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1935-1985
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Chris Golds '85



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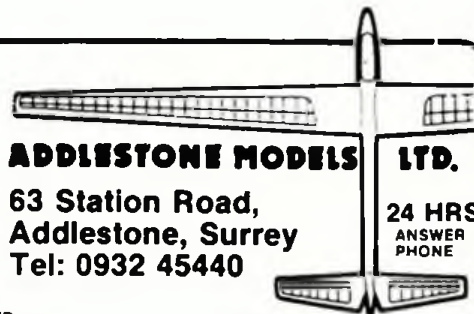
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December 1985

Volume 50
Issue 599

ISSN 0001-9232

AERO

MODELLER

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Graphic Design *Jenny Hine*
Advertisement Manager *Jim Carrigan*
Group Editor *Alec Gee*

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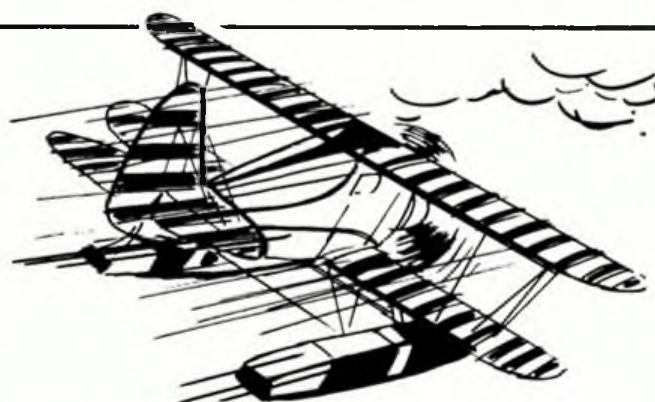
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HANGAR DOORS

Fifty Years...

Half a century is a long time in the life of a national magazine; there are not that many titles that can claim to have such a record. Nowadays the shelves in newsagents are crammed with mags and journals of all types, how many of them will be with us in 50 years...

In a fast moving age where we are told that as the years go by leisure time will increase for most of us, it is not surprising that there are many new hobbies, sports and pastimes to tempt us to part with our money and spend our spare waking hours playing at "something new".

Aeromodeller has survived many turbulent times thanks not so much to its contents but to its readers. The readership has waxed and waned over the years depending upon many different influences - waxed in the immediate post war years when 'the air' and all that flew in it was at the forefront of everybody's minds, waned more recently as other interests have caught the imagination of the public at large.

Underlying the obvious trends are a steady core of aeromodellers - young and old - who have learnt the enormous pleasure that is to be found in our hobby. Not a hobby for those easily put off, it is probably one of the most difficult in which to achieve perfection. Those that have passed their initial baptism of fire are often hooked for life...

Some of these raise aeromodelling from a mere hobby to a different level altogether, participating in a sport that is recognised and admired throughout the world. The endeavour and subsequent emotions involved in stepping forward to take a place on the

winner's rostrum at a World Championships are just the same as those experienced by an Olympic Medallist - what a dream for all those in the school aeromodelling club...

Over the years *Aeromodeller* has followed and reported on the growth of the sporting scene and we hope has given the basic grass roots aeromodeller something to think about and strive for...

It is always very nice to receive birthday wishes but without you, the reader, none of this would have been possible! So we would like to take this opportunity to thank YOU for reading, contributing, building and flying with *Aeromodeller*...

F.A.I. Honours...

Pete Freebrey, Editor of *Aeromodeller*, who has been United Kingdom delegate to the FAI's Commission Internationale d'Aeromodelisme for many years, and who has also been one of the longest-serving members of the SMAE's Executive Council, has just been awarded the Paul Tissandier Diploma of the Federation Aeronautique Internationale, for his services to sporting aviation.

The actual presentation will be made at the FAI's General Conference in Delhi in November, when it will be accepted by Fred Marsh, the Royal Aero Club's delegate, and it is hoped that Peter will receive the diploma at the SMAE's Dinner and Prizegiving in Leicester on Nov. 23rd.

Peter, who is a Fellow of the SMAE, is one of the Society's all-rounders, with a background in R/C, C/L and F/F, as well as Space Modelling. He was



Above, join the RAF and... RAF Sergeant Paul Ashford is up in the air after taking first place in the Open R/C Glider event at the Royal Air Force model flying champs, winning the Cranwell Model Aeroplane Cup in the process. Aeromodelling within the R.A.F. is controlled by the RAFMAA (Royal Air Force Model Aircraft Association), covers all classes and is a firm supporter of the SMAE and aeromodelling events throughout the country.

chairman of the CIAM's Control-Line technical committee for several years and is currently a Vice-President of CIAM.

Praise indeed...

In October's Hangar Doors we mentioned the Channel 4 T.V. series 'Model Magic' due to start on 16th September. We hope some of you were able to tune in to some of them - because apparently we missed some real gems! The timing of the programme, 5.30pm, did not permit many of us 'workers' to sample the product - but the

reviewer for the *Sunday Times* did... and liked what he saw - "the most delightful programme of the week was 'Model Magic'". Praise indeed, when other selected reviews of the week included 'No. 10 Downing Street', 'Adrian Mole' and 'Soldiers'.

Hopefully the series will be repeated at a more convenient time - but if not, *Argus Books* are publishing the book of the series: "Model Magic", by Vic Smeed. The book is just the size to fit a Christmas Stocking, so drop a few hints...

This Christmas greeting dates back over 40 years to a design produced at D.A. Russell's personal request. Gwen White, the artist, had captured a scene from those austere wartime days. Famous for beautifully illustrated books on toys, Gwen was better known to aeromodellers through her husband, Rupert C. Moore...



With best wishes for a Merry Christmas from the Staff of the *Aero Modeller*

STOP PRESS

Record day at the Northern Gala 13th Oct.

The first record was that the sun came out and the wind went away! Encouraged by this unexpected event, both competitors and engines made the most of it...

- 1) New FAI T/R heat record of 3.28.9 to Heaton/Woodside (Three sisters)
- 2) New 1/2A T/R finals record of 7.04 to Horton/Haworth (E. Wharfedale)

There were several unofficial records set or very near misses - there's nothing like a bit of sun - roll on summer!

600 is now...

The more eagle eyed amongst you will notice that this issue is number 599. That it is not 600 (50 x 12) is perhaps not surprising as quite a lot can happen in a publishing span of 50 years! There have been several 'events' that have caused changes in the numbering and/or Volume numbers over the years.

We even had one 'classic' last year when a new art director not knowing our system, inadvertently changed the Volume number in the wrong month! One Volume (number 14) had thirteen issues rather than twelve so that the change in future Volume numbers would occur in January!

Due to some form of industrial problems Volume 12 had a combined issue for March/April. BUT the biggest howler of the lot occurred in that same year (1947) when two issues, May and June, were both given the same issue number - 137!

The result of this is our present 599 instead of 600 - perhaps we should have missed out 599 to put the record straight...

Make a date

Christmas is coming - which means that the Model Engineer Exhibition cannot be far away. The M.E. Exhibition (3rd-11th Jan) is a mecca for modellers of all types, with many wondrous things to see (and buy!). One thing we have always found fascinating is how tools or materials intended for one area of modelling can find a totally different but extremely useful niche elsewhere - small beads for the 'crafty' are great bearings for propellers on small rubber driven aircraft, small 'engineers squares' are perfect for supporting fuselage formers accurately - the list goes on...

For the aeromodeller there is also a series of specialist lectures organised by the SMAE. These proved so popular last year that additional time has been allocated this year - so make a date NOW to attend...10.30am on Saturday 4th January sees the start, make sure you are there.

Man Powered Aircraft The state of the art...

For those of you who would like to keep up to date on what is happening in the world of MPA - be in London on Wednesday 11th December. At 18.30hrs, the Man Powered Aircraft Group is holding an evening symposium at The Royal Aeronautical Society...

Topics include "MPA as an Undergraduate Project" presented by Professor R. Palmers

and Dr. K. Sherwin; "The Vertigo Project - Man Powered Helicopter" by A.D. Cranfield; "The Speed Competition - Background and Achievements" by Admiral N.C.N. Goodhart and "Musculair - Design and Technology" by Gunter Rochelt.

There is also a strong possibility that Paul McCreadie will be there to talk about the 'Pterodactyl Project'.

What an evening for the MPA enthusiast - telephone *The Royal Aeronautical Society* on 01-499-3515 for details of tickets and the latest schedule of presentations.

New C/L Club

A new model aircraft club has just been formed in the Luton area which caters exclusively for control line flyers. With a nucleus of regulars now flying, new members are being sought.

Chiltern Flyers meet at Slip End, south of Luton, close to the M1 (Junction 10), A6 and A5 and convenient for flyers in a large area of Bedfordshire, Hertfordshire and Buckinghamshire. Club Night is Tuesday plus regular flying sessions at weekends.

The Club has a permanent grass circle on a new playing field. Because of the close proximity of the M1, the site is not suitable for free flight or radio flying. At present, the emphasis is on aerobatics and the Club hosted the first CLAPA Seminar. Further aerobatic events are being planned. However, scale and vintage control line flyers will be assured of a warm welcome and the site has space for additional circles if required.

Further information is available from: Rex Landon, Tel: Flitwick (0525) 713472.

SMAE snippets

Spot The Difference

No, the SMAE are not entering the field of comparing little pictures to see which bits the artist has left off one of them. However, if you compare the Society's ads in this magazine over the past year, you will quickly spot a difference. That line that says "The SMAE and its 12,000 members are solving the problems of today's model flying and enjoying it more," has been changing, or rather the figure has...

As more and more model flyers catch on to the fact that the SMAE is *their* Society, not someone else's, we have had to alter the ad copy to 13, 14 and 15,000 and the membership is now at almost 16,000. Looked at another way, SMAE membership has roughly tripled in two years...

News...

About now Area delegates and

Council will be deciding on the likely costs of running the SMAE and keeping British model flying in a healthy state in 1986. One of the disadvantages of having a bare-minimum membership fee for the Society is that it is impossible to keep each member properly up-to-date with news of the SMAE, its work, its aims, its successes and even its failures; quite a lot of members would like to see much more interchange of know-how...

Some think that all SMAE members should get some sort of newsletter from their Society to tell them what is going on. For a fiver this is out of the question, of course, but the absence of even an occasional SMAE direct-to-the-member communication does lead some members to say, half jokingly, that the only time they ever hear from their Society is when it asks for the next year's membership fee!

Would you like to have news from the SMAE about model flying that goes a bit further than the usual sort of local club newsletter items about how Fred managed to land in that oak tree again? Drop a line to the PRO, c/o SMAE, Kimberley House, Vaughan Way, Leicester LE1 4SE to say what you think.

AGM Time...

It has been a very busy year, and it certainly does not seem like twelve months since the '84 SMAE AGM. However, The Post House Hotel, Leicester will see this year's meeting take place at 1.30pm on Saturday, November 23rd; as usual, it will be followed in the evening by the Society's dinner and dance, to which all

members will be most welcome.

'Dance' perhaps conveys too formal an occasion; there is a disco, after a very relaxed evening at which the year's trophy winners collect the cups they have won, meet their friends and make new ones and perhaps remind themselves that we all enjoy flying model aircraft...

Make sure that you either come yourself to the AGM, or that your club delegate goes. Remember that your Council has spent a lot of its time on deciding what it recommends for the next year. Too often people come up with proposals for membership fees based on five minutes thought and a few pokes at a calculator, which those present then vote on, with even less time for calm consideration.

Comp Licence goes

Membership of the Society of Model Aeronautical Engineers in 1986 will offer better-than-ever value for money. The September SMAE Council meeting decided to do away with the requirement for a competition licence, currently £10, for those taking part in any of the Society's events next year...

This puts around 70 competitions in every branch of the sport within easy reach of every member, *without* the need of prior licence purchase, and will be specially welcomed by those who enter only a small number of events.

Now anyone can try competition flying in any of its fascinating varieties, from microfilm to R/C scale, or from C/L combat to Wakefield. They are sure to find that it is 'fun flying' par excellence!



What's On

1 December AEROMODELLER COUPE D'HIVER INTERNATIONAL

Venue: R.A.F. Henlow. Contact: Aeromodeller. Tel: 0442 41221. All attending must notify Aeromodeller by 22nd November.

17 November
FALCONS FREE FLIGHT GALA
Events: OP, OG, OR, Vintage. Venue: R.A.F. Lindholme, Nr. Doncaster. Contact: Russell Peers. Tel: Crews 60893.

24 November
NORTH OF ENGLAND LOW CEILING
INDOOR MEETING
Comps: HLG, Scale, Peanut Duration, EZB. Venue: Wigan Technical College. Contact: Dave Yates. Tel: 0942 214725. Rules are available from John O'Donnell 061-427 3711.

24 November
SOUTHERN AREA INDOOR MEETING
Comps: Peanut, Open Rubber, CO₂, HLG, EZB, 'All Balsa Machine' SAM 35 Earl Stahl. Venue: H.M.S. Daedalus, Lee-on-Solent. Contact: Malcolm Leach. Tel: Emsworth (Hants) 5364. Also Fly-For-Fun. Entry £1.25 (per comp of F-F-F), under 16 free. Anyone going must inform Malcolm Leach at least one week before. Flying from 1pm to 6pm.

24 November
WIGAN LOW CEILING INDOOR
MEETINGS
Comps: EZB, HLG, PND, Scale. Venue: Wigan Technical College, Wigan. Contact: Dave Yates Tel: Wigan 214725. Rules from J. O'Donnell 061-427 3711.

14 December
DERBY LOW CEILING INDOOR MEETING
Comps: EZB, HLG, PND, Scale, Sweepette Trophy for Open HLG. Venue: Rolls Royce Sports Hall off A5111 Ring Road. Contact: Phil Ball 0332 665361.

1986
12 January
SLAITHWAITE LOW CEILING INDOOR
MEETING
Comps: EZB, HLG, PND, Scale. Venue: Coine Valley Leisure Centre, Slaithwaite. Contact: Dennis Davitt. Tel: 0532 675433.

26 January
SOUTHERN AREA INDOOR MEETING
Comps: Peanut, Open Rubber, CO₂, HLG, EZB, 'All Balsa Machine' SAM 35, Earl Stahl. Venue: H.M.S. Daedalus, Lee-on-Solent. Contact: Malcolm Leach. Tel: Emsworth (Hants) 5364. Also Fly-For-Fun. Entry £1.25 (per comp of F-F-F), under 16 free. Anyone going must inform Malcolm Leach at least one week before. Flying from 1pm to 6pm.

9 February
SLAITHWAITE LOW CEILING INDOOR
MEETING
Comps: EZB, HLG, PND, Scale. Venue: Coine Valley Leisure Centre, Slaithwaite. Contact: Bernard Hunt. Tel: 0484 862353.

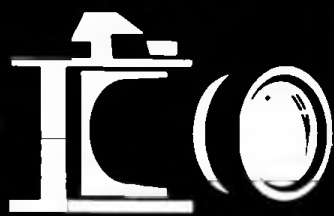


PHOTO PRIZE

Model News With Fliar Phil

Wood for the Winner

100 Sheets of balsa, nearly 200 lengths of strip wood — some prize!

All you have to do is send Fliar Phil your photograph — good quality black and white or colour prints will do, with your name and address plus details of the model, its construction, etc., on the back. Post your entries to Aeromodeller Photo-Prize Feature, P.O. Box 35, Wolsey House, Wolsey Road, Hemel Hempstead, Herts HP2 4SS. Photos will be returned after publication.



When we take a model out for the first time, it usually, **EITHER** needs minimal trimming before flying well, — **OR** it turns out a real brute to trim, before it grabs for the sky. It seems to be a fact that aerobods often become more 'turned on' by the model that gives them a lot of trouble than by the one that gives them very little! Just an observation folks! Now to this month's selection...

Photo 1

Back to the 'Roaring Forties' — 1946 in fact! The model is the curvaceous 'Scorpion' — free-flight vintage job, from a *Ben Buckle* plan. Span: 44in., weight: 1½lbs, power: *Mills* 1:3 (Indian version). Owned by Mick Bates of Northampton who says: "It looks as good in the air, as on the ground AND performs well". No one can want more than that Mike!

Photo 2

Mike Hetherington of Chesterfield, Derbyshire rightly described this 'Twin Gull' (from *APS* plans) as a classic Wakefield design, and very advanced for its time (1942/43), designed by C Rupert Moore, that great, and enduring name in the world of model aviation. It features counter-rotating props, retracting undercarriage and the patent 'Moore Drive'. A unique model Mike and a tribute to Rupert Moore's genius.

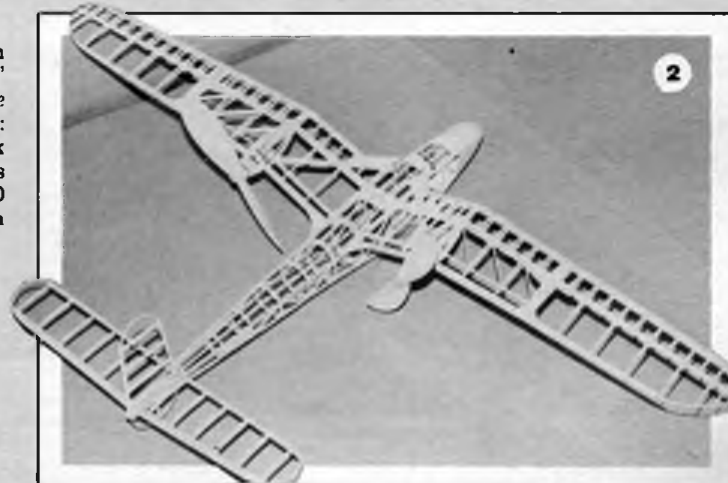


Photo 3

Realism plus, in this *Hawker 'Sea Fury'*, (even the exhaust smeared fuselage looks for real!) Sent to Fliar Phil by Mike Clews of Maidenhead Berks. From a APS plan, it weighs around 8lbs, fitted with *Futaba* R/C. It is a fast, smooth flier and features working flaps and a retract undercarriage. Likely to have an *Enya* 90 four stroke installed soon. Fine model, fine photo. Thanks Mike...

Photo 4 WINNER

It is F.P.'s opinion that way back, the photographer for the aeronautical magazine *Flight* would have taken a photo like this one of a real *Bristol 'Bulldog'* in flight! This 'Bulldog' is of course a fine scale model, built by Craddock Morris (from a 1958 *Aeromodeller* 1/72nd plan!). Steve Dunne of Eccleshill, Bradford sent this impressive photo - and some 'Bulldog' details. Span: 48in, OS 40 power, three channel *Futaba* R/C. This month's winner, F.P.'s congratulations to Steve and Craddock.

Photo 5

Well this really is a unique photo folks! It comes from David Ward of Hornchurch, Essex. Readers may recall David's fine Cessna 'Bird Dog' which F.P. published some time ago. Now David has practically taken us INSIDE the cabin! Those incredible instruments (for those who want to make a similar dashboard!) are from plastic card, scraper board, watchmaker's nuts and bolts, and Cocktail sticks! Fantastic David.

Photo 6

Among the last of the biplane fighters, the fine lines of the *Hawker 'Fury'* have inspired many aeromodellers to build a model. Surely none have been more successful than Paul Briggs of Nottingham MAC who built this 'Fury' (presumably rubber-powered) for indoor flying. Grabbing his opportunity at the 1984 Indoor Nationals, Mr. A.L. Smith of West Hagley, West Midlands took this fine photo.



Photo 7

Not an easy subject to choose for a free-flight scale model is the Caudron G III of WW1. However Neville Coldrick of Liverpool has produced this fine model of a Caudron G III powering it with a DC 'Merlin'. Neville writes: "It was with some trepidation that I first flew it. To my great delight it required very little trimming out, and flies in a wandering flight path"...

More models with 'Winning ways' next month folks!

Remember folks, this is YOUR feature and Fliar Phil needs YOUR photos to keep it going!



YEARS YOUNG!

REFLECTIONS ON A LEGEND

by RON MOULTON (with it for 35 years!)

*Eston Bray 1950:
self built offices
on a 100 acre
field. School
capped
youngsters and
parents fly a KK
Jr 60 on ground
based radio from
the marble
smooth race car
track. Great
Days!*

When the *Barron-Dean Publishing Company* launched *AeroModeller* 599 issues back they were obviously hoping to ride high with the tide of enthusiasm so typical of the mid 30s. Aeronautics was a topical subject. The barnstorming air circus; record breaking flights; new monoplane fighters (and bombers!); daredevil personalities, and model kits had fired a new found spirit of adventure for anything that would fly.

Through the oiled silk *Warneford* series of ready-to-fly models to the detailed *Keelbild* scale kits and the popular *Skybird* 'solids', the air minded youngster could follow his idols with hope of real achievement. Model shops were established in major cities, sheet balsa, strip rubber, and even those crackling miniature aero engines from the U.S.A. had become a staple diet for the experienced - and the better-off adult modellers.

It was in this cosy atmosphere of peace, just seventeen years after the Great World War, that magazine ventures were sprouting with optimistic speculation on all manner of subjects. Contributors abounded; but they didn't always get paid for their pains.

One of them, a fast thinking Douglas Arthur Russell considered he was owed £100 for his design series and editorial work in *Aero Modeller* and we've his personal word for it, that he made such a fuss he accepted the magazine in lieu of payment! Thus began a legend.

For any thoughts of *Aero Modeller* must inevitably embrace the persuasive character of 'D.A.R.' and the manner in

which he built an empire of incredible diversity around the original title. His magnetic personality and perpetual promise attracted numerous motivated personalities for his many ventures.

To work with, for (or under) D.A. Russell gave anyone a rich apprenticeship in his own original principles of business practice, ingenuity, and financial management. His was a school for schemers, but whenever the magnetic poles were reversed by a mercurial temper, the expulsions were in some instances most spectacular.

But we move too fast. The beginnings were modest, and progress over the first 18 issues was a slow build up of informative contributions from personalities who were in later years to have a strong influence on the fortunes of aeromodelling. Captain C.E. Bowden, William Clarke-Hall, C.S. Rushbrooke, Tim Hervey, James H. Stevens, L.S. Wigdor, C.A. Rippon, Dennis Fairlie, Bob Gosling and R.N. Bullock were among the authors listed in that first volume.

Many of them recruited by D.A.R.'s golden tongue, and secured before opposition arrived against the sixth issue, in *The Model Aeroplane Constructor*, edited by Hubert Dray. There followed a sharply honed duel, each competing for the allegiance of the SMAE, the Skybird league, the independent clubs and the support of a limited trade.

Hubert Dray resigned after 22 issues of the battle and the *Constructor* slipped back into the editorial anonymity typical of the period. But it did have the wit and compulsive gossip of the 'Moving Finger'

plus fine columns by Eddie Cosh and Ralph Bullock, and its selection of full size free plans had put the *M.A.C.* ahead of the *Aero Modeller* in the eyes of many.

It was Leicester versus Blackheath, for Russell took offices at Allen House, Newark St., Leicester and from the June '37 issue, this became his official address. Inevitably he won the commercial fight, taking over both the *M.A.C.* title and its columnists with the first of a long series of specially enlarged *Aero Modeller* - Christmas (December) issues in 1938. Eddie Cosh carried on with 'As I See It', and 'Rushy' moved his finger over as well. Not that many knew he had been writing for both mags under pseudonyms!

It was a time of political turbulence. Editorials excused late issues by blaming Air Raid Precaution practice, and scale drawings began to feature camouflage markings. Standards of design, illustration and research features had leapt forward within the first four years of publication with Sammy Crow, Howard Boys, Juste Van Hattum and J.W.B. Cruikshank among the most innovative scribes.

Harold Towner and Peter Chinn became established as authorities on scale models and the new fighters, while the staff at Leicester was augmented with recruitment of John Elwell and C.A.H. Pollitt.

D.A. Russell's pen had already produced his "Design and Construction of Flying Model Aircraft". Many other specialist books for aeromodellers were soon to appear under his *Harborough Publishing Company* banner from Allen House. Stan Rushbrooke's "ABC of Model Aircraft Con-

Stan Rushbrooke and Harry Hundleby - tireless workers for Aeromodeller and the SMAE for over 22 years, setting the standard of the Fifties.



struction" was almost coincident with the outbreak of WW2 and was clearly recognised as a valuable library reference in the climate of RAF recruitment. It went on to a record total of 50,000 copies sold.

Ever active, Russell had set up the *National Guild of Aeromodellists* insurance scheme, and was expanding his publishing ventures by leaps and bounds. A 'Plans Service' was launched. *The Model Aeronautical Press* became an important element in supporting the movement for national air-mindedness and by sheer fortune when 'Rushy' joined the R.A.F. as a Link Trainer instructor he spent his time at bases close to Leicester and so was able to continue his editorial duties with minimal inconvenience.

While Allen House remained the official editorial address, a southern office had been established, first at Makepiece Mansions in the Holly Lodge Estate and then at Wilmary House, Merton Lane in Highgate, North London. Wartime accentuation of anything connected with flying and the Royal Air Force boosted demand for the magazine such that it grew from 6,000 in 1937 to 27,000 by May '40.

With this expansion the team itself began to grow. A.H. Smith's name began to appear on a new and improved style of drawing. Cartoons by 'Freddie' took on a well informed and topical humour, Bill Dean's 'Aeromodel Cabin Duration' design set him on the start of a long career and Harry Cooper's 3-views under 'Aeroplanes Described' became a monthly must.

December '41 issue was surely the classic of the decade. In spite of paper control, print restrictions and the sheer hell of getting any product out to time under the stringency of wartime conditions, Russell put together Houlberg's 'Isis Wakefield', Bowden's 'Big Stuff', Sayers' GB2 flying boat, Towner's 50 inch 'Albacore', full size 1/12th scale plans for a 'Magister' and a photo feature on his own fabulous 10ft 'Lysander' all behind one of Rupert Moore's best ever covers.

Even the advertisers enjoyed the luxury of full colour reproduction! No wonder my own mentor, Edwin Colston Shepherd (Ed: *The Aeroplane*) was quoted as saying of D.A.R. that he "has a special merit of finding a way through bottlenecks".

In the midst of tumult, Russell's own 'Pegasus', the logo (he called it a 'Colophon') chosen for Harborough, was truly airborne. Those hectic days at Wilmary House must have been filled with inspiration to stimulate so much production. Harry Cooper's talents, collaborating with Owen Thetford and with Pollitt helping at first, then Gordon Stevens, created *Aircraft of the Fighting Powers*.

With a ready made market for any literature to aid the Armed Forces, the Observer Corps or the rapidly developing enthusiasm for air news among the teenagers, these volumes were printed in unprecedented quantities such that only a D.A.R. could deal with the complications.

He created the *North London Bookbinding Co.* to eliminate a serious production blockage. Staff were located 100 yards from Wilmary House in West Hill where a team of tracers were churning out 3-views which ultimately found more outlets than anyone could have predicted. For D.A.R.'s principle was that anything in his empire was re-usable elsewhere regardless of which of his growing number of companies funded the origination.

The blessing of this was the *Aero Modeller* benefitted but it would have taken a genius to unravel who was paid by whom for what, - a situation that was to prevail all through the '40s and spread over no less than 12 separately registered companies on my reckoning. There may well have been more - only D.A.R. could keep pace!

Aero Modeller blossomed within this umbrella, and with it, the fortunes of many young men - even boys - who responded to the adverts for school leavers to start at £1.10s.0d per week. Ron Warring and Bill Dean among them; Ron expressing his talents for analysis and Bill his effusive vigour. This paring was bound to produce turbulence and it came with D.A.R. chasing them down Highgate Road, steel ruler in hand, expressing grim (but unfulfilled) prospects for their future.

Harry Hundleby and Colin Norton-Smith followed into the editorial vacancies, along with numerous others indirectly associated with the magazine.

DAGRA, (a combination of Douglas Arthur and Grace) had been created for professional model making and brought together Eric Pullen, Frank Bull, Alan Butler and Keith Miller. Staffing was later to include Phil Smith, Doug McHard, Maurice Brett, George Cull and Alf Palmer, a collection of model makers who produced some of the finest work to be seen in museums and private collections. Inevitably there was an overlap. Keith Miller and Alan Butler spent many happy months in editorial while business for DAGRA was being courted.

Rupert Moore's cover paintings had become a trademark and though format had been reduced *Aero Modeller* pages were packed with info. Eddie Riding's series of civil aircraft 3-views were (and still are) unrivalled, and features by the new technicians, Norman K. Walker and Bob Annenburg commanded attention for their serious research. But the magazine also reflected Russell's personal views. Heavy wordage was given to a Sparey/Forster/Bowden contretemps over model engine design and the SMAE took a lot of stick for its dilatory attitudes.

Aero Modeller obliged the Air Ministry to review the wartime restrictions on power model flying, accusing the SMAE of blunders and gaffes in the process. The 'Bedford Line' was established as a compromise whereby power flying could only take place in the midlands and north. Modellers were grateful for the concessions, even more so when another Russell persuasion got the restraint completely lifted in September '44, - an occasion celebrated in style with the first wartime power event on September 3rd for the Sir John Shelley Cup at Sutton Park.

No wonder the A.B.A. (Association of British Aeromodelers) got off to a good start. It had a permanent office (not far from Wilmary House) a secretary, a substantial list of patrons and activists, and a lot of grass roots support.

Russell continued to support the SMAE by funding a newsletter (produced by D.J. Laidlaw-Dickson), gave trophies, and was close to its Council in every way but obviously he despaired of its lack of acumen and pace. He wanted a vibrant national movement and with 'Rushy' at Leicester, the creator of the SMAE Area system, Russell pushed for either of the organisations to show merit.



'Dickie' Dickson doing one of the many early TV presentations. His colourful recollections embrace the whole story, from Highgate to Hemel Hempstead.

He gave space to a declared policy statement in which the ABA Secretary said they wanted "a modellers' clubhouse on a series of aerodromes up and down the country." Such ideals were already fermenting across the editorial desk. Gill Harris was writing about turbo power and pure jets, Peter Hunt on radio control, Peter Payne on advanced aerodynamics and against the stagnation of SMAE activity, this enterprise and ABA campaigning was giving fresh inspiration along with hope of victory in Europe.

Boldest of moves was the first National Aero Modelling exhibition at Dorland Hall in the heart of London. January 1945 was still an austere period but this show was to enliven the spirits even more than Russell and his now extended staff of dedicated specialists could have foreseen.

Dickie Dickson recalls the incredible last moments prior to opening. Of producing a catalogue within the last 48 hours as print and paper came available and going back each night to run more off themselves by arrangement with the printers who had long since retired to bed.

There were to be two more such Dorland Hall exhibitions, each attended by famous personalities in the Services, Politics, the Air Industry and Royalty and all having enormous influence on youth and the air-minded.

Meanwhile the team at Wilmary House and West Hill were churning out numerous books, few of which failed, though Dickie did succeed in convincing DAR that one ailing title on Bird Flight should be re-jacketed and called 'Elementary Flight' so it had a second chance!

Aircraft (Technical) Publications had been formed to open *The Aeronautical Bookshop* at 7, Hanover Court, Hanover Square 'only two minutes from Oxford Circus'. Such elegant surroundings were extravagant but with Air Commodore Arthur Glenny in charge and a youthful Keith Miller making Rupert Moore 'Jackdaws' in the window to draw custom, it was a valiant try. The ATP photo studio was in the basement and with a quality magazine *Air Review*, edited by Arthur Lukins (who also produced a book on *Westland aircraft*), and Dermot Wright as chief photographer, Russell ensured that no grass should have a chance to grow on the Hanover Square pavements. Contributors to *Air Review* read today like a who's who of highest authority.

John Stroud, Owen Thetford, Eddie Riding, John W.R. Taylor, Roy Cross, Stanley Orton Bradshaw all found *Air*

Review receptive to their talents. But we digress (inevitably) from the core of the operations, the *Aero Modeller* which also had its share of noteworthy names including a William Boddy who when older became the formidable editor of *Motor Sport*.

Russell's ability to acquire support and stimulate new ventures was having an increasing effect on the ABA. Lady McRobert, long a sponsor of full size aviation and after whom Lancasters had been named, was enrolled as a Patron. Lawrence Sparey was recruited into *Drysdale Press*, another company offshoot, to start the *Model Mechanic* but soon found his work was to be spread wide as the famous Sparey 5cc diesel appeared everywhere.

Interest in engines had always been a keynote with Russell. He had promised a school age David Parker no less than 15 guineas (it was always guineas with DAR) if he would design and deliver a tested 10cc fourstroke, complete with article in '42, and it is much to David's credit that this same drawing is still in the Plans range and has recently been featured some 43 years later in *R.C.M. & E!*

There was also a spell when an engine 'factory' using the name of *Atlas* was started at Studham near Whipnade Zoo in the Chilterns. Its first and only product, the 'Buzzard' faltered although it was put out to yet another company. For once, Russell's strategy failed, mainly because he kept this one in the family and was too dogmatic to accept outside advice.

With the end of hostilities, City dwellers were already looking to movement into the countryside. At Eaton Bray, a grassed field of just under 100 acres had been marked as a reserve aerodrome and had obviously caught Russell's eye. Success in publishing ventures had given him a superb home at Boxmoor, a wide circle of friends and a range of activities sufficient to occupy a whole committee of administrators, though he remained as ever, autonomous. Eaton

Bray was to be the Mecca of Aeromodelling. It was a magnum opus to climax all his previous achievements.

The concept needed cash input. Another company, shareholdings, persuasions, coercions followed and in September '45 the first model meeting was held, the smooth white concrete take-off disc establishing an identity that was to mark the site for years.

Foundations were established on the northern edge for the new publishing headquarters. Designed by DAR, architect and foreman, the property was in the shape of an 'E', erected by the staff at weekends, aided only occasionally by local casuals. Without planning permission or inspections, the 'offices' were at best rudimentary and at worst downright illegal.

Subsequent fines totalled £6,000, - a huge sum but one which never deterred the man to whom Ministries and officialdom were tiresome. Many are the tales told of those days when staff had moved from Wilmary House to Brooklands at Linsdale while the breeze block walls were being erected...

There was the case of the 'borrowed' steamroller, which no one knew how to operate, to roll the equally 'borrowed' clinker from the gasworks into a driveway over the otherwise very agricultural surface. Peter Hunt decided to do a boiler test and the fire was stoked to maximum. Using binoculars to view the pressure gauge at safe distance he called off the readings to an unbelievable level: but to general disappointment nothing blew up.

It did, however, sink so deep it couldn't be moved until another traction engine was brought in to rescue. Aeromodelling?? Maybe not: but just think how remarkable it was that a 10,000 sq. ft. building was created by unskilled publishing staff in spare time during and after the magazine work was going on. How Eddie Riding coped with the ice cold water in the rudimentary darkroom I shall never know, nor shall I ever understand how the crude asbestos sheet roof kept so much paper so dry.



Eddie Riding - rarely photographed, but whose scale drawings are renowned. An Avro 504 and Mosquito expert, he lived - and died, for flying. Photographer and draughtsman he was associated with Air Review and Aeromodeller for 10 years until his fatal air crash in the Auster Autocar, Easter 1950.

All the time, the *Sportsdrome* had its weekend events. A mobile (when the ancient Fordson tractor could be persuaded to start) control tower, two Nissen huts, a snack bar and modelshop were constructed and Eaton Bray was, in the short space of two years, fully operational.

Air displays with Neville Duke performing brilliantly in the *Hawker 'Tomtit'*, motorcycle scrambles, even horse race meetings were part of the revenue earning development, although each brought complaint for a dis-regarded regulation.

The buildings housed *DAGRA*, *North London Bookbinding*, *ATP*, *Plans Service*, *Drysdale*, *Harborough* and, of course, *The Model Aeronautical Press*. Allen House in Leicester was still Rushy's domain, and it was from there that the Plans sales were controlled, and yet another company, *Hubert Cunningham Services (HCS)* which handled promotions for the rapidly growing model trade.

International weeks at Eaton Bray involved almost everyone who happened to be available. With Harry Hundleby elevated to the title of Assistant Editor but actually producing 95% of Aeromodeller, Dickie Dickson the ideas man, with a penchant for public relations, Lawrence Sparey and Tim Hervey in the 'Experimental' department and top line draughtsmen/artists Chas Sherratt, Bill Matthews, John Coasby and "Cliffy" Clifton, those early days at Eaton Bray were the cornerstone of the immediate post war boom in aeromodelling.

Russell's vision was beginning to come into reality. Teams from the suppressed European nations elevated standards as the interchange of engines, materials and techniques flourished in the wonderful atmosphere of self-help and peace amid the fields of Bedfordshire.

Printing was by letterpress and that meant zinc or copper blocks on wooden mounts. After use for the magazines (*Model Cars* and *Model Mechanic* were blossoming), the metal went for cash in salvage and the beech or mahogany mounts relieved the agonies of farmyard concrete floors with a patchwork of parquetry for the senior offices.

Well not all... the larger beech mounts

Eaton Bray Sportsdrome 1951. George Honnest-Redlich starts his faithful ED Mk IV, Len Steward holds the microswitch, Gordon Oates restrains the 'Electron' as D.A. and Joan Russell approach to record the scene on film. The 'tower', snack bar, bell tent, cars and vans typify a weekend contest. None were to foresee their remarkable futures - or that of the Bray itself.



were taken to the bandsaw, became prop blanks and were disc sanded or rasped for the regular lunchtime control line training sessions. Amazing how adept even the most hamfisted individuals became in producing those 10 minute props, - broken of course within a lap or two, but adequate for the purpose.

Away from Highgate and with the war-time demand for the *Aircraft of the Fighting Powers* volumes and sister titles on the wane, the book business was taking hard knocks. By 1947 Russell was ready to accept an offer from *Argus Press* which kept him in management and somehow permitted the other companies to stay. For months the chase to be first at the bank before the cash ran out of salary money had disturbed an otherwise tranquil family feeling and this new security restored crew morale from what could have been a disastrous stall.

Through the late '40s *Aeromodeller* soared in circulation to a peak of 58,000. Its Coasby styled model plans, Eddie Riding's scale 3-views and the totally original editorial innovations set it ahead of competitors though there was still a cautious regard for the Dean/Warring products and Eddie Cosh's work on *Model Aircraft*.

The ABA had melted away silently, having served the purpose of wakening the SMAE from its slumbers and Eaton Bray became one of the centralised venues for contests.

Few of the visitors had the chance of seeing the interiors. Corridors lined with uncased AFP volumes, ex military coke stove heating in the corner of most but not all offices, bare concrete or coconut matting covers between salvaged desks and lighting suspended from the roof girders in a variety of tube lengths. Crude it may have been, but the spirit was amazing...



Total aeromodelling in the two Nissen huts during international weeks brought together teams and individuals from New Zealand, Canada, Elre, France, Belgium, Holland, Czechoslovakia, Yugoslavia, Denmark and Sweden, establishing lifelong friendships and inspiring some of the young men into outstanding careers.

collaboration with those he thought should have given support. Public meetings were staged in the square at Leighton Buzzard to protest against threats to return the aerodrome to agriculture by the Ministry...

Called to his desk one morning, I was told to go out and buy myself a grey gabardine uniform and set myself up as Aerodrome Commandant. In an arm sweeping gesture as he forecast the Bray becoming a Wembley Stadium for all modellers, he scattered a pile of papers off the corner of his substantial desk. "Don't bother with those - they're only writs" he said and went on to ask if I could buy some floor paint for the Nissen huts!

So it went on. An ideal only partially realised. A holiday camp with volunteers to paint the floors, make the beds, prepare the salads - and run the events. Each weekend the salvaged public address on the corrugated iron 'tower' would be set to play the *Entry of the Gladiators* or *Oh What a Beautiful Morning* until the first groups arrived to pay their 1/6d for a day at the Bray.

Interlinked with the magazines, these facilities were way ahead of their time but regrettably unsustainable. There were wonderful moments that could only arise from the panoramic views through the windows which embraced the aerodrome, the Chiltern Hills beyond and the White Lion of Dunstable to give us a degree of weather forecast by brightness of its chalk surface.

We could see rain on its way 10 miles off. Dickie failed to heed this warning when giving a guided survey of the field to a motor event organiser and the whole staff lined the glazing to watch a black wall of torrential rain obliterate them from view. As they emerged, soaked, Dickie was offered Cliffie's skirt for the rest of the day in deference to his Scottish ancestry while she carried on tracing in a petticoat. The visitors had to drive themselves off to change elsewhere, their car seats absorbing gallons of water.

Though ideal in its situation, to have an aerodrome on the doorstep was not appreciated by everyone. When a flying scale designer of some repute personally delivered his plans and the model for photographs he was taken aback when expected to actually

demonstrate the flying capability. He had to be persuaded that it was an 'or else' situation little knowing that it was just as critical for the photographs to be taken that day and the drawing rushed for the next issue.

For safety a fishing rod was used for fictitious 'flight' shots but the model had to be left unwillingly 'for further shots', - only to be flown quite successfully in the designer's absence later that day! No such qualms existed with staffer Laurie Bagley. His scale models were flown to the point of becoming oil soaked before he would permit the design to appear...

Radio control was still in its infancy. Publication of Walter Good's 'Rudderbug' and supply of ECC or ED equipment was creating new interest which captured Harry Hundleby totally, and with him Fred Turner whose job was to develop sales overseas. While Harry could make his 'Sparky' dice around the field and land where it ought, shortsighted Fred always found control difficult on the simple microswitch.

This was never more apparent than in the winter of 51/52 when Fred actually confessed he couldn't see the 'Radio Queen', - could we please help? One glance at Fred's snowflake covered specs was enough explanation. We fell about in hoots, and saved the model, then cruising safely overhead. Later, Fred had his own chance to laugh when Harry bravely undertook to fly R/C inside Wembley Stadium and the model (also the demo guests) rapidly disappeared.

38 Clarendon Road, Walford - home in more ways than one for 13 years and the beehive from which came many classic issues.



Hauled by the Aeromodeller tractor, Eaton Bray's chequered mobile control tower was an amazing corrugated iron structure on a home built chassis but it had everything to run a rally. Blackboard reads "Comp closes 7 p.m. We want timekeepers".

When DAR entered the car business with the *Russon* and waited to show off his 'production' line to prospective agents he had no difficulty in persuading everyone to take up a hammer, hacksaw or file to augment the actual staff of just four people. The illusion worked but, not for a group of *Rolls Royce* reps who had come to collect a magnificent model of the 'Merlin' made by Maurice Brett. The questions as to what was happening proved embarrassing such that they were swiftly ushered out under threats of secrecy!

For Russell, the early 50's were a nightmare. His extravagancies had not been matched either by trading results or

The crunch came in March '52 and it was like the proverbial moonlight flit to escape the landlord - only this time it was the holding company who were pulling the strings. In the best kept of secrets *Argus* had OK'd the tenancy of a Girls school property in Watford. After 17 years of building up and over a peak of business, D.A. Russell resigned as Managing Director and the new address of 38 Clarendon Road became home in more than one sense for *Model Aeronautical Press*.

Rooms with real floor to ceiling walls, a tennis court in the large garden, and a Synagogue in the same grounds could not have provided a greater contrast. Rushy moved from Leicester, bringing his methodical influence to direct control of the *Plans Service* and so began the happiest ever period in the history of the magazine.

Rushy concerned himself more with the business aspects and advertising. He was the king among organisers, totally dedicated to the *SMAE* in which he served many official appointments and it was he who established a liaison with the RAF for the annual 'Nats'. After years of isolation at Leicester, Rushy's influence brought together a team that worked more closely in the improved environments. As other tenants moved out, so the team expanded.

Vic Smeed and Doug McHard among them. Rushy's favourite quote that "*our work is a pleasure and our pleasure is our work*" took on new meaning. No letter was left unanswered, no avenue remained unexplored. Harry was given the full mantle of editorship after a couple of years, a late but well deserved title change for someone who had been at the steering wheel for a long time and his 'go anywhere, do everything' assistant was perpetually searching for new trends and ideas.

Model Rocketry and the first ever World Championships for Power free flight were reported in the enlarged December '52 issue and a young John Fozard was persuaded to contribute on elegant delta's in March '53... long before he designed the *Hawker 'Harrier'* or proposed the Ski jump carrier deck. It's nice to know John never forgets that feature.

Team Racing, PAA load, Jetex, scale, metal covering and circuits for radio control were typical of the diversions in '53. Ron Warring had taken over the 'Engine Analysis' series and to cope with new standards *Aeromodeller* funded an Eddy Current Dynamometer. Max Hacklinger was recruited to write on turbulances and airfoil research at Battersea Polytechnic encouraged in the search for new technology.

By the end of '54 Radio Control was emerging with better reliability and the 'AM Tx' circuit fully tested for general consumption. It was indeed a fertile period. Brauner's pulse jet, Dave Sugden's 2.5cc diesel, introduction of A/1 gliders with Vic Smeed's 'Golden Wings', Rev. F. Callon's superb how-to-do-it photo features and many designs that have survived the past 30 years, emerged from those industrious days.

38 Clarendon Road became a Mecca for visitors and a hotbed for exchange of new points of view on everything from International model specs to air education and trade liaisons. There were many 'firsts'. The 'Hill Rx' possibly brought more people into R/C than any other influence. 1/2A free flight power, Coupe d'Hiver and Combat were introduced.



Unsung heroes. Chas Sherratt (top) and John Coasby, each with a prodigious output of artwork and drawings, through Eaton Bray to Watford.

The office was perpetually active, but there were drastic changes that disturbed the equilibrium. Harry Hundleby left to become Sales Director of *Davies Charlton* at the end of '58 and 'Rushy' died on Boxing Day '62 from a coronary which no one could have expected.

Artist Chas Sherratt, long serving and so incredibly frugal (he used to split his matches before a days work) emigrated to Brisbane and John Coasby left for South Africa. Peter Holland had already taken on tracing and illustration, now he was draughtsman as well! Meanwhile a young Tony Dowdeswell had been recruited and when the pocket size *R.C.M. & E.* was established, Tony and Peter took over the vacant Synagogue next door as an independent outpost.

First signs of economic restraint were now obvious. A once generous *Aeromodeller* staffing of at least three was down to just one for editorial, a situation that has prevailed ever since. It meant longer hours at the desk, fewer on the flying field. There was a standard to uphold and but for the great support of the secretaries and drawing office, the monthly miracle, especially the 100 page Christmas issue would never have appeared on time.

1965 was to be a tumultuous year. It seems so long ago yet it opened with plans for a profile 'Concord', the making of 'Magnificent Men' and Phil Smith's demos to the Shah of Iran with a cast of thousands. We personally measured the Me109 with Doug Carrick for drawings in the June issue that have been knocked off by every monograph or drawing feature published around the world ever since - we know because there's a giveaway in the fuselage plating!

Scale rallies were started oddly when a gale obliged entrants to take shelter in a Hemswell Hangar. Never before had so many scale types been gathered in one spot, and we were inspired then to start the annual rally at Old Warden. Colour profiles - the very first ever to appear, went onto inside covers from August and Alex Imrie started a new series on Jagdstaffel markings. We could go on: but the most significant impact of '65 was notice to quit our cosy 'No. 38'.

Local Government works in peculiar ways. Our landlord had a splendid notion to convert the large site into a Hotel with provisions for *MAP* in the process. His applications were rejected. Instead a compulsory order was slapped on the property to have it pulled down and made into a multi-storey car park!

MAP found premises in Bridge Street, Hemel Hempstead, No. 38 was pulled down, an embargo on expenditure was levied on Watford Council and today - 30 years later - it's still an open space! For old times sake I'm going to risk flying a noisy stunter there one weekend just to get my own back.



Bridge Street, Hemel Hempstead. It was in fact better than it looks and in 17 years it was witness to expansion and many changes.

Bridge Street was, like the curate's egg, good in parts. It represented changes of attitude that were overtaking all business houses. The move in August '65 coincided with introduction of *Model Boats* to replace *Model Maker* so the stable was still four titles with *Aeromodeller* the leader.

When *Percival Marshall* magazines were offered for sale at the end of that year, *Model Aircraft* was absorbed into *Aeromodeller*, a decision met with mixed feelings but to run the two in parallel was not possible.

A year later in January '66 John Franklin was appointed Assistant Editor - having gone through 2½ years as an editorial assistant. *Aeromodeller* was back at full strength, opening with a prophetic 'Why not 4 stroke?' by Dennis Chaddock. It was a year of classy plans, most on loose inserts using colour tinted paper which some readers thought objectionable!

The heavy grade plan paper was dropped in deference but the policy of providing full size drawings continued with ten in '67. Reliable radio encouraged slope soaring and R/C scale, - best typified by the superb models made for the 'Battle of Britain' film at Pinewood by a team set up on *AM*'s recommendation.

Quality in 3-view scale drawings and technical detail on every class of model lifted *Aeromodeller* through '68. Thermal soaring was introduced as a new technique, the colour profiles were in almost every issue and the printing craft skills excelled in reproduction. We saw and described the first Wankel rotary engines, Seelig timers and reported zero wind and sunshine for the third all-scale rally at Old Warden.

Aeromodeller was no longer the primary title in *MAP*. By '69, with the launch of *Scale Models*, it was one of eight in the model group. Growth had become essential to match increasing costs and declining circulations. It was a case of *Scale Models* by day, *Aeromodeller* by night with a book programme on top. Nor was there any let up in the activity. For years the *AM* office had provided support for the *SMAE*. Now it was deeply involved in producing the *FAI Sporting Code* as well!

Pace of progress in the early '70's was in hindsight incredible. Dieter Schluter solved all the problems of the R/C Helicopter, Magnet gliders became practical, the first World Scale Champs was held at Cranfield, and the Nats had the best weather ever. Peter Richardson was made Asst. Editor, and took over Editorship in Jan 71.

With a control-line background Peter improved the coverage and engaged John O'Donnell and Eric Coates for a long series on free flight and flying scale. Eric's forthright Yorkshire view did not go unnoticed. When he criticised model standards in the RAF Museum, *Aeromodeller* went on the blacklist and was no longer sold in their shop. Equally John had his moments...

Peter Richardson introduced several photo series reviews and training aids under 'Back to Square One'. He also brought out details of composite structures, including propeller making, while vintage, which had never been far from the limelight, began to emerge in serious form with plan features on Wakefield Winners.

June 77 saw Dickie Dickson sent into retirement after 32 years of involvement with *Aeromodeller*. His was the happiest of guiding hands and he was missed for his human interest, and cosmopolitan attitude. His mark appeared everywhere in *MAP*.

It was a fruitful period of holding against the drift to radio control. Peter's

vintage partiality opened many eyes with a 'Those Early Days' series by 'Maggie' - the best ever account of early aeromodelling, well written and illustrated through four issues.

Always a keen motorcyclist, Peter moved to run *Motor Cyclist Illustrated* in January 78. He had been with *AM* for nine years, and made an impression as a totally involved and dedicated helmsman.

In his place we recruited Martyn Cowley, a visionary free flyer with a contest winning reputation and a flair for producing new ideas. Martyn's interests embraced control line too, so the content maintained topicality without bias. Completely opposite in every way to Peter, there were moments when Martyn's unpredictable nature stressed the production schedule like never before!

But *Aeromodeller* always appeared on time and his 33 issues will always be highly regarded for in depth reporting, a skill he retains while working for Paul MacCready in California. Martyn introduced a better graphic style. Pages appeared to be packed tightly and full of sketch work, an arrangement Tony Dowdeswell was well able to maintain while holding the fort until a new appointment could be made.

Solution came unexpectedly. Colin Rattray had been running *Model Maker*, a revived title which had established excellent circulation but failed to obtain advertisement support. Closure was unpalatable but inevitable. So as an ex-aeromodeller, Colin was a natural candidate, though again - completely different in character to his two predecessors. For one thing - and he would be first to admit it, Colin could lose anything!

A paper on Colin's desk was able to melt away into invisibility and return elsewhere on any day of the week. Maybe it was for this reason he always had lots of female help around! A most likeable personality, able to relate himself with the absolute novice and skilled in illustration, Colin changed the direction away from contest reports, brought in Alex Imrie's 'Vintage Corner', Martin Symons on model aerodynamics and had to take the hurtful decision to fade out both 'Club News' and 'Topical Twists' after almost 30 years of continuity. It was another time of change. Fewer non-radio

items were being introduced, CO₂, electric power and profile scale control line were among the new concepts but they were minority interests.

Finding the right formula was never more difficult. Colin's expertise in dealing with the beginner was applied to a series of introductory features. The aeromodelling movement however, was drifting to a higher average age with very low intake among the young.

Meanwhile *MAP*'s list of titles had gone as high as 21, occupying three separate buildings in the centre of Hemel Hempstead and plans were made to bring everyone together in a brand new building - Wolsey House. Three floors, partitioned offices, spacious and convenient, the new (and present) base is by far the best of all. The move was planned for January 83, and actually took place three months earlier in October 82. It was like a breath of fresh air for the staff, - one self contained property at last.

However Colin felt he was fighting a losing battle and opted to go free-lance, - he still contributes his art to several of the magazines.

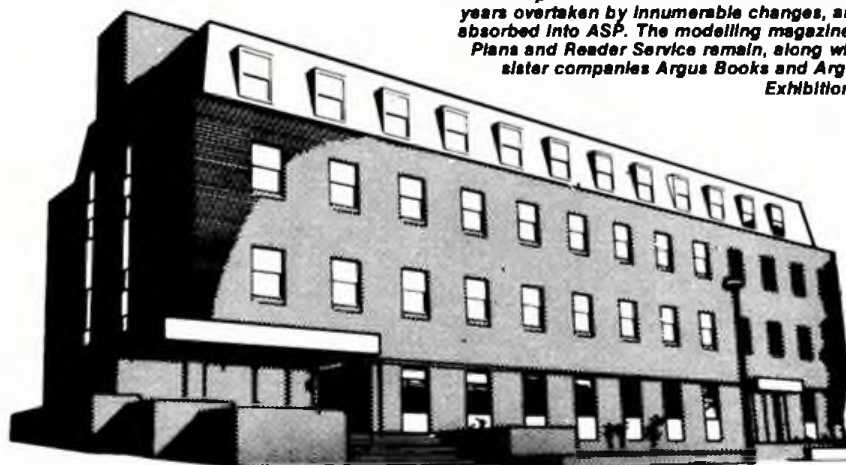
From April to November 83, the mag. was back with a caretaking Tony Dowdeswell though with a difference from July issue. Enlargement to A4 format (and inclusion of fold-out plans) increased the page areas and improved the graphics. Peter Freebrey took on the editorial December 83 and the rest is immediate history. Editorial balance has swung heavily in favour of the sports flier, photographs are larger, full scale plans are a permanent feature and every emphasis is placed on satisfying the non-R/C aeromodeller.

Regrettably this represents a small segment of overall activity and as a result of declining circulation and advertisement support, the cover price has been subject to major rises. In a way *Aeromodeller* has returned full circle to its beginning of 50 years ago. In size, and numbers they are alike. In content and pagination they cannot be compared.

Inevitably, in this account many names remain anonymous but are no less important in this history of a favourite magazine with world-wide circulation which has always been regarded with affection by its following. To the unmentioned secretaries (Evelyn, Joy, Pat, Barbara etc.), fellow editors, assistants, plans and advertisement staff, artists and tracers - especially to the contributors and photographers, - a huge thank-you for half a century of delight.

It's a proud record and all who took part in its achievement deserve congratulations on the Golden Anniversary.

Wolsey House - planned to absorb the 21 magazine empire of Model & Allied Publications, Plane Service, Subscription supply and a Computer service: but within its first three years overtaken by innumerable changes, and absorbed into ASP. The modelling magazines, Plans and Reader Service remain, along with sister companies Argus Books and Argus Exhibitions.



AEROMODELLER EDITORS

November 1935 - April 1940	ANON (A. L. E. Barron D. A. Russell)
May 1940 - July 1954	C. S. Rushbrooke
August 1954 - January 1959	H. G. Hundleby
February 1959 - December 1970	R. G. Moulton
January 1971 - January 1978	P. S. Richardson
February 1978 - October 1980	M. Cowley
November 1980 - January 1981	A. R. Dowdeswell
February 1981 - May 1983	C. Rattray
June 1983 - November 1983	A. R. Dowdeswell
December 1983 - Present	P. Freebrey

AIRCRAFT DESCRIBED

FOKKER D VII



No 265: Harry Robinson sketches the development of this highly acclaimed World War 1 fighter.

WHEN THE FOKKER D VII arrived on the Western Front in April 1918 it was immediately recognised as a truly outstanding fighter, but its extreme manoeuvrability, its ruggedness and rapid recovery from a dive were neither happy accident nor mark of genius. Rather, each of the D VII's characteristics was the result of methodical trial and error with a sound basic design, a process of development which reached its peak with the installation of the most advanced engine available.

Early in 1917 Anthony Fokker and his chief designer Reinhold Platz had introduced their experimental V 4 triplane, with thick-section, cantilever wings of the type pioneered by Dr Hugo Junkers but of all-wood construction. Platz had been Fokker's chief welder and although without formal engineering training had a talent for sound structural design and a strong preference for the simple solution to any engineering problem. Among the fighter prototypes he and Fokker developed during the second half of 1917 were the rotary-powered V 9 and the Mercedes-engined V 11.

The V 9 was clearly derived from the V 4 triplane, with almost identical fuselage, engine installation, landing gear and tail surfaces. Both wings used the same thick, highly cambered aerofoil section but whereas the smaller lower wing reproduced the V 4's single compound box spar, the larger upper wing used two orthodox box spars.

Later in 1917 a generally similar, larger machine was produced, powered by a six-cylinder 160hp Mercedes engine and designated V 11. Both its semi-cantilever wings used the same aerofoil section as the V 4 but

were of conventional two spar construction with N-type interplane struts in place of the widened V-struts of the V 9. The central cabane consisted of a tripod of streamlined steel tubes welded to engine bearer, lower longeron and upper longeron on each side and connected to the front spar while the rear spar was attached to each lower longeron by a single removable strut which provided a degree of rigging adjustment. The upper wing was dihedralled outboard of the cabane struts and carried partly inset ailerons with squared-off tip balances. The

welded steel tube landing gear was without the triplane's aerofoil axle fairing.

Tail surfaces of V 11 were generally similar to the V 4 and V 9 and the wire-braced welded steel tube fuselage was similarly short coupled, although its longer (and heavier) engine meant a lengthened nose, with the upper wing mounted unusually far forward. A nose radiator similar to that of the quintuplane V 8 was fitted, removable cowling panels were of aluminium and the upper surface of the fuselage was faired by a plywood-covered turtledeck.

Above, Albatros built Fokker D VII (6786/18) at Biggin Hill in May 1919. Below, BMW powered D VII flown by Oberleutnant Herman Göring from the third production batch built by Fokker, white finish probably factory produced.





Left, Göring poses by his white Fokker D VII, showing the standard Fokker military type designation, note strengthened late pattern Heinecke parachute harness. Below, Paul Mantz Fokker D VII in USA, has Wright Hispano-Sulza V8 engine so nose cowling is non-standard, rudder cross also wrong proportions...

The first of three competitions to find one or more war-winning fighters for the hard-pressed Fliegertruppe was due to begin at Adlershof on January 21, 1918. Fokker's own account of how he personally floated the idea of this competition, then influenced various 'ace' fighter pilots to support 'his' idea, must be considered highly exaggerated but it does seem probable that the starting date was indeed several days earlier than he would have preferred and that in consequence the V 11 was finished 'considerably short of what (he) had in mind'.

Nevertheless, with only some three weeks at his disposal, Fokker entered no fewer than eight aircraft in the Idflieg's fighter competition! Photographs of V 11 as delivered to Adlershof show that its upper wing had been moved aft, thus requiring a small trailing edge cut-out above the cockpit, and that its ailerons were now fully inset with their trailing edges in line with that of the wing. A small triangular fin and modified rudder also appears to have been fitted during this period.

However, Fokker was well aware that his V 11, although highly manoeuvrable, was directionally unstable with dangerous spinning tendencies. This was confirmed when at Fokker's request Manfred von Richthofen flew the aircraft on January 23, 1918. On the pretext of making minor repairs following a landing accident, Fokker locked himself in his hangar over the following weekend with two welders from his Schwerin factory. According to his own colourful story, they lengthened the fuselage by some 60cm, increased the vertical tail area, then recovered and repainted as necessary to hide these modifications. Photographs of V 11 in its final form show a longer rear fuselage with wider structure bays, differently contoured longerons and a more prominent triangular fin.

Thus modified, the V 11 was easy to fly with no tendency to spin: it was agile, reasonably fast and accelerated quickly in a dive without loss of directional stability. It was unanimously agreed that the V 11 should be recommended for production as the standard Mercedes-engined type and eventually Fokker's V 13 was chosen as the best all-round rotary-powered machine. Not only were 400 V 11 type fighters eventually



ordered from Fokker's Schwerin factory as the Fokker D VII but Albatros Werke and its subsidiary OAW were to build his new fighter under licence.

A second V 11 was built: type testing at Adlershof began on February 4, 1918 with prototype structural testing that same month and further structural tests of a 'pre-production' D VII in March. Both aircraft exceeded the required criteria and in service the D VII proved to be immensely strong: no D VII structural failure in the air has ever been recorded other than the failure of top wing ribs aft of the rear spar at the centre-section, but no fatal crashes are known as a result of this short lived defect.

At Adlershof the V 11 had been considered rather heavy with less than outstanding climb and performance at altitude. In an effort to make good these shortcomings Fokker built two more prototypes. One of these was the V 18, while the 'V' number of the other is not known. What is known is that all three machines (V 11, V 18 and V ?) were modified and eventually were allocated the first service serial numbers of 227/18, 228/18 and 229/18 respectively. The first production batch of Fokker D VII were numbered from 230/18 upwards and comprised 295 machines.

The first D VII from the first Schwerin factory production batch arrived at Jagdgeschwader I (Richthofen's old unit) in April

1918 and by the end of the month 19 were reported to be at the Front. It was eventually issued to most of the Front-line fighter units: 407 D VII were operational in July, 828 in September, and it is thought that less than 1000 were in Front-line use at the end of the war.

The ability of the D VII to retain control at very high angles of attack while firing into the underside of unsuspecting allied aircraft became legendary, as did its remarkable agility at very low speed while retaining the altitude of level flight.

A 'height-compensated' BMW engine of 185hp was installed as availability allowed: machines with this engine were designated D VII F and enjoyed improved climb, greater control at altitude and a ceiling of 21,000ft.

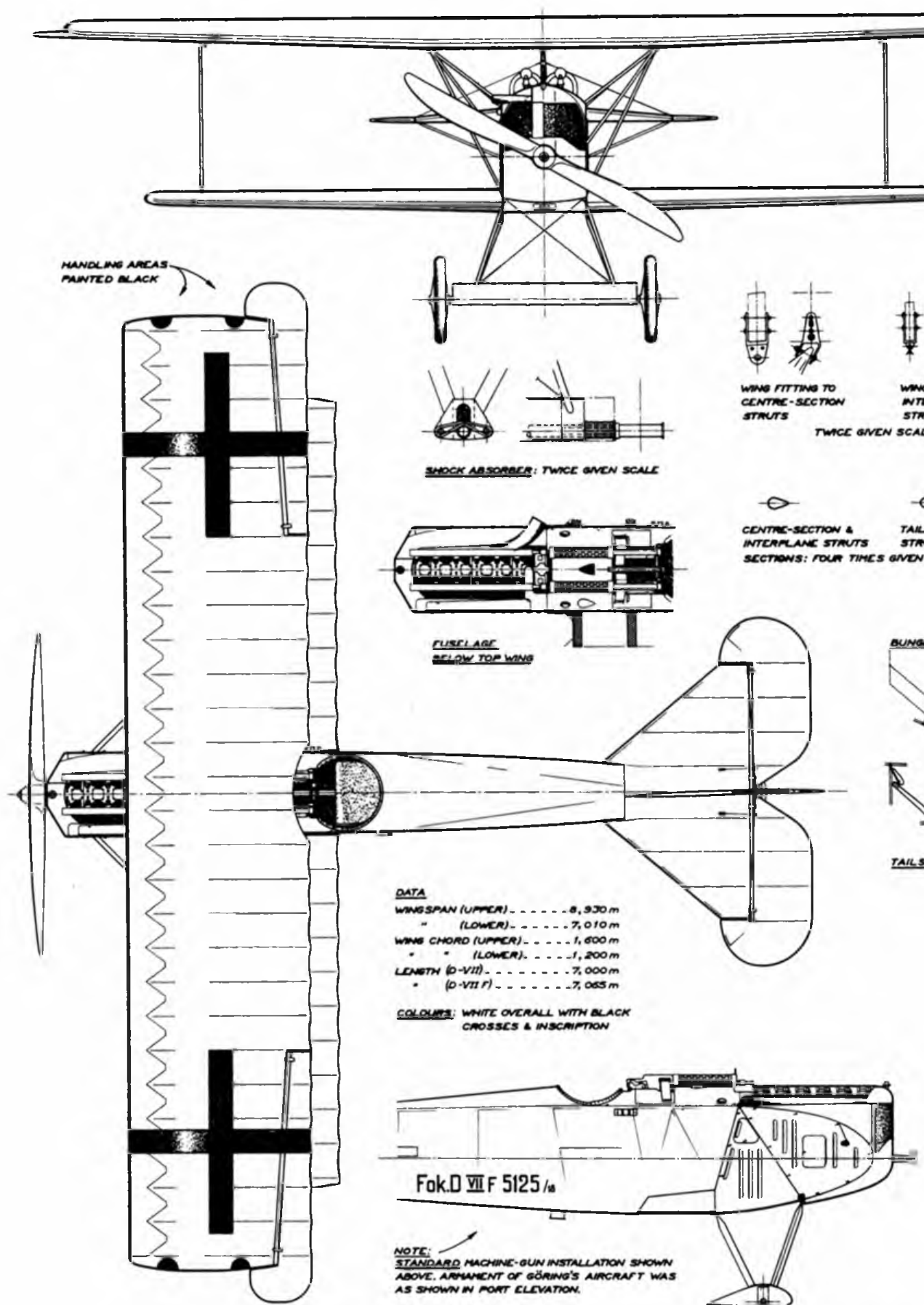
In April 1918, 217 Allied aircraft were shot down: in June there were 468 such losses, for July there were 517 and in August 565. Many of these were the results of successful employment of the Fokker D VII. Small wonder that the Armistice agreement of

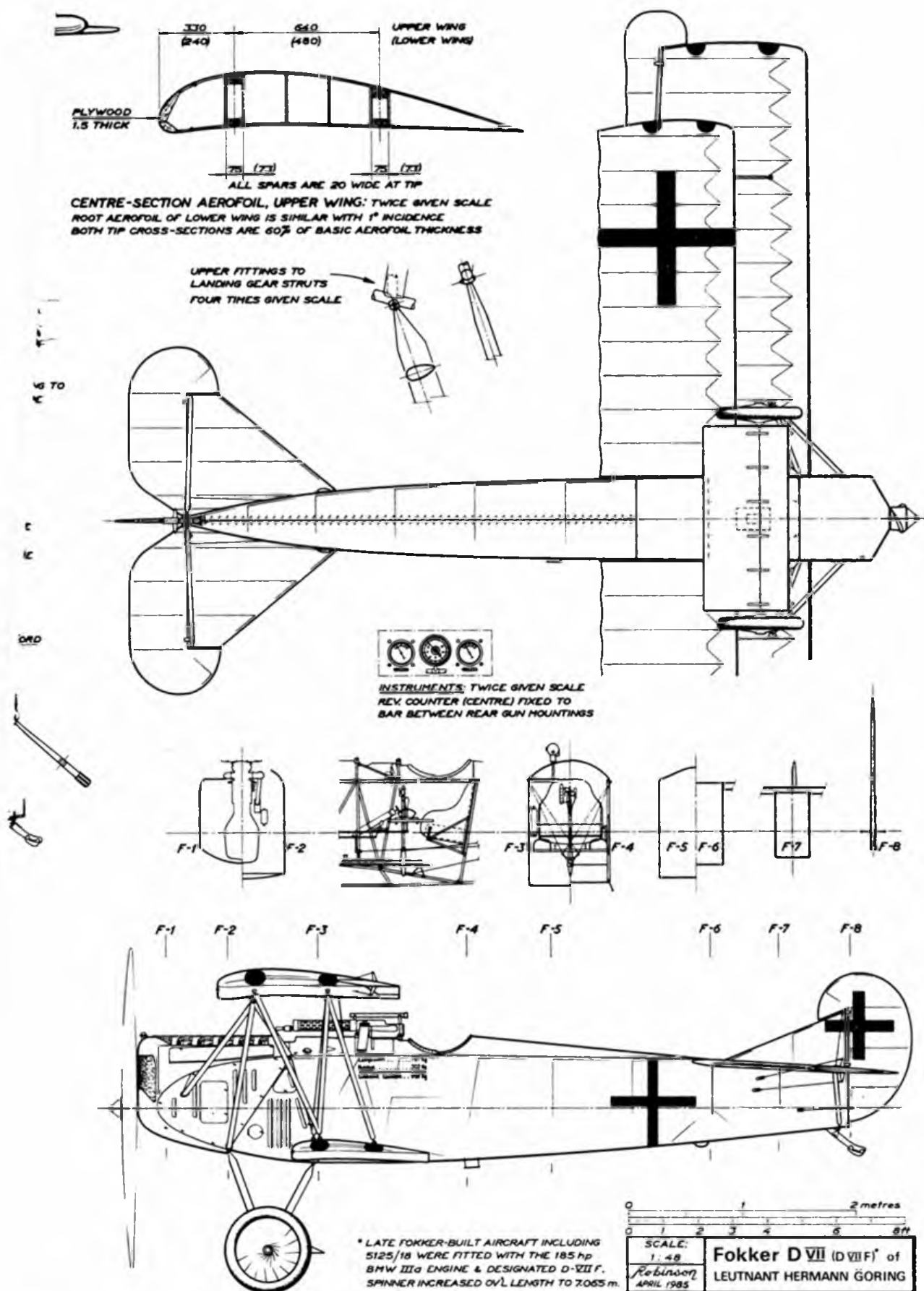
November 1918 stipulated that military equipment to be handed over to the Allies must include '...especially all machines of the D VII type.' Yet British and French designers ignored the structural and aerodynamic advantages of Fokker's thick, unbraced wing and the structural and production simplicity of his welded steel tube fuselage. But many of the surrendered machines went to America, where the value of their high-lift, cantilever wings and simple rugged structure was generally recognised: the D VII's influence on design persisted until the advent of stressed-skin metal construction became the norm.

CHARACTERISTICS

Upper Wing	Span	- 8.930m (29ft - 3.9/16in)
	Chord	- 1.600m (5ft - 3in)
	Area	- 13.5m ² (145.3ft ²)
Lower Wing	Span	- 7.010m (23ft - 0in)
	Chord	- 1.200m (3ft - 11 1/2in)
	Area	- 6.95m ² (74.8ft ²)
Overall Length	(D VII)	- 7.000m (22ft - 11 1/2in)
Overall Length	(D VII F)	- 7.065m (23ft - 2 1/2in)
Empty Weight*		- 655kg (1441lb)
Loaded Weight*		- 845kg (1863lb)
Engine	(D VII)	- Mercedes DIII: 160hp
		- Mercedes DIIIa: 175hp
Engine	(D VII F)	- BMW IIIa: 185hp

* Taken from 1918 Adlershof type test. No figures are available for weights of BMW-powered D VII F. Considerable weight variation existed among production D VII (up to at least 68kg).





INITIAL PRODUCTION from the parent factory at Schwerin took place at the same time as final batches of the Fokker Dr I triplane were going through the shops. As a result, the Fokker D VII were finished in the same manner, they were covered in plain linen fabric and had all top and side surfaces streaked with greenish/brown dope. This was applied chordwise on the wings, vertically on the fuselage sides and diagonally on the tailunit. All under-surfaces were coloured light blue.

National Insignia were applied exactly in the same manner as on the triplanes, which

Right, Fokker D VII of the first OAW production batch with black engine cowling, struts and wheels. In addition to the dog marking, the pilot of this aircraft has marked the fuselage longerons in black and white, a common practice in Jagdstaffel 4 to which this machine belongs.



FOKKER D VII

Markings

Alex Imrie explains some colourful history...



Above, Leutnant von Büren of Jagdstaffel 18 used four chickens as his individual marking. The unit marking consisted of red forward fuselage, struts and wheel covers, red upper wing surfaces (some only had the top plane so marked) and white rear fuselage upon which the black raven (personal marking of the Staffelführer, Leutnant August Raben) was marked. Fuselage crosses were overpainted and tailplanes and elevators also showed individual pilot identity.

was an out of date application... in that large white backgrounds were still being used for the Iron Crosses. These were marked at the usual locations on wings, fuselage and rudder. A change to straight sided crosses (Balkenkreuz) was ordered in March 1918 and many Fokker D VII had disproportionate crosses caused by modifying the Iron Crosses already applied in as simple a manner as possible to make them conform to the new instructions.

Lozenge pattern printed fabric in five colours was already in widespread use in the industry, but a new four colour material appeared at this time and Fokker D VII began to appear covered with this fabric. In order to expedite this fine fighter to the

front-line units the type was also in licence production by the Albatros factories as both Johannisthal production aircraft, and (Ostdeutsche Albatroswerke GmbH) and these factories having already been using the five colour pattern fabric for some time on their products, also covered their Fokker D VII machines with this material.

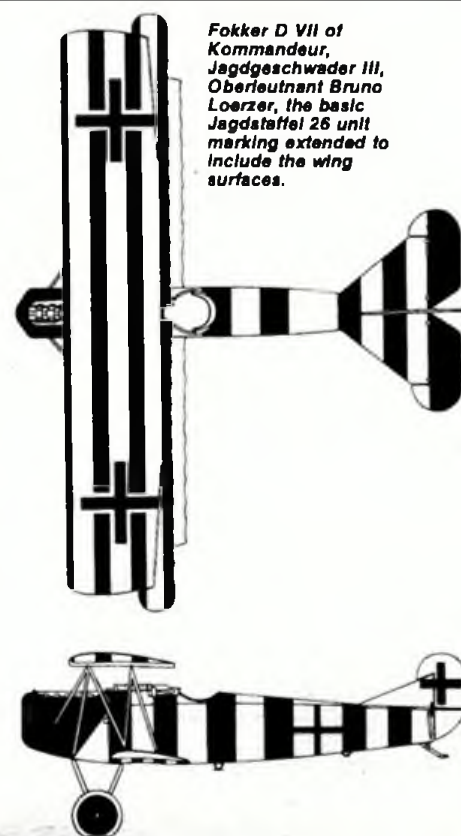
This was applied chordwise on the wings where it was sewn at the selvedge edges to obtain sufficient length to cover the complete wingspan, lengthwise on the fuselage, where a selvedge edge was aligned with the bottom longeron on the Johannisthal production aircraft, and aligned with the top longeron on OAW examples.

Ailerons, elevators and tailplanes were covered spanwise with the pattern along their longest lengths and rib tapes were cut from light coloured fabric... usually blue.

Cowlings, struts and wheel covers were all finished in a manner peculiar to the specific manufacturer, Johannisthal machines had these components painted grey-green, while OAW at Schneidemühl used green and mauve patches to roughly match the pattern fabric. Fokker painted these components dark olive green and cut their rib tapes from the printed pattern fabric.

Later Fokker built aircraft, were to be seen in five colour material and even some Albatros products used the four colour fabric. The factory finishes outlined above, are, of necessity a generalisation, and in practice many variations to these schemes occurred.

Modellers should be especially careful that they use the appropriate finish, and an accurate presentation can only result if a study of several photographs of the subject aircraft is made.



The Fokker D VII arrived at the Front when unit and individual markings were in widespread use, because of the necessity of identification in the large fighting formations that were then being employed. Usually all the machines in a Jagdstaffel carried a specific marking that identified the unit, and this information was known to Flak batteries, officers of the Flugmeldeinst and others concerned with the operational control of the units.

Within each Jasta, every pilot carried his



Above, Leutnant Jakobs of Jagdstaffel 43 used a star and crescent moon marking between double white fuselage bands on the black fuselage of his Albatros built Fokker D VII.

own special marking and this had to be sufficiently conspicuous to enable the formation leader to identify individual pilots. While unit markings tended to be simple and functional, the individual markings of the pilots were of every conceivable kind, birds, animals, initials, regimental crests, home town or family coat of arms etc. all being used.

Some Staffelführer would, however only allow pilots to use say, different coloured tailunits for identification, it being argued that a simple distinctive marking was more practical in the heat of a dogfight. Jagdgeschwader Freiherr von Richthofen Nr 1 comprised of Jasta 4, 6, 10 and 11 and these units marked their machines in a similar way to each other carrying their marking on nose cowlings and wheel covers. Jasta 4 used black, Jasta 6 black and white stripes, Jasta 10 yellow and Jasta 11, the traditional von Richthofen red.

Individual markings were carried on fuselages and tailunits, and in Jasta 6 on the fuselage only, since in that unit the tailplanes also sported the unit's black and white markings. The leader of this formation from mid-1918 was Oberleutnant Hermann Göring and as was necessary at the time used a colour scheme that was unmistakable in that he flew a completely white Fokker D VIII F (5125/18).

The 'F' in the designation indicated that this machine was powered by the 185 hp BMW engine. Since all the detail stencilling can be seen on Göring's machine it does not

appear to have been merely overpainted in the field, but was undoubtedly a special factory finished aircraft for Göring.

Another highly efficient fighting formation was Jagdgeschwader II comprising Jagdstaffeln 12, 13, 15 and 19 and at the time of the introduction of the Fokker D VII was commanded by a fearless fighter Oberleutnant Rudolf Berthold. In keeping with having an immediately recognisable colour scheme as Kommandeur, Berthold, in addition to having his machine display a red nose aft to a vertical line at the cockpit and all aft including the tailplane and elevators coloured blue, also had the upper surfaces of both mainplanes painted blue. Additionally he carried a winged sword on a white fuselage band, which at one time was repeated on the top wing centre section.

His component units all adopted the blue rear fuselage and tail unit, so this became in effect a Jagdgeschwader marking. The noses in Jasta 12 were white, Jasta 15 (Berthold's old unit) used red, Jasta 13 having a Saxon Staffelführer used green and Jasta 19 employed yellow. While the areas of nose colour varied, eventually only the metal engine cowlings showed this, wheels and struts were also at one time painted in the unit colour. Pilots' individual markings were generally confined to fuselage motifs.



Above, Jagdstaffel 72 lined up on Bergnicourt aerodrome, July 1918 showing the simple fuselage motifs used for individual pilot identification. Machine marked 'M' is Staffelführer Leutnant Karl Menckhoff's whose final victory score was 42 and whose many awards included the Pour le Mérite.

Jagdgeschwader III commanded by Oberleutnant Bruno Loezler comprised Jagdstaffeln Boelcke, 26, 27 and 36 used a different system of markings. Jasta Boelcke (previously Jasta 2) used black and white displaying this on each side of the tailplane and elevators also having the radiator shell painted white.

Jasta 26 also used black and white (Prussian colours) and carried this in alternate bands from just behind the nose panels to and including the complete tailunit. Jasta 27 (Göring's previous unit) had yellow noses, struts, and tailunits, while Jasta 36 had blue noses only.

Individual pilot markings were marked



Above, Leutnant Ulrich Neckel, Jagdstaffel 6 extended the oblique black and white unit marking on the engine cowlings to cover the whole fuselage. The optical illusion thus created was said to put enemy pilots off their aim!

immediately aft of the cockpit on both sides of the fuselage and on the fuselage decking. There were of course, some variations and embellishments, many aircraft in Jagdgeschwader III showing the pilots' marking on the top wing centre section.

The leader's aircraft sported the black and white bands of his personal Jasta 26 and in addition had the top surface of the top wing and the bottom surface of the lower wing striped spanwise in the same colours.

The use of all this colour is best envisaged when one considers the task of getting over fifty machines airborne and into formation in a short space of time. Individual Jagdstaffeln took off after their leader in what nowadays would be called a gaggle, the leader flew around the aerodrome well throttled back to let his men formate on him, all adopting a strict place that had been worked out beforehand.

Once the Kommandeur could see that all the component Jagdstaffeln were airborne and were forming up into some sort of discipline, he himself took off and flew, also at reduced power, towards a predetermined landmark, letting his Staffelführer bring their units into their allocated place in the formation.

Machines flew stepped up so that the last aircraft occupied the highest position. Don't think that the formation was of Hollywood or Hendon Air Pageant standard, it was of necessity 'loose' and this gave more freedom of manoeuvre not only to individual pilots but also to the component Jagdstaffeln.

After a fight, of course, units were all split up, but leaders orbited around predetermined landmarks in the fighting area and allowed their men to form up again, if sufficient strength was assembled and enough time remained, off they went again.

There is no doubt that the Fokker D VII was the best fighter of the war, when next in the RAF Museum compare its angular aggressiveness to the wire entanglements known as the Camel and SE5A!



FREE FLIGHT SCENE

with Dave Hipperson

Fifty Years of Free Flight

When this magazine first appeared all those years ago it could be said that it was one gigantic Free Flight Scene. Radio and even Control Line were a long way off. Those developments have naturally brought divisions within those that claim to be aeromodellers, to the extent that Free Flight now has to have its own section.

That is not to suggest that Free Flight too, has not come a long way in terms of technical advancements since those days of oiled silk and wire. Many of the 'giant strides' have been due to material discoveries and developments. Think of all that fuss over those first *balsa* American Wakefields.

Perhaps we have now completed the circle on that material, with Thomas Koster's appearance at this year's World Champs with an F1C constructed using no *balsa* at all. Nevertheless material developments have and will always, alter our hobby - we will automatically move with the times because it is competitive. They should not be resisted just for the sake of tradition.

However perhaps even more than structural improvements our sphere of flying has seen the largest leaps with improvements in technique and tactics. The thermal is not new - it has always been there

Chris Hawk's own interpretation of what the Vintage Wakefield rules would allow. Despite little dihedral, model climbed in a fast and stable pattern.



deter the newcomer from competing.

When all is said and done, you can still win a contest with a very straightforward model and a little luck - long may this continue...

Rule Changes

Contrary to what we were lead to expect from the slightly apologetic rumblings from last year's outgoing Free Flight Technical Committee over the 2:30 Area max they did *not* suggest to Council that it should be brought back to 3 minutes again. We are therefore stuck with it for 1986 as well. I still have not actually met anyone who has a kind word to say about it on the flying field but perhaps ideas change when indoors, whilst contemplating reaching the next flyoff!

Still on the subject of Area meetings that

After that confusion at the Nationals this year regarding the HLG launching box, it is now mandatory rather than at the discretion of the CD. A good move and a clear one, however I cannot quite see why along with this clarification we should have a change in the scoring system. *All* HLG flights will now count towards the score - that is nine in all - instead of the best five from nine as was standard before.

Special rules are in the pipeline for the Club Champs but fear not, these are clarifications of what we do now. In other words the Plugge point scoring system for individual placings, no need to nominate a team, and top club placers scoring, even if they are the same person in three classes! After all, why penalise a club for having a good all round flyer. On the subject of Champs the Senior Champs is to be scored in a slightly different way next year with points awarded down to sixth place rather than only third as at present. This will encourage quantity participation without distracting from the quality aspect as points will be 9, 6, 4, 3, 2 and 1 for the respective places, so there is considerable weighting towards the winner, which is how it should be. Very similar arrangement to the current Formula One system - Alan Prost would approve. However with this deepening of the range of scoring positions comes a nasty surprise. Any event receiving less than six scoring entrants will *not* count at all towards the Championship. Of course this rarely occurs at the Major centralised events, except in the fringe classes, or those not that well established.

However F1C is often poorly supported and at least once this year received less than six entries and at the extraordinarily windy Northern Gala reported elsewhere in this column neither Open Power nor Glider would have counted! I wonder how Russell Peers would have thought about that after his hard work and worthy win of the Hamley this year. I hope no one thinks the rule changes were written for me or even by me - they were not. However they will certainly hinder the hopes of my two closest rivals over the past few years - both power fliers. I am not sure if that is quite fair.

Another rather pointless change has to be the adoption of FAI procedures for flyoffs, which allows for an attempt. This is for all classes not just FAI. It will effect power fliers the most, when to still have two



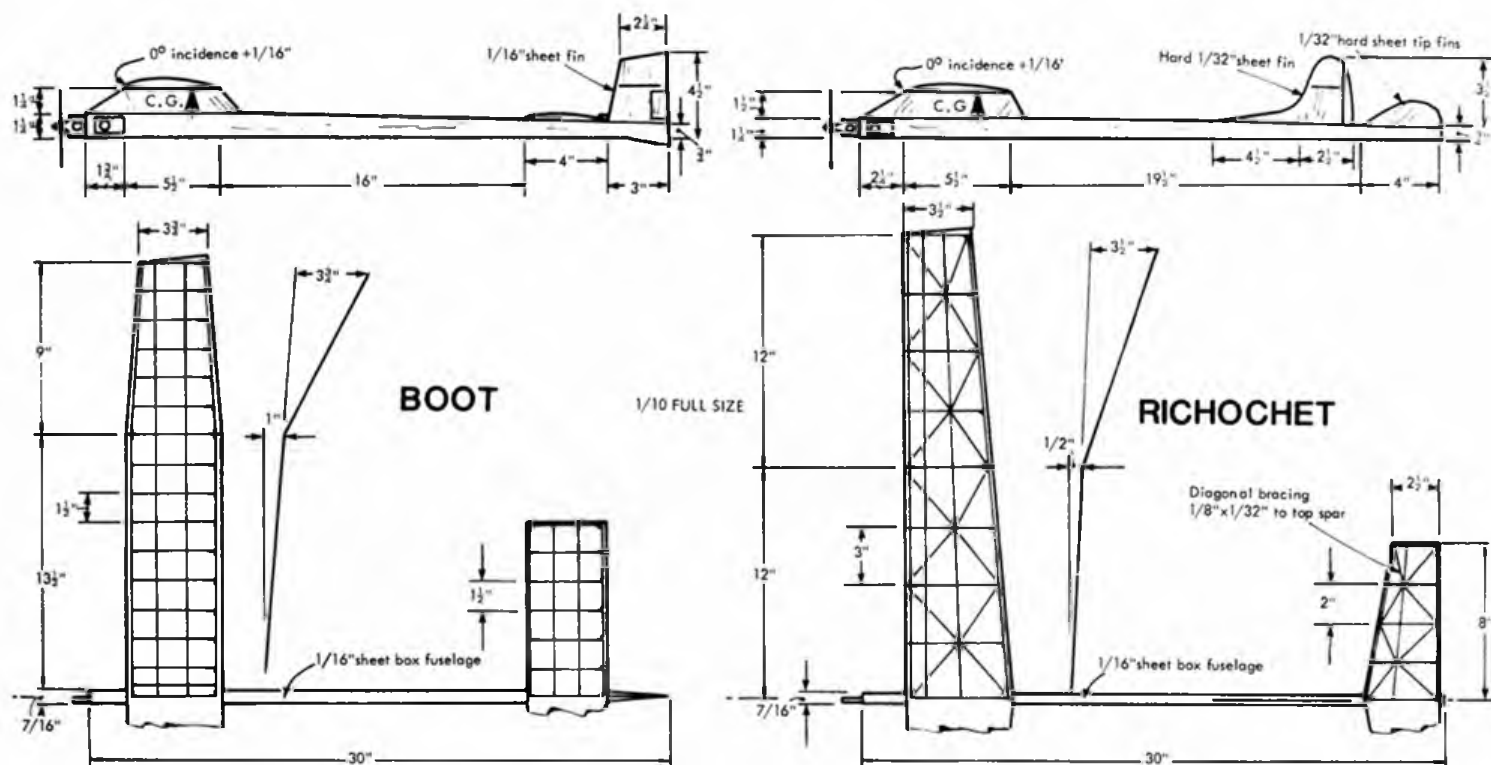
Lou Roberts made a rare appearance to help Darl Morley into the Farrow flyoff at Barkston with this familiar layout. Model did nearly seven minutes....

but to read magazines of only 25 years ago you would get the impression that it was quite unsporting to accidentally catch one and actively dishonest to positively *try* to catch one!

Those days of 'chuck it and hope' are over for ever and contests are won more by the buoyancy of the air than fine differences in model superiority. Some say this is a pity, as it switches the emphasis to weather detection and away from model development. However at least this creates a workable balance between 'flying ability' and space age materials and so does not

old chestnut the 100 mile radius rule has been abolished. That is to say that now however near you live to an Area venue you may apply to fly on your own at a local patch. You still have to apply to the FFTC Chairman and he has to give you his approval or otherwise *in writing*. Without this, your results will be invalid. This relaxation is not perhaps what it would appear, as now the final arbiter is the FFTC Chairman. In other words he could say no - even if you actually live further than 100 miles away! It will be interesting to see how it works out in practice.

Joe Flynn's 1/2A Power models — Boot and Richochet



Data

Boot and Richochet

Engine – Cox TD 0.49 on crankcase pressure with drilled out venturi.

Thrust Line Zero/Zero

V.I.T. Flood off and auto rudders. Fuse dethermaliser. Fuse mounted on top of fuselage to minimise effect on power trim. No warps on wing or tail, all panels flat.

Trim – Slight right power turn, right hand glide.

Keep tank and timer near front of model to keep C.G. position forward and fuel supply and flood off pipes short

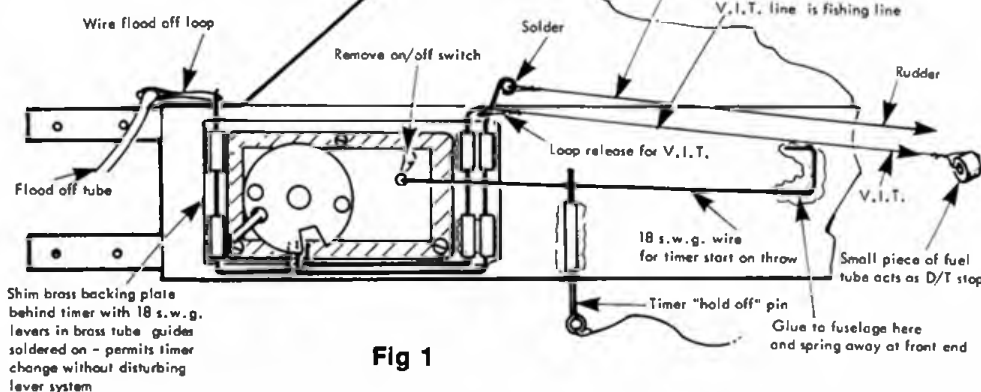


Fig 1

models at flyoff time will be a distinct advantage, as it will allow the flyer to go much closer to the run length if he knows he can have another shot at it.

Of course everyone will do best to have a reserve ready in case of a crash but with still only two models allowed in the contest and flyoff (Open that is, three models for a seven flight FAI contest of course), it might have been fairer if with this rule change they had adopted my idea of a third model being allowable if and when flyoffs were necessary. I will suggest that again next year.

Finally you Vintage SMAE fliers beware. The FFTC has taken my advice and tightened up the rules surrounding the inter-

pretation of prop dimensions on rubber models. I haven't the exact wording but it seems that as well as diameter and pitch, pitch distribution, blade width and width distribution, must correspond to what would be possible from the specified block dimensions. Still open to individual interpretation where no block dimensions are shown but *not* if they are.

Joe Flynn's 1/2A models

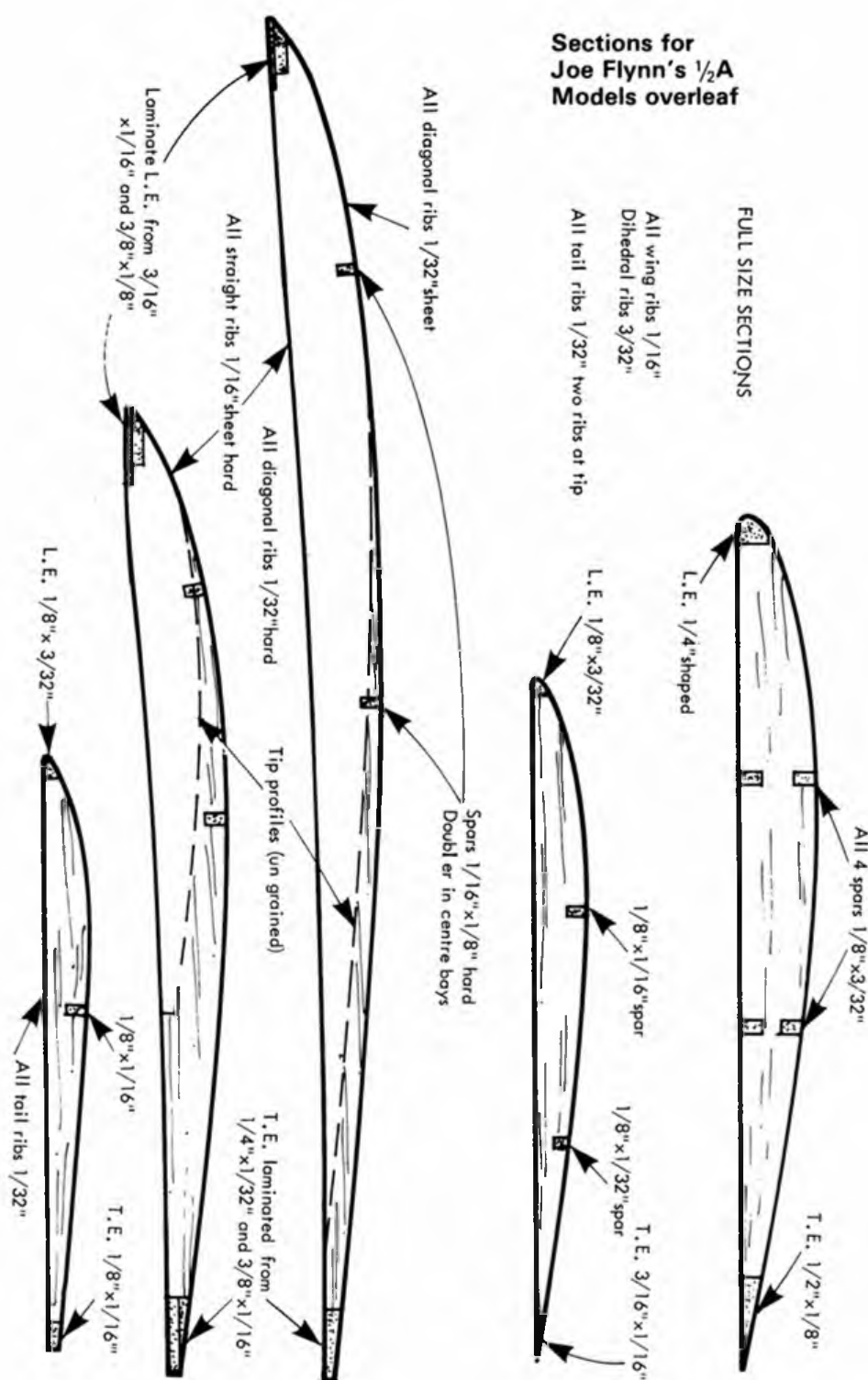
Two interesting 1/2A designs here, from Joe Flynn of Liverpool. The more conventional, shorter span model 'Boot' designed for all weather flying. 'Richochet' the geodetic taper wing design designed as a

lightweight with emphasis on glide performance, using less competitive motors or slower low compression set-ups – Joe has had some difficulty obtaining the trumpet shaped high compression 0.49 glow-heads.

His ideas on the use of the Cox TD 0.49 are interesting. He advises running on as *low* a compression as possible to both aid starting and prolong head life on high nitro. He also points out correctly that an over compressed motor will only run slower anyway. His system is to shim the head up with washers, maybe starting with four or five of them and remove them until a misfire can be heard... then replace one.

To simplify flood-off and VIT actions the

Sections for Joe Flynn's 1/2A Models overleaf



motor is run on crankcase pressure and in line with the instructions that come with the units he drills out the venturi. He believes this is responsible for quite a power increase but warns not to bother unless you are running on pressure otherwise the motor may become very difficult to start.

After the weight of the engine, mounts, timer and other essential hardware which usually totals anything up to 3½oz. Joe believes it would be impractical to aim at a

finished model weight of less than 6oz. maybe closer to 7oz. even with careful wood selection. Neither model uses warps and both are trimmed to climb virtually dead straight and at about 80%. The understatement here is that he agreed such a pattern takes *great patience* to achieve!

What is more, great care has to be taken when launching, to ensure the model never goes away left of the wind - fatal. To assist with this he rigs a simple remote timer start

system. The conventional on-off switch is drilled out and replaced with a long piece of 22swg wire bent to spring out of the on-off hole when released (fig 1). It is held in until ready to launch by a detachable wire pin and then triggered as the hand releases the model.

I am pleased to note that Joe places considerable emphasis on practice and even goes as far as quoting the immortal Jack Nicklaus who once said: "*It's funny, the more I practice the luckier I get.*"

London Area Gala... 24, 25, 26th August

Held on Salisbury Plain, it now looks like this is to be the venue for the '86 Nats so those that attended this event have the advantage of having tried three intensive days over grass with no bike retrieving possible. The Brackens who handled the organisation throughout the three days even modelled the programme around what we are used to at a Nationals, apart from FAI being flown on the middle day and Open on the last.

The entire weekend was windy so times in Mini would suggest only little turbulence as all the placing scores have creditable totals. FAI was flown to a rather gruelling seven flight schedule from dawn to dusk and only the second round was dropped to a 2:30 max giving a possible full score of 20:30. Peers got closest, with a Wakefield and it was he that sent me the results and report. Slow Open Power was sensibly added to the FAI day rather than over-burden the last day. Hopefully the Nats '86 planners will do likewise.

Open day was less windy and the 2:30 max was probably more to encourage those feeling a little weary after two days of intense activity rather than through any limitations of this huge site. All events went to flyoffs and John Cuthbert was unluckiest of all to have his tow line snag the tail of his glider after he had released into and marked the good air. Bill Colledge dethermalised from considerable height but leaving Foster with a clear win.

Results

A1 Glider	
1 A. Tennant	9:08
2 J. Cuthbert	8:13
3 R. Steines	8:00

Coupe d'Hiver

1 G. Ferrer	8:49
2 D. Tennant	8:16
3 S. Dixon	7:51

1/2A Power

1 R. Peers	10:00
2 P. Watson	8:44
3 P. Lumsden	8:38

M.L.G.

1 J. Buskell	3:59
2 J. Foster	3:03

F.I.A.

1 J. Williams	16:27
2 G. Hart	16:26
3 J. Flynn	15:48

F1B

1 R. Peers	19:14
2 N. Beaumont	17:35
3 C. Chapman	16:58

F1C

1 P. Watson	14:27
2 J. Buskell	11:28

Slow Open Power	
1 A. Parker	6:58
2 P. Watson	5:44

Open Glider (3 in flyoff)	
1 J. Foster	7:30 + 6:14
2 W. Colledge	7:30 + 4:51
3 J. Cuthbert	7:30 + 0:49

Open Rubber (5 in flyoff)	
1 N. Cox	7:30 + 12:00
2 C. Chapman	7:30 + 6:40
3 T. Dobson	7:30 + 6:04

Open Power (5 in flyoff)	
1 J. Hopper	7:30 + 7:04
2 R. Peers	7:30 + 5:32
3 T. Hall	7:30 + 5:32

Vintage	
1 B. Platt	5:04
2 C. Hawke	4:20

Northern Gala... Driffield...15th September

In contrast to the Area event of the preceding week (some of the calmest conditions of the year), the Northern Gala proved the windiest. During the flying at least one person commented that it was the strongest wind he could ever remember flying in! It was a gale from the west in excess of 30mph all morning, gusting, according to some meters, up to the occasional 45mph!

It could have totally precluded any flying had not the upwind mile or so not been flat. Because of this the air stream whistling through was so smooth that quite stable flights were possible but they became small spots in the distance very quickly...

What the upwind lacked in turbulence the downwind made up for in traps for the models and retrievers. Two rivers, various railway lines, housing estates, factories and shops - in short the town of Driffield. With the wind directly onto this, even 2:30 to the ground was in houses over a mile away and some short flights found a couple of fields of un-cut crops coming into play.

Those that set long fuses or were at any appreciable height when dt'ing, were in or



Beginning to show its (their) age now - Trevor Payne had a warp problem in his 1/2A Train at the 6th Area meeting but still made a good score.

over the town itself. Numerous flights cleared three miles before landing and many were the tales of flukey retrievals. Getting the models back was the deciding factor.

With increasing cloud the wind did ease a little at the end of the day, when periods of a mere 20 mph made launching easier but flights still reached the town. By the end of the day, more than half a dozen models were completely lost and numerous others missing...

Incredibly Peers had retained the same power model - a 29 job - for all his three flights and without as much as a scratch. His chief threat was Trevor Payne but he badly damaged his first model after a tree'd landing and then lost his second model - his challenge ended there.

The underfoot conditions on the aerodrome were not very good and certainly hindered glider towing and probably discouraged entries in that class more than the wind alone. Bill Colledge, last year's winner, topped it again and took the CMA trophy but with far under a full score.

Only Rubber required a flyoff. Strachan had accomplished somewhat of a miracle, by surviving the whole day with one model but Hipperson who took virtually all day to make two flights without damage, thanks to help from both Ian Davitt and Nigel Dilks, managed to break the wing returning in a hurry for the third. Repairs and a couple of blown motors took him to within a few minutes of the finish time when eventually he launched for his last max. Carter meanwhile - already with a full score had been busy putting the model he used for his first flight back together for the flyoff.

Strachan stuck with the same model but Hipperson was able to choose and risked a

flyoff model. A definite lull in the wind (now down to less than 20mph) was enough to get it away and although the other two followed immediately in the good air, they stalled out on the glide. Thanks to a very light sky and determined timekeeping Hipperson's model was seen for an astonishing 11 minutes eventually gliding in at the feet of a man harvesting his crop six miles away!

Results

All Open Events to 2:30 max

Open Glider - CMA Trophy (5 flew)

1 W. Colledge	Birmingham	4:52
2 J. O'Donnell	C/M	4:45
3 J. Cuthbert	Grantham	2:58

Open Rubber - Caton Trophy (8 flew)

1 D. Hipperson	Grantham	7:30 + 10:58
2 C. Strachan	Biggles	7:30 + 3:40
3 J. Carter	Falcons	7:30 + 3:37

Open Power - Hamley Trophy (3 flew)

1 R. Peers	Falcons	7:30
2 T. Payne	Biggles	5:00
3 C. Plant	Darlington	1:22

Combined Mini (4 flew) (unofficial event)

1 J. O'Donnell	C/M	5:06
2 M. Brown	Birmingham	1:13
3 M. Cook	North Yorks	0:28

Results Service

To prevent all those questions at the start of next season - I am continuing the SMAE Area results collation service as usual. Let me have six 9in. x 4in. stamped addressed envelopes at the start of the season and I will send you the complete lists for all six area meetings as they become available.

SMAE 5th Area Centralised Meeting...8th September

Results

A1 Glider - no trophy (32 flew)

1 J. Foster	Maidstone	10:00 + 5:30
2 S. Philpott	Biggles	10:00 + 2:00
3 C. Sharman	Bristol & West	10:00 + 1:29

F1B - Gutteridge Trophy (33 flew)

1 B.G. Martin	Tynemouth	12:30 + 6:44
2 I. Davitt	Morley	12:30 + 4:21
3 M. Howick	East Grinstead	12:30 + 3:39
4 S. Marriott	Crookham	12:30 + 3:16
5 M. Woodhouse	Vikings	12:30 + 2:07

Open Power Individual results (49 flew)

1 D. Wain	Bristol & West	7:30 + 6:17
2 S. Screen	Birmingham	7:30 + 5:22
3 D. Cash	East Grinstead	7:30 + 5:03
4 P. Bond	Anglia	7:30 + 3:55
5 R. Peers	Falcons	7:30 + 3:47

Team Power - Keil Trophy

1 Birmingham	Screen, Harris, Baggott	22:30 + 11:29
2 Anglia	Bond, Collins, Wells	22:30 + 10:36
3 East Grinstead	Cash, Hutchings, Richardson	21:48

Plugge Positions (after 5 events)

1 Anglia	1064
2 Biggles	993
3 Bristol & West	992
4 Birmingham	890
5 Vikings	831

Senior Champs positions after 11 events (up to and inc Northern Gala)

1 D. Hipperson	28
2 S. Screen	15
= R. Peers	15
4 P. Harris	13
5 A. Jack	12
6 P. Ball	11
7 J. Cuthbert	10
8 M. Fantham	9
9 J. Cooper	8

Pete Harris flew his familiar 1/2A design at the 6th Area meeting and the Southern Gala but was out of luck at both...



VINTAGE CORNER

WITH ALEX IMRIE

The First Fifteen Years

It is impossible in just one 'Vintage Corner' to do justice to half a century of this magazine. An inside story from a more capable pen than mine also appears in this issue, and for facts, readers are referred to that compilation. I will confine myself to a look at the beginnings of the journal, and a random scan of the first fifteen years, which conveniently takes us up to the end of the vintage era.

As a youngster in the mid-1930s I could not afford to spend even 6d (2½p) a month on magazines, so had to make do with second-hand issues. All that came into my hands I treasured and retained along with copies of *Popular Flying* and *Flying Aces* in

Right, Howard Boys as we like to remember him. He is holding his tailless model which put up a flight of 2 minutes 7.75 seconds in 1938 which was accepted as a British record. The model was described in November of that year. Below, Ralph N Bullock with an early streamline Wakefield. Winner of the Wakefield Trophy in 1929, he became Technical Secretary of the SMAE and was usually a team member representing this country in pre-war international events.



changed, it had become an institution in my life. I was not alone in this, since, I saw the same feeling reflected on the faces of the customers, anticipation before its arrival, pure joy on receipt, and acute disappointment if it was sold out. Our stock only lasted for a very short time since the magazine sold like the proverbial hot cakes!

When, fifty years ago, Volume 1 Number 1 of *Aero Modeller* (two words then) entered



the world of model aviation activity, it was not the first British journal that had appeared on the subject. At various times, sizeable portions of other magazines had been allocated to the hobby, and over the previous 30 years, aeromodellists had cause to be grateful for the information contained in, *inter alia*: *Flight*, *Everyday Science*, *Practical Mechanics* and *Model Engineer*.

There had even been magazines devoted entirely to model aeronautics, like *The Amateur Aviator* in 1912 and *Model Aircraft* in 1932, but the lives of these

a large Paethorpe Sausages cardboard box under my bed.

Eventually, I became a regular subscriber and I can still remember the joyous feeling that the arrival of *Aero Modeller* caused, plus the sadness that I felt, having read it from cover to cover, knowing that a full month had to elapse before I could once again up-date myself on the wonders taking place in the hobby.

At this time I was one of the 'lone-hands' of which I write below, but later, just after the war, when I worked in the Edinburgh model shop named *Harburn Hobbies*, my thoughts for this magazine had not

Right, Doctor J F P Forster starts up the Brown Junior in his first (1938) flying boat. He later recounted his experiences with this type of craft in Aero Modeller March 1940 and went on to write 'Petrol Topics' for the next 6½ years.



Above, C S Rushbrooke with an early 'Mayfly', forerunner of the design published in the 1935 Zalc Yearbook. Rushy was a real live-wire, Secretary of the old Lancashire MAS and was Editor of this magazine for many years.

specialist journals had been short, possibly because of inadequate financial resources on the part of publisher and subscriber alike. Then, in November 1935, the first hesitating pages of this new model aeroplane magazine entered the scene...

There were several factors that combined to make this timing opportune for the success of the venture. One of the ingredients was the rapidly increasing amount of interest in aviation that was prevailing at the time...

Airmindedness

Enthusiasm for the air, had decreased after the end of the First World War and was in the doldrums in the 1920s. However, special aviation activities like the annual King's Cup Air Race, the Schneider Trophy Contests and record breaking flights to the far corners of the Empire all helped to rekindle interest in flying. There was a marked upwards trend in this awareness into the 1930s, a notable high point being

obtained by the MacRobertson Centenary Air Race from Mildenhall to Melbourne in 1934.

Things received a real impetus the following year, when the Government took steps to strengthen the Royal Air Force. Exciting new prototype aircraft began to appear in rapid succession, their acceptance being accelerated by the RAF Expansion Scheme.

Empire Air Day meant that many aerodromes were open to the public. Seeing and smelling those lovely silver, wire-braced biplanes covered in taut drumming fabric, would have created airmindedness in anybody, and for the younger generation it

The 'Flying Flea' craze was upon us, it being said that you could build your own aeroplane from a few old tea chests and a motor bike engine, although many tried, few succeeded. The pace was hectic indeed and unless one lived through it, one just cannot appreciate the sheer enthusiasm for aviation that was generated as a result of all this activity. In fact I fail to understand why some people were still not airminded after all the exposure!

But, enthusiasm is not enough, ordinary mortals soon found that they could not get

kits by *Aeromodels*, *Skybirds*, *Xactus*, even *Rigby* and *Appleby* card models, the last named from the 1920s, being remnants of bankrupt stock that were still being sold up to 1935.

There was of course, an aeromodelling movement and both the *SMAE* and *TMAC* had a number of affiliated clubs whose members were well informed, and articles on construction appeared in *Model Engineer*, there were also a number of stockists for suitable materials. So enthusiasts living near the main centres of

Below, Ken Tansley of Northern Heights starting up his petrol model in the Hamley Trophy at Balldon Moor on June 9th 1946, he did not place, but had won the Sir John Shelley Cup a month before with the same model. Ken made a replica of his old model finished in the original's Caribbean Grey, a few years ago to give everyone an acute attack of nostalgia!



Above, D A Russell's original 'Vulcan' arriving at Dorland Hall for the first National Exhibition of Model Aircraft held in January 1945, (organised by Aeromodels) DAR's description of this model which was only known as G-ADAR at the time, in the July 1940 issue was often read during the years of the petrol ban.

produced a fever that many would never shake off.

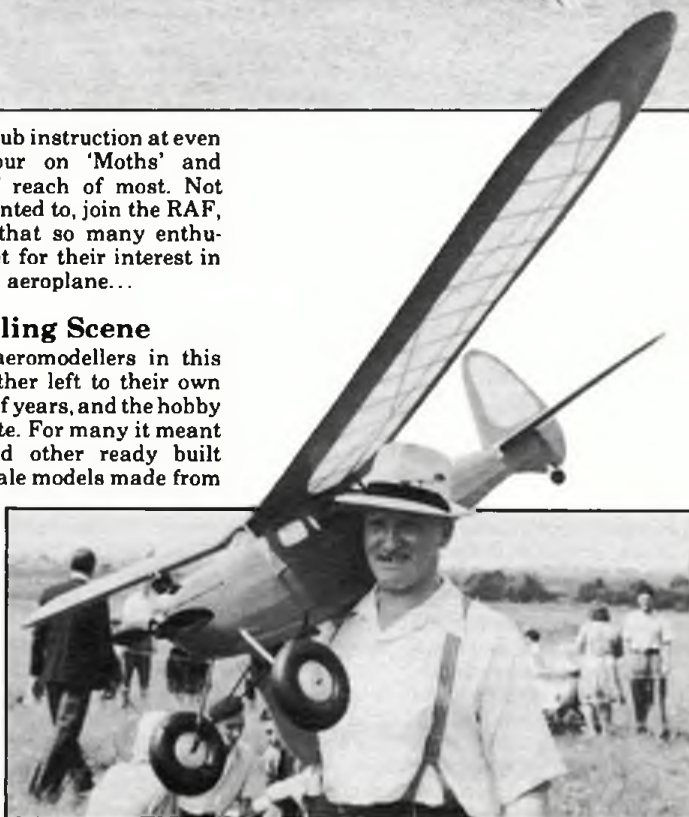
There was also the National Aviation Day Campaign organised by Sir Alan Cobham, whose tours were held from 1932 until 1935 and hundreds of thousands of joyriding passengers were carried, often from ordinary fields all over the country. Captain W E Johns had produced his Biggles character and stories of this hero's adventures could be read in magazines like *Modern Boy* and *Popular Flying*.



into full-size flying, club instruction at even under £2.00 per hour on 'Moths' and 'Avians' was out of reach of most. Not everyone could, or wanted to, join the RAF, small wonder then, that so many enthusiasts found an outlet for their interest in aviation in the model aeroplane...

The Aeromodelling Scene

It is a fact that aeromodellers in this country had been rather left to their own devices for a number of years, and the hobby had tended to stagnate. For many it meant *Warneford*, *Frog* and other ready built models, non-flying scale models made from



Right, Eddie Kell, in typical attire, with the prototype 'Falcon', the biggest design of a whole world of models that made the name of Kell Kraft synonymous with model building for almost 50 years.



Above, M R Knight whose contributions to *Model Engineer and Flight* were always keenly read, and who was long a pioneer of the low-wing model, is seen here holding an interesting specimen at *Eaton Bray* on Opening Day, Saturday April 20th 1946.

population were well catered for and regular competitions did much to introduce the pastime to suchfortunates.

Those lucky enough to be able to buy American magazines like *Model Airplane News* (6½p), or even *Flying Aces*, which were sold in Woolworths (for less than 2p) were aware of the advances being made in the USA with the increasing use of balsa wood...

This material had first really made an impact here during the 1930 Wakefield Contest when Joe Ehrhardt's 'lightweight paper bag' model won the event. Not only could this wood be rapidly glued together with a solution of acetone thickened by dissolving celluloid in it, but joiner's tools were no longer required to build a model, a broken razor blade and a packet of household pins being all that was really required.

Throughout the length and breadth of the land there were many 'lone-hands' who did not have the advantage of personal contact with other modellers, but who relied entirely on the printed word. As early as 1932 they (and others) had noticed the advertisements that had begun to appear in various aeronautical journals for American kits mostly for flying scale models. These had structures of balsa wood and were covered with Japanese tissue paper, a form of construction that many British experts considered to be "... completely unsuitable for our climate".

Most of the few houses that supplied modellers' materials at this time declined to stock balsa, and plywood, birch, spruce, wire and silk were still held to be the real model aero materials! The number of advertisements gradually increased and the realistic shapes of these flying scale models had a greater appeal to many of the enthusiasts than the then conventional shape of flying models that did not really resemble full-size machines.

Some enterprising stockists commissioned American kit manufacturers to make balsa kits for well known British aeroplanes, and these obviously sold more easily here than many of the then unknown American types.

Not all the American kits were cheap, and kits that were now being imported included

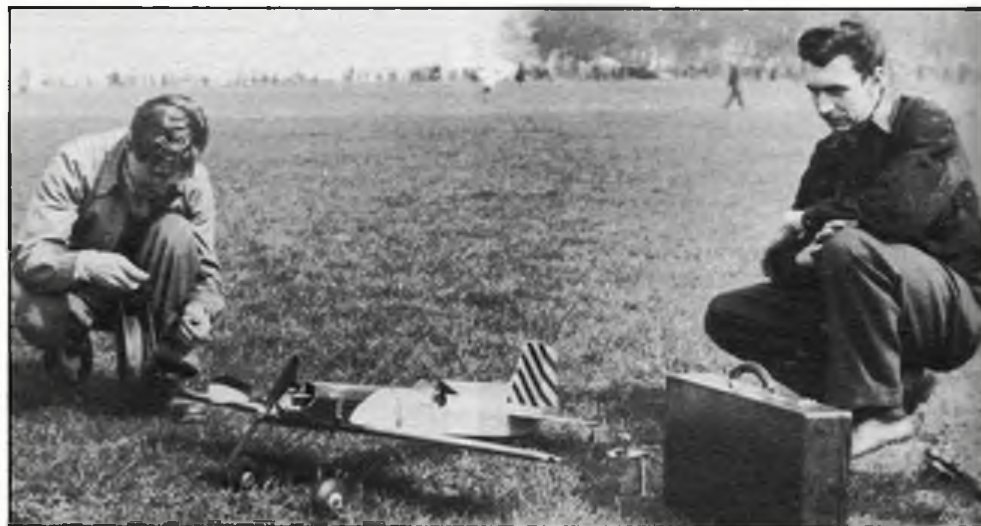
Comet, Peerless, Lindberg and Cleveland amongst others. The better quality kits in these ranges were soon offered stout competition by the appearance of British flying scale kits. A pioneer in this field was *The Model Shop* of Newcastle-upon-Tyne, whose products sold under the trade name of *Keelbild*. They were indeed superior to the majority of the American kits, all materials being included, like dopes and even a dope brush!

It was known that many modellers favoured the non-flying scale model, and the

True, a brand new *Standard* 9 hp saloon car only cost £145.00 ex-works, cheap if you had the money, but not many people had...

So it was, that the prices of the quality kits, both British and American, were high, and many enthusiasts were forced on grounds of economy to buy the cheaper American product. It was directly due to the very cheap range of kits costing only about 1/6 (7½p) that put them just within reach of many enthusiasts, that the numbers of aeromodellers increased so rapidly at this particular time.

Below, our own R G Moulton sorts out the wire prior to the first public demonstration of the art of control line flying in this country by an expert, when he flew his 'Voetsak' at the Midland Area Rally at Walsall on April 13th 1947.



Right, W A (Bill) Dean with his Mills 1.3 (Mk I) powered 'Slicker' at the Midland Area Rally at Walsall April 13th 1947. The model was soon to be killed by Kell Kraft and would be built in large numbers. A first adventure into power flight for many for a total outlay (engine and Slicker kit) of under £7.

It was these factors that provided the fertile ground upon which that first issue of *Aero Modeller* fell. It was eagerly snatched up. Here was a British model aeroplane magazine (British and Best, was still a very believable slogan in those days) at less than half the price of *Model Airplane News*, it really could not go wrong.



Skybird League was a strong assembly of such enthusiasts, seen as a source of customers well worth tapping. Advertisers, in pushing their flying scale kits were not backward in making derogatory remarks about "solids being behind the scenes." They need not have worried, an even more effective campaign was about to be waged against the Skybuilders that would turn many of them into 'balsa butchers'!

In this atmosphere of aviation enthusiasm, one must remember that the depression was still with us, the prices of goods, although considered cheap today have to be reviewed against the value of money at the time when 10/6 (52½p) (the price of the *Keelbild* 22 inch span 'Hawker Super Fury' kit) represented a small fortune.



models, this being Number 16A, the Lockheed 'Electra'.

JHS had initially made model aircraft to a scale suitable for his lead soldiers (1/36 scale) and was contacted by Mr A J Holladay who got him to provide information from which wooden scale models to a scale of 6 feet to 1 inch (first 1/72nd scale commercial kits) were manufactured under the name of *Skybirds*. He received 75p per subject and churned these out to such good effect between 1932 and 1939 that he was able to learn to fly on the proceeds.

Left, serious stuff! Colonel Bowden times a competitor for the starting penalty in the 1948 Bowden Contest, on his right with appropriate headgear is C S Rushbrooke.

Issue Number One

The original proprietors of *Aero Modeller*, The Barron-Dean Publishing Company, knew all this, and hit on a well conceived plan to launch their new paper. By granting two sizeable organisations already in existence, free space, they were able, from the outset, to present the magazine to 'an appreciable number of subscribers.'

These organisations were the Air League of the British Empire (Junior Section) and the Skybird League whose Official Journal the *Aero Modeller* became.

No 'suck it and see' approach here, it would be called sound market research today! While actual membership numbers are not known at the inception of this operation, within a few months the combined membership of these organisations was in the region of 8,000, so if only 50% of members subscribed to *Aero Modeller* it certainly represented "...an appreciable number..."

Let us have a look in detail at that first sixpenny issue... There is already an 'us and them' syndrome in the Editorial which is titled 'Introduction' in this first issue, when mention is made of the differing views held by builders of flying models and those who made non-flying scale models, and another "...regarding the relative merits of ... balsa-and-paper models and the ... spruce-and-silk models more suited to the vagaries of the English climate." It goes on to say that the magazine's policy would be one of strict impartiality, and that initial aim, one can honestly say, has held true over 50 years.

The first model described was 'The Eagle', a 36 inch span high wing monoplane by pioneer modeller Charles J Burchell. Here is the typical birch and three-ply structure with only condescending use of balsa for unimportant parts, the proofed silk covering, aluminium wheels and walnut nose piece... a real model aeroplane! CJB was a Fellow of the *SMAE*, and had been making model aeroplanes since 1905. The growth of enthusiasm for the hobby that resulted in the formation of many clubs in the London area, including that most famous club, Northern Heights, was largely due to the efforts of this indefatigable worker.

C E Bowden, then a Captain in the Royal Army Service Corps contributed his 'Petrol Aeroplane Model Topics', the beginning of a

Right, Bob Copland makes a characteristic get-away on his winning flight in the Wakefield competition during the 1948 Irish Nationals held at Baldonnel Aerodrome near Dublin.



regular feature that would later appear in book form. At this early date he had already built some ten successful petrol models, and was the current British Petrol Model Record holder with his 'Blue Dragon'. Aspiring power model enthusiasts would learn to take heed of what CEB wrote in this and other magazines over the next 40 years.

Leonard Bridgman wrote about the *SE 5a* and in addition to his fine GA drawing supplied over half a page showing squadron markings. Bridgman, was in my estimation, one of the best aviation artists, unsurpassed by any even today, like many fine craftsmen he was extremely modest, and all he claimed to be was "a mere spare-time doodler... who had never had any art training whatsoever."

The Air League and the Skybird League filled their free pages (which represented about half of the 36 page issue) with club and other news and James Hay Stevens carried on where he had left off in the Skybird League's own magazine *The Skybird* by providing an attractive sketch, a GA drawing and a technical description of yet another addition to the *Skybird* range of

In 'News From The Clubs' soon to be familiar names were seen, Eddie Cosh, SRCrow, E Chastenauf, R N Bullock, Gordon Merrifield, C S Rushbrooke, JW Kenworthy and A E Brooks. As was to be expected, the advertisements related mostly to *Skybird* models, but there were others soon to be well known to enthusiasts like *Real Photographs* of Liverpool, *Model Supply Stores* (later of Manchester), *Warneford Flying Aircraft* and *Model Aircraft Stores* of Bournemouth. The last named advertising a British petrol engine, the 18cc Comet.

Hesitant its pages may have been, but it was at least airborne on schedule and with contributors of the calibre of those mentioned it was assured of a long successful endurance flight.

Front Covers

The red, white and blue front covers of the first three issues were in keeping with the magazine sub-heading 'The National Journal Of Model Aeronautics' and showed a sketch of the *DH 89 'Dragon Rapide'* against a cloud background. Not an

arresting front cover, it was soon replaced by a more appealing device.

A change was made in the fourth issue (March 1936) that would be retained until and including the issue for November 1937. This was a white chuck glider motif and black shadow displayed against either a red, green, yellow or blue background. This simple but highly effective scheme was the handiwork of Leonard Bridgman and its standardisation obviously meant immediate recognition on the bookstalls, another plus for the marketing of the Barron-Dean Company!



Above, Rupert Moore's own title for this pleasing study taken on Leavesden aerodrome in 1949 of his son holding the model during winding was, "Dick, Viper and Me".

The cover design then seems to have slipped into an unattractive rut for the next two years. The varied coloured backgrounds remained, and a few had well drawn sketches by A Anderson, but the bulk of issues merely used black and white photographic covers that were uninspiring to say the least. Exceptions were the Grand Double Birthday and Christmas Numbers in full colour, and the first six issues for 1940, but somehow they all lacked the impact of that Bridgman motif.

A change took place from July 1940 when Rupert Moore started what was to be a run of 125 consecutive front covers up to and including December 1950, when it was said, production difficulties and the time lag caused a return to photographic front covers.

The War and After

By the outbreak of war several major changes had taken place in the magazine, run now by D A Russell. The free space given to the Air League and the Skybird League had come to an end and both of these organisations that had been instrumental in helping the *Aero Modeller* to get going had ceased to use the journal. That a goodly



Above, British team at the 1950 Wakefield Trophy Contest in Finland are, left to right: I J Adams, J L Pitcher, R H Warring, E W Evans, J B Knight and H R Stevens.

number of their members remained subscribers is evident by the continuance of articles devoted to their particular interests.

The *Model Aeroplane Constructor* had been taken over from December 1938, effectively removing the competition, so to speak! A nucleus of experienced modellers contributed ever interesting articles on construction, aerodynamics, descriptions of successful models, club news, competition reports and lists of results making *Aero Modeller* a 'must' for all serious modellers.

Large full-size plans were given away free and small scale plans had always been a feature. The advertisements increased in amount and these were filled with mouth watering items including petrol engines. It is impossible to mention all contributors but remembered vividly are articles by van Hattum, Howard Boys, H J Towner, P G Chinn, C A Rippon and Dr J F P Forster. The last named kept enthusiasm for the petrol model going throughout the war with his 'Petrol Topics', CEB being 'otherwise engaged' could only write infrequently. The four year ban on flying petrol models from August 1940 made the production of 'Petrol Topics' a difficult task, and it is with gratitude that John Forster's labours are remembered.

Another contributor who made wartime issues eagerly looked forward to, was E J Riding. The descriptions of his large scale built-up non-flying models like the *Avro 504K*, *Blackburn 'Dart'*, *'Tiger Moth'* etc were first class and were the high points of issues concentrating more and more on solid models. His other articles including 'Aircraft Described' usually about civil aircraft were so good that it came as no surprise to learn that he was an aircraft engineer who had personal knowledge of many of his subjects.

In those grim days when an enquiry for almost any aeromodelling commodity evoked the remark about one "not knowing that there was a war on", the only bright spot that really gave hope for the future, was the regular appearance of *Aeromodeller* (one word now) despite its pages being ever present reminders of all the things that modellers had to do without, like balsa,

rubber and petrol engines.

The end of the war did not mean the immediate return of all these good things, there was a long period of shortages and substitutes until the model trade picked up the traces. Slowly the situation improved, but instead of getting back to normal, the scene that evolved was an entirely new one, mainly through the appearance of the diesel or compression-ignition engine, the small sizes of which allowed them to be fitted to models of reasonable size. Flying scale models especially benefitted, and the popularity of this type of model has continued to the present day.

Control-line also came to stay and this had an impressive following at a time when radio control was a mere cat's whisker on the horizon. There is no need to mention any particular model design that was described in *Aeromodeller* during the period up to December 1950. The bulk of these are immediately familiar to vintage enthusiasts and many have been built in recent years, a task made easier by the availability of full-size plans provided by the *Aeromodeller Plans Service*, a facility first offered to modellers in July 1940 when the free plans given away with the magazine were phased out by wartime restrictions.

It is however, not the model descriptions or the news items with accounts of Eaton Bray and other large post-war meetings that tell the story of the development of the hobby, this is done in a more direct way in the advertisement pages, a study of which shows what the model trade made available to an ever expanding discerning aeromodelling public.

A dud item can be identified by the short tenure of its adverts, and good quality goods by their seemingly continuous mention. Thank goodness these pages were numbered and were thus not lost when ruthless bookbinders applied their trade to loose copies, a fate that befell many of the splendid Rupert Moore front covers. We leave *Aeromodeller intactus* heading for the 1950s and before the denuding operations commenced that spawned a number of healthy offspring, whose specialist natures have such a following today...



Happy Birthday AERO MODELLER!

Greetings to the 'young un' from the SMAE



When *Aeromodeller* first appeared in 1935 the *Society of Model Aeronautical Engineers* had been running British model flying under its mandate from the *Royal Aero Club* for 12 years and the idea that balsa might be of use in model aircraft was just catching on with the British. The magazine carried regular reports of contests run by the Society and by clubs all over the country, and Club News sometimes ran to eleven pages. Largely concerned with contest results and the achievements of members.

Those 30s *Aeromodellers* were full of fascinating items. Just two months before the outbreak of war, the SMAE was to run the King Peter Cup for gliders, - distance, by the way, not duration, - and Lord Wakefield made a £550 donation towards its organisation and our Wakefield team costs that year. In a piece referring to this, 'Clubman' (C S Rushbrooke), includes a familiar sentence; 'Unlike most countries, the model aircraft movement gets no official support in England, and it is a great asset to have such public-spirited benefactors.'

Looking still at a 1939 *Aeromodeller*, we are treated to a plan for a rubber-powered speed model, with a claimed speed of 93.5mph over a 220 foot course, under the power of fifty strands of 1/8 flat rubber!

Jumping ahead to the middle of the War, the SMAE report, a regular two page feature, mentions that the Society's metal lapel badges would be superseded by plastic ones, presumably due to the need of metals for war effort, and also urges members to make a big effort with their displays in Wings for Victory Week, which a National Savings-boosting campaign.

Reactionary...

Showing that little changes, the secretary warns that the Society still does not realise the value of publicity. The voice of reaction is heard from 'Clubman', regarding US developments in power duration models. 'How on earth designers can tolerate broomstick-like fuselages and pylons sticking feet above the fuselage beats me... I think that most keen modellers will agree that the development of those spindly, high pylon type models is not good for the movement.'

Maybe there was an element of sour grapes here, since there was a British government ban on the flying of power-driven aircraft...to avoid confusion with enemy aircraft.

The SMAE's work in relaxing this ban, albeit only for its own members (!) in 1944

seems to have led to a rift between the *Aeromodeller* and the Society, and a resultant absence of the SMAE pages from the magazine. It then seems that *Aeromodeller* made representations to the Air Ministry that had the SMAE membership requirement removed and allowed petrol models to be flown north of a line from the Wash to the Bristol Channel!

In 1944 a 'rival' to the SMAE appeared, and seemed to be well-favoured by *Aeromodeller*, in the shape of the *Association of British Aeromodellers*; wading through some of the verbose editorials, it seems that the SMAE probably facing major manpower problems, was in need of something of a jolt, but one has some sympathy while reading the squawks from those who needed help with the workload placed on it...

At this time *Aeromodeller's* circulation was around 58,000, an editorial a year later estimated that there were 500,000 model flyers in Britain, but lamented the fact that only 9,313 belonged to a club. In spite of that the first British Nationals, organised, like

Radical...

every one since, by the SMAE, saw 685 entrants fly in the six (all-free-flight) events at Gravesend. In case you think we have problems today of venues and communications, the *Aeromodeller* (in 1947) lamented that five weeks before the date for that Nats the SMAE were still unable to confirm any venue!

A survey in 1949 shows that there were 514 clubs operating in the UK, with 14,012 members, 72½% of which were SMAE-affiliated, double the Society affiliation three years before. In the interim the *Association of British Aeromodellers* had seemingly realised that it was trying to duplicate work the SMAE was now doing better, and its members had joined the Society en masse.

One of the themes that ran through *Aeromodeller* during the 40s, 50s and 60s was the importance of contests to maintain interest, and, equally vital, the publication of reports, photos and results from them. *Aeromodeller* editors have had a deep involvement with the FAI, too, and up-dates on the international scene and developments have been a result.

This has given a strong feel of model flying being more than 'just another pastime, existing mainly as a vehicle for commercial exploitation', and this has paralleled the SMAE's own approach to it. Indeed, most of us, when looking for details

of World Championships of the past, automatically turn to *Aeromodeller*...and usually find what we are after.

Rushbrooke, the editor for many years, made the first proposals to the SMAE that the FAI should organise the World Championships as a single centralised event, instead of Wakefield, glider and power at different venues. Some nations now think that something similar should be done with the current R/C World Championship events, which now number no less than five, and clearly strain both organising and competing nations.

A 1952 editorial is worth quoting, and is as true today as it was then. 'Few aeromodellers, whether members of the SMAE or not, realise to what extent they are indebted to this Society for the simple fact that they are able to fly at all... This applies not merely to contests... but also to normal 'week-end' flying, the so-called 'flying-for-fun'...

Referring to non-members use of such facilities the editor continued, 'The figures may also give members cause for thought as to whether the ½d a week which the Society receives from them is perhaps unreasonably low when compared with the services received.' The same could be said today, though the cost now is just under 10 pence per week.

It seems to have been in 1954 when the SMAE first had a display ad in *Aeromodeller*, albeit thanks to donated space; with a half page in the magazine currently costing £170 that is a move that the Society would certainly like to see re-introduced...

But balanced

But the *Aeromodeller* has featured SMAE news in its editorials, and has kept the overall international flavour of the sport in readers' minds; sometimes it has taken exception to SMAE decisions and sometimes with FAI ones, but its theme that there is more to model flying than what the reader flies himself has run throughout the years and sets the magazine in a class above the current vogue for one-interest publications.

Like the SMAE, *Aeromodeller*, certainly before the advent of the R/C-only magazines, covered the whole scope of model flying, and tried to expand the horizons of its readers, instead of keeping them blinkered. Certainly during its 63 years of work for British model flying, the SMAE has been grateful for the support of *Aeromodeller* and sends the fifty year old 'baby' best wishes for the next half century...



WITH THE PRESENT trend in Aeromodelling to most things nostalgic, some of the more *mature* modellers amongst us will remember an all sheet biplane model, originating from 1958. Yes it is 27 years since the original Bert Striegler designed 'Ebenezer' free flight model appeared. There then followed a succession of 'Ebenezers' under various guises, i.e. - Triplane, Flying Boat and Flea.

The model described here is what you might call an 'Ebenezer D7' for although the general outlines of the model, follow quite closely a *Fokker D7*, the construction is quite definitely of 'Ebenezer' origin.

The original designs used any type of motor from a Cox 0.10 to a D.C. 'Merlin'. Although the D7 is designed around an



Left, the markings of the original Fokker D VII were varied and colourful, giving you plenty of scope for creating a model with plenty of visual impact...

FOKKER D VII

'Ebenezer'

21 inches of free flight fun for .5cc engines by John Watters.

Allbon 'Dart', any small motor will suffice.

If you are fed up with the construction on that super-scale job you are building... try this model as a bit of therapy. I completed mine in a week of evenings and that included, cutting the grass and cleaning the car. The one thing that can be said for this model is that it is not going to cost you a lot to build. Also for anyone who has not built a free flight, can I say scale, model before, or if you are a newcomer to modelling, it is the type of model from which you can gain quite a bit of experience. Apart from all that - it is a fun model.



Wings

Begin the construction by cutting out the wings from 3/32in. medium sheet balsa. The top wing can be cut directly from a 4in. wide sheet, or as I did, by gluing a strip onto a 3in. wide sheet!

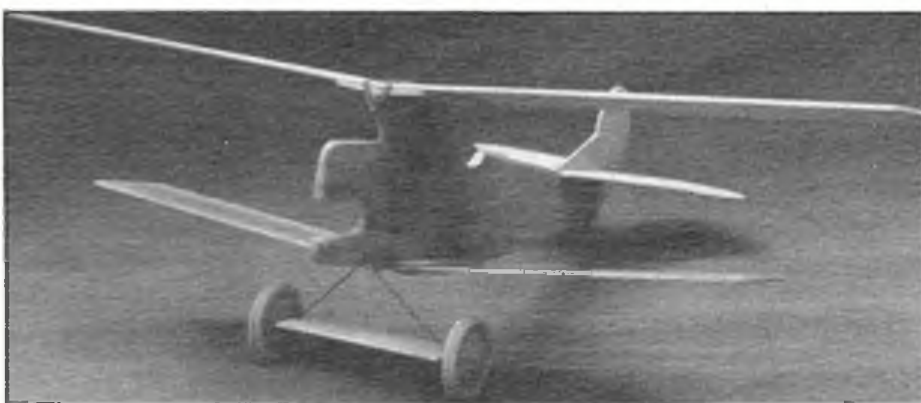
Both top and bottom wings can be cut out as individual wing halves. If you do this, pin

The wing platforms should be cut to size from 3/32in. sheet, to form the platforms to the correct dihedral angle, cut the platforms along the centre line, and crack the cut. Now either pin, or using elastic bands, place the platforms over their respective wings and cement the cut joint. Leave the platforms to set on the wings. Remove them when the joints have set and sand smooth.

Tailplane and Fin

The tailplane and fin are quite straightforward. First mark them out onto 3/32in. light balsa sheet. The fin and rudder should be cut out as two separate pieces, and then glued together.

Cut the trim tab from the rudder and use either soft wire to strips of aluminium as hinges.



Above, a few pieces of sheet, some wire and a few hours are all that is needed to produce this D VII. Left, no the model did not fly round the world but John's son Phillip did have to run a few hundred yards in retrieving...

the halves together and sand them both to the same outline.

The trailing edge scalloping was simply sanded in, using a piece of sandpaper wrapped around an *Airfix* enamel paint tin. Anything of similar diameter will do. The wing halves can now be glued together. Pin one wing half down onto your building board, and prop up the other half by the required amount. The wing joints should be made using a strong glue, i.e. *Araldite* or a PVA. When the wing joint has set, a reinforcing strip of either nylon or gauze should be cemented or doped over both sides of the joint.

Fuselage

The fuselage is cut from 1/4in. stiff balsa sheet, along with the top wing pylon. Note that the grain of the nylon runs *vertically*.

All long cuts should be made using either a metal rule or straight edge. Although the plans shows the engine bearers spaced to suit an *Allbon 'Dart'*, if the engine you are using is different, measure the spacing required between the inside edges of the bearers to suit your engine, and mark the spacing onto the fuselage.

CONTINUED ON P. 736

BEING THE ANNIVERSARY issue of *Aeromodeller* we wanted to highlight one of the magazine's past successes in plan form...but what? Something from the dark ages of the thirties and forties...or the golden fifties or a model from only yesterday's 60s, 70s, or 80s.

The criteria of page size and plan availability had also to be taken into consideration. Finally the decision was taken... 'Poppet' a model that has the feel of the fifties (But was actually published in 1962), that was never introduced into our *Plans Service*. A model that was flown in hundreds (thousands?) of club fields all over

The classic lines of 'Poppet' give it an ageless appearance that makes it as much at home, flying in the 1980's as when it was first flown in 1962...



POPPET

Build this time-proven 32 inch free flight sports model by Vic Smeed

the country, was converted to R/C (even then!) and flown like a control liner in small spaces. Easy to build - almost guaranteed performance and fun to fly. Take it anywhere and remember what aeromodelling is all about - HAVE FUN

Poppet

There is nothing particularly new or unusual about this little model - it follows what might be termed traditional design layout, shape, and construction. What does put it in a class of its own is its performance, for its size. When we checked out the first prototype it was a frosty, absolutely windless day with bright sunshine and just a little haze in the sky - in other words, ideal conditions.

Glide tests showed a smooth glide which, with a shim under the tail trailing edge, became a floating descent. Banging on hard right tab, we launched with the engine at reduced revs and the model turned tight right and flew into the long grass. With 'half' left tab and the same engine setting,

we got 50ft diameter circles to the left, without climbing.

Having thus established the turn characteristics in each direction, we set the tab about ten degrees right, adjusted the motor to maximum revs and launched with what static ground tests (it was a new motor) had shown would be about a 15sec motor run.

Forty-five seconds later we saw the motor cut, just; the model had climbed in one wide right circle and was a minute speck almost overhead, out of earshot, so that the only indication of engine cutting was a sudden change into about 50ft glide circles.

Several minutes passed before we realised that it wasn't coming down, but drifting along in a weak thermal. We followed for about twenty minutes, towards the end catching only an occasional glint in the sun, until eventually we were forced to concede that it had gone - still at a dizzy height and flying well.

The following day we learned that it had been seen to land on a golf course some 2½ miles away just over an hour after launching.

Construction

Decide first what motor is to be installed, ie whether beam or radial mount is required. A wide range of motors are suitable, from the 'Pee Wee' .010 or .020 - which would probably call for ballast in the nose - to any of the standard .049 or .08cc engines. The prototype used an *E D 'Baby'* .46cc and flew very happily at an all-up weight of 6½ozs.

Select stiff but light 1/16in sheet for the fuselage sides, trace and cut out and sand to ensure that both sides are identical. Cut bulkheads, bend undercarriage (this is 'flat' to make accurate bending and axle line-up easier) and bind to F2 as shown. Small nicks in the sides of F2 will allow the thread to sit flush. Now cement F2 to F3 thoroughly, and allow to dry under a weight.

Place one fuselage side near the edge of the building board, which in turn should be near the edge of the bench, and cement F3 and F4 in place, ensuring that they are at right-angles to the fuselage side. This is a convenient time to add the scrap ¼in sq stiffeners inside the fuselage sides. When dry, cement the other fuselage side in place, lining up carefully.

Before any further steps are taken, sheet across the fuselage bottom between F3 and 4 and fit the wing seat. Now draw the tail ends together and add F5, checking for symmetry. Cement the tail ends together and when dry drill for dowels and fit. The top and bottom may now be sheeted.

At the nose, install the bearers, F1, and the F6 pieces. Draw the sides together, add top block and bottom sheeting after drilling bearers. Carve block to shape, cutting to suit motor. Add ¼in sheet pieces for fore end of wing seat, plus dowel, fill in at nose with scrap block, add tailskid, and sand all over.

continued on page 736



The 'Poppet' is a very forgiving model to trim and to fly, but beware of overpowering it with too large a motor. It is intended for 'cruising type' flights and not climbing vertically hanging on its prop!

December 1985

Materials

- 1 Strip ½ in. x ½ in. x 36 in. Balsa
- 1 Strip ½ in. x ½ in. x 36 in.
- 1 Strip ½ in. x ½ in. x 36 in. Moulded trailing edge
- 1 Strip ½ in. x ½ in. x 36 in.
- 1 Strip ¾ in. x ¼ in. x 36 in. Balsa
- 1 Strip ¼ in. x ¾ in. x 36 in. Balsa
- 2 Sheets ¼ in. x 4 in. x 36 in. Balsa
- 1 Sheet ½ in. x 2 in. x 36 in. Balsa
- 1 length ¼ in. x ¾ in. Hardwood engine bearer
- 1 length ¼ in. dowel
- 1 length 16 s.w.g. wire
- Soft Block ¾ in. by 2 in. by 5 in.
- Scrap ¼ in. and ½ in. ply, Celluloid, Tissue

SCALE MATTERS

Free Flight with Bill Dennis

Nostalgia Time

This being the 50th Anniversary issue of *Aeromodeller*, contributors will be 'Looking back'. Unfortunately I am too young (!) to be able to do anything similar for freeflight Scale. Nevertheless it might be interesting to recall the first scale rally I attended, which I believe was the first SMAE All-Scale meeting at Hemswell in 1965. The weather was atrocious, but the RAF kindly opened a hangar and everyone retreated inside. Several freeflight models took to the air, flying in tethered circles around the pilot. *Aeromodeller* listed all the models present, and the freeflight roll call is reproduced here - don't bother to add them up, there are about 50! Where are all these modellers now?

The following year had better weather, and it was then that I became hooked on freeflight. Two things stick in my mind. A youthful Terry Manley ROG'd his *Bristol F2B*, which turned right and headed toward one of those corrugated, curved hangars. Landing two thirds up one side, it ran to the top then turned sharp left and bounced across the corrugations almost to the end of the roof. Here it reversed 180° and exactly retraced its path, ran down the side, took off and finally landed at Terry's feet - magic!

There were also radio control models, one chap produced a large single channel job (I won't specify which one, since he might be reading). His equally large wife brought out a deck chair, knitting, dog and a very bored demeanour. After about three hours of fiddling about, the model was ready and it took off, only to crash immediately and spectacularly. At this, his wife folded up her knitting turned to the dog and said "right he's broken it, now we can go home"! That day I decided it was freeflight for me.

Right, Charlie Newman with his new Avro 504N. Below, close-up 504N undercarriage; front and rear pair of legs are torsion bars linked by the horizontal members...



Nationals revisited

Technically the most interesting new model was Paul Briggs' rubber powered 'Hurricane I', which is of similar size to his 'Kittyhawk' seen last year. The latter was built using Paul's blue-foam techniques, but the structure of the 'Hurricane' is more conventional with foam used in limited quantities for wing tips, ailerons etc. Beautifully made as usual, it lacked only some detailing, and weighed a mere 7oz - which is a good deal less than the 'Kittyhawk'.

The interesting part is the retracting and detracting undercarriage. Retraction is achieved by rubber band tension which is triggered by a modified *Snoopy* timer. The winder is cleverly concealed in the airscoop

under the nose and a brake on the timer is released on launch by a tiny lever in the upper surface of the wing root. Seven seconds later with the model *hopefully* in the air, up go the wheels. For detracting the rear motor peg is tensioned to slide back about 1/2 in a slot, and a linkage to the centre section releases the anchor ends of the bands, allowing the undercarriage to fall under gravity, where they then lock in place. Obviously landing with the undercarriage down renders the system liable to damage but trimming will be done with retraction only, until the model can be trusted to land straight!

A very clever and well thought out system, and I hope to be able to give more news when Paul has sorted it out. No doubt he will then start work on a 'Spitfire' with wheels that go up slowly, one at a time!

In the power event, only Charlie Newman had a new model - an *Avro 504N* in a silver colour scheme with Oxford blue trim. When Charlie told me in June that he was about to

Scale Roll Call

FREE FLIGHT POWER

Sopwith Camel (1/8th), 40 in., Mills 1.3; Sopwith Swallow (Three 1/8th), 41 in., E.D. Bee; Frog 150 AM 10; Sopwith 1/2 Strutter (1/12th), 34 1/2 in., Mills 75; Sopwith Triplane (Two 1/8th), 35 in., D.C. Merlin; D.C. Spitfire; Sopwith Snipe (1/8th), 46 in., Frog 2.49; Albatros D III (1/8th), 46 in., Mills 1.3; Albatros D.V. (1/8th), 44 in., Frog 1.49; Cessna 180 (1/8th), 44 in., D.C. Merlin; Dixon Little Tiddler (1/12th), 26 in., Mills 75; Fokker Spinne III (1/12th), 35 in., D.C. Dart; Fokker E. IV (1/12th & 1/10th), 29 in., Cox 0.20; 36 in., Mills 75; Fokker D.VIII (1/15th), 22 in., E.D. 4.8; Fokker E.III (1/8th), 36 in., D.C. Dart; Lee Richards Annular Biplane (1/12th), 22 in., Cox 0.49; Blackburn 1912 (Four 1/8th), 47 in., E.D. Bee; D.C. Merlin; D.C. Merlin; Mills 75; Demoiselle (1/12th), 20 in., D.C. Bambi; Piper Cub on Floats (1/16th), 71 in., Frog 3.49; Hanriot H.D.1 (1/8th), 39 in., Moth (1/8th), 55 in., Frog Viper, D.H. 34, (1/12th), 51 in., E.D. Bee, D.H.5; (1/12th), 25 1/2 in., D.C. Dart; D.H. 80a Puss A.M. 15; Cessna Bird Dog (Two 1/12th), 36 in., Mills 75; 36 in., D.C. Dart; Etch Taube (1/12th), 31 in., D.C. Dart; Gloster Gamecock (1/12th), 36 in., Weber 2.5; Druiue Turbulent (1/8th), 32 in., D.C. Merlin; B.E. 2a; (Two 1/12th), 41 in., D.C. Spitfire; 41 in., Mills 75; Auster AOP9 (1/12th), 37 in., Mills 75; Bristol F2B (1/8th), 47 in., Mills 1.3; Antoinette (1/12th), 31 in., Pee Wee; SEBa (1/8th), 41 in., ME Snipe; Chiltern DW1 (1/8th), 36 in., Mills 75; F.E.8 (1/8th), 39 in., Mills 75; Tipay Nipper (1/8th), 35 in., M.E. Heron; Blackburn B.2 (5/48th), 38 in., Mills 75; Wickner Wicko (1/8th), 48 in., E.D. Fury; Nieuport 28 (1/6th), 53 1/2 in., Rivers 3.5; R.E.8 (1/12th), 42 in., Mills 75; Mignet Flea (Two 1/6th), A.M. 15, 44 in., Halberstadt D.III (1/12th), 29 in., Mills 75.

FREE FLIGHT RUBBER

Nieuport 17c (1/24th) 13 1/2 in.; S.E.5a (1/24th), 15 in.



Left, Richard Granger dare not look as he releases his flat winged Fokker into the Nationals gale...

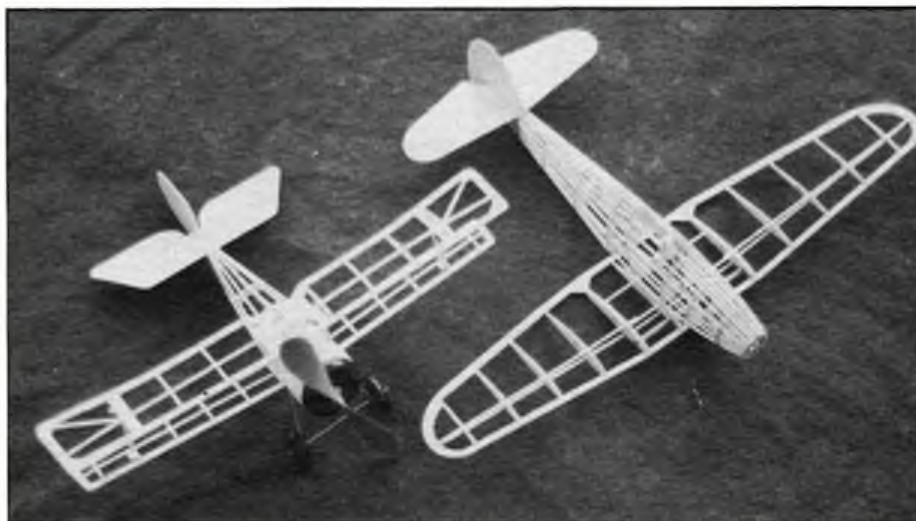
start construction, I did not take him seriously and I know in early August he was wrestling with a covering disaster, yet here it was, almost complete and immaculate too. Just under 50in span, the narrow chord wings make it look deceptively small. Power is replica *Mills* 1.3 and has an all-up weight around 32ozs.

The reason Charlie chose the 'N' rather than the 'K' is that, like many of us, he could not find a satisfactory way round that undercarriage skid sticking out waiting to dig in the ground - Eric Coates' slightly crumpled radio control 504 at the Nats drove home the point (no pun intended). Unfortunately, building the 'N' version entails constructing a dummy 'Lynx' radial engine and the *Mills* protrudes slightly from the scale outline. The obvious question is why not invert it, but this would have been a very vulnerable position for an expensive motor when flying over tarmac... It will look better when Charlie can bring himself to paint the *Mills* black!

Another new rubber model was Michael Smith's Currie Jet Wot. This has almost ideal proportions, except for a short undercarriage, which meant Mike had to use a gearbox (a *Bentom*, I believe). While the model seemed quite stable, it was obviously low on power and did not qualify. There is no doubt that gearboxes can be very effective, as Mike Hetherington has shown, but they do need some sorting out to get the right combination of motor/propeller size.

After last year's experimental CO₂ competition, the entry this year was very encouraging. Doug Sheppard's large 'Moth' was extremely realistic, and its superb winning flight showed that CO₂ models can perform in poor conditions and confirmed to me at least, that biplanes fly best (they won all three events).

Some final, personal views about the Nats: Firstly, everyone knows when the



Above Bill Dennis and Vic Willson put in some building time one weekend to produce these Keil Kraft Flying Scale models. On the left the Nieuport, Hurricane on the right, see text...

Nationals are and that there is a *whole* year between each one, so why is it that every year much of the entry turn up with models that are unfinished and untested...with predictable results? Alright, conditions were bad and have been for much of the season, but I have flown in worse and I feel they simply masked the underlying symptoms. People will point to the healthy entry list, but it is *flights*, not *entries* that count.

For example, in the CO₂ event only one person was willing to take the last and only opportunity to fly, and not until Geoff Spencer had shown the way, did only four others have a go. Perhaps I am keener than most, but when I enter a contest I feel I have some duty to the organisers to help make it a success. The attendance at outdoor freeflight scale meetings other than the Nats is dwindling and sooner or later the handful of people who drive around the country to organise them will get disheartened and give up...and that will be it. It is much easier to delete an event than to reactivate it, and don't forget that trophies are the property of the SMAE and can be re-allocated. Do you really want to see the Superscale Trophy awarded for a Helicopter spot landing competition? So let's see higher *real* entries and greater commitment next year - as someone who has been involved in organisation for some years, I shall personally regard it as make or break time. It

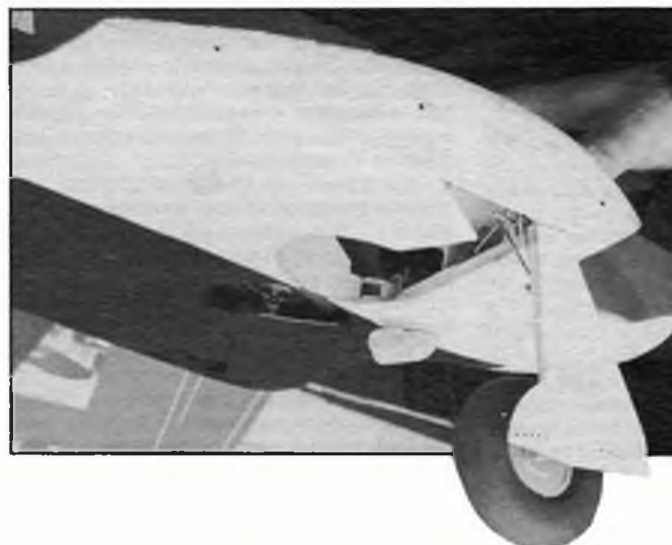
would also be nice to see some of the rubber flyers having a go at power - three viable events at the Nats would really put free-flight scale back on the map.

Back to childhood

Last weekend, Vic Willson came to stay, and needless to say, the weather was unflyable. So, in an uncontrollable spasm of nostalgia we each purchased a Keil Kraft 'Flying' scale kit - a 'Nieuport' for me and a 'Hurricane' for Vic, reflecting our respective prejudices re the number of wings. The thing about nostalgia is that things seem to have been better in retrospect than they actually were. However, even now I remember that the models I built as a small boy flew like bricks due to their generous construction and absurd propellers, which were only good for about five seconds worth of whizz!

The boxes are different now, with excellent artwork showing aeroplanes resplendent in rivets and details, but rest assured that the contents are the same as ever! Nostalgia evaporated rapidly as we sat through Saturday evening hacking complex parts out of the hardest balsa in the world. We had agreed to build them without modification, but I felt I had to cut a pair of large lightening holes in the rear fuselage of the 'Nieuport'.

Once the parts were cut out, construction was rapid, especially with the 'Nieuport'.



Far left, Paul Briggs with his 1/12 scale 'Hurricane' as yet untested. The close up (left) shows the retracting undercarriage worked by a modified 'Snoopy' timer.



Above, Mike Hetherington holds brother Barry's giant Bellanca - the only green and gold aeroplane we know!

The stringered fuselage on the 'Hurricane' took a little longer, but Vic left off the undercarriage for simplicity and better appearance in flight. Covering presented few problems and the prop assemblies were made up. The kit props were consigned to oblivion and 7in replacements used instead. Similarly, four strands of $\frac{1}{8}$ in Pirelli 12in long were used instead of the rubber band supplied.

The first problem to emerge was that there was no way of stretch winding the motor because the knots would not go through the small hole for the nose plug. I got round this on the 'Nieuport' by making the plastic cowling detachable, but Vic had to struggle with the 'Hurricane'. Both models needed a hefty piece of plasticene to achieve balance, and on the 'Hurricane' this weight would be better employed in some sheeting between the nose stringers and a separate nose block assembly with a larger hole.

Flying performance on the replacement props was something of a revelation. The 'Nieuport' actually *climbed* and was very stable in left and right hand turns. The 'Hurricane' at first showed an alarming tendency to wing over and dive into the bushes. This was alleviated but not cured by some wing twisting and rudder bending. Finally, we remembered a tip from Alan Callaghan which is to add some plasticene to the rising wing...and this worked wonders.

On nothing like full turns the model cleared a 10ft hedge at the end of the garden and also crossed the garden next door! We were left to ponder on how many more aeromodellers there would now be if the manufacturers of these kits had altered the propeller all those years ago!

Talking to your Editor the other day we agreed that it might be a good idea to run some sort of event for the *Keil Kraft* and *Veron* kits at Old Warden Scale day. It is early days yet and nothing is fixed, but it would probably be a mass launch with separate contests for biplanes and monoplanes. The only modifications allowed will be in the motor and propeller/noseblock assemblies and the kit wood *must* be used!

Control Line with Vic Wilson

Having been prompted by the Editor, I recently embarked on some research to trace the 'history' of control line in this country and inevitably I turned to back numbers of *Aeromodeller* and *Model Aircraft* as main sources of reference.

My research has not yet progressed beyond 1952, but already some fascinating items have emerged, such as the editorial in *Aeromodeller* June 1948 which relates ... a well known modeller from the Bradford area was flying a control line model on Baildon



Above, Richard Waddington's National's entry, an APS Heston Phoenix, but did not make a qualifying flight due to the wind...

Moor golf course when a ball landed within the flight circle, the golfer became impatient waiting for the model to land and her partner threw his bag of clubs at the lines causing the model to crash.

The modeller then attacked the golfer and eventually broke several of his clubs over his knee! Both parties ended up in court and the modeller was fined 10/- (50p) for assaulting the golfer and £9.5.0d (£9.25p) for damage to the clubs. The golfer was fined £6 for damage to the model!

However, back to more serious matters. Control line scale started almost as soon as the first reported demonstrations of tethered flying in 1947 by a certain R.G. Moulton with his (in) famous 'Voetsak' - in more recent times perpetuated by Mike Beech's replica seen and flown at several Old Warden Vintage meetings.

At a time when the aeromodelling fraternity was emerging from wartime austerity and materials, kits and engines were slowly beginning to appear in the shops again ... here was a practical way of flying scale models, particularly of those famous aircraft of the recent conflict.

These low wing types, which were not (and still are not) practical free flight subjects could now be tackled with some degree of confidence as yaw and roll stability were assured and by careful positioning of the

centre of gravity, pitch stability (and control) were available. A little imagination allowed one to dream of retracting undercarriage, flaps, throttle, bomb drop and who knows what else.

Initially however the accent was on 'stunting' and the first control line scale models were often designed to have a limited aerobatic performance, such as the *Veron* 'Sea Fury' introduced in 1949 and the later 'Spitfire' 22 and FW 190 (incredibly still to be found on some model shops' shelves 35 years later!) with coupled flaps and elevators.

These early models were small and light, being mostly tissue covered and powered by $2\frac{1}{2}$ - 5cc diesels which meant high air speeds (60 mph plus) and hence very little scale realism in flight. Mostly, by today's standards these models were rather gruesome statically but these were early days and in an era when modellers were only just beginning to seriously experiment with Radio Control... expectations were not high.

In *Model Aircraft* (January 1948) Henry J Nicholls, who had done much to establish control line in this country, wrote an article entitled 'has control line come to stay?' - we all know the answer to that question, but at the time it reflected a certain hostility from the establishment who were inevitably free flight enthusiasts. Some of whom had begun their aeromodelling careers long before the war and looked upon control line as an upstart branch of the hobby not worthy of lasting attention. 'Bricks on strings' was the usual dismissive criticism.

But, as with any new pastime or sport it attracted its own enthusiastic following as well as a good share of free flight converts.

By 1948 a few scale models were being featured in the magazine, for instance in *Model Aircraft* there appeared a picture of Ron Warring's 22 $\frac{1}{2}$ in span 1/24th scale *Hawker* 'Fury', Mills powered and flown on 26ft lines, weighing an amazing 9oz! The competition bug had bitten by this time and although it would be another 10 years before scale events would be run with rules as we know them today, events for speed, stunt and concours d'elegance (forerunner of scale) were being organised and were well supported.

In *Model Aircraft* for June 1949 an advertisement appeared for the (now) famous *Mercury* adjustable handle, a bellcrank and a stunt tank, this being a reflection of the demand for commercial accessories to cater for this new form of aeromodelling. Also in this same issue was a report that a 'well known club' had been banned from flying in a public park, so it seems that even at this early stage the flying site problem had reared its ugly head.

The control line model, due to its space requirements being much less than for free flight, precipitated action by local authorities due to the inevitable activity in small parks and areas of public open space, sometimes with noisy spark ignition and even pulse jet engines!

By the end of 1948 the control line branch of aeromodelling was well established and scale was gaining popularity steadily. It would continue to grow during the '50s, interest reaching a peak in about 1960, but go into slow decline thereafter with increasing competition from radio control - but that's another story...





1985 Free Flight World Championships

Regular World Champs watcher, Martyn Cowley, back from Yugoslavia with this action-packed report...

THE CHAMPS that had everything! Truly the biggest gathering in model flying history; the largest most perfect field; the best weather, clear skies with no wind; the largest most exciting fly-offs; the highest individual scores. The first time that all the top Nations have competed together - America, Russia, China, North Korea, all the teams from both East and West. The line up of competitors read like the 'Who's Who of Free Flight' with *seventeen* previous Champions.

251 competitors from 34 countries made almost 2000 official flights during the three days. Probably 1000 models were processed for the Championships, models that reflected the ultimate craftsmanship in balsa and hardwoods and most innovative modern techniques of construction. Models the epitome of simplicity and aerodynamic elegance, marvels of miniature design and engineering.

Not since Bulgaria in 1975 had the prospects of an ultimate event seemed likely. Subsequent Champs held every two years, have suffered one or other misfortunes; full teams unable to attend, bad weather, poor organisation, or marginal sites. Livno

however proved to be the event of the decade, arguably the finest World Championships ever.

A week of sunshine, temperatures in the 90s and barely more than a few miles per hour drift in any round. Abundant thermals virtually from dawn 'till dusk. The Ultimate Champs...

The Yugoslavian organisers had practiced their skills over the past few years by hosting excellent Open Internationals, culminating with the European Championships, in 1984. The only gripe of the whole meeting revolved around entry fees and supporters fees which certainly appeared exorbitant. Many countries chose to camp out or stay with families in town rather than avail themselves of the expensive official accommodation. Many of the official hotels were between 70 to 100km from the field - requiring excessive travelling before dawn or late at night during the contest.

In addition to the main event, the Yugoslavs organised an Open International, the Izet Kurtalic Memorial for F1A, F1B and F1C on the Friday prior to the Champs. This gave competitors the opportunity for valuable practice under local conditions.

F1A Glider

Wednesday 14th Rounds 1-7: 08.00 -

16.00: This year's Glider Team certainly looked good on paper. At long last Mike Fantham was back, ten years after he flew in Bulgaria. Since then Mike has logged numerous International victories - his only problem has been surviving the ordeals of the Trials. Another team spot for Tony Cordes recent author of the glider articles in *Aeromodeller*, with Phil Owens a top flyer over the years completing the trio.

But the calm sunny weather at Livno was soon to prove the undoing of the British flyers. An hour before the event, evaporating dew thermals made it look easy to do 3½ minutes. Once the event had started such conditions no longer prevailed and despite extended towing Tony Cordes was down in 170 secs, with Phil Owens only managing 115 secs. Hope now lay with Mike Fantham who proceeded to rack up a string of maxes.

Andres Lepp, Russia's top man was conspicuous by his absence due to a respiratory problem. Their team of Tchop, Isaenko and Orlov were obviously top favourites. They flew early morning rounds with 2.2 to 2.4m large span models featuring Kevlar D-box construction for torsional rigidity. This was typical of the growing trend towards composite structures, clearly apparent amongst many models.

Belgian Leo Reynders, '84 Champ at Zulpich flew solid foam core wings with glass fibre skins. Allard van Waleane from Holland used a sand-



Above, jubilant new F1A champion, Yue Liang, was over four minutes clear of rivals in final fly-off. Right, quick repair helped Kai Sun take second individual place, confirming China's total mastery of the event, with a first place in Team Gilder.



Left, Yue Liang's winning model is constructed from Chinese Tung wood with sheeted D-Box and carbon fibre spar caps. Yue has developed a unique pendulum latch tow hook, which prevents accidental release.



Another top spot for Denmark's Per Grunnet, Champ in '79, who lost his 'Celeste' just before the final 7 minute fly-off round

wich of glass skins over thin foam sheet for pre-moulded upper and lower surfaces. Many others used precured glass faced balsa sheeting, similar to power model construction, including such respected Czech flyers as Crha and Horjesi. An added bonus is that many of the foam wing techniques take only a fraction of the time to build compared to traditional balsa and tissue models, and offer more accurate airfoils and less chance of an unwanted warp developing.

Opening rounds were typified by abundant thermals marked by groups of circling models, making it easy for tactical flyers. Early surprises however included Orlov's 138 sec first round taking out the Russian Team. Cenny Breeman (Holland), double European Champ, also dropped by 8sec. The second round saw mistakes by Lee Hines (USA) 126secs and Jim Bradley (USA) with 123sec.

One serious omission by the Yugoslav organisers was that competitors were not issued with the customary large identity numbers. This complicated the task for managers and timekeepers trying to identify flyers touring far afield, or during line cross incidents. Let's hope this mistake is not allowed to re-occur at future Championships.

By mid-day thermals were huge and packed with dozens of models, over 80 maxes were recorded in each of the last five rounds! Tony Cordes however came unstuck again, with a zero following a second attempt tow-in and later scored 57sec in the sixth round. By round five thermals had become ridiculous - everyone who managed to get a model into the air maxed! But only five countries had full team scores remaining. This changed in round six when Wolfgang Gerlach recorded 122secs for West Germany.

The final round was the end of the road for Mike Pantham, who missed the thermal during a refly for a disappointing 95secs and was robbed of the chance to work his magic in the fly-offs.

After seven rounds, 398 individuals had maxed-out, including three full teams, North Korea,

Poland and China, who were demonstrating their new pendulum latched towhook - impossible to release accidentally!

4 Minute Fly-Off: 16.40 - 16.55: Due to the large numbers, the start was delayed by ten minutes. The wind had been 5-6mph but as fly-off time approached it suddenly freshened to a cold 10-12mph. Defending Champion Matt Gewain (USA) launched early as he towed towards one of the Chinese models already gliding in lift and was followed by at least half of the contestants.

Then a commotion started and FAI Jury member, Pierre Chaussebourg ran up to intervene... Norwegian Svien Arild Larsen had no timekeepers, nor could anyone time for him... Pierre would see that he got a full 15 minute period to fly but which commenced five minutes late - after the big thermal had already passed through.

Meanwhile others towed as conditions cooled down. Suddenly the final red flare went but several flyers were caught still with models on the towline. Amongst them Per Grunnet (Denmark), who launched immediately for a low time of about a minute and a half, that would be disqualified. But a quick check of stop watches, indicated that the 15 minute fly-off period ended *too soon* by some 50 seconds!

A major controversy unfolded. An official protest from the Norwegian team regarding Larson, who failed to make four minutes being penalised by starting late... The Jury was called and the next round postponed. A unique situation. The organisation until then had been impeccable, but a lot of valuable time was now being consumed by what was after all a non-decisive flight.

Second 4 Minute Fly-Off: After considerable deliberation, it was announced that the four minute round scores were all void and that the fly-off was to be reflyed. Understandably this brought a number of counter protests from Team Managers whose flyers had already maxed - again

the Jury met. The final outcome was that all those who had maxed need *not* refly, while Larson and all who dropped time could try again... the first time re-entry has been allowed at a World Champs!

Now over a dozen competitors lined up an hour and a half later for a second four minute fly-off round. Amongst them, some embarrassed smiles included Czechs Ivan Horjesi and Jaromir Crel with Russia's Victor Tchop and Austria's Werner Kraus scarcely believing their good fortune. As the round opened a good thermal was marked upwind and everyone launched straight into it, soon eleven models were riding high at over twice towline height. Ultimately only three of the 39 flyers failed to reach the five min round.

5 Minute Fly-Off: 18.25 - 18.40: Soon into the round, and one model was away circling in lift upwind. As the wind died, a stampede began as competitors ran upwind to catch the thermal. Caught up in the pack several suffered line tangles... probably a score of models were launched into the thermal but soon after - the bubble burst - and models rained down in heavy sink, only one or two rode the air for five minutes.

This round proved to be decisive for many. Matt Gewain had made no mistake all day and again he had picked good air, but slowly it evaporated and he was down in just under four minutes. There would be a new Champion. Only six flyers hung on to score 300sec. Amongst them Fabio Mutini (Brazil), son of F1C flyer Walter. He suffered a timer failure and the model disappeared upwards out of sight - certainly big lift was still present! It was the end of the road of Tchop and Isaenko, Horejsi and many other great flyers.

6 Minute Fly-Off: 18.50 - 19.05: The round started quickly, no-one had even got their lines out ready, Vin Morgan (Australia) and Kai Sun (China) rushed to get to their pole with models. Just three minutes into the round and various tactics became apparent. Upwind, Vin, Fabio and Per were towing, down wind Uwe Rusch (East Germany) was parked, while both Chinese waited



Left, superb performance from Australia's Vin Morgan who placed 4th, note invigorators on top of wing. Below left, masked man in USA 'coach' Bob Isaacson with hot new flyer Randy Weller. Below, regular top performer at World Champs, Finland's Kelkki Tahkapa.



on the ground... Yue Liang towed up and immediately released and looked good. Down wind Uwe prepared to join him, Kai Sun started to tow, and meanwhile Fabio had problems, as he towed in his back-up model. Liang's model was now at double line height, a great flight was in progress.

Big problems though for young Kai Sun, he had towed his model in amongst the spectator's cars. The left tip was shattered and the right one was broken clean off. He had no reserve ready at the pole, his only chance, just a few minutes remaining was... attempt a repair!

The Chinese team descended on the broken model, a dozen hands held pieces back in place, as cyano glue worked its instant magic. The Russian team ran for a roll of Scotch tape, to patch torn tissue... what co-operation. The wing tip was glued back in place. Meanwhile, Fabio's old model spun in for 14 seconds, but Vin Morgan was away under Per Grunnet's model and now both gliders were climbing high - another round looked certain.

Unbelievably the repairs were completed and Kai Sun towed up and immediately launched. The crowd cheered his brave attempt as the model completed its first glide circle overhead. Another circle, then another, still at line height, his model majestically defied gravity. The crowd buzzed with excitement, cheers and applause, without question the air was buoyant. Then a slight breeze picked up the model, and away into the setting sun for a max. Other scores came in - max after max - five in all.

7 Minute Fly-Off: 19.25 - 19.40: With the setting sun low to the mountains and only 2-3mph drift, the East German went off straight down wind. Vin and Per again towed way upwind and once more the two Chinese sat it out at the line. Champion by proxy in '79 now Per Grunnet had within his reach a unique chance to repeat his victory. But the time lost earlier meant the fly-offs were held quickly leaving little time for retrieving. Per's best model was not yet returned and he flew a new design.

After a minute Yue and Kai started towing, as long shadows were cast across the field minutes ticked away as all five towed. Kai Sun released... Yue Liang followed and his air looked better, the glide circle, a full 50 seconds. Way up wind Per launched, but his new model was off trim, gliding in tight circles of only 18 seconds. 8 minutes left and Uwe released way down wind.

Vin also had model problems with his 'AL34' style model still lost down wind. His reserve model which glides right, towed too straight, and stalled left badly on zoom, but it recovered into a good glide. Uwe landed, so too did Vin but timekeepers still watched another model. It was the Chinese, Yue Liang, who scored 405sec - deservedly he is the new World Champion. Team mate Kai Sun took second place with 164sec, illustrating the strength of the young Chinese team, Per Grunnet was third only three seconds behind. Mere seconds separate top places, Vin Morgan fourth with 156sec and Uwe Rusche with 138 sec. At such a major event, what a pity the FAI does not award recognition to the top 5 places with medals - next time perhaps?

Almost a clean sweep for China, 1st and 2nd individual and 1st Team place ahead of North Korea and Poland 3rd.

F1C Power

Thursday 15th: Rounds 1- 7: 08.00 - 16.00: Familiar faces on the Power Team, with top flyer Stafford Screen now attending his fifth consecutive Champs, having recently placed second in Europe in '84. Peter Harris and Roy Collins have also attended previous Champs over the years and have a wealth of experience in this event.

The past decade has seen a tremendous advance in construction techniques and available power, resulting in models capable of twice the 180sec max from a seven second engine run. Starting in 1989, the opening round will be increased to 240sec, but for now most were happy simply to start up and

launch for 180! Maxes for Stafford and Pete... but Roy's model looped over the top losing height and then flew a wide two minute glide circle to narrowly score 182sec down.

Early rounds were noticeably casual with many flyers still down wind of the line making trimming flights. Only two thirds of the field maxed in what can only be described as perfect conditions, reflecting very mixed standards amongst competitors.

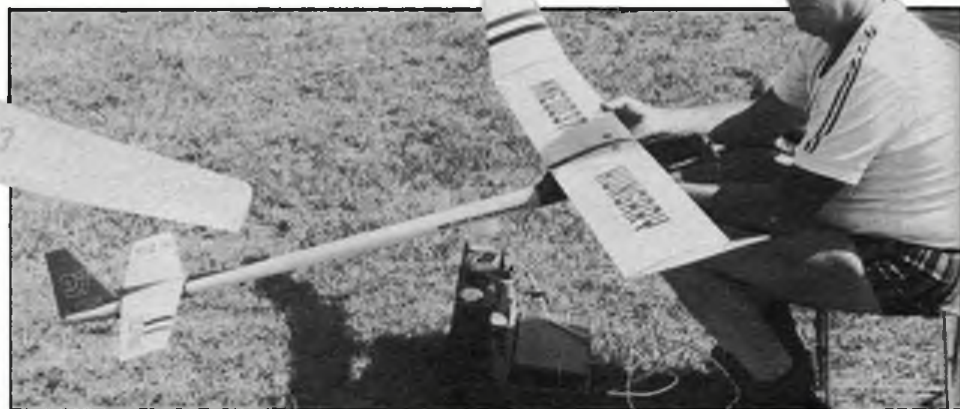
The most impressive models by far, were those of the Russian and Chinese teams, using what is becoming the universally adopted construction technique of hard rolled aluminium skinning on balsa sheet wings for exceptional torsional rigidity. This helped contribute to their amazingly fast climbs, with perfect every time bunts into a slow floating glide.

The only other man in the race was Thomas Koster, once again showing his flair for innovative design. His latest models - 'Excalibur' utilised a sandwich skin, ribless construction, with a carbon fibre spar. The whole model is entirely plastic and he built one using molds the week before the event! Sadly, Thomas d.t.ed short in the second round to end his hopes.

Round two also saw the demise of Pete Harris who made a disastrous launch to the left with an unforgiving trim, that gave him a pull-out at only 150ft for a 106sec flight. Two rounds later Pete again dropped with 163sec and Roy started a string of four non-max flights after his wings started to warp in the mid-day sun. Only Stafford kept the flag flying with maxes.

The big thermals and down-draughts were making it difficult even for the experts. China's Ruilang Feng scored 147sec in Round four. Hans Lindholm from Sweden scored 115sec having followed the trend away from triple fin models that once were so typical of Scandinavian designs.

Earlier in the year at the Socialist Champs in East Germany, Russia's Aleksander Muhin had become the first flyer to score an eight min fly-off round max - but in Round five he d.t.ed short by 40sec. More problems for China when their top



Above left, new F1C Champ, Nakonechny. Surprisingly, Russia's first F1C Championship win... Hungary's András Maczner added excitement to final round with a flight within seconds of 7 minute max. Below, top man on British Team, Stafford Screen, took the risk of going alone in the 5 minutes round... Right, Eugeny Verbitsky, the man who invented most of the modern F1C model - once again close to that elusive first place that he so richly deserves.



flyer Zhijian Chen who had topped the seven minute Euro Champs fly-off was out in Round six with 136sec.

Not since 1971 when Koster flew his 'Andromeda' so successfully had flappers made a real showing despite their promise of higher performance. The practical reality has been that few can handle their complexity. Now the North Korean trio, which included '75 F1B Champ Dong Sik Kim, made it look easy with 21 straight maxes for a full team score. Only Hungary and USA could keep pace to make three full team scores amongst the 31 competitors to reach the fly-offs.

America's Kenny Happersett had flown all day using an air-density gauge which mixes temperature and pressure to help keep his models on trim. Team-mate Ken Phair, himself famous for his flappers in the '70s was back with conventional models but used an unusual single blade prop with a Gurney flap trailing edge, developed in conjunction with who else but Bill Gieskieng.

4 Minute Fly-Off: 16.30 - 16.45: The wind at about 1mph was light and variable, but it was blowing down the length of the line, giving a distinct advantage to many. Xian Wang launched immediately from the far upwind end and other teams soon confirmed that thermister readings were rising. For a minute the others watched the Chinese model overhead then an incredible mass launch was underway, a mixture of brilliant or mediocre patterns...soon 25 models were gliding together and the fly-offs were still only two minutes old.

A few late models at the upwind edge of the thermal were in trouble, the beaters were out trying to help them but a number would surely drop. North Korea lost Sang Gol Sin with 103sec, past Champion Mario Rocca (Italy) was down for 153sec and Walter Nutins from Brazil flying a left-left pattern was also too late, gliding down for 147 sec.

5 Minute Fly-Off: 17.05 - 17.20: Twenty two flyers still had a chance, amongst them all three Hungarians, the only complete team remaining. West Germany's Gerhardt Heidemann launched first, flying one of his old T-tail models, a design so familiar at European events. The model completed a loop at the top of the climb after a bad transition, but the glide encouraged others to follow.

Twenty power models were launched almost simultaneously as the breeze picked up to 4-5mph. The last few certainly appeared too late and only half the models looked to be in good air. It was surprising on such a crucial flight, that individuals were not accurately picking their own air. At best they had a 50/50 chance of maxing. Only one flyer remained, Britain's Stafford Screen, who rightly called the air marginal. His was the gamble to go it alone, but by then some high clouds had obscured the sun, making his task more difficult.

Meanwhile calls from timekeepers requested the crowd to sit as they tracked models low to the horizon. It was an oversight to have allowed any one downwind of the line to obscure the timekeepers. Ken Phair had made a good flight but landed just 5 seconds short. Finally, Stafford Screen launched just before the round ended, he was doing it the hard way and could manage only 264secs on a perfect but lifeless flight.

6 Minutes Fly-Off: 17.50 - 18.05: Before the round could start the organisers decided to move the launch pole line upwind by one kilometre, to another line previously marked out. In the time it took competitors and spectators to walk over, everything was ready, with the line again perpendicular to the wind direction. This showed excellent preparation and organisation by the Yugoslavs. With no wind obstructions all flights could clearly be timed to the ground.

Still twelve remained including two flyers each from Hungary, Russia and North Korea, together

with reigning Champion, Italy's Silvano Lustrati. The youngest competitor was Canada's Tony Matthews, who only started flying in 1980 and now at 22 years old was already at his third Championships.

Very early in the round Xian Wang decided the time was right and made a beautiful launch. The Chinese power models were amongst the finest at the event, this flight was no exception. Applause from the crowd, following a very high, perfect climb. The flight looked so good all along the line motors burst into life...Nakonechny, Verbitsky, Matthews, Lustrati, Maczko, King and Kim all follow each other. Only three minutes into the round and everyone had launched, the models gliding in essentially the same air. But six minutes is a long time and soon many teams were flapping models, as one by one they glided down.

First to fly, Xian Wang was clocked off at 351sec timed to the ground. But the Chinese team realize the wrong model had been timed - Wang's model d.t'ed after maxing comfortably. With such mass launch fly-offs the timekeeper's job was not easy and they probably switched models when changing to binoculars during the long flight. The Jury was again called. Other witnesses from the British and American teams who were downwind retrieving confirmed the Chinese model d.t'ed down soon after Verbitsky's.

The final decision was a tough one. In view of the testimony of other teams the Jury accepted that a mistake had been made. But because no other stop watch recorded the actual flight time, they decided to uphold the official score! A big disappointment for the Chinese team.

7 Minute Fly-Off: 18.30 - 18.45: Now as the evening air went still, only four competitors remained for the next round. The superior Russian models of Verbitsky and Nakonechny now had a distinct advantage, they felt confident they could out perform Maczner and King in the same air, and therefore played a waiting game. Whenever the



Above, North Korea's Jong Hi King placed 3rd with his Rossi-15 powered flapper, which kept pace with the compelliton thanks to super glide.



Left, young Canadian, 22 year old Tony Matthews, flew this Nelson powered Chinese influenced design into 11th place - slight left launch is typically no problem for 'Bunters'.



Above, North Korea's D S Kim (winner of F1B in 1975) returned to fly F1C - reaching the fly offs with this flapper.

other two launch, the Russian knew they had only to be ready to go in the same air, to beat them. The crowd patiently waited, Verbitsky even encouraged the North Korean politely joking: "please, fly first" and Jong Hi King smiled and replied: "no after you"...for ten minutes this stand off continued.

A slight breeze blew through and with four minutes remaining, surprisingly it was Verbitsky who betrayed his tactic and started up first. Launching a little to the left his climb was still spectacular and the bunt brought the model round. A couple of slight stalls and the flight looked good.

The North Korean quickly followed with a much weaker motor, only seeming to get half as high but the flapped wing section would help him on the glide. The Andras Meczner, who as always had been patiently sitting on his folding stool and watching... decided to join the other two, again much lower than Verbitsky. Finally Nakonechny started his motor and gave the model a massive throw. Perfectly vertical the model rocketed into the sky, unquestionably the best pattern of the fly-offs...the crowd cheered enthusiastically. It may well have been a deliberate tactic for the Russian pair, to fly first and last, to maximise their chances of finding better air than the other two.

Down wind the first three were gliding nicely as a group but it was soon obvious that Nakonechny's model was in steady lift, very high and certain to max. The only question now was could anyone stay with him for another round. Verbitsky landed first, 376 seconds, then the North Korean - so close, 378sec. Only Meczner still had a chance (himself F1C Champion over Verbitsky in Spain in '81). Now all the Hungarians urged his model on, as he continued to glide in improving air. He needed only 30 seconds more, than 20, then 10 but with the model so close to the ground...417 seconds, just 3 seconds short and he was clocked off! Still airborne the new F1C Champion of the World Nikolay Nakonechny truly made the best launch and the best flight, in the decisive round.

F1B Rubber

Friday 16th: Rounds 1-7: 08.00 - 16.00: The only newcomer on this years Team was surprisingly Dave Hipperson. Dave has actually qualified for every team since '79 but had never attended the event before. This was hard to understand for one so dedicated to rubber flying back in UK. I for one was delighted to see him rightfully on the team at last. He was joined by Ivan Taylor now at his second Champs flying interesting solid sheet wing models, which incorporate innovative use of expanded polystyrene. Brian Spooner who has flown all classes and previously been Team Manager was once again on a Wake Team.

First flown in 1928 and justifiably still regarded as model flying's premiere event, Wakefield is traditionally the final contest at the Champs. Again blessed with clear sunny skies and little wind it looked like another perfect day. But significantly conditions were much hazier, and stubble fires a mile away clearly making an inversion layer in the valley at a few hundred feet, that would seriously inhibit thermal activity in the opening rounds.

First to fly, practically simultaneously with the green flare, was America's Walt Ghio, d.t'ing down from 40ft at 310sec! Shortly afterwards Bob White (USA) d.t'd at 21.4 sec at 100ft. These guys were raring to go, with models developed for a series of early morning contests held in California called the 'Six Minute Club', where the objective is to score six minutes at six o'clock in the morning... Believe me - they can!

The British Team had no problems in the opening round. But by Round 2 conditions although still calm, were totally different, and stagnant air fooled many into flying too soon. I believe the Team paid the price for not practicing in the International the preceding week.

Unfamiliar with the calm conditions, first Dave and then Ivan made identical mistakes, climbing to only half height and gliding in total sink. Soon

after, Brian, although more cautious failed to connect with the models that marked air for him and he too was out of the event. Conditions on this third day were definitely the trickiest, and Walt Ghio fell victim to his own eagerness to fly, narrowly avoiding a similar disaster in Round 2 and finally succumbing in the 3rd Round. Only Bob White's (USA) long experience and patience saved him throughout the day.

The past few years have seen a tremendous advance in Wakefield, thanks mostly to Russia's Alexander Andrukov whose 'Delayed Propeller Release' mechanism astonished the World in '81 at Bourgos. Since then Alex has refined his mechanism and incorporated a cam operated variable pitch device controlled by the changing motor torque. All the Russians had 'DPR' models, as did China's top flyer Wenyi Zhang...they looked tremendous during launch and climb. Many other countries followed suit with various less sophisticated devices...

Wakefield at Livno certainly promised to be the big showdown. In addition to the Russians and Chinese, the North Koreans were making a comeback, having run away with both individual and Team prizes at their last Champs in '75 and '77. Double Champion Lothar Doring (West Germany) was also present to defend his title, although the calm was making things difficult to obtain reliable windspeed readings from his thermal detector. He for one was hoping for wind later!

The only other real news at the event was the availability of a new type of Italian rubber, now that *Pirelli* is no longer in production. Designated AG - 85, the first production run looks promising but was not competitive for this year.

During the three events, Glider, Power and Wakefield, every single North Korean flight had maxed. Now with their last flight, Jung Gan Li made their only mistake with 148sec. 62 maxes from 63 rounds! Only the Chinese and Russian trios reached the fly-offs making a total of 24 individuals still remaining.



Top left, F1B Champ Reiner Hoffsass is the originator of the highly successful high aspect ratio solid baton winged 'Espada'. Left, Lothar Doring showed his World Class ability with stunning flights and precision thermal picking. Far left, Britain's Dave Hiperson, like many, was mystified by calm air thermals. Above, North Korea was straight back at the top, with 3rd place individual for Young Ben Chang and 3rd Team place.

4 Minute Fly-Off: 16.30 - 16.45: An early mistake in this round of 130sec for Wenping Xing followed by 139 sec for Jifa Lu would leave China in second place behind USSR. Soon into the Fly-off, conditions improved, prompting another mass launch. For Bob White in particular, this was a classic flight, directly overhead for the full four minutes, Bob's simply elegant, twin fin is the epitomy of the classic Wakefield concept.

5 Minute Fly-Off: 17.05 - 17.20: At the start of the round it was a cold and gusty 12mph. Long duration flights would be a problem - this looked like being a decisive round. Still the line up of flyers was awesome. All the Russians, three Germans, two North Koreans, two Dutch, Zhang from China, Armesto from Argentina, White from USA, others lesser known but equally threatening. What a fly-off.

Again the Chinese took the initiative so confidently, Zhang away first looked great... others scramble after his flight. Lothar broke some motors; at this stage he was holding nothing back, Gulugonov too broke rubber and quickly changed to a spare model. Three minutes remained, Hoffsass launched, it looked safe. But Gulugonov, Gorman and White still held their models. With about a minute left Bob finally launched so too did the Russians. Flying right left, Bob's Twin Fin changed circuit and glided back into wind joining the other two models in better air, as it bumped and stalled in strong lift. Scores came in... there were twelve maxes.

6 Minute Fly-Off: 17.50 - 18.05: The wind was up to 15mph. In such weather anyone could pick or miss the air, the contest now seemed wide open.

Most chose to wait, not even winding, for the wind to drop. Eight minutes into the Fly-Off and no one had flown. Then once again it was Zhang first to fly, setting the pace. Chang, Fauser, Gulugonov, Armesto all looked capable of six minutes. Further along the line Alex Andrukov was

breaking motors. A year earlier at Livno he was the hero of the European Champs, winning Wakefield. Now he was in desperate trouble as a third motor broke after only a few turns. Only a minute remained, a further motor blew. As the red flare signalled the end Alex looked crushed with disappointment.

7 Minute Fly-Off: 18.15 - 18.30: With fly off rounds coming thick and fast Lothar prepared a back up model as his best one remained lost down wind, his chances rested in the hands of the retrievers.

Again following the pattern of earlier rounds, Wenyi Zhang launched first. The air was superb, the model very high, already his max seemed certain. He flew alone as no one else had a model ready. A slight lull in wind speed and Bob White launched. But significantly, nearby Hoffsass chose to wait, his twin meters indicating that the air was still building, he waited another half minute before flying. The wind was now noticeably less and his model climbed high.

Meanwhile with only a few minutes left, Lothar had been waiting for his best model to return. But in their haste, one wing was snapped off as it was brought back by motorcycle. Lothar decided to repair the solid sheet wing with Cyano glue rather than fly a reserve. A big risk to take but repairs were completed, the motor wound and now he focused on the conditions using every minute of the allotted round. The signs were favourable, Lothar launched and only seconds later the red flare chased his model into the sky. But in his haste he had not set a DT, the model glided on in lift for almost 10 minutes - again there would be problems for the retrievers.

Problems too for Yuriy Gulugonov. His clockwork timer wouldn't run for seven minutes so the Canadians supplied him with fuse. The flight was fine. D.t'ing down for 460 seconds but again the timekeepers watched the wrong model, the scorecard read 364sec.

Bob White landed short, at 352sec for 7th place.

Arcangel Armesto two seconds better placed 6th and a tremendous performance from Peter Fauser at his first Champs placing 8th for Australia.

8 Minute Fly-Off: 18.55 - 19.10: Eleven hours of competition, virtually from dawn til dusk and still four remained. A huge crowd from all Nations pressed in close with an excited buzz, to witness this climax to the Championships. The reigning Champion Lothar Doring Reiner Hoffsass, Wenyi Zhang and Young Ben Chang.

Within two minutes Hoffsass was airborne. There was no mistake, the wind had died, the crowd was certain, they shouted and cheered. Reiner was delighted, his model bounced in lift still climbing, the flight would be a monster.

Only a minute later, his best model recovered, Lothar launched and again it flew. But all was not well, at 100ft it power stalled, then recovered yet still looked good, continuing upwards.

The North Korean and Chinese models followed quickly.

All four models were clearly visible. Away in the distance, Hoffsass alone very high. Nearer and to the right the other three, only half as high, one stalling, it was the North Korean's model, a sign of lift. The stopwatches ran on. Lothar's glide circle opened out and remarkably began to glide across the field to join Hoffsass' model, it bumped and stalled as the lift improved.

Now only two models remained - the two German models - the two 'Espada's' what an incredible finish for these slim winged twins. Was it possible there could be another round? Reiner maxed - Lothar was just 11 seconds short with 469sec! Just a power stall away from another round.

An epic Fly-Off a new World Champion Reiner Hoffsass the originator of the design that Lothar had won with in '81 and '83. Three Championships in a row for the 'Espada'. And for runner up Lothar Doring a firm place in the History of the Wakefield Trophy.



F1A GLIDER INDIVIDUAL SCORES

		R1-7	4M	5M	6M	7M	
1.	Y Liang	China	1260	240	300	360	405
2.	K Sun	China	1260	240	300	360	164
3.	P Grunnet	Denmark	1260	240	300	360	161
4.	V Morgan	Australia	1260	240	300	360	156
5.	U Rusch	E. Germany	1260	240	300	360	138
6.	F Nutini	Brazil	1260	240	300	14	
7.	J Bucazara	Rumania	1260	240	290		
8.	V Tchop	USSR	1260	240	252		
9.	I Horjesi	Czech	1260	240	246		
10.	H Tahkapaa	Finland	1260	240	241		

11. V Isaenko (USSR) 1738: 12. M Gewain (USA) 1734: 13. H Nyhegen (Den) 1725: 14. M Gobbo (Ita) 1717: 15. S C Li (N Kor) 1694: 16. V Brussolo (Ita) 1692: 17. P de Boer (Hol) 1687: 18. P Dorn (Fra) 1686: 19. J S Kim (N Kor) 1680: 20. S Jurczeniak (Pol) 1662: 21. C Li (N Kor) 1650: 22. A. Martinez (Cuba) 1647: 23. D Klink (W Ger) 1641: 24. W Mroczek (Pol) 1635: 25. Y

Zhou (Chi) 1623: 26. C Ziobor (Pol) 1623: 27. S A Larson (Nor) 1621: 28. K Bleuer (Swi) 1618: 29. A Abaunza (Mex) 1615: 30. M Preus (E Ger) 1608: 31. A Plemesen (Nor) 1595: 32. Y Drori (Isr) 1594: 33. J Crel (Czech) 1588: 34. R Weiler (USA) 1580: 35. H A Javier (Spa) 1562: 36. R Blagojevic (Yug) 1386: 37. R Nuttgens (W Ger) 1378: 38. W Kraus (Austria) 1364: 39. L Horak (Can) 1258: 39. L Reynnders (Bel) 1258: 41. E Pachter (Austria) 1257: 41. R Lewis (NZ) 1257: 43. O Martinelli (Arg) 1255: 44. S Kraev (Bul) 1254: 45. B Brand (Fra) 1252: 46. R Peters (NZ) 1250: 46. J-L Drapeau (Fra) 1250: 48. A V Waleane (Hol) 1239: 49. P Alinut (Can) 1235: 49. P Nash (Australia) 1235: 72. M Fantham (GB) 1176: 80. P Owens (GB) 1092: 88. A Cordes (GB) 950.

F1A TEAM SCORES

1. China 3780: 2. N Korea 3780: 3. Poland 3780: 4. France 3762: 5. Czechoslovakia 3750: 6. USSR 3738: 7. W Germany 3722: 8. Bulgaria 3709: 9. Holland 3700: 10. Canada 3697: 11. Australia 3678: 12. Norway 3663: 13. Italy 3661: 14. Cuba 3639: 15. Spain 3626: 16. Sweden 3626: 17. USA 3625: 18. Denmark 3600: 19. Switzerland 3599: 20. Austria 3565: 21. Yugoslavia 3495: 22. Argentina 3484: 23. New Zealand 3420: 24. Finland 3409: 25. Israel 3377: 26. Rumania 3318: 27. Great Britain 3227: 28. Japan 3109: 29. Turkey 2844: 30. E Germany 2520: 31. Belgium 2364: 32. Brazil 1260: 32. Mexico 1260.

F1B WAKEFIELD INDIVIDUAL SCORES

			R1-7	4M	6M	6M	7M	8M
1.	R Hofsass	W Germany	1260	240	300	350	420	480
2.	L Doring	W Germany	1260	240	300	360	420	469
3.	Y B Chang	N Korea	1260	240	300	360	420	294
4.	W Zhang	China	1260	240	300	360	420	240
5.	Y Gulugonov	USSR	1260	240	300	360	364	
6.	A Armesto	Argentina	1260	240	300	360	354	
7.	R White	USA	1260	240	300	360	352	
8.	P Fauser	Austria	1260	240	300	360	280	
9.	P Lepage	France	1260	240	300	360	192	
10.	I Oh	N Korea	1260	240	300	123		

11. A Andryukov (USSR) 1800: 11. C M Cabarco (Cuba) 1800: 13. J Hacken (Hol) 1786: 14. E Gorban (USSR) 1784: 15. A Zeri (Hol) 1772: 16. B Silz (W Ger) 1662: 17. V Totio (Bul) 1634: 18. D Delmo (Arg) 1482: 19. F Wutzi (Austria) 1460: 20. L Lacimic (Yug) 1434: 21. J Lu (Chi)

1399: 22. L Ericason (Swe) 1394: 23. W Zing (Chi) 1390: 24. P Zoppelli (Ita) 1348: 25. J B Kristensen (Den) 1255: 26. G Herzberg (Isr) 1248: 27. J Krasznai (Hun) 1246: 28. O Sirkis (Isr) 1243: 29. L Hansson (Swe) 1242: 30. J McGillivray (Can) 1234: 31. A Koppitz (Fra) 1229: 32. J G Li (N Kor) 1228: 33. B Spooner (GB) 1223: 34. I Taylor (GB) 1222: 35. B I-Izak (Isr) 1221: 35. C Zold (Hun) 1221: 35. E Knudson (Den) 1221: 38. L Guzzetti (Ita) 1217: 39. N Bitik (Tur) 1209: 40. W Ghio (USA) 1206: 41. M Varadi (Hun) 1204: 41. K Rozycki (Pol) 1204: 43. P Ruyter (Hol) 1203: 44. F Taparnoux (Swi) 1199: 45. A Barnes (NZ) 1198: 45. F Gansli (Swi) 1198: 45. K Koskinen (Fin) 1196: 48. D Siebenmann (Swi) 1195: 49. I Sinanagic (Yug) 1194: 50. A Pocobut (Pol) 1193: 67. D Hipperson (GB) 1179.

F1B TEAM SCORES

1. USSR 3780: 2. China 3780: 3. N Korea 3748: 4. Holland 3723: 5. Israel 3712: 6. W Germany 3707: 7. Hungary 3671: 8. Argentina 3668: 9. Denmark 3664: 10. Italy 3654: 11. USA 3649: 12. Bulgaria 3637: 13. Switzerland 3625: 14. Great Britain 3624: 15. Yugoslavia 3610: 16. France 3547: 17. Australia 3539: 18. Poland 3537: 19. Finland 3524: 20. Sweden 3432: 21. Canada 3425: 22. New Zealand 3421: 23. Turkey 3335: 24. Rumania 3193: 25. Brazil 2934: 26. Austria 2232: 27. Japan 2217: 28. Norway 2067.

F1C POWER INDIVIDUAL SCORES

			R1-7	4M	5M	6M	7M
1.	N Nakonechny	USSR	1260	240	300	360	420
2.	A Mecznar	Hungary	1260	240	300	360	417
3.	J H King	N Korea	1260	240	300	360	378
4.	E Verbitsky	USSR	1260	240	300	360	376
5.	X Wang	China	1260	240	300	351	
6.	D S Kim	N Korea	1260	240	300	348	
7.	O Maczko	Hungary	1260	240	300	320	
8.	P Plachetka	Poland	1260	240	300	303	
9.	S Lustrati	Italy	1260	240	300	302	
10.	K Happersett	USA	1260	240	300	300	

11. A Matthews (Can) 2084: 12. S Slavov (Bul) 2067: 13. O Velunsek (Yug) 1797: 14. K Phair (USA) 1795: 15. G Heidemann (W Ger) 1779: 16. C Petek (Czech) 1772: 17. S Screen (GB) 1764: 18. G Zsengeller (Hun) 1758: 19. L Braire (Fra) 1745: 20. G Popa (Rum) 1732: 21. O

Cohen (Isr) 1723: 22. D Varda (Yug) 1522: 23. G Bohman (Swe) 1490: 24. R Gutei (USA) 1454: 25. M Blanco (Cuba) 1420: 25. W Kraus (Austria) 1419: 27. T Manfred (E Ger) 1414: 28. M Rocca (Ita) 1413: 29. W Nutini (Bra) 1407: 30. J Kaiser (Czech) 1378: 31. S G Sin (N Kor) 1363: 32. J Ochman (Pol) 1254: 33. A Bartschi (Swi) 1251: 34. V Petek (Czech) 1248: 34. T Koster (Den) 1246: 36. U Karlsson (Swe) 1245: 37. O Vasiliev (Bul) 1228: 38. M Iribarne (Fra) 1227: 38. R Feng (Chi) 1227: 40. A Valdes (Cuba) 1222: 41. A Muhin (USSR) 1220: 41. G Barbabella (Ita) 1220: 41. T Oxager (Den) 1220: 44. Z Chen (Chi) 1216: 45. P Milan (Yug) 1214: 46. D Halliday (Can) 1212: 45. A Kostadin (Bul) 1211: 48. I Martinez (Cuba) 1206: 49. D Ferro (Fra) 1202: 60. D Sugden (Can) 1185: 69. R Collins (GB) 1103: 65. P Harris (GB) 989.

F1C TEAM SCORES

1. Hungary 3780: 2. N Korea 3780: 3. USA 3780: 4. Czechoslovakia 3766: 5. USSR 3740: 6. Yugoslavia 3734: 7. China 3703: 8. Bulgaria 3699: 9. France 3689: 10. Cuba 3688: 11. Canada 3657: 12. Sweden 3619: 13. Poland 3610: 14. Italy 3593: 15. W Germany 3535: 15. E Germany 3534: 17. Rumania 3375: 18. Great Britain 3362: 19. Argentina 2585: 20. Denmark 2466: 21. Australia 2357: 22. Finland 2146: 23. Japan 1870: 24. Austria 1260: 24. Brazil 1260: 24. Israel 1260: 27. Switzerland 1251: 28. Spain 991.

I started aeromodelling by building semi scale models from the *Frog* series like the 'Scamp', 'Sabre', 'Raven' and 'Redwing'. The latter flew reasonably even if you couldn't be trusted with clear dope. My father occasionally helped out and together we built a *Keil Kraft* 'Chief' which flew well for years. However the first significant model I built myself was the *KK* 'Hurricane' which, though painted silver with a brush, turned in surprisingly consistent flights.

This led me to a series of WW II subjects some of which flew moderately and one or two not at all. These culminated with an *APS* 'Spitfire' at least half of which was $\frac{1}{4}$ in



Richard's well travelled original P-38. Flight proven on many past occasions it has shown that this choice of model is a very practical flyer.

P.38 F Lightning

Following on from our article on rubber powered twins, Richard Falconer burns the midnight oil to show the way...



Left, Richard with old and new models; plans shown here have been carefully checked for authentic scale and - to his surprise - very little from those of the original. Below, detail, during construction, of fuselage half.

I think the drawing took me a couple of weeks and I built the airframe in a week! But the propellers worried me as I was clueless on freewheels. I bought some lovely ball bearing thrust races from a pleasant model shop in the Afrikaanse suburb of Belleville and that was about as far as I got.

I nearly gave the model to my hosts' son but an Australian hippie gave me some planks of polystyrene (his only furniture) and I made a box... the model flying back to England in the hold of a VC 10.

I eventually attempted some flights but with little success. In 1973 I met Charles Newman at Old Warden. He looked like a performer in a contemporary pop group but he obviously knew what he was talking about. I sent him some prints from my rough drafts and was amazed when a fortnight later he wrote to say that his model flew well!

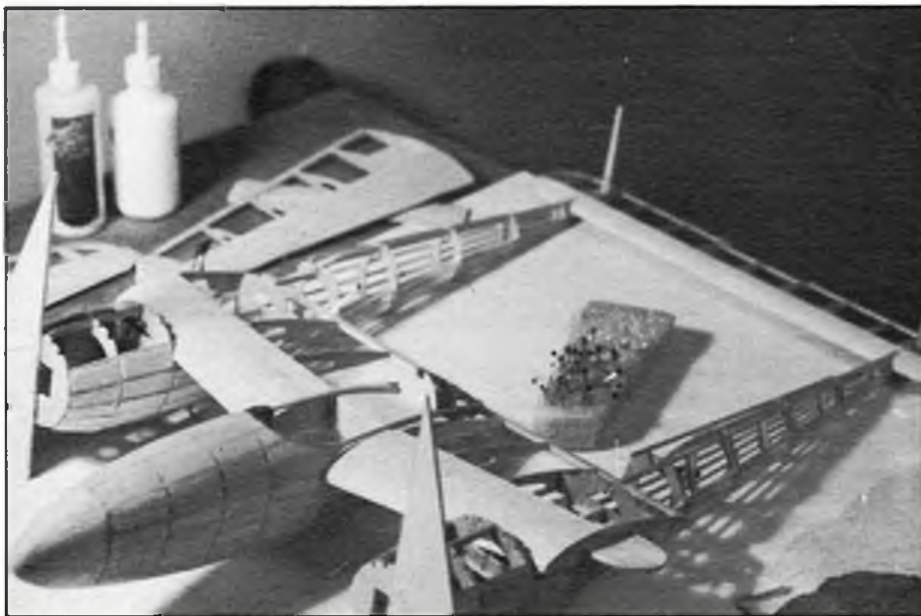
Sticking the canopy on my model transformed it and I was soon getting good flights until... someone stole the props! Eventually I built better ones and finished the model properly. Thus equipped I entered the '78 Woodvale Rally where bad trimming sent the model into the runway. Vic Driscoll twisted my arm to fly the model at Old Warden and my inability to resist reducing up elevator/noseweight led to a write-off.

ply. It led an exciting and dangerous career till I was stupid enough to further weigh it down with an undercarriage...

Chequered History

I was living in Capetown in 1970. For the first time in my life I had a lot of leisure so, inspired by an article by Pierre Cloisterman, I decided to build a rubber powered 'Lightning'. Limited to a drawing in William Green's 'Famous Fighters of the Second World War' I bought an *Airfix* kit and scaled it up four times, hence the scale of 1:18...





Left, final setting up: nacelles are pinned down to board and the 'noses' aligned using set squares. Note rear end overhanging board. Fit all the stringers before unpinning the complete assembly.

Begin at...

The model is easy enough to build if one concentrates on absolute accuracy in assembly - start by building the wing - it's the easiest bit and you can always use it for something else if you give up! Build the mainspar on the plan, marking the rib positions with a soft pencil - cut out the wing tongues from straight grained $\frac{1}{8}$ in sheet. Build the boxes with $\frac{3}{32}$ in cheeks and a $\frac{1}{8}$ in spacer cut from the same sheet as the tongue.

Cut out the ribs and test assemble the root rib and tongue - then build each by pinning the spar flat and square onto the plan and gluing the ribs either side. Cut the leading edge from soft $\frac{1}{8}$ in sheet, the t.e. is from pre-cut $\frac{1}{2} \times \frac{1}{8}$ in balsa. The same material can be tapered down for the trailing edges of the outer panels. Build in the top sections of formers 'H' and 'G', then add the back-bone and 'R1'. Add the sheet decking which supports the pilot's radio, then the $\frac{1}{16}$ in stringers.

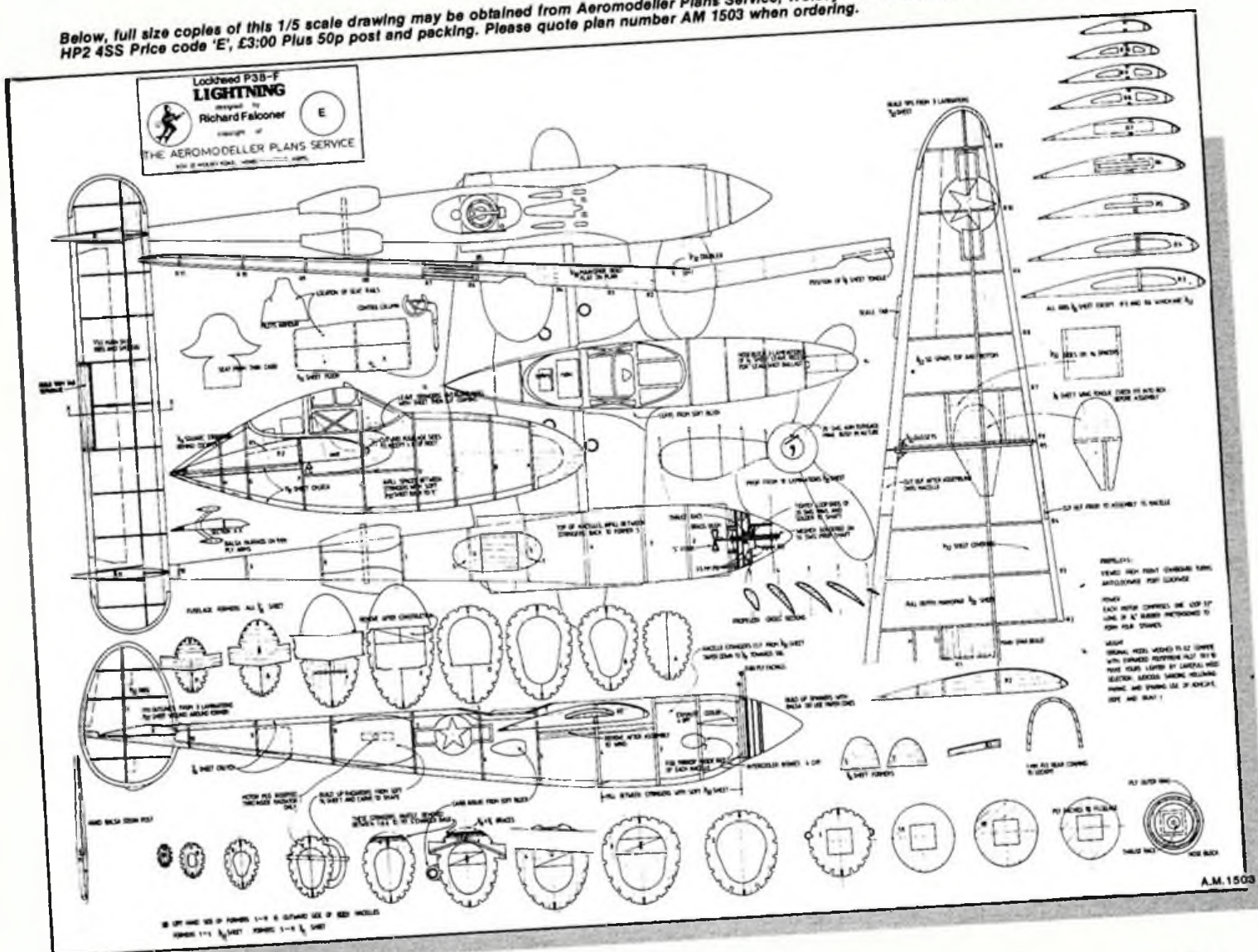
By tapering the pre-cut trailing edge for the outer wing panels one is left with a thick

I placed the bits in the polystyrene box, married, moved house, had a daughter and resuscitated the model last year when I discovered the wonders of superglue (I'm a slow learner). In fact it's probably flown more in the last year than in the previous fifteen!

I chose the 'F' model because to me it's a

better expression of the beautifully smooth streamlining of the 'Lightning'. In fact the beard radiators on the 'J' are not rads at all but supercharger intercoolers, previous models relying on circulating the air up and down the 'dee' box of the leading edge.

Below, full size copies of this 1/5 scale drawing may be obtained from Aeromodeller Plans Service, Wolsey House, Wolsey Road, Hemel Hempstead, Herts HP2 4SS Price code 'E', £3:00 Plus 50p post and packing. Please quote plan number AM 1503 when ordering.



trailing edge at the tips which can be sanded to provide washout. The leading edges of the outer panels can be from proprietary pre-cut $\frac{1}{4} \times \frac{1}{4}$ in balsa but choose it soft. Laminate the tips separately around thick cardboard templates. Butt the centre section and each outer panel *flat* on the board, finally cementing the boxes when alignment has thus been ensured. Sheet the whole wing in $\frac{1}{32}$ in sheet.

The tailplane should be tackled next. Note the ribs are *not* slotted, but glued either side of the full depth main spar. The sheeting ensures a rigid unit and careful sanding will reduce weight without impairing strength. Build the trim tab from sanded $\frac{1}{32}$ in sheet but *leave it loose*. Fit the ply horns but simplify the covering by leaving off the mass balances.

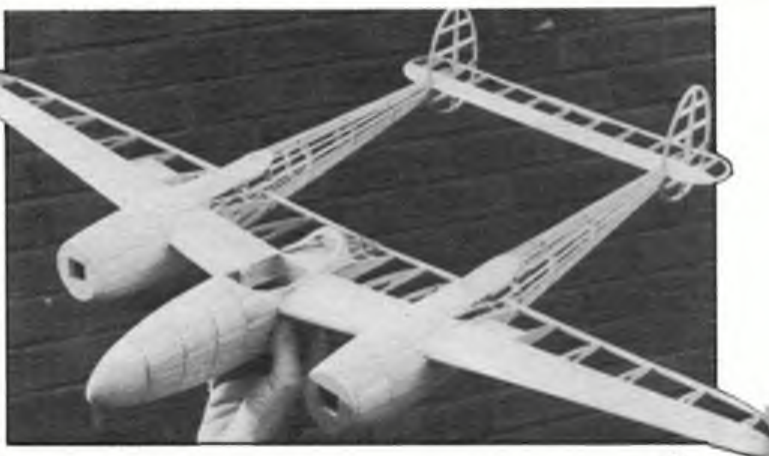
Next build the fuselage. Lay out the $\frac{1}{16}$ in sheet perimeter. Note that the floor is 'split' and that the starboard section is $\frac{1}{16}$ in wider. Note too that former 'E' has a top section which is only cut out *after* the fuselage is completed.

With the starboard side completed leave it pinned to the board and steam it to avoid distortion. Unpin the side and fit the port floor section followed by all the other formers, adding the stringers and checking alignment as the work progresses. As with the coaming to the rear of the cockpit leave the stringers overlong, trimming them and fitting thin ply formers as a final task.

Fit the nose block, noting the grain direction and leaving access for lead shot ballast. Now cement the centre section to the fuselage noting that 'H', 'G' and 'F' should align *perfectly*. Fit the final stringer which is the mounting for the hood. Cut out the false piece in former 'E' and fit the $\frac{1}{32}$ in sides to the fuselage interior.

Now the relaxing bit! Take some *soft* $\frac{3}{32}$ in sheet and carefully infill the spaces between the stringers and formers as far as former 'E'. Then sand the whole fuselage

Right, another P 38 'Lightning' nears completion. Richard was determined to double check everything for Aeromodeller by building this second model - sleepless nights proved all was well, although he is now contemplating taking up something relaxing like car racing...



You can add framing with masking tape prior to moulding but *Lockheed* were skilled people and the framing was virtually flush, as were their rivets!

Now build the nacelles. Don't forget they are *mirror images* of each other and note the asymmetry of the formers. Pin down the $\frac{1}{16}$ in outline, noting how it extends to the tail. Get the formers really *square* especially No 4 which has a false piece (as also do Nos 3 and 5) and eventually registers with the main spar.

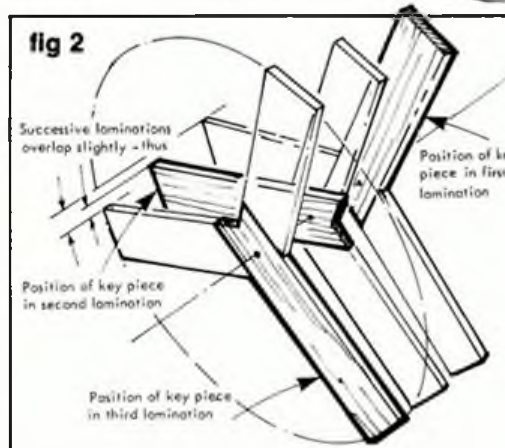
If you're mean, like me, and cut your stringers from sheet, take the opportunity to cut them with a slight taper so that they are down to a $\frac{1}{16}$ in at the tail but still $\frac{3}{32}$ in into the notch. Instead of continuing the stringers between the bottom stations of formers '1' and '2' cut pieces of $\frac{3}{32}$ in sheet following the same profile as the chin outline - leave out the top stringers until after the wing has been fitted to the nacelles.

Pin the drawing down on the board so that the tail posts of each boom can overhang the edge. Pin the booms down so they are *exactly* square on *and* parallel - resting on their straight tail sections. Pin balsa set squares to the noses to ensure accurate alignment and height.

Take your perfectly constructed centre section and chop out the leading edge until it fits onto the back of former '3' (this saves a little weight...). Smear cement on anything that looks as if it should connect and plonk it together. Take the tailplane, check for fit, and cement it in position.

Fit the extreme top section of former '4' and complete the stringers, keeping the whole model pinned to the board. Knock out the false piece on formers '3' '4' and '5' and any other extraneous bits...like the trailing edge. Finally fix the sheet supercharger bases.

Remove the model from the board and fit the laminated tail fin outlines, fix the $\frac{1}{32}$ in sheet ribs and carefully sand to shape. Fill the gaps between the stringers with $\frac{3}{32}$ in sheet from the nose to former '4' below the wing and back to the superchargers on top. Fit soft block in the chin area, then carve out the four $\frac{3}{8}$ in diameter intercooler intakes. Fit the anchors for the motor pegs and chop out a recess for the exhaust pipes in the top of the nacelles. Make up the nose blocks as



shown on the drawing.

Cover the complete model in lightweight tissue. I used Jap on the tailplane and out-erwing panels, *Modelspan* elsewhere: two coats of 50/50 Butyrate dope.

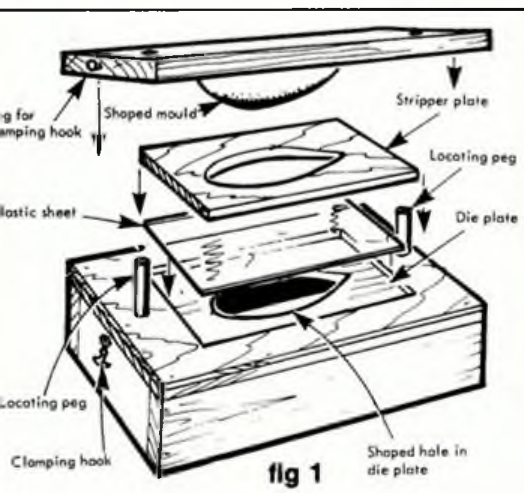
Now...carve the two carburettor air intakes, the four blisters, two superchargers and wastegates and four radiators. Paper the larger components, fill the smaller ones with sanding sealer. Carve the cockpit radio and battery from hollowed styrene foam and thoroughly paper (using PVA). Form the cardboard seat and carve the steering column from balsa. Alternatively forget all this and move onto the next stage...

The propellers are laminated from sections of $\frac{3}{32}$ in sheet (fig 2). Get a piece of $\frac{3}{4}$ in chipboard and a drill stand. Place the assembled sections on top of the blockboard, match a drill to your proposed brass tube bush and drill through the lot. Leave the drill in the blockboard and use it as a jig.

Now laminate the sections together using balsa cement (PVA will always 'grin' through the final finish). THE PORT PROP ROTATES CLOCKWISE. THE STARBOARD ANTI-CLOCKWISE...so the blanks are *different*.

Epoxy the brass bushes into each propeller blank, here comes the difficult bit...sit in a comfortable chair, take a sharp knife and some coarse sandpaper. Work very fast trying to keep each blade at a

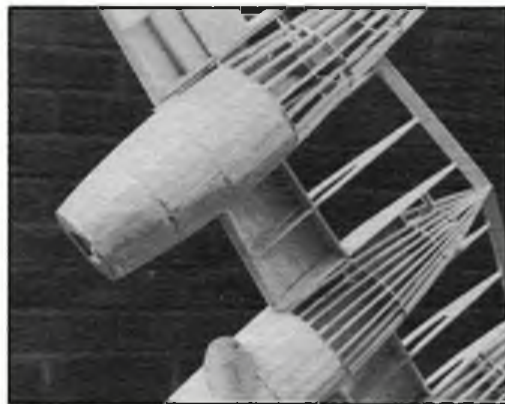
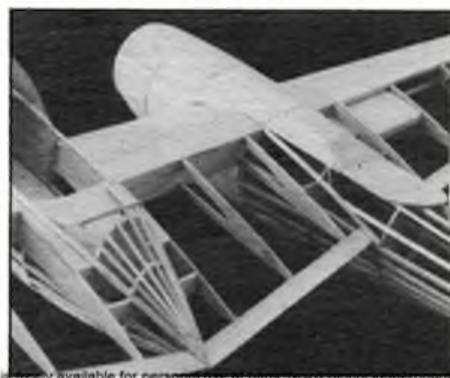
continued on page 736



checking the nose profile. Use *soft* $\frac{3}{8}$ in sheet to form the root cuffs, carefully blending them to the wing *before* finally cementing them in place.

I mould the canopy from acetate sheet using a balsa master (Fig 1). Take some soft block and mark up the side view of the canopy and start carving...checking the plan against the cockpit and sections at 'E' and 'F'. If you're making a late model 'Lightning' it will have a *flat* screen. The 'F' model has a curved screen and no division in the rear hood (Yes, my model's wrong...).

Below and right close ups show detail structure; note how stringers lie along nacelles, especially around the wing/nacelle junction.



If there had been foreboding over the clash of dates with the SMAE Gala at Odiham or the several SAM orientated meetings scheduled for this 'last' Sunday of the summer season - then quickly forget them... For this was an exceptional affair, one to treasure in memory and certainly one to commemorate the man in whose honour it was held.

A total of 34 unorthodox models were entered in competition - if that is the term to use - and they ranged from autogyros to tandem wings, Jetex to rockets and flying wings of every type and configuration. All on a field within sight of the old Eaton Bray Sportsdrome, and in the company of many who could recall those days in the late

Right, George Bushell's electric 'Joey's' had everyone entertained - and impressed for their long soaring flights hovering like Buzzards over Leighton - get it? Picnics and hedgerow car parking took us back to the Eaton Bray days. Below right, winning pose - a blown up Ken Willard model by A.F. Mason met the occasion to perfection.



Howard Boys Memorial Event

29th September 1985 — a day to remember

forties when the famous aerodrome was once the address for Aeromodeller.

Informal and to the 'fly-in-and-have-fun' formula so successfully proven at Old Warden, the Howard Boys Memorial must now be annual, though it would be nothing short of amazing if the same idyllic weather could prevail ever again. Wind as soft as eiderdown, warmth sufficient to bring out the shorts and sandals and forgiving deep grass... made it a day of perfection.

Thanks to the kind co-operation of the Ivinghoe Soaring Association, Park Farm and its surrounding fields were made available so that the event (originally the Eaton Bray Pterodactyl Trophy) could be held close to the old Sportsdrome.

From first flights at 9.30am to last as dusk fell at 6.30pm, the scene was reminiscent of those happy days when cars lined the hedgerow, picnics emerged and the chat was as energetic as the flying. Delta's, canards, electric or glow powered, mixed with free flight flying wings and a few R/C assisted old timers.

After judging for flight, finish and originality, the elegant Trophy which is solid silver and dated back to 1911 went to A.F. Mason of Swadlincote Club at Burton-on-Trent for a fine performance with his scaled up Ken Willard 'Roaming Rhombus'. It was a narrow decision over Roger Warrington's 'Dragonfly' - otherwise known as the 'Dickie Bug'.

Each was outstanding but others who well deserved extra prizes were Les Rudd for his convertible 'Jets' an extended delta which flew on either electrics or a Cox .049; John Dickens for his neat 'Fantail', a Howard Boys design with a swan head and Bob Brown with his twin rotor 'Bi-Gyros'. Also to mention in dispatches, Dave Greenfield with his fleet of wings, Peter Lumsden and the cranky free flight 'Thunderwing' Brogini design and of course, Alwyn Greenhalgh with not only two restored Howard Boys originals (one the famous rocket plane) and innumerable oldies, all of which were airborne - happy day indeed!

Below, a trio of Eaton Bravo's who could each tell a tale or two of the old Sportsdrome - Tim Hervey, Ron Moulton and D.J. 'Dickie' Laidlaw-Dickson. Right, R. Warrington's 'Dickie-Bug' was a close runner-up for the Trophy. Impressive decor included a bug-eyed dragonfly head to cowl the engine.



FROM THE HANDLE

CONTROL LINE NEWS

Stunt with Claus Maikis

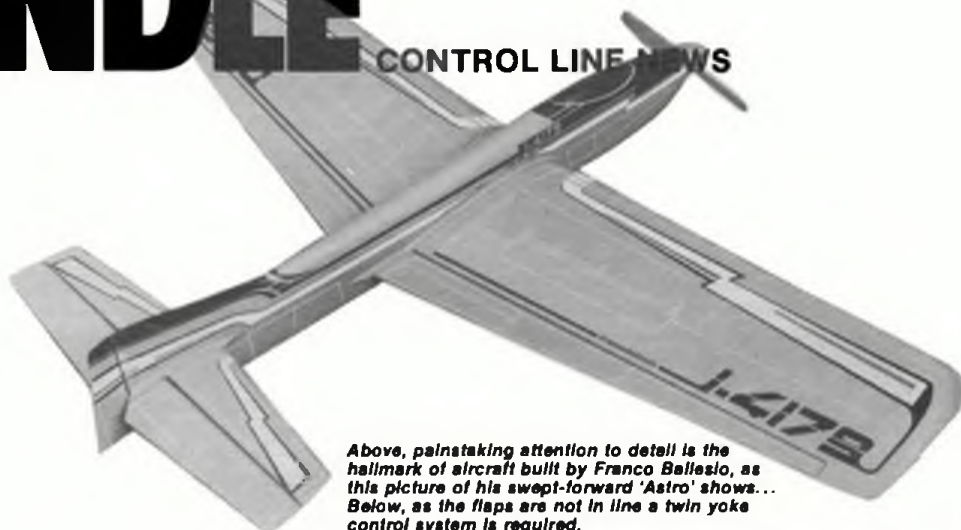
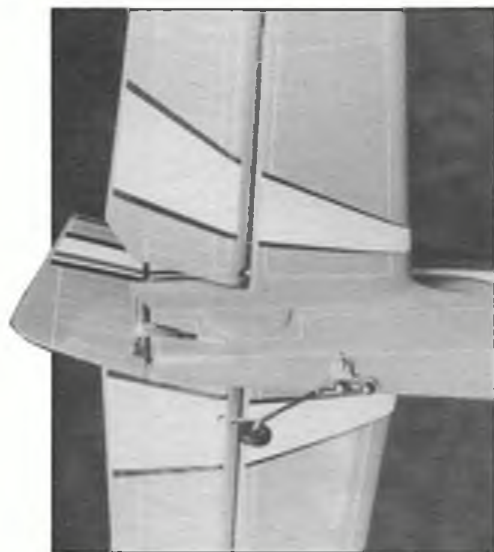
Astro

One of the most remarkable aerobatic designers in Europe is Franco Ballesio from Italy. He may not be so well-known because Italian modellers don't travel a lot and foreign control line flyers seldom compete in Italian contests. I have known Franco for more than ten years now. Every time I meet him he has another extraordinary aeroplane with him...

His workmanship is outstanding and he puts in unbelievable effort into the details and the finish of his models and never seems to run out of ideas for a fancy paint scheme. Typical of his work are extensive ink line panels and narrow colour areas, surrounded by fine stripes which repeat the main lines and at the same time are combined with the numbers and letters to form a most pleasing design. Italians are well-known for being tasteful designers, and Franco surely is an artist in this respect.

His latest aeroplane proves this again. Besides the aesthetic impression, it is full of interesting features. The wing is removable - it is held with two dowels in the front and two bolts at the rear. A single strong pushrod from the wing connects to a pushrod in the fuselage. On the wing pushrod, a small disc is mounted which can rotate. Two small pushrods are mounted on this disc and run to the flap horns. There are two flap horns because of the swept forward trailing edge. If there's need to adjust the flaps, the small disc is rotated. Of course, the length of both small pushrods can be altered too! Admittedly somewhat sophisticated, but I like that kind of work. The rudder can

Below, very neat rear end of 'Astro' - not a blemish in sight and even the mock panels have carefully painted rivets!



Above, painstaking attention to detail is the hallmark of aircraft built by Franco Ballesio, as this picture of his swept-forward 'Astro' shows... Below, as the flaps are not in line a twin yoke control system is required.

be adjusted too. The removable tail skid holds a brass plate which is the mounting arm for the rudder control rod. RC-clevis and rudder horn allow fine adjustment.

Franco makes his own mufflers and propellers. On his *Super Tigre 46* he uses a homemade glass fibre propeller near to 12 x 5in. This propeller has a very thin blade with carefully shaped airfoil. The blades are wide with square tips. Franco prefers this propeller to any other make, because it pulls better and makes for a smooth flying aeroplane.

A very unique feature of the aeroplane is the swept forward wing. It gives the model an ultra-modern appearance suiting the colour design, the name and the letters. Negative sweep is very seldom seen on models, all the less on control line stunt ships. I'm not sure whether Franco fully understands the effects of wing sweep. Maybe the typical Italian style - relatively small (145cm) fast models on long lines - produces enough line tension to cover any peculiarities of this type of wing. Franco has built two such models and doesn't seem to find any serious drawbacks. But the next aeroplane, he said, will have a conventional wing again!

The Camel Squadron

Are you tired of building your own airplanes, year after year, over and over again? Get some other people doing the work for you... Basic requirement is the idea for a popular aircraft, capable of spurring other people's enthusiasm. Nowadays nostalgic movements have a strong following. Establish - say a 'Camel Manufacturing Company'. Invest in a conveyor belt for economical mass

Below, one 'wing' of the Camel Squadron lined up on parade before their formation display competition flights - two would impress - a whole clubful is quite overwhelming!



production. Provide a simple plan, some balsa sheets (the hard ones you discarded from your latest super stunt project) and some old worn out nuts, wheels and engines.

If you don't want to produce in such low salary places as Calcutta or Hong Kong, hire some specialist workers - preferably youngsters where you can undercut wages! You'll need some specialists for precision cutting, quick construction and fancy paintwork for your assembly line. Make yourself the quality control officer. All you have to do now, is to motivate your employees...

Joking apart, it didn't happen exactly as described here but in a similar way, this is what my friend organised as the latest club winter programme. The plan was a development of one of my earlier biplane designs. There were some slight modifications to produce the overall impression of the famous 'Camel' fighter. Changing the wing tips, the tab and fin shape, the fuselage nose and undercarriage struts did the trick...

Of course, most of all the 'radial cowl' nose helped the image. The cut off end of different

plastic bottles is an easy source for this part. Power is provided by a cheap 2.5cc to 3.5cc engine. Decoration was chosen by each builder himself, searching through old magazines and books. Construction was basically the same, with only minor deviations by the individuals.

Keen enthusiasm was reported by my friend, added with some internal competition - who has completed the model first, who has the most beautiful airplane. Last but not least, a flying contest was organised for some low level events. After all, the airplane is capable of doing a little more than level flight (actually some simple stunts can be flown). I don't know how many airplanes survived the contest. The photos were taken before!

Sweeping measure

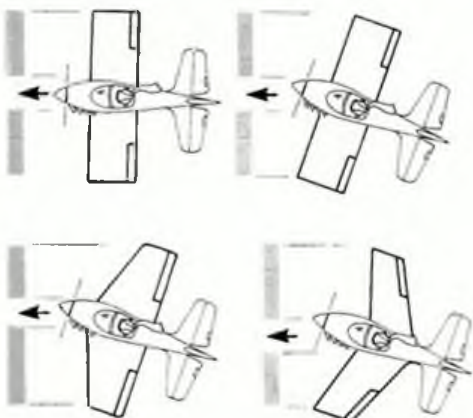
Although, in my opinion, we control line aerobatic flyers are not the real experts in aerodynamics, we really seem to enjoy discussing this topic. When seeing Franco Ballesi's new 'Astro' it was the talk of the stunt circle and enough reason for some more wine in the evening (maybe we'd better call it hydrodynamics!).

I remembered an old model of Stephan Rättsch with the same wing configuration - negative sweep. Stephan was inspired (seriously, as all stunt flyers are!) by a pleasant gliding holiday on an old timer sailplane with negative sweep and T-tail! It was a most unusual model, but I should add that Stephan flew it once and never again! After discussing Franco's new design, scribbling on all available beer mats and finally using up the paper tablecloth, we came to the conclusion that on our next creations we'd try to avoid negative sweep!

To explain the tablecloth graphs, we assumed we had an aeroplane with a rectangular wing, at least with a straight leading edge. This aeroplane would fly straight ahead, or in a yawed position. When viewed from the front, both wing halves show the same frontal area (see fig 1). Frontal area is one of the reasons for drag.

fig 1

Flight direction
Frontal wing drag



There are many more reasons, but we'll concentrate on frontal area of wing halves for the moment.

Since the same area is provided on both sides, we have the same drag. Not considering other forces, the wing alone has no reason to change its position. If we want it to move back to normal position we can use the drag. We produce unequal drag by sweeping the wing, or at least the leading edge. We talk of positive sweep when the leading edge is swept back from the wing root to the wing tip. Now, we fly our aeroplane in a yawed condition. One wing half moves forward, the other back. When viewed from the front, it can easily be seen that the front half provides more area and the rear half less. If there's more drag on the front half, this drag pushes this panel back until the wing is in the normal position. Thus we have a self-stabilising effect which will keep our aeroplane flying straight on...without control. Many full size aeroplanes are designed that way.

Now we do the opposite. We fly an aeroplane with negative sweep, the leading edge is swept forward. When the aeroplane is yawed, say by a gust, the situation looks opposite too. The wing panel which moves ahead has less frontal area now, thus has less drag. The wing half moving behind provides more area, thus produces more drag. Now, this drag holds this wing half back even more, causing the aeroplane to yaw even more. That's exactly what we don't like.

The aeroplane may even be unable to fly straight ahead (remember, again, we're looking only at the wing). While our aeroplanes (the stunt models, this is!) are still held on the 'strings', the problem might not be too serious. Anyway, we don't like anything to detract from the superb flying characteristics of our high performance stunts.

Extensive aerodynamic discussions and wine consumption can lead to pronounced instability of pilots, too, with remarkable positive or negative sweep. In order not to exceed the scope of this story, this topic is not dealt with here...

Sound track

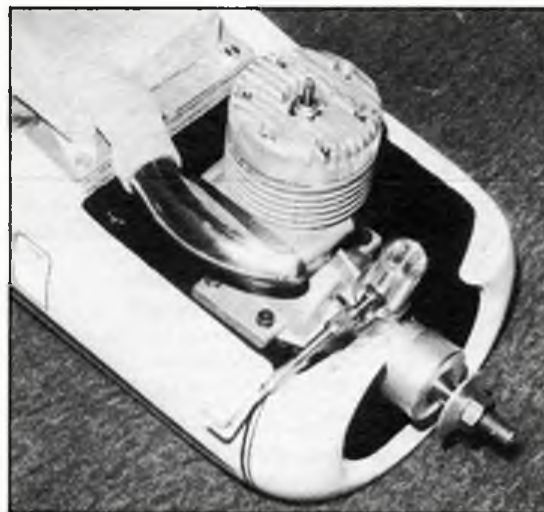
Normally, propagation of sound is in a straight line. Unfortunately, stunt flyers have a different opinion about that. When mufflers are thought to be installed within the fuselage, at least with side exhaust engines, some kind of round-about way for the exhaust gases must be provided.

Some six years ago I designed my 'Crescendo' (February '79 *Aeromodeller*) with a cowed muffler in an attempt to keep the noise down. To this purpose some bent shaped adapter was necessary. Since commercial items didn't suit my taste, I remembered my speed phase, long, long ago. At that time no elbow 'elbow' of any kind was available for the then fashionable speed engines, so we made them ourselves. Bending straight tubes was a hassle, so I used bent tubes. But where to find them? Very easy, find an old camping stool with a tubular frame; use a small one with tight bends. You can even buy a new one... The price is much less than the cost of the straight tubes you have left after sawing off the bends!

After annoying all my relatives, I had enough tube to support the German stunt flyers for years to come. There are stools made of aluminium or of steel. If you have some experience with aluminium soldering this material is to be preferred because of weight. Otherwise steel tube will do, the adapter will weigh about twice as much, but is much easier to work with since silver soldering is not too difficult.

The bend is sawn to suit your

Below, muffler adaptor is made from the steel frame of a camping stool. A short piece of the bend is silver soldered to a brass plate which has been milled to fit the ST 60, silicone tubing connects to an aluminium muffler.



requirements. One end can be squeezed slightly to fit the mounting flange which is to be screwed to the engine. The bend can be soldered to the muffler body direct, as Yves Fernandez did so beautifully. I made a separate muffler and connected the adapter and muffler with a silicon tube.

Trying to eliminate aluminium soldering as well as the weight of steel, I was looking for another solution. The idea came when buying a Dixieland music cassette in a local shop for musical instruments. When looking on a highly polished trumpet, I discovered the tightly bent brass tubes. That was it! I found a brass instrument manufacturer who permitted me to take a look into his workshop. I went crazy! All kinds of bent tube, small or large diameters, tight or wide bends, from 90° to 360°. They were only available in short lengths, with just the bend - no straight piece and were packed in boxes containing a few dozen each. I took a handful, paid a trifle and walked out with a supply of muffler adapters for several generations of stunt aeroplanes.

I've tried different kinds of 'bends', depending on the chosen engine. No extensive research has been made as to the suitability of the tubes depending on their original field of application. Maybe a jazz trumpet 'bow' should be used for hot Schnuerle engines. A Dixieland trombone might make a better *Super Tigre* 60 adapter. Can anyone imagine the application of a tuba?

engines. Ross Melhuish also continued to use the Russian designs, but with *Nelsons* and tubing bladders.

New entries included Mike Theison, pitted by speed flyer Paul Gibeault and Pat McKinzie. Pat used Swedish-style foam-and-balsa models, while Mike used West-Coast type tapered foamies with Cox 15's.

The Ron Malcolm/Dave Lovgren team flew their traditional British-style foam models with *Nelson* engines and Dave's own carbon fibre props. They were supported exclusively by the American pit crew of Ed Brzys and Paul Smith.

The contest was run as a full round-robin, with seven flights per contestant, regardless of score. This required 28 matches, plus refls, which were abundant because of ties, flyaways, and streamer problems. The result was Dave Lovgren, first place at 6-1. Pierre Sigouin, Ross Melhuish, and Mike Theison were tied for second at 4-3.

A round-robin flyoff was begun. Everyone knew that it could end up in yet another tie, but there was no good alternative! Both Theison and Sigouin beat Melhuish in the first two rounds to keep him off the team for the first time in history and end the contest before dark.

Lovgren and Malcolm were the *only* flyers who had a chance to *relaunch* the first model after a crash. The other six flew models so frail that the pit crew's only duty was to pick up the streamer and start the spare...one time!

continued refinement and debugging. The trend to ever larger wings has reversed and settled in at about the 450 square inch level. The extremely large models had very poor crash resistance. Smaller models with some relaunch capability did better in the end.

Nelsons were used exclusively by the top six and many of the other contestants. Henry Nelson and Jud Kusik were in attendance throughout the contest. They helped contestants select propeller's using readings from their audio tachometer. 29,000 in the air was a typical reading for a healthy engine. In addition to the *Nelsons* there were Cox's, *Cipollas* and a few others in use. All of these fell far short of the winning mark.

Pitting was much improved over past performances. Several of the top flyers had exclusive mechanics who were not entered as pilots. Errors, penalties, and lost time were greatly minimised.

Several of the flyers, including first place winner Chuck Rudner, visited the Logghe

Right, the eventual winners at the USA Combat Team Trials, left to right George Cleveland (in the team for the 4th time), John Stubblefield and Chuck Rudner. Far right, Ed Brzys (USA) left, and Canadian Trials winner Dave Lovgren. Ed and Dave pitted in each other's team trials...



Combat with Paul Smith

Canadian Team Trials Ontario...24th August

This year's trials was the largest ever with a record high of eight entries. Cliff Gibson, who had won spots on all previous teams, acted as Contest Director and did not compete.

Pierre Sigouin and his two sons Danny and Mark entered with Russian-style airplanes powered by *MVVS* and Soviet

United States Team Trials Illinois...31st Aug, 1st Sept.

This year's team trials had 40 advance entries and 5 withdrawals, leaving a net of 35 flyers. A new 'Junior Award Program' was initiated this year, resulting in five entries under the age of 18.

MACA president Bob Bearden was the Contest Director and organiser. Initially, the protest and complaint level was a little high, but as the meet progressed, adjustments were made and some of the eliminated contestants joined the officials!

The airplanes were not revolutionary new designs. Many did feature evidence of

Stamping Company, home of *ProPower Racing Fuel* before the contest. Although most of the contestants kept their fuel secret, I believe the normal was 40% nitro with the conservatives going as low as 25%.

The biggest breakthrough was in the area of piloting. Many of us in the Detroit area flew practice matches before the trials and it certainly helped. The cut counts were up. Scores like 4 to 4 or 4 to 3 were much more common than in the past. Collisions, line tangles, and flyaways were down.

First place was won by Dr. Chuck Rudner flying a *west coast foamie* similar to those used by Howard Rush at the last World Championships. Charlie also used *Nelson* engines, Logghe Fuel, and the pitting services of Charlie Johnson and Rich Lopez. This was Rudner's second team trials win in five attempts.

Second place winners George Cleveland and John Stubblefield used the familiar 'Force' airplanes, as did second alternate Richard Stubblefield.

First alternate Paul Smith flew a new 'Panther' design which is a very much modernised descendant of the 'Superstar'.



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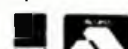
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SHOP TALK

NEW MODEL HOBBY PRODUCTS REVIEWED



Left, you can make your own but the Mercury 3-Line Bellcrank will save you a lot of time and bother!

3-way control

In the past one name has always been associated with quality aeromodeling products and in the early days of control line produced many items that helped that branch of the sport grow in to the many classes it represents today – *Mercury* – it is indeed significant that once again *Mercury* is recognising a control line need and supplying the goods. Their latest product is a '3-line Bellcrank' that should find ready service in Carrier and Scale models. The unit uses stout American *Sig* nylon bellcranks and is mounted on a $\frac{1}{8}$ in ply base. Using such a device, throttle control becomes a simple operation using either a *Robert's* control handle (or one of those illustrated in *Aeromodeler* over the past few months).

The *Mercury* '3-line Bellcrank' will be available from most model shops or mail order from H.J. Nicholls, 308, Holloway Road, London N7 6NP. Price £4.95 including post and packing.

Flex-wing gliders

Fancy something different? then try a Rogello style glider. These are distributed by *Ripmax* and should be available – all over the place! Packaged, they look like kites, but don't be put off... they are in fact true gliders and trimmed well, they should fly for miles! Assembly (there is no real construction) is very simple,

although the instructions for this stage are purely pictorial – just make sure that you have given the device *dihedral* (wing tips up) and NOT *adhdral* (wing tips down).

Two types are available 'Delta' and 'Orion' both are of similar size so the choice of which, comes down to having a man hanging beneath as per a hang glider... or a rocket! The latter is not so daft as it may seem as flex-wings were seriously considered at one stage as a space vehicle recovery device.

The 'wing' is printed plastic and the struts (supports) are a spruce like wood. They appear to be reasonably durable and could well provide some ideas for other flex-wing projects. Price of each is £4.50 but don't forget to buy some sticky labels so that your name and address goes with it.

Get set for Xmas

Adhesive 'guns' have now been on the market for some time and many a handyman resorts to its particular benefits...

The adhesive comes as a non-toxic, non-sticky, simple pellet of about $1\frac{1}{2}$ in by $\frac{3}{4}$ in. Under heat these quickly melt and form a 'glue' that sets very quickly, so the need for clamps or pins is often completely done away with. The 'gun' is electrically powered, takes only a few seconds to warm up and allows the user to accurately place the

adhesive where it is needed... and not dripping onto the floor!

The application to aeromodeling certainly does not extend to balsa to balsa joints – the glue is too heavy for 'in flight' use... but model boxes and general jobs around the house can be completed much more quickly – leaving you more time for modelling!

The latest of these 'guns' to reach us is an inexpensive

There and back again

Following our article on boomerangs in April *Aeromodeler* we have had several enquiries about the different types of boomerangs available – we don't know – but Michael Hanson of the *British Boomerang Connection* does! Not only is Michael the author of a *Penguin Book* on the subject but he also sells a number of curved objects made from a variety of materials that



If you've got some open space nearby and feel like testing your skill, why not check out a 'Haggis Hunter'...

version from *Solvite* – at only £12.99 it must be a contender for the Xmas present list. Available from most of the better DIY and hardware shops around the country its worth looking at... it will even stick up that holly that always seems to fall down on Christmas Day.

Handy drill...

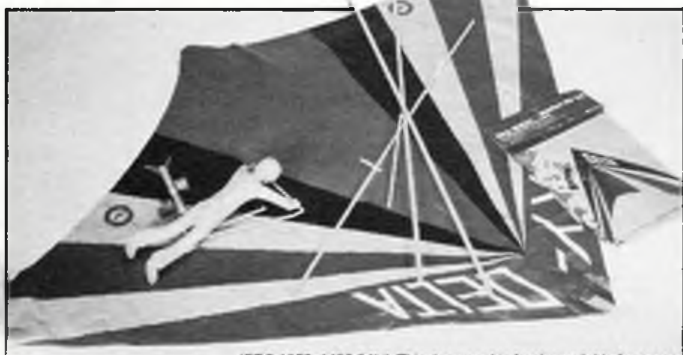
We've all had to drill holes in awkward places at one time or another... often only with partial success! A new mini drill from *Vitrex* will at least increase the success rate. Its pistol grip and reasonably small size, coupled with a $\frac{1}{4}$ in chuck can only benefit any workshop. Price is a reasonable £6.50 and should be available fairly widely in D.I.Y. and good hardware shops – it's also a handy size for the Xmas stocking!

will 'return to sender'... with a little practice! The three versions illustrated on this page are the *Backwoods* 'Haggis Hunter' 20in at £4.50, the Australian made 'ML17' 17in at £4.80 and the *Spin Back* 'Super Performer' 15in at £5.95. All three are available in right and left handed versions.

Information of 'how to throw' and the other boomerangs stocked is available from Michael Hanson, *British Boomerang Connection*, P.O. Box 1, Cumnock, Ayrshire, Scotland. If you are only asking for information please include a stamped addressed envelope (9 x 4in) – the boomerang prices include post and packing.



Below, how simple can you get... This flex-wing glider will not stretch the brain cells but it might stretch your legs!



Below left, handy, inexpensive drill to reach those awkward places by *Vitrex*. Below, get it all together! Simple in operation, glue where you want it – *Solvite's* Glue Gun.

**with
John Wheddon**

IN FULL-SIZE AVIATION it is often said that there is nothing new under the sun! The actual details of achieving any required form of flight vary from time to time but are usually only developments of earlier work. We see detail aerodynamic refinements which improve efficiency, digital electronics replaces analogue systems, mechanical linkages give way to hydraulic or electrical actuation but essentially its all been tried before.

It comes as no surprise then, to find that the earliest edition of *Aeromodeller* in my personal collection contains considerable coverage of MODEL ROCKETS. The particular copy was published in November 1945! A large photograph shows the late Mr. Howard Boys demonstrating a rocket-powered model aircraft (boost-glider I'd call it today) at the opening of the flying field at Eaton Bray. The rocket engines were, I understand specially made by one of the fireworks companies.

Some of our friends in Scotland were in action long before this however and one group there has recently celebrated the *fiftieth* anniversary of its mail carrying rockets.

However, official displeasure stifled growth of the hobby in Britain and it was left to other nations to promote model rockets on an international basis. In particular, modellers in Czechoslovakia and the United States have been responsible for bringing the safe exciting and instructive hobby of model rocketry to people all around the world.

Modern style rocketry, in official terms, Space Models, has had a brief history when compared with some of the more traditional forms of aeromodelling which even preceded full-size aviation activity. After pioneering work in the United States by Orville Carlisle in the early 1950s, rocket model kits and engines became available commercially in 1957. G Harry Stine founded the *National Association of Rocketry* in the same year and aided no doubt by the huge public interest in the full size space race the hobby spread rapidly throughout the USA.

Europe's progress paralleled that in the United States and enthusiasts in Czechoslovakia, Poland and Yugoslavia were also discovering the enjoyment to be obtained

from this exciting new hobby. It was also quickly realised in Czechoslovakia that model rockets can provide an excellent focal point for science education and the hobby was soon absorbed in school's formal curricula.

Rocket flyers seem to be a naturally competitive type of modeller and contest rules were soon drawn up in Europe and the USA. International recognition soon followed and provisional rules were presented to the FAI by G Harry Stine and Walter Good of the (American) *Academy of Model Aeronautics*. Thanks to sensible discussion and friendliness between the different country's representatives these rules were formally adopted two years later and the scene was then set for full international competitions.

The first international meeting took place during May 1966 at Dubnica nad Vahom, Czechoslovakia. Entries were made by Czechoslovakia, Poland, German Democratic Republic, Romania, Bulgaria, Yugoslavia and the United States.

Yugoslavia had the honour to host the first World Championships for Space Models at Vrsac in September 1972. Since then, further World events have taken place in Dubnica in 1974, Jambol (Bulgaria) in 1978, Lakehurst (USA) in 1980, Nowy Sacz (Poland) in 1982 and again at Jambol this year.

During the years since 1966 the list of participating countries has grown and includes Australia, Canada, Federal Germany, Spain, Egypt, Netherlands, USSR and the United Kingdom. After taking part in the Lakehurst event Paul Clark returned home and founded the *British Space Modelling Association*. Paul has conducted a long careful campaign and succeeded in creating a 'home' market where the hobby is now accepted. Displays can be seen at public events like the Plumpton Model Show and we are close to the time when British-made engines will be available.

Space Modelling is a truly international sport and it is really intriguing to see Bulgarian modellers proudly presenting a scale model of a British missile and I suppose Czechs must be amused at the sight of a Briton with a scale model of one of 'their' sounding rockets. The sport is like that ... Fun... Long may it continue...

Below, November 1945 - rockets in the news, well in Aeromodeller anyway! Spectators at the Easton Bray opening day received their full share of excitement when Mr Howard Boys (on the right) demonstrated one his rocket driven machines fitted with a tricycle undercarriage...

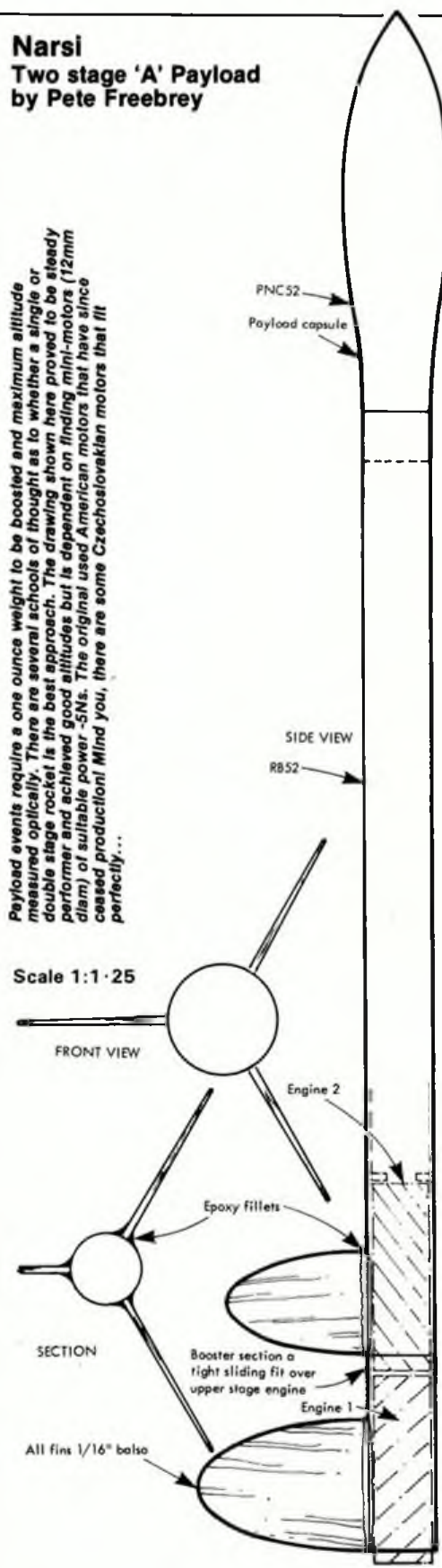


Narsi

Two stage 'A' Payload

by Pete Freebrey

Payload events require a one ounce weight to be boosted and maximum altitude measured optically. There are several schools of thought as to whether a single or double stage rocket is the best approach. The drawing shown here proved to be steady performer and achieved good altitudes but is dependent on finding mini-motors (12mm diameter) of suitable power -5Ns. The original used American motors that have since ceased production! Mind you, there are some Czechoslovakian motors that fit perfectly...



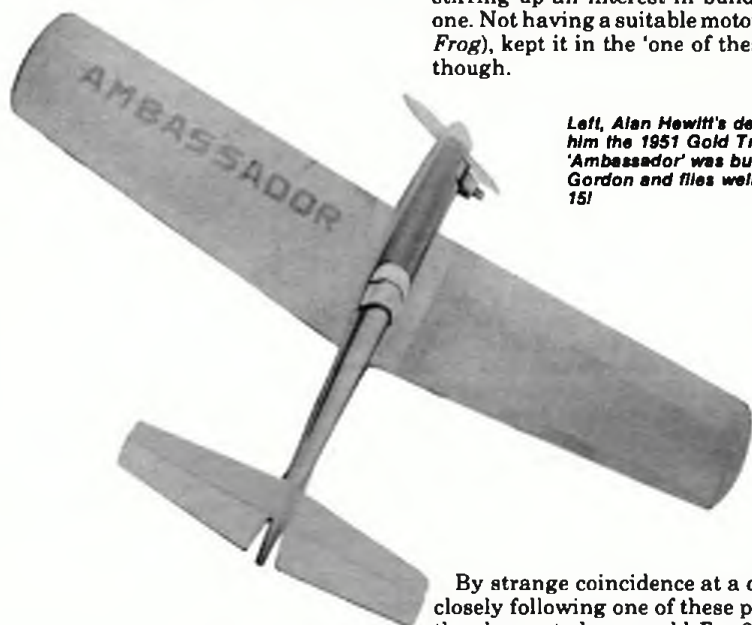
MIND THE LINES

with
Andy Brough

SAM Champs

Sunday 4th August saw the SAM Championships held at Barkston Heath. The main events were the Anniversary Wakefield 8oz. and 4oz. classes and various SAM 35 members organised for a group of American veterans (if you can organise Americans) to join in the fun. For interest to those of us who like to whirl bricks on strings Ian Russell had planned to hold an 'Unlimited' Three-in-One contest and myself a 'Midge' event. I say planned, because the weather had other ideas... the 4th was a by now typical Sunday, with strong winds and pouring rain, but nothing lost nothing gained so we elected to run the 'Midge' event.

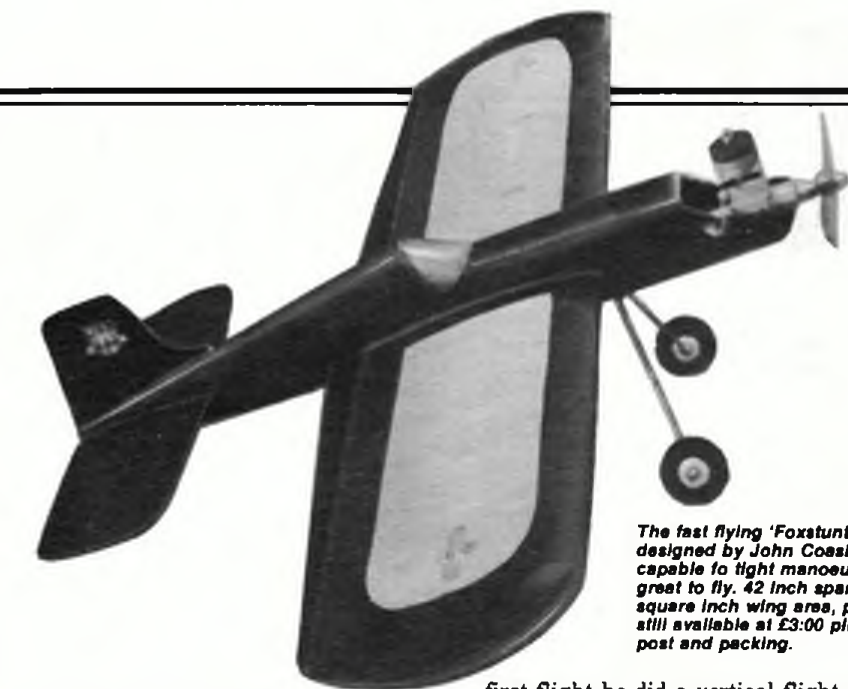
The first off was Gordon Counsell, whose PAW powered 'Midge' had every opportunity to excell as considerable technology was in evidence, electric starter (yes, you Three King's lads, a real one...), optical



Left, Alan Hewitt's design that won him the 1951 Gold Trophy, this 'Ambassador' was built by Ray Gordon and flies well with a P.A.W. 15!

tachometer and a selection of props. However the first flight only produced 66.66mph. Meanwhile, yours truly managed 79.6mph with a cut down *Taipan* 7x6in and a home brew of 33% oil, paraffin and ether + 2% IPN. (that's a PAW recommended brew of one pint of each plus two ounces of IPN). Several props later Gordon recorded 71.42 mph which just goes to prove that bog standard equipment is more than adequate! Sorry about the 'dig' Gordon...

Poor old Peter Martin wasn't having much luck either, his 'Javelin' powered model only completed five laps and as by this time the weather was beyond a joke, we packed up and went to watch the Wakefields which seemed oblivious to the wind and rain...



The fast flying 'Foxstunter' designed by John Cossby capable to tight manoeuvres and great to fly. 42 inch span, 350 square inch wing area, plans are still available at £3:00 plus 50p post and packing.

Model of the Month

This month's offering comes from David Sanderson who writes in praise of the 'Foxstunter':

"I first bought the plan of the 'Foxstunter' when I was a lad of fifteen for the princely sum of five bob, (25 pence to you young 'uns) and built one with a *Frog* 3.49 diesel as noseweight. Sadly it was damaged before I got to fly it so I lost interest. However I kept the plan and perused it at odd intervals stirring up an interest in building another one. Not having a suitable motor (I'd lost the *Frog*), kept it in the 'one of these days' box though.

first flight he did a vertical flight with an extra loop added on top of it all flown between level flight and the overhead position, and then not using full control deflection. It certainly is capable of very tight manoeuvres.

We have an annual competition in the Wharfedale club called a Triathlon. This involves the use of a one model one motor combination being used to fly two rounds of Novice Stunt, two rounds of Speed and a Team Race bit where you have to fly as many laps as you can in a 15 minute period making at least one pit stop. Different props may be used if this is felt to be necessary...

For this year's Triathlon I entered with the 'Foxstunter' and won the Stunt bit and won the Speed bit too with a calculated speed of 74mph. This was with the motor running on it's normal needle setting, normal 10x6in. prop and 5% nitro fuel. You can't deny that that is fast for a stunter. Hot

By strange coincidence at a club meeting closely following one of these perusals I got the chance to buy an old *Fox* 35 for £4, so I rushed home and started building. *One of those days* had arrived! I built it virtually as per plan and covered it with white tissue using a little red tissue for trim.

I was rather surprised to find the finished model nose heavy and traced the cause of this to my *Fox* 35 being 1½ ounces more than specification due to it having an unusual crankcase. To counter this I had to put about an ounce of lead in the tail to bring the CG to the position shown on the plan. With an all up weight of 29 ounces, it just HAD to fly well!

I took the earliest opportunity to fly it and indeed it does fly well. The description given in the *Plans Handbook* is completely accurate as you will see. I allowed another club member have a go with it and on his



Above, a very wet Peter Martin starting his 'Javelin' powered 'Midge' at Barkston Heath - only managed five laps, which was taken as a powerful omen to give up and dry off!!

re-starts not being the Fox's forte I was very pleased to finish the Team Race bit in 3rd place. These results gave me an overall win of the Triathlon. To complete the picture we had 10 entries, mostly using diesel powered combat wings, 'Wildcats' or Mini Slows.

The 'Foxstunter' was first published in the 1950 *Aeromodeller Annual* and as such would qualify for entry in a Vintage Stunt event as outlined by Reg Lowe in a letter published in the June '84 edition of *Claptrap*. I have flown that schedule with this model and look forward to entering such a competition if this becomes possible. I have also flown the FAI schedule with it, for the first time ever, and it took me just under four minutes. It was great fun! It could even persuade me to fly FAI with my 'proper' model.

The 'Foxstunter', although not so beautiful to look at, is most certainly worth considering. It is not so big as to be expensive to build or be difficult to transport. Indeed I took it on holiday this year with the wife and two kids with *all their stuff* in the car too.

Right, Ray Gordon's 'Firebrand Mk 11' built from APS plan designed by R Cooke (CL/380X), features almost unbreakable fuselage: span 42 1/2 in, area 326 sq. in. Below 'Twister' plan available from A.P.S. see page 737 for address.

It is capable of coping with all recognised manoeuvres easily and is pretty tough into the bargain. Our holiday was in the Black Mountains of Wales and I flew it on top of one of them. The motor cut out when directly overhead and the model nose-dived vertically into the ground. Result:- a broken prop and slight cracking of the fuselage where the ply doublers ended. A truly amazing model."

John Coasby's plan is still available from the *Aeromodeller Plans Service X* list number CL/406.

Scale Stunt

In the August issue I mentioned the idea for a revival of Scale Stunters. I had hoped to have one ready for Vintage Day but as ever did not find enough time to build all that one wants to. However I have built a three-line handle and bellcrank system and

installed this in an old model, in order to familiarise myself before building the scale stunter.

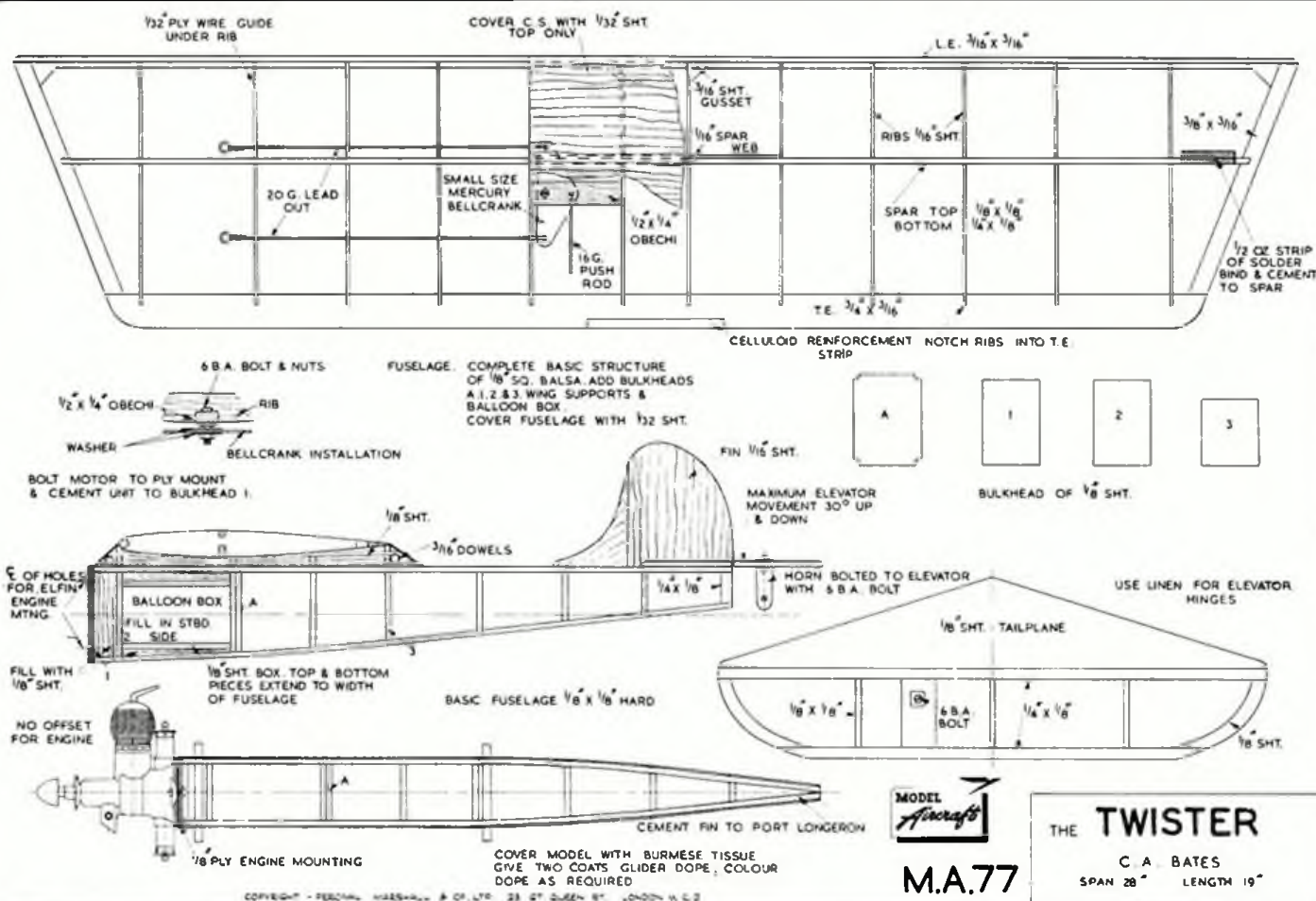
The handle is the 'Squeeze Handle' designed by G.H. Carter and outlined in the July 1972 *Aeromodeller* and the bellcrank is a *Mick Reeves* design. Built into a 'Peacemaker' with an OS 25 up front the system is excellent, very good throttle control with no change in pitch. I can strongly recommend making such a system even though quite a bit of metalwork is involved. The response from the squeeze action is much improved over the *Roberts* system where the action of the throttle lever by one's other hand can cause a change in pitch. All I have to do is build a model now!

Over the winter I will draft a set of rules for Scale Stunt and hopefully we shall have the competition at the SVAS Day at Old Warden. If you want to influence the rules or have any suggestions, now is the time to write.

By the way does anybody know the age of the *Topflite C/L* scale kits, in particular the S.E.5a?

The Twister MA77

Looking for a very simple Vintage stunter? Well look no further than the 'Twister' designed by C.A. Bates of 'Juggler' fame. In fact the two models have some similarities; a large elevator and a thin wing section, although in this case the wing is mounted above the tail rather than below. Wing span is 28in. and the original was powered by an *Elfin*. The same comments about wing alignment apply... do get the incidence right... Zero! I don't know whether the full size plans are still available (it is ... price code C, Ed), but I'm sure one can scale up the reduced plan.



Fokker D VII Ebenezer

continued from page 704

Cut the slots for the engine bearers and the area of sheet up to the start of the 1/32in. ply doubler.

The engine bearers can now be glued into the fuselage and the 1/32in. ply doublers added. To keep the bearers in position whilst the glue sets, wedge a piece of scrap balsa between them. Use clothes pegs to hold the ply doublers in position.

Drill a hole about 3/32in. dia. through the fuselage to take the undercarriage wire, small holes should also be drilled for the binding.

Form the undercarriage from 16 swg wire, but do not, solder on the axle just yet. To get the undercarriage wire through the hole in the fuselage, spring open slightly the centre of the formed wire and push through. The wire can then be bound tightly in place with strong thread, *not* sewing cotton. Fill up the holes and binding with glue, and solder the axle in position. The fuselage should now be sanded smooth all over and given a covering of lightweight tissue (doped on). Finish by giving two coats of thinned dope, lightly sanding between each coat.

Although the model is very semi-scale, I didn't think it would look quite right fitted with either balloon or streamlined wheels. The construction of simple World War I type wheels as shown on the plan are not difficult to make. They require nothing more than a piece of sandpaper to obtain a good tyre section.

Poppet

continued from page 713

Dope on tissue, then cut a paper template for the windshield, cut out of celluloid or acetate, and cement in place before completing doping of fuselage.

If a radial-mount motor is to be fitted, construction procedure is identical except that the bearers can be omitted and F1 is cut as a complete bulkhead to include F1A. This bulkhead is now glued between the fuselage sides and the top block fitted up to it. To improve appearance the sides can be left extending forward as drawn. A strip of 1/4in sq can be added each side, in front of and behind the bulkhead, for additional strength if required. As drawn, a small amount of downthrust is incorporated, for larger motors, though final adjustment of the angle will depend on flight tests.

P.38 Lightning

continued from page 726

similar stage. Keep turning the props in your hand and keep concentrating. Check for symmetry by facing the props onto each other on a piece of piano wire.

Check again on your centre drilled jig, using small cardboard formers taped to a particular point. Undercamber the blades, balance them and smear 'super glue' into the hubs. Now thoroughly sand, seal and paint them with gloss black cellulose car aerosol.

Make up the drive shafts and freewheels cleaning the wire with wet and dry paper prior to soldering. Dedicated modellers will build up the spinners in balsa; I use fibreglass ones but paper cones with balsa tips would be very good. The bronze thrust bearings are American and are available

Assembly

All the parts should first be given a coat of sanding sealer or thinned down dope, and then rubbed down smooth with fine sandpaper.

To position the top wing platform, run glue along the top of the wing pylon and add the platform, before the glue has set, place the wing on the platform and hold them both in place with elastic bands over the 1/8in. dowels. To keep the platform and wing true to the fuselage, push in a few pins... Use the same method for the bottom wing.

Glue the tailplane in position and make sure that it is *horizontal* when viewed from the front. Next add the fin which should be set *vertical*.

It only remains to add the tail skid and *Araldite* the axle wing onto the axle and general assembly is complete. As this is a fun model, and as many Fokker D7s had very colourful finishes there are no hard and fast rules... the brighter the better. I used thinned down colour dopes and felt nib pens (car aerosol sprays are ideal).

Add the wheels, a profile pilot and give the whole model a coat of fuel proofer. If you are using an engine similar to a 'Dart', the fuel tank which normally would be attached to the back of the engine, will have to be removed. Either screw the tank onto the side of the fuselage or as I do, use an eye dropper style tank simply held on with elastic bands. Check the balance, and add any ballast if necessary.

The wing is a simple two-piece structure without a centre-section. Build one panel flat on the board; the l.e. and t.e. are notched with a file or razor to locate the ribs firmly and accurately. Fit the dihedral keepers in this panel; note that the root rib should be angled slightly.

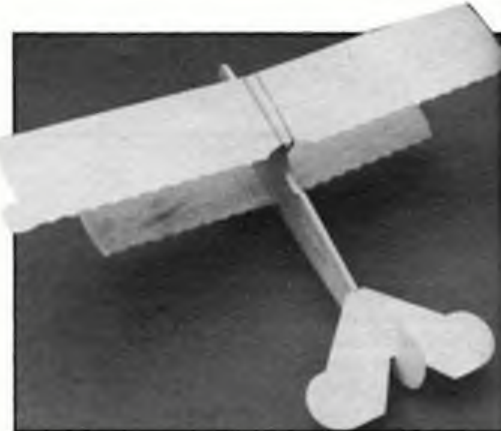
The wingtip can be fitted before removing from the board, crack the the spar or use a separate gusset to continue the spar line down to the tip. Use a hard balsa spar. When thoroughly dry, remove and build the other panel over the plan, fitting the dihedral keepers into it by blocking the completed half at the correct angle. Measure to check that the raised tip is not less than 4 1/4ins above the board. When dry, remove and sheet centre-section, then sand all over. Cover with lightweight *Modelspan* and put a tiny drop of castor oil in the dope; pin down to avoid warps while drying.

The tailplane is a straightforward job,

from SAMS (see ad: page 677). Having done all this work don't you owe them to yourself?

The motor pegs only fit through the inner radiators so the outer ends are hidden. I use four strands of 1/4in rubber pretensioned for each motor. Use more strands if you have a lot of long grass. Balance the model as shown on the plan and start with fifty turns to each motor.

Forget all those clever launching devices. Grab the model by the lowest blade on each propeller with a thumb and two fingers, stabilising the nacelles with your index and forefingers. Hold the model above your head and thrust it forward firmly and smoothly. If it dives, add up trim: if it stalls add weight to the nose. Any excessive turn is probably due to warps as a certain amount of thrust variation just makes life more exciting...



Trimming and Flying

Do all your initial test gliding over a patch of long grass. Don't expect a floating glide from this model. If you can get a straight glide or one with a slight left turn, that will do fine. The model will also glide quite quickly. I found that the best thing to do with this model is, fuel it up and let it go... the glide is far better observed when the model is travelling at its true flying speed.

First flights took place on an absolutely flat calm evening with the engine running moderate to slow and with about 10 seconds of fuel. The climb is pretty rapid and the glide in nice left hand circles.

The next hour was spent in repeated flights, adjusting trim and power. The furthest my 'fetchamites' had to go to retrieve was no more than 100 feet on any flight from launch point.

The only thing you have to watch for is that 'Snoopy' doesn't get on your tail...



taking care to avoid warps, and the fin is simply cut from 1/4in sheet and the edges sanded round. Note trim tab. Cement fin squarely in centre of tailplane after covering and doping. Do not forget to fuel-proof inside nose. When doping and colour trim etc. is complete bolt motor in place and fit prop.

Check that the model is squarely assembled and unwarped and that it balances on the mainspar. Add ballast if necessary. Glide into tall grass, watching that the glide is straight. Use a little right tab for power flights running the motor at low speed until all is obviously well, then open up.

Make sure the motor run is short and that you have your name and address on the model. To fit a D/T, cut a small triangle from the fin l.e. so that the whole tail can tip to - 30 degrees; fit a dowel in the fin t.e. 1/2in above the fuselage dowel and connect up the rubber bands in the usual way.



If you wish to build a really accurate model you will need reference books. Most of mine were obtained some time ago but may still be available secondhand. Aircam Aviation Series No 10 by Osprey is good as is the Kookaburra publication. Aero Publishers (USA) have some good photos in Aero vol 19.

Best drawing is 'Plany Modelarskie No 73' published in Poland. Beaumont's (Aviation Bookshop) can often help. Best of all is Jane's P 38 Lightning in their Aircraft Spectaculars series. Aeroplane Monthly gave it an inexplicably bad review - well it isn't great literature but if you want that, try reading Antoine St Exupery, the distinguished French author who lost his life in an unarmed Lightning over the Mediterranean in 1944...





AERO MODELLER

PLANS SERVICE Free Flight Scale



S.E.5a by J. D. McHard. Famous WW1 fighter in full detail on specially printed plan with photo illustrations and instructions. Fine and tough performer. Span 27 in. (686mm). Also for R/C. Uses 0.5-0.8 cc motors.
FSP/682 Price £3.00



PZL WILGA 35 by P. Hayward. Very stable 1/12th version of the Polish glider tug, this 36 in. (914 mm) span model's high wing and large tail is an ideal Free-Flight layout. Uses 0.5-0.8 cc engines.
FSP/1178 Price £3.00



SOPWITH TABLOID by K. McDonough. A diminutive 1/12th model, span 25 1/2 in. (648mm). For .3 to .8 cc motors.
FSP/810 Price £3.60



HANDLEY PAGE H.P.42 by Cpl. S. Newton. The famous Hannibal bomber. Very detailed drawing for this 65 in. (1651mm) span model uses two 0.8-1 cc engines.
FSP/615 Price £4.80

BRISTOL BULLDOG by P. J. Allnutt. A 1/12th scale model which uses some spruce and ply in its rib for rib, stringer for stringer construction. Full colourings and markings. Canadian competition winner. Span 33 in. (857mm). Engines 1-1.5 cc.
FSP/782 Price £3.60



D.H. TIGER MOTH by A/M Staff. A magnificent 44 in. (1118 mm) span model of one of the best-known aircraft ever. Flies well and realistically. 1/8th scale. For 1-1.5 cc engines.
FSP/556 Price £4.40

BLACKBURN MONOPLANE by A. M. Finucane. 1/8th scale, 48 in. (1219mm) span, pioneer monoplane; flies as well as its modern counterparts with 0.8-1 cc motor.
FSP/567 Price £4.40



SUPERMARINE SPARROW by G. F. Elsgood. 1/12th scale of 1920's light racing aircraft designed by R. J. Mitchell; 34 in. (864mm) span model features scale rib spacing and pendulum rudder/aileron controls. For 0.3-0.5 cc motors.
FSP/1408 Price £1.80

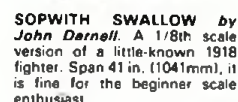


COLONIAL SKIMMER by E. Fearnley. For flying scale enthusiasts who want something different. Span 47 in. (1194mm); for 0.75-1 cc engines.
MA/250 Price £3.00



JODEL D9-BEBE by Hoh Fang-Chiun. Neat replica of famous French light plane with fixed rudder. Detachable 38 1/2 in. (978mm) span wing, super flyer. 0.5-0.8 cc motors.
FSP/591 Price £2.30

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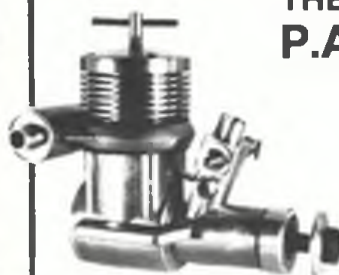
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SHG Simplex 60	28.95
1938 Playboy Snr 80"	35.75
SHG Powerhouse 88"	41.95
SHG Scram 88"	38.95
Heccat 48"	19.25
Super Scorpion 66"	43.50
Majestic Major 88"	54.95
Flair Junior 60	31.95
1946 Falcon 96"	87.50

S.H.G. MINI VINTAGE KITS

Mini Scram 55" for	
1.5cc diesels + Mini L/W radio	22.85
Mini Miss Tiny 45" for 1 to 1.5cc	
diesels + Mini L/W R/C	22.85

JUST RECEIVED

Pares 2.5 T.R. Diesel	
Front Induction	44.95
Rear Induction	59.50

VINTAGE SPEED

Just reintroduced Mercury Midge speed
ideal for S.A.M. 35 speed events designed
for 1.5cc diesels so P.A.W. DS3 just fits the
bill. 6.95

ASSORTED F.F. RUBBER POWERED KITS

Union Super Chipmunk 16" inc.	
gearbox	10.99
Union Piper Cub J3 16" inc.	
gearbox	10.99
Union Yellow Cub 16" inc.	
gearbox	13.99
K.K. Eaglet 24"	4.35
K.K. Robin 23"	4.35
D.P.R. Hyper Cub 29" inc. gearbox	11.95
K.K. Competitor 32" contest model	6.55
K.K. Ace 30"	7.50
Comet Taylorcraft 54"	8.95

ASSORTED CONTROL LINE KITS

K.K. Phantom Mite 16" for .5 + 0.8cc	
engines	8.99
K.K. Phantom 21" for 1 to 1.5cc	
motors	10.95
Pegasus Mini Lord Combat Wing for	
1.5cc	
motors	6.95
Pegasus Warlord Combat Wing for 2.5cc	
motors	8.95
Faw left Ginny Goodyear racer 2.5cc	
motors	9.95
Cosmo Spitfire Profile Scale for Cox	
B Bee	6.95
Mercury Midge speed for 1.5cc	
engines	6.95

FREE FLIGHT POWER

Union F.F. Electric Foam.	
Cessna 150	18.95
Union F.F. Electric Foam Bellanca	
Champion	18.95
Union F.F. Electric foam	
Sky Hopper	18.95
(Above kits contain charger just add	
Duracella).	

Mercury Tiger Moth .5 to .75

motors	14.95
K.K. Snipe 1cc motors	12.95
K.K. Ladybird .75 motors	11.95

SMALL DIESELS

Mills .75 Mk II	16.95
AM 10 1cc	14.95
AM15 1.5cc	15.95
ME Heron 1cc	19.95
Mills 1.3 Mk 1	43.95

P.A.W. ENGINES

PAW 80 std	16.70
PAW 100 std	16.70
PAW 1.49 DS3	18.40
PAW 1.49 Contest 3	19.55
PAW 2.49 DS3	20.70
PAW 2.49 Contest 3	21.85
PAW 19 DS3	23.00
PAW 29 DS + Silencer	36.80
PAW 35 DS + Silencer	41.40
PAW 80 R/C	21.25
PAW 100 R/C	21.25
PAW 1.49 R/C + Silencer	25.30
PAW 2.49 R/C + Silencer	27.60
PAW 19 R/C + Silencer	28.90
PAW 29 R/C + Silencer	39.10
PAW 35 R/C + Silencer	43.70

ED ENGINES

ED Std. Racer 2.46	17.25
ED Std. Racer 2.46 R/C	18.75
ED Super Racer 2.46	19.75
ED Super Racer 2.46 R/C	21.25
ED Super Hunter 3.46 R/C	32.35
Viking Mk II 4.9cc R/C	31.25

D.C. ENGINES (very very limited availability)

D.C. Sabre 1.49 diesel	16.50
D.C. Bee .75 Glow	12.50
D.C. Rapier 2.46 Diesel	34.50
D.C. Spitfire .97 Diesel	15.80

POSTAGE

Kits	1.75
Motors	.75
Other items	.50
Access. Barclaycard, Leisure cards	
accepted.	

DUNHAM REPLICAS

Orwick 73 Spark	155.00
Orwick 64 Spark	145.00
Orwick 29 Spark	130.65
Elfin 2.49 Diesel	45.75

VINTAGE ENGINE ACCESSORIES

2.4 Volt Miniature Coil	11.50
NGK or KLG 1/4" x 32 TPI Spark	
plugs	8.50
H.T. Lead Clips PR	.35
Made up HT lead with suppression	1.85
1/4" x 24 TPI Spark Plug	3.50

S/H COLLECTORS ENGINES

(subject to being unsold)

OK Super 60	98.00
Meteor 120 Twin	98.00
Frog 2.49 BB	30.00
ED Racers	30.00
Cannon 300	95.00
Hornet 60	165.00
ED Mk III	32.00
ED Pennyslot	35.00
ED Bee	30.00

Please ring for current engine stock
position. We regret we are unable to
supply price lists of vintage engines

CONTROL LINE ACCESSORIES

Superline in L/W and M/W 7 strand and	
L/W 3 strand	
35 metre	2.35
500 metre	26.00
1000 metre	45.00
Pacific Teets per 10	2.50
Dons quick fills per 5	4.95
100ml syringe	4.80
Valve spout bottles	2.49
PAW N/V/A	1.20
Super Tigre N/V/A	1.50
Cipolla 2.5 Combat engine	34.95
MUVS 2.5 F.I. C.E. Glow	45.00
Mustard Tin Tanks	.50
Stunt Tanks from	.75
Team Race tanks from	.75
Fox SML/MED/LRG C/L	
connectors per 4	.50
4" C/L reels	1.50
TAYLOR 1.5 L/R comp plugs	
per card	12.00
.25 and .3mm single stand C/L wire	2.25
Circular bell cranks	2.95
Rubber Fuel tube 40"	.87

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Appendix: Links to the plans

The original issue comes with two free plans (Ebenezer D7, Poppet) printed front/back on a pull out banner of four sheets. The banner is not included in the document.

Boot and Richochet by Joe Flynn

1/2A Power models presented in FREE FLIGHT SCENE

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Fokker DVII Ebenezer by John Watters

21" Power semi scale

https://www.hippocketaeronautics.com/hpa_plans/det ...

[Document Page: 32](#)

Poppet by Vic Smeed

32" Power sport

https://www.hippocketaeronautics.com/hpa_plans/det ...

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P38 F Lightning by Richard Falconer

Rubber Scale

https://outerzone.co.uk/plan_details.asp?ID=2983 ...

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Narsi by Pete Freebrey

Two stage rocket 'A' Payload presented in AT THE LAUNCH PAD

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Twister by C.A. Bates

From Model Aircraft January 1951 presented in MIND THE LINES

https://outerzone.co.uk/plan_details.asp?ID=10267 ...

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