Open Rubber provided the big flyoff, both as regards to numbers and scores. The final result was very close with Alan Cliff having just a ten-second lead over my 8:13 score. He was the only flier to find real lift, went a long way, and had to return over the weekend to retrieve his model. I did an up-and-down flight for second, followed by Trevor Grey and the rest of the pack well behind.

The Open Power flyoff was a Birmingham benefit – with Stafford Screen winning his

second event of the day. Harris, Monks and Watson followed in that order, with Trevor Payne being the only 'foreigner' in contention.

Regrettably the meeting finished (or faded away) without a prizegiving. The SMAE is notoriously bad at providing its CDs with the traditional mass-produced plaques but some sort of finale could surely have been arranged. Even a reading out of results and a hand shake from the CD would have been better than nothing. Success needs to be acknowledged and publicly. The fliers deserve better treatment, and so does the contest!

Northern Gala: Sunday, 16th September: Binbrook

The Northern Gala was scheduled as usual for mid September, but differed in other ways from last year, having a new location and a much augmented programme. The venue was Binbrook, secured for free flight after the RAF moved out last year. In between, the drome had been used for the filming of *Memphis Belle*, complete with various props and additions to make the surroundings look more like... Basingbourne! (If a film company cannot get this particular airfield, what chance have we?)

Binbrook posed some problems. A locked compound was a potential model trap – so many competitors were much happier when they hears that a key had been obtained! Another difficulty was not to be solved so easily, however, and the organisers were very worried. One of the adjacent farmers was adamant that no-one was to go on his land – an attitude not normally encountered after the harvest. Crops were not the trouble – this farmer raised game birds, and did not want them disturbed. The obvious implications were only too apparent to both Dennis Davitt (who managed airfield liaison) and John Dyer (who ran the contest itself – and both were clearly relieved when the day was over!

The weather outweighed the worries when it came to setting the max. Three minutes was used for the Open events. Dead calm conditions first thing in the morning saw control positioned well away from all the trouble spots, but at what soon proved to be the downwind end of the

drome! An initial move to near the hangars was soon followed by another half-way back again as the wind continued to vary. Naturally these perambulations made the flying slow to start – but it hardly mattered. The drift remained low all day – and even flights that headed for the no-go area failed to clear the airfield.

Whilst the three Open events (which carried SMAE status, trophies and rules) were the *raison d'être* for the meeting, the Northern Area had also announced a host of supporting events. This decision was in marked contrast to the policy of the past few years. Indeed there was a conspicuous over-swing with no less than eight extra events being arranged. This was



Northern Gala again: And Eric Taylor made the Mini Vintage Rubber flyoff with his Filibuster.

really far too many – and merely divided the potential entry over more events. The number of competitors in these extra events varied from two to eight – even with re-entry facility.

Nevertheless it all made for plenty of flying with maxes being commonplace despite a quite surprising number of mistakes by some well-known modellers. Open Rubber saw more than half the entry record trebles, compared with 40 per cent in Glider, and a mere quarter in Power.

Four of the supporting events were settled without the complications of a deciding flight – Eric Redfern, Adrian Abell, Trevor Grey and Mike Lester all having found the easy way to win. Even so, the number of flyoffs required led the CD to double up by running two or more together. The three Open flyoffs were held in a Power, Glider, Rubber sequence; with appropriate accompaniments. The possible combinations gave some difficulties as Ian Davitt managed three trebles, including one in Open Glider very late in the afternoon.

The flyoffs commenced with Open Power, Mini Vintage Rubber and A/1 Glider. There was some good lift as witness Chris Strachan's winning flight of 13:35 with a Pinnocchio – but no-one else could find it. The A/1 scores were respectable enough with Gary Madelin edging out Peter Dickson. In comparison the Power scores were low – Phil Ball winning with a Nelson-powered F1C model and hence justifying a change of emphasis in his modelling



Harry Wilkinson, who won the Scottish Nationals with this model, is seen emptying out the water after alighting – not landing – in the static water tank at the Northern Gala.

activities. Pete Watson and Ray King were the only others in the flyoff, and finished in the order given.

Next away were Open Glider and CO₂ – with much more widespread, if gentle, thermal help. The limitations of the clockwork D/T timer were soon manifest with Gary Madelin and Bill Colledge recording the usual six-minutes-odd obtainable from a fully-wound setting. Mike Cook's model was in the same air, but continued for an eventual OOS time of almost sixteen minutes. I thought he had gone for broke, but later discovered that his win was due to a timer failure! Meanwhile I had contacted the fringe of the lift with a CO₂ flight that came down near the end of the drome with plenty of fuse still to burn. Derek Richards provided the opposition.

Rubber and CDH were the third combination. Conditions were ideal for special flyoff models – but there were not many in evidence. Those present filled the top places, with the sort of scores that might have been expected all, apart from Phil Ball who managed the one and only real thermal flight. He waited until the very last minute of the period before launching for his second win of the day. He is still using the same old 400 sq in square tipped wing that has survived so many flyoffs (and



Dennis Davitt releases Smith Mulvihill Mini Vintage Rubber winner at Binbrook.



Back to the Southern Gala, with Mike Bull trying to out-guess the lift in CDH. Remember his recent letter in this magazine about electronic detectors?

several fuselages) over the past decade. Best of the rest were Russell Peers and Len Auckland – although Graham Shacklock also cleared eight minutes with a model of very modest size.

Gerry Ferer made no mistakes to win Coupe d'Hiver in convincing fashion – whilst the absence of a time for Ian Davitt is due to it not being recorded! Presumably the flight was short.

There was a formal prize-giving to conclude matters in the proper manner. The small cash prizes lived up to their description, whilst the SMAE plaques looked much the same as ever. Nevertheless public presentation is the way to give out the awards – and the comparison with the Southern Gala drew public comment.

All-in-all another good contest – but the Northern Area Official involved must have grave reservations about running any future meetings at Binbrook under the existing constraints. It is a great pity, since there is little wrong with the drome itself.

Southern Gala		
Little Rissington: 31st August		
Open Rubber (23 scores, 24 entries, 8 in flyoff)		
1	A Cliff	
2	J O'Donnell	9:00 + 8:23
3	T Gray	9:00 + 8:13
		9:00 + 6:44
Open Glider (21 entries and scores)		
1	J Carter	9:00
2	B Nicholson	8:58
3	P Williams	8:48
Open Power (9 scores, 11 entries, 5 in flyoff)		
1	S Screen	9:00 + 5:03
2	P Harris	9:00 + 4:37
3	R Monks	9:00 + 4:09
Coupe d'Hiver (14 scores, 17 entries, 3 in flyoff)		
1	G Ferer	10:00 + 1:50
2	P Uden	10:00 + 1:23
3	R Monks	10:00 + zero
A/1 Glider		
1	B Lavis	10:00
2	M Howick	9:36
3	G Smith	9:27
1/2 A Power (12 entries and scores)		
1	S Screen	10:00 + 4:19
2	A Hall	10:00 + 3:01
3	P Watson	9:58
HLG (8 scores, 9 entries)		
1	A Crisp	6:04
2	W Colledge	5:31
3	G Smith	5:02
Northern Gala		
Binbrook, 16th September		
Open Rubber (25 scores, 27 entries, 14 in flyoff)		
1	P Ball	9:00 + 15:06
2	R Peers	9:00 + 8:41
3	L Auckland	9:00 + 8:25
Open Glider (17 scores and entries, 8 in flyoff)		
1	M Cook	9:00 + 15:56
2	G Madelin	9:00 + 5:35
3	W Colledge	9:00 + 5:32
Open Power (10 scores, 12 entries, 3 in flyoff)		
1	P Ball	9:00 + 4:37
2	P Watson	9:00 + 4:07
3	R King	9:00 + 3:31
Coupe d'Hiver (4 scores and entries, 2 in flyoff)		
1	G Ferer	6:00 + 3:57
2	I Davitt	6:00 + 7
3	D Davitt	5:01
A/1 Glider (7 scores and entries, 4 in flyoff)		
1	G Madelin	6:00 + 3:22
2	P Dickson	6:00 + 3:09
3	G Manion	6:00 + 2:37
1/2A Power (5 scores and entries)		
1	E Redfern	5:54
2	G Bryant	5:34
3	S Fielding	5:13
Mini Vintage Rubber (8 scores and entries, 5 in flyoff)		
1	C Strachan	6:00 + 13:35
2	J O'Donnell	6:00 + 4:11
3	D Davitt	6:00 + 3:14
Mini Vintage Glider (2 entries and scores)		
1	A Abell	5:09
2	G Beal	3:19
CO₂ (2 entries and scores, both in flyoff)		
1	J O'Donnell	6:00 + 7:05
2	D Richards	6:00 + 2:13
Tailless (2 entries and scores)		
1	T Gray	8:32
2	R Bevan	4:14
HLG (4 entries and scores)		
1	M Lester	6:17
2	G Percival	5:35
3	J Guest	5:22

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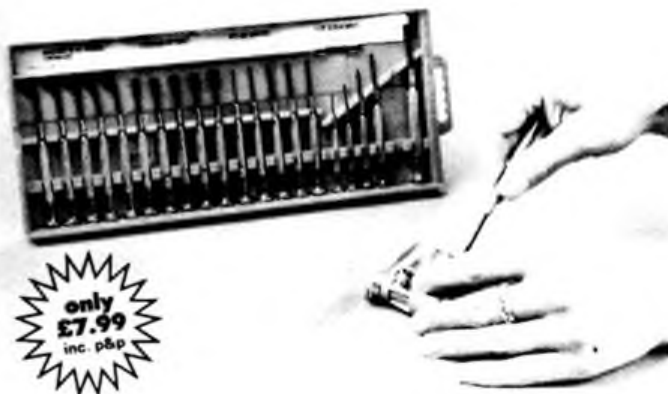
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Australian Biplane Stunt Model (Early 1950') by Gordon Burford

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