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p.310



p.324

Editor
Group Editor
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Art Editor
Sales Executive

Geoff Clarke
Alec Gee
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Ron Cunningham
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Cover Story:
Our 21st Scale Rally at Old Warden approaches fast! Here's an irresistible shot that captures perfectly the spirit of this premier event: cheerful participation, a fine model - in this case, a Bellanca Skyrocket - and the obligatory blue sky and we presume, zero drift! Get those scale models ready for 20-21st June - we look forward to seeing you there. . .

HANGAR DOORS	Who's who, what's what and when	304
OUR 21ST SCALE RALLY	A look ahead - and back - to this premier Scale event	306
DIAMOND DEMON	Chirpy and cheerful - this vintage gem, revitalised by Ben Buckle, is just right for R/C or F/F	308
A NATS AT NEW YEAR	Martin Dilly tells of an enjoyable visit to the New Zealand Nationals	310
SCALE MATTERS	New projects are revealed and subjects for future consideration are discussed	315
TAILLESS TALES	Flying-wing record exploits recalled by Peter Fisher	318
FLY LOW-CEILING INDOOR	John O'Donnell reports on sports hall indoor competitions - and looks ahead	322
AVRO AVIAN	Full instructions, documentation and a full-size plan for this Golden Age scale bi-plane by John Watters	324
VINTAGE CORNER	A look back to inspire future research by Alex Imrie	336
FREE FLIGHT SCENE	Dave Hipperson presents all the latest results and a top F1A	341
THOSE RADIO TIMES	Happy days of radio flying recalled by Peter Shenter	346
INTERNATIONAL WHAT'S ON	FAI events overseas listed for your delight	347
FROM THE HANDLE	Strut motors tested and team race topics aired by Claus Maikis and Jim Woodside	348
MIND THE LINES	Andy Brough circulates round the vintage control-line scene	352
WHAT'S ON	Build a model, prepare it and go to the meetings of your choice! Here's what to choose from	354

Other ASP Model Titles:

Clocks - Military Modelling - Model Boats - Model Cars - Model Engineer - Radio Control Models & Electronics - Radio Control Boat Modeller - Radio Modeller - Scale Models International - Your Model Railway - R/C Scale Aircraft Quarterly - Sea Classic International



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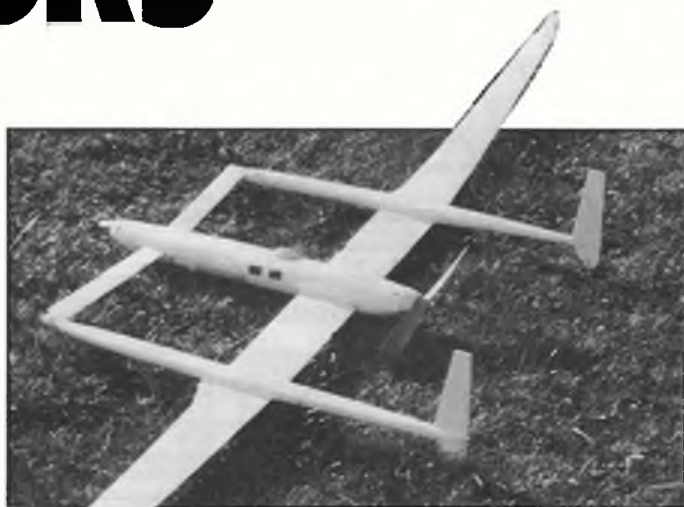
HANGAR DOORS

Nats update

More news about the F/F Nationals at RAF Barkston Heath on 23-25th May. Events will be exactly as per the announcement in last month's Hangar Doors (see What's On in this issue for confirmation) but we can add that rounds on Saturday and Sunday will be flown from 10am to 6pm, with fly-offs – if necessary – at 6.15 on both days. As hinted, there will be a departure from the normal system on Monday, 25th May. The FAI events (F1A, F1B and F1C) will be run to rounds in that order, each of thirty minutes duration. There will be a 5.30am start, the finish being scheduled at 5pm (fly-offs beginning at 5.15) – with one exception.

In order to avoid noise problems, the second F1A round will follow the first F1B round, thus effectively removing the 'first' F1C round from the sequence. The resulting gap in the proceedings will be filled by an adjustment later in the day; the definitive statement will appear at control!

We learn that the Junior Kit Contest will be held from 10am to 4pm on the Monday; as usual, entry is open to all under-16 fliers. Eligible models are those rubber and glider models which have been available in kit form during the last ten years. Maximum wingspan for rubber models is 40in; and gliders of up to 60in. span may be flown, with a maximum towline length of 50 metres. Details on the day from the control van – have a go, Juniors; we understand that 'substantial' trade prizes are up for grabs!



After witnessing editorial chuck-glider Rutan Voyager experiments in the corridor at Wolsey House, our technical illustrator and enthusiast for the unusual, Peter Holland was encouraged to create this 55in version for rubber power. Short fuselage means an abbreviated motor run so CO₂ or small diesel power will be substituted. Foam and balsa craft is a stable performer. . . Full-size data appears in the Summer issue of Radio Control Scale Aircraft Quarterly.

Trial by Kiwi

Martin Dilly FSMAE was honoured by the New Zealand Model Aeronautical Association in January when he was invited to the National Championships in that country. David Hope-Cross, Vice-President of the NZMAA, reminds us that Martin has been a very faithful friend of the New Zealand aeromodellers for more than 15 years, during which time he has represented the New Zealand aeromodellers on the CIAM sub-committee of the FAI, has acted as Team Manager at a number of World Championships, has proxy-flown New Zealand models and has taken on the role of shipping agent for New Zealand models, as well as Customs clearing agent and Reception Committee for New Zealanders arriving in the UK.

As a result of all this hard work, the NZMAA Council of Management decided to show its gratitude in a tangible way.

Martin was provided with a return air ticket to New Zealand to coincide with the National championships there. At the prize-giving he was further honoured with Life Membership of the Association. The latter exercise was sprung on Martin at relatively short notice – before he could find reasons for declining! The presentation itself took the form of a short mock trial, at which Martin was found guilty of various charges and given a life sentence! David tells us that Martin's Nationals visit was enjoyed by everyone at the event: 'He was a great ambassador for the UK, was very helpful to other modellers, especially the juniors, and he

Dave Goodwin

The aeromodelling movement in this country lost a dedicated enthusiast with the recent death of Dave Goodwin. The Free Flight fraternity in this country and in France will be well aware of his active support of the contest scene; whereas the general aeromodeller in Great Britain will remember him as SMAE Chairman during those years in which began the recent rapid increase in the Society membership.

In his early years Dave, who was a member of the Sheffield Society of Aeromodellers, maintained an interest in all outdoor classes, particularly power models. He held the club Indoor HLG glider record; and this design was published in a contemporary Zaic Yearbook. He was probably the first Sheffield modeller to fly an R/C slope soarer, this taking place well before the current popularity of this branch of our hobby. In 1974 Dave became one of the founder members of the Vulcan Free

took part in the fun including a Junior C/L combat event dressed as Father Christmas when he flew combat – for the first time in 30 years – against three juniors. Equally impressively, he took second place in F1A.

Final comment from David Hope-Cross: 'On behalf of all the Aeromodellers in New Zealand, the NZMAA would like to say 'thank you' to Martin; we hope that you enjoyed the experience and that you will come back again soon.'

Martin's report on activities at the NZ Nats appears elsewhere in this issue.

Did you see...

...the BBC1 presentation Wildlife on One on Monday, 23rd March? If not, you missed one of the finest expositions of bird flight you could ever wish for. Witty – some might say quirkily – sub-titled In-Flight Movie, here was thirty minutes of stunning film describing most efficiently how the multitude of nature's own flapping-wing craft has adapted, each in its own way, to beat the sometimes daunting odds of thrust/weight and power/weight ratios. Thus we could contrast the lazy, thermal-seeking of the soarers with the almost frantic, switchback lungings of smaller forest-dwellers; an enthralling study which gave just a hint of the infinite, wonderful shades of variety between. All been done before, say you? Not like this – for we could only guess as to how the bulk of the filming was done. Apparently forming a camera to follow the hedgerow



This month's full-size plan is for a power scale Avro Avian IVM. Thanks to Aeroplane Monthly we can show you this evocative shot of two sports Avians (and a Desoutter) lined up at the 1930 Kings Cup Air Race. This Avian variant was distinguished by cut-away top decking and a straight-axle undercarriage. Registrations were G-AAWI and G-AAYU. Modifications to this month's plan are easy; or try our Plans Service for Ray Booth's 35in. version. Ref. No. is FSP 468; price is £4.55 including postage.



Flight Group – the name was his suggestion – and his enthusiasm for the FAI free flight classes encouraged healthy club participation on the contest circuit.

At this time he was a regular participant at all FAI weekends and Team Trials, always ably

assisted by his wife, Liz. Dave also competed regularly in France, beginning with trips organised by *Aeromodelleur* to the Coupe d'Hiver competitions in that country. He was one of the first British competitors to visit Poitou for the summer meetings, and he did his best to publicise these events and to get more people to enjoy continental competitions.

Dave's strong views on model specifications and rules caused many lively discussions on these matters, which he thoroughly enjoyed. This logically led him to become a member of the SMAE F/F Technical Committee and thence to Manager of the British F/F Team which attended the World Championships in Burgos, Spain, a post of which he was most proud.

His wide circle of correspondence around the world resulted in him being aware of – and usually obtaining – the latest technological gadgets. He was always generous with this information and would willingly loan or pass on details of the

latest thermal detector, torque meter or rubber winder with a view to getting an equivalent product made in this country for the benefit of all.

Once Dave took on board the responsibilities of the Chairmanship of the SMAE his flying activities reduced dramatically. This period also coincided with the onset of health problems but nevertheless he unselfishly carried on working for the Society for the benefit of all the aeromodelling disciplines.

In spite of the incapacitating nature of his illness which prevented him continuing his hobby as a competitor he remained ever the optimist. He continued to serve on the Northern Area Committee and, latterly, was arranging to travel to the forthcoming World Championships in France.

Dave will be missed. Our sympathies are with Liz. **BK.**

Charles Hampson Grant
America's Grand Old Man of aeromodelling left his favourite flying fields for the guardian

angels on January 15th. Most of his 92 years had been steeped in aviation, model and full scale. Through his famous book 'Design for Flight' and his pioneering KG-1 power model of the early 30's Grant's influence had spread internationally. As a founder of AMA, and editor of Model Airplane News 'Charlie Grant' was in a position to lead and educate. He was a maestro in both capacities, giving opportunity for innumerable other famous names to mature under his guidance. Struhl, Taibi, Willard, Stahl, Thomas and editors who in turn followed his stimulus with equal ability. Al Lewis, Bill Winter, Howard McEntee, Walt Schroder among them. Aviation has passed through many phases and 'CG' saw each, explained them through his Design Forum contributions and most important, envisaged the inspirational link between the functional model and full size design – for which so many present captains of US industry are possibly grateful. **RGH.**



In the Southern Hemisphere such things as thermals and water down the plughole rotate in the opposite direction! Martin Dilly checks it out under Brian Borland's guidance – see 'Trial by Kiwi'.

progression of a starling, or a duck's moorland flight, revealing every secret of their propulsion in full-frame close-up must surely have been artistry of montage – or was there R/C helicopter work in there somewhere? What we can say is that the outstanding footage of storks crossing the Strait of Bosphorus was achieved by the skills of Clive Hall, a name familiar in control-line circles twenty or so years ago, who was asked to build a camera-plane to fly with the migrants. Austere model design was the result of a home-computer programme to ensure all parameters were filled; and the pod-and-boom pusher with eight-foot wings painted in stork-like feather pattern was guided from Europe

to Asia amidst a mile-long flock of 3,000 birds with breathtaking results.

More secrets to be revealed, we hope. Questions are being asked...

Did you see (2)...

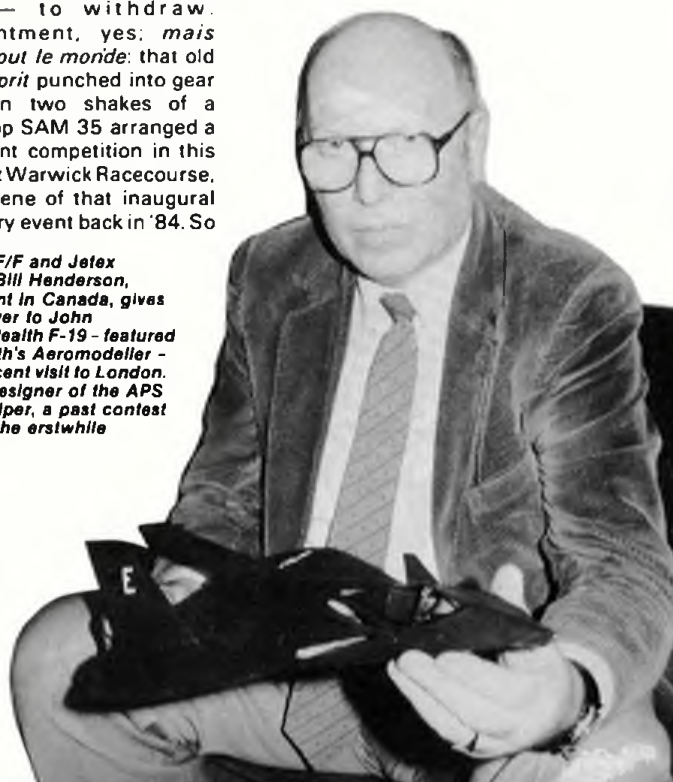
Not that we watch the programme often, honestly; but we couldn't help homing in on the end of a recent 'The Price is Right' when the winner revealed to Leslie Crowther, the studio audience and several million viewers (all right, we have seen the occasional programme or two) that he built and flew model aeroplanes... odd, really; we hadn't noticed a single motor or piece of R/C gear amongst the goods in the competition! We're

not naming names, but if your flying-field companion calls out 'Come on down!' to his model you'll know, won't you...

Anniversary Wake

The French 'Emmanuel Fillon Jubilee Event' for Vintage Wakefield models, originally scheduled for 8-9th August at Reau-Villaroche, near Paris, has been cancelled because use of the field has been lost. For a time there was hope that an alternative venue at Niort, further away towards the West coast, would enable the meeting still to take place, but organisational difficulties have forced the 4A group – France's association of Vintage enthusiasts – to withdraw. Disappointment, yes; *mais courage, tout le monde*: that old vintage *esprit* punched into gear and within two shakes of a folding prop SAM 35 arranged a replacement competition in this country. At Warwick Racecourse, in fact, scene of that inaugural Anniversary event back in '84. So

Long-time F/F and Jetex enthusiast Bill Henderson, now resident in Canada, gives the once-over to John Emmett's Stealth F-19 – featured in last month's Aeromodelleur – during a recent visit to London. Bill is the designer of the APS Vindskeenviper, a past contest winner for the erstwhile 350 unit.

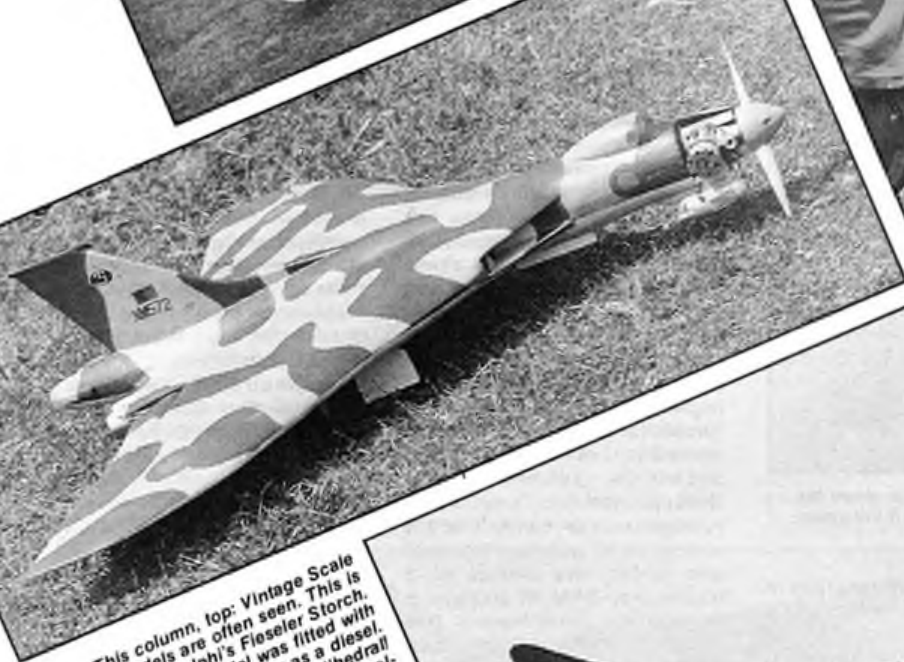


Left: Famous half-size Auster-inspired model from 1948, renovated by Jim Shelley, is seen in traditional Old Warden sunshine.

Coming up ...



...Our



This column, top: Vintage Scale models are often seen. This is Mario Gandolphi's Fieseler Storch. Large free-flight model was fitted with an HP61 glow engine running as a diesel. Purists will shudder at that dihedron! Above: Remarkable OS-powered control-line Vulcan appeared - typically - five years ago. Right: Dakotas are always popular. This one is 3-line equipped and flies in invasion markings. How about a civil version or two? Further right: Characterful APS Bleriot by Alan Jupp has pendulum power. Bottom: Robin James always flies a selection of interesting CO subjects, here's his Davis D1A.



Probably the most remarkable F/F model ever seen at a Scale Rally was Dennis Binnie's huge Lancaster, eight-foot span and weighing over five pounds. After a day of toil on the Fox 25s, the Lanc was smashed after a stall on ROG. . . . Spot the builder! Below: Enclosed is another attractive diesel R/C job. Below right: A fragment of cockpit Rohnbach Roland. Below right: A fragment of Chris Fardell's museum-quality R/C Curtiss Seahawk, seen last year. Bottom: Returning to the compound after another fine flight, a large Stampe engulfs its owner . . .



1st Scale Rally

Old Warden Airfield is again the setting for our annual scale pilgrimage in June. Here's an appetizer. . .

SURELY NOT? But yes, it's true - our midsummer Scale Rally celebrates its 'twenty-first' on June 20th and 21st this year. From one-day beginnings this was an event always bound for success, its essentially 'fly-for-fun' spirit attracting more participants than many a Nationals until demand was such that an inevitable expansion into Scale Weekend just couldn't be resisted, doubling not only the chance to fly but the opportunity to visit the hallowed Shuttleworth Collection at this timeless site.

It's interesting to reflect. Back in '67 - the occasion of the first Rally - there were all of thirty-seven entrants in the three flying categories, over fifty per cent of which were R/C (and half of those were rudder-only). Compare that with the three-figure numbers expected nowadays - given the routine pact with the weather gods - and you have irrefutable evidence that all's well on the Scale scene. Many of the names at those first rallies have vanished from the arena; others maintain their interest or come and go - but it is the thriving growth of new enthusiasts that guarantees the continued success of this premier event in the Scale modeller's calendar.

The attraction of the off-beat never wanes. Back in 1967 the keen observer could spot, amidst the scattering of SE's, Moths and Spitfires, a Sopwith Snipe, a Beaufighter, a DH Humming Bird (whose was that?) and a Beardmore WB IV, if you please! Last year saw a pair of Focke Wulf Ente canards, an Armstrong Whitworth XV airliner and a Supermarine Night Hawk, to mention the merest percentage.

What will there be to enthral this time? Go along and find out! And take a model. . .

As ever, the 'fun-fly' proceedings will be the subject of informal judging; criteria for award will be sheer impressiveness of subject or quality of flight - or amount of incredulity sustained by the observers! In addition, SAM 35 will again run the Scale designs; there will be an all-comers Maselfield Trophy competition for Vintage Keil Kraft/Veron rubber scale mass launch event; and in association with Chart Micromold a relatively informal CO₂ scale contest will be run on a 'best three of five flights' basis. Lastly, subject to final arrangements, there will be an award for the most impressive F/F power scale model to perpetuate the names of those two enthusiasts *extraordinaires*, Fred Longbon and P.E. Norman. Final details will appear in the July issue of this magazine. If you can't wait, ring the Aeromodeller office on 0442 41221. See you there!



Build this little gem for free-flight
or radio control! Over to Ben Buckle . . .

DIAMOND DEMON

THE DIAMOND DEMON was a Bay Ridge kit manufactured by Consolidated in the Bronx, New York City, in 1937. I don't know who the designer was but Leon Shulman, Ray Heit and Maurice Shoenbrun were local club members and influential designers at the time so let's attribute it to them jointly. The model has all the hallmarks of an East Coast design: low centre of lateral area, low wing loading, large tail plane and fin. Even more attractive is that it possesses a reasonable nose movement. Some of its contemporaries, Shoenbrun's Gladiator for example, have ultra-short nose moments which make them very difficult propositions for conversion to radio control.

Construction is very simple which made the Diamond Demon very popular with the 'Build it Friday - crash it Sunday' brigade. I have stuck very closely to the original construction. The only changes are in the tip outlines which were meant to be built up from little segments of balsa: not the best arrangement; so you will see that on the drawing I indicate laminated outlines which are strong and very easy to build.

Control surfaces are a large rudder and just half an elevator, both with very small movement. This combination produces absolutely viceless control. The receiver and two standard servos are driven by 350maH nicads.

Covered in Solartex and ready to fly, the model weighs 22oz, giving a wing loading of 8oz per sq foot and a first rate glide. In the pictures you can see I have fitted the 'DD' with a new Irvine Replica Mills .75. This results in a gentle, safe climb in light winds.

A PAW 100 gives a better climb, but a PAW 1.49 is really just a bit too much for comfort! The perfect engine would be a Mills 1.3...

I would like to emphasise one thing. Putting two-function R/C into the 'DD' has *not* made it into a radio model! It is still very much a F/F job, needing correct trimming to get it to fly well. If you regard the radio as more of a 'leg saver' than anything else you will get more fun out of it. I have proved conclusively that the Diamond Demon is non-aerobatic - it survived several 'close encounters of the turf kind' in the process!

Comprehensive building instructions appear on the plan. One final note: the centre of gravity position shown is very safe, so there is room for rearward movement which will improve the glide; but I can leave that to you I'm sure.

See you on the field!

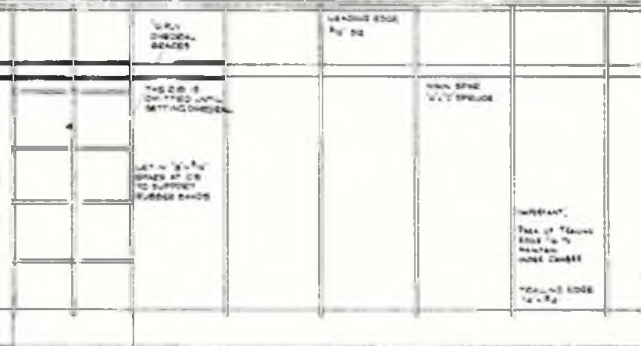


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But is probably the name of
Leon Shulman

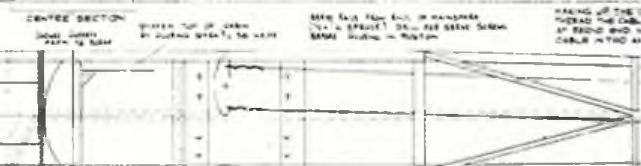
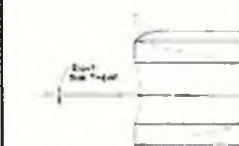
RECOMMENDED CONSTRUCTION SEQUENCE
1. FLY OUTLINE & FORMER A TO H
2. CLUTCH & CABIN SIDES
3. TAIL PLANE WHILE CLUTCH IS BEING
4. FUSELAGE ASSEMBLY TO SHAPE IT
5. WING ENDINGS & SUBSTACE
6. WING UP RIBBED AND GLUED UNDER
COMPLETE TAIL, RADIO INSTALLATION
7. 1" ENGINE, MAKE TANK & ESCO
8. WING
9. FINISH RADIO & ENGINE
10. BATTERY & FUEL OVER

CONSTRUCTING THE WINGS

1. GIVE THE PLAN AN IRVINE FIN PANEL, "TAPERED EDGE" (NOTE THE PACKING FOR UNDER CHAMFER) AND 1" FLY OUTLINE
2. TAPE STRIP THEN POSITION FROM 80% AND 20% DOWN
3. GLUE IN 80% AND LEADING EDGE
4. BUILD UP TO 20% WELL AND THEN CLAMP FOR 24 HOURS
5. TAIL BODY END OF SPARE, L.E. ETC
6. SET WING PANELS IN LINE AND TO CORRECT CHORDAL ON EITHER SIDE OF FINISH SECTION
7. JOIN BY GLUING CENTER SECTION OF WINGING AND LE IN POSITION. BUILD UP TO 20%
8. ENLARGE SPARE SLITS TO ACCEPT CHORDAL BEARDS THEN SPREAD THEM IN POSITION
9. 1" C'S SPARE AND THE REINFORCEMENT



CENTER SECTION



DOWN & SIDE THROUST

- START WITH ONE 1/2" (3/8") OR 3/4" (1/2") THROUST
- RIGHT SIDE THROUST
- RIGHT TO GIVE 1/2" (3/8")
- CLAMP OF LEFT HAND
- CLAMP CLAMP 1/2" (3/8")
- RIGHT 1/2" (3/8")
- WITH 1/2" (3/8") NEUTRAL
- ON THE ENGINE AT 10% POWER
- ON 1/2" (3/8")

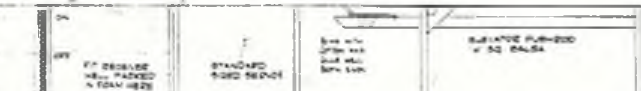


BUILD THE CABIN SIDES OVER PLAN



CLAMP SPARE BETWEEN REARERS

- WITH 1/2" (3/8")
- PERFECT BATTERY
- FROM 1/2" (3/8")
- FROM 1/2" (3/8")



1" ENGINE BATTERY (250 MAH 4000 OHM)

- REAR 1/2" (3/8")
- REAR 1/2" (3/8")
- REAR 1/2" (3/8")
- REAR 1/2" (3/8")



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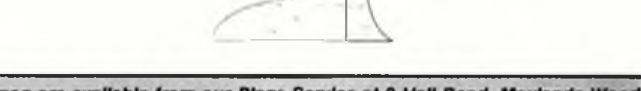
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Plans for the Diamond Demon are available from our Plans Service at 9 Hall Road, Maylands Wood



44in. Diamond Demon has plenty of get-up-and-go appeal. Try one for our Vintage Weekend in August...

FREE WITH BLANKET:
A SET OF THIS COPIED AND OVER-
SIZED PLANS FOR THE
DIAMOND DEMON. THE ONE COPY
LIFT-OFFERED VARIATION
IN POLARIS AIR DRIVE

FREE WITH BLANKET:
A SET OF THIS COPIED AND OVER-
SIZED PLANS FOR THE
DIAMOND DEMON. THE ONE COPY
LIFT-OFFERED VARIATION
IN POLARIS AIR DRIVE

DIAMOND DEMON

BB259

BUILDING THE FUSELAGE

NOTING OVER THE PLAN VIEW OF THE FUSELAGE, BUILD A CAUTION AS FOLLOWS:

1. POSITION BRIDGE BEARERS TO SUIT ENGINE.
2. OVER BRIDGE AND BALSA PARTS OF FUSELAGE TOGETHER.
3. FIT DOWN FREE PLAN.
4. CUT & GLUE IN FUSELAGE MEMBERS.
5. MARK UP FUSELAGE BRIDGE.
6. BRIDGE FACING BEARERS AND DOWN MEMBERS TOGETHER.

1. GLUE IN POSITION PERFECTLY UPON FUSELAGE FLOWERS AND IN 8 SQUARE FOR SQUARE TO FLOWERS AS SHOWN.

2. GLUE TO LARGEST FUSELAGE CORNER GLUE IN POSITION FROM PLAN.

3. GLUE IN POSITION PERFECTLY FINE SIDE AND UPPER FLOWERS.

4. GLUE IN POSITION FUSELAGE SIDE AND CORNER BEARER.

5. FIT BRIDGE BALSA PLUG (B) & (C).

6. BRIDGE FINE BRIDGE BOLTS.

7. FUSELAGE IN LEE AND HINDERS SUPPORTS.

8. BRIDGE FINE BRIDGE BOLTS.

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100. BRIDGE FINE BRIDGE BOLTS.

BUILDING THE TAIL PLANE
FIT DOWN AND GLUE FUSELAGE LEADING EDGE OF TAIL PLANE MEMBERS AND TAIL PLANE EDGE
FIT ELEVATOR SPARE IF USED THEN CUT RECTANGULAR STRIPS FOR DOWN GLUE IN WHEN
REALLY DON'T KNOW STRUTS OVERALL TO THE LIFTING SECTION AS SHOWN

Industrial Estate, Hemel Hempstead, Herts HP2 7BH. Price is £4.55 including postage. Quote Plan No. BB 259 when ordering.

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I SUPPOSE IT ALL STARTED in the mid-60s. At that time Croydon & DMAC had several expatriate New Zealand free-flight enthusiasts flying with the club while they were in the UK, either studying or 'doing Europe'. Ron Magill, Nev Hopley and Bill McGarvey were active competitors, and Bill was also his country's delegate at the CIAM meetings of the FAI in Paris. In 1965 three of us were asked to proxy fly New Zealand models at the World Championships at Kauhava, Finland, and I flew Angus MacDonald's Jedelsky-winged A/2s to eleventh place there.

The high cost of travel from the other side of the world meant that few NZ flyers could compete in person, and for the next seven World F/F Championships, until proxy flying was ended by the CIAM, I was privileged both to be asked to proxy fly for some of the country's top flyers and also to team manage and select other proxies. Getting half a dozen or more highly delicate model boxes from New Zealand to Britain and back again also gave me some interesting challenges, mostly involving H.M. Customs & Excise. The RNZAF often managed to find space for them on a C-130 flight into Northolt, Lyneham or Mildenhall, and my appearance at the Defence Liaison Office of the New Zealand High Commission in London to arrange the details became a biennial event.

When Bill McGarvey returned to New Zealand in 1970 he asked me to look after New Zealand's interests at CIAM, and I have been their delegate there ever since. The NZMAA must have been reasonably happy with my efforts, as some years ago I was delighted to hear they had presented me with the MacDonald Memorial Award for services to New Zealand model aviation. Actually, because of the freight costs, I received a photograph of the award, which is far easier to dust, too. Anyhow, I carried on the work on CIAM and continued to liaise with New Zealand.

In the middle of November last I had a phone call from NZMAA President Brian Borland asking what I was doing around New Year, when the NZ Nats are held. NZMAA Council were inviting me to go and compete, and to make sure I did, they were sending an air ticket! So on Boxing

A NATS AT NEW YEAR

**Martin Dilly tells of his down-under adventures
at the New Zealand Nationals**



Day Mike Fantham delivered me and the box of gliders to Gatwick, and Air New Zealand flew me in a 747 via Los Angeles and Tahiti to Auckland, where Angus MacDonald met me 28 hours later and showed me his city in midsummer before putting me on a 737 to Christchurch.

Here Peter Wheeler, for whom I had proxied at Burgos in 1981 (the last year it was allowed) collected me and with his two model flying sons, Josh and Simon, we drove the last 300 miles to Gore at the bottom of the South Island. To put things in perspective, New Zealand stretches 1,000 miles from north to south, with most model flying activity centred on Auckland towards the top of North Island, separated by a 25 mile ferry across the Cook Strait from the other half of the country. It is rather as if the British Nats was sited in Inverness, with most of the activity around Portsmouth, and with a stretch of sea running from Liverpool to Newcastle.

The Nats itself!

New Zealand has the highest proportion of model flyers in its population of any country in the FAI, with 2,000 NZMAA members out of a population of three-and-a-half million, but the southerly siting of the Nats kept entries down to about 180 contestants in 48 events. Everything is included in the Nats; indoor and outdoor free-flight, control-line and powered and silent R/C all take place, as does the NZMAA's annual general meetings and those of several of its special interest groups.

The layout at Gore meant that most of the C/L racing events and Speed took place on a supermarket parking lot in the centre of town, the edge of the circle being about five yards from local houses; far from troubling the locals, some of them were sitting on their roofs (most of the houses are single storey) with cans of the local

Steinlager, enjoying the flying. Even firing up a Dynajet caused no problems with the very friendly populace, who seemed to regard having the year's major model flying event in their town as a privilege. C/L Aerobatics, Combat and 'B' T/R were flown over grass in front of the grandstand at Gore showground, where there was also a flying spectacular for the public on the last day of the Nats. This featured the Dynajet airborne at last, though normal NZ tradition requires this to be flown at midnight on New Year's Eve. Other attractions included a couple of full-size Midget Mustangs in a fly-by, demonstrations of free-flight by some brave souls who launched from a field upwind from the showground and attempted to D/T into it, and a timely spot of HLG thermal spotting by Paul Lagan who showed the potential of the class as his model overflew the showground and D/Td into the caravan site downwind of it. A Fletcher top-dressing aircraft and a Miles Hawk flown by outgoing NZMAA president Brian Borland formed the R/C scale part of the show, along with a quarter scale Piper Cub which was towed round the arena behind a tractor before flying. Some R/C aerobatics and helicopter flying were included, along with a small demonstration of 'Aggy' flying, a local speciality of which more later, and C/L aerobatics and a 'mocked-up' hare-and-tortoise team race, with a Class 'B' .29-powered aircraft flying against a 1/2A one.

The bit that involved me seemed to stem from my owning a red track suit and also my having mentioned that I had a yen to try my hand at Combat, in which I last indulged about 1958. The next thing I knew was that the show programme included a NZ versus UK combat match, featuring Father Christmas. A quick familiarisation flight with a Tiger Cub model fearlessly loaned by Richard Dalziel, and the addition of a cotton-wool beard had me ready for the fray. Vertical and horizontal eights, and inverted attack and evasion seemed to come back to me quite quickly, even when Father Christmas was ganged up on by a couple of enthusiastic young Gore MAC combat flyers instead of just one; the match ended with a cut each to Britain and New Zealand, and my re-discovery of the fun of

flying in a different contest class with a different challenge.

This brings out one of the main features of the NZ Nats. A lot of competitors flew in several disciplines, R/C and F/F, for instance, or C/L and Indoor. For the most part the F/F events ended by lunchtime and modellers then watched or competed in something else. Outdoor free-flight was on a large area of paddocks, that is, grass fields normally used for sheep grazing. New Zealand, incidentally, has 90 million sheep, against 3.1/2 million people. Low electric fences were turned off by Dave Falconer, who owns the property and is a model flyer himself; he went to great lengths to make life easy for competitors, making a shearing shed available as main control, buffet and model repair area. He also found space for R/C soaring, scale, helicopter and aerobatics on other parts of his land. On F1A day, the only wet and windy one of the five days, Nats, a large field of oil-seed rape which varied from 30-90 feet deep lay downwind between the launch area and a flooded open-cast coal mine. Nobody made it to the water, but on the first round half-a-dozen of us D/Td into the yellow rape, which in Britain would be regarded as an absolute 'no-go' situation. On arrival at the edge of the field we found Dave Falconer not only encouraging us to wade straight in after the models, but joining us as we got soaked to the waist in the soggy crop. Before the next round he had draped a pair of waterproof over-trousers on the upwind fence for people to use when they went into the crop again! British farmers please copy . . .

Details and differences

One nice touch of elegance was new NZMAA president John Malkin's immaculate 1951 Chevrolet limousine which he used as a follow-up chase vehicle across the paddocks whenever I flew glider. John also had a neat chart recording thermistor in which a Japanese alarm clock formed the drum drive and a short rubber motor was used to power the used paper take-up spool. He was using very light Honeywell purpose-made chart recorder pens with the tips at right angles to the pen body; not cheap, these, as they retail at around £5.00 each. In common

Heading: Blue sky and lots of space . . . Betty Malkin - second in the Ladies' event - launches as husband John mans the stopwatch. Below left: Maximum effort here as this combat wing snarls into action. The opposition, lining up to pounce, is just visible at right of photo. Below right: F/F Control was this sheep-shearers' hut provided by Dave Falconer, owner of the site. John Malkin's concours '51 Chevy adds class to the setting.





with several flyers he also used a digital thermometer with a pole-mounted remote sensor.

Unlike most British contests there was considerable emphasis on processing, and it was a requirement for the timekeeper to take the un-zeroed stopwatch back to the contest director who then read the time before recording it, a process which did tend to make the formalities a bit protracted. Competitors in the FAI classes in New Zealand usually bring paper templates of their aircraft for processing in the event of a win or place, and all the FAI entries were weighed the evening before flying started. In both control-line and free-flight there was a good deal more junior involvement than we currently see in Britain, and at the prizegiving the top juniors in most events got prizes, thanks to extensive support by the model trade and others. British manufacturers and retailers please copy; after all it is your future at stake, as well as model flying's...

Every day there appeared a new edition of Fly Paper, the Nationals newsletter, which contained results and brief reports of the previous day's flying. This also helped to remind competitors that there were other types of flying as well as their own taking place at the Nats.

One aspect of flying in New Zealand that soon came to my notice is the thinness of the van Allen belt. This is the layer in the ionosphere that screens out a lot of the ultra-violet radiation from the sun in most of the world; but it is thinner near the South Pole. Within the first day's flying, with well over 50% cloud cover, I found that the top of my head, still covered with hair, had blistered and I had quite a severe case of sunburn on the upward-facing slopes of the rest of the bits of exposed Dilly. This explained why a lot of people had good



smears of zinc sun-block on their faces and I caught on fast.

Some of the events at the Nats were unusual to a Pom. Instead of Coupe d'Hiver, P-30 is flown as the small rubber class. It attracted a respectable entry of twenty-two compared with ten in Wakefield and thirteen in Open Rubber. NZ Open Glider was an unofficial event, but was basically for non-circle hook-equipped aircraft; in fact circle hooks were allowed if flown unlatched. This looks like a worthwhile class to fly in Britain, if only to encourage those who think they are uncompetitive with a straight-tow model today. Novice R/C aerobatics also seems a sensible idea. At the Nats this was won by Noeline Craighead, wife of Ross who is on the F3A World Champs team this year; in fact they both flew the same aeroplane, and Ross won F3A equally convincingly. But for me the eye-opener of the Nats was Aggy . . .

Add it up . . .

Aggregate is similar to our own Scramble events, but flown with models mostly powered with diesels around 1cc. It had the second largest entry at the Nats after Outdoor HLG, and was flown in ideal flat-calm evening conditions. The aim is to score the highest total airborne time in a half-hour slot, with a three-minute maximum per flight and the requirement to retrieve each flight on foot and return to the timekeeper to launch. With 36 aircraft (many of them Tomboys and the like) pattering round at little more than head height it is odd that there were no hits, though I did see some people catch their models while the engines were still running. Another approach was to attach a cloth streamer a couple of yards long to the tail in order to encourage the model to

fly straight upwind under power, thus reducing the retrieving distance. The top three all scored over 23 minutes! Several flyers used aircraft designed specifically for the event, including winner Paul Lagan, now returned to New Zealand after some years in the Australian Air Force. Obviously high performance is a bit of a disadvantage in Aggy, and one competitor used an APS Windbag - the one like a cross between a goldfish and a Zeppelin - which certainly took care of the problem of too good a glide . . .

The sight of a take-off board (actually a roll of roofing paper provided by Dave Falconer) brought back memories of the Wakefield Hundred, but here it was used for both Vintage, which included Rubber, Ignition, Gas and Replica, and for Payload. For those who were not around in the days we flew the class in Britain, the latter class basically requires the aircraft to carry a dummy of a fixed weight, roughly man-shaped, and for the dummy to have windows to look out of. To me the star vintage model was Ian Henry's Hayseed C by Carl Hermes, powered by an ignition Ohlsson .60. Immaculately finished with yellow silk flying surfaces and a silver-doped fuselage, the model had a beaten aluminium cowl, but unkindly bit its owner rather badly on the finger when his attention was distracted by a nearby child.

C/L 1/2A team-race has been promoted mainly as a junior and novice class, and profile fuselages are allowed; over the three years since it was introduced the entries have risen from six to ten and then to seventeen. Even right at the bottom of the South Island the fourteen who flew in the class at Gore showed that it was a good introduction to C/L racing. Most people flew a three-quarter-size Old Blue with an

enlarged tailplane to aid stability. Plans of this appeared in Southern Speed and Team Race News, which Des MacAnelly edits.

And lastly . . .

When all the flying was over, five days after it started, there came the prize-giving and buffet. 'Buffet' is perhaps too mild a word for the fantastic array of food provided by the Gore club who ran the Nats for NZMAA, but certainly the team and family effort that characterised the Nats continued here. After a neatly-planned mock trial with me as the defendant, I was astonished and honoured to be made a life member of NZMAA, a career which began by my being asked to present the prizes. The array of silverware rivals that of the SMAE, but what made the affair unique was the enormous range of additional prizes, ranging from modelling goods, engines and materials, to umbrellas and tableware. It was good, too, to see that in almost every event there was a separate junior classification, which led to six people coming up to collect awards for most classes; the series of happy-faced young flyers made it pretty clear to me that model flying in New Zealand is healthy

Opposite page, top: Alan Thomas, over from Brisbane, winds his Wake. Model employs shoulder-mounted wing, fibreglass-rod boom and flat-bottomed aerofoil with high point at 25%. Second picture: Alan Stevenson's GeeBee uses Futaba gear and OS 120 power. Third down: Volts, flames and noise as Doug Kennedy's pulse jet model is fired up. Bottom: Immaculate Ohlsson 60-powered Hayseed C by Ian Henry was third in Ignition. Centre: Neil McDougall's open R/C soarer heads for the cumulus. Below: David Hope-Cross and daughter Annemarie prepare Dave's Gipsy Moth.



and that most of the model trade realise that its future lies with the NZMAA and in encouraging enjoyable contests like the New Zealand Nats.

Finally, could I here thank all the NZMAA members who made my stay so memorable, and thank Council for its generosity in inviting me to the Nats. The chain of New Zealand flyers who met me, fed me, housed me, transported me and showed me some of their beautiful country made me feel a bit like a cross between a shot-down pilot being passed along a network of Resistance members, and the star of a State visit. If any of you get the chance to visit New Zealand and fly at the Nats, do it, and don't miss the kumera!

39th New Zealand Nationals

Control line

Goodyear

1 Craig King	Christchurch
2 Nigel McAnelly	SMAC
3 King/Bell	Team

NZ Combat

1 Peter Williams	Dunedin	25
2 Graeme Christie	Core	20
3 Bill Long	Kaipoi	14

Novice Aerobatics

1 Roger Jones	Gore	138
2 Paul Coghlan	Well'n	135
3 Nigel McAnelly	SMAC	130

FAI Combat

1 James Robertson		25
2 Paul Coghlan	Well'n	20
3 Aaron McDonald	Gore	14

FAI Aerobatics

1 Dave Wright	Papakura	3138
2 Kim Webby	Whangarei	3100
3 David Sanderson	Wharfedale	2900

F4B Scale

1 Arthur Heenan	SMAC	1054.5
2 Kim Webby	Whangarei	950.0
3 Les Grear	SMAC	929.0

FAI Speed

1 Mark Elder	SMAC	19.00
2 Craig King	Christchurch	20.94
3 Nigel McAnelly	SMAC	26.33

FAI T/R

1 Bill Forbes	Kaipoi
2 Trevor Henderson	Christchurch
3 Robinson Team	Team

Class B T/R

1 Trevor Henderson	Christchurch
2 David McCord	Gore

1/2A T/R

1 Andrew Robinson	NPMAC
2 Fred Bennett	Gore
3 Des McAnelly	SMAC

Speed Class 1

1 Neville Low	SMAC	23.12
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Speed Class 2

1 Les King	Christchurch	20.72
2 Nigel McAnelly	SMAC	22.78

Speed Class 3

1 Des McAnelly	SMAC	22.93
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Speed Class 4 & 5

1 Merv Harris	Ashburton	14.41
2 Nigel McAnelly	SMAC	

Free Flight

F1A Glider

1 Paul Lagan	Christchurch	941
2 Martin Dilly	Croydon	858
3 Neil McDougal	Wellington	799

F1B Wakefield

1 Dave Ackery	Roskill	1260
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2 Paul Lagan	Christchurch	1204
3 Neil McDougal	Wellington	1079

F1C Power

1 Craig King	Christchurch
2 Lin Rodway	SMAC
3 Chris Murphy	Dunedin

Ladies' Event

1 Patricia Douglas	Gisborne	540
2 Betty Malkin	Wellington	496
3 Rosalie Douglas	Gisborne	478

Open Power

1 Lin Rodway	SMAC	540
2 Alwyn Graves	Hamilton	537
3 Stephen Moore	Christchurch	535

P-30

1 Stephen Moore	Christchurch	360
2 Murray Giles	Gore	342
3 Allen Thomas	Brisbane FF	324

Open Rubber

1 Alwyn Graves	Hamilton	2180
2 John Malkin	Wellington	838
3 Stephen Moore	Christchurch	759

Payload

1 Lin Rodway	SMAC	714
2 Stephen Moore	Christchurch	685
3 Neil McDougal	Wellington	673

A/1 Glider

1 David Ackery	Roskill	890
2 Neil McDougal	Wellington	706
3 Paul Lagan	Christchurch	556

HLG

1 Craig King	Christchurch	424
2 Paul Lagan	Christchurch	373
3 Simon Wheeler	Kaipoi	362

Aggregate

1 Paul Lagan	Christchurch	1423
2 Craig King	Christchurch	1406
3 Nigel McAnelly	SMAC	1390

Rubber Scale

1 John Poletti	Christchurch	58.0
2 Bill Rouse	Christchurch	48.0
3 Arthur Heenan	SMAC	46.5

Power Scale

1 John Poletti	Christchurch	986
2 Bill Rouse	Christchurch	898
3 David Hope-Cross	Roskill	778

CO₂ Scale

1 Ricky Bould	Torbay	539
2 Bill Rouse	Christchurch	530
3 David Hope-Cross	Roskill	524

Vintage Rubber

1 Alwyn Graves	Hamilton	460
2 Paul Lagan	Christchurch	447
3 John Poletti	Christchurch	361

Vintage Glider

1 Patricia Douglas	Gisborne	464
2 Terry Tank	Whakatane	410
3 Winston Copland	Dunedin	346

Vintage Gas

1 Timothy Baxter	ARF
2 John Poletti	Christchurch
3 Arthur Heenan	SMAC

Vintage Ignition

1 Bill Rouse	Christchurch
2 Allen Douglas	Gisborne
3 Ian Henry	Christchurch

Miniature Replica Gas

1 Chris Murphy	Dunedin
2 John Poletti	Christchurch
3 Paul Lagan	Christchurch

Indoor

HLG

1 Craig King	Christchurch	60.6
2 Stephen Moore	Christchurch	58.5
3 Paul Noble-Campbell	Well'n	54.3

Indoor D

1 Paul Noble-Campbell	Well'n	6.14
2 Phillip Cook	SMAC	5.43
3 Bill Rouse	Christchurch	3.32

Peanut

1 John Poletti	Christchurch	4.0
2 John Noble-Campbell	Well'n	5.0
3 Paul Noble-Campbell	Well'n	9.0

EZB

1 Paul Noble-Campbell	Well'n	378
2 Phillip Cook	SMAC	245
3 Philip Crump	Gore	179

Radio Control

F3A Aerobatics

1 Ross Craighead	Papakura	2430
2 Ray Colville	Timaru	1817
3 Rony Ruddlesden	Wellington	1790

F4C Scale

1 Phillip Laughton	Dunedin	2216.9
2 Brian Borland	Roskill	2170.6
3 Arthur Heenan	SMAC	1956.5

Large Scale

1 Alex Taylor	Gore	1856.3
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Pylon

1 Ross Craighead	Papakura	250
2 Lex Gregory	Timaru	155

Helicopter

1 Peter Rieksts	GCMFC Queensland	1672
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F3B

1 John Shaw	Timaru	8413
2 Warwick Gatland	Matamata	7805
3 Ross Garner	ARF	6936

Novice Aerobatics

1 Noeline Craighead	Papakura	608
2 John Matheson	Gore	498
2=Neville Grainger	Dunedin	496

Intermediate Aerobatics

1 Tony Ruddlesden	Wellington	1261
2 Ray Colville	Timaru	1166
3 Geoffrey Stewart	SMAC	1041

Thermal A

1 Ray Colville	Timaru	1364
2 Chris Tank	Roskill	1307
3 Ken Fox	SMAC	1289

F3B

1 John Shaw	Timaru	8413
2 Warwick Gatland	Matamata	7805
3 Ross Garner	ARF	6936

SCALE MATTERS

We preview two new projects and suggest a few more . . .



The Old Firm returneth

News of fresh projects is always interesting — and when we learn that those two most successful and experienced scale enthusiasts, Eric Coates and Terry Manley, have decided to return to the free-flight fray, then one's attention snaps on. After several years devotion to radio control scale subjects, with F/F activities confined to regular airings of the venerable DH9A and DH4, Eric and Terry have decided that the time has come to get out the Mills 1.3s yet again...

The results of their efforts can be seen in the photographs. Eric chose the compact Austin Whippet as the subject of attack by balsa knife. At one-sixth scale this means a model wingspan of approximately 43in.

Several classic Coates features will be seen in the framework shot; notably the sheet-cored tail surfaces (although we spot those weight-saving cut outs; a new development?) and crunch-resistant wingtips built in the same way. But look at those trailing edges. That thin section is achieved by the use of aluminium tube. And those lift struts have been reproduced by commercially-available streamlined aluminium tube. Seek this material out (not all model shops stock it) as it has a variety of applications to the scale scene.

A recent phone call to Eric revealed that the Whippet has now been covered and sprayed in the silver-and-black livery of G-EAPF, the best known of the breed. We interrupted the builder while he was putting in some metalwork on the dummy Anzani. Six-cylinder exposed radials

Heading shot: Unusual in its post-WWI silver finish, this Bristol Fighter by Michael Smith, captured by the camera a couple of seasons ago, could be mistaken for the full-size machine but for the absence of cockpit detail. Centre: Austin Whippet by Eric Coates is now covered and ready for F/F trials . . . Left: This Sopwith 1.1/2-Strutter, finished in the colours of No.3 Wing RNAS, marks Terry Manley's return to free-flight. Scale is one-ninth; power is a trusty Mills 1.3, mounted inverted.

involve a bit of work and we got the distinct feeling Eric was beginning to wish that he had chosen an air-cooled 'in-line' powered subject! In fact, Eric told us that he feared that too many 'R/C techniques' had been brought to bear on the construction — it's fourteen years since his last free-flight! — as model weight was causing concern. The scales currently crash down at an indicated forty ounces, but the intention is to press on... After all, says Eric, the Whippet could always be fitted with a small four-stroke and four-function mini-gear! Interesting — particularly as Eric revealed that he automatically pulls back on a non-existent transmitter stick whenever he sees a F/F scale job about to touchdown...

Terry Manley was feeling comparatively cheerful about his Sopwith 1.1/2-Strutter, construction of which, like Eric's Whippet, began just before Christmas. He candidly admits that he chose this subject because it could easily be built, there being much information on this machine, including (of course) the *Aeromodeller* scale drawing which was augmented by photos from the Imperial War Museum Library. Wingspan of this olive-drab craft is 46in, which means a 'wierdo' scale (Terry's own description) of 1.3/4in. to 1ft. or thereabouts. 'Nearly-finished' weight of approximately thirty ounces is a bit more than was hoped for — 'twas ever thus! — but Terry is optimistic about his chances. More news on both craft to follow; and we await flight trials with keen anticipation.

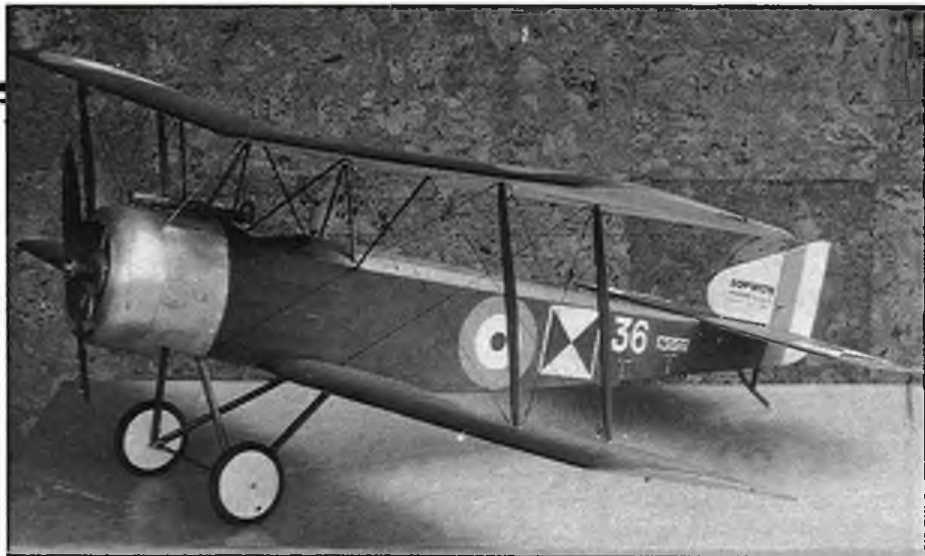
Now — what's your 1987 project? Tell us!

Ninack news

Outstanding — that's Pete McDermott's DH9A. But if you read the aeromodelling mags, or if you happened to visit the last Model Engineer Exhibition, you'll know that already. All the more interesting to learn, therefore, that Pete had cause recently to rebuild the tail of said masterpiece — since its last public appearance at Wembley, in fact. Reason for replacement was to escape from that perennial handicap for the scale modeller: an excess of model weight...

Gone is the 'Coates core' — that is, the central sheet of balsa to full tail planform enabling a scale-thin structure to be built top and bottom; this has been ousted by a conventional 'open' structure of ribs, spars, leading and trailing edges. Not normally recommended, perhaps, but the 9A's functional tail bracing wires make this a reasonable modification here, and as the model is now under the SMAE weight limit it may be flown without restriction or special dispensation.

In common with so many other scale



enthusiasts Pete favours covering with 'silk on tissue' as a light and realistically open-weaved medium, but it is a process which is often beset with problems. Often blisters and sundry other lumps and bumps appear when the silk is applied, and sometimes there is nothing for it but to strip off the whole mess and start again. Perhaps some brands of silk are less smooth than others, allowing tiny bubbles to form at the interface with the tissue. Whatever the cause, Pete has decided upon another technique which, it is reported, eliminates wrinkles on modellers' brows as well as model covering. What's the answer? Polycell!!!

Here's how it's done. One coat of 50/50

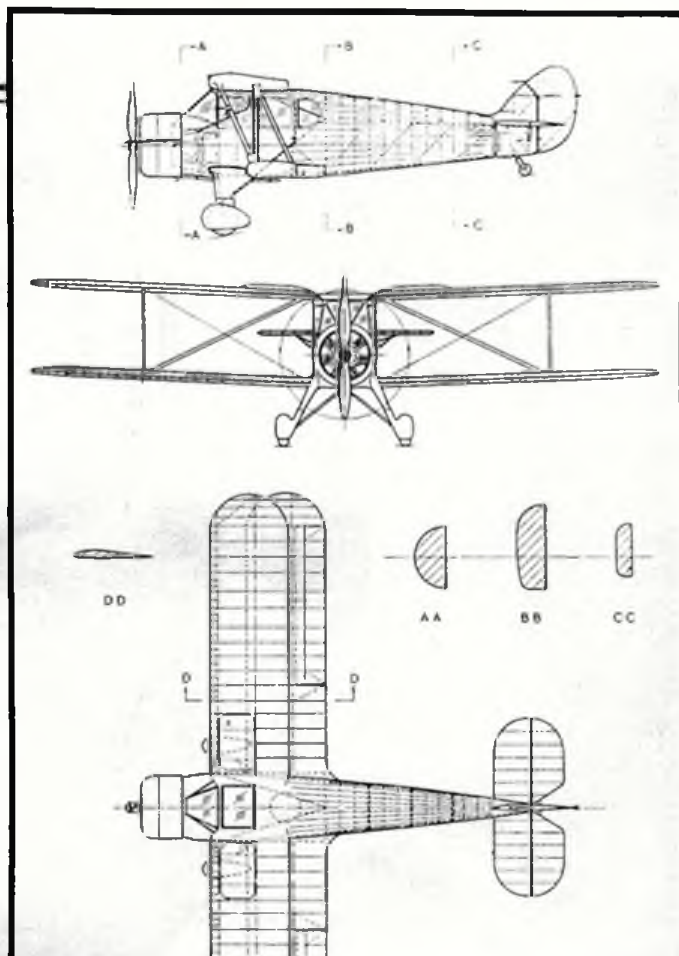
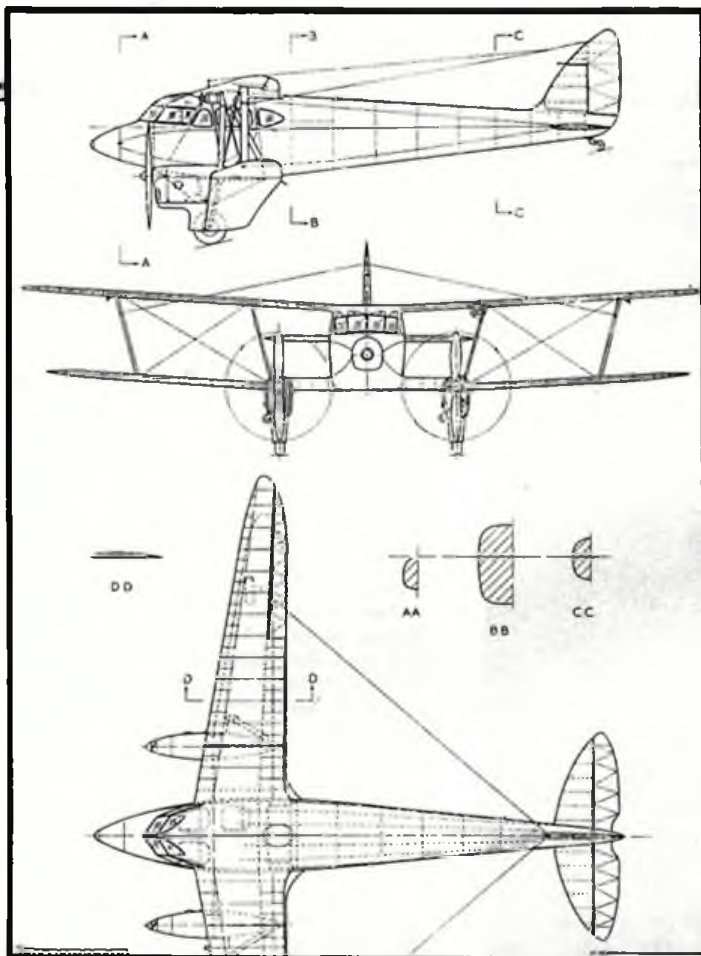
dope/thinners is applied to the tissue covering. The silk, having been washed in order to remove any starch, and then ironed smooth, is laid on top of the tissue and a Polycell mixture brushed through as if it was dope. A vast amount of evaporation takes place — the Polycell consists mostly of water — and the result is an evenly-applied silk covering, which may then be sealed with dope and colour-finished as usual. Lighter and easier — what more could you ask?

Subjects for scale

Not long ago we raised the notion of publishing more features on full-size machines of interest to the aeromodeller.

This page, top: Terry Manley's new Sopwith 1.1/2-Strutter displays sharp lines. Below that we see Terry readying for flight his famous — and long-lived — DH 4 at last year's Nationals. At right is the tail of Pete McDermott's DH 9A, now replaced by a lighter duplicate. Substantial bracing means no loss of rigidity. Opposite page, top: Aeromodeller scale drawings of DH 90 and Avro Commodore, characteristic subjects both. Below: From the States, Bob Schlossberg shows what can be done with the Golden Age P-51 kit. Model built for static display would fly beautifully if re-propped...





It's true to say that we were unprepared for the response. Many of you wrote with lists of personal favourites; others suggested categories of aircraft on which we should concentrate. From this world-wide input one factor emerged, shining bright, above all. The scale aeromodeller is a connoisseur of the obscure! Naturally, this can create difficulties because rare birds usually are not well documented. Even searching through the archives fails to reveal nuggets of entrancing information. For example, your editor has always admired the Granger Archaeopteryx, the well-known Shuttleworth 'tailless', going so far as to build a F/F version after much tape-measure work at Old Warden one freezing February day. The career of this swept-wing ultra-light has been reasonably well documented, but its 'restoration' has introduced several non-original features, not least of which is the - admittedly attractive - light-blue and silver colour scheme. It was only a chance remark from Dennis Bryant (purveyor of high-class R/C scale plans; usual disclaimers) which revealed that on arrival at the Collection this aircraft had

an unmistakably green fuselage; and if that was not enough, rubber scale enthusiast and descendant of the Granger line, Richard of that ilk, casually mentioned that the Archaeopteryx had first been painted white with a golden fuselage-length snake as decoration! Moral to scale modellers everywhere - ask questions about your pet subject!

Colour details, we know, are often the prime reason for choosing which craft to model (or which to pass by). What about all those delightful pre-war civil schemes which are so relatively seldom seen on the flying field? Why not a C/L DH90 Dragonfly - such a delicate machine - with cream fuselage and silver wings and tail, with the registration G-AEDH in black? Or an Avro Commodore for free-flight, crisp in white fuselage, silver wings and green lettering? Both are full-size subjects drawn by Eddie Riding and published in *Aeromodeller* in the 'forties...

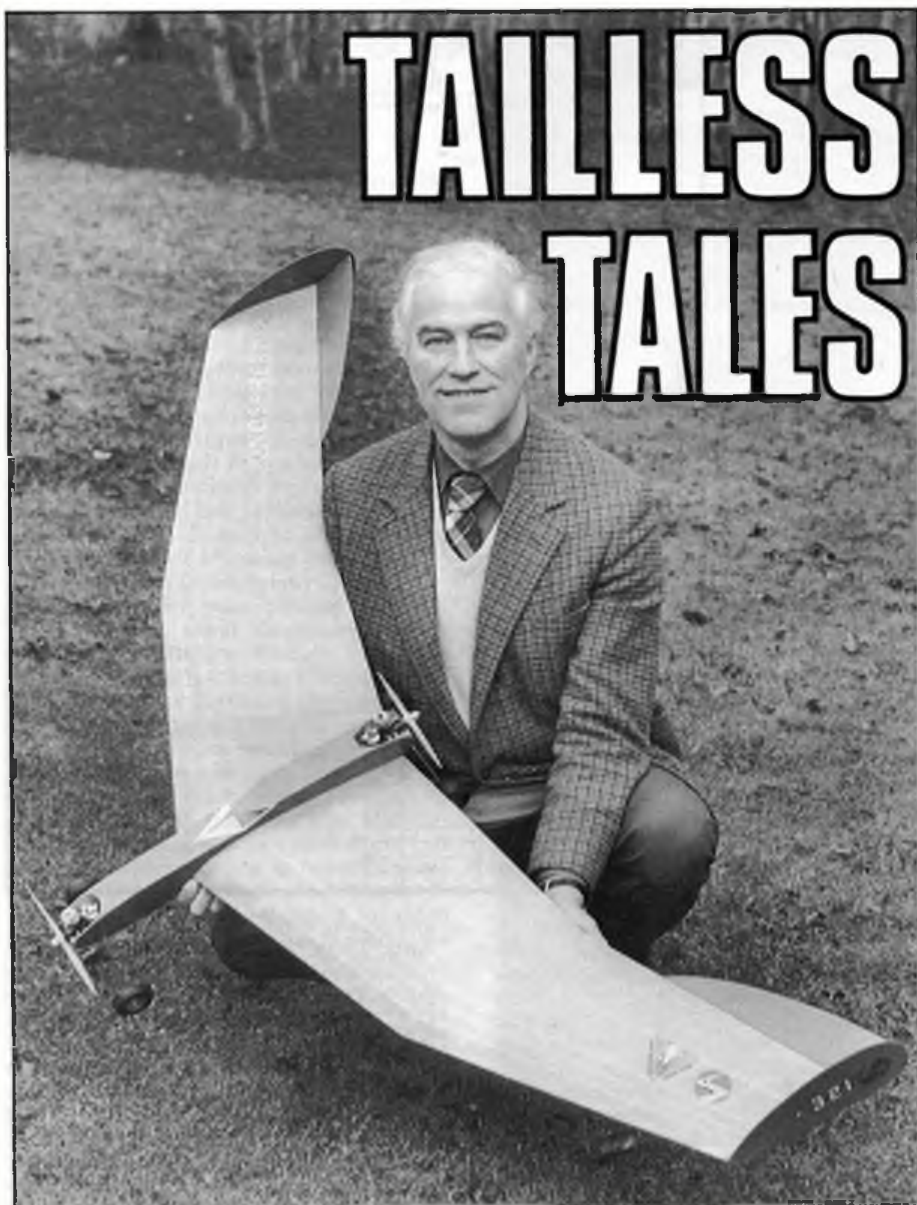
More ideas . . .

Other disciplines may provide inspiration. Who hasn't wanted to try a Fox Moth after seeing the cracking red-

and-cream 'solid' on show at Old Warden? And Tony Woollett's creations are inspirational. Note to non-Exhibition-goers: Tony's latest, the Airspeed Courier G-ADAX is in Portsmouth, Southsea and Isle of Wight colours of blue, yellow and silver. Delicious! But let's not turn this into a litany of liveries - all we'll add is that an unexpectedly fine (and thus invaluable) source of schemes is the Putnam book *British Racing and Record Breaking Aircraft* by Peter Lewis. Borrow a copy from your local library, try it and you'll see what we mean.

Continental subjects too, you said. Lots to choose from, but we're working on it. A first glance reveals some super possibilities. The Dewoitine tri-motors could have Wakefield performance (well, Vintage Wake, maybe) if you could lick the low-wing mounting and prop clearance (why not hand launch?). Time runs short - let's return to our shores and think of that chirpy choice, the Robinson Redwing, a nominated favourite by several of our correspondents, for this is one delightful biplane which we hope to provide for you in the near future . . .





Peter Fisher tells us of his record-breaking flying-wing exploits — inspiration for you to try?

FROM AN INNATE interest in the unorthodox, and early visits to the Science Museum in Exhibition Road, London, where most of my time was spent in the aeronautical collection it was natural that one of my favourites should be the Westland-Hill Pterodactyl. This full-size machine was built pre-WWII and was of the high wing pusher layout, being named after a pre-historic reptilian creature of the Pterosauria order.

As far as models were concerned, I had seen in the *Aeromodeller* photographs of various pusher type power driven flying wings, such as the AW4. There were also a few F/F power wings which featured a pusher engine mounted on a high power pod. I subsequently saw a number of this type flying; but performance seemed very poor and stability minimal. It was thus decided to develop a really efficient design.

Beginnings...

When a youth at Eton in the Michaelmas Quarter of 1950, I designed and built the first Ionosphere Mk. 1. It was a pusher of 6ft. 6in. span powered by a Mills 0.75 Mk II diesel. The first power flights took place on Dutchmans playing fields after extensive test gliding. It was found that a considerable amount of lead ballast had to be added to the nose to obtain a satisfactory glide; after this had been done the Mk.1 flew quite satisfactorily, but because of the extra weight and the relatively low output of the Mills, it was underpowered.

The Ionosphere Mk 2, which used the same wing planform as the Mk 1 was designed with the CG in the correct position by incorporating a K Falcon 2cc diesel in the nose, with the Mills 75 in tandem as a pusher. A four-wheel undercarriage was employed. The tandem layout was most

satisfactory, as torque and gyroscopic effects tended to cancel each other out. Engine runs were arranged so that the Falcon cut first, level flight then being maintained with the Mills. Many excellent, stable flights were achieved in late 1950.

A completely new model, the Ionosphere Mk. 3 was flown on North Field, Eton during Lent, 1951. This was a tractor cabin model of seven feet span, powered by a DC 350 Mk.1 diesel. She had many excellent flights; and a smaller, 36in. Mk.3 was designed for the then-new Allbon Arrow glow motor the same year. The Arrow was a great disappointment, as power was far below expectations, and an ED Bee was fitted to obtain the required performance.

In pursuit of increased performance the Mk.5 was designed with sheeted leading edges, capped ribs, and built up T. E. Span was five feet, and the model was designed to comply with the FAI Power F/F formula current in 1951. Power was the same DC 350; and the model flew extensively at Fairlop. Pictures of this machine appeared in *Aeromodeller* at the time. On the way to this famous flying site I used to run up the engine in the end coach of the Underground train, which was filled with modellers! In the quest for still more performance, a new fuselage with an inverted DC 350 Mk.II diesel was built for the Mk.5B.

Using the same planform, but with a new fuselage featuring a 'vee' windscreen, the Mk.6 was designed for the very powerful Dooling .29 glow motor. This model flew in a most impressive way at Fairlop during the summer of 1951. Other versions of the Mk.5 and 6 were flown with Yulon 30 and Frog 500 power units. With assistance from my brother, we managed to get several of these airborne simultaneously.

Developments...

Work now started towards a larger R/C version, but at this stage the models were still F/F. The Mk.7 was designed for the DC 350 in front and an Elfin 2.49 in tandem at the rear. Wingspan was nine feet, chord was 14in. and there was a straight three-foot centre section, the outer panels being swept back at 30 degrees. It could ROG under the power of the Elfin alone thanks to the 4in. M.S. airwheels at the front, 3in. wheels being fitted at the rear. The Mk.6B was made to test the effects of boundary layer fences along the span. Powered by the same engines as the Mk.7, the 6B flew on the Rye at High Wycombe in October 1951.

On 4th July 1952 the Ionosphere Mk.8 was designed for the Ace 0.5cc diesel. Wing sweepback was 26 degrees. Wheels were Premier 'Arite'. This model was flown at the All Britain Rally at Radlett (the old Handley Page drome) and at Port Meadow, Oxford. The Mk.8B was ED Bee powered. The Mk.8C, fitted with a new Elfin 50 diesel, was subsequently sold as a plan and article to Model Aircraft magazine. This model was flown extensively at Port Meadow during my time at Oxford while reading Mechanical Engineering. The Mk.8D, with a 28 degree sweepback angle, was the model actually published in Model Aircraft in 1953. As to nomenclature I normally give a new mark number to a new airframe, but a letter

suffix after the number indicates that an existing airframe is modified, or a new engine and fuselage has been fitted.

The Mk.9 was fitted with an Allbon Dart and Elfin 50 in tandem. Design started on 15th March 1953. The model was developed from the Mk. 7 and 7B. The main differences were a reduction in size of the relative centre section and an increase of the nose movement. I see from my records that the eleven angles on this model were minus 16 degrees. Span was 59in.; chord was 11.2in. and outer panel sweep-back was 30 degrees. The front-mounted Dart was inverted while the Elfin 50 at the rear was fitted upright. Finished in silver dope this model was often flown at Epsom Downs.

The Mk.10 was the next development. Span was 59in. and the Allbon Javelin Mk.2, equipped with an 8x4 prop, was mounted upright. All up weight, in spite of the metallic bronze finish was 25 ounces. Other data: wing area 652sq.in; aspect ratio 5.25:1; 30 degrees sweepback; three degrees engine downthrust, one-and-a-half degrees of right sidethrust.

Records and radio. . .

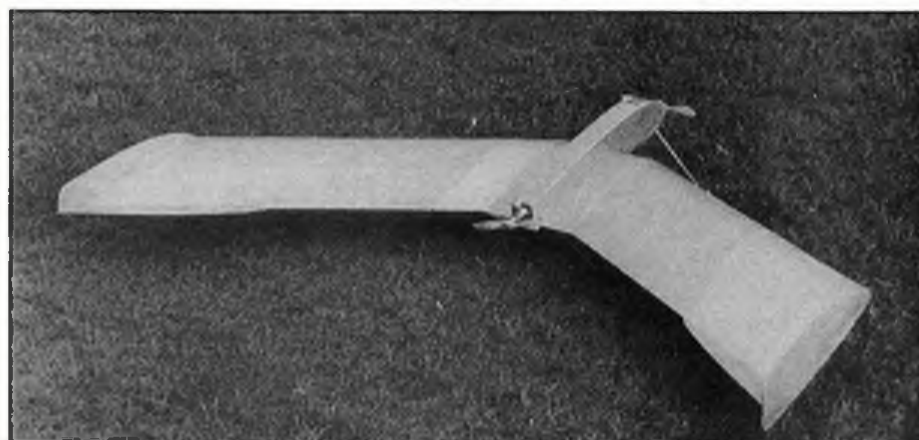
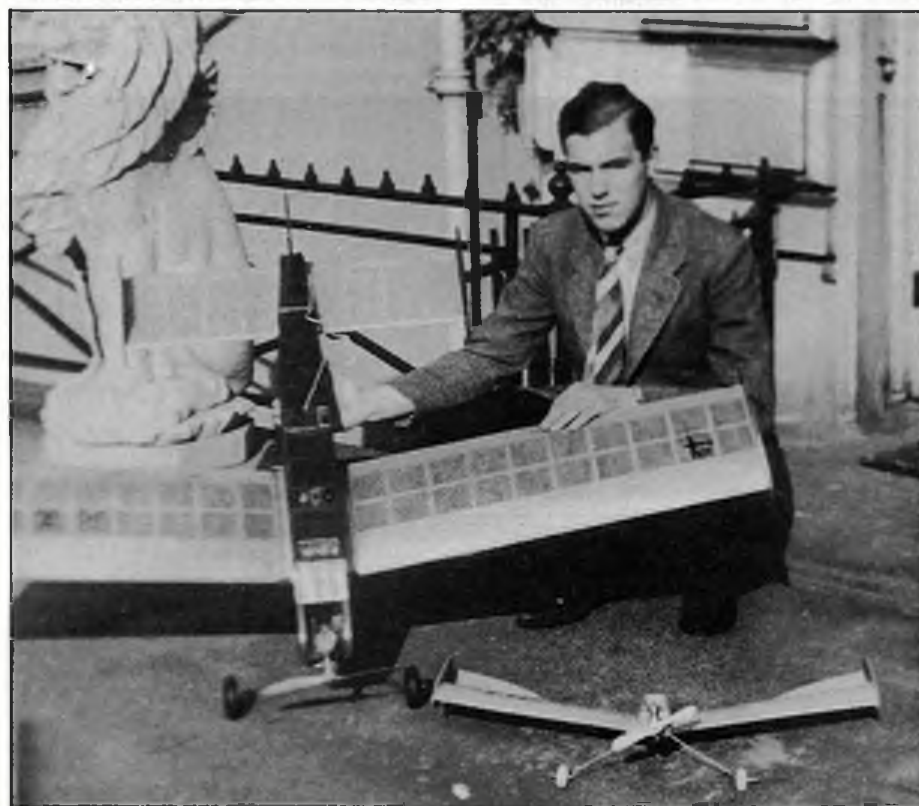
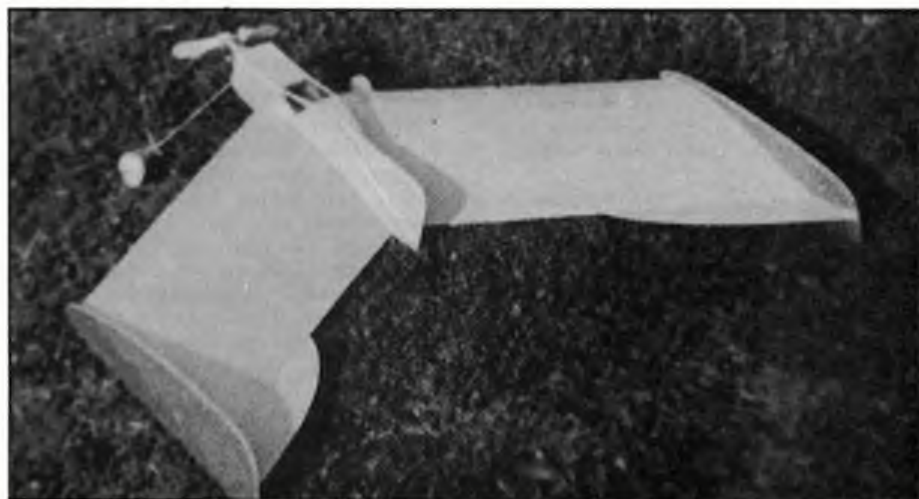
The Ionosphere Mk.11 was developed from the high performance Mk.6 and Mk.5B to comply with the 1954 FAI power specification for 2.5cc models. The machine was designed for the Oliver Tiger diesel. Total wing area was 560sq.in. excluding elevons; 622sq.in. total. Other data: aspect ratio, 5.6:1 span, 56in; dihedral, 2.2in. at tip; overall length was 18.3in. and frontal area 7sq.in. Tests were carried out at Epsom Downs race track on Sunday 10th March 1954, and the model was timed at durations comparable to those achieved with orthodox FAI class power models. It was thus decided to try to break the SMAE Open Power Driven Tailless Record. A Tru-cut 9x6 propeller was used, and all up weight checked at 29 1/2 ounces.

On Sunday 21st March 1954 the Mk.11 was driven to Epsom Downs in the back of my 1950 Lea-Francis 2 1/2 litre sports car. It was a bright clear day, with a slight wind. The two SMAE timekeepers were in attendance; and the object was to beat the long-standing Open Tailless record of two minutes. The timer was checked to ensure that the required engine run would not exceed twenty seconds; officials stood by, and the Oliver Tiger was started. The official flight was most satisfactory. After a steep climbing turn, the engine cut inside the 20 sec limit giving a smooth transition into a very flat glide. It was a cool day, with no apparent thermal activity. After a time of 4mins. 11.8secs. the Ionosphere Mk.11 was timed out-of-sight. Thus the old record had been more than doubled; and a very much higher time would have been recorded had it not been for the drift. The timers, of course, remained at the take-off

point. In spite of a spirited pursuit by retrievers, the model was given up as lost. The following day, I received a telephone call from a gentleman in Cheam who advised me that while waiting for a train he had seen the model gliding gracefully down the railway track, landing safely there just before the train arrived. He duly recovered the model undamaged, and returned her to me!

The Mk.12 of 82in. span was designed as a fully aerobatic radio controlled wing, using a Miles 5cc diesel in front and an Amco BB 35 diesel pushing in tandem.

Work started on 5th January 1954. This was the first Ionosphere to use nylon covering. The radio gear, including the servos, was all home made. The superhet hard-valve receiver was equipped with tuned circuits for each channel. Final control was by solenoid-operated elevons, combined movement of which provided longitudinal control, separate movement giving lateral control. Independent engine control allowed for powered landings, a considerable novelty at the time. Weight in flying trim was 8lbs. 10oz. Test gliding took place in Hyde Park on 9th April 1954.



Heading photo: Peter holds the latest in the line - the twin-Miles .75 Ionosphere Mk 21 of 59.62in. span, motivation for which was the research for this article. Test gliding reveals it to be vice-free... We'll keep you posted. **This page, top:** Back to 1952 and the Mk 8c, Elfin 50 powered. This was the basis for Model Aircraft plan MA157 (see overleaf). **Centre:** A relatively youthful Peter Fisher with the same model and his Mezon R/C low-winger at Prince's Gate. **Bottom:** An early tandem-motor design, the Mk 9 was fitted with 0.5cc diesels.

The Mk.12 was then placed in the back of the Lea-Francis, and as it was of one-piece construction, red rags were attached to the wing tips to alert other road users. On arriving at Hackney Marshes taxiing and reduced throttle R/C flights - at low level - were accomplished. The centre of gravity was a little too far forward, but this was rectified by exchanging the 90 volt H.T. battery for a smaller battery pack. Next flights were made on Epsom Downs, with spectacular take-offs of about fifty yards over the rough surface being the order of the day. Many excellent flights were logged. This model was exhibited on the International R.C. Models Society stand at the International Radio Show at Earls Court.

In order to obtain the lightweight Tailless Power Record, the Ionosphere Mk.13 was designed for the ED Baby. Total projected area was 366sq. in; span was 35in. and length 23in. Weight was six ounces. The model was tested at Port Meadow, Oxford during 1954. On 27th July 1954, officially timed by SMAE time keepers from Crystal Palace, the Mk.13 broke the Lightweight British Flying wing record with a flight of 3mins. 2secs. The old record had been held by M.M. Gates at 2:47. The record flight, which was OOS, ended by the Mk 13 smashing into a moving car as she glided into land four miles from the starting point!

The Mk.14, meant for competition work, was a direct development from the Mk.11A. Power was provided by the then new Allen-Mercury 2.5cc Series 1 diesel. Work started on 11th September 1954 and the model was tested at Epsom on 16th of that month after a mammoth building session. The model gained first place at the All Britain Power Tailless competition at the All Britain Rally, Radlett on 26th September 1954. The same model won this event again on 16th September 1956.

Kits and beyond

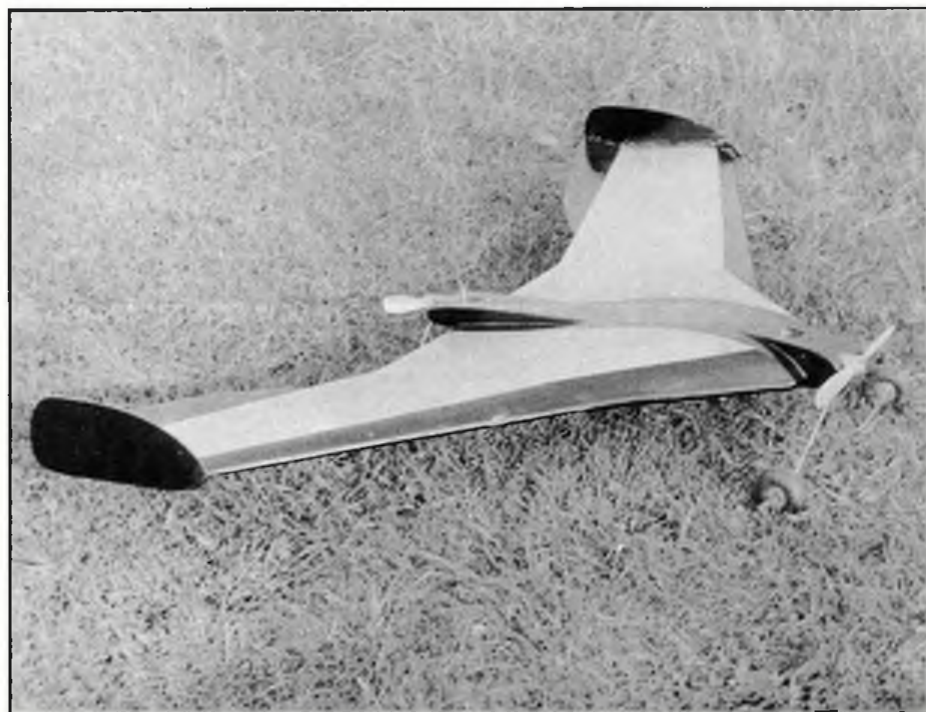
After experiments with improved Fisher-Reflex wing sections on the Mk.15, the new Mk.16 was designed using a completely new double delta planform and incorporating twin Elfin 1.49 BB. diesels in tandem. The span was 46 inches and sweepback angles were 54 and 35 degrees. The CG was 8.5in. forward of the TE at the centre section. Thanks to the new airfoil section the elevons could be set at -4 degrees only. This nylon-covered model broke all the RAFMAA Flying wing and also Open Power Records with a spectacular ROG flight from Marlborough Golf Course on 21st August 1955.

On 8th January 1957 it was decided to produce a F/F power flying wing for my newly formed model aero kit company, Performance Kits, which was operating

from 61 Four Pounds Avenue, Coventry, and 168A Allesley Old Road, Coventry. A problem arose with the nomenclature, as I had sold the Ionosphere Mk.8 plan and article to Model Aircraft magazine, and they did not want me to use this name. Thus the kit model was renamed the P.K. Ion. The prototype Mk. 17 and 18 with Frog 80 and Allbon Merlin power were flown at Bramcote Aerodrome. The kit model was of crescent wing plan, and derived the benefit of the Fisher-Reflex airfoils, as developed on the Mk.16. The Mk.18B was fitted with an extra dorsal fin, as was the Allbon Super Merlin powered Mk.19. Both were extensively tested at Bramcote and Church Lawford dromes in Warwickshire.

Only slight modifications were made for the kit production model, which was the Mk.20 with Frog 80 engine. A single nose-wheel was used to facilitate ground

Top row, across page from left: The Mk 11 gained the National Power Tailless Record Holder in 1954. Large at 82in. span was the Mk 12, which had a total of 8.5cc power. Mk 13's claim to fame was its capture of the National Lightweight record, also in 1954 - a busy year for Peter! The Mk 14, at top right, was twice winner of Tailless Power at the last lamented All-Britain Rally. Note that early AM 25.



handling on take off; and to ensure correct trim for the kit models R.M. 1 1/2in. wheels were supplied. The kit model unofficially broke the Tailless record at Bramcote, but no official timers were on hand. The kit Ion went into production in 1957, with a retail price including purchase tax, of 30/- (£1.50). We received many testimonials from satisfied users.

I built a kit model Ion Mk.20 on 27th February 1970, and this model, powered by a Mills-Reeves .75 won the 3rd Halifax International Tailless competition in the same year with times of 3:00, 2:48 and 2:52, giving a total of 8:00. Another Ion, built from a kit by Mr A.T. Slater of Shrewsbury came second in this event with a score of 7:30.

This Mk.20 was subsequently fitted with the prototype Hobbs 75 diesel for test purposes. After many years in retirement it was taken to Old Warden for the Aero-

modeller Vintage Weekend on 16/17th August 1986, where it had numerous good flights. There was a large gathering of Ion Mk.20 models in attendance at this meeting, and it is hoped that reunions will continue.

It may be of interest to note that the design of a full size Ion Mk.20 was prepared. The craft was to have been powered with a converted VW engine. Calculations were checked but construction was never undertaken, due to the very high cost of Ministry of Aviation red tape, which was greater than the total cost of the projected full size machine. I had looked forward to flying a full size Ion, but this was just not to be!

The photographs illustrating this article date back to 1950, a period of thirty-six years. In those days I used an Ensign Ful-View camera, which was followed by a Purma-Plus and then an Edinex-1. Negatives and prints from which the illustrations are taken have deteriorated somewhat with age; and much work has been done by Fiona Hughes to provide pictures, which even when new, were not particularly good. I hope that the interest factor will make up for the lack of definition!

The records quoted here may no longer be attacked, for single-flight F/F attempts in this country have been superseded by the 'AMA' system where records are achieved during competition; that is, as a result of success in rounds and fly-off. So make a start - why not enter Tailless at the Nationals and get your name in the record-books...

Ionosphere Development

Mk. number	Span, inches	Power	Year
1	78	Mills .75	1950
2	78	K Falcon and Mills 75	1950
3	84	DC 350 Mk. I	1951
4	36	Allbon Arrow, later ED Bee	1951
5*	60	DC 350 Mk. I	1951
5B	60	DC 350 Mk. II	1951
6*	60	Dooling 29	1951
7	108	DC 350 and Elfin 2.49	1951
7B	108	- as above -	1951
8	31	Ace 0.5	1952
8B	31	ED Bee	1952
8C	31	Elfin 50	1952
8D	31	-	1953
9	59	Allbon Dart and Elfin 50	1953
10	59	Allbon Javelin Mk 2	1953
11**	56	Oliver Tiger	1954
12	82	Miles 5cc and Amco 3.5BB	1954
13***	35	ED Baby	1954
14	-	AM25 Series 1	-
15	-	-	1955
16	48	Two Elfin 1.49BB	1955

Ion Development

17	34	Frog 80	1957
18	34	Allbon Merlin	1957
18B	34	-	1957
19	34	Allbon Super Merlin	1957
20****	34	Frog 80	1957

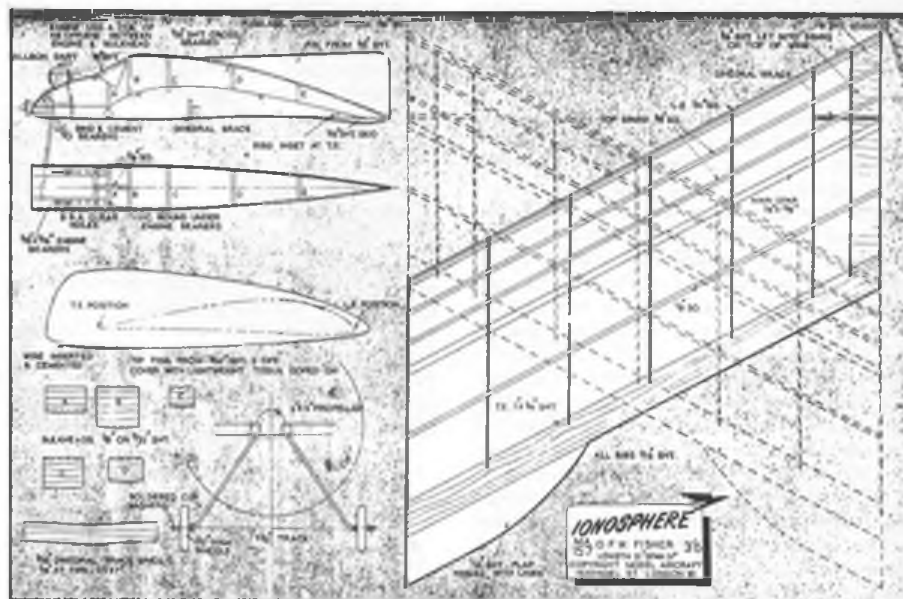
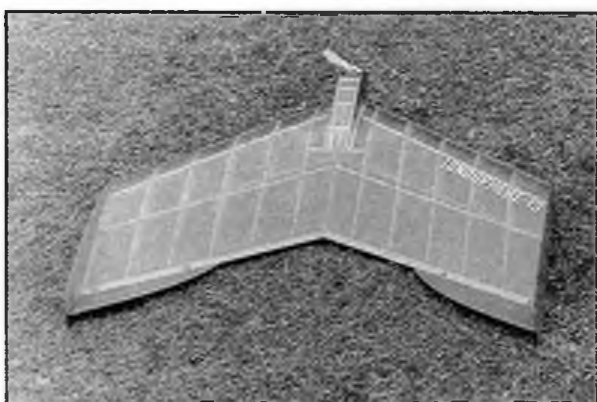
* Other versions flew with the Yulon 30 and Frog 500

** Broke SMAE Open Power Driven Tailless Record on 21/3/54

*** Broke SMAE Lightweight Flying Wing Record on 27/7/54

**** Kit subject - many others built

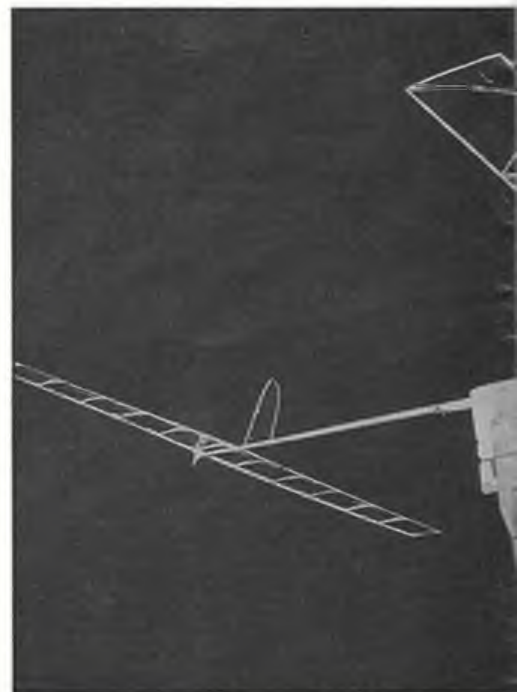
Bottom row, across page: RAFMAA Tailless and Open Power Record holder in 1955 - the Mk 16 was equipped with twin Elfin 149BB diesels. The crescent-wing kit Ion became familiar to many in the late '50s. Mk 18 shown here is an early prototype without dorsal fin. Further pre-production Ions were the Mk 19 and 20, seen here with their well-wrapped-up designer at Bramcote Aerodrome, Warwickshire. The Mk 8 plan, published in 1953, is still available as MA157. Price is £3.05 including postage.



Be a sport...try

Ceiling

Flying in sports halls is a traditional Northern activity. John O'Donnell analyses recent results and thinks ahead



THIS WINTER HAS SEEN the continuation of the well-established low-ceiling indoor events in the North of England. Contests have followed the proven pattern of four events, to a consistent set of rules, flown in sports halls on both sides of the Pennines.

Nevertheless, support was extremely disappointing, with a very limited number of 'regulars' in attendance. Entries barely reached double figures in the best-supported events, whilst some were at half this level. The same few names dominated the results lists - even if the standard of flying was exceptionally high in some cases.

Consideration of the results need some knowledge of the rules being used. Scale is decided on a points basis - depending on placings in both static scale judging and flight duration. Ties are decided on the basis of best ROG duration. PND (Peanut Duration) has a penalty system for those who win too often (or those who use variable-pitch props). Chuck gliders are limited to 13in. span and three grams minimum weight. EZB is almost exclusively flown on half-motors - strictly speaking 0.6g maximum rubber and 0.6g minimum ballast. The alternative of unlimited rubber and no ballast - but with a 7 minute max - is no longer competitive.

There were some interesting happenings at this winter's events. Scale had much the same models at all three meetings - but there were amazing variations in the scale judging. The first two models at one event

were placed last at the rest! Presumably different judges place different emphasis on such aspects as relevant documentation, ad-lib colour schemes, and the contentious matter of workmanship! As an aside, I reckon scale and concours should be different concepts...

Duration classes

PND was changed recently to allow hand-launch after it was decided that unassisted ROG was probably out-moded and certainly unenforceable. This minor amendment gave me a way to overcome my punitive handicap (of twenty-five seconds) at the final meeting. A simple retracting undercarriage provided a much-improved cruise - and about 25 sec. extra duration. It also caused consternation amongst the opposition who promptly divided into those for and against. It was quite remarkable to watch Bernard Hunt defending my interpretation of the rules!

Chuck Gliders all owe much to the Loot and Upstart. Camber-changing wings certainly work - even though the chordwise slot necessitates much carbon-fibre reinforcement. Half-a-minute under a 25-foot ceiling is no mean achievement. Only Bob Bailey has been able to ease Graham Davitt out of the top position.

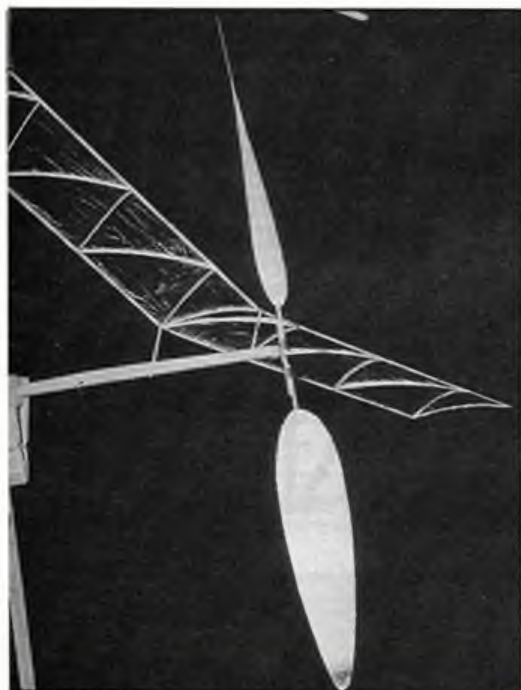
EZB is very far from easy - with eight minutes being needed to win. This is low ceiling on half-motors, remember! The tandem layout with big tail, long moment

arm, and aft CG (like 150%) is clearly the way to go. Microfilm covering allows more wood - and hence a stronger and more rigid model at the same all-up-weight. Leading exponent of all this is currently Bernard Hunt, who combines performance with remarkable consistency.

The Wigan meeting saw Peter Farrimond introduce the Brown Ale Indoor Fly-Off - a peculiar but more honest title than its outdoor equivalent. This was a one-shot event with all the 'heavy' classes competing together. Scores were computed as percentage of the flier's best contest flight that day. My troubles in the PND event left me with the opportunity to collect this somewhat inappropriate award. (It 'went down' well with others in my household - sorry!).

The Sports Halls used are typical of many that are readily available for public hire. This causes a predictable problem with finance. A much larger audience is required if these meetings are to continue. Perhaps the present events have been developed to the extent where they deter the prospective participant. Would new classes attract new blood? Certainly a 'new set of numbers' would force everyone to start again with new models. This situation worked with PND - for a while. Can we do the same trick again? Time alone will tell - but I reckon we have to try. Current ideas include scaled-down Wakefields of anyera (as a replacement for scale and/or PND) and Easier B at around two grams structure weight.

Low Indoor!



Top left: To demonstrate model flying in the auditorium at the Wembley Conference Centre is low-ceiling work of the first order! A popular performer at January's M.E. Exhibition was John Lawson's CO₂-powered vintage Scram, here seen about to depart on another tour. Potential for a new competition class here? Top centre: A typical Bernard Hunt 'microfilm' EZB design; note very short nose and long moment arm to suit the aft-CG position. Top right: Our reporter, John O'Donnell, prepares a Peanut Duration model - actually at Cardington, but the class is well-suited to sports-hall flying. Try it! Above: Vic Dubery's floatplane Taylorcraft is an excellent Vintage Scale subject. Plenty of choice in this category if anyone cares to run a competition or two . . .

1986/7 North of England Low-Ceiling Indoor Contests

Wigan, 23 November 1986.
CD: P. Farrimond.

Scale (9 entries, all scored)

1 A. Crompton	2	3	5
2 D. Wolstenholme	1	4	5
3 J. O'Donnell	8	1	9
4 D. Horsefield	4	5	9
5 M. Colling	9	2	11
6 B. Horsefield	3	8	11

Peanut Duration (9 entries, 8 scored)

1 H. Tubbs	2.52	2.35	5.27
2 G. Davitt	2.42	2.42	5.24
3 D. Morley	2.38	2.26	5.04
4 W. Murray	2.03	2.01	4.04
5 R. Boor	1.57	1.58	3.49
6 B. Hunt	1.56	1.49	3.45

Chuck Glider (8 entries, all scored)

1 R. Bailey	30.9	31.2	62.1
2 G. Davitt	30.3	30.2	60.5
3 W. Murray	27.1	27.5	54.6
4 R. Boor	26.1	25.9	52.0
5 D. Morley	24.7	25.1	49.8
6 D. Davitt	22.8	23.6	46.4

EZB (10 entries, 9 scored)

1 B. Hunt	8.21	8.30	16.51
2 G. Davitt	7.11	7.11	14.22
3 R. Bailey	6.40	7.37	14.17
4 D. Morley	6.44	7.19	14.03
5 W. Murray	7.00	7.00	14.00
6 J. O'Donnell	6.33	6.41	13.14

Brown Ale Index Fly Off (10 entries, all scored)

1 J. O'Donnell	PND	115.7%
2 B. Sinclair	Scale	108.3
3 B. Horsfield	Scale	100
4 D. Davitt	CG	91.6
5 A. Crompton	Scale	91.6

Slaithwaite, 14 December '86. CD: B. Hunt

Scale (6 entries, all scored)

1 J. O'Donnell	4	1	5
2 D. Horsefield	2	4	6
3 R. Boor	1	5	6
4 A. Crompton	6	2	8
5 D. Wolstenholme	5	3	8
6 B. Horsefield	3	6	9

Peanut Duration (10 entries)

1 D. Morley			3.09
2 J. O'Donnell	3.24	0.25	2.59
3 B. Hunt			2.55
4 G. Davitt	2.40	0.10	2.30
5 W. Murray			2.29

Chuck Glider (6 entries, all scored)

1 G. Davitt			61.4
2 W. Murray			58.0
3 B. Kenny			52.9

EZB (11 entries, 8 scored)

1 B. Hunt	8.08	8.08	16.16
2 D. Morley	7.37	7.28	15.06
3 G. Davitt	7.19	7.02	14.21

Slaithwaite, 11 January '87. CD: D. Davitt

Scale (5 entries, all scored)

1 A. Crompton	1	2	3
2 D. Horsfield	2	3	5
3 J. O'Donnell	5	1	6

Peanut Duration (11 entries)

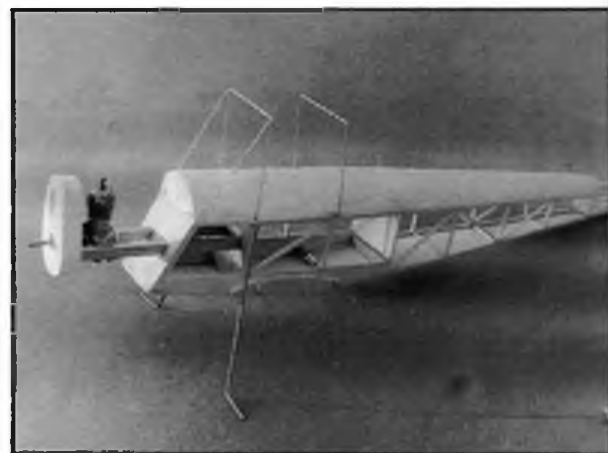
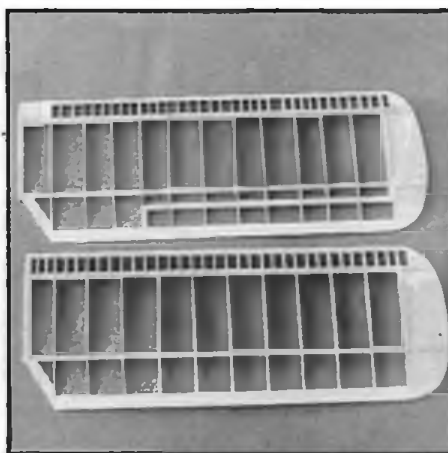
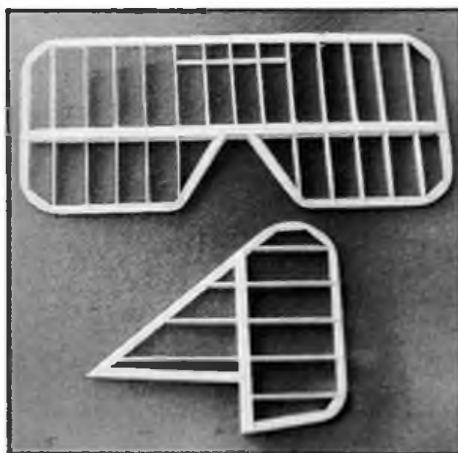
1 J. O'Donnell	3.48	0.25	3.23
2 B. Hunt			2.52
3 W. Murray			2.39

Chuck Glider (6 entries, all scored)

1 G. Davitt	30.9	30.8	61.7
2 W. Murray	28.9	27.8	56.7
3 D. Morley			50.6
4 D. Wolstenholme			50.0
5 R. Boor			48.6
6 D. Davitt			45.6

EZB

1 G. Davitt	7.42	7.36	15.18
2 B. Hunt	8.03	6.47	14.50
3 D. Morley	7.21	6.56	14.17
4 B. Kenny	6.17	6.48	13.05



IN THE JULY 1986 issue of *Aeromodeller*, Geoff Clarke included a short feature entitled 'Subjects for Scale', which was a presentation of a few three-view drawings for aircraft thought suitable for flying scale models. The Avro Avian aroused my interest for two reasons. Firstly, it was similar to the DH Cirrus Moth that I had designed and built some time ago, which is now in a somewhat well-flown state, and in need of replacement! Secondly, as I live within easy reach of the Manchester Air and Space Museum, I could obtain some detail information from viewing the Avian they have on display. Although that particular example is an Avian IIIA it does have many features common to the IVM - the 'M' indicating a metal-tube fuselage structure.

As a full size aircraft the Avian, which was first designed for the 1926 Lympne Trials was very popular. It was used by quite a number of flying schools and clubs in England and overseas and enjoyed substantial private ownership. The type has quite a number of historic flights to its credit, notably 'Bert' Hinkler's 1928 flight in the prototype from Croydon to Darwin in 15 1/2 days. During the course of a seven year production run, Avians were fitted with many types and make of engine, both inline and radial.

The all-wooden Avians, Mk 1 to IV, were grouped under the constructor's type number 594 but the steel fuselage IVM earned the new designation Avro 616 when it appeared in 1929. In common with many others of this type, Avian G-ABCD - the subject of our plan - was equipped with a 105hp ADC Cirrus Hermes, an upright installation that happily allows for trouble-free motor operation with our miniature. The full-size 'BCD' was first registered on 14th July 1930, surviving until the end of 1938. According to Eddie Riding's Avian feature in the August 1944 *Aeromodeller*, its colour scheme was typical of the period, being all-aluminium with maroon trim and lettering. In this guise 'BCD' was owned by the South Staffs. Aero Club at Walsall Airport, although it could boast three private owners before that.

The model is designed around the Allbon Dart 0.5cc motor, which I found was quite adequate for the similarly-sized Cirrus Moth. Generous motor space will allow for a variety of motors, but 0.75cc would be the practical maximum.

The fuselage

Construction of this component is quite straightforward. First build two identical





Aviate with an Avian!

Build this small-diesel scale beauty by John Watters - and take it to Old Warden for our Scale Weekend . . .

side frames one on top of the other. The longerons should be from spruce or very hard balsa. Uprights and other members can be from softer grade balsa. The plywood formers F1 and F2 should be glued together with the engine bearers to form a separate unit, F2 being pre-drilled with small holes to take the binding for the undercarriage and cabane struts.

The two completed and lightly sanded fuselage sides can now be glued into position on formers F1 and F2. After this structure has set, the two ends of the frames should be pulled together at the tail and former F8 added. Check that the structure is square and true before anything has set. Former F4 can now be glued in place, followed by the remaining top formers, F4A and F5 to F7. These should all be allowed to set thoroughly before fitting any of the bottom spacers. At this stage the cabane wires should be bound and glued to the former and cross-piece. The undercarriage wire U1 and the bottom wing holding dowels can also be positioned.

The fuselage top decking can now be added. This 1/32in. sheeting is best preformed by soaking the sheet in water until it is thoroughly wet, then carefully bending it over the formers and holding in place either with elastic bands or wrapped-around tape. Left overnight, or even lightly baked to dry out will result in the sheeting adopting a permanent curvature which makes it much easier to fit without cracking. The grain of the bottom sheeting should be across the width of the fuselage. Pieces of block and sheet balsa are used to form the nose; and at this stage the fuselage structure can be sanded smooth and the nose section blended into shape.

Cut-outs for the two cockpits are now made, and the bottom wing rib fairings added to either side of the fuselage. The

fuselage side stringers must be made from a resilient material. From past experience, general handling alone can crack balsa strips. Thin strips of spruce or bass wood are ideal for this job. At the nose the strips should butt up to the side of the vertical spacer; at the tail they lie on top.

The top wing centre section fuel tank can now be constructed (without the sheeting as yet) and the interplane strut wires are bound and epoxied to the tank spars and wing dowels. The undercarriage leg wires U2 and U3 can also now be bound and soldered in place. A small spring or elastic band is used as a shock absorber to hold the front end of U3 in place. Top and bottom sheeting can now be added and the tank is sanded to shape.

The nose/engine cowlings is best made from materials you already find easiest to work with. I used printers' thin litho plate, although a built-up balsa and card cowlings can look just as effective. All the remaining detail features such as interplane strut and undercarriage fairings, tailskid and so on, may now be added.

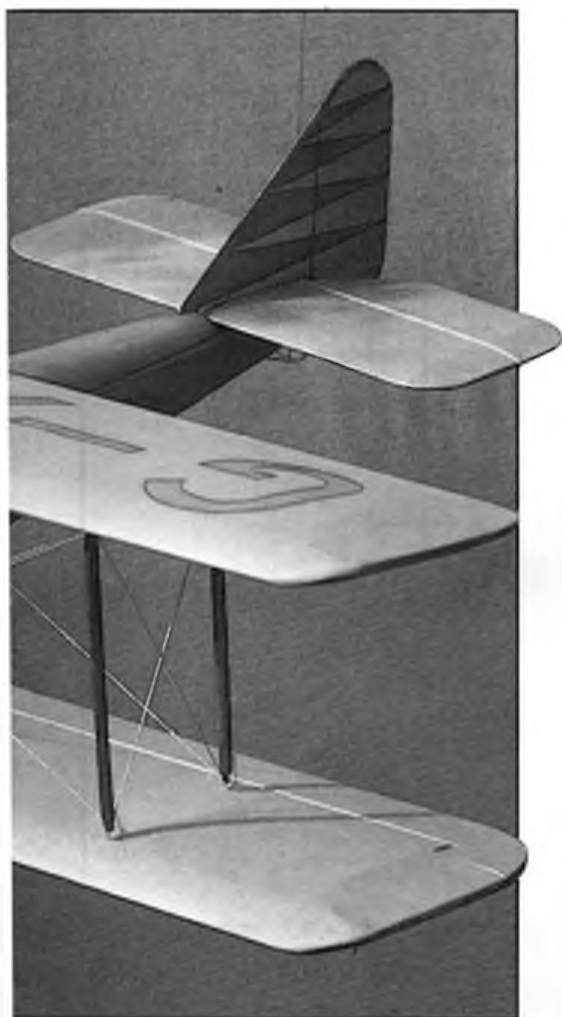
Tail and fin

Begin the tailplane by gluing together the outline pieces of 1/4 x 1/16in. balsa. After this has set, pack it with pieces of scrap 3/32in. thick balsa, and re-pin it in place over the plan. The two centre spars should now be added, gluing them onto the outline but not together.

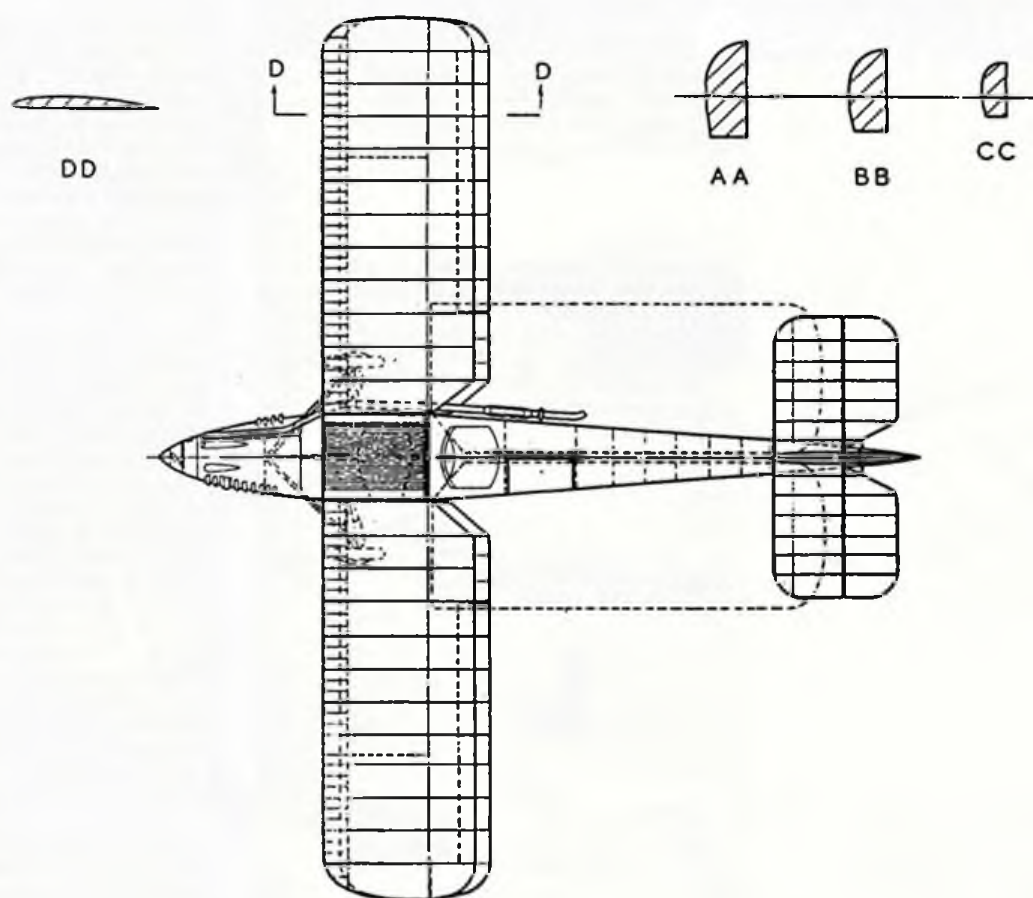
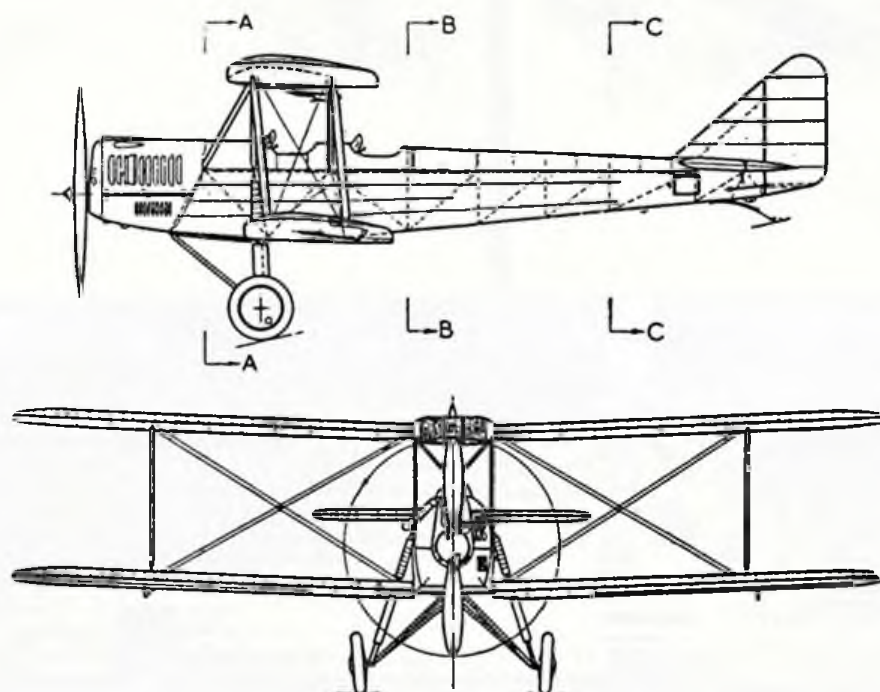
Ribs are cut from medium hard 1/32in. sheet balsa. These are best formed by sandwiching together and sanding to shape (in similar fashion to the wing ribs) before cutting out the slots with a sharp blade. Each rib can then be added in turn by slotting it into the outline and up against the centre spar. After setting the assembly can be removed from your building board and sanded smooth.

To strengthen the elevator-outline-to-spar joint, pieces of 1/16in. balsa are glued to the top and bottom of the outline, and are sanded to shape to form a wedge section as per full size.

The elevators are separated from the tailplane by cutting through between the centre spars and the outline pieces. Chamfers are sanded onto the face of the elevator spar to allow for movement. The tailplane spar remains square. Elevator hinges can be made from small pieces of thin aluminium; that used for cans of soft drinks is ideal. Glue them in place with epoxy or cyano. You may find it easier first to fix the strips into the tailplane, fitting the elevators when they have been covered.



Main picture shows the attractive lines of our Avian IVM, which is all of 28in. span. G-ABCD is in all aluminium finish with maroon - strictly 'burgundy'-trim. Parade of shots across top of page indicates, from left to right: Tail construction - laminated outlines could be used if you prefer; lower and upper starboard wing panels; basic fuselage structure; and the completed model before covering. Rugged, simple approach is adaptable to a myriad of subjects . . .



Eddie Riding's 1/72 scale drawing of the Avian IVM, which appeared in the August 1944 issue of this magazine, was used as the basis of our full-size plan. Here's your scale documentation!

Fin and rudder are built in the same way.

Finishing

I don't think it is necessary to cover a model of this size in anything other than tissue. Some modellers may disagree. This again depends upon how realistic you wish the finish to be. Having used most of the well-known covering methods, i.e. silk, chiffon over tissue and so on, I still find that if care is taken, tissue is good enough, and can still be made to look right. Whatever you decide, there is nothing complicated about covering this model. To make things easier I covered each item as a separate unit, splitting the elevators, rudder and ailerons from their respective mates. I have always found clear dope the easiest adhesive to work with. Wax the framework where necessary to prevent sticking. Give two coats of 50/50 dope/thinners to the wings and tail, and three to the fuselage. If you wish to add any detail to the covering (rib tapes or patches, for example) this is the time to do it.

All the remaining detail features can now be added. This is where the scale modeller comes into his own, putting on all the 'fiddly' bits. Flying and bracing wires can be made from a number of different materials; dyed nylon fishing line, lightweight control line wire or shirring elastic are all favourites. I managed to find a supply of silver shirring elastic, so this is what I chose for the Avian. I must admit that until recently I didn't know that shirring elastic was produced in colours other than black or white. The silver stuff

looks very realistic and can easily be replaced if broken - or when it wears out!

I have not included cockpit detail or instrument layouts on the plan, simply because after exhaustive research I still have not been able to find any. Even the Avian in the Museum had bare cockpits (could anyone help with this detail? It would certainly be appreciated).

Wheels can either make or mar a scale model. Here again the type of construction employed depends upon an individual's skill, or nowadays, what you can afford to pay for a ready-made pair. There are many beautiful examples on the market. Have a look at photographs of the Avian; you will even see some examples fitted with semi-pneumatic tyres. This can overcome the problem of thin spoked wheels, provided you can authenticate the colour scheme of that particular craft.

Assembly and flying

If you have hinged the elevators then the tailplane itself can be permanently fixed to the fuselage. On the other hand if you have built the tailplane and elevators as one unit, it will be best to hold it in place with elastic bands during trimming.

With the model completely assembled the first thing to check is its balance point. This established, we can proceed to the flying field. Glide testing and first flights are best carried out over a long-grassed area. The glide is established by launching the model from shoulder height. Diving or stalling is corrected with slight elevator trim or by packing under the leading or



trailing edge of the tailplane.

First power flights should be made with the propeller on back-to-front and with the motor running on low power. This should give little more than a powered glide. From this point gradually build up the revs and increase the motor run until you achieve the trim you desire. The Avian is viceless but keep it turning left under power.

References

I found the following particularly useful for information on the Avian: Avro Aircraft since 1909 by A.J. Jackson; British Civil Aircraft since 1909, again by A.J. Jackson; *Aeromodeller*, August 1944.

Acknowledgement must also go to Mick Oakey and Richard Riding of *Aeroplane Monthly* for their help with photographic detail.

*Above right: John chose an Allbon Dart 0.5cc diesel for his prototype but any motor up to 0.8cc will do. Go easy on the power though... Note the cropped needle valve and the substitution of a bolt for the compression screw - all in the name of power-plant unobtrusiveness. Right and below: Model and full-size G-ABCD. Close study reveals a thin trim line around wing and tail of the 'real' one (thanks for the photo, *Aeroplane Monthly*). Gel that sellotape out ready for masking!*



VINTAGE CORNER

Alex Imrie looks at early sources of material and concentrates on some discoveries found there

Historical research

Those of us who like delving into the past enjoy browsing through old books and magazines on our favourite subject. Just how far back one goes is up to individual taste, but this can change and periods previously ignored suddenly (and for no apparent reason) become areas of interest. It is enchanting to go back to the very beginning of flight, when one rapidly learns that there were many model flying machines, some of them notable performers, in existence before the Wright Brothers' success with their famous 'Flyer' in 1903.

In the early days there was little difference, other than in size, between model and full-size aeroplanes; indeed, some of the models built and flown up to the outbreak of WWI were experiments in miniature by enthusiasts who would later make a name for themselves in full-size aviation.

Invaluable sources of information are magazines like *Flight* and *The Model Engineer*. Early issues of these journals have been used to compile two items in this month's column. These are offered to show readers that in the dim and distant past much thought was expended on subjects such as free-wheeling and feathering propellers, while W E Evans' 'distance' and 'duration' record holder shows what was possible with a single-propeller stick canard ROG model over seventy years ago.

Flight first appeared in 1909 and model coverage was initially in the form of letters from readers, but later isolated articles began to emerge and by the end of 1911 there appeared a regular model section conducted by V E Johnson which was to continue into the early war years when *Flight*, after devoting less and less space to models eventually stopped this regular feature. After the war it started again under the aegis of F J Camm, but it appeared less frequently and was of smaller content. During the Twenties the hobby was in the doldrums and *Flight* coverage of model aeronautics was sporadic to say the least, although SMAE notices were frequently published in its pages. A regular monthly feature on models began once more in mid-1934. This was written by M R Knight from late 1935 until its discontinuation at the end of 1939. Some isolated model material appeared after the war up to the end of the vintage period, but *Flight*'s heyday for model reporting was without doubt during the period 1912 to 1914. The issues published during those years are a goldmine of information; each contains several pages on the subject. I recommend their study to all historically-inclined vintage enthusiasts.

Percival Marshall's *Model Engineer*, being a specialist journal, always found space for this branch of model

engineering. Its issues contain some splendid descriptions of all types of model aircraft and their power units, limited only, it would seem, by the output of the contributors. These included, at different times, E W Twining, H H Groves, B K Johnson, R N Bullock, James Pelly-Fry, Juste van Hattum, E T Westbury, C E Bowden and L H Sparey. Even after the birth of *Aero Modeller* in November 1935 some of the above writers remained loyal to ME and continued to write for that magazine. Westbury, of course, contributed material on a variety of mechanical subjects for a period of some fifty years; he is mentioned here because of his model aero engine writings. The pages of *Model Engineer* present a chronology of model aviation up to the end of the vintage period, the study of which is essential for anyone wishing to acquaint themselves with the development of the hobby in this country.

1913 Record model

Periodically throughout each year the Kite and Model Aeroplane Association held 'Official Trials' on various flying grounds adjacent to London, when official observers assembled for the purpose of observing flights for duration and distance in the various model classes, and

thus for establishing records. On such an occasion at Sudbury on 22 November 1913 W E Evans flew the twin-gear single propeller pusher illustrated here for sixty-four seconds ROG; and another ROG flight covered 290 yards measured in a straight line, thereby breaking the existing records for this class of model previously held by J E Louch (forty-five seconds) and C C Dutton (190 yards) respectively.

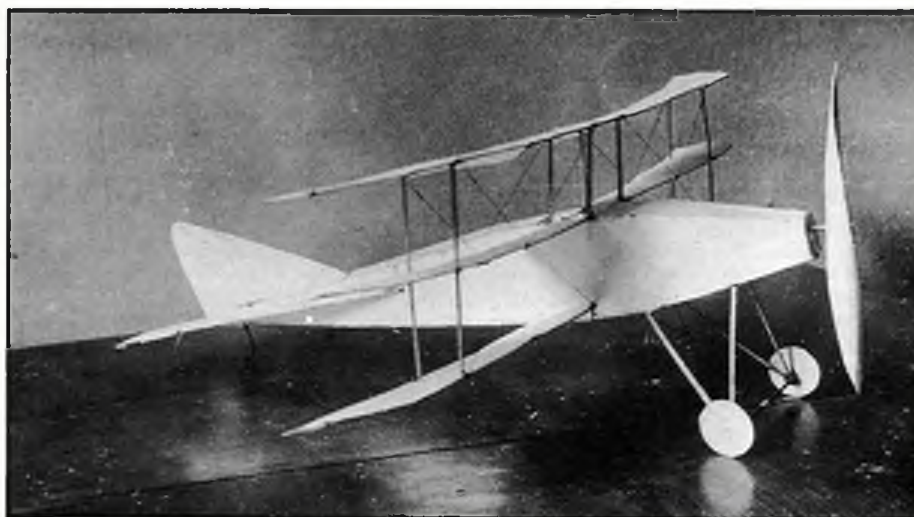
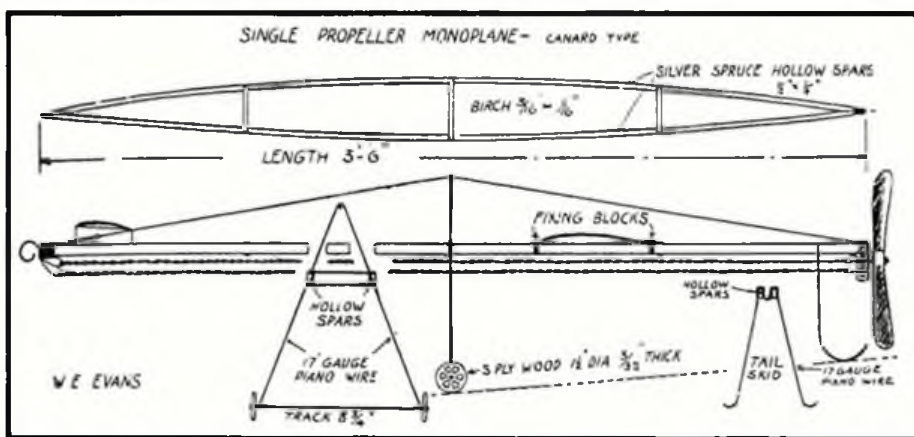
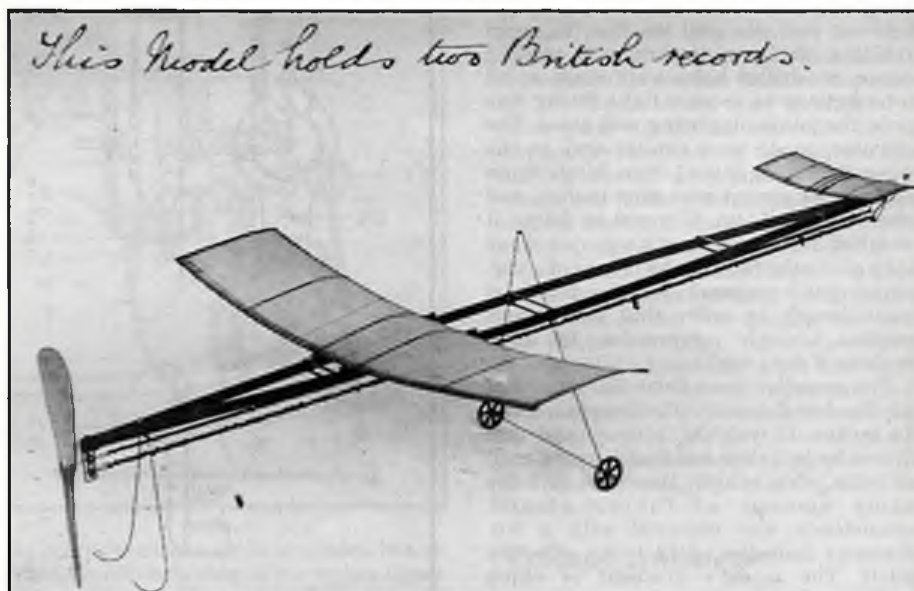
In February 1914 the construction of the record holder was described in *Flight*, from which the following account has been compiled. The techniques of working in hardwood, silk and piano wire are not difficult. Of more consequence today might be the availability of these materials. Birch, which was much favoured by early modellers is quite hard to find in the sizes required.

The fuselage consisted of two 1/2x1/4in. silver spruce hollow spars blocked at the centres and ends, planed down so as to weigh only 1/2oz. each. They were chamfered, glued and bound with thread at the ends and were held 3in. apart in the centre by top and bottom distance pieces of 3/16x1/16in. birch, joints being glued and pinned. The gearbox, which was supplied by Messrs J Bonn & Co comprised two half-inch gears and weighed only 3/8oz. complete with hooks and propeller spindle. The front hooks are better described as



loops, and these and the protector were made of seventeen-gauge piano wire in one piece, soldered together and then bound in place with thread. The undercarriage, also of 17g. wire measured eleven inches from apex to axle and projected 3 3/4 inches above the top of the fuselage, thus forming a kingpost for the thin piano wire bracing which was necessary to resist the strain of the wound motors. The three-ply wheels were fretted out for lightness; their hubs were made of brass tube with a collet washer soldered to each side, and each weighed 1/16oz. The double wire skid at the rear which also gave propeller protection was another component made from 17g. piano wire.

Main picture: We couldn't resist this one, which says it all about Vintage flying. David Baker's Lanzo Record Breaker is finished in his favourite style of red and black, each model bearing a song title or name of a musician from the appropriate era. Despite Brown Junior logo this Lanzo is powered by a Wildcat diesel! At right, top: Pioneer modeller Bob Gosling about to launch his 1914 A-frame at the first British Nationals at Gravesend in 1947. Below that: W.E. Evans' single-prop pusher record holder. The statement - in Evans' own handwriting - is quite correct! Third down: Further details of this machine. Who will be brave enough to build one? Bottom: Another early model. This rubber-driven triplane was designed and built by Otto Reder at Göttingen in 1916, where it was flown before noted aerodynamicists Prandtl and Betz.



The mainplane, which had square tips, was 27 1/2 inches span and 5 1/2 inch chord and was built from 3/16x1/16in. birch covered with fabric. It weighed 5/8oz. and employed a curved dihedral instead of the usual 'vee'. Rib camber was half-an-inch at the root, reducing to 1/4in. at the tips which were slightly washed out. Root ribs located one-and-a-half inches either side of the centre line rested on the fuselage to form a firm attachment. Only two other ribs were used in this simple wing and these were placed equi-distant between root ribs and the tips. To avoid splitting the ribs, leading and trailing edges, pre-drilled holes were made at all intersections to receive tight fitting fine pins, the joints also being well glued. The elevator, made in a similar way to the wing, was from 3/16x1/20in. birch. Span of this component was nine inches, and chord was 2 1/4in. Covered in fabric it weighed 3/16 ounce; and it was raised one inch above the fuselage by means of a 22g. piano wire framework. We give details at some length in order that enthusiasts possess enough information to build replicas if they wish...

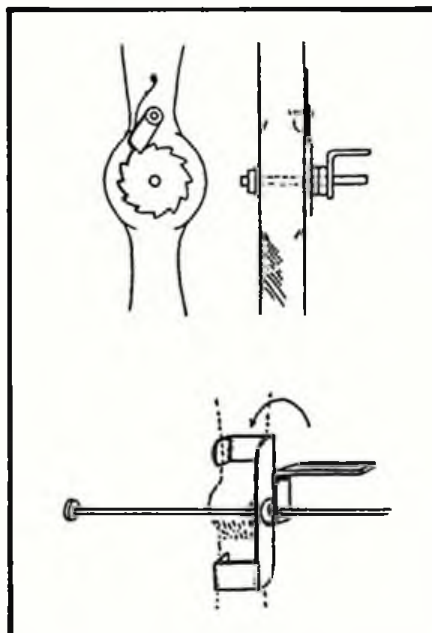
The propeller was a Bonn 'Invincible' of 9 1/2 inches diameter, effective pitch being 14 inches. It weighed 3/16oz., and was driven by two skeins of four strands, each of 1/4in. strip rubber. However, with the same amount of rubber greater consistency was obtained with a 9in. diameter propeller of 13 1/2in. effective pitch. The model's gradient of climb (called inclination in the original article) was 1 in 12 but it was considered that increasing this to 1 in 8 would give longer duration. Its best performances were the records already mentioned. Total weight was 4 3/4 ounces; the total area 176 square inches gave a loading of 3 7/8 ounces per square foot. (On the rear of the photograph, which was made available by Josh Marshall, are the following details in Evans' own handwriting: 'Weight 4 1/2 ounces which includes 11/4 ounces of rubber; area of mainplane and elevator 170 square inches; loading 5.3 ounces per square foot'. The reason for the discrepancies in this data is not known. Exceptionally stable laterally and longitudinally, the model was flown regularly in all weathers without breakage of any sort. We would be pleased to hear of any reader's experiences with this design, the construction and flying of which would provide a fascinating venture into the pre-balsa age.

Freewheel or Feather?

A contributor to Model Engineer, writing under the name of 'Aerophile' related in April 1910 how he found that the drag of a stationary propeller seriously reduced the duration of his models' flight, and described three methods that he employed to counter this.

He first made a simple ratchet freewheel consisting of a 'click' wheel from a small clock. Although there were difficulties in

anchoring the pawl pivot in the propeller blade near the boss securely enough to withstand the torque of the wound rubber the idea was generally satisfactory...but '...there were times when it caused me to use the most awful language. Just as I would be giving the last turn or two to a long elastic skein — which had taken considerable time and temper to wind up — the pawl would slide sideways out of the



tooth: two minutes' hard winding would disappear in one whizzing, shrieking second, and very likely the small circular-saw would plough a neat little channel in the back of my thumb.' Another method used was to pivot the propeller blades so that the unwinding motor drove them in forward thrust, but when the power ceased, the blades were forced into a position of least resistance by the airflow. The blades were of sheet metal (their shape, to modern eyes, being most unpropeller-like) whose leading edges were formed into a tube. A small slot was cut in the tube at the centre of the blade, and suitably shaped stops were soldered to the wire or tin tube arms upon which the blades pivoted and formed the boss of the propeller, so this was an automatic feathering system that also gave good results.

However, Aerophile found that the best device was merely a driving dog, made from sheet metal, on the propeller shaft. With power 'on' this dog drove the propeller but when the torsion from the rubber was gone, the propeller freed itself from the dog allowing the airflow to blow it back on the extended shaft clear of the driving dog where it revolved in the airflow and afforded less resistance than a stationary propeller.

Remember that all these applications were on pusher propellers. This resulted in a most important feature on 'Aerophile's' best device. The fact that the windmilling propeller could move some distance aft on

the long shaft caused the centre of gravity of the model to move aft, considerably enhancing the glide. In fact propellers of different weights were tried to obtain the best possible glide. You might think this to be a peculiar way to trim a rubber model, but the technique of varying thrust line to handle the power was not to come for another twenty years...

Swapmeet

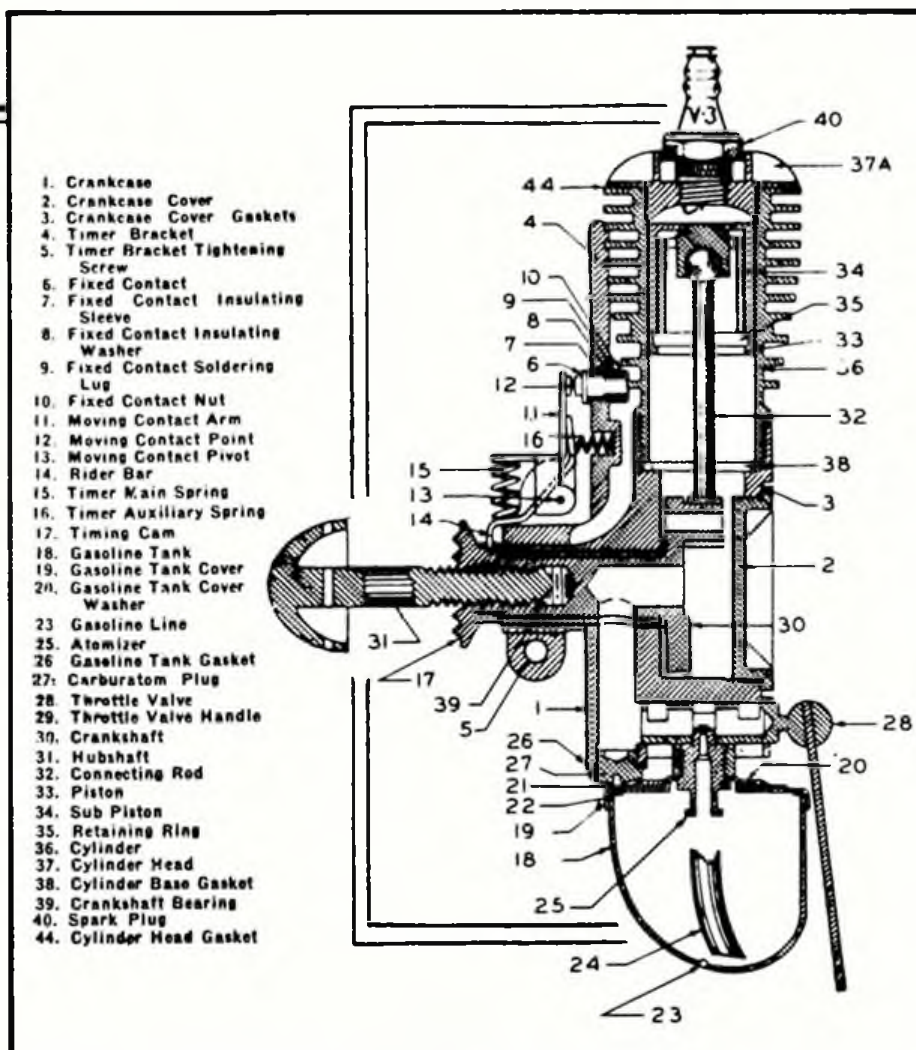
It is a sad fact that until now vintage enthusiasts seldom see each other during the six months of the year between October and April; that is, except for pilgrimages to the ME Exhibition. Attendances at so-called Swapmeetings organised by both MECA and SAM 35 are now helping to fill a much-felt gap during the winter months. These are friendly get-togethers well supported by collectors and modellers alike, and with no actual flying activity taking place participants may concentrate on the disposal and acquisition of sundry items like engines, kits, books and magazines. Accounts of previous events held at Henlow and Mansfield have appeared in these pages, and it is intended to arrange a regular programme of such meetings giving plenty of notice to allow enthusiasts to plan their winter building activities to include such pleasant diversions.

A 'Grand National Swapmeet' was held jointly by MECA and SAM 35 at Mansfield Civic Centre on 22 March and the usual good time was had by all when over fifty modellers congregated both to swap yarns and the hardware associated with vintage model flying. Gordon Counsell produced some ancient home-built engines made by a 1930s speedboat enthusiast. These large-capacity motors attracted a lot of attention and made the normal sized model engines look even smaller than they really are. Phil Cox brought along his recently completed own-design 5cc four-stroke; exquisitely built and truly a 'thing of beauty and a joy forever', it was looked upon with envious eyes by all who appreciate such things. Tables were loaded with assorted goodies, and many items patiently collected from all sorts of unlikely places over the years rapidly changed hands.

The next MECA Swapmeet, to which all interested parties are cordially invited will take place on 20th September at the Leisure Centre, Mansfield, Notts. Make a note in your diary now, for there is no telling what much-sought-after vintage oddment you will find there. Don't miss it!

Super Atom replicas

Some 18 months ago readers may have seen advertisements in the American model press advising that the Super Atom petrol engine was to be reproduced in limited quantity. To my certain knowledge a number of readers were moved to subscribe to this enterprise, being especially attracted by the greatly reduced prices that advance orders secured. (Some



1985 and was shown running at that year's SAM Champs, the sight and sound of this beauty doubtless being responsible for a number of pre-production orders.

It is hard to understand the production difficulties. For many years sets of Super Atom castings were to be found in almost every engine collector's junk box. These were beautifully produced die-castings of crankcase, rear cover, timer and radially finned cylinder head that required a minimum of machining. They must have abounded in their thousands and it was probably their availability in such numbers that sparked off the idea to reproduce this engine. Replica fuel tanks for the Super Atom were available, all other parts except the segments for the contact breaker and the tank top entailed turning, screwing, grinding and so on, which are fairly normal processes for a modern machine shop set up for model engine production.

One would like to think that the engines might yet emerge, since a great deal of effort (not to mention money) has gone into the project, but whether the original orders will be honoured is not known. As and when further information is obtained I will be pleased to include it in this column. In the meantime all enquiries should be made to: Mr Sean St. Germain, 2206 Birchdale Drive, Thousand Oaks, CA 91360, USA.

enthusiasts actually ordered and paid for their engines two years ago, before the advertisements appeared!).

However, expected delivery dates came and went and it was said that difficulties had arisen that retarded the original production programme. Then the 'bush telegraph' had it that the engines would be made by a British manufacturer; but replica Super Atoms still failed to appear. Now it transpires that despite a great deal of work involving necessary preliminary spawework like tooling and 're-designing', we are no nearer to seeing these engines.

The Atom and Super Atom petrol engines of 1.47cc capacity possessed some unique features, including a fixed-size fuel jet or 'atomiser' controlled by a variable air valve, crankcase transfer effected by a piston valve in the centre of the piston crown and a highly efficient contact breaker operated by two spiral springs working on opposite faces of a pivoted segment. Weighing just under two ounces without coil and condenser, the engine had one of the highest power/weight ratios of any engine in the early 1940s. It was capable of turning an 8x4 propeller at 12,000rpm, its 360 degree exhaust giving it that classic 'tearing calico' sound when flat out.

It would appear that present day engine manufacturers just cannot leave well alone; in almost all cases they incorporate 'improvements' when making so-called replica engines. Regular readers of this column will be aware of my personal abhorrence of this practice, since I mention it often enough. With all today's knowhow and engineering skill, I just do not see why replicas of old engines, exact

in every detail, cannot be produced. In any case, the 're-designing' of the replica Super Atom apparently caused problems. Ignition dwell was altered and this, or other changes led to several structural failures. The problems were overcome by John Morrill who did the original engineering on the prototype replica engine which was performing well by mid-

Opposite: Model Engineer drawings to illustrate Aerophile's article in April 1910 (see Freewheel or Feather?). Two freewheel methods at the '48 Nats. Can anyone tell us more about this from right to left. This page, above: Sectional view of the Microdyne Super Atom taken from original instructions. Replicas yet to appear... Below: A period shot of Dennis Allen releasing at the 48 Nats. Can anyone tell us more about this model?

Vintage transfers

Ever since the mention of replica NGA/NGM and ABA transfers (highly desirable for the decoration of vintage models) in this column in August 1983 I have been asked periodically where these are available. Many model shops sold them when they first came out, but their stocks have long since been exhausted. However, a source was found at the Swapmeet mentioned above. These sold originally at approximately £2.00 per sheet, but some sheets that have been slightly soiled by dampness, rendering a few of the transfers unuseable are currently available at half that price.





Some 85% of the forty-two transfers on the sheet are still satisfactory; so this is a bargain by any standard. Send your £1.00 per sheet, which includes postage, to Keith Harris at 21 Burns Lane, Market Warsop, Mansfield, Notts. Needless to say they sold like hot cakes at the March swap-meeting.

Dave Ritchie

It is with deep regret that I have to tell readers of the untimely passing of this enthusiastic vintage modeller who died on or about 18 February 1987. In recent years Dave devoted much of his time to researching the history of the hobby. A keen MECA and SAM member, he will be

remembered for his excellent historical work which appeared in Model Aviation, including the three-part article 'Maxwell Bassett, First Gas Model Champion' (September — November 1983) and the earlier account of Carl V Carlson's power models in 'Gas Model Pioneer', which was published in August 1962.

SAM 35 Yearbook No.4 - gone!

Ron Knight of 14A Enmore Gardens, London SW14 8RF advises that this publication is now sold out, copies having been sent all over the world. Yearbook No.3 is still available at £3.50 (post paid) from the above address.



Top left: Wind 'er up! SAM 35 stalwart Ray Alban concentrates on applying the turns to his Voodoo at last year's Nats. 'Wingless' approach not often seen! Left: Another model from the Netherlands at the 1947 Bowden Trophy event - remember de Kat's Ice Wind in the April column? - is this interesting bus by H.J.G. Meevis. Above: Frog Stratosphere by Mike Farrell was seen at last year's breezy Nats. Below: Not quite vintage - but we'd like to hear from anyone who possesses or has used this automatic variable-pitch and feathering prop from the 1950s. Price was 25/8d, with spare blades available for 2/8d each.

Elmer

9" DIAMETER

**AUTOMATIC
VARIABLE PITCH PROPELLER**

SUITABLE FOR ENGINES UP TO 5 c.c.

PAT.
PENDING

CONSTANT SPEEDING AND FEATHERING

FREE FLIGHT SCENE

More reports and another top model analysed by
Dave Hipperson



1st SMAE Area Centralised Meeting : 8th March

Winter had done nothing to freeze the enthusiasm of the current Plugge Cup holders, Bristol and West. They leapt into the glider results taking three of the top four placings with very respectable fly-offs at Merryfield. As a result they already lead this year by a handsome margin with Biggles, the usual early-season contenders way down at 6th place and 160 points adrift! Generally the south of the country had better weather and although visibility was marginal there, drift was light.

In the Midlands there was some confusion as to whether Barkston would be available or not (cars are not allowed on the peri-tracks if there is snow). Heavy falls in various parts of the surrounding country meant only a few local fliers risked it. Presumably they were ready to drive on to Driffield if the drome was closed. Fortunately a very rapid thaw that morning meant they could stay. The bad

luck came later for a number of the fly-off participants.

Those at Driffield, including many Barkston regulars, were rewarded with the breeziest conditions, but there was clear air and the skies brightened later. The Falcons duo, Peers and Carter, found their trip very worthwhile, taking top fly-off times in Power and Rubber respectively. Peers' win — his second consecutive of the season — was pushed very close by Hopper's time at Beaulieu; Julian having travelled there via Ashdown Forest in the morning... Conditions at Ashdown, particularly the visibility, were not to Hopper's liking; and given the unfamiliar

Above: This is the chap to beat at the Natal Pete Harris, Senior Champion in '86 is pictured at Barkston with his Super Tigre .35 powered Slow Open model. Basic approach, perfectly suited to this class, contrasts vividly with latest F1C developments. Right: Ray King gets away in SOP at the Bottesford meeting. Despite promising start, model sank at end of flight. Result, sixth place.

terrain he decided to drive on to Beaulieu. Because of this round-about voyage he didn't start his contest flights till nearly 2pm! Reg Uden, flying at Skywalker 60 on a long motor run managed to stay below the low cloud during the day at Beaulieu and then posted a modest — but visible — four-minute-plus in the fly-off to take 2nd in Open Rubber. Chris Edge's similar flight in A/2 at the same venue comfortably secured the KMAA trophy for him.

Back at Barkston the Ball family made a classic mess of the Rubber fly-off on a day when either of them could so easily have won it! Anthony slightly misjudged his winding and a rubber bunch exploded the front of the fuselage on release. His Dad then cracked a longeron on launch, causing his fly-off model to wind-in yet again, leaving Chris Strachan with the top time at Barkston; that is, a little over three minutes with a reserve model after a fly-away in mist earlier in the day had robbed him of his 'No.1'.

Phil Ball's troubles were not yet over. Having qualified for the Power Fly-off with his Slow Open model he managed to contact very helpful air on the glide and the model rose steadily. However, the easterly drift and 'gin-clear' sky meant that the whole of the flight was headed directly into the sun. From where the model was eventually located the next day it was estimated to have been in the air for well over eight minutes, which would have been enough to win. However, the time-keeper had been unable to see it after 4:06!

This was a day of mixed fortunes but fairly similar weather throughout the country. Venues are of more importance than clubs as far as Area events are concerned, so our results show where the individuals flew rather than through whom they are affiliated. This style will be followed in future area reports.



1st SMAE Area Centralised Competition, 8th March

F1A Glider: KMAA Cup and Plugge points (51 flew, 6 in fly-off)

1 C. Edge	Beaulieu	12.30 + 4.00
2 G. Pink	Merryfield	12.30 + 3.23
3 E. Drew	Merryfield	12.30 + 3.09
4 R. Audley	Merryfield	12.30 + 2.33
5 D. Bartle	Driffield	12.30 + 2.00

Open Rubber: no trophy (20 flew, 8 in fly-off)

1 J. Carter	Driffield	7.30 + 5.35
2 R. Uden	Beaulieu	7.30 + 4.06
3 L. Auckland	Driffield	7.30 + 4.01
4 H. Wilkinson	Albermarle	7.30 + 3.38

Open Power: Frog Senior Trophy (19 flew, 9 in fly-off)

1 R. Peers	Driffield	7.30 + 6.56
2 J. Hopper	Beaulieu	7.30 + 6.47
3 S. Screen	Driffield	7.30 + 5.28
4 J. Buskell	Merryfield	7.30 + 4.10

2nd SMAE Area Centralised Competition, 22nd March

Open Glider: no trophy (41 flew, 6 in fly-off)

1 W. Colledge	Barkston	7.30 + 3.03
2 R. Pollard	Albermarle	7.30 + 2.12
3 J. Williams	Barkston	7.30 + 2.11
4 J. Bailey	Barkston	7.30 + 2.04
5 M. Kinder	Barkston	7.30 + 1.25
6 J. Cuthbert	Barkston	7.30 + 1.02

Open Rubber: Gamage Cup (35 flew, 11 in fly-off)

1 R. Peers	Barkston	7.30 + 5.00
2 S. Dixon	Barkston	7.30 + 4.41
3 T. Dilks	Barkston	7.30 + 4.26
4 A. Cliff	Barkston	7.30 + 3.34
5 H. Wilkinson	Albermarle	7.30 + 3.38

F1C Power: Halifax Trophy and Plugge points (23 flew, 4 in fly-off)

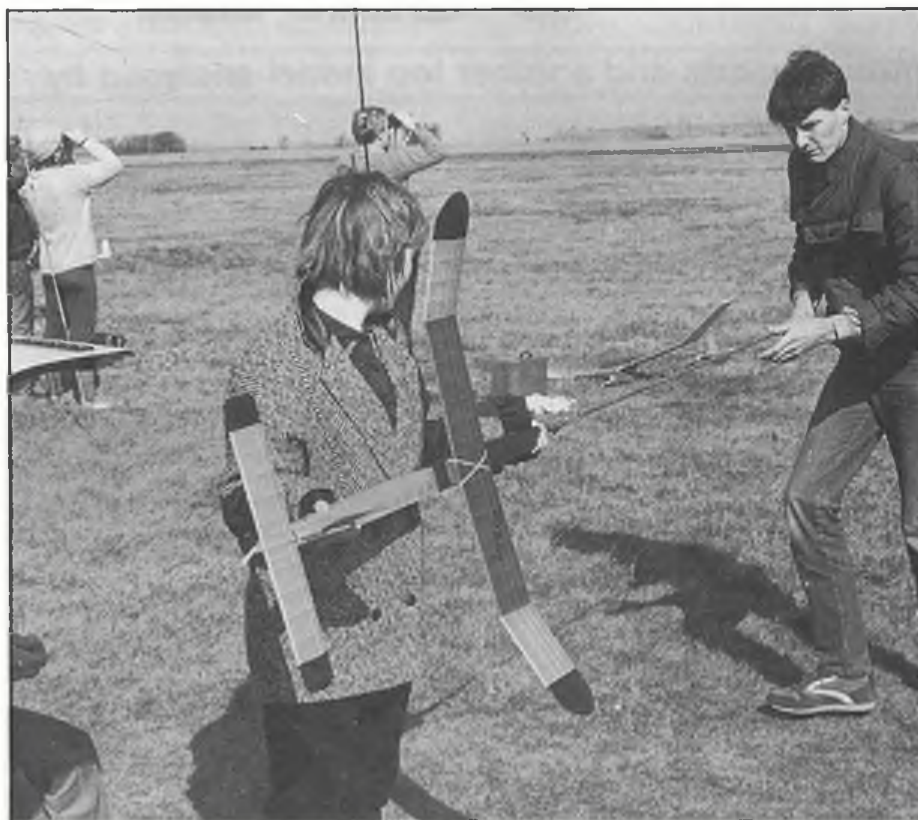
1 R. Bailey	Sculthorpe	12.30 + 4.35
2 A. Jack	Albermarle	12.30 + 4.12
3 P. Watson	Barkston	12.30 + 2.46
4 S. Screen	Barkston	12.30 + 0.06

Plugge points after two events

Bristol & West	464
Vikings	373
Crookham	357
Anglia	354
Birmingham	293
East Grinstead	259
Liverpool	173

2nd SMAE Area Centralised Event: 22nd March

Oh dear! Why do we schedule so many contests for March when the weather is unsettled and so regularly unflyable? Gamage Day was hit yet again, with continual wind and rain in the most southerly venues all but washing away the competition. Most of the Rubber flying was done at Barkston where entry figures swelled even more than usual after Northerners, who had found Driffield closed to them, had come down to the Midlands the long way thereby missing the early part of the day. From virtually half the National entry the twenty or so who did qualify for fly-offs at Barkston then had their day wrecked when diabolical weather coincided precisely with the final flights. Dilks and Dixon in Rubber made promising efforts in the driving rain which was accompanied by squally gusts, sometimes reaching 30mph.



Taking part in the 2nd Area meeting at Barkston, Steve Dixon winds in the Gamage before the rains came. His final flight in the worst of the weather was still good enough for a high placing.

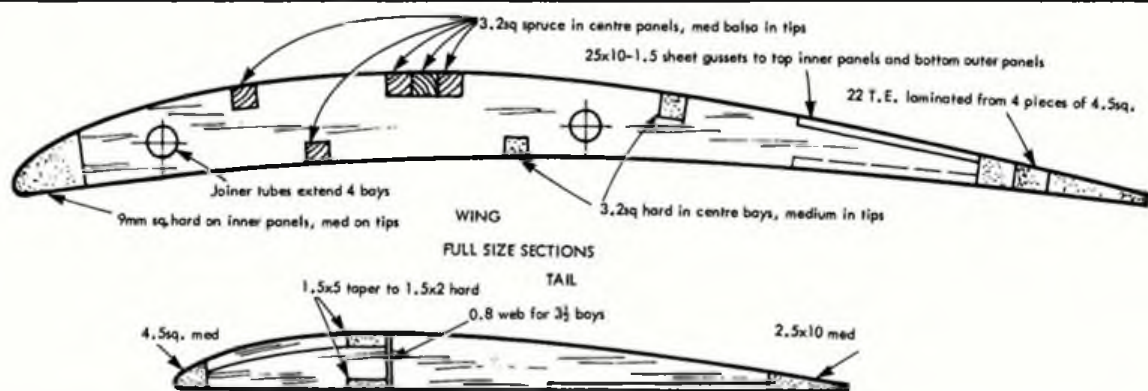
It was Peers who proved the master of the conditions. He took the Gamage with a staggering five-minute flight launched right at the start when the rain was at its worst but the wind had not yet built up. After that, numerous other qualifiers declined to fly. Bill Colledge's winning glider flight was made half-way through this period on the edge of a patch of lift that was so turbulent in places that it actually spun down a couple of Rubber models. Bill's positive approach to windy-weather flying (mentioned elsewhere) paid off with a respectable three-minute-plus in the worst fly-off weather anywhere in the country. Both he and Peers are to be congratulated on their performances — very professional.

Stafford Screen's F1C model mysteriously bunted-in hard to demolish itself completely and leave clubmate Watson with top honours at Barkston flying a model that had been going very well indeed during the day; but not enough to win the class because more than usual were flying elsewhere. The Halifax counts towards Plugge points, after all! In the North Alan Jack had used a breezy but dry day to post his full score; he then slotted in a four-minute-plus fly-off before the rain, Ron Pollard doing likewise in glider to take second place. Alan must have thought he stood a good chance in F1C but Bob Bailey flying in the East at clear Sculthorpe took the trophy with a fly-off of over 4.1/2

minutes, heading a full field of Anglia and Vikings members who were all chasing points in the same class.

As expected there was some very determined flying at Merryfield where despite continuous rain, five Bristol and West members flew F1C hard and effectively, to hold onto their lead in the Plugge. Dick Johnson was the most unlucky, suffering a double over-run on his first official flight, thus scoring zero. Maxing out for the rest of the day was still good enough for 10th place and 59 points though!

Since the 1st Area meeting there has been more than a little confusion and contradiction surrounding the validity of some results sent in from the North West where a group of fliers used Rufford in the same way as they had last season. It transpires that contestants there were not properly informed of the FFTC ruling this year, so despite their using a non-Area site the results have now been included. This doesn't affect the individual lists that appear here as the chaps in question didn't place high enough but their appearance has re-jigged the Plugge points slightly. The amended scores here now include the Rufford results, bringing the Liverpool club in at 7th. Moves are now afoot to establish Rufford as the official North West venue through the proper machinery of the North West Area Committee of the SMAE. If this is done those using the site will once again be within the FFTC ruling — so those interested in flying there would be best advised to check with a member of the N.W. Committee before going.



F1A No.6 by Bill Colledge

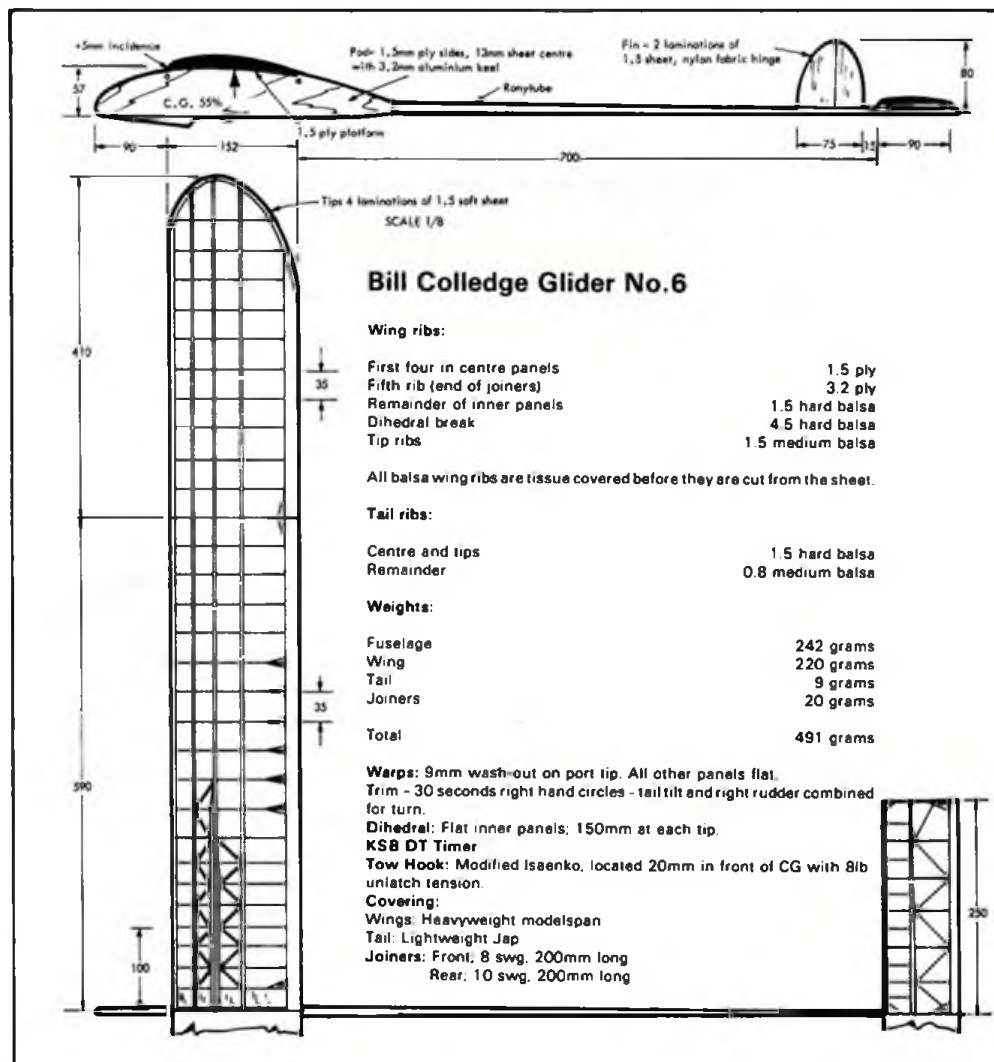
Bill is no newcomer to aeromodelling, but he is a comparatively recently convert to Free Flight. This makes his gaining a place on the World Championships Team this year all the more commendable. He came up through Combat in the mid-sixties, attending and watching closely at the Nationals the time. After a slight layoff in the early 70s there was the mandatory 'going normal' phase culminating in his marriage in 1974. Of course, Bill's wife Jenny was then available as a crew member, so it was back to combat this time with very hairy K&B .40 models. He joined the Outlaws team and before long was skilled enough to take second place in the prestigious Derby International, where he was beaten in the final by the famous Fred Meijer of Holland.

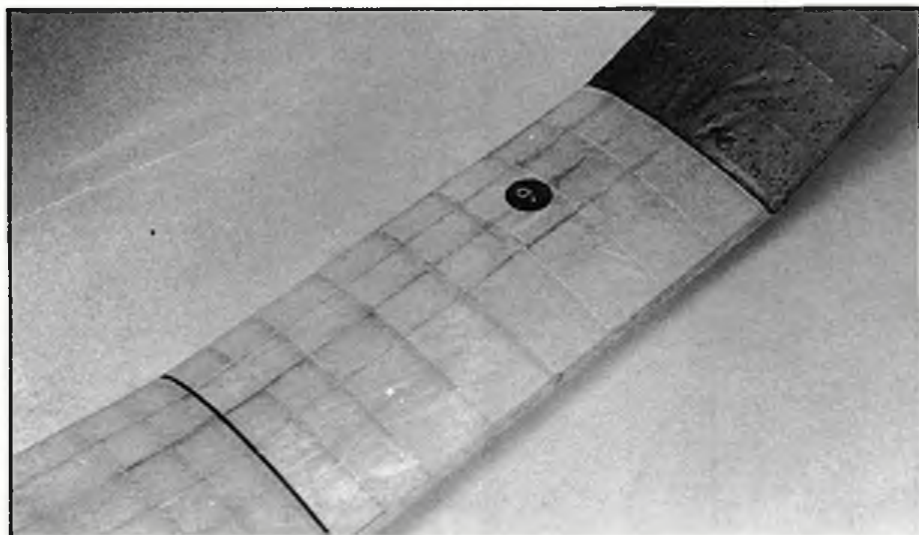
By '77 he had taken up R/C FAI pylon racing after (once again) teaching himself to fly. He still considers himself to be a relatively poor radio flyer but his combat experience stood him in good stead, for he was not in the slightest bit intimidated by all the fast, noisy machinery being flown close to him. That is, until his crash at the '81 Nats at Barkston when a servo jammed and his brand new, light and very fast aeroplane completely demolished itself on the tarmac, perilously close to a line of competitors...

So Bill followed the path trod by so many converts to Free Flight and started in Glider. His first choice was John Cooper's APS Pink Elephant; indeed he was keen enough to get up at 2.30 one summer morning to trim it! He had already been to a few F/F events as a spectator with Stuart Darmon so he knew what to expect. Before flying the glider he built a version of Peter Carter's CDH — Crown Agent — for that year's Henlow Coupe International. Although none too successful there he had acquired the taste of competitive Free Flight, so he took the logical step of joining the Birmingham Club in '82. Thus it was only five years ago that Bill flew in his first glider competition — in Grantham Grand Prix of '82. This was the only year when the weather has been kind to this event. To his delight and surprise Bill found lift-picking easy. Four maxes in his own air and one slightly-dropped flight. Very promising; but he is quick to point out that no contest has flown in since has ever been that easy. (The more you win — the more difficult they get, Bill!).

Successes since then have all been well documented in the results list. Two more **Bottesford** again; and **Steve Falding** prepares for SOP. OS-powered model features 'union jack' wing and tail.

June 1987





Pink Elephants have been built, Bill being of the unchanged opinion that the design is an excellent introduction to A/2 as well as being a very good basis for an all-weather design. He experimented with Russian-style layouts too, finding them better in performance but less reliable.

The model shown here is a Pink Elephant derivative with a wing of less-cambered section and slightly lower aspect ratio. There is additional strengthening towards the wing root. The model can be launched vigorously even in strong winds and although it is well over weight it will exceed 2:30 in dead air.

Bill told me once that he had never attended a Free Flight contest and *not* flown. I think he still abides by that rule. Although he resents losing models he accepts that in British conditions fancy structures which have to stay in the box on all but the calmest days are useless if you want to win contests — a policy borne out by his emphatic fly-off win, in atrocious wind and rain, in Open Glider at the 2nd Area meeting this year. His trim relies heavily on that substantial port-tip washout, a layout which allows strong zoom launches without fear of the inner wing panel dropping in the turn. The idea of tail tilt is a little novel. This gives a positive glide turn without recourse to large amounts of rudder deflection and the consequent risk of spin at the zooming stage.

Warp removal

We have all had models returned after periods when they have been left to the mercy of the elements. If they are worth repairing, which is always a factor of how long they have been out, and what condition they were in before loss, then warps have inevitably arisen in the wrong places. Gliders and beefy power models are much more resistant than, say, a light-weight 'fly-off' rubber model. Just a few hours out — particularly if the model ends up inverted — is enough to re-set all the warps on one of mine: but then I have always been pretty sparing with the dope.

There is a very simple remedy. Simply float the offending panels in very hot water. I usually run a couple of inches into the bath, lay the wing on the surface and pour more hot water over the top. After a few minutes the damp and warm will slacken the tissue and ease the structure. The panel can then be lifted and pinned down flat, or with the correct warp, and left to dry.

Robust structures will need tougher treatment. It often helps to puncture the tissue in a number of places to actually let the water inside. Obviously this means a much longer drying time — maybe a day or two — but there is no harmful effect. Even for those structures built with water-soluble PVA-type glues short immersion is safe. Some glider flyers have been known to totally submerge A/2 panels for lengthy periods, deliberately to allow water to penetrate. Of course, this process is a very effective way of relieving stresses in the structure as well; and I have often thought of treating new, finished panels in this way, before they are covered. Perhaps it might help to save those annoying 'creeping' warps, particularly on wings with large volumes of wood in their construction.

Free Flight Technical Committee news

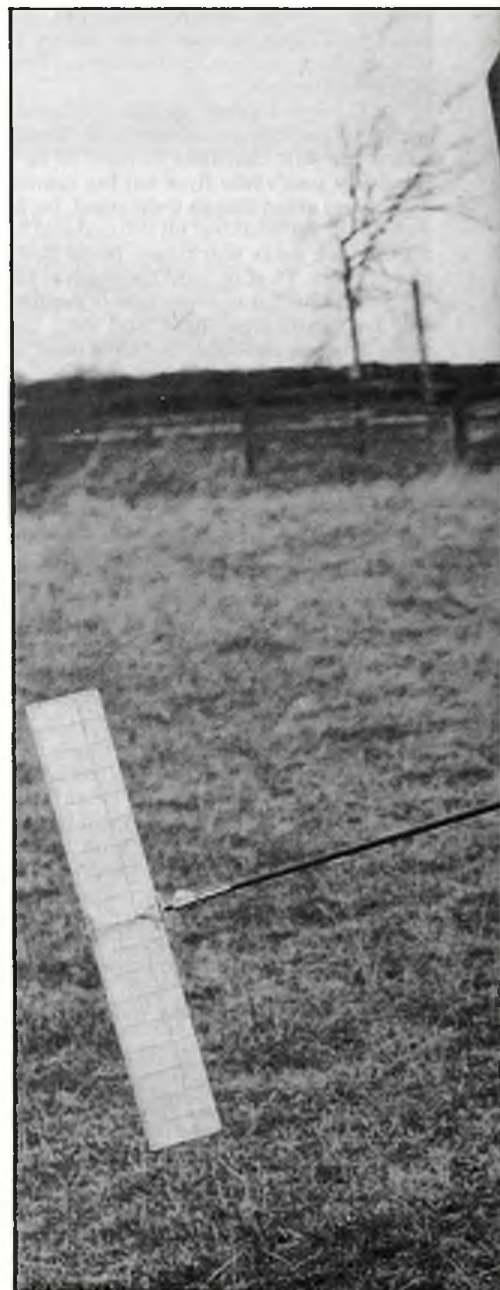
Once again this year the FFTC have complete responsibility for the Nationals organisation, from the gate and camp site to the 'sharp end' of running events. Ian and Glenda Bracken (and their assistants) will be manning the gate and campsite

Above: Be brave — drop the warped panel into hot water, pouring more on top if necessary. Only in severe cases should you submerge the offending structure (see 'Warp removal'). Main picture, right: Ian Davitt is branching into Glider. He wasn't in the money at Bottesford but third place in Rubber made up for it. Top right: Our columnist risked it in Vintage with this Lanzo Duplex Tractor, held here by wife Sue, despite only one trimming flight before maximum turns. Models dropped two vital seconds after loop on first flight; fly-off place was thus lost despite subsequent maxes. Below right: Very neat 1/2A model from Anthony Cordes incorporates glass-fibre rod fuselage and cowled tank.

from Friday evening; and the CIDs for the days' events are Gerry Le Vey on Mini Day, Ian Bracken, assisted by Brian Lavis, on Open Day and Phil Ball on FAI Day. The same programme as for the past few years has been adhered to, with the addition of (hopefully; please double-check with the official SMAE literature) a *very* early start to the third day. It is planned to commence at 5.30am and squeeze in seven rounds before late afternoon.

We should emphasise that the missile compound is as much a 'no-go' area as ever. It is expected that for the first time special personnel will be on site for the express purpose of returning our models from within. However, not putting models there in the first place is the best policy. Please be careful, very polite and diplomatic when approaching the entrance of this area. It is, after all, what all the fuss has been about — and remember, we nearly lost permanent access to Barkston as a result.

What is still unknown at the time of writing is if there will be any restrictions



on where we can fly. You can rest assured that the FFTC are trying to sort this out in advance so that there won't be any nasty surprises, allowing everyone to position themselves where it suits them best.

Unofficial Nationals attractions will include Rubber and Glider Sunrise events in the early hours of Sunday morning (weather permitting). These are to be organised by the Croydon Club; those of you requiring further information are invited to contact Ray Elliott at 88 Boston Road, Hanwell, London W7. If the weather's kind it will be good practice for the following morning!

Your suggestions are invited as to a more suitable SMAE Contest Calendar for '88 and onwards. Send them to me in writing please. We are still on the lookout for suitable contest sites and intend to produce a zone system to split up nationwide investigation work, enabling constantly updated records of potential venues to be kept. Ideas on this subject would best be passed on to either Dave Greaves or Ian Bracken.



THOSE RADIO TII

How did you make a start in R/C? Peter Shenter remembers a pastoral route

ABOUT THE MIDDLE nineteen sixties, when radio control was established as reliable, I obtained a Junior 60 kit, an F&M transmitter and receiver, and a compound Bonner escapement, a Varicomp. All of this was to be pulled aloft by a red and black E.D. Racer (webbed . . . for those who want to know these details). When the whole lot was built I discovered that the Junior was tail-heavy, no matter how I moved things around; batteries as big as possible were installed to help out. I always shake my head at the practice of putting lead into something that has been made out of one of the lightest substances known - gliders excepted; but anyway, in went a lump of lead, right under the engine. An alternative tail was constructed from 'one sixteenth-by-a-quarter' instead of the quarter-square balsa original. This final piece of construction was covered in lightweight coloured tissue. All this got the balance into a reasonable position. At this stage someone told me that the Junior 60 had been designed for petrol engines: hence the short nose; coils, condensers, batteries. Still, all I can say is they must have been using kitchen sinks for engine bearers.

Flying...

Anyway, out to the flying field. I should now explain that 'out' meant two minutes' stroll down a leafy lane: I was living in a remote part of Ireland at the time and the whole countryside then seemed my private

flying field. As is all too often the case in these matters I didn't know how lucky I was. All I could do was bemoan the far-offness of model shops and lack of fellow flyers. The amount of flying time I used to get out of a model sounds now incredible; meaning, for example, it was usual to start up a Tomboy with an E.D. Bee in it within a back kitchen and launch through a large open window - this saved time carrying it to the door. And as for a field box, I hadn't the faintest use for one. There was only one blot on this landscape: cows. I should add - which was worse - cows bringing up calves. These beasts had two drawbacks: a deep abiding curiosity and a desire to eat model aeroplanes of all sorts. So this herd followed me down the lane as I carried the Junior 60 in one hand and the transmitter and other bits in the other.

At the deemed flying place I was surrounded by these animals. Up to this time it still was not wholly fashionable to put Brylcreem in one's hair, and the cows, because they were low in minerals, endeavoured to curl their tongues about one's locks. They also had their eye on the Junior, smelling of varnish and new dope as it did. These animals had once eaten a Veron Cardinal and most of a Keil Kraft Outlaw. I got everything ready; filled the tank, wound the escapement, tested the radio and checked the wings. These were held on by unusually wide rubber bands - I might say the shop that sold the Junior 60 kit was a department store with an emphasis on stationary, so I had these substantial rubber bands.

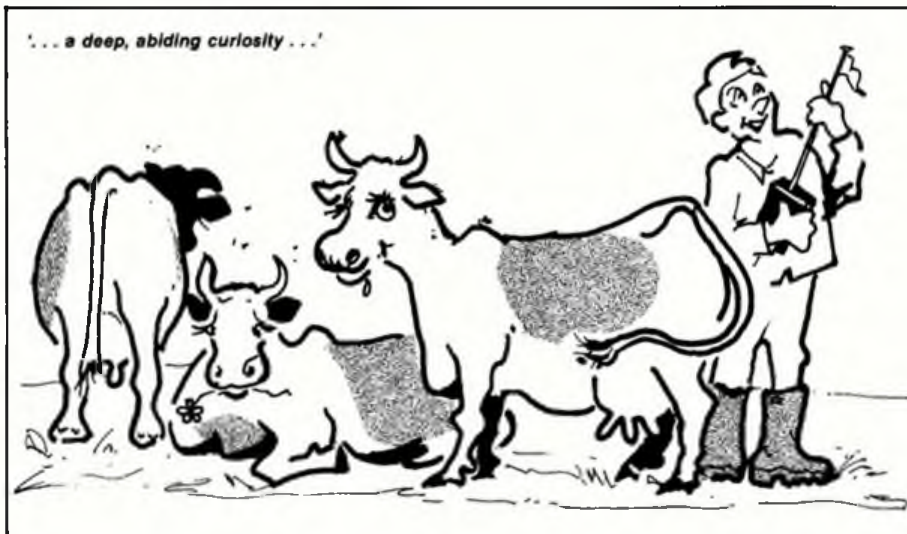
I started the engine and ran forward and launched the Junior for the first time. Ah...the beautiful smell of burnt castor coming back in the slipstream! Superb! Wow, lovely! Goodness, was I delighted! Hey!...the transmitter!...this was radio control! I rushed back and took up the box, aerial already extended. The machine was just climbing nicely of its own accord. So I pressed the button once and held. Sure enough the Junior turned and I released the pressure. It was working! Great!

Familiarity

Throughout that long, warm summer I became rather a dab hand at guiding the old hen and with plenty of practice, could achieve fairly precise landings. One of the things I loved was to hear the escapement 'grinding its teeth' on the glide as I adjusted finely at the last minute to get that superb wheels-on landing. In due course, in this respect, a peculiarity occurred: at these last moments, when one could hear the Junior whistling by through the air, the escapement seemed to complete a revolution of its own accord...yet had no effect! I could actually hear it grind! Amazing! And most worrying: for the escapement to misbehave meant possible disaster! Every sort of test was applied to the Varicomp, yet it worked perfectly. Eventually I gave up worrying and continued flying. All flights were perfect.

As a matter of fact I fitted a bigger tank; the Class B tank that at first had seemed never-ending all too soon ran out before I was ready. Confidence was high. I used often to wonder how I had ever put up with free-flight for so long. However, there was one bugbear: I could never complete a loop. Even after several spins - beg your pardon, tight turns - and opposite rudder the Racer hadn't enough oomph to get the machine - lead and all - right over the top. It would ascend, stop and reverse down again and proceed off forwards. In the beginning, of course, this was great. But eventually I longed to do a loop. There was another thing. I never fully understood what was meant by 'ceiling' in respect of full size planes. I think I now found out. For some reason the Junior Sixty would work its way up so high - quite a respectable altitude - and then not one foot higher, do what you may, waggle the rudder till the chickens came home. There was only one cure for it: more power. Out with the E.D.; in with a Frog 500. In many ways this was a pity: during launch I was going to miss the inhalation of the sweetened wind. Still, never mind, you can't have jam on both sides of your bread. Anyway, the Frog glow motor would be easier on the airwheels. One of the few drawbacks of a diesel engine was that its unburnt fuel should be hard on rubber. At that time it was my nightly practice to wash the tyres by dipping the undercart in a basin of suds, spinning the wheels and then holding them under a tap.

Off I launched with the Frog going full blat. This was going to be interesting. Rapid climb. Great. Mnnnnn...I must fit one of those bang-bang escapements I keep reading about in that new magazine Radio Modeller as the next progressive step. Now for a real loop! Hold on turn... Hold on turn... turning rapidly. Just then something incredible happened: I could actually see the wings standing up on the trailing edge!...and flop back over like an old wallfish!!! This made haywire all of what Langley and the Wright Brothers said; for the Junior was now coming down like a red hot brick, Frog going as merrily



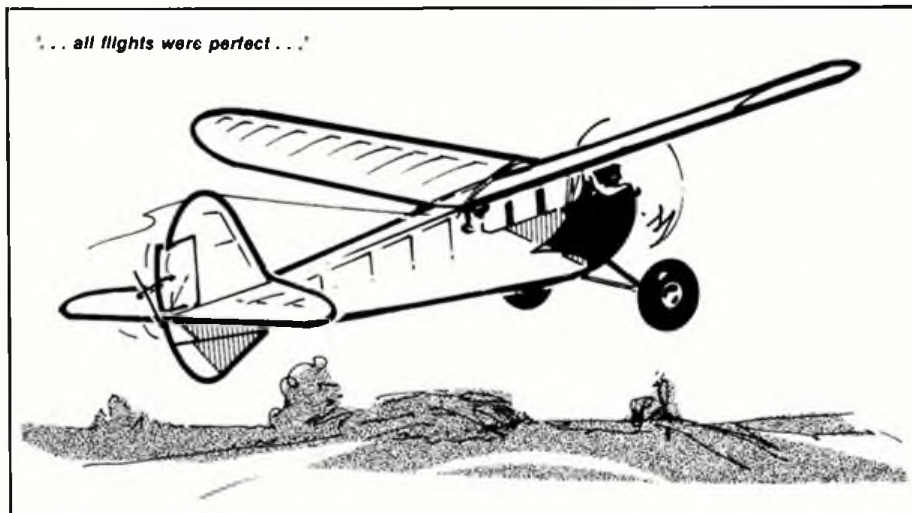
VES...

as never before!! And the wings had done this - roll over backwards - still under those super rubber bands! There was one great clump, and silence...

Finis...

The Frog survived, but little else. Both receiver and escapement were wrecked. One thing was now for sure; the cows would never get the Junior 60. For one reason or another I have never flown radio since. Looking back at that moment over all those years I can say that the system used was reliable if reasonably looked after - however primitive it may seem today. Keep the right amount of turns on the escapement, not too many, not too few, get in plenty of flying practice, and Bob's your uncle. I will always have a soft spot for the Junior. It, and the radio set-up described, were really only meant for those long, warm summer afternoons, windless, buttercups high in the grass. I can still bring back memories of lying on my back in lush green. F&M transmitter on my chest, and watching the sun come through the wings of the old bird circling far above.

I'm going to build another Junior 60. I intend to lower the engine bearers, and mount the engines on blocks there upon. I said 'engines'; this will allow lots of different motors to be tried. And allow big



tanks (thus getting around the radio control users' complaint that engine bearers limit tank depth). I'm going to build a lightweight tail. And the rear undercart wire will be out of soft copper: in the event of a hard landing I should be able to straighten this on the field. It is hoped the copper will have a dampening effect. It might be an idea to eliminate that bit of tin at the base of the undercarriage, called U3 on the plan, by the device of completing the bottom triangular corner with the rear copper leg, and taking it up the front piano wire leg for an inch or two, soldering it thereto with binding. This may transpire to be a dud of an idea, but those bits of tin tore apart eventually in my case, though it

must be confessed I often had to make landings virtually on one wheel between lines of pregnant cows. Indeed I know several people who will tear their hair right out at all of this sacrilege; this atrocious fiddling about with the legs of the temple high altar.

But shall I try the new fangled radio? Shall the iconoclast get busy with a whole lot of channels? It remains to be seen. Would that rear copper strut work? I have yet to find out. One thing I did find out: the cause of the escapement 'ghost'. I once happened to look out over the hedge across which I would whistle the Junior in to land. Running to and fro was a male corncrake - who was absolutely livid!

International What's On

World Championships

10-16th August
FREE FLIGHT WORLD CHAMPIONSHIPS
Venue: Thouars, France. F1A, F1B, F1C.

European Championships

21-26th July
CONTROL LINE EUROCHAMPS
Venue: Nyköping-Oxelösund, Sweden. F2A, F2B, F2C, F2D and Scale F4B, F4C. Contact: SMFF, Sandbergsgatan 4, Box 100 22, 600 10 Norrköping, Sweden.

25-30th August
FIRST INDOOR EUROCHAMPS
Venue: Wrocław, Poland. Contact: Aero Club of Poland, Krawskie Przedmieście 55, 00-071 Warszawa, Poland. F1D.

7-13th September
MAGNET SOARER EUROCHAMPS
Venue: Spitzbergen, Austria. Contact: Aero Club of Austria, Prinz Eugen-Strasse 12, A-1040 Wien, Austria. F1E.

Open International events

22-23rd May
MEMORIAL SANDOR FULOP
Venue: Domsod, Hungary. F1A, F1B, F1C. Contact: Hungarian Association of Aeromodellers, Roseberg, Hazaspar utca 1, Budapest V.

26-30th May
CHAMPIONSHIPS FOR 'ALBENA' CUP
F3B, F4B. Venue: Albena, Bulgaria. Contact: Bulgarian Aeromodelling Federation, 48 Bd Christo Botev, 1000 Sofia, Bulgaria.

27-31st May
INT. MILITKY CUP
F3E (All categories). Venue: Pfaffikon, Switzerland. Contact: Modellfluggruppe Pfaffikon, H.J. Schaufelberger, Ausserdorfstrasse, CH-8321 Wildberg, Switzerland.

28-31st May
JURA COP 1987
F2A, F2B, F2C. Venue: Breitenbach, Switzerland. Contact: Modellfluggruppe Breitenbach, Borer Heiner, Unt. Leberweg 14, CH-4208 Nunningen, Switzerland.

6-7 June
BUTTERFLY MEETING
F1D. Venue: Nijmegen, Netherlands. Contact: E.K.T. Liem, Egelstraat 17, 6531 PH Nijmegen, The Netherlands.

6-8 June
INTERNATIONAL COMPETITION
F2A, F2B, F2C, F2D. Venue: Saint Etienne, France. Contact: Gilbert Beringer, Chateaufort, 42940 St Bonnet Coureux, France.

13th June
COPPA d'ORO F.A.
F2A, F2C. Venue: Lugo, Italy.

13-14th June
3* TROFEO G.M.B. F3C
Venue: Desio, Italy.

13-14th June
5TH INTERNATIONAL COMPETITION OF OREALNS
F1D (Microfilm). Venue: Orleans, France. Contact: Jacques Delcroix, 7 rue de Fonce-magne, 45000 Orleans, France.

14 June
CRITERIUM MIDDEN NEDERLAND
F2A, F2C. Venue: Utrecht, Netherlands. Contact: Dhr B.J. Wijnand, E. Verkeerdelaan 123, 3584 GT Utrecht, The Netherlands.

20-21st June
MIDSUMMERNIGHT TROPHES
F1A, F1B, F1G, F1H. Venue: Terlet (Arnhem), Netherlands. Contact: T. van Ede, Vermeerslaan 15, 3764 WB Soest, The Netherlands.

3-5th July
SCANDINAVIA OPEN 1987
F1A, F1B, F1C. Venue: Revingshed, Revings, Denmark. Contact: Thomas Koster, Harlosevej 184, DK-3400 Hillerød, Denmark.

10-11th July
17 KOLIBRI POKAL
F1A, F1E. Venue: Tamsweg/Karneralm, Austria. Contact: UMSC Kolibri/Obergrafendorf, c.o. Felix Schöbel, Mariatzellerstrasse 3, A-3200 Obergrafendorf, NO. Austria.

22-26th July
2nd INTERNATIONALER WATTKAMPF
F1A, F1B, F1C. Venue: Riesa, Germany. Contact: Aeroklub Der D.D.R., Langenbeckstrasse 36/39, 1272 Neuenhagen/Berlin, G.D.R.

1st August
11th MEMORIAL 'IZET KURTALIC'
F1A, F1B, F1C. Venue: Livno, Yugoslavia. Contact: Aeroklub Izet Kurtalic, Dure Pucara 3, 71300 Visoko, Yugoslavia.

15-16th August
INTERNATIONAL OPEN CONTROL LINE CONTEST
F2A, F2B, F2C. Venue: Genk, Belgium. Contact: Limburgse Vliegels, Vliegerveldplein 1, 3600 Genk, Belgium.

21-23rd August
VAR CUP
F2A, F2C. Venue: Gyula, Hungary. Contact: Hungarian Association of Modellers, Rosenberg Hazaspar utca 1, Budapest V.

21-23rd August
INDOOR INTERNATIONAL
Flemalle, Belgium. F1D, F1D beginner, E2B, 35cm paper, Peanut, Pistachio, Sainte Formule. Contact: F. Van Hanwaert, Secretariat, 1 Grand Place B52, 4110 Flamelle, Belgium. UK contact is Bob Bailey. Tel: 0438 723642.

21-23rd August
POITOU 1987
F1A, F1B, F1C, F1H, F1G. Contact: Michel Poussard, 78 rue La Fontaine, 79100 Thouars, France.

22nd August
28 SOKO KUP
Venue: Mostar, Yugoslavia. Contact: Aeroklub 'N.H. Ljubo bresan, Krcica 8, 7900 Mostar, Yugoslavia. F1A, F1B, F1C.

5-6th September
MBZB-CUP 1987
Venue: Breitenbach, Switzerland. Contact: MBZ Basel, Toni Salathe, Hardstr. 13, 4132 Muttenz, Switzerland. F2B, F2D.

5-6th September
1ST CARL NEUBRONNER CUP
S1A, S3A, S4A, S6A, S8A. Venue: F.R. Germany. Contact: Deutscher Aero Club EV, Postfach 710243, D-8000 Frankfurt/Main 71 F.R. Germany.

8th September
TROFEO CANSIGLIO
F1E. Venue: Pian Cansiglio, Italy.

9-13th September
EUROPA CUP AUSTRIA
F1E. Venue: Spitzbergen/NO Austria. Contact: Aero Club of Austria, Prinz Eugen-Strasse 12, A1040 Wien, Austria.

19-20 September
RUHRPARK CUP
F2A, F2B, F2C. Venue: Bochum, F.R. Germany. Contact: Josef Frölich, Unterstrasse 62, D-4630 Bochum, F.R. Germany.

25-27th September
NOGRAD CUP F2B
Venue: Salgotarjan, Hungary. Contact: Hungarian Association of Modellers, Rosenberg Hazaspar utca 1, Budapest V.

10th October
23 KUP REPUBLIKE
F1A, F1B, F1C. Venue: Zagreb, Yugoslavia. Contact: Zrakoplovni savez Hrvatske, Dalmatinska 12/11 41000 Zagreb, Yugoslavia.

10-11th October
13TH CALIFORNIA FAI
F1A, F1B, F1C. Venue: Taft, California. Contact: Juan A. Livotto, 13212 Lake Street, Los Angeles, California 90066, U.S.A.

17-18th October
11TH SIERRA CUP
F1A, F1B, F1C. Venue: Sacramento, USA. Contact: Roger Simpson, 2625 Queenwood Drive, Rancho Cordova, California 95670, USA.

31 October-1st November
6. INTERNATIONALER FREIFLUGWETTBEWERB BERN, F1A, F1B, F1C.
Venue: Kirchenthurnen-Moos, Bern, Switzerland. Contact: Modellfluggruppe Bern, Peter Maurer, Flugplatzstrasse 40, 3122 Kehrsatz, Switzerland.

FROM THE HANDLE

Stunt with Claus Maikis

... in which motors for stunt use are investigated

Test Case

The Super Tigre G21/46 is no longer in production. The majority of customers obviously don't want the excellent qualities this engine had to offer! Its successor — the Bull Ring 46 — has yet to find a place in stunt fliers' hearts. I don't have any experience with, or information about this engine. Before giving any advice one should at least have had an engine in one's hands for a few test runs. Although the results of test-bench running cannot substitute the experience gained from practice flying, they can tell you a good deal about how suitable that engine is for control line aerobatics. Just a few indications may help you make a decision, and will reduce the risk of spending your hard earned pounds for nothing.

Out of curiosity I wanted to compare a few of my own engines, and as a result of corresponding with Tom Dixon in the States I decided to test a few conventional cross-flow engines against schneurles. I have a small collection of stunt engines, but of course I don't have the complete production of the whole world. I borrowed a few samples from my friends so altogether I had a nice variety. An important criterion concerning the suitability for stunt work is the motor's reaction to changes in fuel head. A change does not only occur in the actual variation of the fluid head, but by influence of G-loads in manoeuvres, too. Any sensitivity to these changes (particularly if there is a lack of it) says a lot about the engine. A change in fuel head can easily be simulated on the test bench: just vary the height of the tank above the bench. All I did was to raise or lower it in simple steps — each unit of measurement being the depth of the tank itself; that is, seven centimetres (or 2 108/135in. for you Imperial types!).

The engine was run at a fast four-cycle. This represents the RPM in flight, regardless of which prop is used. A speed of somewhere above 8,000 is what most of us use when setting the engine for a fast four-cycle on the ground. You'll see this in the results.

To give some more details I have included the intake area of each engine. Maybe you don't agree with me on the given figure for each engine, but that's how I use them. For example, a venturi with a 6.5mm diameter bore and a 3.2mm diameter spraybar (that's 0.2559in. and 0.1259in. respectively) gives a choke area of 12.36sq.mm; and this is the set-up on my best ST46. A Graupner grey nylon 11x6 prop was used throughout the tests.



The OS Max 40FP-S, a motor which particularly impressed our columnists, is pictured here. Fuel head test technique shown on opposite page is not really recommended!

Engine	Venturi intake sq. mm	tank lowered by 7cm	tank at normal height	tank raised by 7cm
ST G21/46	14.39	8.400	8.800	9.400
HP 40 Silver Star	9.06	8.400	8.800	9.600
OS 40 (Baffle piston)	9.66	8.400	8.800	9.200
OS 40 FP	13.59	8.000	8.200	8.900

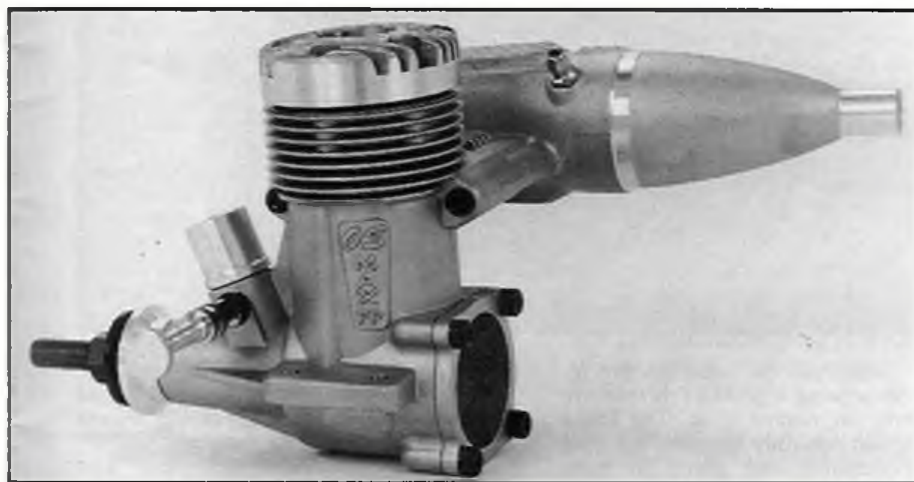
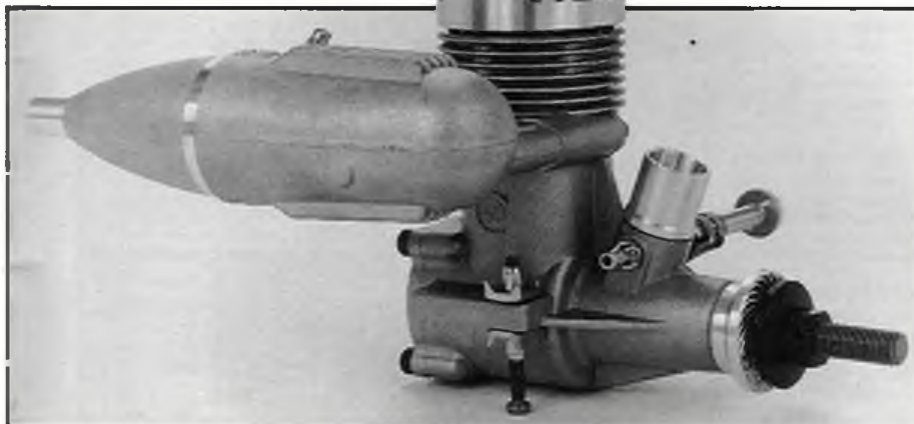
The results show smaller RPM differences than I had expected, but comparison of the figures tell the whole story. I have to mention some details of running characteristics, too. It seems natural to look for the lowest RPM difference, because this indicates an engine that is not too sensitive. However there are other factors which shouldn't be overlooked.

To mentioned our old favourite first: I was surprised that the ST 46 didn't have the smallest RPM difference, but its running was by far the most smooth. No other motor runs so softly or reliably. It can be set very precisely and will respond to even small increments of needle adjustment with a correspondingly small RPM change. RPM level is held exactly. Because of this, the engine can be set so easily — and in consequence so precisely. This reinforces my experience that lap times can be varied by tenth of a second — a performance that can be reproduced.

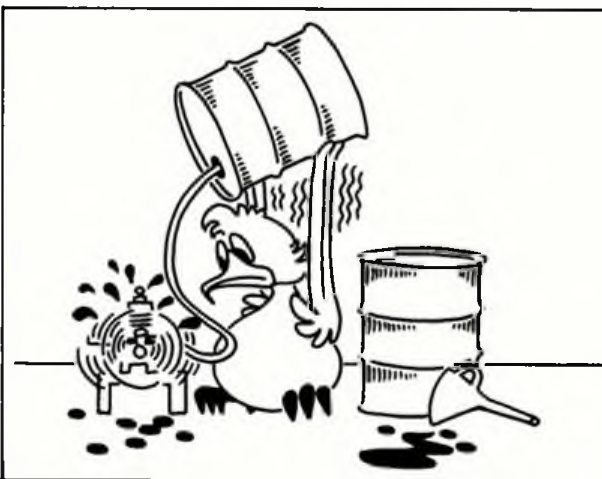
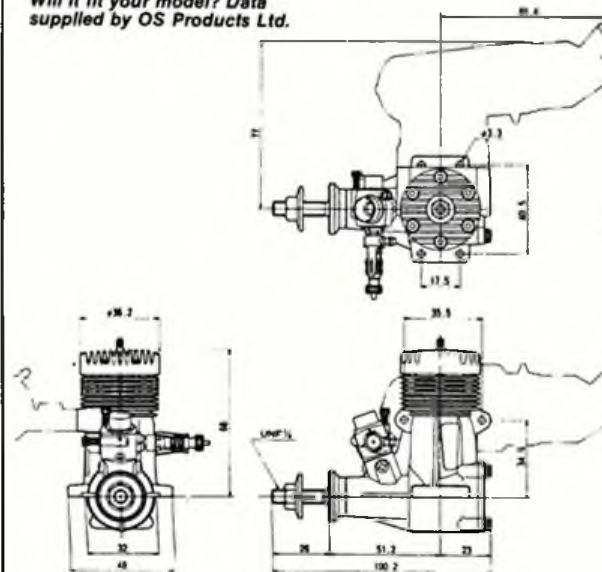
In contrast, the HP was the least smooth-running engine. The soft sound of the ST just isn't there. Those who watch the HP flyers on the contest circuit know that. Power output of the HP is high. Even with the smaller intake area the table shows the same figures as the ST. The HP had the highest RPM difference of all engines tested; perhaps it needs an even smaller intake? I'd prefer a little less compression, too...

My old OS 40 (the one with the baffle piston) decided to behave somewhere in between the conventional cross flow and the modern Schuerle types. In the low RPM range (below 8,000) it doesn't run as smoothly as the ST, but it sounds much more pleasant than most schneurles. It showed the smallest RPM difference and it reacts relatively gently to needle adjustment. Alas, this engine is another that has been discontinued. If a good second-hand example was available somewhere, I wouldn't hesitate to buy it. There shouldn't be any spare part problems with this engine.

Now the OS 40 FP was a real surprise. Because of the layout of this motor I had expected it to run away howling and to go on strike on low revs. Actually though, the engine ran beautifully throughout, even down to 7,500. RPM difference with fuel head variation was small, yet it reacted quite sensitively to needle-valve variations of fuel flow (but not as precise or reliable as the Super Tigre). Maybe the



Will it fit your model? Data supplied by OS Products Ltd.



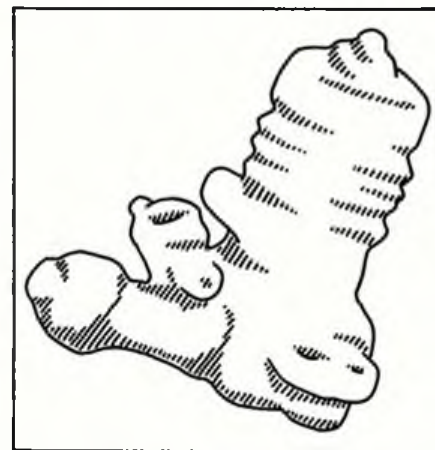
venturi opening was a little too large. For instance, the engine reacted rather nervously when the fuel line was squeezed slightly. This 'squeezing' was part of another test, carried out at the same time, which will be another story... Maybe this characteristic isn't so bad. Just possibly it may improve the four-stroke/two-stroke change in flight, which ought to happen sharply.

Starting the FP with its lapped piston was a satisfying business, but of course it's not quite as consistent as the ringed engines. In warm conditions particularly there's less compression. Maybe a smaller and/or longer venturi than that on my example could help here.

This comparison wasn't made to find out the best-ever engine. I just happened to have these motors in my possession. The desire to learn does not necessarily mean all-encompassing results. After all, to do this would require a much more serious

approach — and all my spare time. Making engine tests — and writing articles — should be as much fun for me, as reading *Aeromodeller* is for you.

Hope it is!



Above: Now test your powers of recognition — what's this mystery engine, drawn in shrouded form by Claus? Clue: It's his choice for the M35, remembered (left) from the last Nats. Answer: What else but the ST 46...

Racing with Jim Woodside

... in which results are analysed, an attractive 1/2A is featured - and we say goodbye...

June 1987

Review of the 1986 Racing Season

At the time of writing this, the unfortunate news is that John Horton, upon whose comprehensive charts these tables are based, is ill in hospital. Hopefully, by the time you read this John will be on the road to full health. I am sure that you join me in sending him our very best wishes.

It seems to me that the real winner in

1986 was the vile British summer; nearly every competition was run in conditions which varied from the less than ideal to the downright awful. This was doubly disappointing as it was the second season in a row to suffer badly from the elements. Personally, I feel really cheated when the weather wrecks our hobby as it seems to mock all the hard work of preparation in a way which is quite intolerable when compared to, say, mechanical failure or defeat by a better opponent.

1986 Racing Review

Goodyear

1 Clarkson/Needham	Stockport	49	Rossi III/AD
2 Pegg/Thorpe	Hamilton	18	Rossi
3 Fitzgerald/Groome		17	Rossi II
4 Gordon/Aberdeen	Scotland	16	Rossi
5 Thorpe/Swinburne	Scotland	15	Rossi II

Class B

1 Fitzgerald/Thomason	Wharfedale SCLAMS	15½	OPS 29
2 Sladdin/Campbell	Grantham NOVOS	12	OPS 29
3 Clarkson/Needham	Stockport	8	ST 29
4 Bryant/Myszka	Bilston	5	OPS 29
5 Horton/Haworth	Wharfedale	4	Dragon 2.6

1/2A Team Race

1 Horton/Haworth	Wharfedale	15	Haworth Special
2 Clarkson/Needham	Stockport	15	Sesqui Special
3 Langworth/Broadhead	Wharfedale	9	Oliver Schneurle
4 Montgomery/Sabey	Scotland	9	Oliver Schneurle
5 Lipowski/Arnott	Scotland	7	Oliver Schneurle

FAI F2C Team Race

1 Sladdin/Gardner	Novos	23	Nelson
2 Hill/Matcalfe	SCLAMS	23	Cipolla
3 Smith/Brown	Feltham	21	Cipolla
4 Heaton/Woodside	3 Sisters	18½	Dragon
5 Fitzgerald/Thomason	Wharfedale SCLAMS	12	Nelson

Best all Rounders of 1986

1 Clarkson/Needham	Stockport	84½
2 Fitzgerald/Thomason	Wharfedale	36½
3 Sladdin/Gardner	SCALMS	
4 Heaton/Woodside	Novos	29
	3 Sisters	23½

Best Clubs

1 Stockport	103
2 Wharfedale	58
3 Feltham	55
4 Scots Teams	48
5 SCLAMS	41

On the human side, one thing which seems to have diminished the spark of enthusiasm is the introduction of rules which appear, in retrospect, to be not fully thought through. This is best seen in Open Class Goodyear. With the exception of the clear cut winners, Clarkson/Needham, the rest appeared disillusioned by the new 600gm maximum weight rule. The skills now needed to build, within the limit, a modern systems machine powered by a high value diesel make it all seem a long way from the initial concept of a simple and cheap beginners' event. In my opinion the introduction of Class II Goodyear is only the acknowledgement that the main class has gone badly wrong. An inspection of the Class II competitors list shows that the majority are Open Class competitors doubling up on their day out. When even those who compete in Class II term the event 'Wally Goodyear' we have clear evidence of the need for a radical re-examination of the Goodyear classes. Without going into specifics my own guidelines would be:

- Open Class to be made easier by relaxing the weight rule, and made cheaper by re-introducing glow engines.
- Class II to be made quicker by allowing a wider range of engines. Further, no experts to fly in the class. If the Class II event thus folds through lack of support, then so be it.

The other real doldrums event is Class B. As Dave Campbell pointed out in his Nats '86 report, 'B' is expensive and the models are heavy and demanding to fly. At the risk of boring you by repetition I will say that the silencer rule could well be dropped.

I really cannot see the noise emitted by these models being a problem as they are flown only on remote sites. The lower weight would certainly improve the level of pilot comfort; and glows in open Goodyear would perhaps encourage some follow through into 'B'. Lastly, there are

some grand 3.5cc motors, light, powerful, cheap and easily available, which could pep up interest in Goodyear and 'B' should the rules accommodate their use.

As ever, the most expensive and demanding class, F2C, continues to be the mostly solidly supported. This seems to



Spiffing 1/2A Models No. 2: Dave Campbell's Oliver Cub powered Acme

I have mentioned this model several times in dispatches and so it gives me a lot of pleasure to be able to present a one-third size plan of this elegant racer. Moving the cockpit back to a realistic position is what lends the profile its appealing line. However, this does give it a very low front to the fuselage and it many not accommodate engines which have a rear-intake or upswept carbs, such as the Sesqui. However, front-intake motors like the original Oliver or the Webra Speedy conversions fit very snugly.

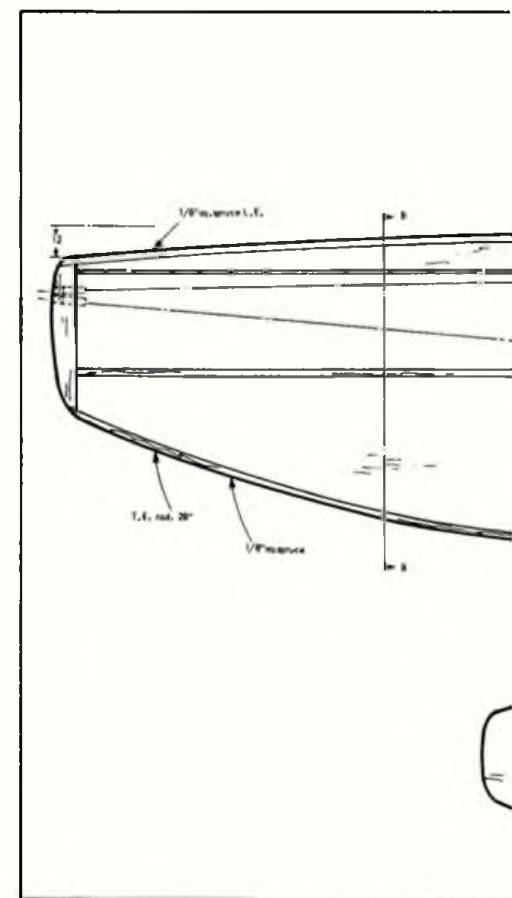
Dave Campbell likes to fit out his models neatly and clearly. The elevator is moved

by a closed loop system, which gives a very positive action, free of slop and with minimum weight. Note also the way in which the tank valve is opposed to the spring-loaded tube crusher fuel shut-off. Thus, the system can be easily reset with thumb pressure during refill.

The wing is actually built with a sandwich core of transverse grain to help resist crushing. I doubt if this is really necessary with these light models but it is symptomatic of the care taken in construction. Even if you decide on using just 1/4in. sheet I would strongly recommend that the spar be retained. Although the tailplane shows two elevators the inner one was eventually disconnected as one 'wagger' proved to be quite sufficient.

The original model was finished in orange Hobbypoxy paint sprayed over a traditional dope and tissue finish.

Dave has drawn fully detailed sheet incorporating dimensioned instructions for tank, shut-off and control system. Should you be seriously considering building the model I am sure he would be pleased to supply copies. Phone him on Hinckley (0455) 611724.



uphold my contention that good rules attract good support. Great Britain continues to show that, as far as this event is concerned, it is still at the forefront at World level. Despite not having the services of Smith/Brown, the UK Team took second place at the 1986 World Champs in Hungary, behind the very on-form Russians.

The Nationals event was claimed by a Dutch team, Meijer-Metkemeijer; it has been some years since the last Continental 'invasion'. This particular campaign also broke Steve Smith and Colin Brown's long running grip on the Davies 'A' Trophy.

No 'All Time Greats' appear in this review as John Horton has not had the opportunity to prepare this interesting section. They will be published later.

Finally, good luck to you all in the 1987 season. Some sun and no wind please...

Notes to accompany tables:

Goodyear was a most resounding win for Clarkson/Needham - by a huge margin, too. As was pointed out earlier I consider this a bad omen; nonetheless, congratulations to Dave and Ed.

It was a quiet year in 1/2A, with only five events. The 1.5cc 'specials' did not dominate quite so strongly. For my money 1/2A remains the most pleasant event in which to compete. And how pleasant to see some newcomers at last!

F2C became a good, close contest with a wide variety of motors. The second team even used a wing-and-tail model!

There was not much doubt about 'best club' this year. I am sorry to note that my favourite club, the 'Horseshoe Pub' has dropped to 12th place. Surely a sign of too much saloon bar practice sessions?

Goodies Directory: Ed's Bits

Enthusiastic extraordinaire Ed Needham has sent me a copy of his very full list of T/R items, of which there are no less than twenty-eight. As it is too long to reproduce here in full, I will just mention the main items; but it is well worth sending for a full copy of the list.

T/R Wheels - three types	£1.50
Tank valves - four types	£3-£4
Venturii - various threads	£1.50
Props - glass) FAI 1/2A	£2.75
Props - carbon) Goodyear	£3.25
Two part diesel heads - similar to Nelson	£12.00
Finger valves	£7.00

Should you be interested, give Ed a ring on 061-477 7395 or write to:

Ed Needham
100 Lowfield Road
Cale Green
Stockport SK3 8JR
Cheshire

Famous Quotes No. 4: Model Aircraft, December 1953

'A Vicious Circle: From docile sportster to a guided missile ... such has been the evolution of the team racer over the past few years (that) keeping up with the pace of the models requires something in the nature of a superman ... it seems that a 100mph model is almost unmanageable on the present 52ft line length. One answer is to increase the line length to, say, 70ft and thus slow down the rate of gyration to a controllable pace ... possibly a decrease in

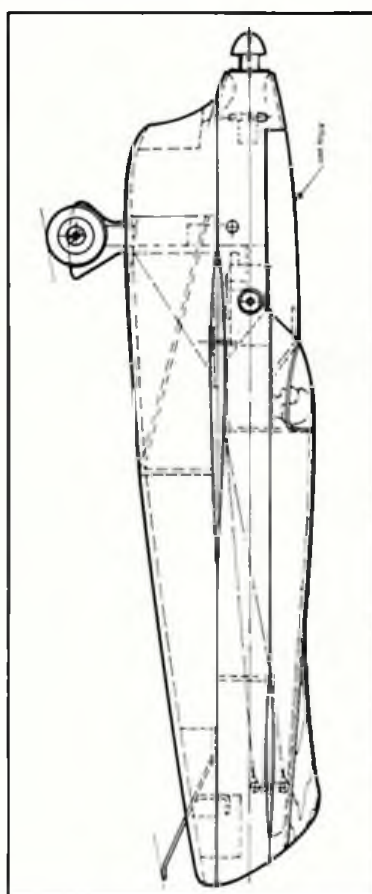
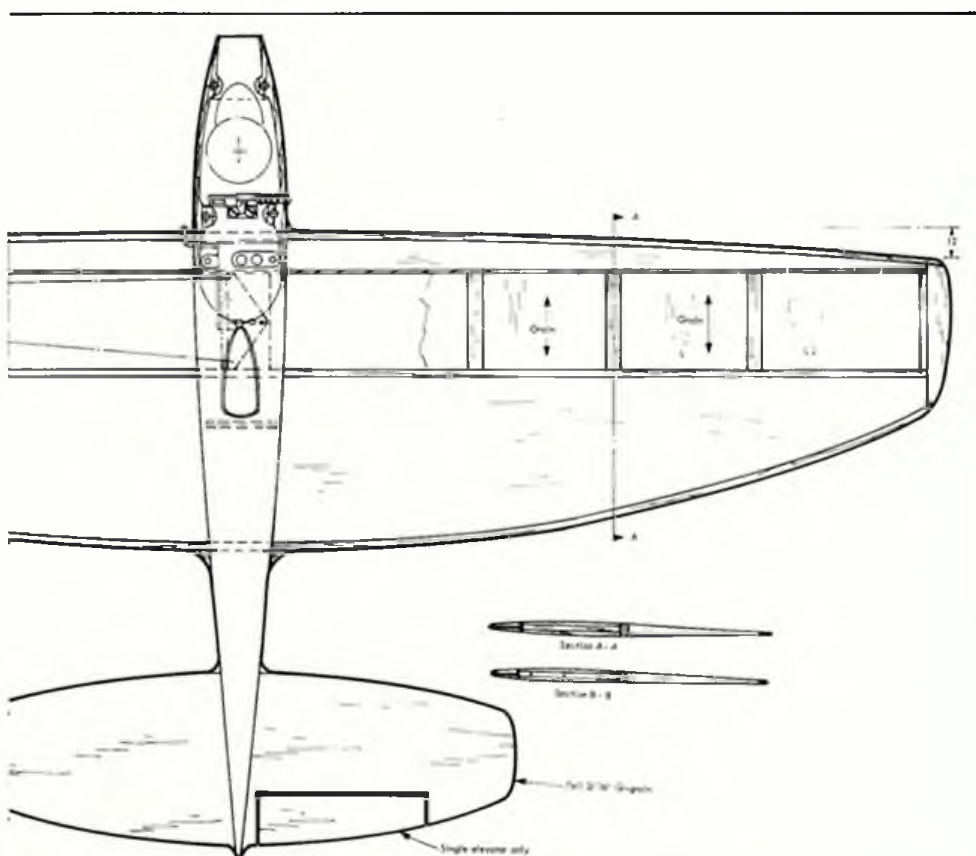
engine capacity will provide a favourable solution but, in any case a survey of the existing team race rules seems to be desirable.'

It all sounds very familiar, does it not. One wonders what the editor would have thought had he seen today's 'missiles' flashing round at an extra 30 mph. In my opinion it simply shows just how good the basic T/R rules are to have lasted three decades with quite minimal change. . .

Bye-Bye

It has come to that time when I feel that I should give up the Racing section of From the Handle. I must admit that I was surprised when I checked up on when I began my term in the hot seat - January 1981. The last six years have been very enjoyable and I have made many good friends as a result of my labours with the pen. Could I take this opportunity to thank the very many of you who have contributed material and ideas over the past years. I would like to particularly single out the following for making my own racing such a rewarding exercise: Aeromodeler editors past and present, Jurgen Bartels; Dave Campbell; Dave Clarkson; John Daly; Theo Georgiadis; Don Haworth; Derek Heaton; Don Jehlik; Roger James; (Visionregal); Derek Leigh (for 3 Sisters); Rob Metkemeijer; Henry Nelson; Huttod Oddy; Walt Perkins (Shadow Racing); Gino Voghera; and thanks must go to Janice Woodside for support - I promise the kitchen *will* be rebuilt this year.

Derek Heaton and Dave Clarkson will take over to bring a refreshing change of emphasis to the content.



MIND THE LINES

Coming events, Midge history and speed matters are discussed by Andy Brough

FIRST ON THE AGENDA must be John Noble's notification of the ever popular 3 Sisters Gala. This year's dates are June 27th and 28th. John tells us: 'We will be including the inevitable Midge Speed and also Vintage T/R, classes A and B. We managed to run two vintage T/R events last year, one at the Gala and the other in the autumn. Bad weather unfortunately resulted in a low entry for the latter event.'

'At the moment, the T/R rules will be exactly the same as they were last year, but I know that fellow Club member, Derek Heaton is discussing possible modifications with our 'founder', Dave Campbell of Grantham. Any changes will be designed to encourage more modellers to come along and have a go, without trying to make life more difficult for those who already do compete. Certainly we want to see a wide variety of models and engines talking part; we don't want things to become just a matter of who has got the best 'Tiger' in his Time Traveller. We hope to come up with a formula which will enable ED Racers and so on to take part with some chance of success.'

'Let's face it, if the event is to become an established success we need as many people involved as possible. There has to be room for all sorts, from the man who competes once a year to the expert. After all, without the former we fail for lack of members, and, without the latter, where do we get all our essential "goodies"?''

Too right, John; and the picture of the APS Mew Gull shows just the type of model which should be encouraged. Gordon Isles (another 3 Sisters man) recreated this superb example of the control liner's art, and if it turns out not competitive enough he can always enter a

scale comp! For more 3 Sisters gen, call John on 061 790 4056.

In my last column I mentioned the introduction of C/L flying at the Rolls Royce Vintage do on 27th September. Organiser Terry McDonald has sent more details.

1. Old Time Stunt

This contest is restricted to designs published before the end of December 1952. If powered by a vintage engine, extra points are awarded. Other features which gain extra points are: no flaps; pre-1950 design; biplane. The SAM-approved Old Time Stunt Schedule will be used, as will the SAM marking scheme. As an experiment to encourage more entries from the less proficient, it is proposed that the pilot should nominate seven of the manoeuvres as his schedule plus, of course, take off, landing and two laps straight and level. This will enable the less able to fly the simpler aerobatics, with a lower maximum score attainable, of course.

The schedule is: Take off; two laps straight and level; vertical climb; vertical dive; wingover; one lap inverted; five inside loops; five outside loops; three horizontal eights; three vertical eights; three overhead eights; one square loop and landing.

2. Midge Speed

This is a straightforward speed contest for Mercury Midges powered by plain bearing, non-schneurle-ported engines up to 1.5cc. Vintage (pre 1951) motors gain a 15% speed bonus. (I assume the current 87 Class 1 rules as listed in the March issue will apply. ACB). 35ft. Laystrate lines will be used.

3. Concours d'Elegance

The Judge(s) of this contest will award a prize to what they consider to be the best finished, most authentic vintage control line model. Flying characteristics will be taken into account.

As I said in the March issue, please attend if possible as I'm sure it will be a good do - and we need as much vintage C/L as possible on the calendar. See you there?

Of Midges or Tadpoles...

In the course of visiting the SAM 35 stand at the Model Engineer Exhibition in January, I was handed a letter from Alan England. It was unfortunate that we did not meet. However, Alan's letter was most fascinating and is worth reprinting here; it relates the whole tale of Midges, which as you know, was the model that got me into the Vintage C/L scene in the first place.

Heading: Team racers were meant to look like this . . . Gordon Isles' superb Mew Gull is really impressive. An ideal candidate for the ill-fated SMAE Scale Speed competition?
Left: One from the album! Alan England at Fairlop in 1949, complete with .29-sized Tadpole, progenitor of the Midge (see 'Of Midges or Tadpoles' . . .).



Alan tells us:

'I was a close friend of the late Cyril Shaw and a member of the Zombies Club during the late 40's and early 50's. Living at Chertsey, I spent all of my out-of-school time in the Shaws' model shop and as a result got to know many of the people in the model trade. Now, although Cyril did build and fly the Javelin-powered Midge which eventually set a British Class 1 record, he did not originate the Midge design. The original and other early models of this type, which were McCoy 29 and ETA 29 powered, were built by myself. I progressed to a Black-case McCoy 60 and built a 60-size 'hooded' version. Cyril built a similar model but used a Series 20 McCoy, as did Ray Gibbs.'

'The weak feature of these models was the built-in tank. If the tank feed was not right then the model was either put to one side or subjected to major surgery. Incidentally, the model was known then as the Tadpole, from its fuselage plan shape. Cyril took the second of my .29-sized Tadpoles to show Bill Dean and to talk about publishing or kitting prospects, but it was decided there would not be enough interest. The ETA .29 I had was a very early production model, given to Cyril by Ken Bedford. Although a shade faster than my McCoy (which I won at the West Essex Gala in 1948) its fuel draw was not as good, probably due to too much motor backplate clearance about which we knew very little then.'

'So where did the Midge come in? One of the people who came into the Chertsey shop was Alan Allbon whom we had known through the 2.8; and when he produced the glowplug Arrow he asked me to put the prototype in a model, so I built a small version of the Tadpole. The power of the Arrow meant a top speed of only 50mph. When the Javelin came along it was a much more practical proposition so it was this model that Cyril built and flew, and which Mercury kitted.'

'So now you know, folks; the Midge should really be like Dick Roberts' ETA .29 version seen at Old Warden, and called the Tadpole! I for one have no intention of introducing Tadpole racing for .29s but if you want to have a go, feel free!'

Thanks ever so much Alan; that's a slice





of vintage history which I'm sure few of us knew about. By the way, Alan threatens to build an Arkansas Traveller for the Old Warden do at Vintage Weekend, so that should be worth seeing.

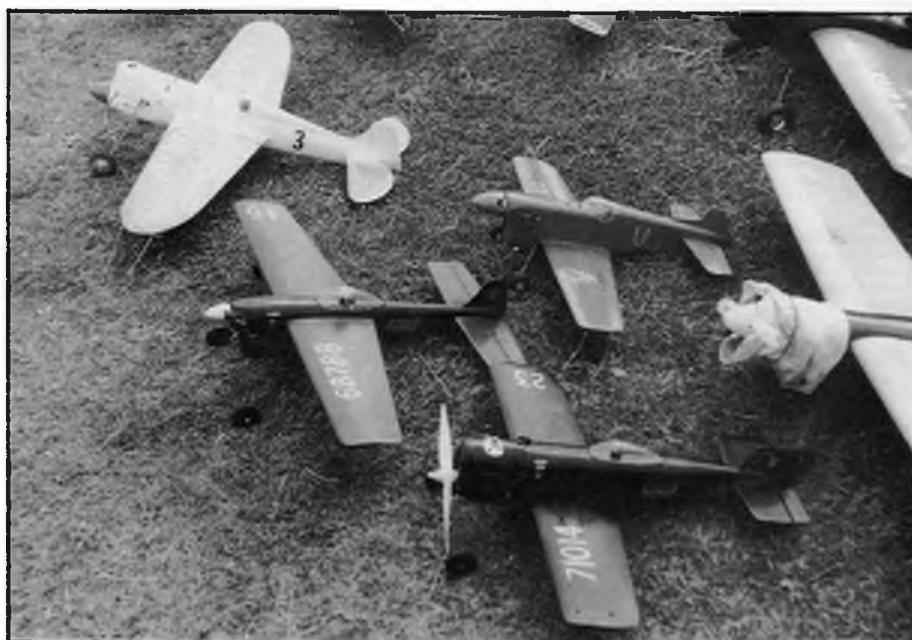
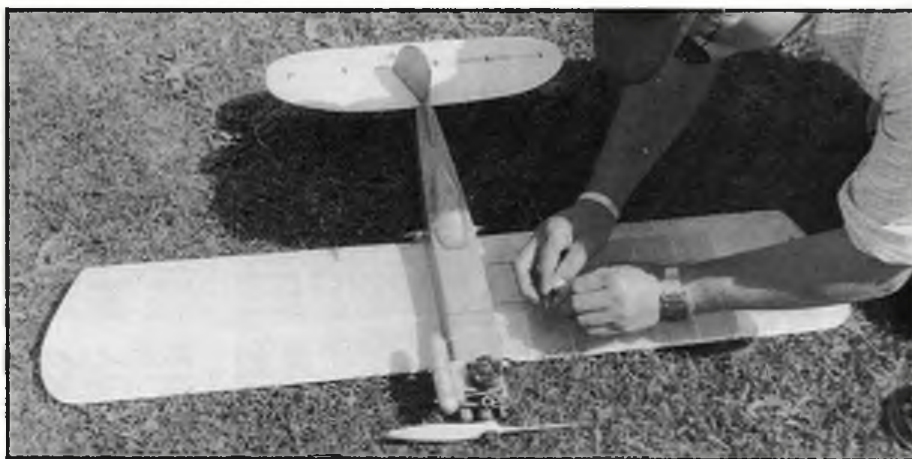
Stateside stuff

I must thank Steve Betney for the Tom Dixon catalogue he left for me at the M.E. Exhibition. This publication is C/L orientated with the emphasis on vintage. Tom is the US stockist of Merco engines and speaks most highly of them (no mention of PAWs though!) but I suppose his claim to fame in the Vintage area is as a stockist of C/L plans. All the well known designs are there, All American SR, Madman, Nobler, Glo Devil, Smoothie, Super Duper Zlich and the Chief. Of course there are lesser known models as well amongst a good collection of Nostalgia (1953-64) designs and modern plans from '64 onwards. Tom can be reached at Suite 401, 1938 Peachtree Road, Atlanta, Georgia 30309.

Interest in the Arkansas design has reached the USA where Bud Brautlecht is building one for an ST60 ignition engine (genuine vintage) with which he hopes to appear at Old Warden. Some folk are keen (or mad)! Bud also says the South Jersey Club will compete again in the 2nd International Midge comp. which will be the same postal comp as last year, to coincide with the 'Rubery do' in October. South Jersey reckon they'll win this time, but Barry Wade has an even faster Elfin 1.5 up his sleeve so we Brits are probably still the favourites. Barry achieved 92.3mph with his 'slower' Elfin last year! Thanks go to Don Burgess for the above info.

Plans...

By the way, my list of 'free' plans now includes: Midge, Speed Wing, scale drawings of Arkansas Traveller, Glow Bee, Wolverine, Bullet and all the Ian Allan Model Aviation small scale plans. If you fancy anything please drop me a line complete with an SAE and I'll see what I can do. I'm able to copy A4 and A3 and probably have most of the relevant mags if you need info... I'm sure I spoil you!



Top: SAM35 Chairman Gordon Counsell attaches the lines to his Frog 500 powered APS Juggler. On the original print we think we identify an original KLG plug; the silencer is a more recent item. Centre: Team racers at Old Warden. Curvaceous one at the back is a Super Saint, Frog 500 powered. Vintage T/R - see first item this month - is an ideal class in which to use those early glows. Above: Team race version of the KK Scout, a Steve Betney favourite. This 'biplane Phantom' was a relatively short-lived kit, but its attractive lines make it a popular Vintage choice today. How about a twice-size one?

What's on...plan your weekends and take a plane!

17th May

SMAE N.W. AREA R/C FLY-IN
Hosted by Blackpool and Flyde RCMS. Bring the family. All flyers welcome. Venue: Blackpool Zoo Flying Site. Contact: Chris Bromley. Tel: 0253 25080.

17th May

CARDINGTON INDOOR MEETING
Fun flying. Fly Rod E2B best two from six flights, novices only; All-In Index best single flight. Contact: Bob Bailey. Tel: 0438 723642

23rd-26th May

1987 SMAE FREE FLIGHT NATIONALS
RAF Barkston Heath. Programme as follows

23 May

A/1 Glider for British Airways Trophy, CDH for HJN Trophy, 1/2A Power for Hales Trophy, CO₂ Duration for Sparklets Trophy, HLG for HLG Trophy

24 May

Open Glider for Thurston Cup, Open Rubber for Model Aircraft Trophy, Open Power for Sir John Shelley Trophy, Vintage for Jubilee Trophy, Tailless for Lady Shelley Trophy, Junior contest for Frog Junior Trophy, Women's contest for Women's Cup, SOP for Falcons Trophy.

25 May

F1A (A/2) for Ronytube Trophy, F1B (Wakfield) for Boxall Memorial Trophy, F1C for Eddie Cash Memorial Trophy. Contact: Pete Harris. Tel: 0562 741443, or Phil Ball. Tel: 0332 665361.
NB Junior Kit Contest details in Hangar Doors

31st May

TYNEMOUTH MAC RALLY
F1A, O/R, O/P, Combined Mini, Vintage, HLG, 10 am start (11 am power). Venue: Albemarle Barracks. Pre-entry (no fees) - essential before 25th May. Contact: Tony Brown. Tel: 091 2362155.

31st May

PETERBOROUGH MFC C/L SPORT AND VINTAGE FUN FLY DAY
Includes formal Stunt and Midge Speed to SAM35 rules. Venue: The Embankment, Peterborough. Contact: Mick Taylor. Tel: 0733 204484. Note: This is a date change from 14th June

31 May

NUNEATON MAS F2B AND NOVICE STUNT COMPETITION
Venue: Robinsons Vend Playing Fields, Nuneaton. Contact: Dick Downes. Tel: 021 440 7244.

7 June

WINTHORPE R/C MFC FLY-FOR-FUN-DAY
Venue: Winthorpe Showground. Contact: J. Shaw. 68 Macauley Drive, Balderton, Newark NG24 3QJ.

7 June

SMAE 4TH AREA CENTRALISED CONTEST
Area Venues: Open Glider (individuals and Club teams) for Plugge points and Model Engineer Cup, CDH, F1C (FAI Power) for Astral Trophy.
Contact: Area Comp Secs or SMAE Comp Sec K. Watson. Tel: 0533 412368.

13-14 June

RAFMAA / SMAE TWO-DAY FAI MEETING
Venue: RAF Barkston Heath.
First round starts at 11 am Saturday. A/1, 1/2A, CDH and HLG on Sunday, 10 am start, 4 pm finish. Flyoffs as required. Camping on Airfield, Saturday night only. Pre-entry £1.50, £3.00 on the day.
Contact: G.C. Hart, 12 Argosy Road, Lynham, Wills. Tel: 0249 890862.

14th June

4TH HUDDERSFIELD VINTAGE R/C ASSIST EVENT
Simple Precision, Precision, Duration, Texaco, Flying Fifteen, Vintage R/C Gliders with comp if enough support. Venue: Birdsedge flying site. Contact: Colin Thompson. Tel: 0484 850422 or 851433 - essential for frequency details.

14th June

TEESSIDE MFC FUN FLY EVENT
Visitors and clubs welcome. Insurance needed! Contact: Stuart Smith. Tel: 0642 764842 (essential as no further details given).

14th June

CARDINGTON INDOOR MEETING
Fun Flying; All-In Index best single flight. Contact: Bob Bailey. Tel: 0438 723642

14th June

FIRST N.W. VINTAGE SWAPMEET
Venue: Lostock Alkali Social Club.

Northwich, Cheshire 10.30 am start. Tables available at £2.00 each. Contact: David Lloyd-Jones. Tel: 056589 3170.

14th June

THREE KINGS C/L SPORT AND VINTAGE DAY
Venue: Old Croydon Airport, Purley Way, Surrey. Vintage Stunt, Midge Speed and Fly-for-fun. Silencers and insurance essential. Contact: Derek Bird. Tel: 01 874 6394.

14th June

WHARFEDALE AEROBATIC COMPETITION
FAI and Novice Stunt. Venue: Ilkley, W. York. Contact: Jeff Smith. Tel: 0532 663432. This is a new Wharfedale annual event.

20-20th June

ASP 21st SCALE RALLY
Venue: Old Warden Airfield, Biggleswade, Beds. The annual pilgrimage for all scale enthusiasts! Informal R/C, F/F and C/L scale flying all weekend long plus the delights of the Shuttleworth Collection and - new for '87 - Band, Barbeque and Beer on Saturday. Camping too. Don't you dare miss it! Contact: Aeromodeller. Tel: 0442 41221.

21st June

LUCAS-BILSTON C/L FLY-IN
Venue: Lucas Aerospace Sports Field, Fordhouses, Wolverhampton (close to Junction 2, M54). Aerobatics, Vintage Aerobatics, Slow Rate and Class 1 Vintage speed to Andy Brough rules. Silencers essential for all classes except Speed Gates open 10 am. Contact: Keith Garbett. Tel: 021 556 0115.

21 June

BLACKBURN AND DMAC SUMMER FLY-IN
Venue: Pleasington Playing Fields, Blackburn. Scale, semi-scale or unusual model rally. A fun day for all. Excellent prizes. Entry fee: £1.00 payable on the day. 10 am start. Contact: Michael Winder, 27 Belgrave Road, Darwen, Nr. Blackburn, Lancs BB3 2RP.

21st June

WHARFEDALE OPEN MINI GOODYEAR
SMAE rules but with Open Models. Venue: Dewsbury, W. Yorks. Contact: Jeff Smith. Tel: 0532 663432.

21st June

OXFORD MFC FREE FLIGHT RALLY
A/1, CDH, CO₂ flown in rounds from 10 am HLG and Vintage (34 in. max span limit for rubber models) not flown in rounds. Special Junior awards. No power models! Note: Champagne fly-off at 7 pm, Saturday 20th June for A/1, CDH and HLG. Contact: Andy Crisp. Tel: 0865 53800.

27-28th June

THREE SISTERS C/L GALA
Stunt, Novice Stunt, Open Speed, Midge Speed, FAI T/R, Goodyear Class 2, Open Goodyear (1985 rules), Diesel Combat, FAI Combat, Vintage T/R Classes A and B. Contact: J.A. Noble. Tel: 061 790 4056.

28th June

CHILTERN CUP C/L STUNT COMPETITION
Venue: Slip End, Luton. Contact: Glen Alison. Tel: 0923 772675.

4-5th July

NORTH YORKSHIRE FREE FLIGHT GROUP TWO DAY MINI-EVENT
A/1, CDH, CO₂, HLG, Mini-Vintage, maybe other small classes. Venue: York Racecourse. Camping and caravans permitted. Prizes and cash. Contact: John Pool. Tel: 0757 703060.

4-5 July

INDOOR NATIONAL CHAMPIONSHIPS
Saturday. Index event for E2B, Fly Rod E2B, Peanut Duration, Novice Pennyplane, CO₂ Duration, Manhattan Cabin, Pennyplane, HLG Houlberg Trophy for E2B (best two flight from six), Sparklets Trophy for CO₂ Duration (best two from six), Sparklets Longest Flight Trophy for CO₂ Duration (flights on this day only qualify).

Sunday: Index event for F1D, Open Microfilm, 35cm Microfilm (best single flight), Aeromodeller Trophy for F1D (best two from six), 1988 Indoor W/C Team Selection Trials (first three flights in rounds - best three from nine). Fun flying if no interference with comp flights. Contact: Bob Bailey. Tel: 0438 723 642.

5th July

SMAE C/L AND F/F SCALE COMPETITION
Venue: RAF Abingdon, near Oxford, 10 am start. Contact: Charlie Newman. Tel: 08677 3020.

5th July

PETERBOROUGH MFC DIESEL 'A' COMBAT
Venue: The Embankment, Peterborough. Contact: Mick Taylor. Tel: 0733 204484.

11-12th July

HARROGATE MODEL CAR CLUB MODELLING EXTRAVAGANZA
Venue: Newby Hall, Ripon, North Yorkshire. C/L competition, Helicopter and fixed-wing fly-for-fun Helicopter Workshop and tuition on the Saturday. Also R/C cars, slot cars, model boats and much more. Contact: Robert Thorn. Tel: Harrogate 501970.

12th July

MORLEY & DMAC SILENT AND VINTAGE DAY
Combined A/1 and CDH, Vintage Rubber (up to Wake size) and Vintage Glider (up to Nordic), P.30, Mini SOP (0.5cc diesel). Event sponsored by Finlux TV. Prizes! Venue: Heath Common, Nr. Wakefield. Contact: Barry Judge. Tel: 0274 875976.

12th July

WHARFEDALE CLASS A COMBAT
Venue: Dewsbury, W. Yorks. Contact: Jeff Smith. Tel: 0532 663432.

12th July

ASP GOLDEN ERA DAY
Venue: Old Warden Airfield, Biggleswade, Beds. All the fun of the fair with a flavour of the 'twenties and 'thirties'. Period aeromodelling on display - turn up and fly scale or vintage; dress up too and really look the part. This event follows the Shuttleworth Flying Evening on 11th July - an unforgettable chance to view all the rarities of the collection amidst classic Big Band Melodies. Other attractions too! Overnight camping arrangements. Do come! Contact: Aeromodeller. Tel: 0442 41221.

19th July

SHUTTLEWORTH MODEL GROUP OPEN DAY
Old Warden Airfield, Biggleswade, Beds. 9am-6pm. Everyone welcome! C/L scale competition and general fun flying. Contact: Mick Staples. Tel: 0223 241978.

19th July

BLACKPOOL AND FYLDE RCMS SCALE FLY-IN
R/C Semi-scale to super-scale; all welcome. Grass runway! Venue: Blackpool Zoo flying site. Contact: Chris Bromley. Tel: 0253 25080.

19th July

COLCHESTER MAC VINTAGE DAY
Texaco, Flying Fifteen, Precision and fly-for-fun R/C only. SAE for details to Peter Grant, 2 Duncan Rise, Gt. Yeldham, Haisfield, Essex. Tel: 0787 237967.

26th July

FACCT THERMAL SOARING RALLY
Venue: RAF Weston-on-the-Green BARCS League and R/C Chuck Glider. Pre-entry £2.00 + SAE SMAE members only. Contact: N.G. Webb, The Bungalow, 13 East Street, Fritwell, Oxon OX6 9PX.

26th July

INDOOR EVENTS AT CARDINGTON
1988 Indoor W/C Team Selection Trials (second three flights in rounds). Fun flying if no interference with comp flights. Contact: Bob Bailey. Tel: 0438 723642.

26th July

1987 DREAMING SPIRES GALA
Comps, Vintage: lightweight rubber (36 in. span max), Vintage glider (up to A/2), vintage HLG, CO₂ Precision, Rubber kit contest (36 in. span max., plastic props and D/T allowed). Scale events for F/F power (up to 1.5 cc), CO₂/electric, Rubber (15 in. span min) and KK/Varon Rubber scale Mass Launch.
SMAE membership required for flying. Venue: Port Meadow. Contact: Charlie Newman. Tel: 086 77 3020.

1-2nd August

WOODVALE RALLY
Model flying, competitions and displays: full-size aerobatics, vintage and classic cars; R/C cars and much, much more. 9 am - 6 pm each day. Entry £5.00 per car. £8.00 two-day ticket; children and OAPs £1.00.

15-16th August

ASP VINTAGE WEEKEND
Venue: Old Warden Airfield, Biggleswade, Beds. Don't miss this one. Vintage enthusiasts! Two days packed with everything you could wish for - R/C, F/F and C/L Vintage models of every type. Informal and semi-formal competitions many courtesy of SAM 35 - but lots and lots of fun-

flying and the chance to browse amongst nostalgic! Contact: Aeromodeller. Tel: 0442 41221.

15-16 August

PLUMPTON '87
Planes, cars, boats, trains, traction engines and lots more, including trade stands and a live band plus fairground and many other attractions. Aircraft from chuck gliders to pulse jets will be there. DPR Competitions for juniors on both days. Prizes! Full camping facilities at £15 per family for the weekend, daily entry is £2.00 (adults), £1.00 (children). Senior Citizens free. Car parking free. Venue: Plumpton Racecourse. Contact: Dave Bishop (D.B. Sound). Tel: 0959 77550.

16th August

FACCT MINI-GLIDER COMPETITION
Venue: Weston-on-the-Green area. 60 in span, 20 oz max. Bungee launch. Pre-entry £1.50 + SAE. Contact: N.G. Webb, The Bungalow, 13 East Street, Fritwell, Oxon OX6 9PX.

23rd August

INDOOR AT CARDINGTON
Fun Flying and All-In Index (best single flight). Contact: Bob Bailey. Tel: 0438 723 642.

6th September

SHUTTLEWORTH MODEL GROUP SILENT DAY
Old Warden Airfield, Biggleswade, Beds. 9am-6pm. No i.c. engines to be run. Contact: Mike Staples. Tel: 0223 241978.

6th September

TEESSIDE MFC SCALE & VINTAGE MEET
Visitors welcome but Comps restricted to TMEC members. Contact: Stuart Smith. Tel: 0642 764842 (essential as no further details given).

13th September

INDOOR AT CARDINGTON
1988 W/C Team Selection Trials (third three flights in rounds). Fun flying if no interference with comp flights. Contact: Bob Bailey. Tel: 0438 723642.

13 September

WINTHORPE R/C MFC SCALE FLY-IN
Venue: Winthorpe Showground. Contact: J. Shaw, 68 Macauley Drive, Balderton, Newark NG25 3QJ.

20th September

INDOOR AT CARDINGTON
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Venue: RAF Weston-on-the-Green BARCS League and R/C Chuck Glider. Pre-entry £2.00 + SAE. Contact: J.H. Shaw, Alveto, Witney Road, Freeland, Oxford. Tel: Freeland 881350.

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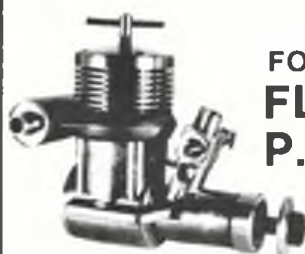
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The issue comes with a free plan (Avro Avian) printed front/back on a pull out banner of four sheets. The banner is not included in this document.

Diamond Demon by Ben Buckle

Little gem for Free Flight or Radio Control by Ben Buckle plan BB 259

[Document Page: 8](#)

Ionosphere by O.F.W. Fisher

Presented in TAILLESS TALES. Plan from Model Aircraft. July 1953.

https://outerzone.co.uk/plan_details.asp?ID=10498 ...

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AVRO Avian by John Watters

FF Power Golden age scale biplane

[https://www.hippocketaeronautics.com/hpa_plans/det ...](https://www.hippocketaeronautics.com/hpa_plans/det...)

[Document Page: 24](#)

Single Propeller Monoplane by W.E. Evans

Canard Type presented in VINTAGE CORNER.

[Document Page: 29](#)

Glider of Bill Colledge by Bill Colledge

Presented in FREE FLIGHT SCENE

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Acme Racer by Dave Campbell

A "spiffing" 1/2A CL racer presented in FROM THE HANDLE. 1:3 Scale

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