Diary

18th April Hemswell	SMAE Midland Area mini rally. A1, CdH, ½AP, CO2 HLG, P30, Wigan 70, Vintage duration. Contacts : Gerry Ferer 0533 886519, Mike Coomes 0949 42034.
25th April Area venues	SMAE 2nd Area Centralised event. O/R (Gamage Cup), F1C (Halifax Trophy + Plugge), O/G.
25th April Odiham	Odiham Spring Gala. F1C, O/R, O/G : all are welcome to join the SE Area for the area events. Contact : Norman Couling on 0323 53116.
1st May Cardington	EZB Expert/Novice Pairs, open EZB individual. Contact : Laurie Barr 01 570 6311/9732/8212(day).
2nd-3rd May Barkston Heath	RAFMAA/SMAE FF Competition. Sunday : F1A/B/C in 5 rounds starting at 10am, progressive fly-offs from 5.30pm. Champagne fly-offs from 7pm,weather permitting. Monday : Sunrise event F1A/B weather permitting, followed by O/G, O/R, O/P, A1, HLG, Vintage from 10am. No pre-entry, contact : Brian Baines on 033 483 471 ext 420. Camping allowed on airfield from 8am on 2nd to 20.00 on 3rd.
9th May Area venues	SMAE 3rd Area Centralised event. O/R (White Trophy), F1B (Weston Cup + Plugge), O/G.
16th May Albermarle Barracks (ex RAF Ouston)	Tynemouth Rally. F1A in 5 rounds, O/R, O/P, Comb mini, HLG. Contact : Tony Brown 0632 362155
16th May Port Meadow Wolvercote, Oxford	Oxford Spring Rally. A1 & CdH in 5 rounds, HLG. Contact : Andrew Crisp on Oxford 53800.
29th-31st May Barkston Heath	SMAE FF Nationals. Sat: ½AP,CdH,A1,HLG,CO2 starting at 10am, sponsored ready-to-fly rubber scramble. Sun: O/R,O/G,O/P,Vintage,Women's Cup,Tailless,CO2 scramble,Frog Junior,Junior kit contest,sponsored HLG scramble; generally start 10am, fly-offs 6.45pm. Mon: F1A/B/C in rounds from 9am, Wigan 70. Closing date for entries is May 2nd, to SMAE office.
6th June Cardington	2 EZB contests (as for May 1st) plus F1D.
13th June Area venues	SMAE 4th Area Centralised event. F1C (Astral Trophy), Team G (Model Engineer Cup + Plugge), CdH.
20th June Beaulieu	Crookham Gala. O/R,O/G,O/P, all-in FAI (5 flights, no rounds). F1B Champagne fly-off weather permitting. SMAE members only. Contach : Phil Uden 0734 51366.
20th June Cardington	2 EZB contests (as for May 1st) plus CO2 & Manhattan.

APRIL 1982 82/04

FFn

FREE FLIGHT NEWS

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8 Blenheim Court, Farnborough, Hants, England GU14 7DS

Compiled and published by Ian Kaynes, Paul Masterman, Malcolm Wood.

WAKISSIME 1981, by Georges Matherat

The following article first appeared in Vol Libre. It was translated by Newham Beaumont for discussion at a Croydon club evening. With the translation available, we decided to print the article in FFn in order to give it greater circulation in English-speaking circles. Thanks are due to Georges, Newham and Andre; if you don't see Vol Libre, then write to Andre Schandel at 16 Chemin de Beulemwoerth, 67000 Strasbourg, France.

Here are some laid-back thoughts on a subject that is generally less so. We have all drooled with envious admiration at those great machines that never stop racking up the seconds, but at the price of sophistication and construction techniques which have completely discouraged us poor apostles - until now. I am mainly talking about the machined metal parts (light or not) and solid balsa wings turned out by the heavy aeromodelling industry - sorry Jean Claude Neglais, Gerard Pierre Bes and all the others involved. Now, my idea is always to use only a simple, primitive and cheap range of tools (if for no other reason than to have strictly no advantage from this viewpoint over the raw beginner) and I have therfore tackled the subject by strating with a super-classic construction method, but one that is developed to its logical extreme.

First of all, consider the wing. The objective is the maximum aspect ratio for the minimum weight. It appears quite possible to turn out an 18:1 wing with a weight of 55g. It is still necessary to have good torsional rigidity. I have used small section spars in a zig-zag layout across the wing section and, as usual, have added auxiliary spars at the dihedral joints. Together with double covering in lightweight Modelspan, this will give you what is far and away the best solution to the unavoidable triad of weight, torsion, bending stiffness. It will never break or warp and it weighs nothing at all. I have added a good whack of area - more than 17 dm^2 - we are not far from the limit ! This is linked with a rather diminutive flat-section tailplane, following the path established by Father Jean (Wantzenriether) at the end of 1980; this is not the only point on which we find common ground, but more of that anon. There is nothing special about the fuselage, except that I have launched into the use of glassfibre (15 years late or perhaps more!). You should also note the scientific approach of calculating the total length of the fuselage from the dimensions of my model box!

For the propeller, I aimed for a long, efficient motor run of about one minute. It is based on the spin-off from a Romans Club discussion after a first-class Michelin nosh up, during which (the discussion, not the nosh-up) a painstaking dissection of various propellers took place. Among them was that of Anselmo Zeri, which is more or less of the type "helical pitch plus a constant angle". After crudely scaling up the prop, there resulted an excellent, slow egg-beater with a run of 70 to 80 seconds depending on air temperature driven by 12 strands of yellow 6mm Pirelli, 450 turns. This was not surprising,since Anselmo's prop pulls a CDH with a long motor run.

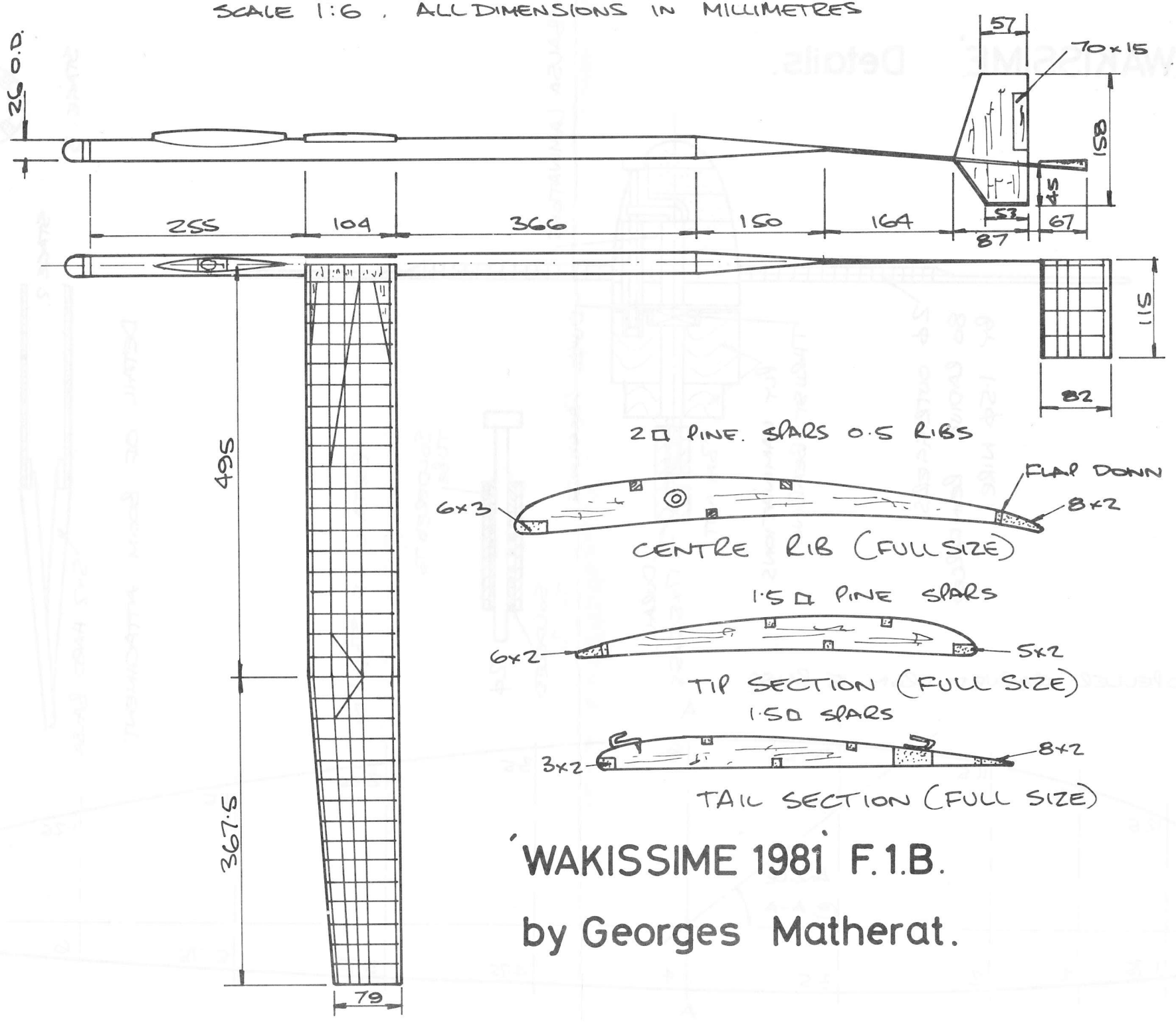
The overall performance of the model has been greatly improved in consistency by the application of a 3-D turbulator cut from a sort of thick sellotape and fixed without any fuss to the front of the upper wing surface with the aid of an iron set at minimum heat. Like all my models Wakissime (actually I should say Wakissimes - I built two at the time !) is well endowed with differential wash-out and various flap effects. But enough philosophy, now let's get down to building :

Once again, let us look first at the wing. The plan should be self-explanatory. All the ribs are from 0.5mm balsa, or 0.6mm depending on the sheet, or even sanded down from 1mm. This balsa should be medium, with a straight grain and not soft. The 1.5mm square spars are actually sanded down from 2mm square stock and please note this trick - you carefully join the spars together side-by-side with a lengthwise strip of sellotape, you sand the bare surface, then sellotape that side, take off the first tape and sand that side. A quarter turn for all the spars, stick them together again with some more tape and repeat the process for the second pair of sides. It is very quick and precise and above all it reduces the number of breakages during the sanding. The dihedral with the centre section flat is 70mm; on this point, I have been using much less pronounced dihedral recently and compensating for reduced lateral stability (roll) with wash-in on the inside of the turn. Stability is thus ensured dynamically and not by the pendulum principle. The glide improvement is perceptible and measurable. The reason is simply that lift is a function of the projected wing area while the drag is a function of the total wing area. Large dihedral angles are an aerodynamic contradiction - without any mention of the increased wing weight, which is also proportional to the total area - but you must have differential incidence (warps) or else you will have a spiral dive. The next point on the wing is that the trailing edge of only the starboard inner panel is drooped in the flap shape shown on the plan. This results in efficient support and an excellent climb attitude without any problems - remember that the inner wing panels are in the prop slipstream. The wing rib reinforcements are not solid balsa (puke!) but pieces of 0.5mm balsa, 15mm long. The wing joiner is from 2mm German piano wire (it's stiffer) and the joiner tubes are celluloid, but aluminium would be just as good if not better.

Although the tailplane is ridiculously small, it deserves a few words just the same. First, observe the hooks made from pins and then the tailplane platform which is shorter than the tail-plane itself. It is worth examining this arrangement : the loads are taken by two strong central ribs and not by the trailing edge, so that the risks of trim change are removed and the rear end of the fuselage is lighter.

To finish with the flying surfaces, the wings are double covered completely whereas the tailplane has a single covering. Wing warps are a slight flap on the right wing but otherwise the inboard panels are strictly flat. For the wing tips, there is a little bit of wash-out generally, with more on the left wing than the right. This is arranged with little wedges of 0.5mm balsa under the wing on a flat surface, 3 wedges on the left, 2 on the right. As for the rest of the trimming, the incidence

SCALE 1:6 . ALL DIMENSIONS IN MILLIMETRES



2 □ PINE. SPARS 0.5 RIBS

CENTRE RIB (FULLSIZE)

1.5 □ PINE SPARS

TIP SECTION (FULL SIZE)

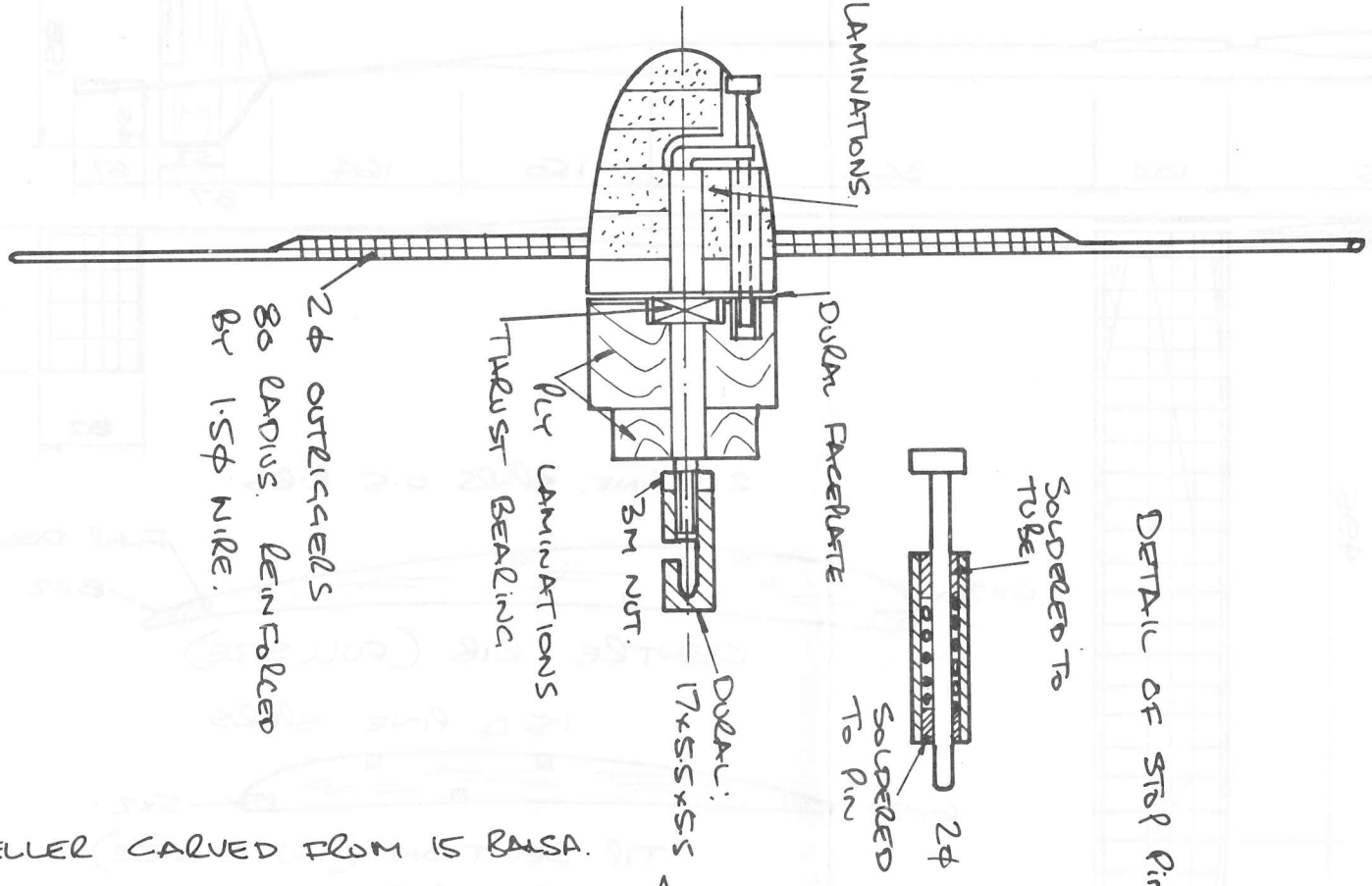
1.5 □ SPARS

TAIL SECTION (FULL SIZE)

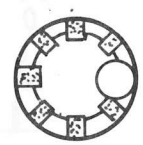
'WAKISSIME 1981' F.1.B.

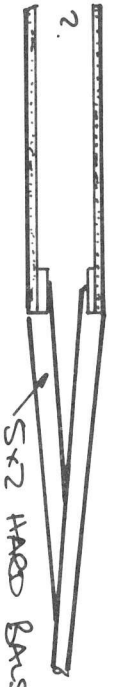
by Georges Matherat.

'WAKISSIME' Details.



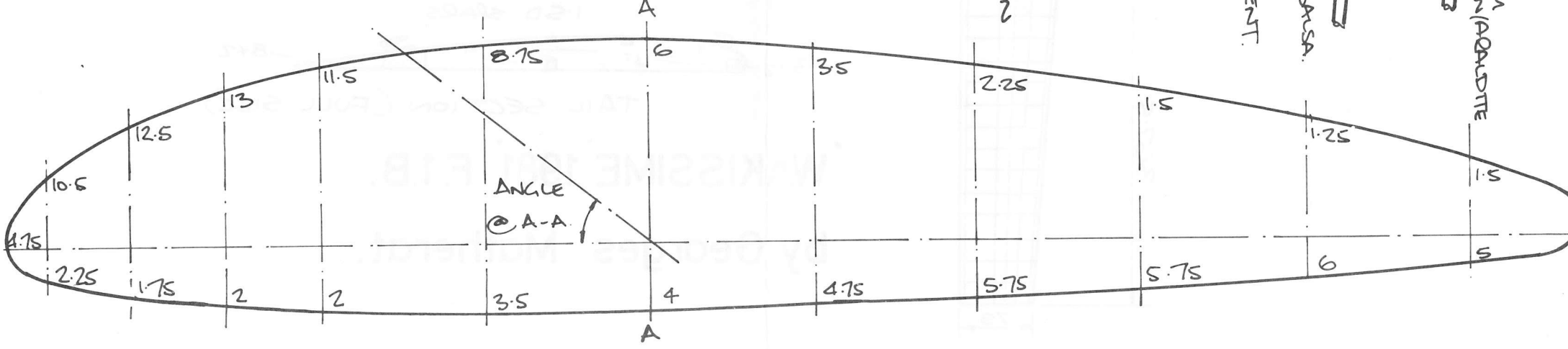
DETAIL OF STOP PIN





DETAIL OF BOOM ATTACHMENT.

PROPELLER CARVED FROM 1S BALSA.



is adjusted differentially with thin wedges placed directly on the wing supports.

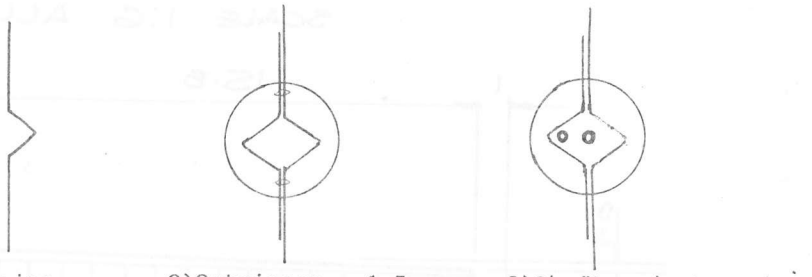
The fuselage is a tube of 1.5mm medium balsa rolled on a 23mm external diameter plastic tube (electric conduit). The balsa sheet is first covered on one side with Modelspan, plunged into the bath, left to dry on the tube - when it will then keep its shape - and glued along a scarf join with white glue. The 19mm aluminium handle of my broom inside the electric conduit tube ensures it is perfectly straight. After sanding it is covered with 3 turns of glass cloth (20g/sq m), applied with a resin which I received from my good friend Jean Claude Hirlimann. The weight for a 1 metre tube is 37g, that is roughly 28g for my finished fuselage made with the addition of front and rear end rings from slices of fishing rod - the nose internal diameter is 19.5mm and the fuselage external diameter is 26mm. The motor peg is two aluminium tubes, one inside the other, the larger being 0.5mm internal diameter. The timer pod is also a ballast container with a small amount of lead; it is fitted as follows - rub it on the fuselage covered with fine sandpaper and glue it directly to the fuselage at the point necessary to get the CG in the correct position. The sides of the pod are 1.5mm sheet glued to the side of balsa blocks at the front and rear, such that thereiis a space 39 by 19 mm.

The wing supports are simple two rails from 3mm hard balsa glued to the top/sides of the fuselage tube. Pins at the front and back of the rails carry the bands which retain the wings. The flexible glass fibre boom is 485mm long tapering from 4.5mm at the front to 3mm diameter at the tail. The connecting cone is built around the boom, just like scaffolding around a pointed church steeple. See the sketches. Use Araldite. It is also necessary to add spacers or else the whole lot will not be robust enough to stand up to handling. Best of all, of course, would be to mould a rear cone on a round tapered table leg, like Michelet and Guy and many others.

There is nothing very special about the fin : 2mm balsa, light but stiff, with edges reinforced with hardwood strips (2mm square pine for the underfin, 3x2mm and 8x2mm for the fin proper. The tailplane mount is like a Coupe d'Hiver one, a pine strip 5x2mm with pin hooks, 22mm wide. The timer is a good old Graupner one, swilled out with acetone, dried, then sprayed with a drop of fine oil from a spray can. It is taken out of its case and simply fixed into the pod with two strips of "magic" sellotape - easy to unstick and transparent.

For the propeller see the plan. It is carved from 15mm medium balsa, the section is really thin and the blades are covered completely in glassfibre cloth (20g/sq m) with resin. Carve the underside first and cover it, then do the upper surface. A second layer over about 100mm of the roots is not a bad idea.

Now for the super-classic Montreal style nose, without any ball bearings - they only add friction unless aligned very carefully. The outriggers are first fixed with twists of 0.2mm piano wire and then sandwiched in 6mm balsa with a generous coating of Araldite, at the same time fixing the two shafts (or rather tubes) which must not be out of true. See the detailed sketch:



1) 2mm wire outrigger

2) Outrigger + 1.5mm reinforcing wire mounted on disc, 2 laminations 2mm ply

3) Shaft and stop-pin tubes added, then sandwich under balsa

The stop-pin construction is shown on the plan. That completes the description of the nose, except to explain that the nose has not been built with too much weight consciousness because of a clear premonition about the CG. This is currently 50.5mm from the trailing edge.

Recent tests have shown that both models can take light turbulence, but don't tempt the devil - not because of the small tailplane but because of the formidable dimensions of the propeller. Having said that, the run has been checked at 80 seconds early in the morning or late in the evening (after the sunrise and before the first dew) and the total duration is constant at 4min 25sec for one model and 4min 15sec for the other. For such a simple model it is really very enjoyable, but first you have to get to the fly-off and let that be without too much of a wind.

Northern Area Meeting, Church Fenton March 28

Tony Pannet Memorial, Open Power 21 entries, 11 in fly-off

1	A T Smith	B.A.MAC	9.00+8.17
2	J Hopper	Freebirds	9.00+7.35
3	S Screen	Birmingham	9.00+6.50

Jack Kay Memorial, Open Glider 32 entries, 18 in fly-off

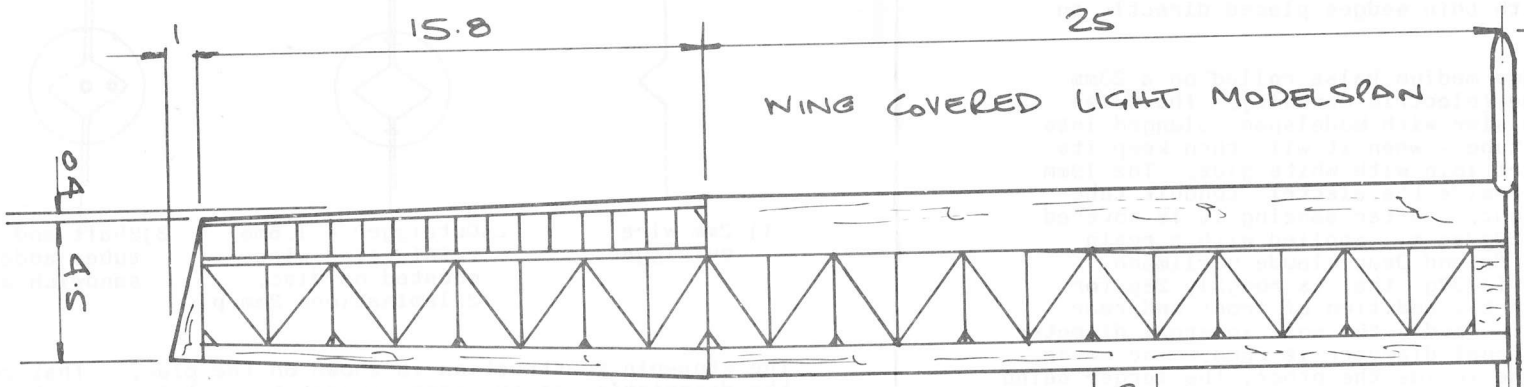
1	A Cordes	Birmingham	9.00+9.40
2	J Bailey	Biggles	9.00+7.46
3	P Owens	Liverpool	9.00+5.52

Vintage Trophy (pre-51) 17 entries, 3 in fly-off

1	P Ball	Grantham	9.00+4.08	Hi-Lo
2	D Davitt	Leeds	9.00+3.02	Lanzo
3	P Wolstenholme	E.Lancs	9.00+3.00	Korda

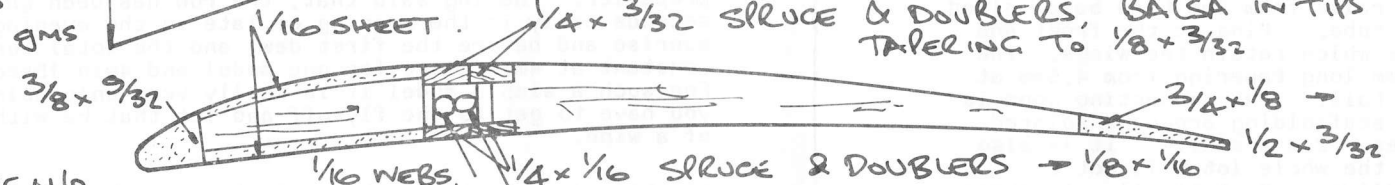
The meeting had superb weather with light and variable winds. A spectacular power fly-off in almost dead calm with 10 models together; Tony Smith's power pattern took him into a different area from the others and possibly better air. Phil Ball took the vintage trophy despite a slight stall on the glide (rubber bunching ?), with a fantsatic rate of climb. Tony Cordes found good air in the glider fly-off and was followed by others who failed to get such benefit. He now holds both NA Glider trophies.

SCALE 1:6 ALL DIMENSIONS IN INCHES



WEIGHTS :

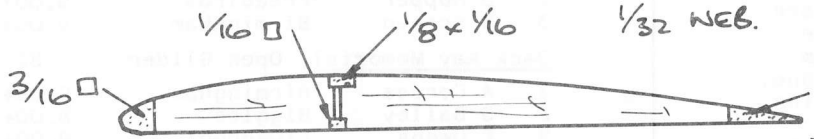
WING	: 160
JOINERS	: 25
TAIL	: 8
FUSELAGE	: 228
TOTAL	: 421 gms



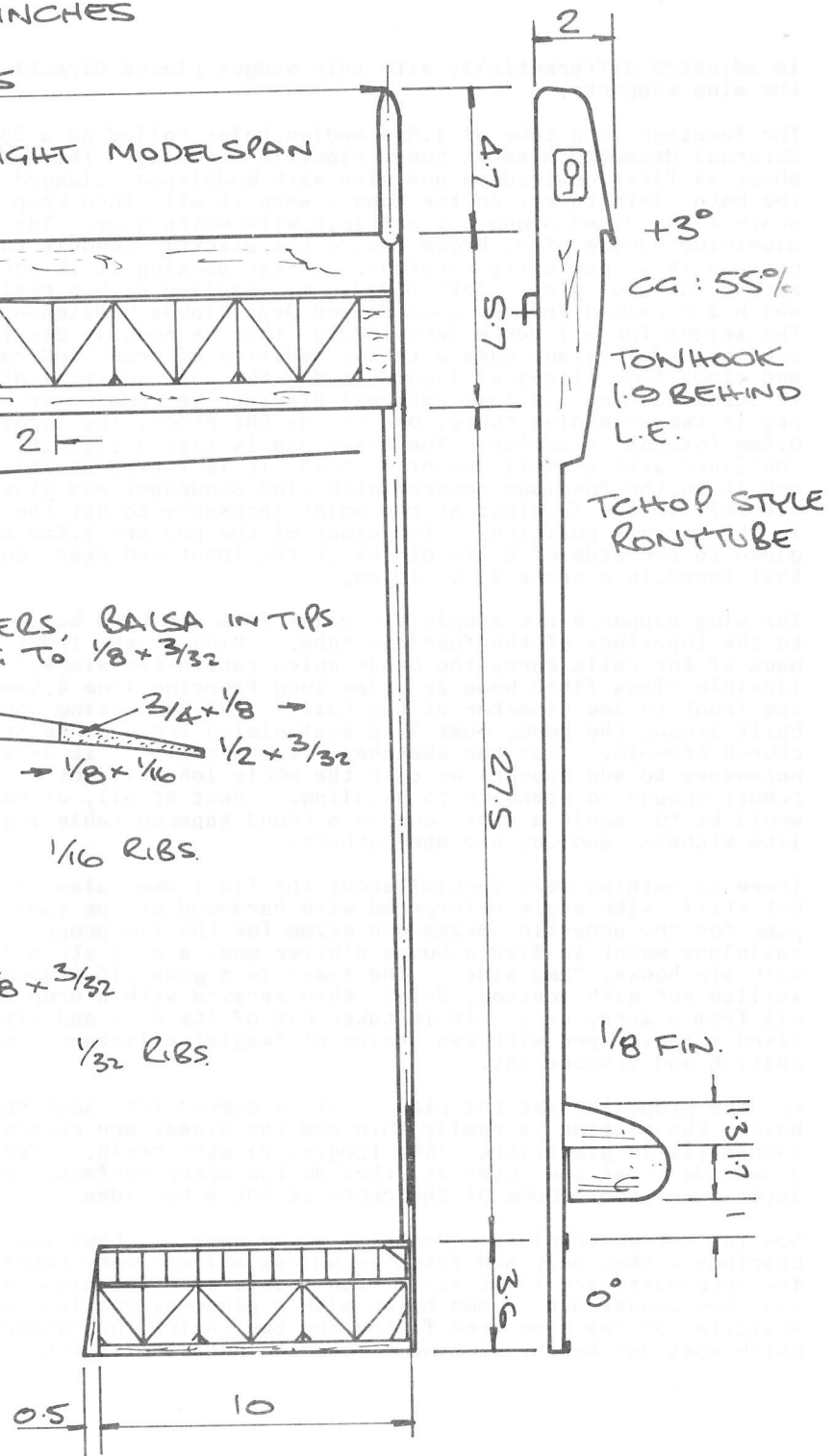
WING SECTION (FULL SIZE) 1/16 RIBS.

WARPS :

R.H. TIP.	: 0.25 N/O
R.H CTRE	: FLAT
L.H. CTRE	: 0.2 N/O
L.H. TIP	: 0.4 N/O

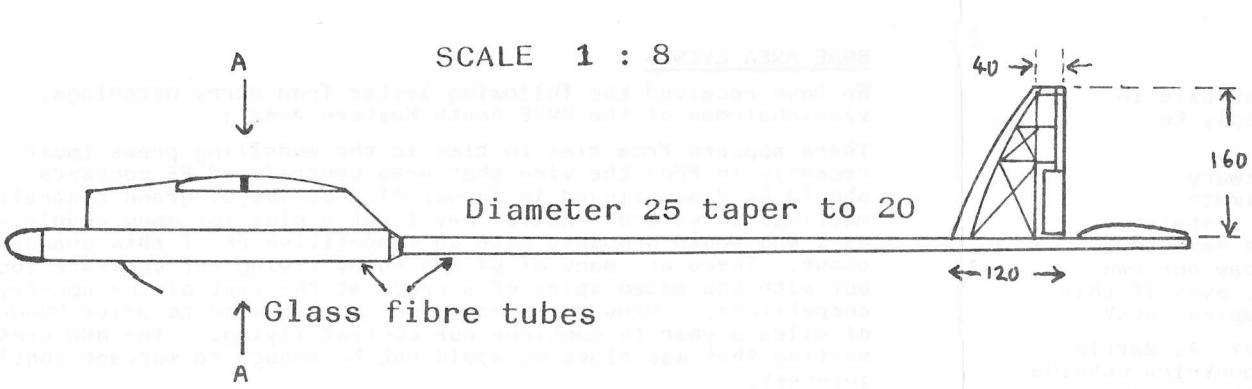


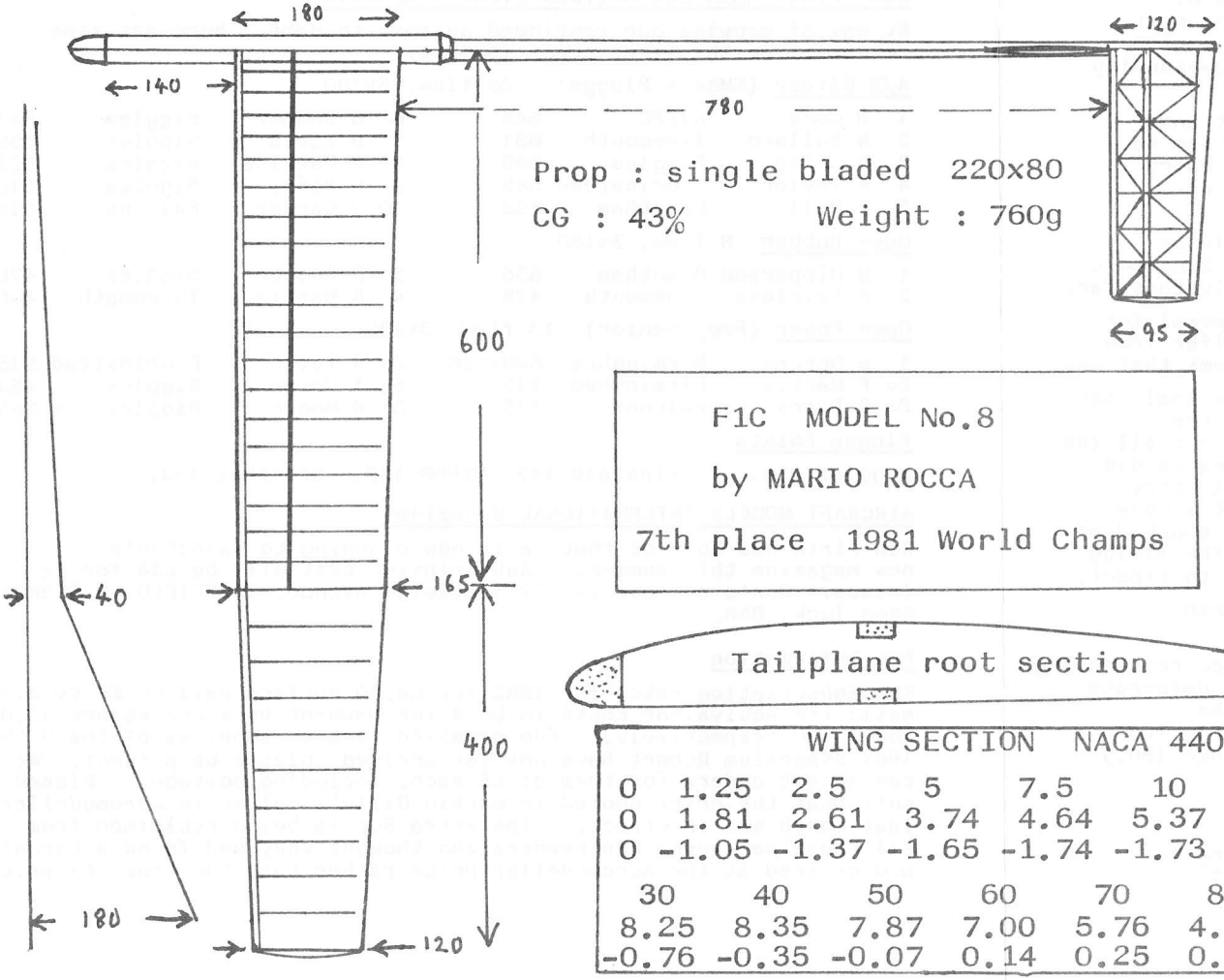
TAIL SECTION (FULL SIZE) 1/32 RIBS.



'PINK ELEPHANT' No 19 F.1.A.

by John Cooper.

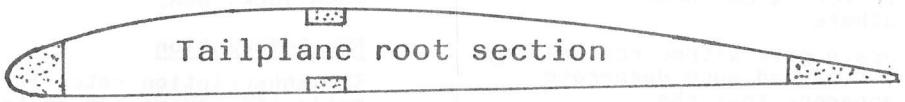




F1C MODEL No.8

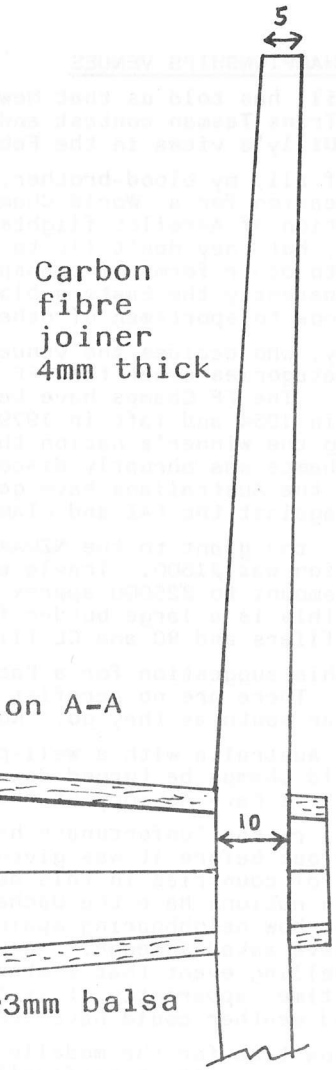
by MARIO ROCCA

7th place 1981 World Champs



WING SECTION NACA 4409								
0	1.25	2.5	5	7.5	10	15	20	25
0	1.81	2.61	3.74	4.64	5.37	6.52	7.33	7.90
0	-1.05	-1.37	-1.65	-1.74	-1.73	-1.55	-1.30	-1.02

30	40	50	60	70	80	90	95	100
8.25	8.35	7.87	7.00	5.76	4.21	2.33	1.26	0.09
-0.76	-0.35	-0.07	0.14	0.25	0.26	0.14	0.03	-0.09



WORLD CHAMPIONSHIPS VENUES

Ron Magill has told us that New Zealand have beaten Australia in the 82 Trans Tasman contest and offers the following reply to Martin Dilly's views in the February FFn :

First of all, my blood-brother, since when did the primary qualification for a World Champs venue become the ultimate destination of Aeroflot flights? New Zealand also has a state airline, but they don't fly to many destinations and we have to change to other forms of transport. Also, we have to pay our own way, apparently the Eastern bloc teams don't? However, even if this is so, how to sportsmen of other disciplines go to Olympics, etc?

Secondly, who decides the venue for the World FF Champs? As Martin says, categories other than FF have been released to countries outside Europe. The FF Champs have been held outside Europe twice, Long Island in 1954 and Taft in 1979, both in USA. The practice of allowing the winner's nation the first option of holding the next World Champs was abruptly discontinued after Alan King won in 1954. I think the Australians have good reason for holding a long-standing grudge against the FAI and CIAM.

Thirdly, the grant to the NZMAA from the Ministry of Sport and Recreation was $1500. Travle expenses alone for a 10-man team to Europe amount to $25000 approx and about another $3000 for entry fees. This is a large burden for 1500 members, consisting of sports fliers and RC and CL fliers.

As for his suggestion for a Pacific Basin event, whom should we invite? There are no Aeroflot flights to NZ or Australia, Singapore is as far south as they go. North Korea and China don't fly this far.

How can Australia with a well-presented and documented proposal for the World Champs be turned down for a casual last-minute offer from Austria? I have no copy of the Plenary minutes, but it seems that way.

Finally, re the "unfortunate happenings in Spain". Why was Spain not checked out before it was given the nod? I can understand the naivety of countries in this part of the world, but surely not all the European nations have the Dachau syndrome. If the FAI in Paris did not know how neighbouring Spain runs sporting events, surely they could have asked someone. The armed police were present at a non-aeromodelling event that I attended in 1965 and, whilst it shocked me at the time, apparently it is "normal" for that country. The flying site and weather could have been checked, others knew what to expect.

Is it now time for the modellers of Europe to form a European modelling community specifically excluding others ?

(Ian Kaynes : I cannot let the comments on Spain pass withou reiterating that Spain was the ONLY offer for 1981; CIAM had much desperate discussion in April 81 when it became apparent that the substitute venue was not good enough (site and weather). There would have been much protest if the event had been cancelled.)

BURGOS QUOTE

Peter Farrimond noted the following from the film "El Cid" . Comment by a soldier in the ranks whiel El Cid was preparing for his final drive :"Why does he want to go to Burgos anyway ?
It is always raining and windy there."

SMAE AREA EVENTS

We have received the following letter from Harry Hutchings, vice-chairman of the SMAE South Eastern Area :

There appears from time to time in the modelling press (most recently in FFn) the view that Area Centralised FF contests should be discontinued in favour of a series of grand centralised meetings at varied venues. May I put a plea for many people such as I who would probably give up competitive FF if this change came about. There are many of us who enjoy flying our contests locally but with the added spice of a crack at the rest of the country's competitors. Many of us would not be prepared to drive hundreds of miles a year to continue our contest flying. The odd centralised meeting that was close by would not be enough to warrant continued interest.

SMAE FIRST AREA CENTRALISED EVENT - RESULTS

By way of proving our continued support to Harry, here are some results from the first event in 1982..

A/2 Glider (KMAA + Plugge) 28 flew, 5x180

1	M Cook	NYFFG	646	6	J Cooper	Biggles	541
2	R Pollard	Tynemouth	631	7	B Lavis	Biggles	538
3	A Crisp	Biggles	599	8	P Hawkins	Biggles	521
4	K Taylor	E Grinstead	589	9	N Parry	Biggles	516
5	P Ball	Grantham	565	10	J Carter	Falcons	515

Open Rubber 8 flew, 3x180

1	D Hipperson	Grantham	536	3	J Cooper	Biggles	476
2	S Fairless	Tynemouth	478	4	B Martin	Tynemouth	400

Open Power (Frog Senior) 13 flew, 3x180

1	S Screen	Birmingham	540+220	2=	R Taylor	E Grinstead	515
2=	P Harris	Birmingham	515	5	T Payne	Biggles	454
2=	R Peers	Falcons	515	6	R Moore	Biggles	385

Plugge Points

Biggles 258, E Grinstead 147, NYFFG 137, Grantham 133.

AIRCRAFT MODELS INTERNATIONAL Magazine

Ron Firth has told us that he is now planning to launch his new magazine this summer. Subscription cost will be £14 for 12 issues. Ron's address is 22 Slayleigh Avenue, SHEFFIELD S10 3RB. Good luck, Ron.

FFn Information

The subscription rates for 1982 are £4.50 surface mail or £8 by air mail; the equivalent costs in US $ for payment by $ checks are 13.00 and 23.00 respectively. The promised further supplies of the NFFS 1981 Symposium Report have not yet arrived, please be patient. We can accept orders for them at £5 each, including postage. Please note that the price quoted in Martin Dilly's column in Aeromodeller last month was incorrect. The extra 50p is being reclaimed from all those hawk-eyed FFn readers who thought they had found a bargain and ordered at the Aeromodeller price rather than the true FFn price!