CHRISTMAS

AEROMODELLER

DOUBLE NUMBER

DEC. 1950

2/6

a new dress

for joy-plane

Insist on genuine Joy-plane Products, readily identified by the attractive new orange, red and black design.

these joy-plane products are made by modellers for modellers

Transparent coloured Shrinking Dope (Wing dope) for Rag Tissue. Colours and shrinks in one application. In Red, Blue, Orange, Yellow, Green and Mauve. 2½ oz. tin 1/3.

Cellulose Wing Dopes. 2½ oz. tin 1/–, 5 oz. tin 1/9, ½ pint 3/6. Extra strong for petrol models, ½ pint 5/–.

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Model Dopes (cellulose). 2½ oz. tin 1/3, 5 oz. tin 2/3, ½ pint 4/–. Colours (glossy): Yellow, Grey, Red, Light and Dark Blue, Light and Dark Green, Black White, Cream and Chocolate Brown.

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Waterproof finish. (Goldbeater Skin Effect) 9d

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Xmas Model Shopping

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Mills ·75 c.c.	£2	10	0
Mills ·75 c.c. (with cut-out)	£2	15	0
Mills 1·3 c.c.	£3	15	0
Mills 2·4 c.c.	£4	4	0
E.D. 1 c.c. "Bee"	£2	5	0
E.D. 2 c.c. Mk. II	£2	15	0
E.D. 2 c.c. Comp. Special	£2	17	6
E.D. 2·49 c.c. Mk. III	£3	5	0
E.D. 3·46 c.c. Mk. IV	£3	12	6
Frog 1 c.c. "100"	£2	8	0
Frog 1·66 c.c. "180"	£2	14	9
Frog 1·66 c.c. "160" Glo-Plug	£2	8	0
Frog 5 c.c. "500" Glo-Plug	£3	15	0
Frog "250" Diesel	£3	12	6
Elfin 1·49 c.c.	£2	19	6
Elfin 1·8 c.c.	£3	19	6
Elfin 2·49 c.c. (New)	£3	9	6
Amco 3·5 c.c.	£4	17	6
Allbon 1·49 c.c. "Arrow"	£2	15	0
Allbon 1·49 c.c. "Javelin"	£2	15	0
"K" 1·9 c.c. "Kestrel"	£2	5	0
"K" 1·9 c.c. "Tornado" (G.P.)	£2	9	6
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K.K. Phantom Mite	11/6
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KK Stuntmaster	19/6
KK Skystreak ("Bee")	9/6
KK Stunt King	18/6
Veron "Bee-Bug" ("Bee")	11/6
Veron Sealury	22/6
Veron Spitfire	27/6
Veron Midget Mustang	21/–
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Frog Vandiver (Stunt)	13/6
Halfax Millsbomb	18/6
Shaw's Dervish	19/6
KK Scout Team Racer	22/6
Mercury Musketeer (Frog "500")	19/6
Mercury Marlin	19/6
Mercury Monitor Junior	12/6
Mercury Monitor	27/6
Veron Focke-Wulf	19/6
De-Bolt Speed Wagon "60"	29/6
De-Bolt Speed Wagon "20"	12/6
Mk. I Team Racer	17/6
Junior Musketeer	14/6
KK Stunt Queen	21/–

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KK Slicker 42"	17/6
KK Slicker "50"	25/–
KK Slicker "60"	35/–
KK Southerner Mite	16/6
KK Southerner "60"	46/–
KK Bandit (Mills)	18/6
KK Outlaw (E.D.)	22/6
KK Junior "60"	39/6
KK Falcon 84"	107/6
E.D. Radio Queen	98/6
Veron Skyskooter	25/–
Frog Vixen	12/6
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Mercury Mallard	17/6
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A BRAND NEW DIESEL

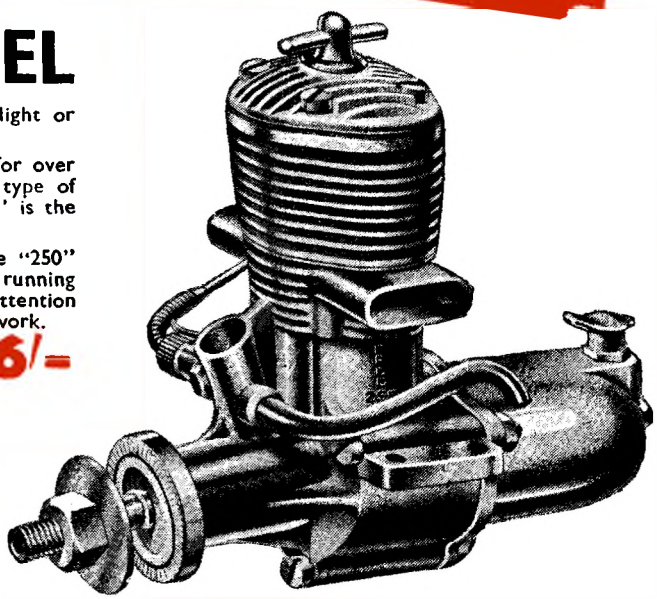
Another new FROG Super Diesel—for all types of Free-Flight or Control-Line models.

Specialist designed, the "250" was systematically developed for over two years, together with extensive flight testing in every type of model. The results prove our claim that the FROG "250" is the finest British Diesel ever produced.

The performance figures show that the terrific power of the "250" has not been achieved at the cost of flexibility, and that slow running for initial testing of Free-Flight models is possible. Special attention has also been paid to easy starting and reliability for contest work.

Like all FROG products the "250" is finely constructed from the best British materials, and supplied under guarantee.

76/-



SPECIFICATION:
Capacity 2·49 c.c. **Weight** 5·5 ozs. (complete with tank, etc.)
Bore .. ·580 in.
Stroke .. ·575 in.
R.P.M. Speed range of 2,000 to 10,000 r.p.m.
Carburettor. Spray-bar type, fitted with extension needle control.

FROG Super Fuels

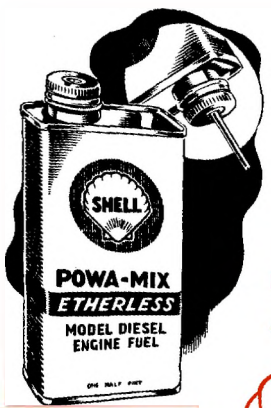
TRADE MARK

½ Pint
2/-

These amazing new high-performance fuels have been specially developed in the Shell Laboratories in close co-operation with the FROG engineers. Extensive static and flight tests proved that under all conditions the POWA-MIX Etherless Diesel Fuel and RED GLOW "Glow-plug" Fuel would get every ounce of power out of the engines. You cannot do better than use the new "power-plus" fuels—whatever your motor ! !

A new pack has also been developed—**with pressure feed direct from the tin ! !** It is ideal for team racing and other contest work where seconds are precious. When not in use the pressure spout retracts into the tin, which is absolutely airtight to avoid evaporation.

Large scale production enables us to offer these new fuels at amazingly low prices—but their quality is first class. Try them ! !



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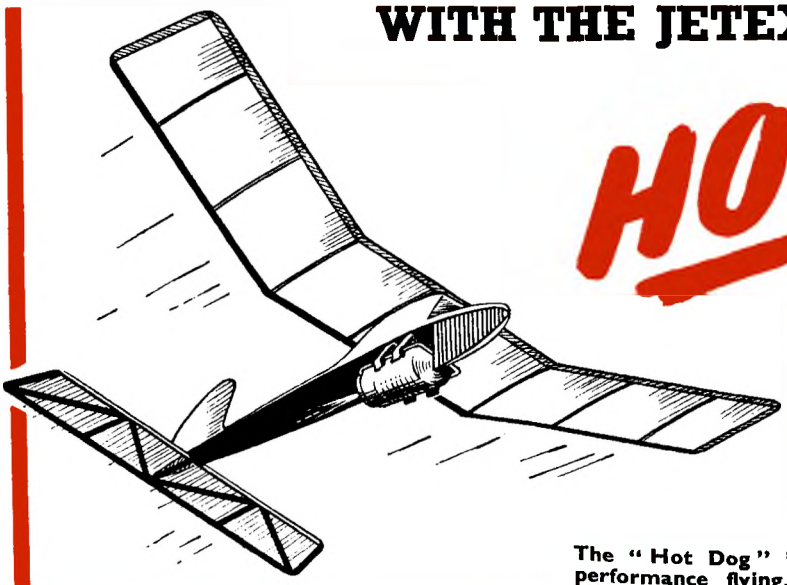

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The "Hot Dog" has been designed especially for high performance flying, and when you see the rocket-like climb and flat glide, you will realise that this purpose has been fully achieved. So much so that the plan incorporates a dethermaliser tailplane, and the kit includes dethermaliser fuse. Wingspan 10", length 12", weight of airframe — less than ¼ oz.

PRICE 3/-

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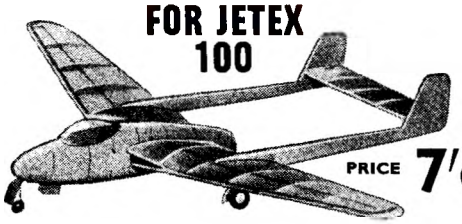

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Speed approximately 20 m.p.h. Safe and easy to operate.

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The first model Helicopter that complies with the theory of autorotation. Flies in any weather, will R.O.G. and reaches a height of approx. 100 ft.

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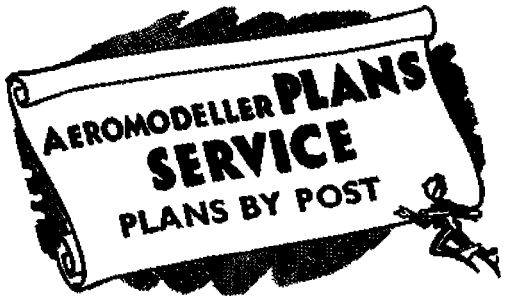

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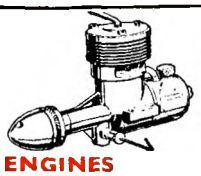

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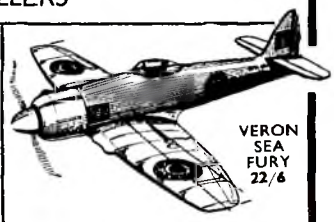
FLYING SCALE SE.5a PRICE 5/6



VERON SEA FURY 22/6

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Mercury Mk. I... ... (*Team racer*)	17/6
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K.K. Ace, 30"	5/–	Veron Rascal, 24" ...	4/6
K.K. Achilles, 24" ...	4/–	Veron Sentinel, 34" ...	10/–
K.K. Ajax, 30"	6/–	Skyleada Hawk	4/6
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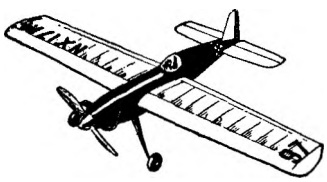
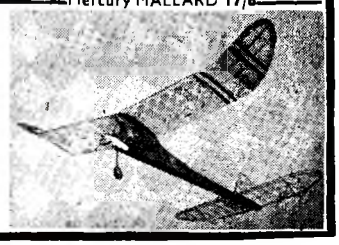
K.K. Senator, 32"... ...	5/6		
K.K. Gypsy, 40"	10/6		

Mercury MALLARD 17/6



BRITISH NATIONALS WINNER K.K. STUNT QUEEN ... 21/–

9 ARCADIA COLNE LANCS.



JAVELIN

KIT
22/6
COMPLETE

SPECIFICATION

WINGSPAN 50". LENGTH 29"
WING AREA 283 sq. ins. (1·96 sq. ft.)
WEIGHT 12 ozs. WING LOADING 6 ozs./sq. ft.

★ **Fully detailed Plan and Building Instructions, Best Quality " Solarbo " Balsa Wood, Plywood, etc.**

★ **Pre-formed Undercarriage and Profiled Nose-blocks, Efficient Dethermaliser System.**

★ **Designed to give maximum flight performance with the new Allbon " Javelin " and Elfin 1·49 engines.**

TWO VITAL QUESTIONS ANSWERED. . .

How can I eliminate the vicious spinning tendencies shown by my Pylon layout models ?

The high thrust line and low C.L.A. of the " Javelin " have proved to have the best spin-proof and stable flight characteristics, including " snap-roll " recovery from any looping position.

How can I control the lightly loaded model under power ?

To control the power flight of the " Javelin " we have the most useful asset of increased wing and tail areas, replacing the unnecessary drag of a heavily-loaded machine and resulting in exceptional gliding qualities for contest work.

Designed to F.A.I. requirements this model represents the absolute in modern free-flight design. Featuring positive " flip-up " tail D/T system, compact fuel tank, timer, cut-out assembly, this kit is abundant in all that is necessary to make contest power flying a certainty.

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	½ oz.	1 oz.	2 oz.	4 oz.	6 oz.	½ pt.
DOPES.						
Clear Dope. Medium tautening and suitable for small and medium models	—	8d.	1/-	1/9	2/6	3/6
Glider Dope. Extra strong tautening and suitable for large and heavy models. Ideal for use on Silk, Nylon or Rag Tissue	—	8d.	1/-	1/9	2/6	3/6
Banana Oil. Non-tautening and waterproof. Suitable for light-weights. Of superior " banana oil " finish it can be used as a final surface treatment on large gliders, seaplanes, etc. etc.	—	8d.	1/-	1/9	2/6	3/6
" Supergloss." Glossy coloured dopes available in the following shades :— White, Light, Medium and Dark Blue, Green, Black, Cream, Brown, Orange, Red, Yellow, Silver, Grey and Transparent	6d.	10d.	1/6	2/3	3/-	4/-
Thinners. For use with all " Titanine " Cellulose Dopes and Lacquers	—	—	8d.	1/3	1/8	—
WOODFILLERS.						
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FUEL PROOFER

Specially prepared transparent medium which dries within 10 mins. of application. Renders surfaces immune from all methanol and diesel fuels.

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(Replacement 1 oz. Hardener, **9d.** bottle.)

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HALFAX " Power Plus " Props. in polished mahogany. Price 1/9

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AEROMODELLER
INCORPORATING "THE MODEL AEROPLANE CONSTRUCTOR"

CHRISTMAS GREETINGS TO US ALL!

FOR several years past it has been our practice, when commencing the Editorial for the Christmas Double Number of the AEROMODELLER, to take a look at the weather through the Editorial window. Invariably the weather was fine, the sun was shining, and we would crack a weak joke at the difference between this weather and that likely to be encountered by the time our Editorial was published.

Then, of course, we expressed the sincere wishes of all at Eaton Bray to our many thousands of readers throughout the world; and for the record, we express in all sincerity these same wishes this year.

The annual formalities duly completed we usually passed to some sort of commentary on the years aeromodelling, published one or two appropriate notices regarding our various publications, and generally finished with some kind of forecast (usually wrong!) as to what the forthcoming year might bring to all of us in the aeromodelling movement. *Boy bring me our trumpet.*

However, for a change, we felt that this year it would be quite an idea to devote the rest of this Editorial to describing some of the lesser known, or less direct, ways in which the AEROMODELLER supports the model aircraft movement, not only in Great Britain, but in other parts of the world.

Firstly, of course, as everyone knows, we publish the finest model aeronautical journal in the world. Moreover, we have been doing this same job of work for the past fifteen years. In that period we have built up a wide circulation which, during the past eighteen months, has remained fairly steady at the fifty-thousand-copies-per-issue mark.

Then, there is the AEROMODELLER PLANS SERVICE published in conjunction with the magazine, and which, throughout the years, by its sales of several million copies of 1/72nd scale plans to members of the fighting services, Observer Corps, Gun Sites, and so on rendered a unique, if relatively small, service to the country's war effort.

Under the present peace time conditions sales are, of course, mainly of the flying type of models, and we are now able to offer choice from several hundred designs, all of which are drawn out full-size, and include well known record-holders and competition winners.

Lesser known activities of the AEROMODELLER Organization is the production from time to time of two small brochures of which some thousands are distributed free each year.

The first of these gives a complete-as-possible list of all the model aeroplane clubs throughout the country, and the second gives a similar list of retail shops which sell model aircraft supplies in Great Britain.

There is quite an amount of work involved in compiling both these brochures, and we would take this present opportunity of mentioning that our Editorial Staff is now engaged on revising their contents, with a view to publishing "latest editions" early in 1951.

We would therefore appreciate the co-operation of all Club Secretaries by sending to us, on a postcard, the name of the Club, name and address of the Secretary, Number of members, and whether affiliated to the S.M.A.E.

Equally we should appreciate all retailers of model aircraft supplies throughout the country sending us postcards on which are written their names and addresses.

The "AEROMODELLER PUBLIC ADDRESS VEHICLE" has now become a regular sight at area meeting, rallies, etc., and has enabled clubs not equipped with broadcast relay equipment to have adequate crowd and competitor control available at their larger meetings, at, of course, no cost to themselves.

Yet another service which is becoming increasingly popular is the exhibitions given during winter months of colour films taken at the last three Wakefield International Trophy Competitions. The cost of producing these films is considerable, since it involves not only long distance transit fares as well as film cost, but sub-heading and preparation-for-exhibition charges as well.

A large 1,000 watt auditorium type projector is available for projecting the films and is usually made available to Clubs when the films are exhibited to them.

Then, of course, there is the "answers-to-readers" service which is now made such extensive use of, and has been in operation for many years.

Not, of course, that our answers are always right. Oh no! Occasionally we receive an appropriate "brick-bat" but by and large it is clear from the many letters we receive that this service, particularly to new and young readers, is valued quite highly by them.

During the past year, as is evident by our repeated and still-to-be-repeated Editorial notices, we have conducted a strong campaign against all "authorities" who seek, by way of byelaws, to curtail opportunities for aeromodellers to fly their models in their own localities.

That is not to say we oppose the introduction of suitable byelaws where justified. However, in a number of cases brought to our notice it is plain that through ignorance of the true conditions in which control-line model aircraft are flown, as much as for any other reason, certain authorities have sought to introduce restrictions. In a number of cases we have been able to assist local clubs in placing before their local authorities the full facts of the position in their true prospective.

These then are just a few of the services provided by the AEROMODELLER Organization to its readers. Whilst introduced under a humorous caption, they are published in no flamboyant manner; but so that credit can be given where credit is fairly due, and, when comparisons are made, all the facts should be borne in mind.

Contents

VOL. XV. No. 179 DECEMBER, 1950

COVER PAINTING

THE MISSEL THRUSH,
featured on pages 762 and 822

THE MODEL AERONAUTICAL JOURNAL OF THE BRITISH EMPIRE

ESTABLISHED 1935

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Draga Zigic of Jugoslavia, assisted by compatriot Zdenko Juresa, who edits their aeromodelling magazine Vazduhoplovni Modelar, *launches his sensational "W" power model at the recent Eaton Bray International Week. Fine construction, folding prop and time-operated retracting undercarriage make this a notable example from abroad, featured incidentally, in* Aeromodeller Annual, 1950.

CAN A LEOPARD CHANGE ITS SPOTS?

Frankly we do not know the answer, and we do not want readers to remind us of another caption we might have quoted, something to do with the wolf in sheep's clothing! Anyway, whether we are to be classed with the wolves or the leopard, our "spots" will be changed from the next issue—there will be no three-colour cover painting by Mr. C. Rupert Moore.

His three-colour paintings that have long decorated our covers are to be replaced by a photographic design that will we hope meet with the approval of our readers month by month as it reflects topics as up-to-date as the contents!

Whilst some may have treasured our artist's monthly contributions and even used them to decorate bare barrack rooms and dens they have suffered from the difficulties of any colour medium by virtue of the impossibility to transmit the full value of the colour range. Furthermore the time factor inseparable from colour reproduction has limited our subject matter.

Our new cover will be enhanced with topical pictures in which a personal interest of aeromodelling importance will be featured month by month and follows the modern trend of candid camera pictures and as such will bring aeromodelling as a live hobby to the notice of readers and potential readers right from the very first sight of the magazine.

It is fitting that we should take this opportunity of expressing our appreciation for the very many fine pictures that Rupert Moore has produced for this journal in his very long association with it.

TWICE ONE IS TWO!

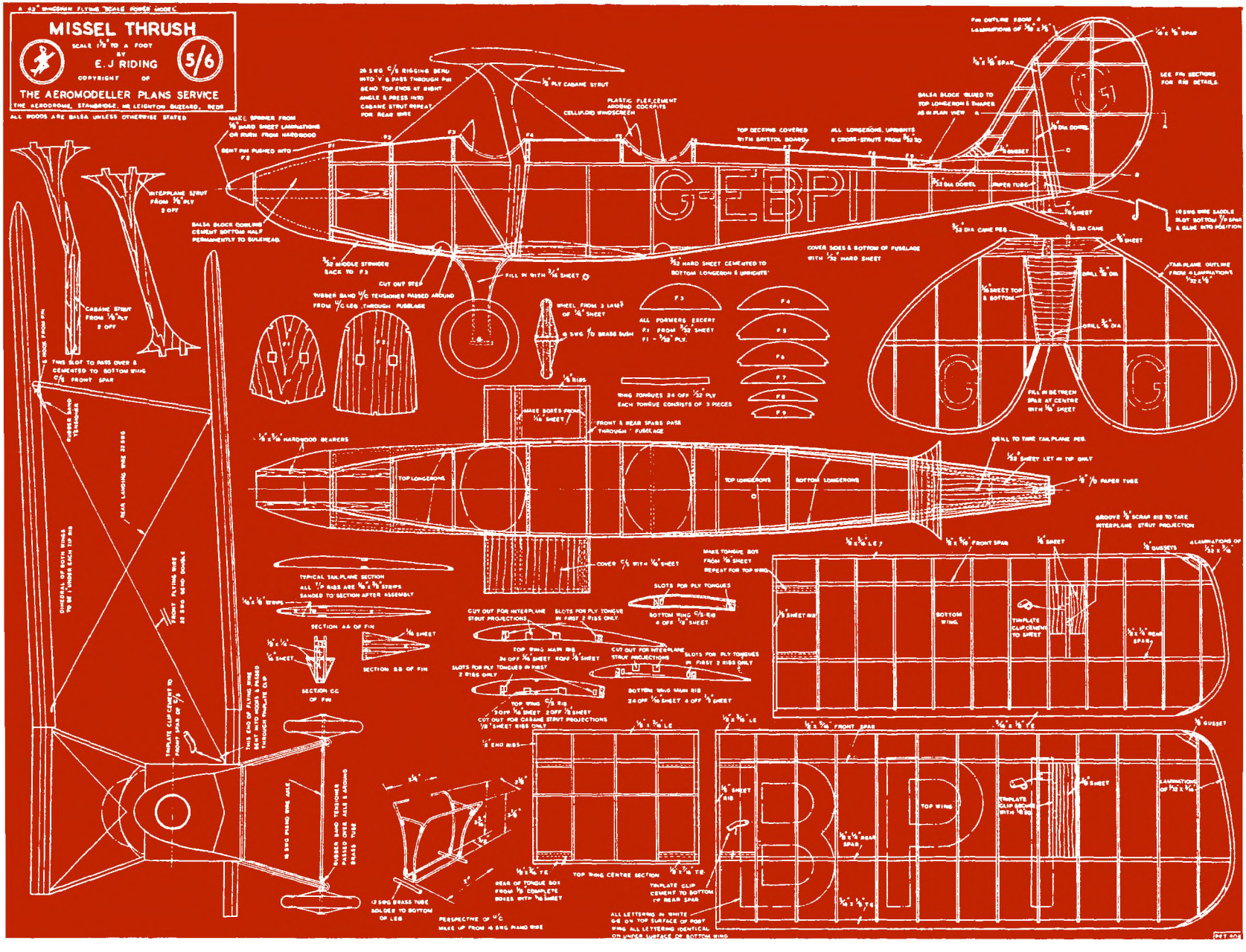
There are certain types of conjurers and so called magicians who have the happy knack of adding together two things and producing only one as a result!

We are not always as clever as that, and in announcing that from the December 1st issue our associate magazines MODEL CARS and MODEL MECHANIC will be combined into one magazine, to be known as MODEL MAKER; we stress that they are virtually being added *one to the other* to make a full-size magazine of 64 pages plus cover.

Despite increased paper costs there will be no increase in price, and the two magazines at present published at two shillings each will still be available at the price of two shillings for the combined magazine.

The main reason for combining the two magazines has been that many engineering clubs have formed model car sections and their members would therefore require advice from the Editorial Staff of MODEL CARS in connection with the design of their models. On the other hand, many readers of MODEL CARS require advice from the Editorial Staff of MODEL MECHANIC in connection with machining problems they encounter when building their models.

Elsewhere in this issue appears an advertisement on behalf of the "new" magazine MODEL MAKER—and as we feel sure that quite a number of aeromodellers will be interested in the wide range of model making matters which will be covered by this "new" magazine, we invite them to study this notice.



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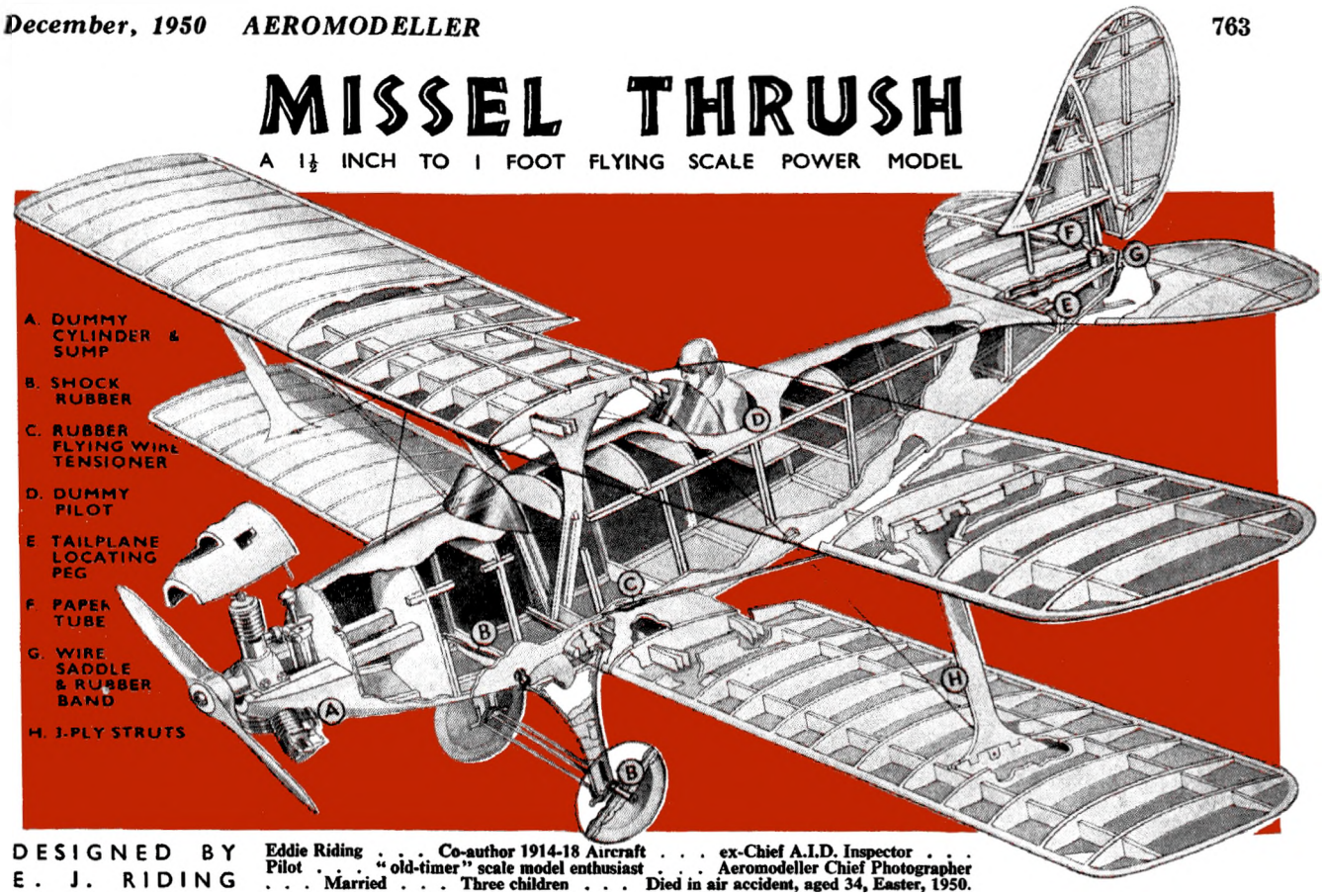
MISSEL THRUSH

A 1½ INCH TO 1 FOOT FLYING SCALE POWER MODEL



DESIGNED BY E. J. RIDING

Eddie Riding . . . Co-author 1914-18 Aircraft . . . ex-Chief A.I.D. Inspector . . . Pilot . . . "old-timer" scale model enthusiast . . . Aeromodeller Chief Photographer . . . Married . . . Three children . . . Died in air accident, aged 34, Easter, 1950.

WE are particularly happy to be able to publish this flying model of the Missel Thrush as a Christmas offering to our many scale fans, but it is a pleasure tinged with some sadness for it represents the last contribution of our old friend and colleague Eddie Riding, so tragically killed in an air accident last Easter.

All Eddie's models have been faithful reproductions of an interesting, if not always a mass produced, original, built so far as practical in model sizes, rib by rib and spar by spar in duplication of the full-size prototype so that side-by-side photographs of aircraft and copy showed an almost indetectable similarity. The Missel Thrush is no exception.

Our flying tests at Eaton Bray spread over several weeks were well rewarded for our patience in trimming, with just that thrill inseparable from a well-built scale model of this kind, when at last we were able to watch a slow climb, gentle turn and finally a near "three-pointer" landing. Almost might we expect the diminutive pilot to hop out and make purposefully for the clubhouse.

If builders will exercise the same care and restraint in their early flights they too should enjoy equal pleasure.

BUILDING INSTRUCTIONS

Fuselage. The fuselage sides of $\frac{3}{32}$ in. sq. hard balsa are built flat on the side view in the popular manner. Construct the second side on top of the first to ensure obtaining exactly the same shape.

When set, lift from plan and separate, after which the sides are erected upright on the top view of the fuselage to be joined by $\frac{3}{32}$ in. cross-struts. These cross-struts must be cut to accurate length from the plan, in pairs. N.B. Top and bottom struts are of different lengths. When this framework is well set, add all formers. Now shape and fit the tailplane leading edge block in position on top at rear of fuselage.

Now is the time to instal the engine bearers, after which slots are cut in the lower wing reinforcing sheets on the fuselage side, to take the front and rear spars of the fixed lower wing centre-section. Cement these spars in place, and complete this centre-section by adding the ribs, leading edge and tongue-boxes.

Bind and glue the tube for the rear prongs of the undercarriage to the centre-section spar, make up undercarriage and slip the prongs into the tube. Check that the undercarriage swings freely backwards and forwards. Remove undercarriage from tube, make up wooden wheels, slip onto axle and retain with soldered washers. The axle is secured to the undercarriage frame with rubber bands as shown in the front view.

Now sheet in the rear of fuselage between the top longerons for the tailplane seating, and make up and glue in position the paper tube which takes the $\frac{1}{8}$ in. dowel.

Having shaped the centre section (top wing) cabane struts, cement these over the bottom spars. Top longerons must be cut away to allow the struts to enter at the correct angle.

Cover the sides, bottom and rear of the fuselage with $\frac{1}{32}$ in. sheet, and cut out necessary holes such as the steps and those for the rubber bands which hold on the undercarriage.

Cover the top decking with cartridge paper and cut out the cockpits. Cement thin plastic-covered flex around the rims to represent the cockpit coaming. Now add the windscreens, followed by the tailskid.

Slot the two blocks of light balsa which form the engine cowling to fit around the bearers and cement them lightly together. Saw-cut them roughly to shape, and attach to the front bulkhead, temporarily, with a few dabs of cement. Now sand the blocks to correct shape, after which they are removed from the bulkhead and prised apart. Hollow out the lower block to a thickness of approximately $\frac{1}{4}$ in. and then glue it permanently in position under the bearers and against the front bulkhead.

Bolt the engine in position and fit the top block around it, cutting and hollowing it out where necessary.

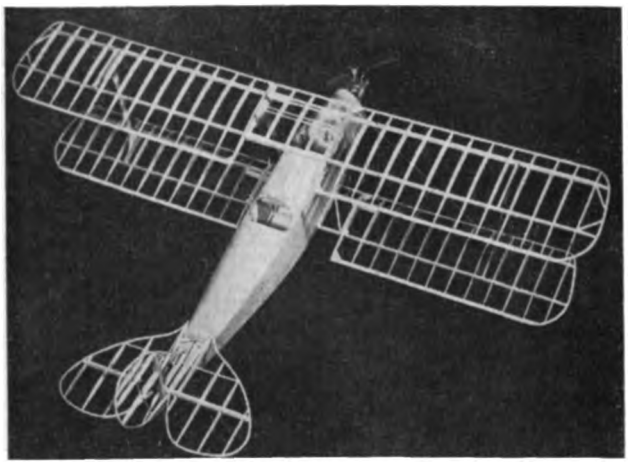
The spinner is made up of either hard balsa laminations or it is turned from hardwood, according to taste.

The completed Missel Thrush posed on the runway. Note such refinements as footholds, appropriately clad "pilot" and scale wheels.

Rear three-quarter view of the model. The rather spidery identification letters are exactly as found on the original.

Three-quarter front view, giving a good impression of the dummy cylinders below, and the Amco ·87 c.c. above which provides the model's motive power.

The uncovered model—at just that stage where it always seems such a pity to hide so much elegant workmanship with dope and tissue.



Top Wing Centre Section. This is built on the plan in the normal way, including the installation of the tongue boxes. After lifting from plan it is attached to the cabane struts, by fitting the projections on these struts into the slots in the $\frac{1}{8}$ in. end ribs. Reinforce these ribs inside with scrap $\frac{1}{8}$ in. sheet, glued against the projections of the cabane struts.

Top Wings. These are also built in the usual manner on the plan, the spars being pinned down first, with the trailing edge. The ribs are slipped into position and when set the leading edge is attached. The tips are laminations of four thicknesses of $\frac{1}{32}$ in. sheet, and these are held in shape on the plan with pins on either side.

Next build in the wing boxes and add the scrap $\frac{1}{8}$ in. ribs, which are slotted to take the interplane struts and cemented in position where shown. Add also the $\frac{1}{8}$ in. sheet reinforcing pieces which are in the same bays as the extra $\frac{1}{8}$ in. sheet ribs.

The small tinplate clips, to which the front flying wires are attached, should now be cemented to the scrap ribs, and held in place with a reinforcement of $\frac{1}{8} \times \frac{1}{8}$ in. cemented against the scrap rib.

Add the gussets at the leading edge near to the tips, after which the wing can be lifted off the plan. There now remain only the tinplate clips for attachment of the rear landing wires and these are bound and cemented to the rear spar undersurface at the root ribs.

Bottom Wings. Build as top wings.

Tailplane. Cut the leading edge block to shape and pin in place on the plan. Form the outline from four laminations of $\frac{1}{32}$ in. sheet and hold down on the plan in the correct shape with pins. Add the lower $\frac{1}{16} \times \frac{3}{16}$ in. spar, and the $\frac{1}{16} \times \frac{1}{8}$ in. strips which comprise the ribs. N.B.—These are notched top and bottom to fit the spars. Next add the top spar. Remove tailplane from plan and sand the rib strips to the correct section. Slot bottom spar at centre and attach wire saddle. The centre section is now covered with sheet top and bottom, after which this covering is drilled to take the $\frac{3}{32}$ in. fin dowel and the rear paper tube.

Fin. Form the outline in the same way as that of the tailplane and pin this down on the plan. Cement the $\frac{1}{16} \times \frac{1}{8}$ in. ribs in position, also the riblets and spars.

Lift off plan and cement extra $\frac{1}{8} \times \frac{1}{16}$ in. strips either side of ribs.

Instal front sloping spars on either side into $\frac{1}{4} \times \frac{1}{16}$ in. slots in bottom ribs. The $\frac{1}{8}$ in. sheet bottom rib must be sanded to fit the upper camber of the tailplane. Add gusset and front and rear dowels, sand ribs to streamline section. N.B.—Position tailplane and fin in place fuselage. Build up lower part of fin to fair in with rear fuselage by adding tapered $\frac{1}{16}$ in. strips.

Interplane Struts. Cut these to shape and glue into slots in wings on assembly. N.B.—A pin pushed through the projections on the struts into the $\frac{1}{8}$ in. reinforcing attachments strengthens the joint.

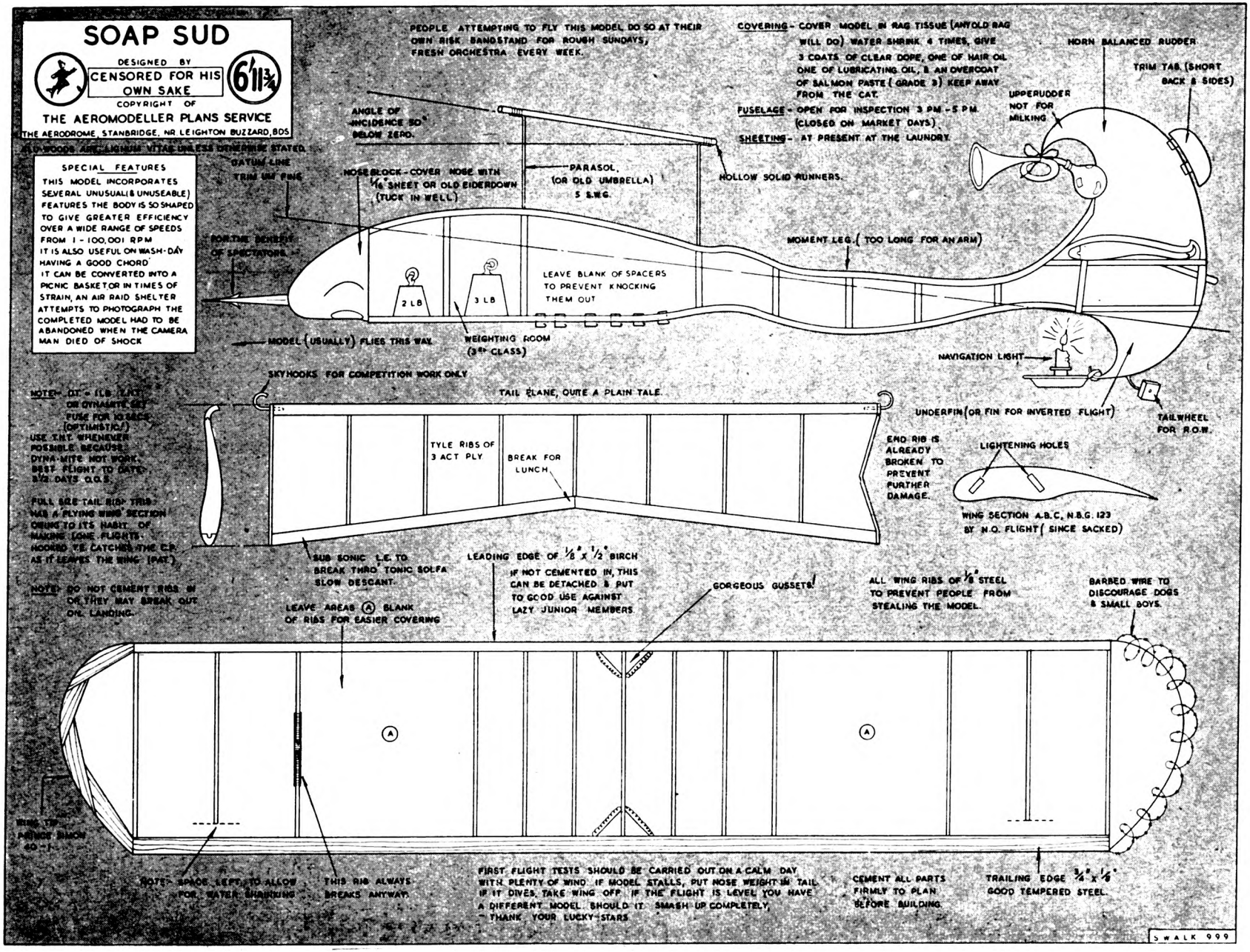
Covering and Doping. The entire model is covered with rag tissue except for the cartridge paper top decking.

Save for the tailplane and fin, give model two coats of clear dope, the former having only one coat. Colour brick red all over, giving two coats if sprayed, and only one if brushed on. Lettering is in white. Outline the steps with white, paint the cowling silver, the tyres black and the wheel brick red.

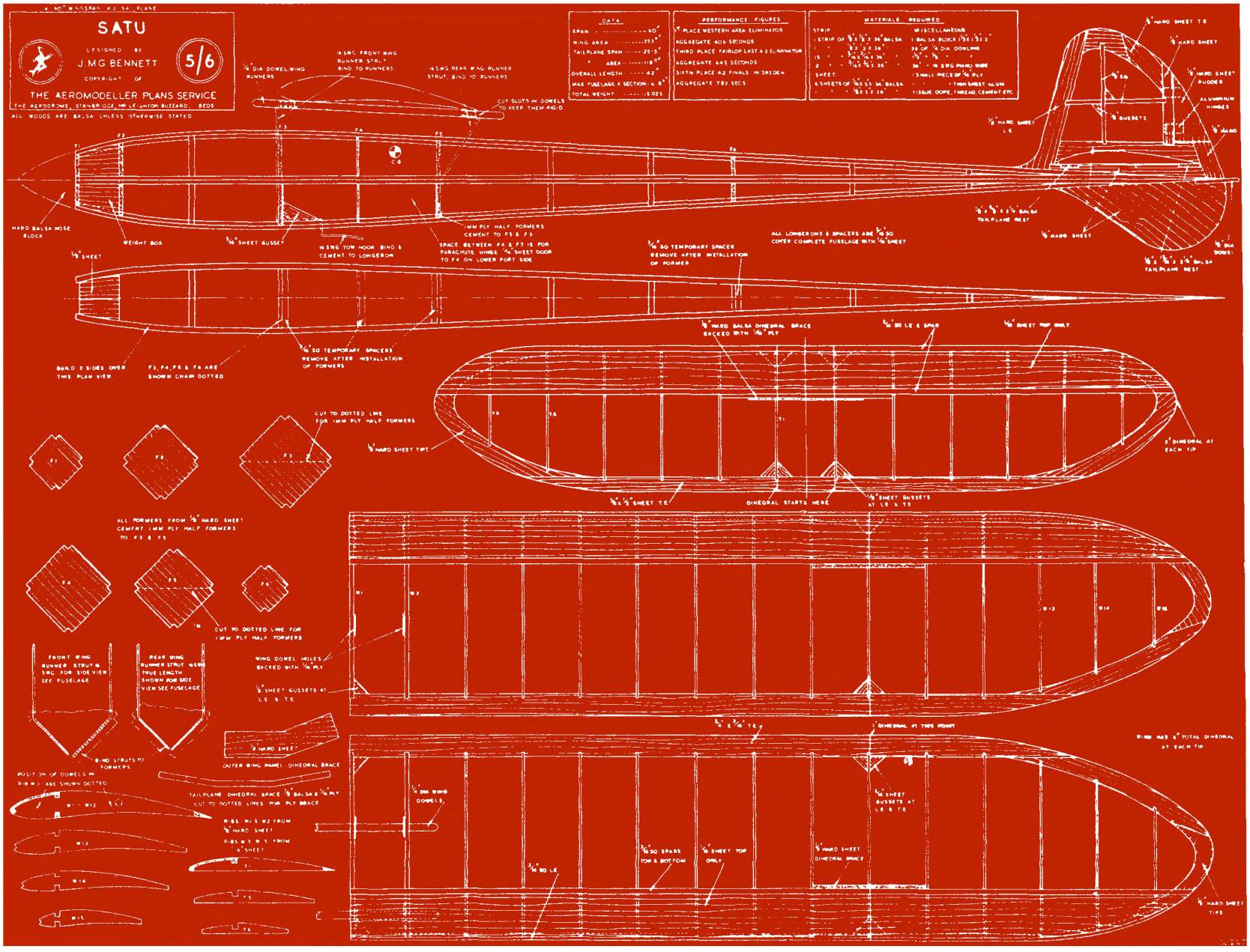
If it is desired to add a dummy engine, make this up from scrap balsa, pins and thread, and glue in place.

Assembly. Wings to centre sections with split $\frac{1}{32}$ in. ply tongues. N.B.—1 in. dihedral at *tip ribs*, both top and bottom. Front flying wire is double, and is attached to clip at bend by rubber bands and bent pin hooks. Free ends of wire bent into hooks pass through tin clips on lower centre section at junction with fuselage. Rear landing wires are single, with hooks bent either end, also passing through tin clips. Centre section wires—two pieces bent to V shape passing through small hooks on top decking. Free ends bent at right angles are pressed into cabane struts.

Tailplane is held down with rubber bands to saddle, and dowels hold fin in place. N.B.—Make sure rear dowel is tight fit in paper tube. Undercarriage is held in place with a rubber band passed around its front strut and through fuselage.



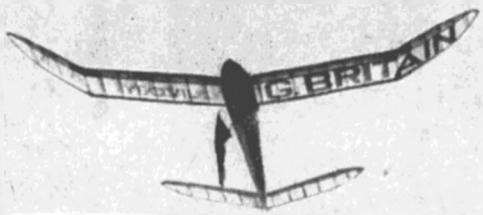
FOOL-SIZE COPIES OF THIS EMBOLISMIC PLAN MAY BE OBTAINED THROUGH THE AEROMENTAL PATIENTS SERVICE, POSTAGE 3/0½d. PER COPY.



THIS IS A 1/5 SCALE REPRODUCTION OF THE FULL SIZE PLANS WHICH ARE AVAILABLE PRICE 5/6 POST FREE FROM THE AEROMODELLER PLANS SERVICE

Build J. M. G. BENNETT'S Top Performer in the 1950 British A/2 Glider Team

SATU



HERE is the design on which British hopes centred during the 1950 Swedish Glider Cup and it can safely be said that failure to win this new international sailplane event was certainly no fault of the designer or his model. Leading the field at the end of the the second round in company with the Danish champion Hansen and Odenman of Sweden, Bennett was unfortunate in launching at a period when the wind dropped completely and downdrafts were very much in evidence. This, as readers well know, resulted in a mediocre third flight and he finally placed sixth in the contest, which in itself was a stout effort considering that the opposition consisted of Scandinavia's finest sailplane enthusiasts.

We were certainly impressed when, having lost his first model on the first flight, he brought out a reserve model, which, with no trimming whatsoever, flew happily away for 6 mins. 48 secs. The model is simplicity itself, extremely stable on the line, yet surprisingly sensitive to the weakest of air currents, which it proceeds to exploit to their fullest advantage. The original took only four days to build and is still in service after a season of flying so what are you waiting for ? Get out the old balsa hatchet and start squeezing them cement tubes ! !

BUILDING INSTRUCTIONS

Fuselage. Pick out some hard 3/16 in. square and scarf on enough to each longeron to allow the joints to be well staggered in the fuselage. It is also advisable to pre-cement the joint.

For the actual construction of the fuselage the longerons are laid down in pairs and the two sides constructed together. Cut the cross-braces out in fours so as to get them the same length.

When the two fuselage sides are firmly stuck, lift from the board, sand to same profile, and then cut apart with a razor blade.

The next step is to stitch and glue the wire parasol to the second and third formers. The formers are backed with thin ply to stop the thread from splitting the formers. When the binding is really well cemented, erect the two sides of the fuselage on the formers and place the rest of the cross braces in place. The weight box, chute box and tow hook are now fitted and after the structure is sanded down, the fuselage is ready for sheeting. The nose is now cleaned up and the nose-block is glued on and carved down.

Wings. These are easy and straightforward if started by pinning down the lower spar. To get a good fit at the centre section, build one wing and cement centre rib slightly out of the vertical, join the wings by dowels and cement centre rib in other wings to fit flush with its opposite. To get the leading edge to continue round to trailing edge, it is necessary to pack up the tip with scrap wood.

The fin and tail plane do not need any explanation, the only point being that the joint between fin and fuselage should be fared in with rag tissue and cement to strengthen the joint.

Finishing. Flying surfaces covered with double-strength tissue and two coats of dope. Fuselage—four coats of banana oil, sanded between each coat (or colour to taste).

Flying. Trim in the ordinary way, using the C.G. on the plan as guide. The model is stable on the line when the turn is not too great, so a medium has to be found between towline stability and turn.

A 37½ INCH SPAN CONTEST POWER DURATION MODEL

DURING the summer of 1947 I decided to design a power duration model but the performance was not what I had hoped for as the wing loading was too high.

I then built five more models and with these I increased areas and decreased weight to come down nearer the F.A.I. loading rules, all tailplane areas were below 35 per cent. and fin area was kept to a minimum.

Helides 7 was built following this trend late in 1949. Trimming was safe for a tight spiral climb, when the engine cut it was one stall into a flat left hand glide circle. In this trim it was entered in the Halfax Trophy when it gained third place. In still air Helides averages 2½ minutes plus on a 20 second motor run. The tip-up tail dethermaliser is essential as it will fly away on any lift. At nine o'clock one Sunday morning it was clocking 5 minutes plus D/Td on an 11 second run.

A 37½" WINGSPAN POWER DURATION CONTEST MODEL

HÉLIDES 7

DESIGNED BY

R A GRASMEDER

THE AEROMODELLER PLANS SERVICE

THE AERODROME, STANBRIDGE, NR LEIGHTON BUZZARD, BEDS.

4/-

DATA	
WING SPAN	38"
" AREA	220"
TAIL SPAN	18"
" AREA	72"
POWER	ANY 1 - 1½CC DIESEL

ALL WOODS ARE BALSA UNLESS OTHERWISE STATED

LONGERONS END AT THIS POINT

⅛" DOWEL

¼" x ⅛" SPACERS

⅛" SHEET BALSA FACING BENT ROUND AFTER FITTING FORMERS, WING PLATFORM SPACERS.

FOUNTAIN PEN FILLER TUBE TANK FIXED TO FUSELAGE BY A SHEET METAL CLIP WITH 6 BA BOLT.

MILLS MK I 1·3 CC

⅛" SHEET LET IN BETWEEN SIDES.

⅛" SHEET COWLING SIDE SHIELDS.

ENGINE BEARERS ¼" x ⅜" ASH.

3" SIDE THRUST TO PORT.

1½" DIAMETER STREAMLINED BAKELITE WHEELS.

CUPWASHERS SOLDERED EACH SIDE OF WHEEL.

F1 & F2 UNDERCARRIAGE BOX.

16 SWG PIANO WIRE.

PANEL THIS UNDERSIDE BAY WITH ⅛" SHEET.

⅛" SHEET LAMINATED INSIDE ON PANELLING

ALL LONGERONS & SPACERS ⅛" SQUARE BALSA.

WINGPLATFORM ⅛" SHEET.

⅛" SHEET PANELLING GUSSET ⅛" SHEET

⅛" DOWEL

MATERIALS REQUIRED

7 STRIPS	⅛" x ⅛" x 48"	HARD BALSA	1 PIECE OF	4" x 4" x ⅛"	PLY
2 "	¼" x ¼" x 48"	"	1 "	9" x 2" x ⅛"	"
2 "	½" x ½" x 36"		1 STRIP OF	12" x ⅜" x ¼"	ASH
1 "	3/16" x 3/16" x 36"	"	1 PIECE 16 SWG PIANO WIRE		14" LONG
1 "	¼" x ¼" x 36"	"	4 CUP WASHERS		
1 SHEET	4" x 48"	MED.	1 PR 1½" DIA. STREAMLINED WHEELS		
1 "	3" x 24"	"	1 PIECE OF	¾" x ¾"	MICA
1 "	3" x 18"	SOFT			

CENTRE FIN UNDERFIN & TIP FINS ALL ⅛" SHEET MEDIUM SANDED TO SYMMETRICAL SECTION.

TRIM TAB.

OUTLINE OF TIP FINS.

D/T PEG A.

WIRE LOOP TO GUIDE D/T THREAD.

THREAD LOOP.

PEG B.

MICA TO STOP D/T FUSE BURNING FUSELAGE.

FUSE.

RUBBER BAND.

TIP-UP TAIL DETHERMALISER.

SLIP 2 THICK ⅛" D/P RETAINING BANDS OVER FUSELAGE FORWARD OF ⅛" D/P PLATFORM. MAKE A 3½" LONG THREAD LOOP SLIP OVER PEG A. PULL RETAINING BANDS OVER PEG A. PASS END OF LOOP THRO' GUIDE & TIE 1" STRONG BAND TO THIS END. ADD COTTON LOOP TO THIS BAND FOR FUSE TO BURN THRO'. PASS COTTON LOOP OVER PEG B. THE ⅛" D/P WILL FLOP UP & THE BAND CANNOT PASS THE GUIDE THUS KEEPING IT AT AN ANGLE OF 30° - 40°

F1 ⅛" PLY

⅛" x ⅛" HARDWOOD SPACERS FOR ¼" C.G.

⅛" PLY BACK OF ¼" C.G. BOX.

F2 ⅛" SHEET

F3 ⅛" SHEET

F1 & F2 FIT BETWEEN FUSELAGE SIDES.

W1 ⅛" SHEET. 17 OFF.

TAILPLANE RIB SECTION 1 OFF ⅛" SHEET. 12 OFF ⅛" SHEET.

W2 ⅛" SHEET. 2 OFF.

TIP DIHEDRAL BRACE. 1/16" PLY. 4 OFF.

CENTRE DIHEDRAL BRACE. 1/16" PLY. 2 OFF.

UNDERCARRIAGE

16 SWG PIANO WIRE.

AREA X

FILL IN THIS UNDERPANEL WITH ⅛" SHEET TO TAKE UNDERFIN.

⅛" HARD BALSA TAILPLANE PLATFORM.

TRIANGULAR PIECE OF ⅛" SHEET KEYS D/P IN AREA X AT END OF FUSELAGE. GLUE TO UNDERSIDE OF D/P AFTER COVERING.

TIP FINS CEMENTED ON AFTER COVERING.

3/16" x 3/16" L.E.

½" x ⅛" T.E.

⅛" SHEET RIBS

¼" SHEET LET IN UNDERSIDE.

⅛" SHEET CENTRE RIB

1/16" PLY DIHEDRAL BRACE.

CENTRE SECTION DOUBLE COVERED TO DOTTED LINES.

ALL RIBS ⅛" SHEET

¼" x ¼" L.E.

¼" x ⅛" SPARS.

⅛" DIHEDRAL HERE.

WING TIP & LAMINATIONS ¼" x 1/32"

4° DIHEDRAL AT TIP

W2

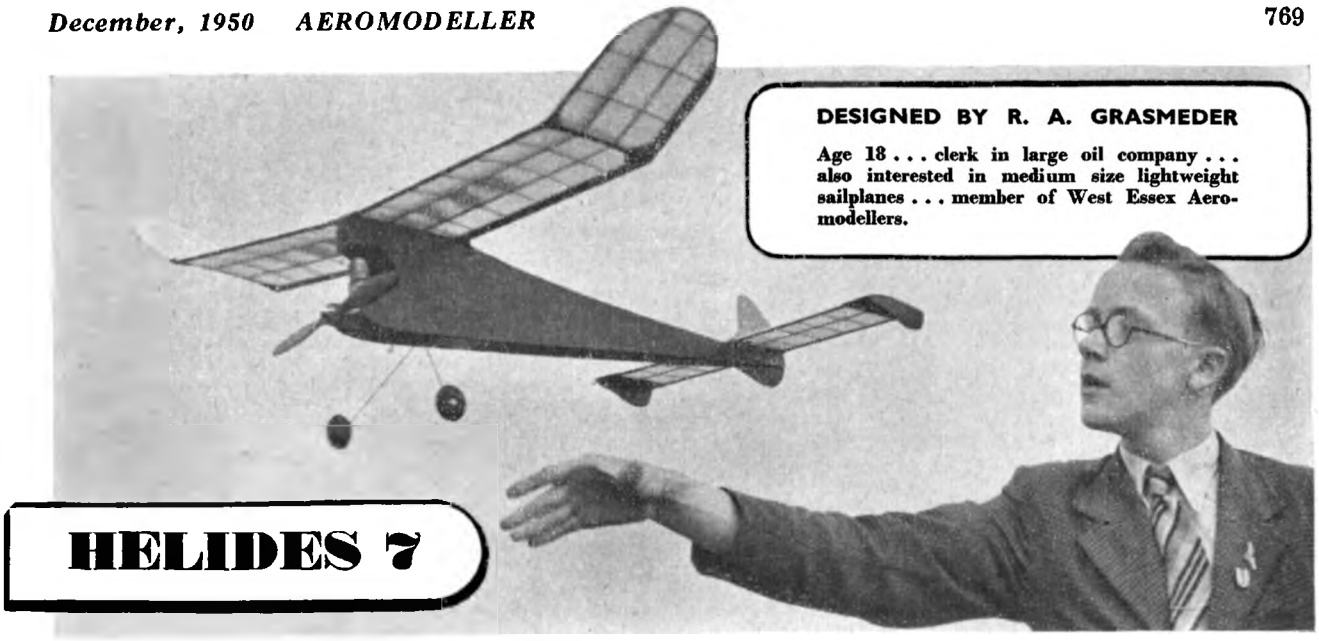
W1

⅛" x ⅛" SPAR.

GUSSET ⅛" SHEET.

½" x 3/16" T.E.

PET 401



DESIGNED BY R. A. GRASMEDER

Age 18 . . . clerk in large oil company . . . also interested in medium size lightweight sailplanes . . . member of West Essex Aeromodellers.

HELIDES 7

BUILDING DETAILS

Fuselage. The two sides are built on the plan complete with cowling side shields. Remove from plan and add 1/16 inch sheet panelling. Shape ends of engine bearers, then cement these in place on fuselage sides, then add formers 1, 2, 3, and wing platform. Bring tail end of fuselage together and cement spacers in place, bend 1/16 inch sheet facing and cement to side shields under pylon. Complete fuselage with underfin, tailplane platform and dowels after covering.

The undercarriage must be bent carefully to be a tight fit in the box.

Wing. Take the lower spars and pack up with scrap balsa to fit the rib undercamber. Cement ribs and tips in position. Remove from plan, set dihedral angles with the ply braces cemented firmly. Set upper spar in position.

Tailplane and Fins. The construction of these is quite straightforward, the fins being added after the tailplane is covered.

Covering. The model is covered with Jap tissue. The fuselage double covered. The fuselage is given three coats of glider dope and the wing, tailplane and fins are given two coats.

Flying. Check all flying surfaces to see that they are true. Test glide until you get a long flat glide. Give 1/8–3/16 inch offset to the left at the edge of the trim tab. For first power flights give about half power and a long motor run. This gets the model well up and you can see if there need to be any glide adjustments. Increase power and shorten the motor run. If there is any looping tendency a little more left trim offset will cure it. Do not alter the thrustline as all trimming can be made on the rudder. No vicious spins have been noted when trimming the prototypes. R.O.G. is just a matter of putting it down on the ground and the undercart looks after the rest. A push on take off with this machine can be fatal to the propeller.

The best propeller seems to be an 8×6 Stant, doped and polished.

When entering F.A.I. Competitions, weight must be 8¼ oz., prototypes weigh 9 to 10 ozs.

THIS IS A 1/4 SCALE REPRODUCTION OF THE FULL SIZE PLANS WHICH ARE AVAILABLE PRICE 4/- POST FREE FROM AEROMODELLER PLANS SERVICE

From the other side of the Counter!

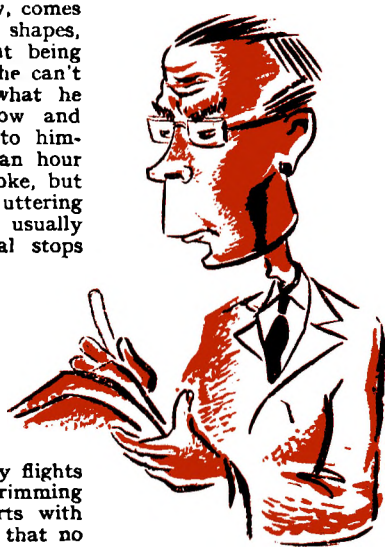
(The writer, by the way, has a popular and flourishing model business, despite his apparent misanthropy.)

A WOMAN walked into my shop one day and asked for a piece of balsa. That's all. A piece of balsa. She didn't know what size, or what it was for, but she wasn't going to leave without a piece. Snag was, she didn't fancy anything I showed her. Thirty blistering, soul-searing minutes it took me to convince her that a sheet of 1/16 inch was the most common and useful piece. Some wretch, somewhere, could have saved the colour of my hair by jotting down three measurements on a scrap of paper. But then, that's model-builders all over.

Oh, I beg your pardon. You're a modeller, are you ? Huh. I wonder which particular class of gruesomeness you fall into ? Some sagacious type once remarked that full-size gliding enthusiasts are essentially individualists, and band into clubs only from sheer necessity. Well, aeromodellers are the same —perhaps more so. They wouldn't be modellers if they weren't individualists, but individualism means having one's own idea of things and, brother, some of those ideas ! Nevertheless, certain distinct species are discernible—I suppose, now, *you* couldn't be one of any particular class, by any chance?

The character who annoys the poor old model-shop proprietor more than anyone else is the boy who knows all about it. He's usually pudgy, pimpled, and bespectacled, about fifteen or sixteen, and never opens his mouth unless it's to jeer at someone or something. He normally tags his poor old ma and pa around, showing 'em just how much he knows—he'll stand outside the shop and you can hear him say "Pooh, he's building a . . . —I could tell him not to bother" —or words similar. You are actually building the job for a customer, or maybe just lashing up a display model—probably it's a darn fine flier but the little horror has seen one duff one (and lots of people make clunkers out of the best designs) and therefore he knows they're all the same. When this repulsive creature gets inside the shop he'll sneer at every suggestion you make (needless to say he doesn't know what he wants in the first place) and though you've probably forgotten more about the game than he'll ever learn, he'll do his best to give his doting parents the impression that you're a half-witted beginner who doesn't know the difference between a spinner and a spanner, and doesn't believe there *is* a difference anyway. The last you see of this horrible example is his rear view, swaggering down the street shouting "They call that place a model shop? Why, in . . . you can get . . . etc., etc."

This bod, by the way, comes in various sizes and shapes, quite a common variant being the type who's so dim he can't even convey to you what he wants, or doesn't know and won't admit it, even to himself. You can spend an hour trying to serve this bloke, but in the end he goes off uttering the same style of blah, usually besprinkled with glottal stops and mute aspirates.



Another gent who gripes you pretty well is the feller who comes in once a month or so and insists on telling you—in minute detail —every flight he's made since he saw you last. They are probably flights that you'd regard as trimming hops, or full-tank efforts with underpowered old tubs that no

self-respecting modeller would be seen dead with, but you have it all, from the first flick of the prop to the clever way he broke a fence down to get the job out of some local councillor's garden. Still, he's enthusiastic, so you hear him out (as if you could stop him), fidgeting all the time as waiting customers slip out of the shop—oh yes, it's hard, friends, it's hard.

Then there's the geezer who thinks all model shop owners are barons. " It's all right for you—you don't have to pay for your supplies " and that sort of thing. I've never quite figured out who *does* pay for 'em, but I know my accounts didn't balance one year when *I* didn't pay for my own building. You get, too, the humorless types who invariably (and irritatingly) say, " What have you got in the way of ½ inch square ? " You get so fed up with hearing this particular idiom, but when you reply "Nothing"—it comes straight out, you get a blank stare and a movement towards the door. Same with " Got any red and yellow dope ? " Well, the obvious answer is " Striped or checked ? ". Isn't it ?

You, as a customer, might have a thought, too, for anything that's amiss in the shop. If there's an obvious remark—usually facetious—to be made, have a think about the dozens of people who have said it before you—then perhaps, you'll sympathise with the weary, hunted look that crosses the owner's face.

One of the less tiresome chaps is the serious student of low speed aerodynamics, although enough of him is as good as a feast. (Eh ? Oh, let it pass.) This character asks you a string of questions on strictly technical stuff, doesn't know what the devil you're talking about when you answer, and when you throw in a fact or two you thought everyone knew, seizes on it and says " I didn't know that—why don't they publish that sort of thing ? "—when it is a simple ABC thing that is as far removed from his questions as sugar from shock-waves. Or something.

A genius that is far too common is typified by the laddie who buys a sheet of tissue, pays for it, get his change, natters a bit, buys a length of dowel, pays for it, gets the change, yaks a bit more, buys a tube of cement—he eventually walks down the street moaning about all the loose change distributed about his person, while you gaze ruefully in a till containing a couple of notes and enough silver and copper to last you only the next customer or so, wondering panickily how you can slip out and dig up some more loose stuff to see you through the day . . .

Naturally, one gets a quota of small boys. One will come in with " Got anyfin' fer a penny, mister ? " while a round dozen of his mates push their way in screaming " Bags that ", "No, I bags that", " Coo, look at this " etc., meanwhile, falling over and crushing kits, aircraft, and anything else you've had to leave within reach, because of lack of room behind the counter. However, these, together with the chap who doesn't know what he does want, the one who drops in to pass half an hour (or so) while waiting for a bus or because he's bored on leave, the chronic complainer who holds you personally responsible for his broken crankshaft or deficient kit, and the seventeen-year-olds who expect you to quote performance figures of aircraft twenty years old that you've never heard of (and they've only got it from a 1931 Jane's)—these are more or less occupational hazards and form part of the large general rough which must be taken with the ever-elusive smooth. In the same category come the window-shoppers who smear the windows with toffee and ice-cream. By the way, it's time someone told the public that plate-glass is hardly any barrier to the human voice, and that most conversations held outside shops are perfectly audible within. The converse isn't true due to the amount of street noise interference outside the shop. It can be funny to hear graphic accounts of how the items displayed in the window are operated. It can be infuriating. I've even considered fixing a flat-iron above the windows, on a quick-release device operable from within, for the benefit of those airing their erudition to awed females and/or less-informed relatives, friends, or even total strangers. Where some of these guys get their facts from is a question that disturbs my slumbers !

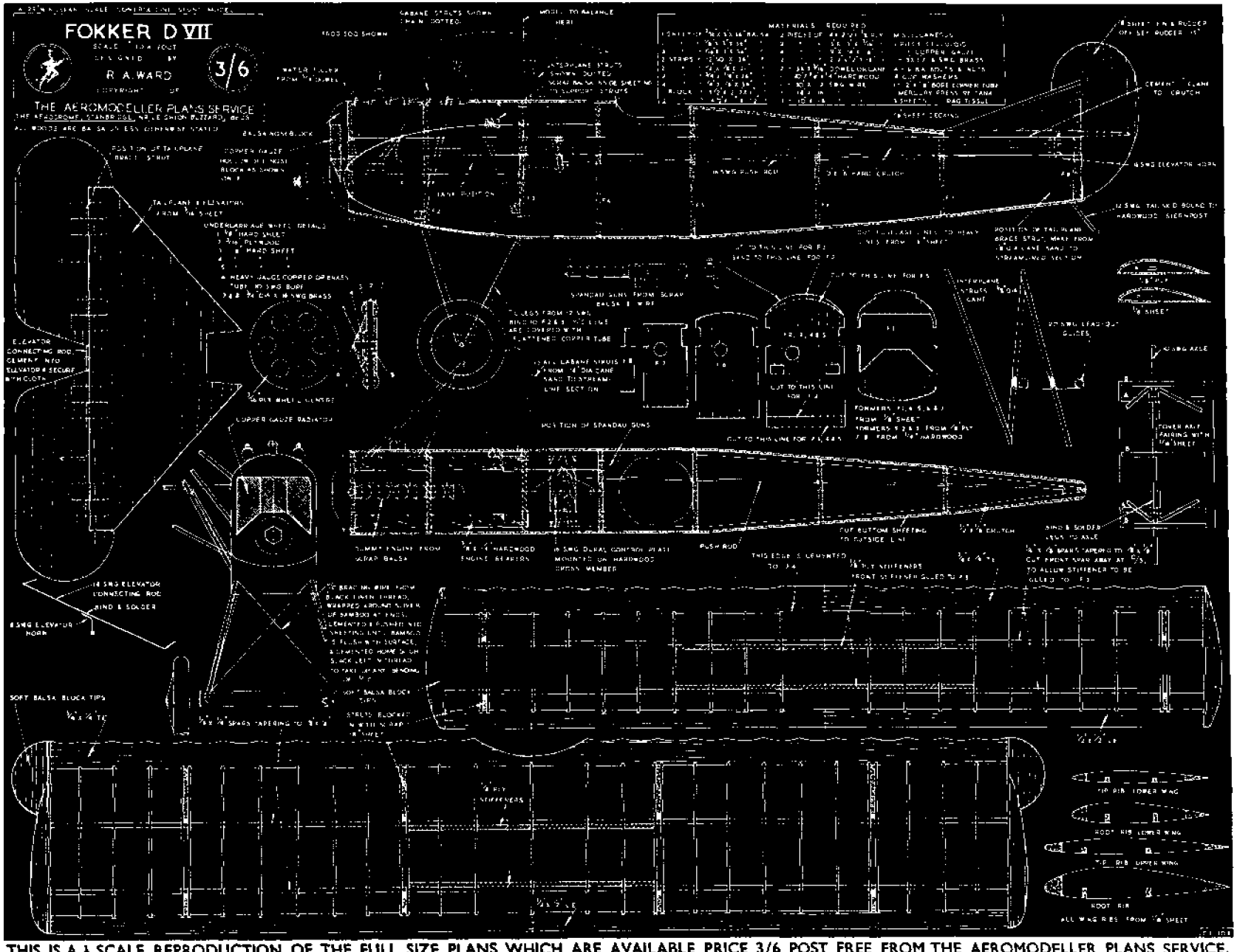
STOP PRESS!

Important Notice

We regret to report as we go to press that Purchase Tax is now liable on various aero-modelling products, with the result that many of the prices given by our Advertisers in this issue may be subject to revision without notice.

I put them, however, on a higher mental shelf than those Londoners, on holiday or a day trip, who come in and shoot the most horrid lines to us provincials—patronising us as a crowd of yokels, when our local club could probably fly rings round most of 'em in an all-round contest. Few of them have ever heard of using rubber for anything other than holding stunt jobs wings on !

You're wondering by this time why in heck anyone ever keeps on running a model shop ? Well, the poor mug's almost certainly an enthusiast. Then, he probably opened the place with a hunk of capital and a noble faith in mankind and is by now so financially tied up that he can't see anything to do except carry on. Here and there someone might be making enough cash to support a wife and che-ild (though if he is he's probably doing it on something else with models as a sideline) or he might have an inexhaustible patience and a hide like the side of the Queen Mary. Or, like me, he may feel that the 10 per cent. of reasonable customers make it worth while tolerating the other 90 per cent. Whatever it is, if you want to brighten his life, and make him think you're a *real* modeller, next time you go in don't say " What have you got in the way of a tube of glue ? " or even just " A tube of cement, please ". Try " A fourpenny tube of Bloopo, please ", and see the light break on his face. (If you actually *ask* for Bloopo instead of the type and size you usually use, don't be surprised if he breaks the light on *your* face.) If you're a really rabid aeromodeller—or any of the type described above—and you *really* want to do him a favour—well, how about shooting yourself? Or him, if he's like me I don't think he'd care either way.



THIS IS A ½ SCALE REPRODUCTION OF THE FULL SIZE PLANS WHICH ARE AVAILABLE PRICE 3/6 POST FREE FROM THE AEROMODELLER PLANS SERVICE.

A 29" SPAN ACCURATE SCALE STUNT MODEL OF THE FAMOUS 1917

FOKKER D.VII.

DESIGNED BY R · A · WARD

● **Member Weston Controliners . . . . . 31, married, one daughter . . . Constructional Draughtsman . . . an aeromodeller for 18 years . . . . has concentrated on scale stunt C/L for some time . . . . also keen on competition motor cycling.**

COLOURFUL scale biplanes have appeal, especially when free of drag provoking brace wires like the Fokker D.VII, which ranks highest in popularity among the 1914–18 warplanes.

This version was first built early this year by R. Ward of Weston Controliners, and established itself as a contest stunter when demonstrated at the South Western Area and Bath Rallies. It deviates from scale only in tail areas and wing section; but we know for certain that its profile is quite accurate.

Competitive control-liners will find this design an answer to their quest for the ideal scale-stunter.

Scale stunt contests have been won either on fly-ability or on scale points: but rarely on a good proportion of the two. This job, with any powerful motor between 3·5 c.c. and 5 c.c., will do anything in the book except square manœuvres, and get maximum marks every time for its accuracy to scale.

CONSTRUCTION

Fuselage. Cement bulkheads to crutch members inserting fuel tank between bulkheads 2 and 3. Glue in engine bearers. Mount engine, connect fuel tank and glue on nose block and radiator. Mount control plate. Cement in dummy engine. Fix hardwood sternpost and tailskid. Do not sheet fuselage at this stage.

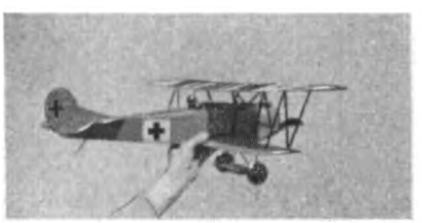
Wings. Make plywood or metal templates of tip and root ribs. Sandwich sufficient rib blanks between templates. Trim and sandpaper to shape. Mount ribs on mainspars which have already been tapered towards the tips, and insert ply stiffeners. Add tapered leading edge and trailing edge. Add wing tips. Scallop trailing edge between ribs by means of sandpaper wrapped around chisel or screwdriver handle. Finish wing with fine sandpaper.

Tailplane and Elevators. Cut from 3/16 inch medium sheet. Sandpaper smooth, streamline leading edge and trailing edge of elevators. Groove leading edge of elevators to take elevator connecting rod. Assemble elevator connecting rod and elevator horn. Push sharpened ends into elevators and fix by means of tape or cloth hinges. Ensure easy movement.

Assembly. Cement lower wing to unsheeted fuselage. Assemble undercarriage and fix to bulkheads 2 and 3. Cement tailplane on. Connect up control plate and elevators by means of control rod, cement main centre section struts firmly to faces of bulkheads. Sheet fuselage and undercarriage fairings. Fix in remainder of centre section struts. Mount guns, etc. Cement interplane struts into lower wing. Mount upper wing in place. Block extremities of struts firmly into place using plenty of cement. Cement on tailplane struts.

Covering and Finishing. Give fuselage two coats of clear dope, sanding after each coat. Cover with Modelspan, sanding again with very fine sandpaper. Cover flying surfaces with one thickness of Modelspan eliminating all wrinkles. Give wings two coats of clear dope. Colour dope to suit individual fancy using masking tape wherever possible. It is worthwhile to do some research and ascertain actual colour schemes used. All black crosses to have white outline or background. Struts, radiator and undercarriage legs black. Guns and engine silver and black. Carve pilot from soft block, paint appropriately and cement in place. If using glowplug motor give coat of fuel proofer, although for scale effect model should not have glossy finish.

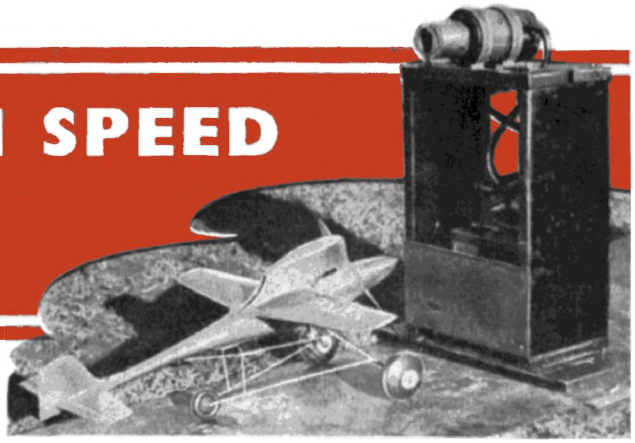
Flying. Ensure model weighs no more than 24 ozs. and balances of centre of gravity as shown. Fly on 60 ft. steel lines. Model will take itself off with very slight " up " movement. It flies fast at about 65 m.p.h., but handles easily and well. All manœuvres can be carried out with normal control handle movement. Do not over control. When motor cuts, put nose down and level off at about 3 ft. off ground. Model will land itself with neutral elevator control. For stunting, ensure fuel feed is on level with needle valve and that controls are free and easy! Do not be afraid to stunt to the limit. Providing the power is there, the model will do all it is asked.



LOWDOWN ON SPEED

(PART 2)

BY N. G. TAYLOR.



Right: Awaiting its turn on a portable take-off ramp is T. Wilson's (Maldon Eagles) 1949 speedster, built around an experimental E.D. 10 c.c. glow-plug racing motor. (Photo, N. Groves.)

IT takes time to gain practical experience, and the idea of this article, the second in my series for the speed fans, is to save the modeller who wants to build a speed job a whole lot of valuable time by starting him off on the right foot with a few more of what I like to call Basic Tips . . . " Basic " because I make no claim for this to be a comprehensive article on the many aspects of speed flying, and I do not guarantee that after you have read this you will be able to get out pencil and paper and design yourself a perfect speed model—we have yet to see a " perfect " model ! !—but all of the following rather varied hints and tips I have actually practised and tested on the contest field, and I feel that every first-class speed model should incorporate most of the features which I will endeavour to outline.

No matter how many books you may read, or how much theory you may know, it is always that little bit of ingenuity and ability that will gain the one or two extra miles per hour to put you way up there in the first three . . . so if you have a new idea which you think will make your model go faster, don't be afraid to try it out : not in a contest at first, because as I pointed out in my previous article, in a contest you must have (or you must *try* to have) everything " on the top line " and thoroughly tested, thereby bringing the element of chance down to a minimum. So always try out new ideas, such as new props and different fuels, on special test flights, if possible some weeks prior to the contest.

Believe me when I say that speed flying is the most tricky and yet most fascinating branch of aeromodelling . . . it looks all so terribly simple when you see a chap out there holding the handle while his model burns up the air around him, but before you can do that there are a hundred and one things which you must learn, first on the list being to always pay attention to the smallest detail on your model . . . quite recently a three-quarters of an inch length of fuel tube put me out of a contest . . . but more of that later.

Strange as it may seem, although I am a professional model builder I get very little spare time for building my OWN models ! ! I know that many people are in the same position when it comes to the question of spare time, so if you are one of these " unfortunates " like myself, every model should be made to last—and go fast ! ! Always aim to give your model maximum strength with minimum weight. I am not one of those modellers who spend more time writing than flying, but I try to keep one eye on theory and the other on the practical requirements of the model without going cross-eyed . . . up to now it seems to work, but what a strain on the eyes ! ! I am still learning the hard way, but let's hope the following will save YOU making some of the mistakes I have made in the past. So now let's get down to business, and some real " club room " tips which I sincerely hope may be of some use to perhaps a few of our up and coming speed " champs " of the not too distant future.

DESIGN.

The fundamental principles of speed design seem to be fairly well known. Much has been, is being and no doubt will be written on the subject, but I want to take a little time off from the building board to jot down these notes on a few details of design and construction which seem to be worth mentioning.

Fuselage. For really high speeds a minimum frontal area is absolutely essential. This is a well-known fact, but still many speed modellers have not got down to this business of reducing frontal area as much as they should do. When you design your model, no matter what class, see that it has clean, smooth entry lines around the spinner and engine cowling. Do not make the very easy mistake of choosing a spinner which is too small, because if you do it will necessitate having a rather sharp curve on the nose of the fuselage to come up over the motor and this will immediately put your model at a disadvantage to the job with a correct diameter spinner that gives a smooth entry and airflow over the fuselage and wing root. The maximum cross sectional diameter of the fuselage is governed in most cases by the motor used, and should only be the same as the overall width of the mounting lugs. Most engines will stand a little filing off of the mounting lugs to reduce width . . . do this whenever and as much as possible.

Cowling. Keep the side area of your motor cowling down to a minimum. This is important. Excessive side area in front of the pivot point has been found to create terrific pull on the lines, the reason for this being that the whole side area of the cowl acts as what I can only describe in my untechnical way as a " front rudder " when the model turns its nose outwards . . . somewhat obvious when you think about it, isn't it ? but many speed designers fall into this trap, and believe me it is a trap . . . so keep that side area down as much as possible, because too much pull on the lines is not only dangerous to spectators, but it will slow your model down.

The cowl looms very much in the picture when we consider frontal area, so it goes without saying that width and height should be kept down to a rock bottom minimum. A practice which is frowned upon by most engine manufacturers but which is really worth while to get a few more m.p.h. is to reduce the overall diameter of the cylinder cooling fins ; this, of course, allows for a narrow cowl.

Three more important points while we are on the subject of cowls : (1) Make certain that your exhaust cut-out in the side of cowl is of sufficient size. Too small a cut-out will baffle exhaust gases, will slow down and even stop motor. (2) The air outlet at rear of cowl should be at least four times larger than the cooling inlet at front. This ratio between front and rear openings will ensure efficient cooling in flight. (3) In the case of Glow and Spark Ignition motors the plug should be allowed to protrude slightly through top of cowl. This may not look quite so smart as a cowling with no signs of the engine showing, but I can assure you that having the plug easily accessible will pay big dividends, because it not only allows for a quick change without removing any part of the cowl should anything go wrong when starting in a contest, but you can also get a much lower cowling in this way and really efficient plug cooling . . . these three points in favour more than outweigh the slight disadvantage of a little " untidiness " on top of the cowl ! !

Mainplane. For ease of construction, accuracy and general efficiency, I have come to the conclusion that the constant chord " square tipped " variety wants a lot of beating. With this shape mainplane, using an aspect ratio of round about Five, you get quite a good lifting surface with a reasonable

span. I have found R.A.F.30 a good all-round airfoil section for speed work. I have carried out tests with a number of models using this section with good results.

Fin. Maybe I am old-fashioned . . . at least I feel sure a number of speed flyers will think so when I advise the useof a fin on the model ! ! ! Personally, I do not like " fancy " tail units, and have found the advantages of using a fin outweigh by far the disadvantage of its very slight drag and weight.

If you want STABLE flying, incorporate a fin on your next model. You will find that a 2 deg. inset fin will reduce the pull on the lines quite a bit, and further adjustments may be made by bending until correct line tension is obtained.

Tailplane. A very large proportion of speed models seem to suffer from the effects of insufficient tail surfaces. On the majority of models of orthodox design, total tailplane area should be at least 30–33⅓ per cent. of mainplane area. Likewise, always allow ample elevator area—a safe proportion being 25 per cent. of total tailplane area.

Lack of sufficient elevator on a speed model when flying in a high wind can be somewhat disconcerting . . . I have seen it prove fatal on quite a number of occasions; you must be prepared to fly in all weathers, especially wind ! ! and it is in a strong wind that you will realize the value and use of fair size elevators. It is a well-known fact that control line models tend to climb into wind and lose height downwind. To counteract these tendencies and keep the model in efficient level flight calls for a range of elevator movement and elevator area which only too few models have.

CONSTRUCTION.

When considering methods of construction there are many items to be taken into account, the most important of these being as follows :—

(1) Strength / weight ratio.

(2) Tools and facilities available.

(3) Your ability to turn out a clean and accurate job.

(4) Ease with which a duplicate may be constructed.

(5) Time and cost.

During the past few years (and a far greater number of models, the majority of which are *still* in one piece ! !) I have developed a method of fuselage construction which I believe is almost unique. At least I have never seen it on the field, or mentioned in any periodical, British or American . . . please note that I say *almost* unique, because there is a saying that there is nothing new under the sun, and maybe I shall get an indignant letter from some unsporting type accusing me of " cribbing " his ideas on fuselage construction ! !

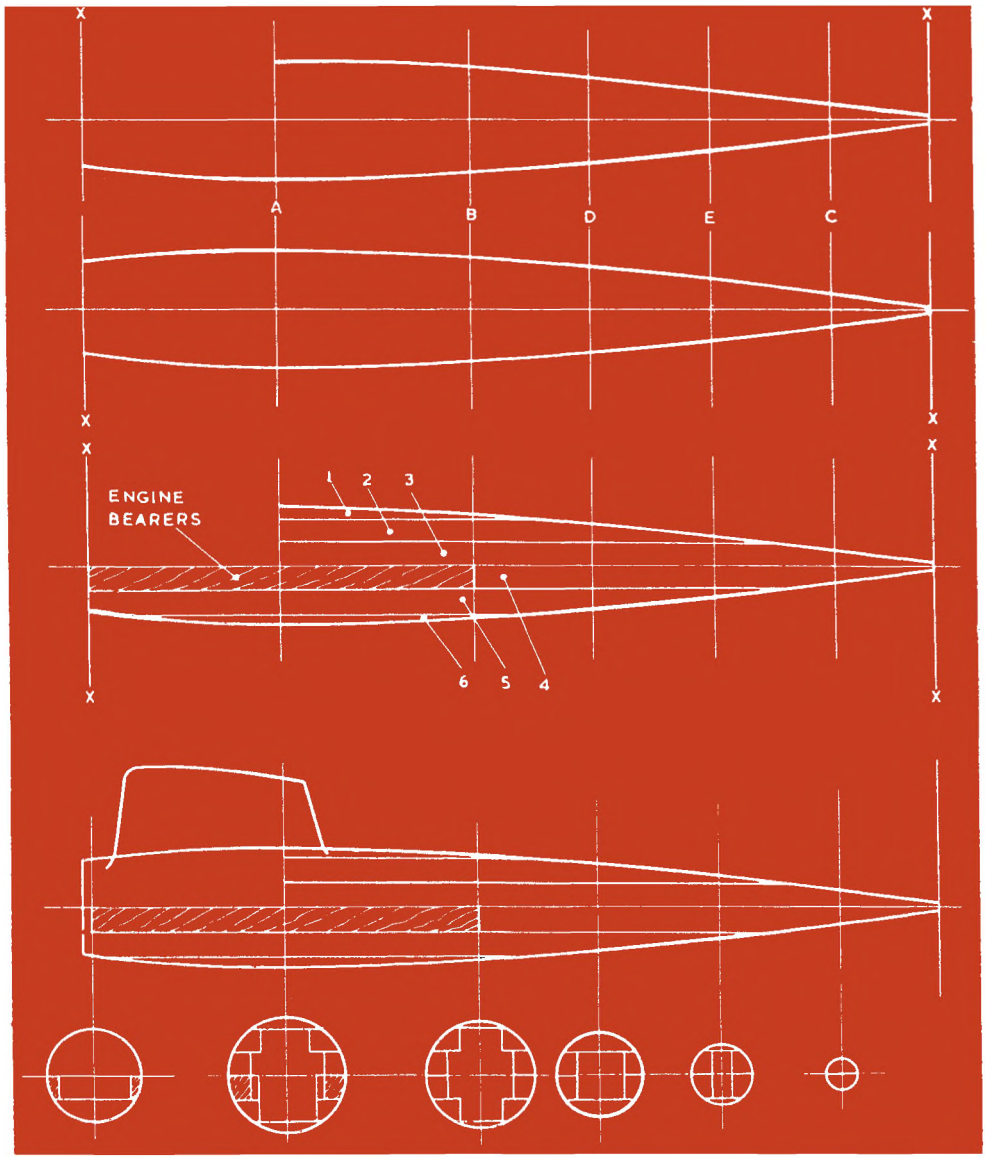
The method of construction to which I refer is as used on the Class VI record-holding model " Lazy Bones III ". This type of construction allows for the building of a light yet strong fuselage with accurate lining up of engine, mainplane and tail unit. It is also easy and cheap to make, and calls for considerably less skill than the usual type of hollow log construction.

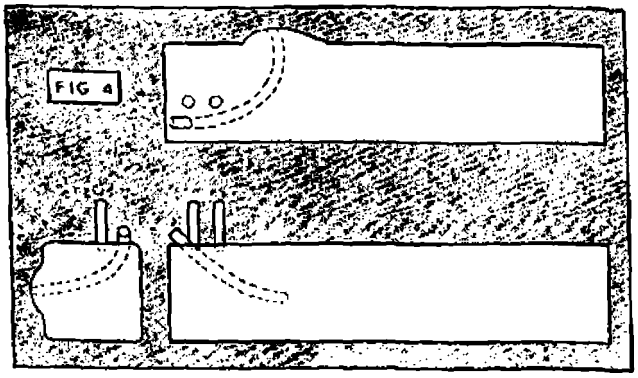
Let us take a closer look at a " Lazy Bones " fuselage and see just how to go about laying out a fuselage of this type—it is really very easy.

For a symmetrical fuselage of circular cross section the side elevation and plan view are identical, so to save time, draw these together.

First draw two parallel centre lines about 6 ins. apart, with two verticals (X) marking the overall length required (Fig. 1).

Next add vertical stations A and B marking leading and trailing edges of mainplane respectively, C at the tailplane leading edge, and two more (D and E) between T.E. of mainplane and L.E. of tail for further check points. Now draw in the fuselage outlines, and if the correct set of curves for this job are conspicuous by their absence I find that a length of 3/16 in. sq. balsa held down on the plan with the aid of pins makes a very smooth curve—try it ! !





Now that we have the fuselage taking shape, with the maximum cross section at or near station A, the next factor to be decided is the thickness of the balsa laminations to be used. I should point out here that the top and bottom are made in two separate halves and cemented together when all details, such as tank, controls, etc., have been added.

I find that three laminations for each half give the best results. For a Class V or VI job with a maximum cross section of 2¼ ins., two laminations of ¼ in. sheet and one of ¼ in. for each half will give the correct diameter. You will note that I do not advise laminations of equal thickness; this is because the depth of lamination No. 4 (Fig. 2) governs the depth of the engines' bearers, and the combined depth of laminations 4 and 5 when cut away to take the tank allow for a tank of very useful size to be fitted. Thickness of laminations 2 and 3 of the top half should correspond with 4 and 5 of the lower half, and the extreme top and bottom layers (1 and 6) should be about half the thickness of the others.

For models in the smaller classes, laminations must, of course, be thinner in proportion to the maximum cross sectional diameter. On a Class IV model I have just completed, I made layers 2 to 5 of ⅛ in. balsa, 1 and 6 being of 3/16 in . . . this gives a maximum diameter of 1¾ ins.

All that remains to complete our fuselage layout is to plot out a template for each lamination. This can easily be done by making a drawing of each cross section at all vertical stations on plan (Fig. 3) and taking the widths from these. Engine bearers play a very important part in this type of fuselage construction: not only do they hold the engine, but the main spar of the wing is attached to them, also the drop-out undercarriage tubes. Engine bearers should be cut from a good quality hardwood, such as birch or oak, and they should extend back as far as the trailing edge of the wing. You will note that the top half begins at A, leaving a clear space in which to mount the engine. A nose former of 3/16 in. or ¼ in. birch ply and a metal cowl to suit the engine completes the fuselage outline.

I have found that beyond all doubt metal tail surfaces are a vast improvement on the old type wooden tailplanes and fins. One big advantage of metal is that in the event of a rough landing when maybe a wooden tailplane would get broken, all that happens to metal is that it bends . . . and in a matter of a few seconds you can have it straightened out and ready for flying. Personally, I have found that on many models the powerful, and sometimes heavy racing engine in the nose tends to make the model rather nose heavy . . . the slight extra weight of a metal tail unit counteracts this tendency, and in nine cases out of ten you will find that on a model of orthodox design a metal tail will put the C.G. just where you want it . . . and on a speed model that is on the leading edge of the mainplane.

TANKS.

Despite all that has been written about tanks I am continually being amazed at the amount of modellers with whom I come into contact who still do not realize the vast difference between stunt and speed requirements of this very important item of a speed model.

The majority of stunt tanks are " wedge " shape and have the fuel pick-up pipe running right to the rear. Now, on a speed model this will not do at all, because for one thing there is just not the room for fancy shape " wedge " designs, which in any case are inefficient for speed work and nearly always cause what we like to call " pressure feeding ". For a model which is going to travel at any appreciable speed a tank with its fuel pick-up pipe running to the rear end is pretty well hopeless. What a lot of sleepless nights and disappointments I should have been saved if only somebody could have whispered in my ear a few useful tips on tank design when I built my first speed job ! ! But maybe there are quite a lot of modellers planning their first speed model who will read this article . . . if YOU are one of these newcomers to the speed game the following will be of special interest.

Fig. 4 will give you a good idea of a really efficient speed tank. I have proved this type of tank to be capable of giving a good steady fuel feed at all speeds up to 150 m.p.h. and I feel sure that if you are experiencing feed trouble on your model a tank of this type will go a long way towards putting matters right.

When you come to think of it the rate of acceleration of the average speed model is really terrific . . . many models reach 100 m.p.h. plus in a matter of a very few seconds. Bearing this in mind, let me explain a few points regarding the type of tank I use.

First and foremost you will notice that the fuel pick-up pipe is positioned half way up the side of the wall of the tank and about one-third the overall length from the FRONT. This forward fuel pick-up position will prevent " pressure feeding ", my theory (and a lot of other people's, too) for this being that during take-off, and on the first one or two laps while the model is gaining speed, the fuel is pushed to the rear of the tank by the force of acceleration . . . in fact, I am inclined to believe that the fuel in the rear half of the tank is under quite a considerable pressure during these initial stages of the flight. With these conditions inside the tank you will see that with the pick-up at the rear the motor will be drawing in fuel under high pressure. As acceleration dies down and the model settles to its maximum speed run I believe that centrifugal force overcomes the forces set up by acceleration and the fuel moves from the rear of the tank to the side, centrifugal force keeping it in a solid vertical " wall ".

So you will see that with a tank as shown in Fig. 4 the fuel is drawn from the front end, where pressure is as near normal as possible, the slight " bulge " which I am now incorporating ensures that every drop of fuel is used on the flight.

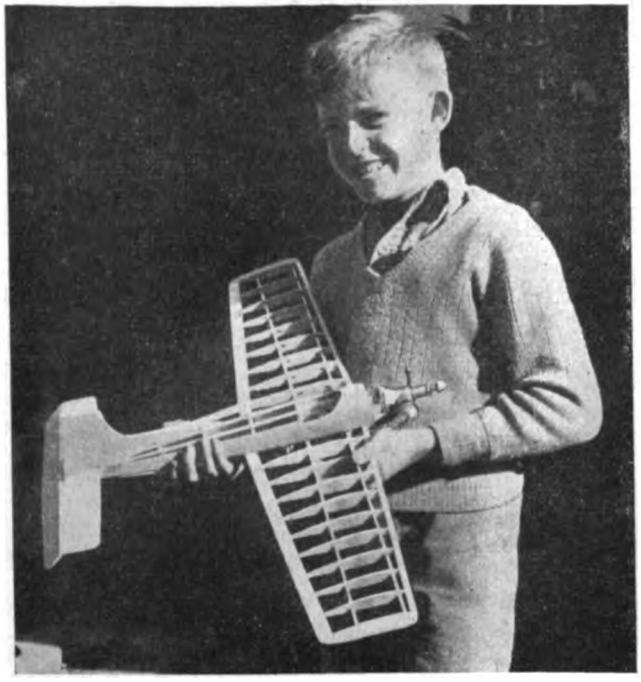
While on the subject of tanks here are a couple of tips which are really valuable . . . I say valuable because it has taken me a long time to find out that it is of the utmost importance to (*a*) have your filler and vent pipes extended to the outside of the fuselage so that you can re-fuel quickly without removing any part of the model, and without getting fuel inside the fuselage. Make these extensions with plastic fuel tube, and cut the ends of these pipes off at an angle of approximately 45 degs. so that the open ends face the airstream . . . this is IMPORTANT. Now we come to the second point (*b*) the " plumbing " from tank to engine is another vital matter. See that connections at both ends of the pipe are absolutely perfect, airtight, and ensure that no trace of a kink exists. Do not use a fuel pipe of too large a diameter . . . I strongly advise nothing over 3/32 in. I.D. for even the largest Class VI engine.

So here you have (I think ! !) the golden rule for tank design. Check up on the points I have mentioned and see if you have gone wrong. ·010 in. sheet tin is about the best material from which to construct speed tanks. Thinner material will crack very easily due to vibration.

Well, there you are, all you speed " fiends " . . . I guess that's all for now. Next month I shall be rounding off this series with another " natter," so until then, here's wishing you fast, furious and happy flying. Not *too* furious please, and—— Oh, I say, look out ! ! ! ! There are two thin wires laid out there ! !

Proof of the world-wide readership of the AEROMODELLER is contained in this photograph sent by F. Madigan of Perth, Western Australia.

Below : Douglas Smaller of New Zealand, is seen here with his first Control Line ventures, both speed models being Mills 2·4 powered. Speeds are around the sixty mark.
Bottom : Robert Hughes of Sydney, Australia, holding his Millsbomb. The motor will be recognised as an Elfin; it is the 1·8.



BEFORE commencing his lightning tour of the world for the last time this year, Ariel would like to wish his readers, wherever they may be, a very Happy Christmas.

Christmas dinner will be eaten in the warmth of summer sunshine in the first country we visit, but roast turkey and Christmas pudding are still the order of the day in :

New Zealand. Living in Gonville, Wanganui, is one of the country's original aeromodellers, Mr. Douglas Smaller. A founder of the Wanganui Model Club twenty years ago, he has been building and flying since 1912 and, in addition to models, constructed the first full-size training glider in New Zealand, back in the 1920's He is, by profession, a trainer of wild horses, and is the first aeromodeller in that business to correspond with us.

Prompted to write by a Waterplane article in the AEROMODELLER, he tells us that he had fair success with seaplanes thirty years ago, but it was not until several years later that he managed to get a flying boat off the water.

Yet another model which was revived after many years of storage was a twin pusher, built twenty five years ago, which re-created considerable interest when flown recently.

Australia. From New Zealand's big neighbour a letter and two photographs were despatched by Robert Hughes of Sydney. One of our younger overseas correspondents, Master Hughes has just made a start on control line.

His father had recently returned from England and the Continent with lots of kits and three engines, an Elfin 1·8, a Yulon 30 and a Super Cyclone, so there must have been some excitement in the modelling line in the Hughes' home!

Geoffrey is a member of the Model Aeronautical Association of New South Wales (M.A.A.N.S.W. is less of a mouthful) and this Club holds a control line meeting every Sunday at Centennial Park which is in one of the suburbs of Sydney.

Denmark. Latest news, just to hand, is from Ing. Per Weishaup, Chief Instructor of the Model Section of the Danish Aero Union and a valued source of modelling news for many years. This gives details of the Danish National Championships, held on the 24th of September. As this contest is only open to qualified aeromodellers holding a C diploma for gliders and having been well placed in at least three major contests during the year, there were only fifteen entrants. The winners and their times were as follows : 1st Donald Thestrup, with a total of 769 seconds ; 2nd Borge Hansen, 644 seconds ; 3rd Hans Hansen, 643 seconds ; next were Arne Hansen, 604 seconds and Kai Hansen, 599 seconds. In spite of the name, the Hansens are not one family !

Sweden. A full report of the Swedish Nationals is just in from L. Segerfelt, Secretary of the Gothenburg and District M.A.C.'s. These were held at the Skarpnack Aerodrome, near Stockholm on the 24th of September.

There are only three classes flown in the Nationals: Wakefields, Nordic A-2 gliders and Free Flight power duration models. The total time of three flights is counted in all classes and for F/F models only 30 seconds motor run is permitted. (No ratio).

The Nationals is only open to those modellers who have certificates ; this is a sort of elimination because the certificates must be renewed every year by flying specified minimum flights in the class wanted.

Rune Andersson (better known by his pet name—" The Banana "), Swedish team-manager at Trollhattan, who was one of the best Swedish model fliers during the war, made a good come-back and got his first Championship in the Glider class with a total time of 910 seconds. Second was R. Schedvin with 846 seconds—both are from Stockholm.

Most outstanding winner was Borje Borjeson of Gothenburg who took the championship for power models the third year in succession, with a total time of 844 seconds. Ragnar

Odenman, Stockholm, placed second with 582. It was interesting to see that most models were powered with British engines.

Ethiopia. We have heard again from Monsieur P. Lerebours, schoolmaster at the Lycée Franco Ethiopien, Addis Ababa, who has been searching for local modellers. The results were somewhat disappointing; one would-be constructor with insufficient time, and one or two others who had bought poor quality kits and had given up for lack of assistance and materials.

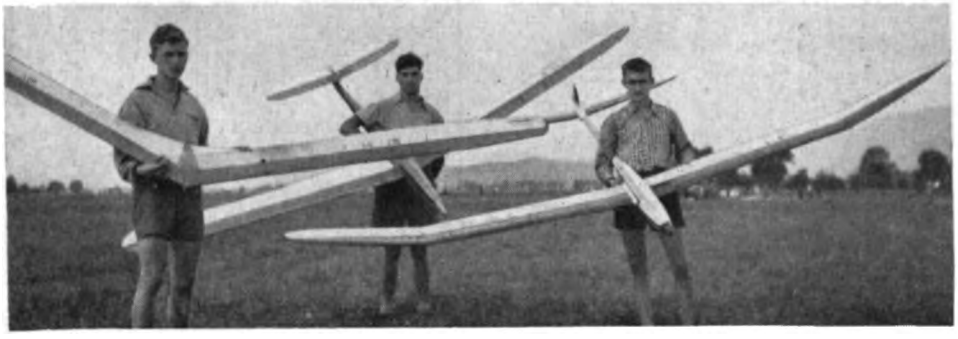
We quote verbatim from our correspondent's letter; "We were doing slope-soaring with a French friend on a hill 10 miles from Addis Ababa—two models—his glider and my rubberless Wakefield. When about to get down to our cars at the foot of the hill we see three men approaching, a civilian and two policemen. They reach the spot. 'Mendano ?—what is this?' 'Toys!' answers another friend (in Amharic). 'Have you any papers, permits, driver's licence, etc.?' 'Yes, down in the cars'. 'Come along'.

"While coming down I launch my Wakefield which glides beautifully two hundred feet downhill. Bursts of laughter (remember they never saw a model). Here a long checking takes place. 'Inghilterra?' (that seems to be 'England' in Italian) they ask. 'No, French'. (This must have complicated our case!) Well, we have—1. No permit to fly such secret weapons, (I let them see and weigh it!). 2. No permit to be over 5 miles from Addis (that's new even to us who have been often further away than that without anything) . . . and they took away the Wakefield ! In spite of my angry protests."

Switzerland. The Swiss Nationals were held recently at Grenchen, and Nico Reidhart of Geneva, sent in a report of the Contests. In rough weather, with rain and violent wind, over 230 contestants participated. Gliders were out in swarms, as was expected, and they put up a very good show, too. The "Sperber", designed by Brunno Bächli made its first Nationals appearance and gained first place for A. Meyer of Soleure, with 1,006 seconds. Nylon line was in general use. Tailless gliders first place was taken by Fortina of Winterthur with 344 seconds. Free Flight Power was marred by a large number of crashes and was won by G. Beaud of Lausanne, with his "Jaguard". He put up the commendable ratio of 55·47.

Top left : Rune Andersson; winner of the Nordic A2 Class at the 1950 Swedish Nationals.
Centre : Power model Champion for the third year in succession, Borge Borjeson is not a superstitious type.
Right : 1950 Danish Nationals Champion Donald Thestrup, right holding the Royal Danish Aero Club Cup. Hans Hansen with model and Borge Hansen, who took second place on left.
Above : Mme. Lerebours holds her husband's Wakefield while he wields the camera. Note anhedral tail and diagonal bracing.

Above : Germann, winner in the Wakefield Class at the Swiss Nationals.
Left : Top man in the Power Class, G. Beaud of Lausanne.
Below; left: Swiss Nationals Glider entrants, l. to r. Keller with his tailless Fortina, tailless Champion and Bollinger with his 14 footer.
Right : A. Meyer smilingly exhibits his "Sperber" and the trophy it won for him in first place.



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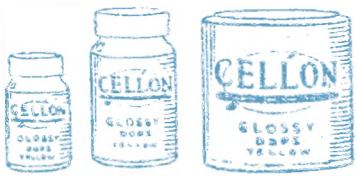

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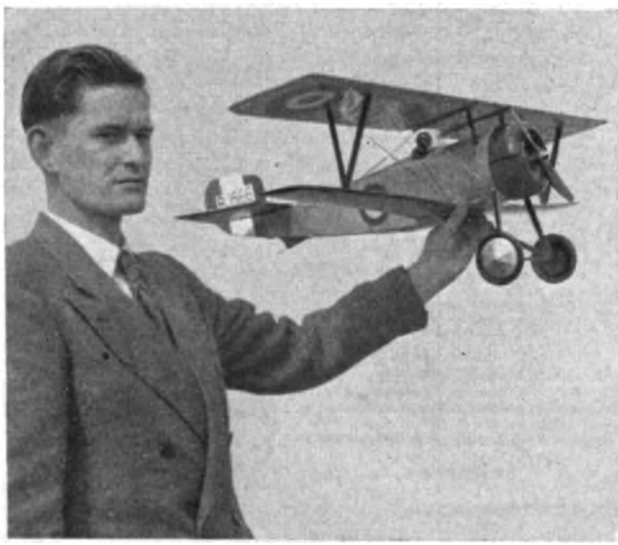


DESCRIBED BY H. C. HUNDLEBY

IT was a real pleasure to be at Halton Aerodrome, Bucks., on Saturday, 23rd September, for several reasons. Firstly, to witness this championship meeting which will undoubtedly be the forerunner of many yet to come; secondly, to observe the high standard of enthusiasm prevailing amongst modellers in the R.A.F.; thirdly, to enjoy real flying weather for a change, and what a change! Finally, to see the splendid measure of support given by high ranking officers in the Service. Air Marshal Sir R. Victor Goddard, K.C.B., C.B.E., Air Member for Technical Services on the Air Council, presented the prizes and showed such interest that he stayed late to do so. Others present were Air Marshal Sir John W. Jones, K.C.B., C.B., A.O.C. in C. Technical Training Command; Air Marshal Sir Hugh P. Lloyd, K.B.E., C.B., M.C., D.F.C., A.O.C. Bomber Command; Air Vice-Marshal R. O. Jones, C.B., A.F.C., B.A., D.I.C., M.I.Mech.E., A.F.R.Ae.S., A.O.C. 24th Group; and Air Commodore N. Carter, C.B., D.F.C., A.O.C., R.A.F. Halton, who gave the use of the airfield.

Eliminating rounds had been run firstly at Groups and then Commands, with a representative team from each Command competing in the Championships, and this system undoubtedly served to maintain the high standard of flying that was present.

The Power Duration, Rubber Duration and Glider events were well supported with F/Lt. Ware outstanding in both the power and rubber. The " Jetex " contest was exceptionally interesting, and very keenly contested with Officer Cadet Twomey, better known to us as Dick Twomey, leading the field. The standard of flying in the Control Line Stunt event left rather a lot to be desired, and the Speed event included only a few genuine speed models. Amongst these was F/Lt. Verney, who seemed to have a finger in most of the competitions, with the result that he was eventually acclaimed Victor Ludorum.

There were some interesting exhibits in the Concours d'Elegance, not the least being a Cody " Cathedral " which the Judges (Henry J., Eddie Cosh and writer) alternatively christened Maurice Farman and Wright Biplane! However,

Heading photo. shows H. Horsefield of Training Command launching amidst admiring crowd. Centre, Air Marshal Sir Victor Goddard presenting F/Lt. Verney of R.A.F. Llandow with the Victor Ludorum Trophy. In the centre is S/Ldr. E. Cable, Secretary of the R.A.F. Model Aircraft Association. Left, Cpl. Edwards of R.A.F. Binbrook with his scale Nieuport that earned him second prize in the Concours d'Elegance.

"not to worry" but to congratulate S/Ldr. Eric Cable and his band of willing helpers on a successful meeting. The writer only hopes that news of this first Championship reaches S/Ldr. Brian Lord, now in Malaya, for the R.A.F. Model Aircraft Association was his original brainchild, and without his enthusiasm might never have been born.

CONTEST RESULTS

VICTOR LUDORUM :—F./Lt. Verney (F.C.)

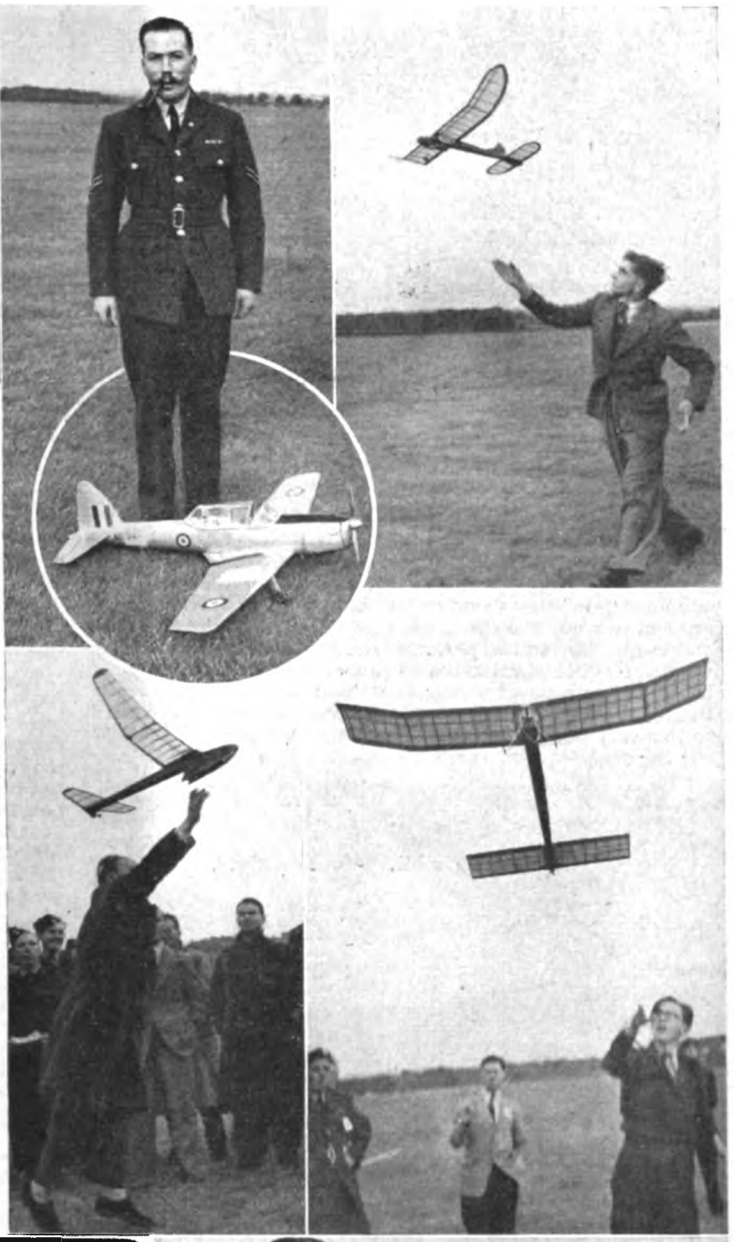
OPEN POWER DURATION			(2 flights)
1st.	F./Lt. Ware	(T.C.)	273 sec.
2nd.	Cpl. Barker	(T.T.C.)	222 secs.
OPEN RUBBER DURATION			(2 flights)
1st.	F./Lt. Ware	(T.C.)	232·5 secs.
2nd.	Officer Cadet Foster	(F.T.C.)	210·0 secs.
OPEN GLIDER DURATION			(2 flights)
1st.	L.A.C. Parker	(M.C.)	215 secs.
2nd.	F./Lt. Dunham	(T.T.C.)	194 secs.
OPEN "JETEX" DURATION			(2 flights)
1st.	Officer Cadet Twomey	(F.T.C.)	237 secs.
2nd.	A.C. Slade	(T.T.C.)	149·2 secs.
CONTROL-LINE STUNT			
1st.	A.C. Barker	(M.C.)	233 points
2nd.	A. C. Ross	(M.C.)	131 points
CONTROL-LINE SPEED—(Handicap, all classes)			
1st.	F./Lt. Bowner	(F.T.C.)	75·7 m.p.h. (H'cap speed 125·7 m.p.h.)
2nd.	F./Lt. Verney	(F.C.)	59·0 m.p.h. (H'cap speed 109 m.p.h.)

CONCOURS D'ELEGANCE

SOLID SCALE MODELS		
1st.	Officer Cadet Wakeford	"Spitfire"
2nd.	A. C. Langford	Cody "Cathedral"
FLYING SCALE MODELS		
1st.	Cpl. Barker	"Chipmunk"
2nd.	Cpl. Edwards	"Nieuport 17c"
MISCELLANEOUS		
1st.	F./Lt. Verney	"Norseman" glider
2nd.	Sgt. Smead	"Wakefield"
SPECIAL COMMENDATION		
F./Lt. Ware		"Southerner"

TOP SCORING COMMAND—TECH. TRAINING

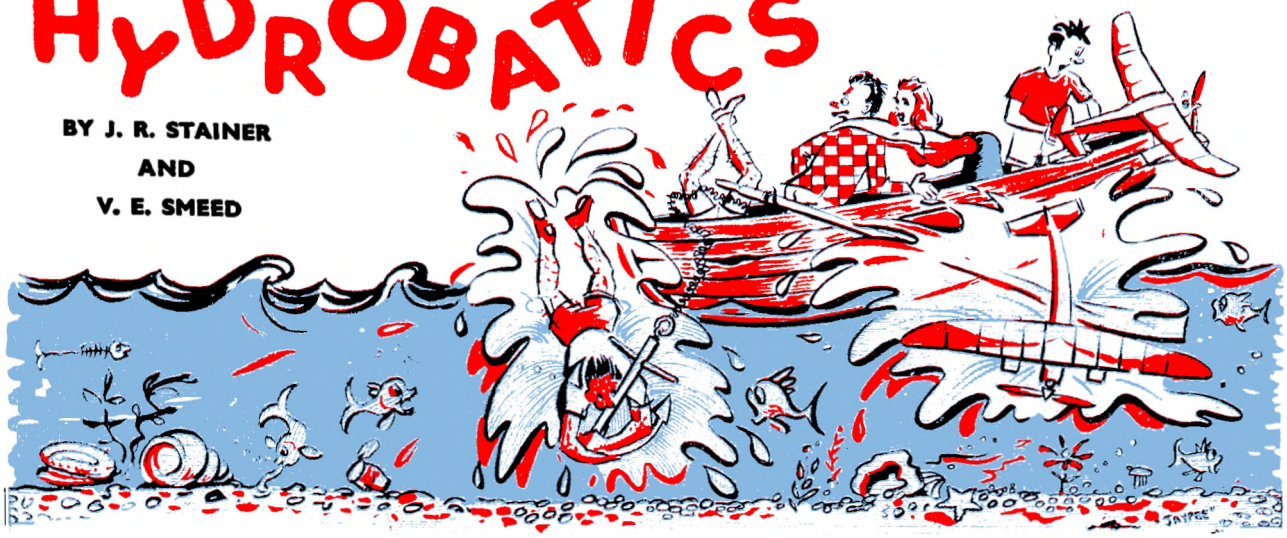
T.C., Transport Command; T.T.C., Technical Training Command; F.T.C., Flying Training Command; M.C. Maintenance Command; F.C., Fighter Command.



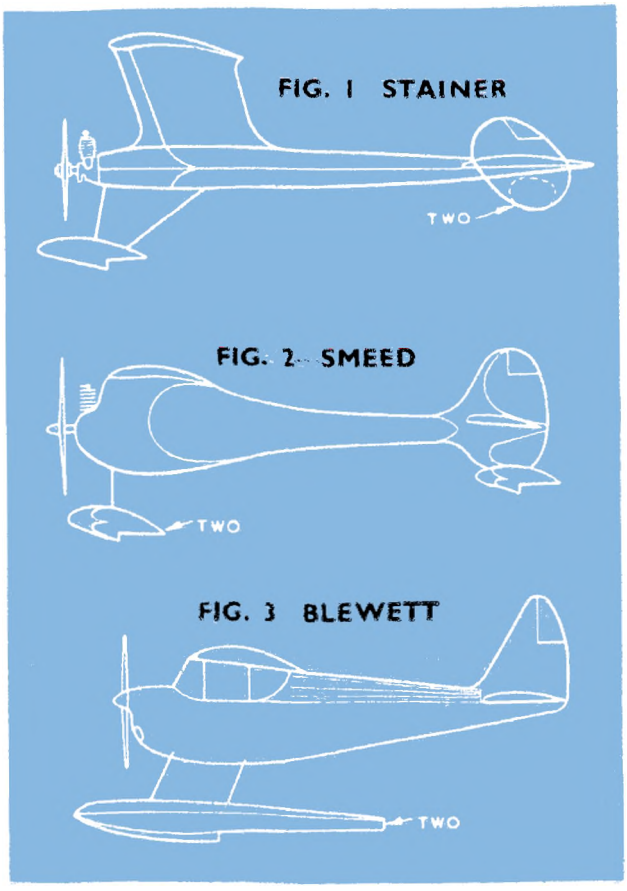
Top left, Thanks for the light chum!" Owner of unorthodox "Jetex" entry returns the essential part of any Jetex unit. Top centre, standing at attention for our camera is Corporal N. Barker of Cardington, complete with the D.H. Chipmunk that won him the "Aeromodeller" Cup for the best entry in the Concours. Top right, Dick Twomey launches his winning Jetex 350 entry. Centre left, Flt. Lt. Hudson of Bomber Command lifts himself as well as his model from the ground. Note the crash pylon to protect the wings in the event of a nose-over landing. Centre right, a gloplugged Amco 3·5 rocketed this pylon model skyward in the power comp. Left, a "Rebel" displays its dihedralled tailplane to its fullest advantage. Flt. Lt. Verney tickles up his Arden 199 powered "Slicker".

HYDROBATICS

BY J. R. STAINER
AND
V. E. SMEED



IN answer to a request in a previous article for further news of water-flying, our experiences with floatplanes, which culminated in the raising of the national floatplane record, are here set down in the hope that they may be interesting and even constructive, perhaps. Before 1949 our experience with water jobs was limited to rubber floatplanes and flying boats and one power flying boat built by Smeed (Xantho, Fig. 6); however, we learned a lot in the time we devoted to this very enjoyable aspect of aeromodelling. Our findings do not entirely agree with the scanty information available in this sphere, and obviously much more experimenting must be carried out before a set of general design rules can be laid down. We propose to discuss three models, chiefly, with which experiments were made.



Firstly, Stainer's model (Fig. 1) was a converted landplane —a 58 in. version of his "Sugarfoot." Small stabilising floats were fitted to the inside of each of the twin fins, with a single detachable float of the "sea-sled" type up front, projecting slightly in front of the airscrew. This main float was attached to the fuselage by means of a wire frame which plugged into a box and was secured by the inevitable rubber bands. The float length was 10 ins., width 4¼ ins., and depth (max.) 2 ins. A step of ¼ in. occurred at 70 per cent. of the length back from the leading edge. Total model weight was 22¼ ozs., and a glo-plugged Arden ·199 supplied the urge. The float arrangement was influenced by the popular American lay-out, as used by Lew Mahieu, etc., and while proving perfectly satisfactory for flotation tests and take-off, we would advise that this lay-out be used only on models with hot take-off habits, since it is inevitably unstable (as with single-leg landplane undercarriages). There is also the tendency for the model to tip over when alighting on the water again. For pond-flying, of course, this last argument can be neglected, since the model will not be called upon to alight on the water, and a nose-over ground landing will not result in the model becoming waterlogged. "Sugarfoot" left the water in about—we-ell, we can't agree on this point. Everyone except the proud owner says, emphatically, "twelve inches," but Stainer, loth to admit that his elegant step is entirely unnecessary, states definitely, "four feet." Whatever it was, it was very much quicker than any of us expected! Whilst the job appeared to climb just as fast as with a landplane undercarriage, it only turned in ratios of 6–7 : 1, although this might have been improved had not it flown away before being trimmed.

Smeed's model, "South Cone" (Fig. 2), was hoisted by a Movo D2, and was designed strictly as a seaplane. A 50 ins., 300 sq. ins. shoulder-wing job, the three floats, of the sea-sled type, were arranged as two main and one tail. These were adopted as offering less drag than Fabre or bear-claw floats, though hydrodynamically there seems little to choose. The main floats measured 8½ ins. in length, 4¼ ins. width, and 2 ins. depth, and were stepped ¼ in. at 50 per cent. The steps were "hooked" to lessen any porpoising tendencies. These floats were attached on single-strut legs (track between outer sides 17 ins.), the legs being bound into the floats and fuselage. The tail-float was 6 ins. × 4¼ ins. × 1½ ins., also hook-stepped ¼ in. at 50 per cent., and built on to the sub-rudder. This model was off in four feet (according to all eye-witnesses except Stainer, who says twelve) and ratioed about 4 : 1,

although again not fully trimmed. The main floats are larger than necessary, but the job rides well and has only tipped once on alighting.

Blewett's model, 'Andromeda' (Fig. 3), actually a J. Cobb/Smeed/Blewett combined effort, was a pretty cabin model, 45 ins. span, powered by an E.D. II and equipped with twin scale-type pontoons. For looks it had the other models beaten by a street, but though quite reasonably fast-climbing, required at least 25 feet of take-off run. The pontoons are 24 ins. long, 3 ins. beam, and 2¼ ins. depth, vee-bottomed forward of the step, which is at 50 per cent. length and measures ½ in. Aft of the step the pontoons are flat-bottomed, and the tops are rounded along the whole length. Attachment was by twin rigid struts plugging into tubes in the fuselage. Total weight was 17 ozs., and the step occurred 5 per cent. of the float length in front of the model's C.G. The undercarriage worked extremely well on land.

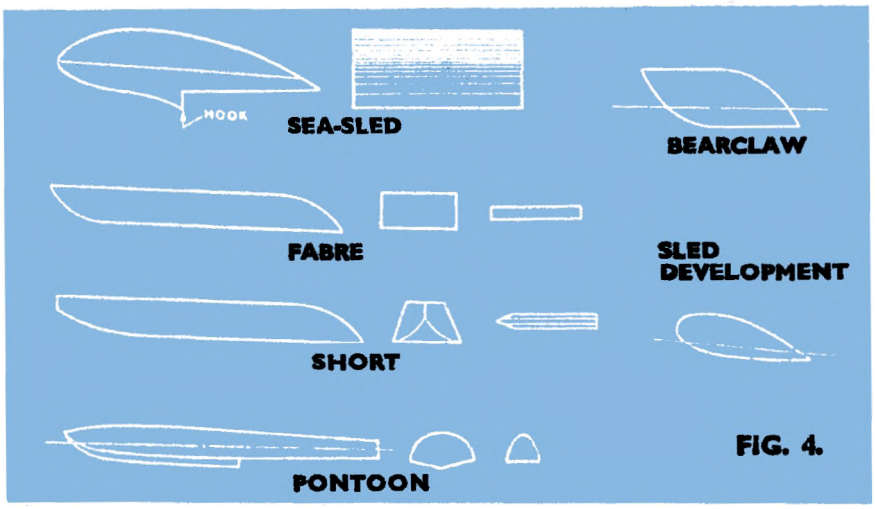


FIG. 4.

An account of the actual record attempts will illustrate many of the things to be learned by those who wish to fly actually off the sea rather than from a pond or tank. We could almost entitle the tale " How we brought some good thews of gents to aches," if you see what we mean ! We had had a spell of ideal weather, but on the first occasion that the tide fitted us we could only raise a rowing boat and Blewett's canoe. Rather than wait (on any other day we could have had two motor-boats) we decided to go ahead—the weather couldn't last. We piled five into the 15 ft. boat, with Stainer's and Smeed's models, and rowed off, escorted by the canoe. Herne Bay is a seaside resort and this was August—our departure was not unobserved. We had decided to time all flights in case of dunkings and subsequent motor troubles. Our crew included three timers (two to time while the other was flying), a relief crew for the canoe, and an Interested Witness (blonde). The canoeist was to retrieve, and completed our complement. We sculled off about half a mile, as the light breeze blew parallel with the shore. Needless to say, as the hook went over, the breeze abruptly changed and blew dead off-shore. However, we didn't propose pulling that boat about unnecessarily, so we started readying the models. In the excitement of getting cracking we hadn't noticed that water was seeping in through two dried-out seams—we were more than a normal load. We decided they'd swell soon enough, so Stainer started up. The first take-off resulted in an early ditching—four feet astern. After shaking off the water, the second was more successful, and the job screamed up well. We glanced anxiously at the watches—27 secs., 28, 29—we'd just about given up when the motor cut dead at 29·8 secs. Away went " Sugarfoot " with the canoe in hot pursuit. 2 m. 59 odd—not bad, but the model was a mile out.

The canoe reached it—and discovered he couldn't paddle with the model aboard. When this became evident to us, we hauled in the anchor, and, averting our eyes from the water swirling over the floor-boards, commenced to row. We had no bailer, and the ocean seemed to come in faster the lower we sank. We finished up with Smeed's shoes as bailers as well as a fuel bottle and a large piece of rag which was wrung out over the side ! We got the model and pulled in to empty the bilge-water. Glide tests from the slipway while the water was gurgling out. Two wet motors. We ran the motors to check them before re-embarking—when the noise and smoke subsided it was impossible to see the shingle for small boys, while more than 400 spectators lined the promenade rail. We hastily pushed off again, and in view of the wind direction, pulled off only about 50 yards before throwing the brake over again. Stainer got off prettily, but the motor run was about 35 secs. and the machine over a mile out again. Smeed's job hopped off and with a 20 sec. run alighted half a mile off after 1½ mins. or so. This was in full view of the spectators—now swelled in number—and, we hope, provided the answer to the layman's eternal question, " How does it come down ? " Wearily we rowed out to collect both models and since we had now had a couple of hours of it and were suffering acutely from blistered hands and raging thirsts, we decided we'd wait for the motor-boats and so departed in


Fig. 5. "FLATULENT FLOUNDER"—60"


Fig. 6. "XANTHO"—36"

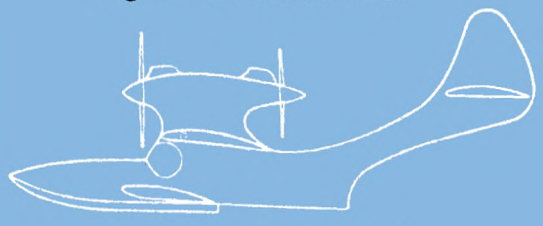


Fig. 7. "TETHYS"—68"

search of various balms.

The following evening brought the same weather and tide, and we embarked in a five-ton motor cruiser and its outboard-powered tender, to try to improve on Stainer's time. Smeed's model received slight damage when the engine cut immediately after take-off—one wing panel loosened—so Stainer climbed into the tender to try his luck. First take-off followed by a horrid splash. Shake off the water, top up the tank, reset the timer, and away again. We-ell . . . the timer must have been full of water—the model was slightly out of trim, but nevertheless at the end of its tank (80 secs. run) it was a mere speck overhead. We started every engine in sight and gave chase. The outboard ran out of juice about a mile out, but the cruiser continued until brought up by the Margate Sands, which, due to her draught and the state of the tide, she couldn't cross. The model had disappeared, still several hundred feet up, ten or fifteen minutes before, with a time of over 10 mins. o.o.s. We had to give it up, and returned to tow the tender in, calling off hydro activities for the time being. Sugarfoot, sadly battered, was washed in three days later, some ten miles along the coast. When the foam obscuring the motor was scraped away, the crankcase looked like wire netting—almost completely corroded away, although the steel parts were serviceable and are still in use with another set of cast parts.

These two models and the semi-scale job were previously and, in two cases, subsequently, flown over land and off inland water to garner information. One idea arising out of our sea experiences is that of painting crankcases, etc., with hot industrial lanolin. This, when cold, will cover them with a fine waterproof film, which would be fuel resistant and afford some protection against corrosion, although, if the motor is wiped and oiled after each day's flying, no trouble should be experienced. Our findings can best be set out as follows :—

(1) The one-front-two-rear float lay-out can be used on any landplane without a great alteration of trim being necessary, but it is recommended only for highly powered jobs, as take-off is not so certain. Touch-down on water is also unreliable.

(2) The two-front-one-rear float arrangement is good for all purposes though perhaps not quite so efficient aerodynamically. The change of trim may be quite marked, but for all-round freedom from trouble it has our vote, especially for sea-work.

(3) The twin pontoon set-up approaches flying-boat characteristics in the length of take-off run and so forth. It is very stable and pays for its slightly greater interference in the air by its undoubted superiority in looks. Little change in trim seems to be required if converting a landplane, although it would be advisable to increase the fin area slightly.

(4) The exact shape of the floats seems relatively unimportant, since the models have such short take-off runs. Steps would certainly appear unnecessary—we hope to try raindrop profiles on our next models.

(5) About three to four cubic inches of float volume per ounce of aircraft weight is adequate, in the proportion of 70 per cent. for'ard and 30 per cent. aft. The leading edge(s) of the front float(s) should be in line with or slightly in front of the airscrew plane.

(6) Contrary to all published criteria, the rigidity of the float mounting appears to be unimportant provided that the floats do not alter their positions under normal load. Since water offers as much resistance as land, some form of springing would probably save weight in the end, as the strut anchorages would not have to be so beefy.

(7) A deadrise angle (angle of float bottom from step position forward, measured against aircraft rigging line) of five degrees seems the best, although, again, on fast-climbing jobs this seems unimportant.

(8) Tanks should be small—in case the timer gets water-logged or forgotten !

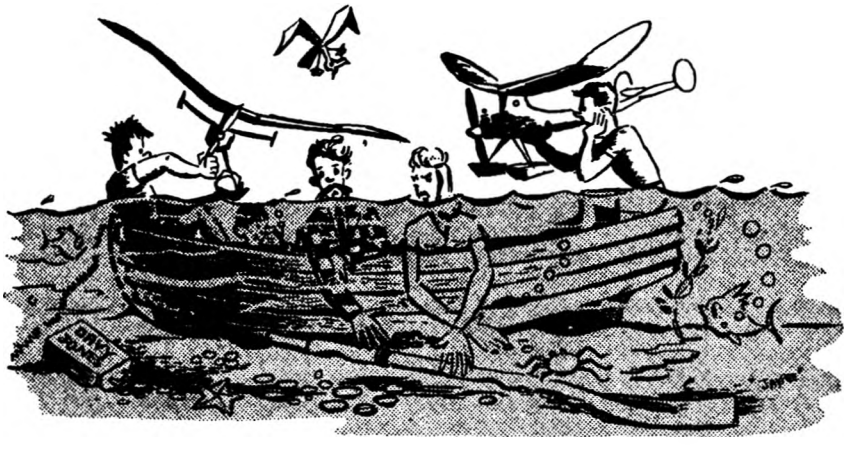
(9) As in landplanes, a fine-pitch prop. gives much better acceleration and a faster take-off. If the model is not high-powered and the floats (or hull) are not well designed, the pitch of the prop. will make all the difference between success or failure in taking-off.

(10) Tissue covering will let water in quickly (and out, oh, so slowly !) unless it is thoroughly varnished—fuel-proofer might fill the bill here. We found it unnecessary to proof the actual woodwork before covering, but if the covering is not completely proof and the construction includes block balsa, it would be advisable to banana-oil the block parts at least.

(11) Planing surfaces should be sheet covered, but inspection of the floats should be carried out after each flight in case they have made water—we were astonished at how frequently and inexplicably this happens, and if it remains unobserved the effect on the climb is startling, to say the least. " Andromeda " eventually met her doom from this cause. Celluloid bottoms seem a bright notion.

(12) If you can't make use of a motor craft, a couple of friends from the local rowing club should be taken along. This is probably the most important point of all !

Our more limited experiences and observations with flying boats indicate that hull design is much more important, and that sponsons are a must. Tip floats do not appear to be satisfactory to us, and though we *have* seen successful take-offs by machines fitted with them, we wouldn't use them. However, other experimenters have found them quite efficient, apparently. Smeed's latest aquatic project, " Flatulent Flounder " (Fig. 5) is a pylon-mounted wing surmounting a sponsoned float, with a boom carrying a twin-finned tailplane. An Elfin will be hung on the front somewhere, and with 500 sq. ins. and an all-up weight of 20 ozs. the aim of a rapid take-off, reasonably fast climb, and floating glide, should be realisable. There are few rising currents over the sea, and glide is all-important if duration is the aim. " F.F." looks, of course, ghastly. An interesting model, with better looks, has been built by Ian Gracie to a Smeed design ; this model, " Tethys," is powered by an E.D. Comp. and a Mills 1·3 in tandem (Fig. 7). Glide tests are imminent on this model. Smeed also has on the drawing board a Bee-powered 'boat, and we hope in due course to set down any points of interest arising from experiments with these models. There is no doubt that water-flying is much neglected in this country — we wonder why. Thirty feet of water is all that is required for most hydros—that and an hour or so spent in converting an old model. Why not have a go ?



CONTEST

In circle, P. B Allaker of Surbiton, winner of the I.C.I. Challenge Trophy. His design was simple yet effective enough to produce a ratio of 8·76. Left, a group of competitors featuring last year's winner, Dick Twomey (centre) and M. Pitel (right), who placed 4th this year.

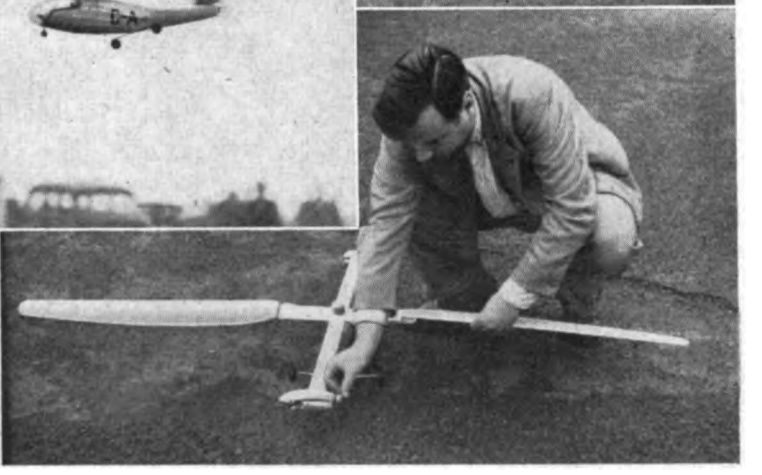
TWENTY-NINE "fag and fizz" boys assembled on a somewhat wet and chilly tarmac at Fairlop on Saturday, 30th September, for this second "Jetex" contest. The somewhat depressing drizzle that persisted throughout the day in no way damped any fuses or enthusiasm, and the flight performance of the majority of the models was a pleasure to behold. There is no doubt that a large number of enthusiasts have gone into the trimming and flying of this type of model very thoroughly as was proved by the average flight duration figure of some two minutes. Results were adjudged on a ratio basis with set figures for engine run according to the size of unit and the number of pellets used. Apart from the flying, the somewhat dreary weather conditions were brightened by the refreshments laid on by Messrs. Wilmot Mansour who had everything organised in fine style.

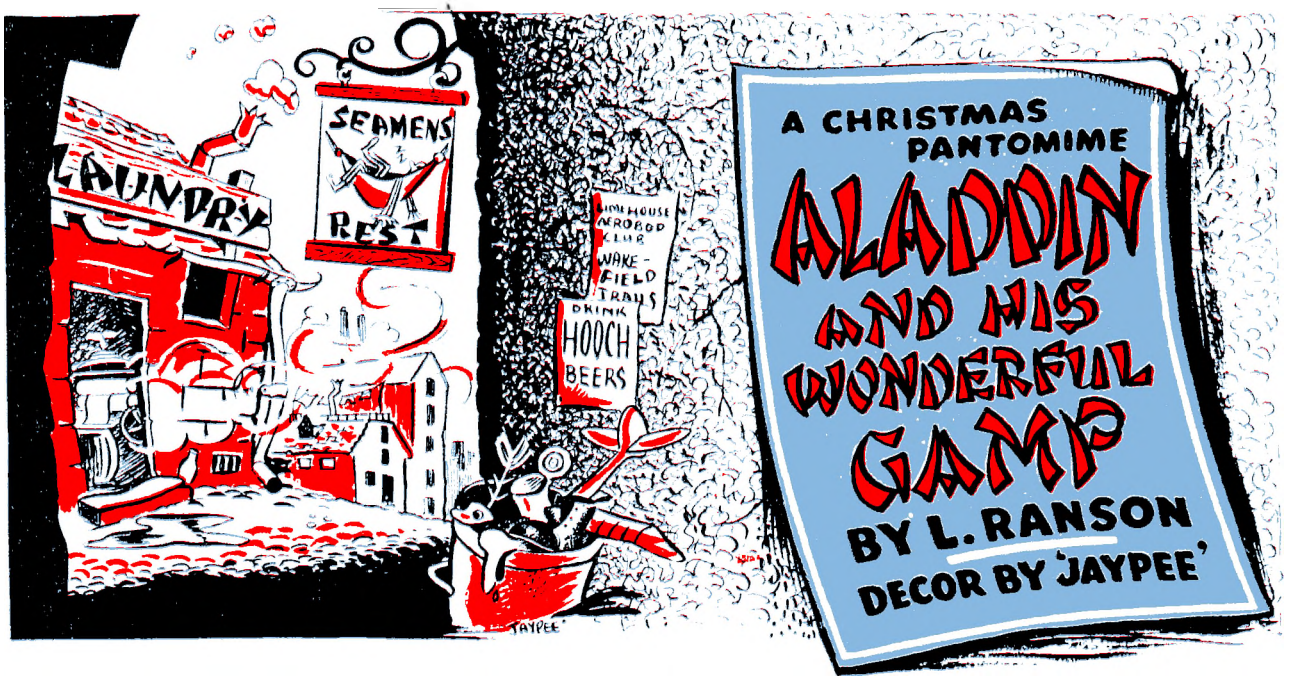
RESULTS

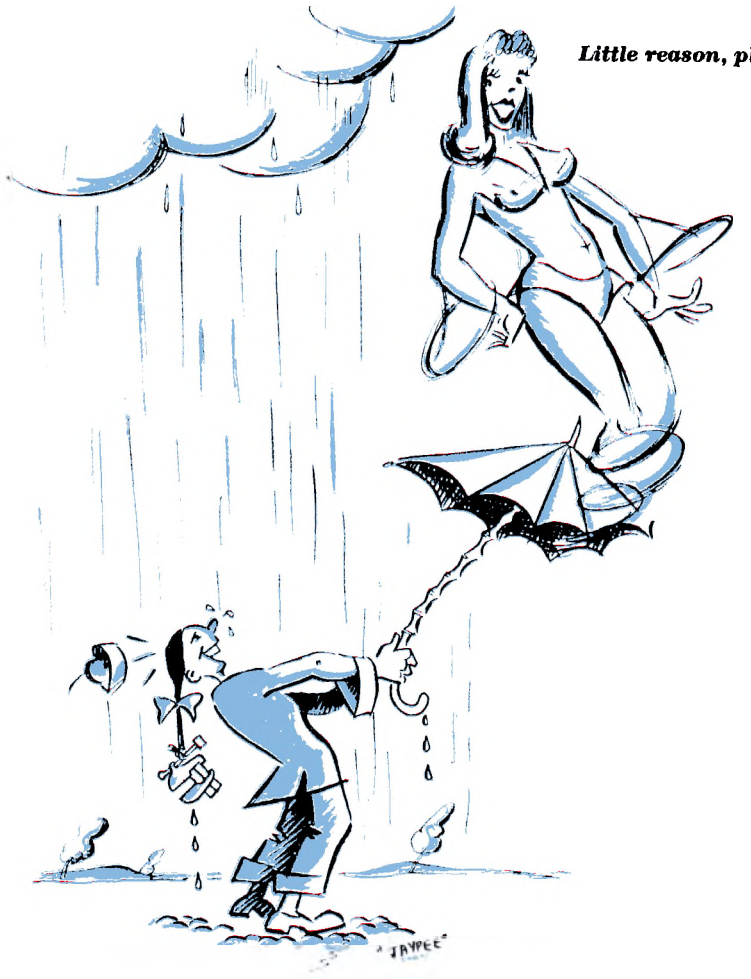
200	P. B. Allaker ..	8·76 ..	Surbiton
100	L. Barr ..	7·86 ..	Pharos
100	R. Kroeger ..	7·3 ..	Pharos
350	M. Pitel ..	6·63 ..	Ampleforth
200	H. O'Donnell ...	5·21 ..	Whitefield

(Special Prize under 16)

Top centre, Ray Jessop watches anxiously as his model "pauses" before climbing. Top right, N. Marcus of Croydon demonstrates a real contest climb. Below, Miss M. Thomson of New Zealand congratulates the winner. Behind her is Mrs. Turner who presented the Trophy. Other pictures show one of the three helicopters demonstrated during the contest. This version, a unit of which is being lit by Harold Figgins of Messrs. Wilmot Mansour, is 6 ft. in span, powered by two 350 units and has a duration of well over a minute.







Little reason, plenty rhyme, for this Christmas Pantomime.

In Chinatown, where Limehouse Blues
Can only walk the streets in twos,
You'll find, hard by the Seamen's Rest,
A little place where East meets Vest :
A Bagwash business, oriental,
Run by a Widow, sentimental,
Who now too old to go a-gaddin'
Doted on her son, Aladdin.

Yet this precious mollycoddle
Would tinker with an aircraft model
While his Mother, old and thinnin',
Struggled with the dirty linen.
Until one day she cried : " Look here !
I'll fetch you one behind the ear,
Do a favour when I ask it,
And go and fetch the laundry basket ".
But there he sat and just defied her,
Fiddling with his Nordic glider.

But with him no more to wrangle
She hit him with the nearest mangle.
" Now get out and earn some ackers.
You're enough to send a Chinese crackers.
Take this basket on your calls,
And pick up Mr. Too Long's smalls."

On his way Aladdin went
To see this underpanted gent,
Who answered promptly at his knock
In pure Chinese for " Come in, Cock,
Take a shuft at these ancient kites
While I toddle off to get me tights ".
Aladdin couldn't see a thing
In these trophies, early Ming,
But being a nosey sort of fellow
Rooted out an old umbrella
Patterned with a mystic scroll—
A most uncommon parasol.

At that moment toddled in
The old man with his next-of-skin.
And saw Aladdin by the lamp
Gazing at his aged gamp.
Aladdin said : " Me velly solly,
But could I borrow this 'ere brolly.
Outside it's raining something cruel—
Pouring down like hotsposh fuel ".

The old man gave a knowing leer,
And replied : " It's rather queer
That you, a model flying geezer,
Should require this rain-drop teaser.
Years ago in ancient China
Lived a wizard kite designer
Whom, as Chinese legend tells
Was quite a dab at casting spells,
And always carried on his arm
A brolly as a lucky charm.
The very gamp, you understand,
You've clutching in your grubby hand.
But you can have it if you will
In payment of my laundry bill."

Aladdin thanked him most discreet,
And stepping on the slimy street
Opened up the gamp—and lo !
A vision on the air did flow.
He said : " You don't look like a Genie,
Much more like a beauty queenie ".
A voice came from the vision fair :
" I'm Genie with the light brown hair,
Kindly state one wish, your Grace ".
He did so—and she slapped his face.

Aladdin turned a Chinese Red
As in a subdued voice he said :
Please to use your magic wiles
Next Sunday morning at the trials.
My model on the air to nest
Minutes longer than the rest ".
Softly saying : " It shall be done ",
She vanished like the English sun.

Sunday came, and squally rain
Swept across the Fairlop plain.
And through the air like dying fish,
With drooping tails and sagging tish,
The models flew durations brief—
Those that hadn't come to grief.

Aladdin looked a weirdly sight
With his pigtail gleaming bright
Where he had secured a clamp
To tote around his magic gamp.
And looked a trifle more absurd
As one and all gave him the bird.

But scornful of such human folly
Aladdin opened up the brolly,
From which a thermal upward shot—
Plenty big and steaming hot.
And 'mid gasps of wonder all around
Aladdin rose up from the ground,
Closely followed by his model
Buzzing round his floating noddle.

" Well, for crying out aloud ",
Said the Genie from a cloud,
" Funny you should come along ;
Seems I've got the magic wrong ".
His reply was most horrific :
A certain Chinese hieroglyphic.
" Put me down upon the ground
Before I miss the second round ".
But the Genie said : " Relax,
I'll do so when you've done a max ".
Five minutes later—on the dot
Terra firma met his bot.

The other entrants shouted : " Shame !
That there Chinese whatsisname
Used a thermal artificial.
We want to see the Chief Official ".
But the old Judge shook his head :
" In all the books I've ever read
There's never been the slightest clue
That a home made riser is taboo ".

The second flight Aladdin made
Without the Genie's magic aid.
Or so he thought until he spied her
Seated on a lightweight glider.
A voice came from that mystic missie :
" What's up with you—you great big sissie?
Without my help you would be sunk,
With that cock-eyed balsa Junk ".
Aladdin answered with a frown :
" You've hurt me blinkin' sit-me-down.
When you took me up aloft
You might have made the landing soft ".

But the Genie merely laughed :
" Open the gamp, and don't be daft ".
Then set his D.T. fuse alight
And towed his model out of sight.

Again the entrants shouted " Shame !
He's been and done it again.
Using a bloomin' fairy spook
Is agin the rules in any book ".
Once more the old Judge shook his head :
" San fairy ann ", was all he said.

And so Aladdin's apparition
Won for him the competition,
Bringing true his fondest dream—
Top man in the Wakefield team.
Now I think you all can guess
How he won with great success
The big event—the Wakefield cup—
Happy as a two-tailed pup.

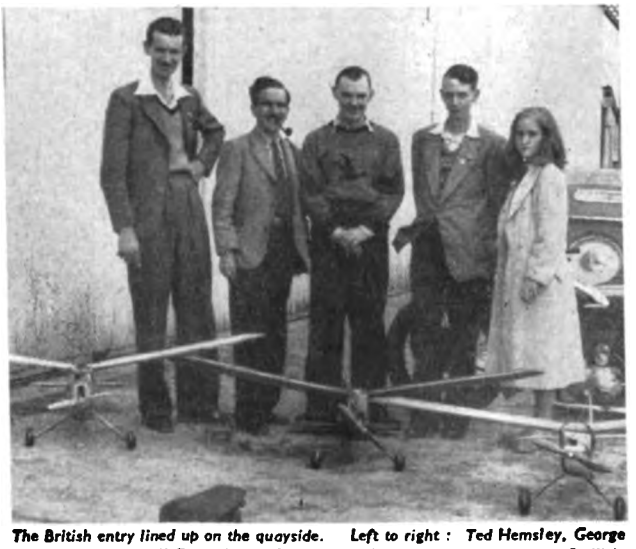
But all the officials are perplexed
Where to hold the Wakefield next.
In the smokey Limehouse sky
Or on an airfield near Shanghai.

Can you hear me ? A. Wastable of Moulins, the winner, checks receiver assisted by Mrs. Wastable, making yet another of those man-and-wife teams so welcome to the hobby.

RADIO CONTROL CONTEST IN FRANCE

ORGANISED BY FRENCH RADIO CONTROL AMATEURS' ASSOCIATION

By G. HONNEST-REDLICH



The British entry lined up on the quayside. Left to right : Ted Hemsley, George Honnest-Redlich, Bill Earp, Roger Goodman and mascot Maxine Honnest-Redlich.

Below : The author with his Electron IX (there really have been eight predecessors!) powered with E.D. 3·46 c.c. Mk. IV., and equipped with 3-valve receiver.

PARTICIPATION in an overseas competition has an undoubted attraction. The complete break from home and work routine, the adventure of new places and new faces, that feeling of being a noticeable and interest-provoking unit on the competition field itself, instead of just another one of the crowd, leaves one with a sense of well-being and satisfaction, irrespective of what performance one has put up.

Spurred by my enthusiastic report of the 1949 Miniwatt R.C. competition, the Bushy Park Club decided to participate in this year's French R.C. contest. A team of four was arranged, Ted Hemsley, Bill Earp, Roger Goodman, and myself. With the offer of free wear and tear of Ted's Morris Ten we found that it would cost no more divided by four than by boat and train, in fact less, due to the luggage and coffin transport.

In fact, the journey itself was an Odyssey which would make an amusing story of a mixture of mistakes, rush and bustle, sightseeing, bilingual get-together with French friends, and last but not least the Scylla and Charybdis of Paris traffic. (Note, all G.B. cars: 1. Drive by instinctive reflex actions, do not try to think. 2. The pedestrian is *always* in the wrong. 3. Acceleration, steering and a loud horn are required far more than brakes.)

However, back to the point, my map indicated that the aerodrome was in the Pontoise district about 25 miles NNW of Paris. Arriving there on Friday evening we found an hotel on the banks of the Oise. After a hurried meal (steaks), and a rough wash, I took the boys into Paris to see the lights, and also to contact some friends of mine. On the following day after further sightseeing, I called on Pepin (chairman of the A.F.A.T.) to ascertain the exact place and time of the competition. Pepin had already gone, but had left a letter with instructions. The most perturbing was that the expected use of our 27 Mc band had still not been ratified, so post haste we drove to the aerodrome.

There we fortunately found both Pepin and a hangar at our disposal. With entire disregard of several full-sized planes, petrol pumps, etc., I began to convert our transmitters and receivers to 72 Mc, using an exposed meth burner for the soldering iron ! After a period the watchman decided that it might be wise to have the naked flame in a safer place, and put a small office at our disposal. Between four and ten o'clock I had converted one transmitter and three receivers and made satisfactory ground tests. Roger's E.C.C. equipment had been supplied tuned to 72 Mc.

I should like to point out here that I personally hold a French transmitting licence, which took time and expense to obtain. Certain technical qualifications are required, and therefore, officially all equipment had to be in my name. I have no objection whatsoever to sponsor any genuine modeller who wishes to take part in these contests but I must have full details of the transmitter and also must personally check them for adherence to the French regulations.

On the Sunday morning our planes were lined up as follows :.

Ted Hemsley	*Plane :*	D984, 5 ft. 4 ins. wing span, own design, semi-scale, 3 lb. 10 oz.
	Engine :	Forster 29.
	Radio :	E.D. three-valve receiver, E.D. escapement.
Bill Earp	*Plane :*	Radart 5 ft. 4 ins. wing span.
	Engine :	Forster 29.
	Radio :	E.D. XFG1 valve receiver, E.D. escapement.
G.H.R.	*Plane :*	Electron 9, own design, 63 ins. wing span, semi-scale, 3¾ lbs.
	Engine :	E.D. Mk. 4, 3·46 c.c. diesel.
	Radio :	E.D. three-valve receiver. E.D. escapement.

Roger Goodman had decided to scratch his entry due to lack of range and stability on tests.

After a long delay the contest began at about 4 p.m. with eleven entries. Each competitor was allowed three flights, points being given not only for the actual flight, but also for technical details. High points were given for additions to the normal escapement operated rudder.

Here Mr. A. WASTABLE of Moulins, southern France, scored and well merited the cup. For years we have talked of following controls and engine speed variations by R.C. Wastable has tackled the problem in a very ingenious way and produced the goods. For the first time I witnessed three successful flights with full engine speed control and rudder positions independent of any sequence. As far as I know this is the first time in Europe and he has beaten me and my three channel job by two weeks. I do not count rough tests, this was a polished performance with entire lack of mistakes and last minute adjustments.

The Radio link was the the usual French modulated type with a four-valve receiver. The transmitter was portable, complete with batteries and controlled by three push-buttons. The fixed mark-space ratio (knupple) system used was sorted out at the receiver end not mechanically, but by relays with various condenser time delays. A fourth relay switched the ignition engine off in absence of a signal or out of range. Rudder was of set movement type but of course following the equivalent button of the transmitter. The timing lever of the Micron ignition engine was controlled by a geared electric motor and gave a faultless take-up from ticking over to full revs. in about two to three seconds. It could be left set at any intermediate position.

The model, an individual scale type of Auster-cum-Piper-Cub appearance, was well finished and although slightly underpowered proved to be extremely stable in flight.

The take-off drill was as follows : Mrs. Wastable, with the transmitter, stood about 40 ft. behind the plane, whilst the engine was started. Following hand signals from her husband she ran through the controls, finally stopping at engine slow. A piece of ¼ square balsa strip was pushed up against the wheels as a stop and unhurriedly Wastable took over the transmitter. A check rudder right and left then increased engine speed until the plane began to roll, rudder corrections were still made during the take-off. Due to lack of height, spot landings were not easily achieved.

Wastable must have spent a great deal of time on both the model and the radio equipment, and all praise to him for achieving success by a break-away from conventional methods.

As second in the contest I shall put myself next. My plane was a new one, not until then seen at meetings. My own design based upon the requirements of strength plus speed, and still maintaining a semi-scale appearance. My first two flights were cautious short engine run tests, then on the third flight I nearly filled the twelve minute tank and let it go. Eight minutes or so seemed to be hours, and twice I spun it down to deck level in order to make manœuvres more interesting close to the crowd. Finally, a landing right up the centre of the runway towards the transmitter. Nothing spectacular, but length of flight plus ease of control gave me second place.

The third place went to Mr. R. POULAIN of Vichy with a large silk covered glider. With the exception of once, when the glider experienced a violent wing tip flutter in a left turn, his flights were faultless.

Fourth and fifth came Bill Earp and Ted Hemsley.,

Bill who is quite new to R.C. had hurriedly knocked up a plane with which he put up a spectacular performance, plane and engine doing their stuff all over the sky, finally coming to an abrupt halt when a car got into the way as he was just pulling out of a spin. The loud evidence of Latin temperament indicated that the plane had suffered the least damage of the two !

Ted with his clean well built model was quite the centre of attraction. He unfortunately chose to r.o.g. on his first flight with nearly fatal results, however no repairs were necessary and subsequent flights were well up to standard.

Further mention should be made of a very large powered model which unfortunately crashed on take-off. Plane, engine and even wheels were home made, and the ease of starting the 10 c.c. diesel was amazing. This plane had made a good test flight the previous evening. All up weight was over ten pounds.

Quite pleased with our efforts we returned to the hotel where a convivial evening was spent in company with Pepin, Poulain and other French friends. The following day was very quietly spent sightseeing at Versailles.

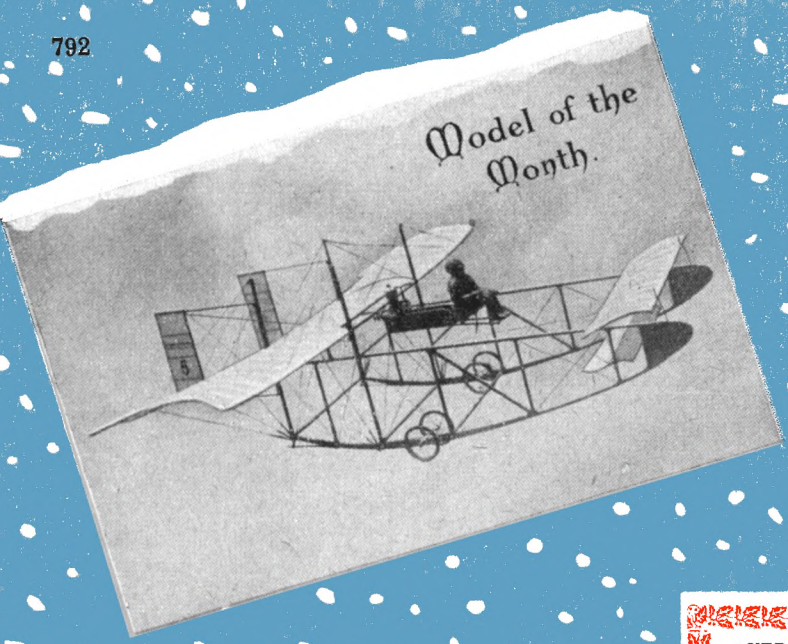
An enjoyably spent five days which gave us an insight into the difficulties experienced by French R.C. enthusiasts. It is amazing that with restrictions and lack of manufactured equipment and components, results could be achieved at all.

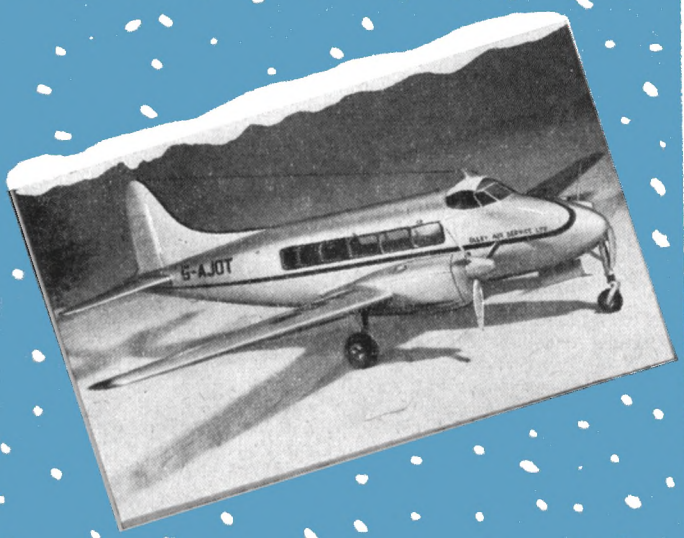
● *Special Note : An "Addendum & Corrigenda" sheet for G. Honnest - Redlich's book RADIO CONTROL FOR MODELS is now ready and will be sent to readers on receipt of stamped addressed envelope.*

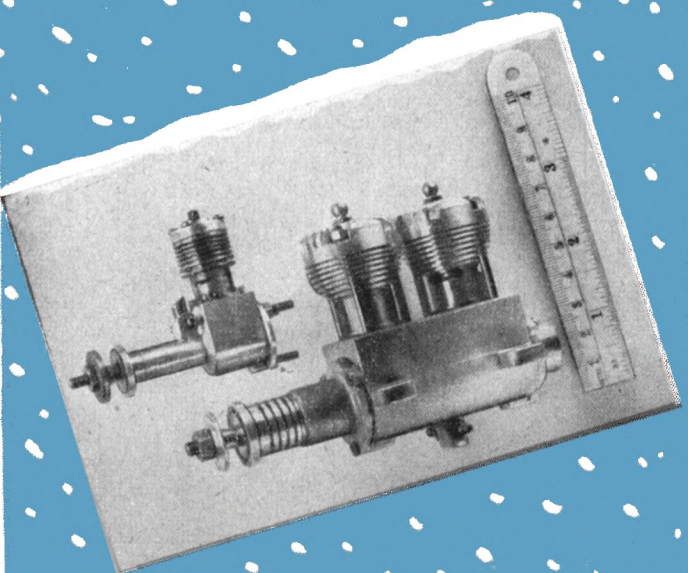
I can hear you! Mrs. Wastable handles the transmitter end of the checkover.

Ted Hemsley's Forster powered semi-scale entry, of 5 ft. 4 in. wingspan and all-up weight of 3 lbs. 10 ozs., which took fifth place.

The Heavyweight — largest entry, 10 c.c. powered, and completely home-made, including the wheels. It crashed on take-off.







OVER the page from one pantomime to another, so to speak, Fliar Phil illustriously records in true Malmstrom artistry an epic of the fliaring field which remains unparalleled in all digestive history. Imagine F.P's horror as blind-as-a-bat farmer Tenbore let fly with both barrels at the latest product from your noble scribe's balsa-butchery. But, blessed with equally blinkered eyes, Tenbore's better half prepared the dish and he devoured it with doubtful relish, followed by violent cementigestion and chronic tissue-tummy . . . moral is . . . As ye shoot, then so shall ye eat the object . . . but watch out for Buck's-ducks, they are strictly for the flying and not the consumption thereof.

Thus repast, hic! F.P. turns to a rare chariot which earns high laurels this yuletide month. Made in sunny July, and presumably photographed during our fairer periods this year, it's a 1/12th scale version of the 1911 "Valkyrie" racing monoplane—not, please note, suited to team racing! All credit to the patience of Richard Halfpenny (West Sussex M.A.S.) who made this 31 ins. span marvel and reports amazingly stable flight characteristics. A tiny "K" Hawk ·2 c.c. diesel spins the pusher prop. Weight is 5 ozs.

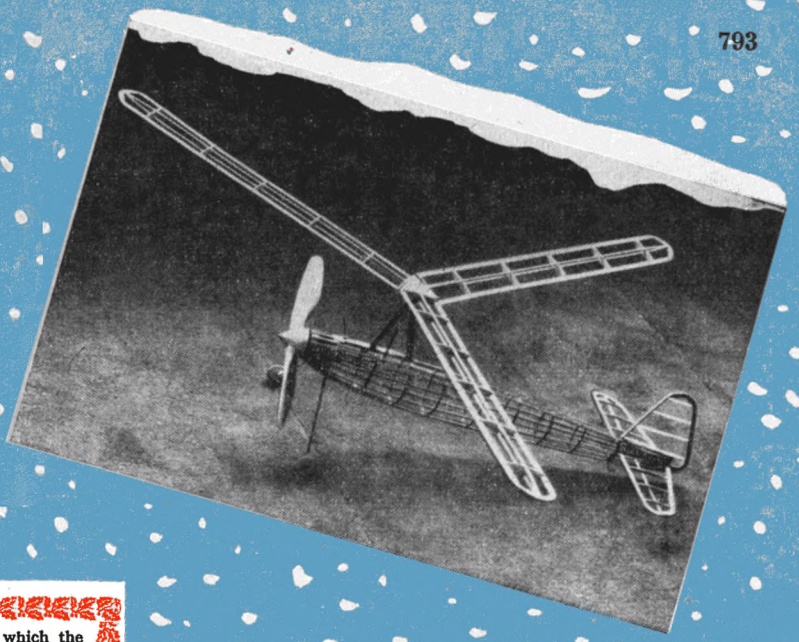
Remember those blacked-out evenings, when balsa couldn't be bought, and solids were the order of the day? One of the few to carry on the exacting art is Z. A. Dalkiewicz of Greenford, Middlesex, who submits the excellent picture of his 1/24th scale De Havilland "Dove". Made of hardwood, the model features a hollowed fuselage, complete with all interior detail and a retractable undercart. Over 240 building hours went into the job which is hand finished in blue and silver.

From Small Heath M.A.C., Birmingham, B. W. Barton sends the interesting shot of his own motors. Ported for fast running, and made in a week, the baby ·83 c.c. diesel weighs 2 ozs. and churns an 8×4 in. propeller at a steady 9,500 r.p.m. With rotary disc induction and transfer ports in the cylinder walls, it is abreast of more professional developments, right up to its large ·437 in. bore and short ·375 in. stroke. Not content with one pot, Mr. Barton also made the opposed twin, which, by virtue of its split crankcase, fires on every stroke. Its single carburettor feeds two disc valves, one each side of the centre bearing. Every effort has been made to ensure identical 10 : 1 compression ratios and crankcase volumes in each cylinder, while each pot is "square" with bore and stroke at ·562 in. which gives ·29 cu. ins. or 5 c.c. capacity. Most of the 11 oz. weight is due to the hefty crankshaft; but the performance is good despite a need for running-in. Swinging a 10×6 in. prop at 9,000 r.p.m. puts it near to the half-horsepower mark.

Top of our central column is Mr. Newton (Tow Law M.A.C.), Durham, with his A.P.S. Strijkplank or "ironing board" special.

MODEL NEWS

SELECTED ITEMS BY FLIAR PHIL



Taken atop of the 1,000 ft. rise which the Tow Law club have for a flying ground, the photo is by fellow clubster, R. Smailes.

The attractive Mills 1·3 c.c. powered bipe held with proud admiration by designer, Mr. A. L. Thomas, was originally intended for general sport flying, but appears to have contest performance. Tipping the scales at 21 ozs., it features slab sheet fuselage sides and attractive blue and yellow decor. Span is 46 ins. on this prototype, but Mr. Thomas has a five-foot version on the way.

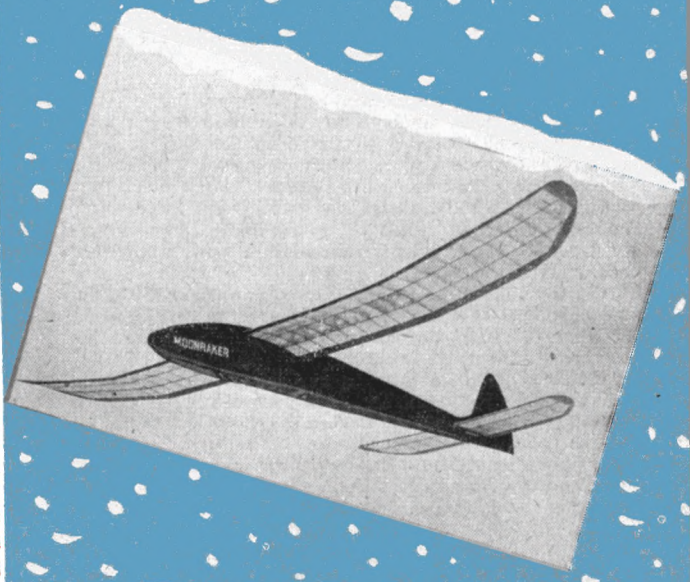
From bipes to Blackburns, and a free-flight version of the Firebrand IV of that breed, the spotlight falls on D. M. Lawson in the bottom picture. Hailing from Sandown, I.O.W., creator Lawson reports a lack of stability due no doubt to the scale dihedral which is notable for its absence. Slats, and a new wing with extra dihedral are to be fitted for improved flying. Motor is the popular Mills ·75 c.c.

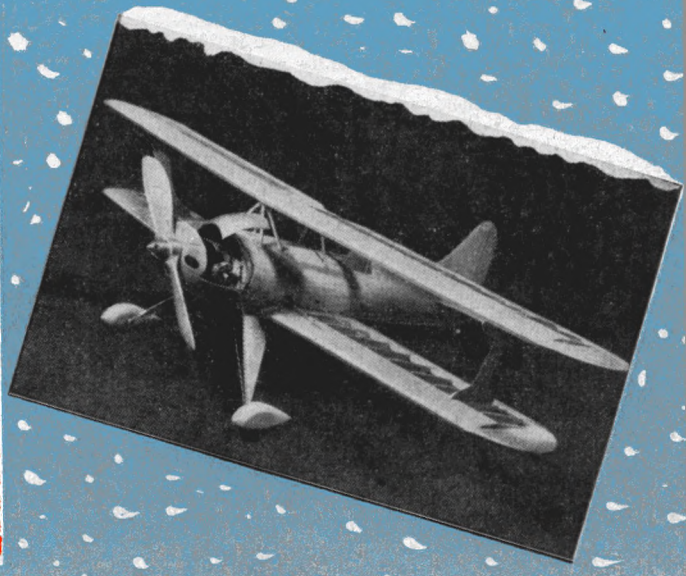
Over at top right, F.P. presents one of his rarest birds, as a special Christmas treat. A Whirligig, as yet untested, it is P. O'Keefe's (Maidstone) experimental autogiro which has been derived from an original suggestion once published in AEROMODELLER columns. With a length of 23 in. rotors, each 16 × 2 ins. and weighing 4½ ozs.. it employs rubber for the necessary urge, both for the tractor screw up front and to supply the initial whirl on the auto-pitch change rotor blades. Full-scale 'gyros have a clutch device to spin the blades from the main motor for the initial take-off, then the rotors are allowed to free-wheel with the forward motion of the kite. This model boasts a similar apparatus, allowing the rubber to first drive the upper screw and then the forward one. Can almost hear the beat of fans right now, can't you bods? C'mon, Mr. O'Keefe, get winding and let's know the results.

Slick portraiture by the Canterbury club photographer, Mr. Entwhistle, shows well in the studio style shot of Donald Blewett's "Moonraker" sailplane. A lightweight, with auto-rudder and parachute D/T, the 76½ ins. span model is a hot-stuff calm weather flier. From the nocturnal name choice, F.P. deduces dark work from the Blewett quarter. How else could he get calm weather, other than using the proverbial fly-by-night policy?

Tailing off this month's bunch of pictury, is a semi-scale U-Liner of Betty Skelton's "Little Stinker"— Pitts Special to aeromods with cold-numbed noses. It has around 507 sq. ins. of area and uses a 10 c.c. Vivell Twin neatly housed under a flip-up beaten cowl. All motor controls work from the "office" . . . usually under the direction of designer J. G. Carter of Croydon.

And so back to the board for F.P's 1951 project, still on the secret list, but we can release the gen that it's a pukka wonder-plane, eligible for all contests, from Wakefield to tail-less, power to A/2. Watch out for further details in the distant future, bods!





Competitions have rightly been called the life-blood of aeromodelling, and in view of current developments—and criticisms—of present day organisation, we are sure our readers will consider the opinions here given by two well-known modellers living at opposite ends of the country. The views expressed are not necessarily ours, but whilst Mr. Guilmant deals with the subject on a somewhat local basis, the subject matter ties in with Mr. Haisman's broader issues, and should give much food for thought and mature discussion. In our next issue we shall publish further views on this controversial subject, also the winning design in our "Competition Layout" Contest.

COMPETITION ORGANISING

I. BY BARRY HAISMAN

(As Chairman of the North-Western Area Committee, the author wishes it to be understood that his views are not necessarily those held by his committee.)

A few ropes and stakes, a public address system, some prizes, and perhaps a tent, are still quite widely accepted as the main essentials for running a successful model meeting. That this situation has prevailed for so long, and may continue even longer, is due, I believe, to the fact that the bulk of competition fliers are so used to indifferent organisation that they have become numb to any possible improvement!

What then is needed to run a competition successfully? Firstly, and obviously, a good flying ground. No matter how much work is done to ensure the success of a meeting, a poor flying ground will nullify that work to a large extent. A competitor does not want to be put under the nervous strain of flying his model into terrain where it will be inevitably lost or damaged.

Clubs, and groups of clubs, often obtain the use of a suitable ground for one or two big meetings in the season after showing the authority concerned that they are in a position to run the meetings in an efficient and responsible manner, and that suitable insurance cover can be made.

Nevertheless, organising bodies are often faced with the unhappy task of holding a rally on a poor flying site. If the competitions are unofficial (not S.M.A.E.) they may well consider relieving their difficulties by such means as cutting down on tow-line lengths, reducing motor-runs, and perhaps lowering the five minute limit to four, or even three minutes.

Of equal importance to the right flying ground is the right men to do the job. Ideally, a Competition Committee should be appointed, the members of which have no other job in hand but the running of the competition. Most of us are acquainted with the type of man who is reluctant to delegate responsibility. He tries, usually without success, to handle everything himself, either because he is a glory-seeker or because he suspects that another person's efforts might put his own in a poor light.

The competition secretary should see that the rules are known to all before the day of the competition. A flying sequence is not necessary to the average-sized club, but it seems best to tie up the flying into separate rounds which end at agreed times. Every entrant should do a spell of timekeeping. The competition secretary should prepare record cards or a results sheet and, ideally forego flying for that day.

Reverting to large meetings, the primary requirements have already been suggested; and as a general rule it may be added that the amount of work put in beforehand is a good measure of the results to be expected. Experience has proved the value of pre-entry, and if a large entry is anticipated the addresses of the competition secretary and a helper may be given on the pre-entry form so that the work may be shared.

A "permanent staff" appointed beforehand and thoroughly briefed in their duties is essential. This would consist chiefly of recorders, judges for special events, crowd stewards, a commentator, and some timekeepers. It is practically useless to rely on the entrants and their friends to provide sufficient help of the right kind and at the right time.

Under a system developed from that used in this year's Sir John Shelley Cup at the Nationals, the recorders are the most important and useful officials on the field. This system works as follows:—

Competitors are kept in a line at one side of the recorders' table, and free timekeepers report at the other side. As soon as a pair of timekeepers are free, a recorder finds the card bearing the number shown on the waiting competitor's tally, and hands it to the timekeepers. From that moment the competitor is under the three minute starting rule.

The timekeepers do not zero their watches at the end of the flight, but return to the table and show them to a recorder, who enters the mean of the two times on the competitor's card and obtains the timekeepers' signatures. The card is then returned to its place in the box, and the timekeepers stand by for the next competitor.

One of the recorders may act as judge for his particular event and thus eliminate the need for a separate panel of judges; except for special events such as flying scale, radio control and control-line. Even the competition secretary can have a day off, for all he has to do in non-S.M.A.E. events is to trot round the recorders' tables at the close of flying and take the number of cards from the top of the pile that are needed for prizegiving purposes.

Public address equipment is expensive, yet rarely put to effective use. Even at a competition where spectators are incidental, the competitors would appreciate being kept informed of the round-by-round proceedings.

At a meeting to which the public are invited the commentator must bear in mind that the skills and wonders of model flying are not wholly self-evident to people watching it for the first. A few timely explanations of a simple nature can make all the difference to a newcomer's understanding and enjoyment of the proceedings.

So that events running simultaneously do not give the effect of confusion it is useful to arrange the various release points obliquely in front of the crowd, with a number mounted above each recording table corresponding with the number of that event in the programme. Adequate refreshment facilities (with a ban on vendors of wrapped ice-cream), some music, an occasional control-line show, plenty of litter bins, strong ropes and stakes, and a local personality to give away prizes, all help towards making the day a success.

It is quite possible to maintain order and control pleasantly, provided the whole organisation is backed up by a simple set, of rules that are accepted and understood by all. Oddly enough, an adequate framework of rules has been in existence for years!

A successful future for British competition organisation depends on a hard-working and analytical approach being applied to it, coupled with a determination to avoid any repetition of past mistakes. This article has concerned itself with those aspects of organisation which it is felt are most in need of atttention.

II. BY PHIL GUILMANT

NO doubt 1951 will see an increase in the already overwhelming number of Rallies and Meetings up and down the country, all with the good intention of giving us a carefree days' flying, and to swell the funds of this or that club.

Primarily, if you are thinking of starting an Annual Rally—don't. We have quite enough to attend at present! A large number of Clubs are having difficulty in running their own internal competitions.

With the present full and comprehensive S.M.A.E. programme, and of course the well-known Rallies that have been running for a number of years, the model movement has ample opportunity to get together, so do think twice about starting an Annual Rally.

But whatever happens, do make sure you have an adequate number of officials. Our hobby continues to swell its numbers, and the adequate voluntary organization of the past is having great difficulty in meeting the requirements of the ever-growing throng.

It is a good idea to ask neighbouring Clubs to share the profits in return for help in running the Rally, because nothing ruins the good name of your Club more than a Rally that is badly run. It is infuriating to come many miles with several models to be kept waiting while a time-keeper is found, who, when found, is without a watch!

Start off with a chap whom everyone knows and respects who will be responsible for the control of the complete Rally; not necessarily the Competition Secretary, because he may not be a good organiser.

To mention a few desirable qualifications, he must be tactful and unlikely to snap at the mugs who ask stupid questions. He must be able to give orders to his officials without sending them sulking to the tea-wagon, and must be able to thank the helper who cannot live without receiving showers of thanks. In his pocket must be an up-to-date S.M.A.E. Handbook which he must know from cover to cover, and he must be ready to pass judgment without the least degree of uncertainty.

Behind him in the background should be the "quiet type", the chap who's job it is to think of everything many weeks before the Contest, sees that things get done at least two months before, sees that labels are printed in time, ropes and stakes hired for the day, take-off boards are made, and so on.

A Club Committee meeting should be held well in advance at which every possible factor can be discussed, and nothing should be overlooked. Every member should be given a job to do and should be given a clear directive as to the scope of his duties, leaving *no one* in doubt.

At least five weeks before the Rally send a printed list of events and details of such things as transport facilities, toilet accommodation for both sexes, food facilities and so on to all Clubs and individuals who are likely to enter. In the programme put *useful* information.

Invite local caterers to send mobile tea-wagons, but see that a charge is made on bottles to ensure their return, otherwise broken bottles will be strewn all over the field in no time.

If a telephone is available on the field, have a small label printed with instructions to telephone the flying ground immediately the model is found, and hand them out to flyers who enter the competitions. While this may prove an expense, it goes down very well with all aeromodellers who don't know the district or who have no means of transport to chase their model. To help the flyer further, have a map of the surrounding district glued to a board and set up in a prominent place, with a moveable cardboard arrow to indicate wind direction.

When planning the layout of your control tents and take-off points, place them in such a position that will facilitate alteration at short notice. Many a Rally has been spoilt by the tents being down-wind of the take-off area due to a change of wind. If the wind does change, do not hesitate to move the take-off Areas. No one likes flying their models into a crowd of tents, cars and people.

Loudspeakers should be taken right over to the flyers enclosure. Don't expect them to hear a loudspeaker that is hundreds of yards down-wind. And the lad on the microphone! For goodness sake, see that he can speak clear English, makes no attempt at a running commentary, says what he has to say and then shuts up. Above all, see he doesn't take it for granted that everyone knows exactly what is going on. The visiting public are valuable, so let him or her take the liberty of explaining to the lay visitors (at the same time begging the flyers pardon) the purpose of the meeting, who is running it, and the competitions being flown off. And if their attention can be drawn to an interesting model, with perhaps a brief explanation of it, so much the better.

In fairness to the local farmers, the announcer must continually warn the flyers not to run across cultivated fields after models; in any case, the owners permission should be sought before entering his property.

The eternal problem of timekeepers is caused mainly through Club members not rallying round to spend the whole day at it. No member can expect to fly a model, and if you take on the job of running a Rally you must be prepared to supply the majority of the timekeepers, at any rate, form the backbone of the numbers required.

Put an official in charge of the timekeepers; don't leave it to the harassed contest controller. This official should be constantly walking round to see that each take-off point is operating efficiently, for one hold-up throws the whole organization out of gear. The key to the success of a Rally is the conscientiousness of each man in sticking to his job throughout the day.

The wives and sweethearts of the Club members are generally only too pleased to spend the day helping with the programmes, feeding the officials and so on, *providing* they are approached in the right way.

Once the visiting competitors realise the organization has lost control they become apathetic.

To keep them interested, fix a blackboard outside the Control Tent and chalk up the latest times in the respective competitions.

Control line fliers must be kept away from take-off areas—yo-yo's and tow lines don't mix. For glider competitions have an accurate and conspicuous tow line check point; and for checking models secure the use of (most emphatically) an *accurate* weighing machine.

The Contest Controller should on no account sit in his tent all day. He must be constantly walking round (wearing an armband so that all will know who he is) ensuring the contest is running smoothly. In a separate tent from the announcer (who should be in a tent with the controller) should be housed the time recorders, accessible, yet separated from the constant stream of flyers.

The Prize-giving is often made in an exhibition of local big-wigs, and while it is good to have the support of important people at large Rallies, it is unwise to have too impressive an array of the elite on the rostrum. By the time the prize-giving arrives the flyers are usually very tired, and busy packing their models, and become bored if they are subjected to several minutes of "Blah" before the actual distribution of prizes. If possible have a microphone handy for the feeble voice of the announcer (who by this time is hoarse from pleading for timekeepers!).

On the question of prizes, I do feel that the old system of giving glider kits to glider competition winners and engines to power winners and so on, is a little dated. A return to the pre-war practice of some Clubs is giving useful gifts for prizes such as a year's subscription to the AEROMODELLER (flannel) a set of Hair Brushes (in case Peter Cock is there) or perhaps a stop-watch—and there is always the cash prize of course.

Again, it is the Announcer's job to nag people to pick up their rubbish, and the organizer's job to organize a "picking up" team; or at a big Rally, it may even be worthwhile paying someone to do it early the following morning—thus avoiding the risk of losing the use of yet another good flying ground. That is what is going to happen, if adequate care is not taken of flying grounds. We *must* remember that *each* competitor is responsible for the continued use of the ground.

Especially for the Beginner

PART XI. BY THE REV. CALLON

A Very Happy Christmas to all you beginners! And don't let us have any slacking during the Christmas holidays. It will be a poor look out if you can't persuade somebody to present you with a kit, a diesel engine, or at least the wherewithal to buy one or both of them. And then think of those cosy winter evenings, with the smell of dope and cement blending beautifully with the fragrant memory of turkey and Christmas pudding! So shove another log on the fire, and let's think over one or two ideas for an aeromodelling Christmas.

Flying in Winter.

Just because there are no big competitions held in the winter months, don't get the idea that outdoor flying is impossible. Far from it. In fact the still air conditions which almost invariably accompany a spell of frosty weather are ideal for flying, while a carpet of fresh snow provides the softest landings imaginable. There will doubtless be some periods of wind and rain when building, mending, or just a book by the fire is indicated, but make sure that you have something ready to fly when a fine spell arrives.

Did you know that it is quite possible to pick up a thermal when there is snow on the ground? A patch of air will rise even though it is cold as long as it is not quite as cold as the rest of the air which surrounds it. And some of those low, dark clouds will suck up models like a vacuum-cleaner!

If you are doing any power flying in cold weather, you may find it rather difficult to start the engine for the first time. This is partly due to the fact that the engine itself will be very cold, and partly because your fingers may be rather numb, so that you will not be giving the propeller as smart a flip over as usual. As far as the engine is concerned, things may be considerably improved by the addition of a little extra ether to the fuel. A few seconds continuous running will be sufficient to warm up the cylinder head making further starting quite easy, and when once the engine is running, cold atmosphere tends to improve its performance rather than the reverse.

With regard to numbed fingers I can only recommend a safeguard; always wear a strong leather glove on the hand you use for starting. A knock on the knuckles hurts a lot more when your hands are cold, even though the propeller is only a plastic one.

Mending Broken Propellers.

When the weather is fit for flying nobody feels like staying indoors to patch up some job which was smashed up earlier in the season. But since the winter is bound to bring its quota of bad weather, why not take this opportunity of returning some of your early efforts—or what is left of them—to the flying line? And since propellers are very easily broken, we will start with them.

By "propellers" is meant rubber model propellers, of course. To attempt to mend a smashed power propeller is not only a waste of time (unless you are an expert) but can also be very dangerous. I was once present when a modeller almost lost an eye through a "mended" power prop. Miniature engines turn over at such a terrific speed that the slightest weakness in the propeller is bound to give under the strain, and the loose piece of blade will fly out like a shot from a gun.

But rubber model propellers turn far more slowly, and if the correct method is used a joint can be made which will in fact be the strongest part of the propeller. A very good way of doing the job is as follows.

First of all split off two thin strips from a piece of cane. They should be about an inch long and only as thick as a match stick. Sharpen them at both ends. Fig. 1 shows these two little cane dowels, and the propeller with the blade snapped right across. Try pushing the two parts of the broken propeller together, and work them carefully against each other. If the break is a clean one as is the case in Fig. 1, they should knit together so closely as to make the joint practically invisible. If the faces of the break have become squashed or damaged in some way, now is the time to remove the odd splinters of wood so as to make the "dry" joint as neat as possible before the dowels or any

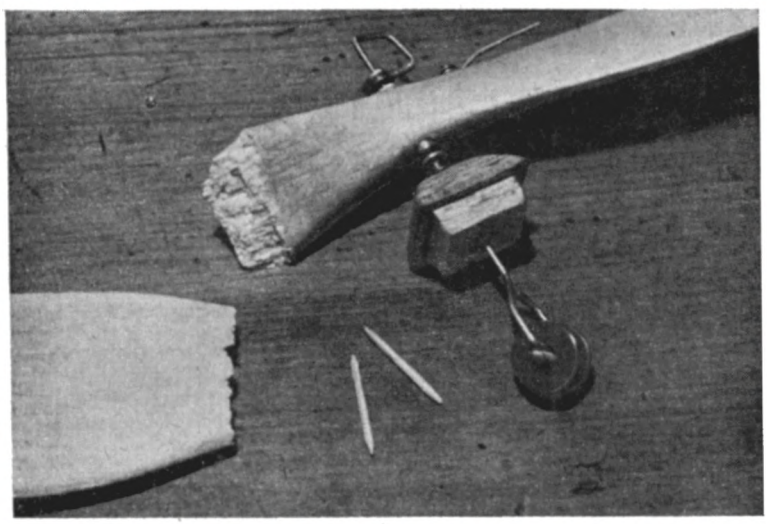


Fig. 1. The broken propeller of a rubber model. Note the two small cane dowels, sharpened at both ends.

cement have been used. Fig. 2 shows the second stage in the operation. The two cane dowels have been pushed *half way* into one side of the break. The balsa used for propellers is never very hard, so the dowels can be pushed in easily enough by hand without drilling any holes for them. But be careful to see that they are exactly parallel to each other and that they run in the same direction as the centre line of the blade of the propeller. We have now reached the only difficult spot in the job. The two halves of the cane dowels at present sticking out of one face of the break have to be pushed into the other face of the break in such a way that when the two faces slide together they will make a perfect joint. That means that we must find the two *exact* spots in the other piece of the propeller which are immediately opposite to the two holes just made by pushing the dowels into the first piece. I have found the following method quite effective.

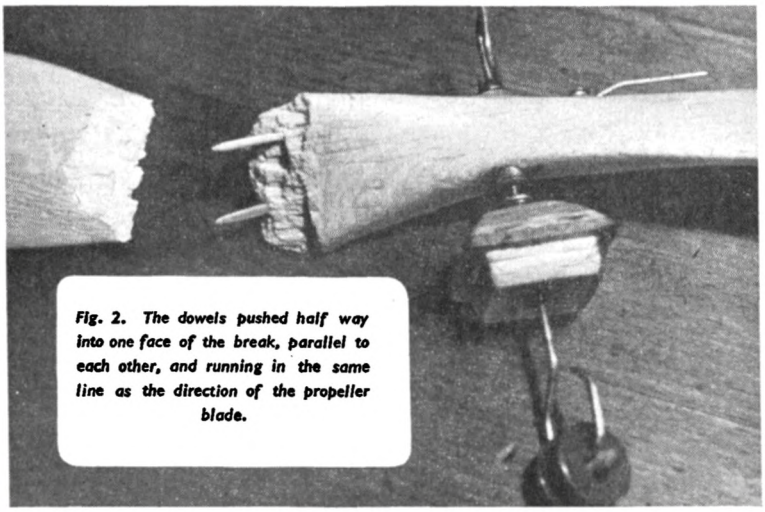


Fig. 2. The dowels pushed half way into one face of the break, parallel to each other, and running in the same line as the direction of the propeller blade.

(i) Draw out the dowels from the first half of the propeller.

(ii) Put a thick smear of biro ink round the edges of the two holes left by the dowels.

(iii) Push the two faces of the break together again, thus transferring the inky imprint of the dowel holes from the first face to the second one.

(iv) Now push the two dowels half way into the two spots marked for them in the second piece of propeller, making sure once more that they are parallel to each other, and that they run in the same line as the propeller blade.

At this stage it should be possible to push the two pieces of the propeller together, with the dowels in place inside the blade, and have them meet in a very neat joint.

Now for the cement. Pull the two pieces apart, and remove the dowels. Apply a coat of cement to both faces of the break, push them together tightly and wipe away the surplus, then pull them apart again before they start to set. Procement both the dowels, then cement them half way into the first side of the break. Add more cement to the face of the break, and immediately slide the two pieces together and hold them firmly for a few seconds. Some cement will squeeze out from the joint, so wipe it away before it has time to harden. The result should look something like Fig. 3, where the joint appears as a dark crack across the blade of the propeller.

The mended propeller must not be disturbed for a long time if a really strong joint is to result. You see, cement takes far longer to dry when it is not exposed to the air, and it will be several hours before the cement in the centre of the joint becomes hard. If possible the job should be left overnight to dry. Afterwards you can use a fine grade of sandpaper to clean up the rough edges of the joint, and finish off with a couple of coats of banana-oil. None of the propellers which I have mended in this way have ever broken in the same place again.

If you like to be very careful about the balance of your propellers, you may notice that the mended side is heavier than the other one. Personally I would not bother about this; but the balance can be regained by applying extra banana-oil or dope to the other blade of the propeller.

Photographing Model Aeroplanes.

Whenever I have just finished a new model, and the last coat of dope has dried, and the transfers are neatly in place, and the paint is gleaming in all its freshness, I always get a terrific "kick" out of putting the wing and tailplane in place for the first time, snapping home the rubber bands, and then just standing back and gazing at it . . . ; the finished product; ready for the air at last!

This, of course, is the ideal time to take a photograph of your model, before the hazards of active service have begun to leave their mark. And somehow or other, photography and aeromodelling seem to go very well together. Ever

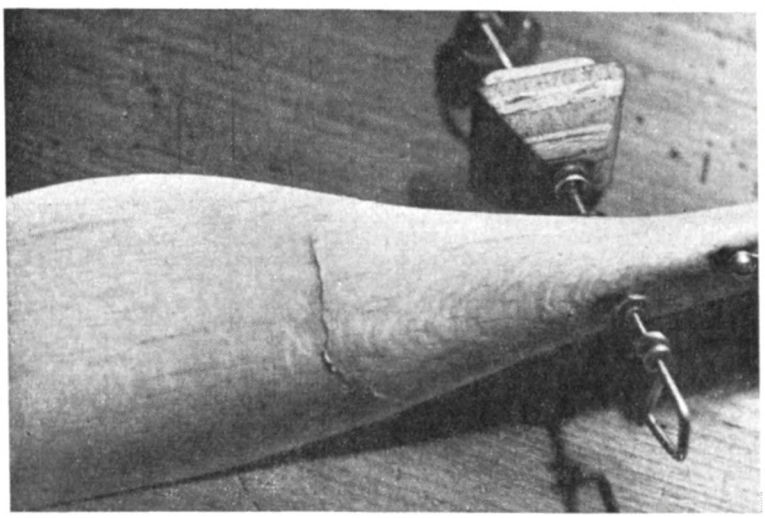


Fig. 3. The finished joint ready for sanding. Both dowels are inside, and the two parts firmly cemented together.

Fig. 4. What makes it a good photograph? (The model is an ENVOY, covered in lightweight silk, and the first power job built by these two modellers. Incidentally it flies excellently.)

noticed the number of cameras that are carried around at the average model competition? And look at the fine selection of model photos that appears in every issue of the AEROMODELLER. So what have you got to show from *your* camera?

As a matter of fact I know that quite a number of you have been put off model photography for one or both of these reasons:

(*a*) It's only a " Box Brownie ".

(*b*) You've tried, and the results were shocking.

Neither of these reasons—I use the word for want of a better—provides you with any excuse for throwing in the sponge. So blow the dust off your camera, and here we go!

Only a Box Brownie.

In common with the Rat-Catcher's Daughter, the humble Box Brownie is capable of great things. But don't attempt the impossible. Find out the sort of work it is designed for, keep to that sort of work, and you will get very satisfactory results. For instance, a ·177 airgun is ideal for shooting sparrows, rats and the like; if you keep to sparrows and rats, you will get satisfactory results. But the same gun would not be much use against a charging rogue elephant in Africa, and the results in such circumstances would be very disappointing to everyone except the elephant.

It is just the same with a Box Brownie or any similar type of camera. It was never intended to be used for photographing fast-moving objects; the shutter has a speed of (roughly) 1/25 of a second, which means that for clear results the object being photographed must be as still as possible, as of course must the camera itself. Box cameras have a fixed focus lens—*i.e.*, the lens cannot be moved in order to focus on an object nearer to the camera than about twelve feet. So even if you are photographing a small model it is a waste of time and film to go any closer to it than that distance; the results would be blurred. (More expensive cameras can be focussed onto closer objects, and as a matter of fact even box cameras can be made to do so by means of a portrait attachment, but more of that later.)

Lastly, the lens itself is not very big; the aperture is normally f.8 or f.11. This means that best results can be expected in sunny weather outdoors, or with bright lighting (and a time exposure) indoors.

If you remember these facts, your box camera should give good results. To sum them up: Hold the camera steady, and make sure that the object to be photographed is not moving; never get closer than about twelve feet; take your photographs when the sun is out. (We will deal with indoor photos later.)

Bad Results in the Past.

If your results have been disappointing up to now, try to work out whether you have been breaking one of the essential rules given above. If you are quite sure that you have not done so, then there might be something wrong with the working of the camera itself, but there is so little that *can* go wrong with a box camera that the explanation probably lies in the way you have been handling it or the film.

(i) *Blurred prints.*—Were *all* the prints on the roll blurred? Because if even one of them came out clearly with good definition, that shows that the lens is alright; it is capable of giving good results. The fault therefore would seem to be camera shake, or standing too close to the object being photographed. (Another possible but very unlikely explanation is that the lens is loose and is sometimes in, sometimes out of position; or the film may not be lying flat across the frame inside the camera. If *every* picture the camera takes is blurred, this may even be likely. The remedy in such cases is to take the camera to a photographic shop for overhaul.)

(ii) *Blank white patches on the prints.*—This means that light has been reaching the film in some way. On the negatives the patches will be dark. Most likely this is caused by carelessness in loading the film into the camera or in rolling the film up after you have exposed it and taken it from the camera. Both these jobs should be done in a fairly subdued light—not bright sunlight; and make sure that the backing paper is rolled *tightly* round the spool when you take it to be developed.

Light can also reach the film through a faulty shutter, which does not close properly, through holes in the bellows (impossible with box cameras of course), or through the red window at the back if you have been using fast Panchromatic film and have not covered this window with tape. It will be as well to check over these points before putting in another film.

Use your Eyes.

Next month we will have a real photographic session, full of hints on how to take better photos. In the meantime suppose you try to develop what the photographers call " the seeing eye ", or the faculty of picking out good photographs? It makes quite an interesting game, and you can start on this copy of the AEROMODELLER. Look carefully at every one of the photographs, and decide which ones you like best. THEN try to work out *why* you prefer them. To give you the idea, I have included a photograph which I think is very successful—Fig. 4—and which is just the sort of result one can get with the simplest box camera. Look at it carefully. Where was the camera held—waist level, eye level, or near the ground? How does this affect the background? Is it a good background, and if so why? Where was the sun when the photograph was taken? Does it shine onto the top of the wing, or underneath it? And what difference would that make anyway? Do you think the figures are well placed in the picture? What makes you think that? And how is it that the model looks the most important thing on the picture?

Every one of those questions was thought of and answered *before* the photograph was taken, as I know for a fact. So the oftener you play the " seeing eye " game with photographs, the better your own photographs will become.

The well-known radio fan Colonel Taplin is seen tuning his receiver. The transmitter and "keying" party are visible about fifty yards away.

Beginners can have foolproof radio that "works every time". Beginners who have no technical knowledge of radio and yet wish to fly their models under radio control, because they realize this is the ultimate in model flying fun, are often worried by two things. Firstly they see so many modellers fiddling with radio adjustments on the flying field whilst muttering technicalities to each other, followed by little work in the air. Secondly they read so many technical articles on radio for the advanced radio man, well laced with circuit diagrams composed of what, to them, is a meaningless mass of wiggles, lines and so on, that they think the thing must assuredly be quite beyond their powers, or at least too difficult to trouble about.

Our beginner asks, is all this absolutely necessary as a part of radio flight? My answer to him is no, *provided you select the sort of radio set that suits your purpose, keep to rudder control only that is self centralizing with signal off, and keep this article by you to refer to as you learn without tears—we hope!* Anyway, you need not fiddle on the field.

I am therefore going to explain in non-technical terms, which may shock the "expert", how you can have perfectly reliable radio operation. This is laid out under numbered headings covering each phase, to help refer back to any point that may subsequently escape the beginner's memory. There will be no circuit wiggles. It is not the radio "expert" that requires encouragement. Nothing can keep him from it. It is the potential radio fan who knows nothing about radio and wants things made easy who I want to help.

Before I attempt to do this difficult task, it is perhaps best to briefly explain that during the past year or two we have had certain radio sets on the market which require no licence, and which may be termed "medium size", using the small "hard" valves. These sets have been well tried by now by the General Public, and from this experience we know all the answers about them, good and bad. I have tried each set, and spent much time and treasure on them! Coming on the market now, we have a number of new midget sets using the new baby "Thyratron" gas-filled Hivac valve, which is the British counterpart of the American R.K.61 valve. As these sets will take at least six to twelve months to be thoroughly tried out by the public, before we claim to know all the answers from the user's point of view, I am going to base my remarks in this article on one of the older and well tried sets, which I have found particularly suitable for the beginner without radio knowledge.

A good radio set that is dead easy to tune and reliable for beginners. Because it has certain attributes that I consider necessary for the novice, I have selected the E.D. (Three valve) set for my article. A child can tune it by moving an arm gently until the loudest note is heard on the headphones plugged into the model. This set does not require the owner to make any adjustments to aerial length or to the "relay", that mysterious component that so often gets even the knowledgable modeller down. The relay is set by the makers and there it remains. The range is really first class. There is no danger of a control sticking on and causing a crash once the owner knows a few simple facts. There is absloutely no need to fiddle with adjustments on the flying field other than move the tuning arm to get the loudest note. All we want to make sure about is (*a*) That the set is not damaged after receipt from the makers by incorrectly wiring or bad installation in the model. (*b*) that the action of the GRID-BIAS battery is understood. (*c*) That the correct aerial length not exceeding three feet is employed. (*d*) That the correct batteries are used, connected up correctly, and changed at the right time. (*e*) How to rig up the servo motor so that it is self centering when a signal from the transmitter is released.

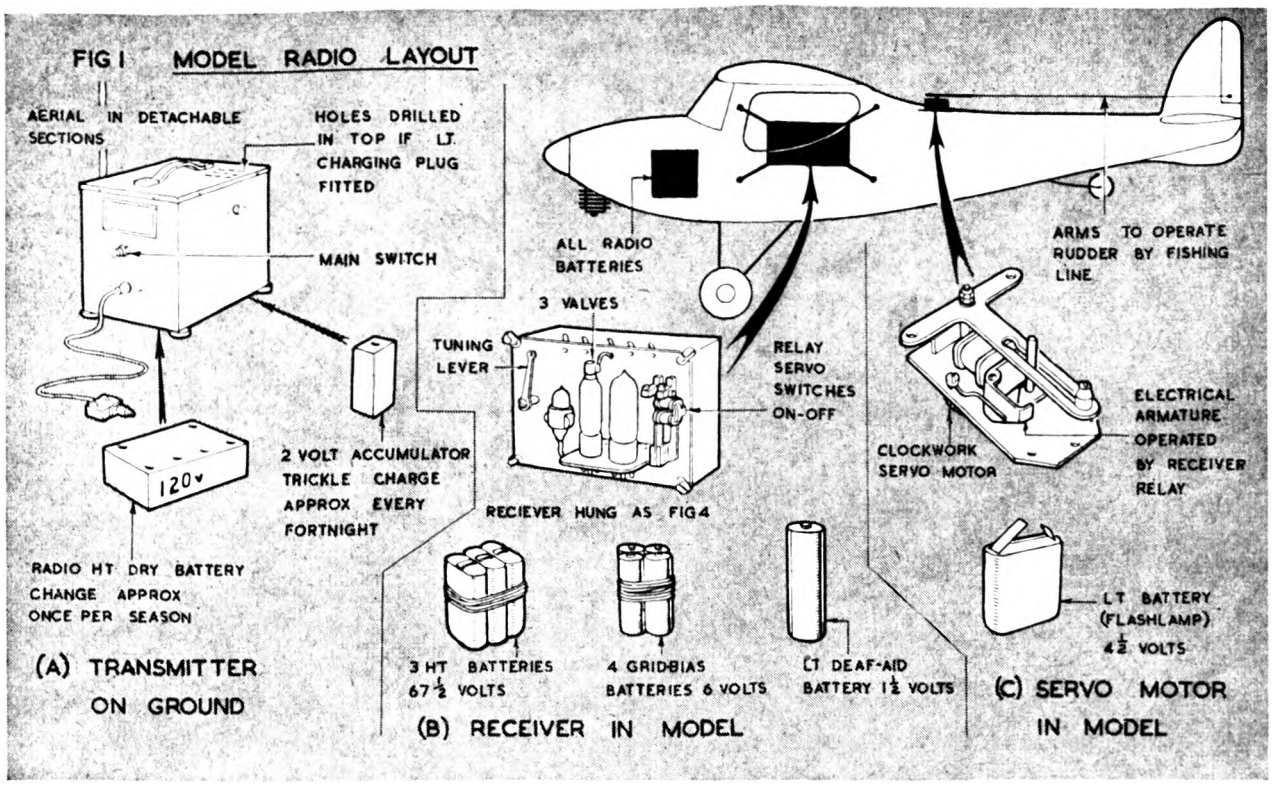
I may add that I have three models fitted with E.D. receivers, and a speed boat hull, and can imagine nothing more simple or reliable that "works every time" than the radio side, once one knows the very easily digested principle upon which the set works and is maintained. Range at height is always greater than at ground level with radio. With the E.D. set and its low power transmitter, it is possible to take the model to the farthest end of any of the vast war-time aerodromes, and at ground level to get an assistant to raise his arm when the rudder flaps as a signal is sent. With complete confidence you can expect to see the signalling arm rise in the dim distance. This means that you have a range that will allow you to play the model upstairs as far as you can see it, and a bit further! This range is obtained by using three valves in the receiver coupled to the principle used, which makes a trifle more expensive set to produce. It all adds up however to a most useful set for the beginner.

1. Radio layout and battery wiring. The novice must understand how to connect up his batteries by simple soldering, and I am going to assume he does not even realize how the components are installed in the model. My explanation may prove a little longwinded, but I am describing things to people who are new to it, and I want them to find their way about in an orderly manner. The layout can be studied in Fig. 1, and comprises (*a*) A transmitter on the ground, with its batteries. (*b*) The receiver with its *all important "relay"*, which will be described in detail later, and an actuator, with their attendant batteries in the model.

The transmitter of the E.D. set has a normal "wireless" dry battery for H.T. (high tension) which should last the season providing it is switched off when not actually sending signals. There is a L.T. (low tension) accumulator, which requires trickle charging every fortnight or so like any radio accumulator, in a battery set for B.B.C. listening. I personally use a garage or electric light "Runbaken" trickle charger, and have fitted a socket in the transmitter case so that I can plug in the charger without even taking off the case top. A few holes must be drilled in the case to allow escape of gas when charging. Otherwise the owner must take his accumulator to the local radio man periodically for a freshener charge. There is a long lead and a thumb switch for the operator to press when sending signals whilst he moves around when watching his model's evolutions in the air. He can thus press his switch and hold on the signal as the model turns left or right, and release when he thinks too much height has been lost on the turn. The rudder will then automatically centralise *if the servo motor is set up as described at the end of this article.* This is the most simple way for the novice to fly, and for "experts" too!

Now follow Fig. 1, (*b*) and (*c*) which shows the receiver and its batteries and the servo with its batteries, whilst below it will be seen where these components fit into the model. In Fig. 2 the reader will see how to wire and solder up the batteries shown in Fig. 1. It will be noticed that the H.T.

(*Continued on page 803*)



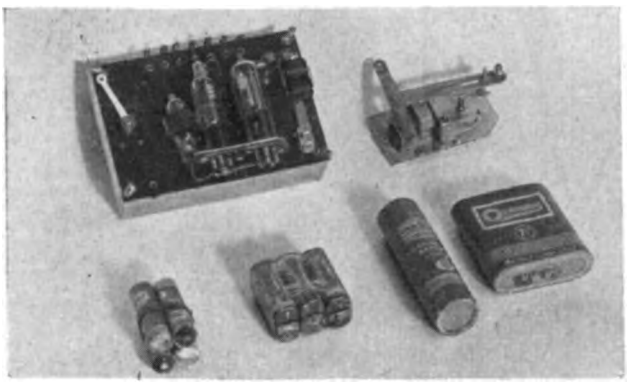
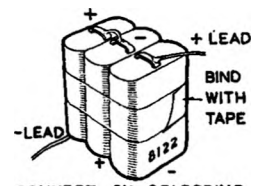


Fig. 3 A photograph of the components illustrated in Fig. 1. The batteries are l. to r., Everready D14 grid bias, Battrymax B.122 High Tension, Everready D18 L.T. and Everready 1289 Servo battery.

Fig. 4 The receiver is slung from its four corners to four cross dowels in the fuselage. Stout rubber bands form the shock-proof suspension.



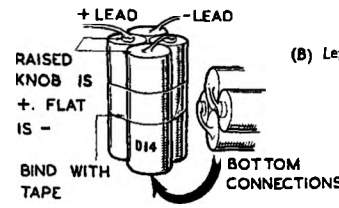


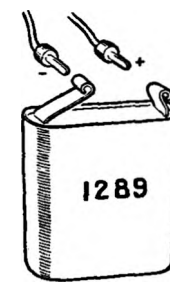
Fig. 2 **Dry Batteries used in model and wiring details.**

(a) Solder all joints (non-corrosive flux).
(b) Use thin flexible insulated wire for leads and all wiring in model, including aerial.
(c) Use 18 s.w.g. copper (tinned) wire for bridge-pieces across terminals of cells as shown.

(A) Top left **Receiver.** H.T. Dry batteries. (Deaf Aid) 67½ volts. Three "Battrymax" B.122 wired in series. **Occasional change required.**

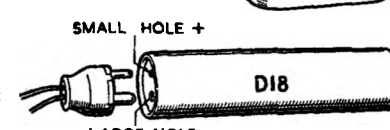
(B) Left **Receiver** Grid-bias batteries, 6 volts. Four Everready D14, wired in series. **Very occasional change required.**

(C) Right **Servo Motor L.T. Battery.** One Everready 1289, flat flashlamp battery 4½ volts. Bend brass tags to take plugs. The long tag is negative.



(D) Lower Right **Receiver.** L.T. Battery, 1½ volts. One Everready D18 with two-pin plug for quick change, this battery being the only one used which requires **frequent change.**

N.B. Wrap grouped "series" wired batteries with cellotape so that contacts do not short against next group in battery box.



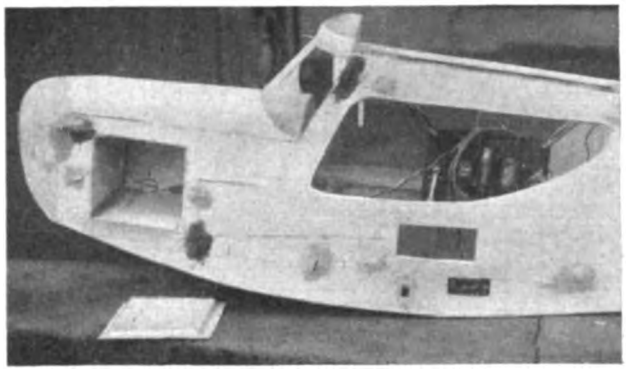


Fig. 5 The battery box is built into the fuselage nose in front of the receiver where damage will not be done to the receiver in the event of a crash and the heavy batteries going forward.

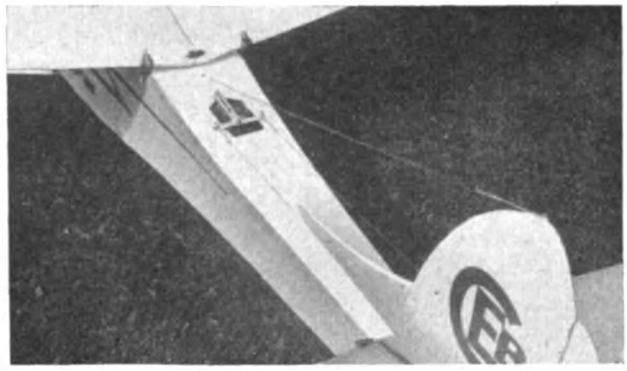


Fig. 6 The aerial of 3' in length emerges from the fuselage aft of the wing to a rubber band tensioner to a wire hook at the fin top. The servo motor is mounted behind the wing where the weight is near the C.G. of the model.

(*Continued from page 799*)

batteries for receiver require infrequent change, and that this also applies to the servo batteries. The very important GRID-BIAS battery only requires very infrequent change because it has no drain other than old age. The L.T. battery DOES REQUIRE FREQUENT CHANGE. Fortunately this is a cheap battery to renew, and in order to make renewal simple I fit a two pin plug which is quickly detachable from the special deaf aid "Ever-ready" D.18. The remaining batteries are best soldered to their leads. When infrequent change is necessary, the solder is very easily detached by the iron in the peace of the workshop. This method saves many failures due to bad electrical connections.

2. Installation in the model. The correct installation in the model will make for quick tuning, care-free operation, and lack of damage to the valuable receiver in a heavy landing. Sling the receiver on edge as shown in Fig. 4, by rubber bands to four ¼-in. dowels located across the fuselage. I reinforced these dowels by plastic wood where they join the sheet balsa fuselage sides that I invariably use in my models, whatever their size. I design my radio models with a wider "side by side seater" cabin so that one can get at wiring easily, and to ensure that no damage is done by lateral sway of the receiver in rough landings. The stout rubber suspension bands prevent trouble from vibration, and if robust, stop the receiver smashing forward in a bad landing. This rubber band suspension is the secret to success in more ways than one, but is useless if the cabin is narrow or the bands sloppy. All wiring should be of the E.D. very thin light flexible insulated wire, because this has little inertia to cause bad joints or broken wires, due to vibration etc. Wires should be short and taped together, and fixed so that they do not move about the cabin and upset radio efficiency. Joints must of course be carefully soldered. No set can ever be reliable if there are poor electrical joints. (Study Fig. 4 and Fig. 1).

3. The battery box, switch and tuning hole with headphone socket. All batteries shown in Fig. 1 for receiver and servo should be grouped in a ⅛-in. balsa sheet box reinforced by plastic wood and located in the forward end of the fuselage. My batteries are protected from damaging the box and fuselage in event of trouble by being wrapped in a piece of sheet sorbo rubber. See Fig. 5 showing the box with its side lid on the ground during construction of a fuselage. Also note the receiver slung inside the fuselage. The white tuning arm can just be seen at the forward end of the receiver, with a rectangular hole in the fuselage side to move the arm by the forefinger. Below the tuning hole is the main switch which operates both receiver and actuator on the E.D. set. To the right of the switch can be seen the tuning headphones plug panel.

When the headphones are withdrawn after tuning, there is no necessity to put in a "shorting plug" with this type of receiver.

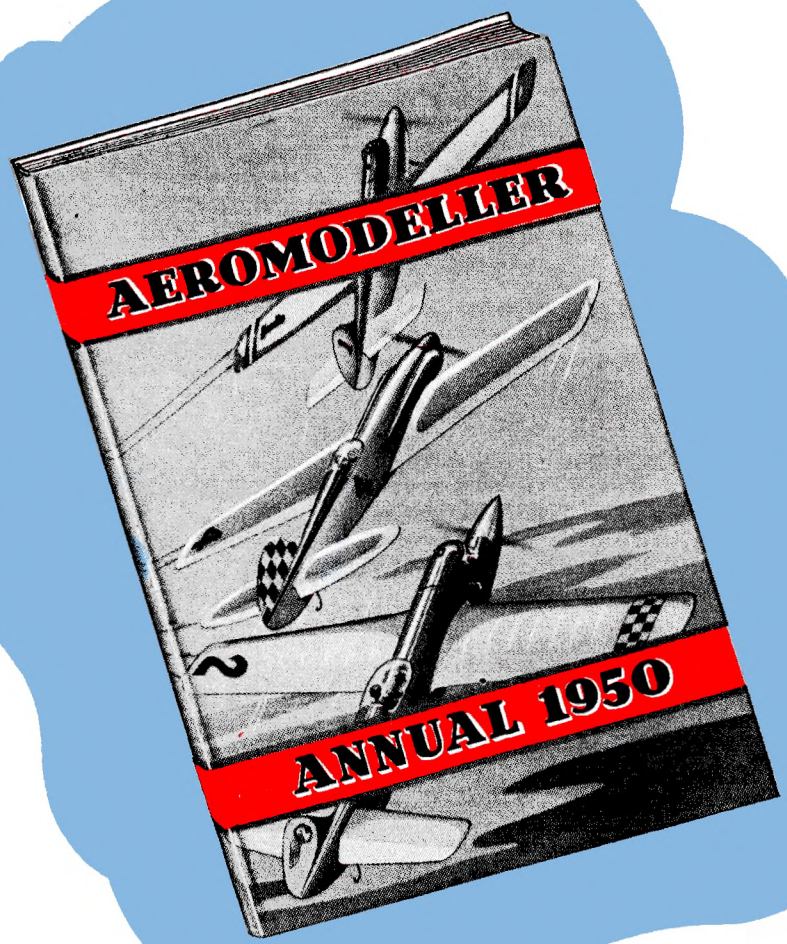
4. The aerial. Must not be longer than three feet on the E.D. set. It may be shorter. This is a very convenient feature, as many sets require a much longer aerial which is difficult to accommodate. The aerial should be carried straight from the receiver through the top of the fuselage behind the wing to a rubber band attached to a wire hook on the fin tip. The aerial should be of the same thin flexible insulated wire as used for wiring. It is then insulated where it comes from the fuselage as shown in Fig. 6.

5. Servo motor mounting. The servo motor is sometimes called the actuator, and other people call it the escapement—I term it the servo in this article for it is the motor that works the rudder.

It is best located immediately behind the wing as seen in Fig. 6 and in general view of one of my larger models seen in Fig. 7 next month. In this position the weight does not cause tail heaviness, *and a well designed aircraft or boat hull should always have main weights grouped around the C.G. position.* In this way the ends are kept "lively" to respond quickly to stability requirements. Incidentally, whilst remarking on stability, it will be observed in Fig. 7 that the fuselage has a deep belly forward. This keel surface helps to hold up a radio model's nose on turns. A tail wheel is an advantage on a large model, and the lower fin to ensure steady take-off has since been slightly reduced. In Fig. 6 the two arms of the actuator can be seen with swivelling screws through which short wires pass. From these wires the rudder lines (of fishing line) go to the bamboo rudder crossbar. The lines should not be too tight or the servo may not operate. Line length can be adjusted by moving the wire end pieces through the swivels and re-screwing down. These swivels are obtainable from E.D. to fit the servo.

6. The principle upon which model radio, and in particular the E.D. set, works. A signal is received, in all types of model radio, with a certain "standing" current at the valves. On receipt of the signal the valves either "dip" or lower the current (as on most sets), or they "raise the current" from a low standing current as is the case of the E.D. three valve set. *Whichever principle is used, the "relay" operates on this alteration of current through the valve or valves.* As the relay operates, it closes points which in effect act as a switch to the servo motor's battery. When the servo motor is "switched on" by the relay points closing, it pulls the rudder over.

(*To be continued*)



WIN

CARRYING on the tradition of previous *Aeromodeller Annuals*, the 1950 issue contains all those features that readers have enjoyed, together with an entirely new treatment of the special articles. This year we have invited acknowledged experts in their respective spheres to contribute and can thus offer the opinions of national and world famous figures. These articles have been specially commissioned for *Aeromodeller Annual* 1950 and are up-to-the-minute topical !

Expert articles include Ing. Per Welshaupt on A2 Sailplane Design and Towline Technique, including piano-wire tow-launch ; F.A.I. Model Section Secretary writes on the New Wakefield Specification and provides leading Dutch models ; W. H. C. "Funf" Taylor reviews Radio Control and the Thyratron Valve, with invaluable trouble-shooting section ; Ron Moulton ("Father of British Control-line Flying") on Team Racing ; C. S. Rushbrooke on Rubber Models ; America's one-and-only "Pop" Wright on Chromium Plating Pistons, etc., for High Speed Flying ; J. B. Knight on Rubber Model Prop. Assemblies ; Engine Analysis ; etc., etc.

The ever-popular plans section is even wider in scope with over 50 of the world's best and latest models covering Radio-control, A2 Sailplanes, Wakefield designs, Jets and Jetex, Chuck gliders, power models, stunt and speed control liners in all sizes, easy-to-build novice models, biplanes, indeed, as usual, something for everybody !

All the aeromodelling countries are represented with exclusives from France, Denmark, Jugoslavia, Sweden, Poland, Czechoslovakia, Switzerland, Australia, Italy, Germany, U.S.A., and of course Great Britain. New countries represented include Japan and New Zealand, while the famous Russian world-record engines, hitherto unpublished in the West, are featured.

Contest followers will find S.M.A.E. Results in detail, together with main Area and the more popular club rallies. National and International Records appear, National Governing bodies, in fact *Aeromodeller Annual* 1950 is as brimful of useful gen and solid reading as ever ! You will like it even better than previous issues ! 160 *pages size* 8½ × 5½ *ins. bound in cloth and card with gold blocked title, full coloured dust cover of team racing subject. From model shops and booksellers everywhere, or direct from the publishers price* 8/3 *post free. SPECIAL NOTE : Order through your local supplier, post orders placed with us will not, repeat NOT have preference over trade orders—though we are pleased to deal with readers unable for any reason to order locally*

Third great annual

The Printing Trade dispute which has affected so many publications—though happily not the *Aeromodeller*—may delay delivery of *Aeromodeller Annual* 1950. We are sorry about this, but rest assured it will be in your hands by Christmas if we have to work day and night to do it !

7/6

NERS

AT LAST we are proud to announce a monthly model magazine that in style, contents and size is a worthy companion to the *Aeromodeller*. Covering all branches of model-making except aero-modelling this is the magazine for every reader who is interested in the world of model locomotives, passenger carrying or scenic miniatures, model yachts, scale or racing, model craft of all kinds, power boats, model windmills, and last but not least model cars in all their aspects, scale, racing, solid, up-to-the-minute or classic vintage and veteran models. Every user of a small lathe will find in its pages hints and tips, instructive articles, or records of other modellers' achievements, and will be helped to get more out of that invaluable maid-of-all-work the 3½ in. lathe.

First number of MODEL MAKER will be on sale on December 1st, representing the merger of *The Model Mechanic* and *Model Cars* into one really top-class journal of 68 pages, same size and style as *Aeromodeller*. We know readers will want to see a copy for themselves and have taken care to print enough for every casual reader—seeing is believing and we are confident that a specimen copy will convert you into a regular reader. It is impossible to ensure that spare copies will be on every model-shop and bookstall throughout the country, but if you will write, sending name and address together with a 2/- postal order, we shall be delighted to send you a specimen copy together with name and address of your nearest local retailer for the future. Try it once, read it always!

Here are some of the principal contents of the first issue: Coastal Sailing Barge "Will Everard"; 36 in. restricted Class Racing Yacht "Lady Betty"; Miniature Railways of Great Britain; Some Famous Club Railway Tracks; Photographic Work in the Workshop; Model Car Review, 1946–50; Making wheels and tyres; Making your own drilling machine; A Simple Model Car for Beginners; Hosts of short workshop tip articles, model car meetings, personalities and notable models.

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Model Maker is 9¼×7¼ ins. in size, printed on fine quality white paper, with photo and colour cover, 68 pages of magnificently illustrated articles in half-tone and line. Co-editors are L. H. Sparey (Author of best-seller "The Amateur's Lathe" etc.) and G. H. Deason (Author of "The Model Boat Book," "Model Car Manual" etc., etc.,—a team that is certain to please most of the readers all of the time! Don't forget first issue December 1st—if in difficulty send your P.O. for 2/- direct to us. This is a companion journal to "Aeromodeller" so order in confidence!

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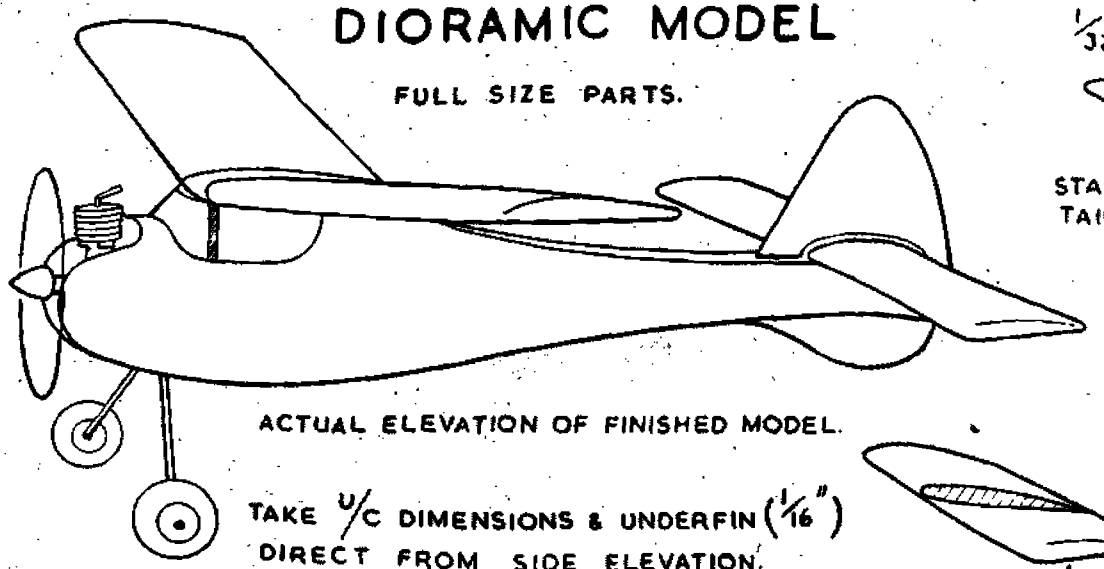
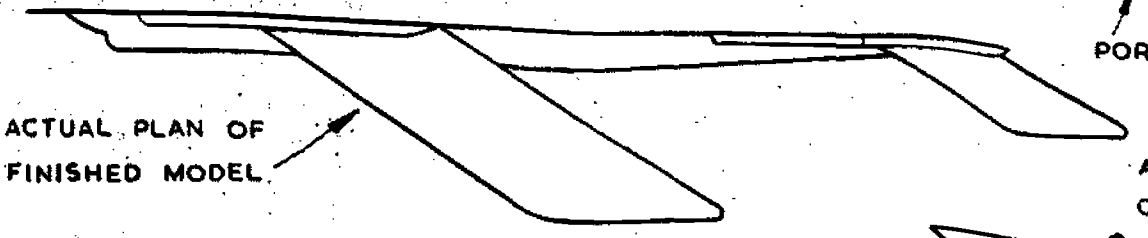
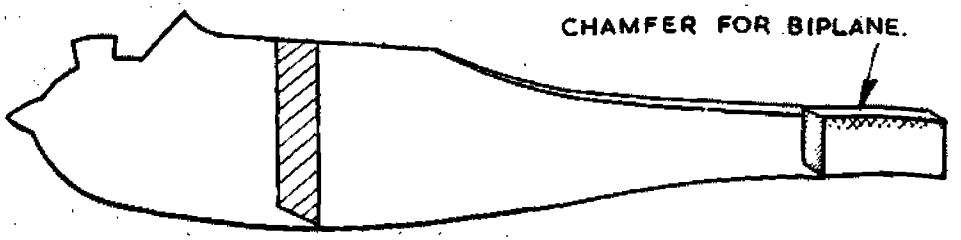


ACTUAL ELEVATION OF FINISHED MODEL.

TAKE U/C DIMENSIONS & UNDERFIN (1/16") DIRECT FROM SIDE ELEVATION.

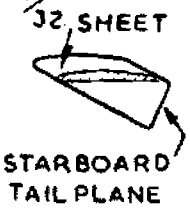


ACTUAL PLAN OF FINISHED MODEL.



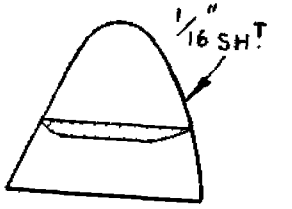
CHAMFER FOR BIPLANE.

FUSELAGE BASIS 3/16" SHEET



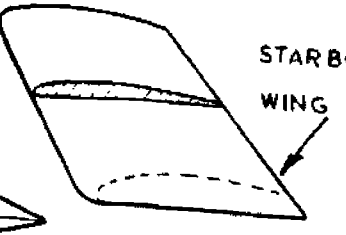
1/32" SHEET

STARBOARD TAIL PLANE



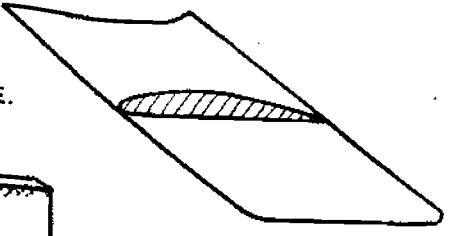
1/16" SHT

FIN.



STARBOARD WING 1/16" SHT

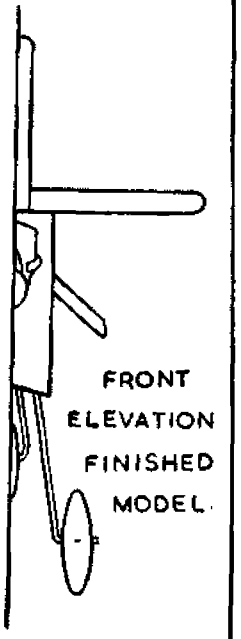
PORT TAILPLANE 1/16"



PORT WING 1/8" SHT

PORT WING, TAILPLANE & UNDERCARRIAGE ONLY, PROJECT

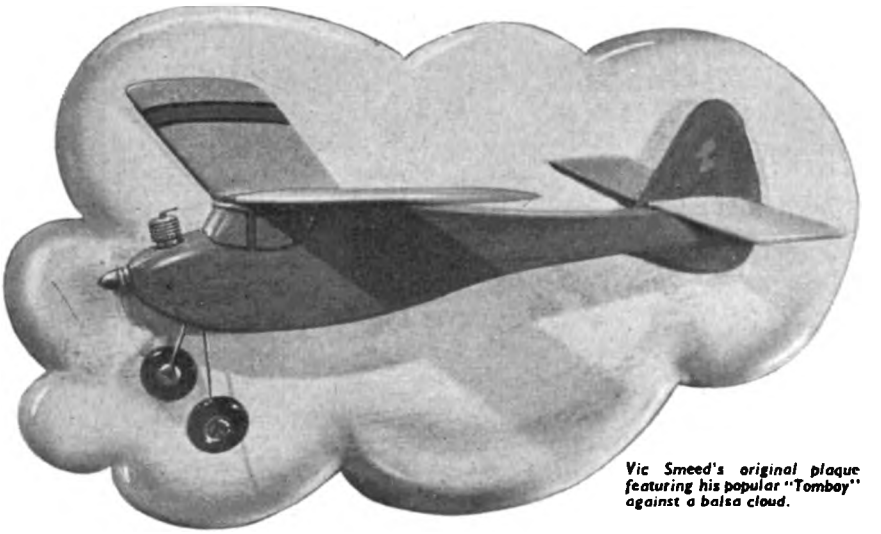
ASSEMBLE MODEL ON A FLAT BOARD.



FRONT ELEVATION FINISHED MODEL.

WHY NOT A WALL PLAQUE ?

BY VIC SMEED



Vic Smeed's original plaque featuring his popular "Tomboy" against a balsa cloud.

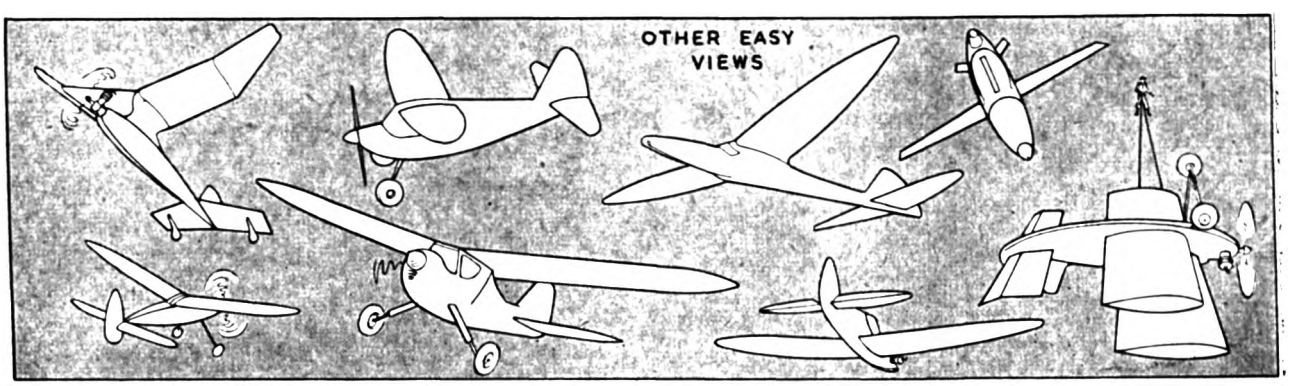
YOU'VE all seen those skeins of ducks which look so artistic strung on the wall. Well, why not your favourite models treated in the same way ? For an hour or two's work you can have a permanent and attractive three-dimensional record of that recently-retired job which served you so well on the contest field. Dioramic models can be built from any photograph once you've grasped the idea of fore-shortening, and aircraft can be modelled from any angle, so well do they lend themselves to this type of representation. The example shown here is simple and uses only scraps of wood : the A.P.S. " Tomboy " was chosen because a slab-sided fuselage and squared tips are, oddly enough, trickier than streamliners and curved tips.

The essential thing is to visualise a centre-line which vertically bisects the largest area presented in the aspect chosen—in the nearly full side-view selected here the centre-line of the fuselage is the obvious dividing line. To give depth to the whole model, this line is placed 1/16 in. clear of the baseboard ; everything behind the line will be flat on the board and less than 1/16 in. thick, while those parts in front of it will project to a greater or lesser degree. The example has, therefore, the port half of the fuselage and airscrew disc, and the port wing, tailplane, and undercarriage, projecting from the baseboard.

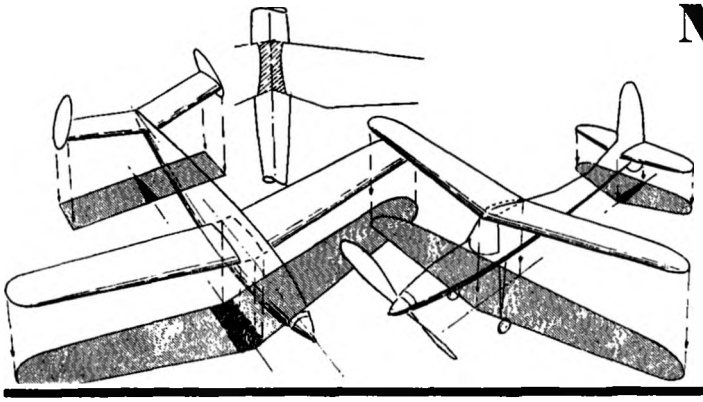
The construction of the plaque shown is as follows. Cut the fuselage profile and chamfer the edge to represent the part of the fuselage top visible. The underside should be pared back to a slightly greater angle to allow for perspective and to cast a sharp shadow. The nose details can be cut at this stage—three depths will be necessary to bring out the proportional distances between the cowl sides and the motor The starboard wing and the fin may now be attached—the wing shaped to a semblance of an airfoil section and the bottom of the fin chamfered to fit the inclined top of the fuselage. It is best to shape all parts completely before assembly, and to weight them on a flat board while the cement is drying. Attach the starboard tailplane and the port wing, which sits at right-angles to the starboard wing. The port tailplane fits in a chamfered slot cut in the tail of the fuselage, and inclines downward at about 45 degrees. The underfin tucks underneath after chamfering its top edge to fit.

The undercarriage may now be fitted as plan—use a thinner wire tor the starboard leg and note that the wheel on that leg is about 1/16 in. smaller than the other, to produce the apparent depth required by the track. The airscrew disc, a near-ellipse of thin celluloid, may be fitted round the spinner, or the spinner may be cut and the disc inserted, or it may be omitted entirely.

Brush a couple of coats of sanding sealer over the finished model and sand lightly. Colour in the normal way, with the lighter shades applied first. If you wish, all upper surfaces may be doped a fraction lighter than the lower and vertical surfaces a spot of white in the dope) to heighten the illusion of depth. The cabin, wheel-hubs, and motor are picked out in silver. Apply insignia, matching lettering, etc., to the shape of its surface. The baseboard should now be prepared—either a dark, polished plaque or a matt cloud cut from $\frac{3}{8}$ in. or $\frac{1}{2}$ in. sheet balsa. In the latter case round off the edges and brush on darkish blue dope where shadows will be required. Apply two coats of white, sanding well in between, but try to avoid a glossy finish. The blue will " bleed " through the white and give a good shadowy effect. Fit a brass glass-plate to the rear, cutting a hole for nail-head clearance, and cement the model in place. You now have a model that even the womenfolk won't grouse about !



NEW WAKEFIELD FORMULA



Total area = 17/19 square decimetres (263½–294½ sq. ins.). Minimum cross section fuselage = 65 sq. centimetres (10 sq. ins.). Minimum weight = 230 grammes (8·113 ozs.).

AT a Council meeting held in London on October 7th, 1950, the S.M.A.E. considered and finally adopted recommendations received from the F.A.I. to alter the existing Wakefield model specification and to bring it into the generally accepted F.A.I. method of mensuration, etc.

The old specification, although well understood in a number of countries and by many hundreds of keen aeromodellers, has been misunderstood on occasion, and even in this country the misinterpretation of certain requirements has resulted in much unnecessary disappointment, as witness the case of P. J. Royle at this year's Wakefield Trials.

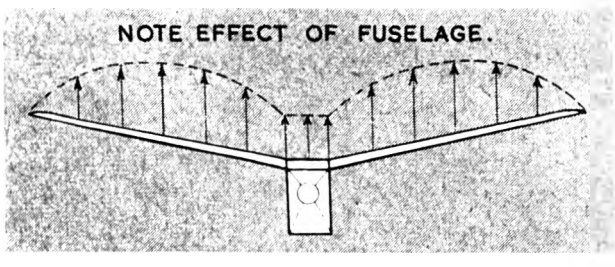
As indicated in " Clubman's " preamble last month, this new specification will be welcomed by all but a few diehards, for the alteration of area to include the *total* area, *i.e.*, mainplane plus tailplane, will give a much wider latitude for design, as the old specification tended to bring about standard proportions with most designers aiming for the maximum allowed wing and tail areas.

The main bone of contention will be the system of measuring the actual total area, and it is in this connection that controversy, if any, will arise. Measurement of mainplane and tailplane will now incur allowance for dihedral angle, for it is the projected and not actual area that has to be calculated. This factor, however, will not cause so much trouble as the requirement that the wing plan is considered continued right through the fuselage *and must be* calculated in the total area, this also appertaining to the tailplane.

THEREFORE, WHICHEVER TYPE OF LAYOUT IS EMPLOYED, *i.e.*, LOW WING, MID-WING, SHOULDER WING, HIGH WING OR PARASOL, THE NORMAL CONTOUR LINES OF THE MAINPLANE MUST BE CONTINUED STRAIGHT THROUGH THE FUSELAGE AND THAT AREA INCLUDED.

The shoulder-wing advocates may hold that this system will penalise them and favour the high and parasol wing devotees. But it was pointed out by the Chairman during the Council's discussion on this subject that reference to a normal lift graph of an aircraft would show that this was not necessarily the case and that careful attention to the junction of wing panels with the fuselage would obviate much of the drop in lift apparent over the centre section, and in some cases could be eliminated altogether. (*See sketch below*).

In cases where the wings are fared liberally into the fuselage the normal contour lines of the wing will be continued to the centre plane of the fuselage for the purpose of arriving at the correct area. This will obviate the occasion where it has been a matter of arbitration as to the exact function of fillets.



The fixing of a standard minimum fuselage cross section area is admirable from a processing viewpoint, and eliminates the necessity of measuring each individual model to determine just what this minimum section should be.

Undoubtedly we shall see a number of extremely long (by past standards) and slim fuselages used in an effort to get much longer motors. It will be interesting to see to just what extent this will affect the comparative proportions of wing and tailplane, for the much greater moment arms envisaged will allow of smaller tailplane areas than we are accustomed to.

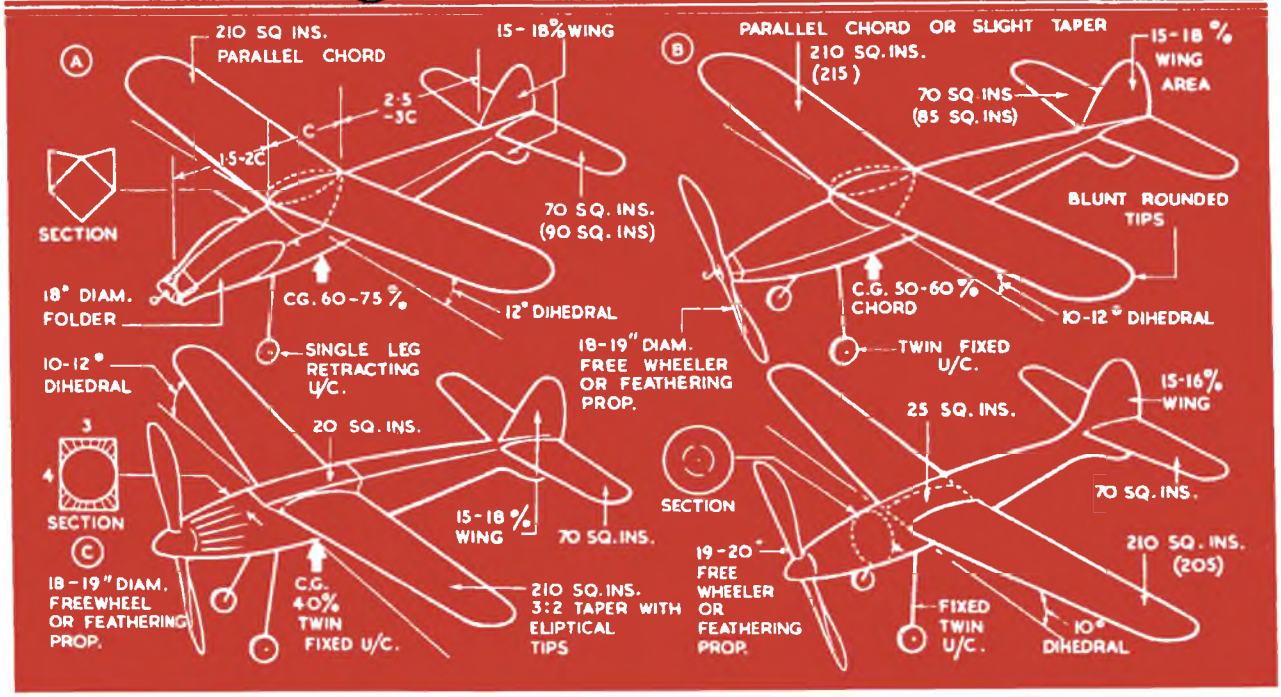
The minimum weight of 230 grammes has obviously been fixed with a view to including as many existing Wakefield model designs as possible, and it will be interesting to compare just how radical new designs will show up against the many splendid models developed to the old specification.

Whatever may be said against the alteration, there are two distinct advantages which cannot be denied. First is the undoubted stimulation that will be given to design under the latitude of total area instead of specific proportions for both mainplane and tailplane. Secondly, the opportunity of eliminating controversy should be welcomed, for no-one likes to be eliminated on a technicality and less so do official processors like such an occurrence. The new specification should be more readily understood by the Wakefield designers of this country, and what is more important, will be universally comprehended, which is naturally a distinct advantage when considering International contests.

The suggestion was advanced that the Wakefield model specification be further modified to bring it fully into line with F.A.I. general rules and regulations, thus allowing the use of ready made (commercial) wing ribs, wheels, propellers and devices for automatic piloting and/or steering. The Council, however, decided that the above mentioned alterations to specification largely met the recommendations advanced, and (quite rightly, in our opinion) maintained that the balance of the rules requiring the model to be completely built by the entrant, with the exception of gear wheels and timer units, should be retained.

The one remaining observation we would make is in reference to the advisability of modifying the launching rules, which state that the model shall be held only by the wing tip and prop. Under some conditions this can be a definite and serious handicap to the flyer, plus the fact that the correct interpretation of the existing rule is not fully understood by all officials and all timekeepers. In any but the best conditions, holding a model by the wing tip is impracticable, and it has been amply demonstrated that in a high wind it is almost impossible to keep the tail down by this method. We advocate, therefore, a return to holding the fuselage and never mind whether push is inadvertently given or not. In our experience, a flyer who pushes a finely trimmed contest model usually pushes himself into and not out of trouble!

It's Designed for You! NUMBER SIX WAKEFIELDS



WAKEFIELDS are a specialised type of rubber driven model built to a particular specification that, after remaining unchanged since 1937, *will, for the* 1951 *contest, be brought into line with more modern ideas as laid down in the F.A.I. Rules. The amended specification is as follows :—*

Total area of wing plus tailplane to be between 263·5 *and* 294·5 *sq. ins. (Old rule : Wing* 200 *sq. ins. plus or minus* 10 *sq. ins. ; tailplane area not to exceed* 33 *per cent. of mainplane area.)*

Minimum size of maximum fuselage cross-section, irrespective of fuselage length, 10·075 *sq. ins. (Old rule : Minimum size of maximum cross-section to be overall length squared divided by* 100.)

Total minimum weight, 8·11302 *ozs. (Old rule :* 8 *ozs. minimum.)*

Just how much these modifications to the rules will affect design remains to be seen, but even within the limits of the old specification, despite a number of opinions expressed to the contrary, there was room for development of Wakefield *design*. This was borne out by the 1950 contest where, without doubt, the best machine won. It is equally true, however, that *aerodynamically*—as regards design layout, at least—the 1950 winner *can* be bettered, and the field here would appear still to be wide open.

Briefly, the old specification was defined on *net wing area*, which is, to all intents and purposes, the actual area of wing, free and exposed to the airstream—Fig. 1. Where the wing halves are separated by the fuselage—such as on a shoulder wing model where the wings plug into the fuselage—the area between the two root ribs of the wings does not count as net wing area, but it does in total or *gross wing area*. The true shoulder wing case is fairly clearly defined, but when it comes to some of the designs featuring a cross between a shoulder wing fixing and a normal high wing mounting, how to determine exactly which is the centre section—gross or net area—can be something of a problem. All the area of a high wing machine would count as gross area, for example (*i.e.*, net area = gross area), but a suitable fairing can be arranged to make the centre section appear as included in gross area only, whilst still retaining the full lift of this " extra " area. When such a fairing is cut to very fine limits the problem of definition becomes acute.

Under the new ruling, all wing areas are defined as gross areas and thus such points will not arise. Most present Wakefields will conform to this new specification, but the possible changes which could be made under these new rules will be discussed later.

The Wakefield designer is faced at the moment with the problem of producing a five-minute model. Ellila's model would appear to be readily capable of five minutes plus in still English conditions. Quite apart from that, study the Wakefield Trials figures over the past two years. Most of the leaders were doing two " maximums " out of three flights per contest and a minimum aggregate for a top place in a Wakefield event is generally well over 700 seconds.

The fact that any model may record a number of " maximums " during a contest season does not necessarily mean that it will consistently be able to do five minutes in still air. Daytime conditions are generally productive of thermals and many designers rely implicitly on thermals to obtain long flights. This can work out quite well under the ordinary contest conditions and only in the event of really dead air will such designs show up to disadvantage.

For much the same reason, a model which can do five minutes in dead air will not necessarily do a consistent five minutes in other conditions. For one thing, the trim may be so fine that it will be out of trim in a wind. And where there are thermals there are also downcurrents. Many unnaturally low durations can be attributed directly to the fact that the model is actually flying quite normally but through a region of air which is sinking at a speed of anything up to ten feet per second or more.

On balance, the model which *can* do five minutes in still air should score over a period, provided it is so rigged that it still stays in trim in other types of weather. When there is a wind the air is turbulent. A model trimmed to fly very near the stall in still air may, with the same trim, be very much over-elevated in a wind—and as likely as not under-powered.

Undoubtedly the most straightforward way to get long still air durations is to use moderate to low power and a very long motor run. Such power may be inadequate for flying under windy conditions and the fact that we normally expect to fly at least the majority of our contests in a wind has had a marked effect on the trim of British Wakefields. With few exceptions, all aim for a fast initial climb and as much height as possible under power. Power runs seldom exceed eighty seconds and are often very much less, whereas before the war some leading Wakefields had an effective prop run approaching two minutes. Average times, on the whole, are very much better, so the present technique has definitely paid out.

It seems, therefore, that in view of the very limited application of the true still-air design—it would normally only be effective in a calm with no vertical air currents—that the present approach is still the best, aiming to boost present still air durations by further improving the glide, getting higher, if possible, and definitely trying to lengthen the duration of power run. Ellila's design is really a compromise model of this type—not just a still air machine.

On this basis the old argument of freewheeling versus folding propellers is still as open as ever. Most people will now agree that nothing less than a twin-bladed folder is satisfactory and if an attempt is to be made to boost the duration of power run and/or get more height the twin-folder is even more to be preferred to the single-folder.

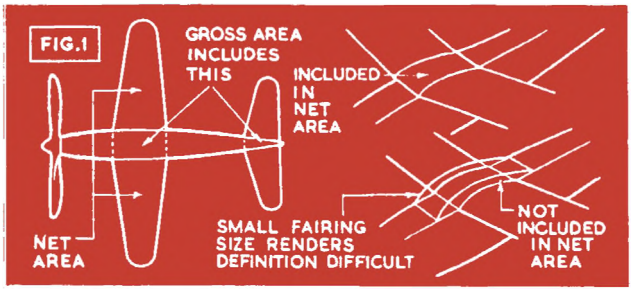
On the face of it it would seem that there should be no argument at all. Aerodynamically, under power, a twin folder and a normal freewheeler should have identical climb characteristics. Folding the prop. at the end of the power run, then, cannot help but improve the glide. That, however, ignores two pertinent facts.

Towards the end of the power run, when the torque of the rubber motor has dropped to a low figure, possibly only just enough to maintain height or at best a very shallow climb, thrust adjustment effects (*i.e.*, sidethrust and downthrust) have also dropped to a minimum. The folding-prop model is inherently under-elevated with the prop unfolded, otherwise it would stall on the glide—Fig. 2. Thus it can seldom be expected to utilise the full power run effectively. Partly for this reason in fact, perhaps unconsciously, most folding-prop designers favour a more powerful motor and a shorter, faster climb to limit the duration and effect of this period to a minimum.

The freewheeler, on the other hand, simply approaches what is virtually a power-assisted glide trim at the end of the motor run and thus utilises the power available more efficiently. With equal power and similar designs the freewheeling job should climb higher and take longer to do so, both features giving it a start over the folding-prop machine at the end of the power run. The shorter, faster-climbing folder will be at an even greater disadvantage. Provided the freewheeling model is carrying optimum power (which is roughly 50 per cent. rubber weight as total weight), it will still get *higher* than the fast-climbing folder—and have some forty seconds in hand at peak altitude. Fig. 3.

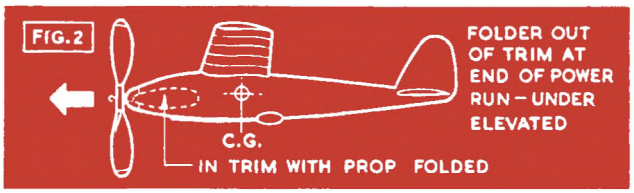
On the glide, however, the folder can show up to advantage. Properly trimmed, the glide will be better, in still air, at least. Fig. 4. Unfortunately, this trim can be critical. Gusty weather may precipitate a stall, which can build up, until the overall rate of descent is very high indeed. In fact, so noticeable is this effect that many designers consider the folding-prop model to be at a disadvantage in windy weather unless definitely under-elevated on the glide.

Best glide trim for a freewheeler can also be critical—a piece of tissue paper packing under the trailing edge of the



tailplane can make as much as forty seconds difference to the total duration, but even when trimmed to the limit it is not likely to develop stalling troubles in rough weather. The freewheeling prop definitely assists in damping out any stall, acting as an airbrake in the dive, speeding up itself and actually, at times, developing a small thrust to pull the model out level again.

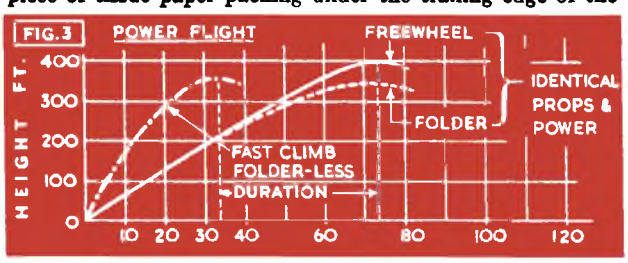
The possible failings of a folding-prop machine on the glide are really an indication of an incomplete knowledge of the best design layout and design features for this type of model. A study of the more successful designs in this category will provide a clue. Almost without exception they employ a parasol wing position, or its equivalent. And it will usually be found that they are rigged with the centre of gravity well aft so that the tailplane is normally carrying a reasonable proportion of the total load. Fig. 5. An aft C.G. position may

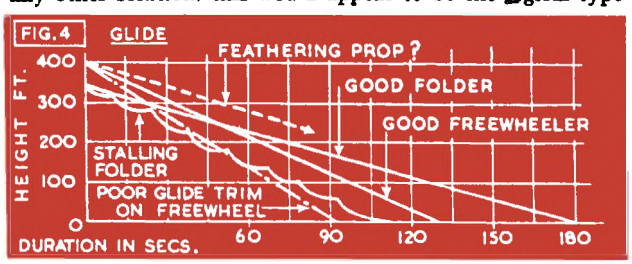


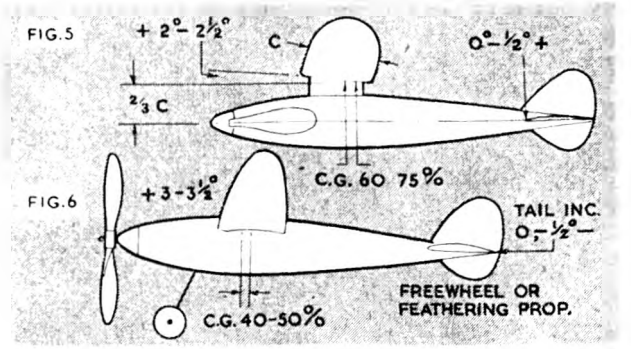
make the model a little more difficult to trim under the initial burst of power, but pays off in most other respects on a folder.

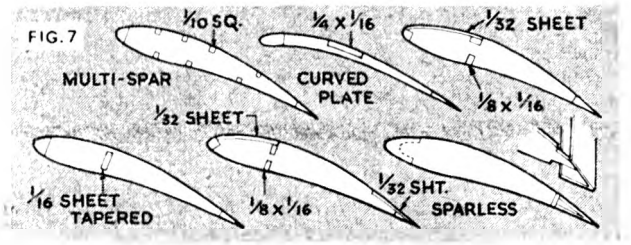
The freewheeling design, on the other hand, is seldom rigged with the C.G. farther aft than 40 to 50 per cent. of the chord, although there are notable exceptions. Fig. 6. Generally, however, moving the C.G. aft with a freewheeling propeller makes the glide trim more critical and it may even be impossible to trim the machine out to a really good glide, particularly with a low wing positioning. Wing position is generally lower, the plug-in shoulder wing type being the most popular, normally with a semi-streamlined fuselage, *i.e.*, rectangular basic section with rounded nose. Full streamliners are very much in the minority these days.

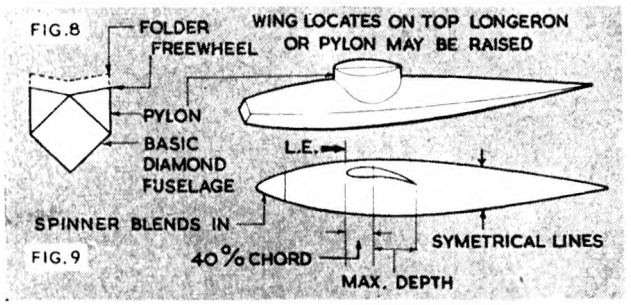
Now for the compromise solutions between the two types. The first is to make the glide of the freewheeler compare with that of the folder by *feathering* the prop. This should give almost identical drag reduction—or even better figures—without necessarily changing the trim. The use of feathering propellers is not new. They were tried before the war, but the type developed and used by E. W. Evans on his "Vansteed" (described in the August issue of the AEROMODELLER) is undoubtedly the best produced to date and the first to achieve outstanding success in the competition field. Failing any other solution, this would appear to be the logical type

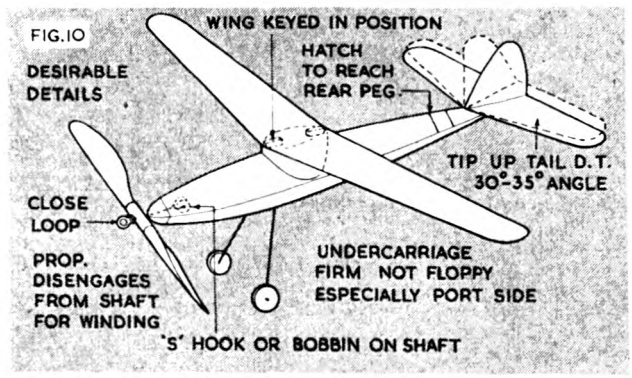












to adopt, its only inherent disadvantage being the mechanical complication of its construction and possible liability to damage.

Another solution, suggested and tried out by Ron Warring some two years ago was to use a type of prop which could be locked open as a normal freewheeler for use in rough weather, or unlocked and used as a folder in calm conditions—the same prop being used rather than a change of props, since this idea was conceived before the rule allowing a change of props came into force. This, however, presented certain change in trim difficulties on the shoulder wing model on which it was tried out and was not pursued, although the idea has not been abandoned. But the fact that the shoulder wing model was not happy with a folding prop is perhaps yet another indication that this layout is not the best for a folder.

No-one, on the other hand, from the folder school of approach, appears to have worried unduly about the possible glide upset in rough weather, other than to increase tailplane power as far as possible (aft C.G. with strong lifting tail and often long moment arm with rear rubber anchorage well forward to reduce inertia forces). They appear to have been content to rely on exact trimming to obviate this fault, although it is a noticeable fact that, as a general rule, more " folders " are out of trim on the glide at a contest than " freewheelers ", whereas the proportion of each type is probably about equal.

We are now faced with the problem of which type to build. The streamliner or semi-streamliner seems, definitely, to call for the freewheeler, or, better still, the fully feathering prop. Where a high still-air duration is the aim, therefore, this would appear to be the logical type since, properly designed and trimmed, it should be at least equal to the folders under any condition. As far as we can see, the really good model of this layout with a low-drag feathering prop cannot help but be better, potentially, than a folding prop job since the aerodynamic lines can be rendered much cleaner and overall drag reduced.

But the final performance will, in any case, lie in the hands of the flier and the practical man may well decide for the slabsided parasol model with a folder, if only on account of its relative ease of construction (and slightly more economical structure) and simplified maintenance. He will then choose a parasol wing layout and find it easier to achieve the desirable 4 ounce airframe weight, 4 ounce motor weight target. It is very difficult to build the airframe of a streamliner or a semi-streamliner down to four ounces and still have adequate strength everywhere.

However, the designer who prefers the freewheeler or feathering prop can still use the simplified parasol layout, preferably with a somewhat more forward C.G. position for best glide trim. So the parasol model would seem suitable for both types of flying, whereas the shoulder-wing layout is better suited to the non-folding propeller.

Treating aerodynamic layout on an overall basis we have summarised what we consider the four basic modern Wakefield types which should be considered as projects for the 1951 season—four rather than one " generalised " Wakefield as in previous " Design " articles.

The " slabsiders ", it will be noticed, are of diamond-fuselage form, which now appears to be the trend with box-type fuselages within the Wakefield specification.

The new rules do not involve many changes, and may be summarised briefly. The areas suggested are "rounded off" for practical working and should be reduced very slightly to be on the safe side. Under these new rules, the slabsider-folder would definitely gain in boosting the tailplane area. The 43 per cent. tailplane area resulting would be most helpful in trimming out the glide and C.G. could well be shifted back to 75 per cent. of the wing chord.

The slabsider-freewheeler (or featherer) with its slightly more forward C.G. position could have a slight increase in wing area (up to 215 sq. ins.), together with a proportionately greater increase in tailplane area from 70 to 85 sq. ins. (39·5 per cent. tail). *

The shoulder-wing streamlined-slabsider remains unaltered, unless the present non-included centre section area exceeds 20 sq. ins. The full streamliner, on the other hand, may well have a centre section area in excess of this figure, when a slight reduction in *wing area* would have to be made, although a reduced fuselage cross section would also reduce the centre section area.

Regarding the layout and shapes of the various components, we are of the opinion that structural considerations are probably more important than pure aerodynamic requirements. Not that the aerodynamic side should be ignored, but what can be gained by attention to detail of only secondary importance may well be lost by the extra weight added, with, possibly, even reduced strength.

Although, probably, each particular layout has an optimum aspect ratio, for example, we would say, simply, that the best strength/weight values with a one-piece Wakefield wing are generally achieved with an aspect ratio of about 8 : 1 ; with the corresponding value for plug-in wings of 10 : 1 ; and these are the figures which should be used.

Nor is wing plan form critical, provided the shape is reason-

able. Parallel chord wings for the two slabsiders (essentially they are identical designs) with nicely rounded tips of *blunt* elliptic form. Tapered wings for the two shoulder-wing models with a moderate taper ratio not exceeding 3 : 2, and again elliptic tips. These two models are also identical, apart from fuselage section.

Straight spars give maximum strength for minimum weight and so restricting curves to the tip portions of the wings is good practice. And for forming curved tips, laminated construction has still to be beaten for light weight and good strength. A certain amount of sheeting is now being used in wing construction in an attempt to produce a warp-resistant structure and this is definitely a step in the right direction. The main point to watch is to choose light wood of the correct stock, otherwise the completed weight of the wings may be prohibitive. Some suggested forms of wing construction are summarised in Fig. 7.

The tailplane is another component where structural considerations take precedence. Aerodynamically, almost any conventional shape with an aspect ratio of around 5 : 1. It is good practice to have at least one main member running straight from tip to tip. At the same time a large tip chord is not desirable and so probably the best shape is a straight trailing edge (for maximum resistance to warping) with slight taper on the leading edge. Tips can be quite blunt, although an elliptic shape will probably be less liable to induce warps. A simple parallel chord tailplane with endplate fins (of relatively small area) is, of course, a good solution for the slabsider layout.

Here again various anti-warp structures have been tried, but few have succeeded. The trouble is that this component needs to be as light as possible. Working down to the very limit in weight is hardly conducive to rigidity and many of the very light anti-warp tailplanes do, in fact, warp just like any other. Most designers get by by "ageing" the tailplane before use so that it takes up what warps it is likely to get and is trimmed out in this condition.

Fuselage shapes can be laid out purely by guesswork, or to mathematical curves. It doesn't appear to matter which method is adopted. Probably a simplified form of the latter is more satisfying. Main point to watch is that there should be no abrupt change in outline at any part along the length of the fuselage, as far as this can be avoided. Changes in curvature should be smooth and the maximum depth of the fuselage should not come before the leading edge of the wing, otherwise the centre section of the wing is liable to be rendered inefficient. This does not, of course, apply to a model with a parasol wing position. Spinner entry—on the cleaned-up models—should conform to the lines of the fuselage, not stuck on as an afterthought to any odd shape. For other details see Figs. 8 and 9.

This leaves, then, the question of propeller and power combination. Four ounces of rubber makes up into a 16-strand motor of ¼ strip roughly 47 inches long. This will vary somewhat according to the make and grade of the strip, but it is always essential to work to *weight* of motor rather than motor length. Two motors made up to the same length from different skeins may differ in weight by as much as half an ounce, with a corresponding effect on the trim of the model. And to bring your model up to the anticipated 1951 standard you will have to use four ounces of rubber, so that any airframe weight over four ounces means so much less climb and so much greater sinking speed.

Whether to use this motor as a single skein, or split with gears is another problem to be faced. Two years ago no Wakefield designed in this country would give a moment's thought to gears, but the fact that a geared model has won the event two years in succession has given considerable food for thought.

The return-gear system used by Ellila does make it possible to install a long motor in a fuselage and use it efficiently. Using the same length of motor—60 inches—in one skein, roped or mechanically tensioned, would, it is anticipated, give *less* power for the same cross section and also be a constant source of bunching troubles. Torque appears to fall off when the distance between motor hooks is reduced. A motor which is not slack between hooks, for example, gives more power than a corded motor of greater length but identical cross section located between the same hooks.

The average Wakefield modeller would be well advised to leave gears alone and concentrate on improving performance with a single skein motor. Potentially we already have a number of five-minute designs in this country and further attention to prop design and blade shape may well result in increased efficiency here. Data on this subject is still sadly lacking, although it seems fairly safe to say that efficiency seems to increase with pitch, as far as this can be carried out with the given motor without the model becoming underpowered. In other words, starting with a low pitch—say 1·3 times the diameter—try flying on the same trim with other similar propellers with progressively increasing pitches. Performance should go up at first, until a point is reached when the pitch is too great and once the initial burst of power has died off the model refuses to climb any more. A pitch value some quarter of the diameter less than this should then give about best results.

Few people have the time, or care to take the trouble, to give prop selection all the attention it deserves. It is prop and power which, after all, is the deciding factor when you come to fly. If either let you down, then no matter how well the model itself may be trimmed, a poor performance must be the result. It is most unlikely that your first choice will be the best one for the model.

Absolute still air conditions are rare but flying in late evenings, even in a wind; flight times averaged out over a period, with different trim adjustments, will give an indication of the model's performance, which should be well over the three minute mark on 80 per cent. turns when finally trimmed, if you want to do well in contests.

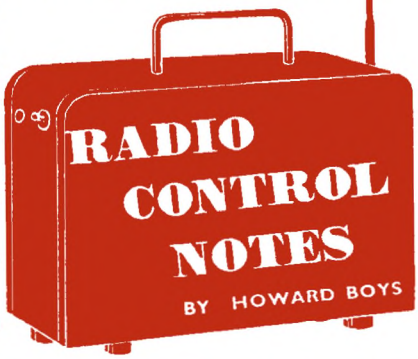
TABLE I. STRUCTURAL DATA

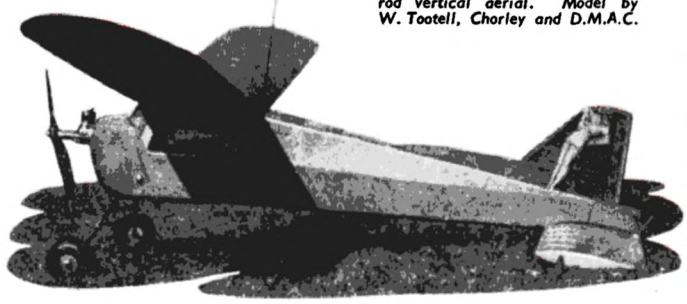
Component	*Model A*	*Model B*	*Model C*	*Model D*
Fuselage:				
Longerons ...	⅛×⅛	⅛×⅛ or ⅛ sq.	⅛×⅛ or ⅛ sq.	—
Stringers ...	—	—	⅛ sq. (nose)	(16) ⅛ sq.
Formers ...	—	—	⅛ sheet	Laminated
Covering ...	Modelspan	Modelspan	Modelspan	⅛×⅛ Jap tissue
Wings:				
Type	Multi-spar or monospar	Multi-spar or monospar	Monospar	Monospar or sparless
Sheeting ...	L.E. & T.E.	L.E. & T.E.	—	—
Spars	⅛×⅛ or ⅛ sheet	⅛×⅛ or ⅛ sheet	⅛ sheet	—
Covering ...	Jap tissue	Jap tissue	Jap tissue	Jap tissue
Tailplane:				
Type	Multi-spar or monospar	Multi-spar or monospar	Monospar	Monospar or sparless
Spars	⅛ sq. or ⅛×⅛	⅛ sq. or ⅛×⅛	⅛ sheet	—
Covering ...	Jap tissue	Jap tissue	Jap tissue	Jap tissue
Undercarriage:				
Legs	16 s.w.g. wire	⅛×⅛ bamboo 16 s.w.g. or wire	⅛×⅛ bamboo	⅛×⅛ bamboo
Wheels... ...	1" dia.	1¼" dia.	1½" dia.	1¾" dia.

TABLE II. COMPONENT WEIGHT (ozs.)

Component	*Model A*	*Model B*	*Model C*	*Model D*
Fuselage:				
Uncovered ...	⅜–1	1	1–1⅛	1–1⅛
Covered ...	1–1⅛	1⅛	1⅛–1⅜	1⅛–1⅜
Wings:				
Uncovered ...	⅜–1	⅜–1	1	1–1⅛
Covered ...	1–1⅛	1–1⅛	1⅛	1⅛–1⅜
Tailplane:				
Covered	⅛–⅜	⅛–⅜	⅛–⅜	⅛–⅜
Fin:				
Covered ...	⅛–⅜	⅛–⅜	⅛–⅜	⅛–⅜
Undercarriage	⅜–⅝	⅜–⅝	⅜–⅝	⅜–⅝
Propeller ...	⅜–⅝	⅜–⅝	⅜–⅝	⅜–⅝
Prop-assembly	1–1½	1–1½	1–1½	1–1½
Rubber ...	4–4½	4–4½	4	4

* *Note: These generalised figures are based on total area of 300 sq. ins. These must finally be reduced to 294·5 sq. ins.*





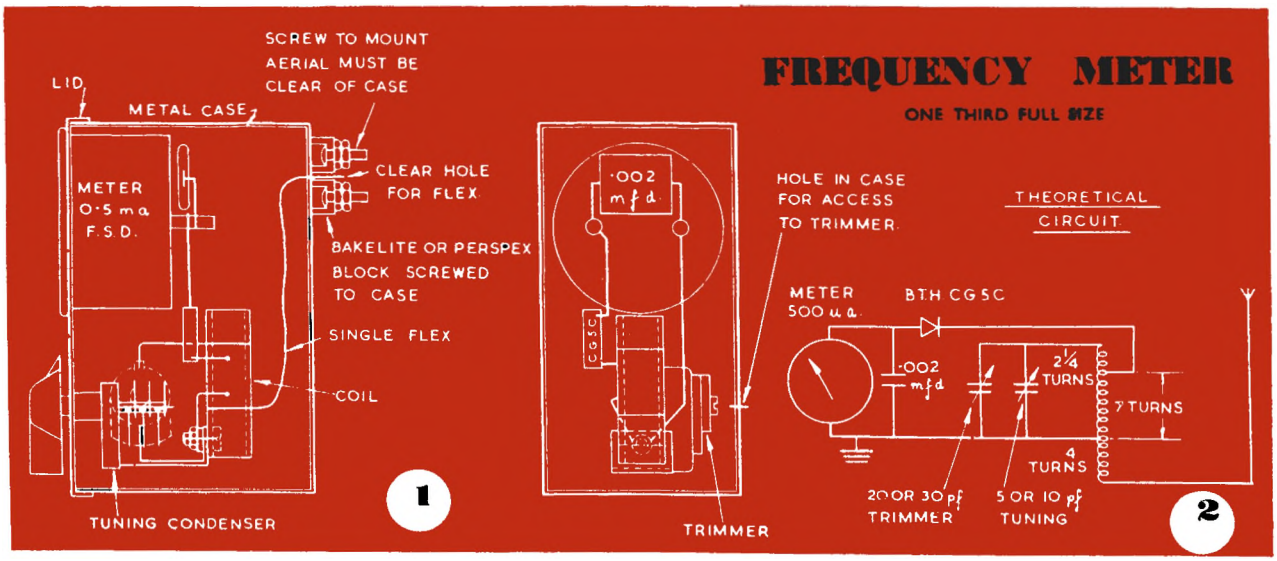
This 63 oz. Amco 3·5 powered "Citizen" is equipped with E.D. Mk. III radio. Note the welding rod vertical aerial. Model by W. Tootell, Chorley and D.M.A.C.

FIRSTLY may I wish all readers a Very Happy Christmas, and may you all receive those items of equipment you so much desire, among your Christmas presents.

A FREQUENCY METER

Our old friend George Honnest-Redlich has offered his own frequency meter for description, and it is shown in Fig. 1. This is a first class type, and very similar to that recommended by the International Radio Controlled Models Society, and Messrs. E.D. have offered to calibrate meters made to this design. (See their advert.) Fig. 2 shows the circuit. The tuning coil consists of 13¼ turns of 18 gauge copper wire spaced to a length of one inch on a half inch diameter paxolin tube, the tube being 1¾ inches long. The winding must be tight, and well fixed in place with cellulose cement. This coil must be rigidly mounted off the tuning condenser or the case. The tuning condenser must be fixed firmly to the case. In fact everything must be firmly fixed, and all joints must be well soldered. A tuning condenser of five pf capacity will cover the allotted band in about a quarter of a turn. The knob with a pointer should be fixed so that the pointer is straight for the meter when the vanes are half way in. A scale should be provided under the pointer, but fixed by two screws in such a way that it can be removed and replaced without taking the pointer off. The meter should give a full scale deflection at 500 micro-amps, or in other words 0·5 milliamps. There have been a number of these meters on the "surplus" market, some of them being marked on the dial from 0–15 and 0–600. Some of them have been sold in a used condition for as little as 3s. 6d., and have proved satisfactory. The crystal detector is the B.T.H. Co. C.G.5C and may be the most expensive item.

If a suitable case is not to hand, one should be made from sheet aluminium, though brass or tin could be used. The case shown in Fig. 1 is as small as can be used conveniently, and a quarter of an inch wider and longer, makes it easier to get the parts in. A hole is first required in the lid for the meter, and the size will depend on the meter used. So also will the fixing, some being made with a square flange with four bolt holes, and some have no apparently simple means. A clip can be made from a strip of metal wrapped round the meter and pushed up to the back of the lid, or a square plate with bolt holes in the corners and a peep hole for the scale can be bolted on the front. A hole will also be required for the tuning condenser and any necessary fixing screws. These will depend on the particular condenser used. After fitting the meter and condenser, the tuning coil and trimmer can be added. The earth tap on the coil is four turns from the aerial end and should be connected to the earthed side of the tuning condenser. This connection is then taken to the negative terminal of the meter. The coil is tapped next at eleven turns from the aerial end and taken to the crystal detector to the positive side of the meter. (Note that the red end of the detector goes to the meter positive.) The far end of the coil goes to the free end of the tuning condenser. The trimming condenser should be the disc type ceramic and the tag at the disc end should go to the earth side of the tuning condenser. The condenser across the meter terminals is not critical and can be as little as ·0005

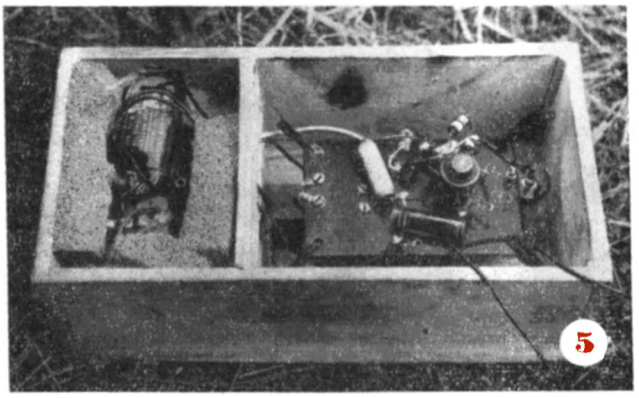


mfd. The block of bakelite or perspex to support the aerial must be arranged so that the screws are well clear of the case. Holes in the case opposite the screws will help, and a large hole should be provided for the flex lead to the bottom of the two screws. This lead is soldered to the coil, and then passed through the hole when the case and lid are put together. The aerial is made from a piece of aluminium tube about 3/16 or 1/4 inch diameter, flattened, and drilled at the bottom for the mounting screws. A 3/8 inch hole will be needed in the case just opposite the screwdriver slot in the trimming condenser. Fig. 3 shows the original meter with a somewhat similar one made by the writer alongside. Fig. 4 shows a view of the original meter with the case removed. For tuning this meter a crystal controlled transmitter or signal generator is required. The tuning knob is then set central and the meter tuned with the trimmer. It is then checked by tuning with the tuning condenser, and the scale under the pointer marked. With a suitable signal generator it is possible to mark the whole band width allowed for model control. Such a meter should be used to check the transmitter practically every time it is set up for use, and of course it should be in full operating condition with aerial and push button, and earth lead if used.

The writer tested a number of transmitters at Fairlop on the day of the Taplin Trophy, and found only two besides his own within the allotted band. Not all the transmitters were tested, but the two who were playing the game properly were Chuck Doughty and Hook Brothers transmitter. Suppose the Post Office people had turned up to make a check, as they did at Fleetwood, many entrants would not have dared to fly since they had no means of correcting their transmitters. The " pirates " should realise that they stand to lose in the long run. On the Sunday morning a number of radio control enthusiasts, mostly West Essex, it seemed, turned up and took their turn in a friendly way. With such behaviour everyone can operate on the correct frequency and have their bit of fun. It is possible that one day a wider band will be allowed, and if so we shall all be happier, but abusing our present privilege will not help matters.

NOVEL RECEIVER MOUNTING

One of the most interesting items seen at Fairlop was the receiver installation used by Max Coote, and is shown in the photo., Fig. 5. A partitioned box which formed part of the bottom of the fuselage was easily detachable, and was slipped out in a moment. In one compartment was the receiver using a Hivac XFG1 valve. The other compartment contained a Venner accumulator for low tension supply, the usual 45 volt H.T. battery, and the escapement battery. All the batteries were packed in with sponge rubber. All sockets and switches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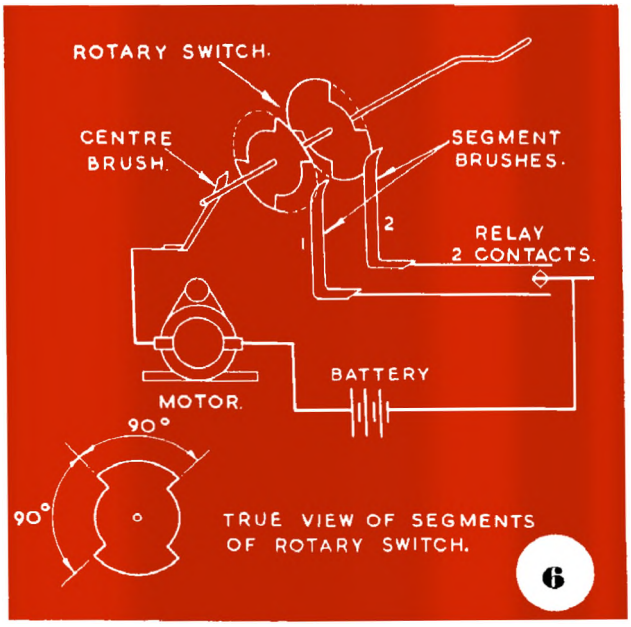

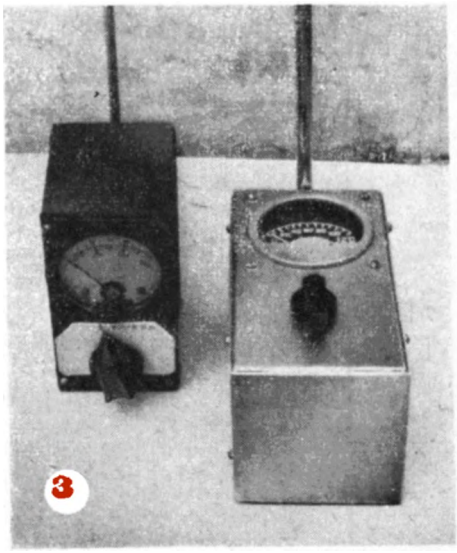
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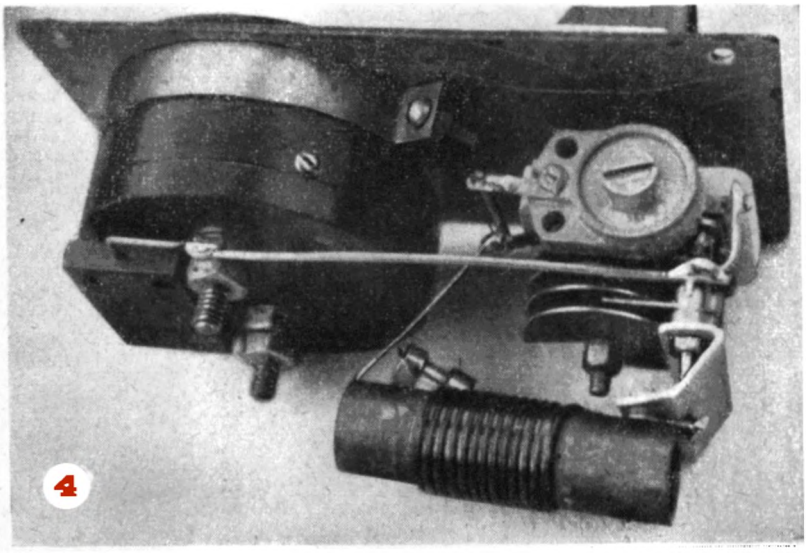
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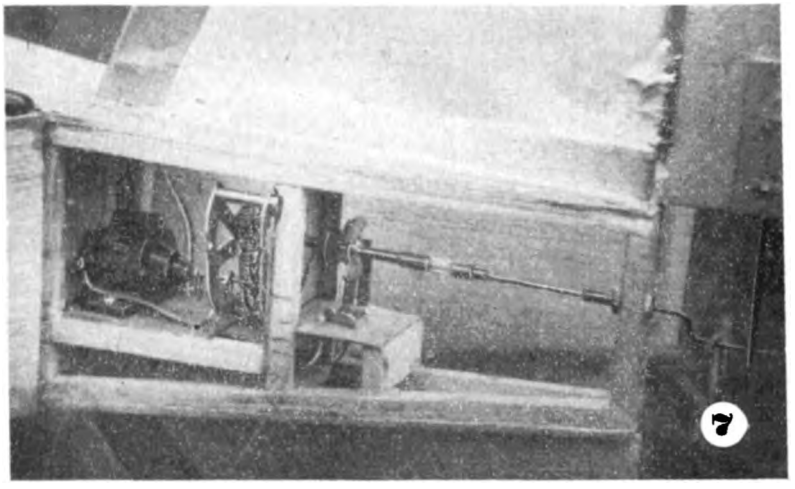
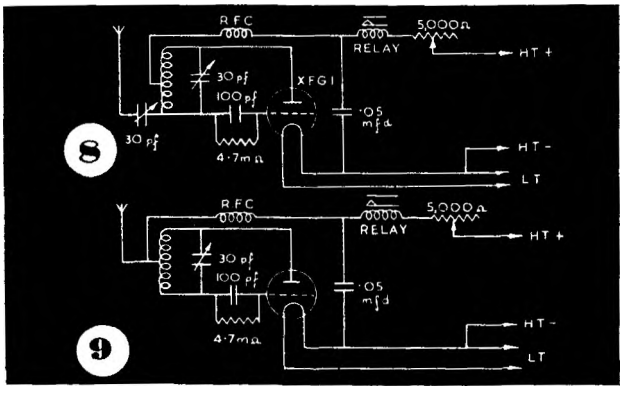


were built into the box so that only the aerial and leads to the escapement had to be detached from the rest of the model. Such an arrangement is very convenient for the experimenter.

Another item of interest from Fairlop was the motor driven self neutralising actuator that Alec Wilson had put into his tailless model. This is shown in the photo., Fig. 7 and a diagram of the working is shown in Fig. 6. The segments of the rotary switch are soldered to the crank shaft used to operate the rudder so that they make contact with each brush in turn, and in such a position that as each contact breaks the crank takes up a neutral, or full turn position. It is necessary to use a relay with two contacts so that one is made with no signal, and the other is made with a signal. The motor is coupled to the crank shaft through a reduction gearbox, made from the works of a clock. The motor is a Mighty Midget. Referring to the diagram, suppose the relay makes No. 2 contact, electricity will flow through No. 2 brush and segment, shaft, centre brush, and motor, and rotate the shaft until the segment breaks contact. The motor will stop but No. 1 contact will have just made. Now as soon as the relay makes on contact No. 1 the motor will rotate another quarter turn until No. 1 segment and brush break contact. The clock gearbox was put in to make sure the power would be sufficient to operate the rudder, but it has been found to be a bit slow, taking about two seconds to move the rudder after pressing the button. These motors give quite a lot of power and the built-in gearing would probably be enough for most models. Incidentally, it is possible to obtain these motors wound for 1½ volts. The writer has had one of these working satisfactorily for some months in a radio controlled model.

THE XFG1 VALVE

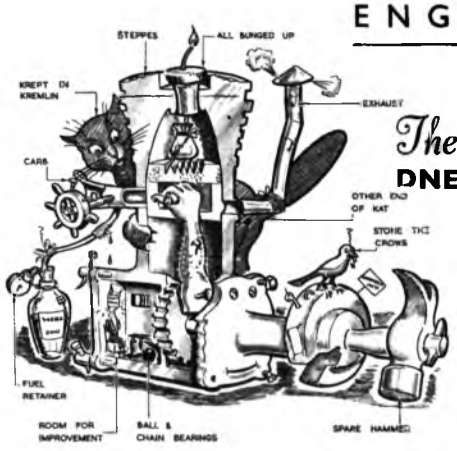
In the August issue of the AEROMODELLER, Mr. Baylis mentioned the short life of the Hivac XFG1 valve, yet at Fairlop it seemed that nearly everyone used the XFG1, and most people appeared to accept the short life as part of the price of radio control. The chief advantage of the Hivac valve is that it allows the construction of slightly lighter equipment. The lightest receiver using a Hivac valve so far made by the writer weighs 1⅛ ozs. complete with relay, but no wiring. The lightest using a hard valve, (Mullard DL 94) weighs 2 ozs. The lightest complete equipment, that includes all batteries, actuator and wiring is just under 6 ozs. With the hard valve receiver the total weight would be 7 ozs. The model in which the lightest equipment is fitted would just about be sunk by that extra ounce, the model being only 30 inches span and powered with a Mills ·75 c.c. engine. With larger models there is still lots of attraction for the lighter equipment since there is less likelihood of damage in rough landings. There is also very real attraction in the small size of the Hivac valve, and the anode current dropping to zero is very pleasing. Since the high cost of the XFG1 is due mostly to its short life, it is worth while examining ways of prolonging this life. The writer had one XFG1 valve in use for nearly all his flying from the beginning of February to the end of August and flying took place nearly every calm Saturday, Sunday, and light evenings during that time. The valve eventually came to grief in a rough landing through not being anchored sufficiently to the receiver panel. It had faded out on a number of occasions but was resurrected. When new, results were very disappointing, the range being only about a tenth that of the RK 61, and about half that of the Cossor receiver. After some experiments the valve suddenly gave up working in the receiver used, the anode current failing to rise above ·4 m.a. It seemed a pity to throw the valve away as the glass and filament were intact so it was mournfully put on one side. A little later it was tried in a slightly different receiver and it worked. The difference in the receiver was a smaller tuning coil and larger tuning condenser. It was found that by increasing the tuning condenser from zero, a point was reached where the anode current went up with a jump. By adjusting the tuning coil to tune to the correct frequency just after the current had jumped up, the receiver worked much better, giving greater range than the Cossor. Too small a coil with too much condenser reduced efficiency.



This receiver worked satisfactorily for some time, but eventually the anode current slowly fell. By taking a turn or two off the tuning coil and increasing the condenser the valve gave another period of service until it was left on by accident after a crash for five hours. On discovering this it was immediately tested to see if the batteries had run down much, and it was found that the anode current was reading 0·8 m.a. to which it had dropped from 1·3 m.a., the normal anode current at which the valve was used. When tested for operation however, the current could not be made to rise above the 0·8 m.a. and would not drop below 0·4 m.a. The circuit for the receiver used so far is shown in Fig. 8 but now, a new receiver was built with the circuit shown in Fig. 9. The main difference is the aerial connection, but the tuning coil again had to be adjusted. Incidentally, tuning coils with dust iron cores were used as they were slightly lighter and were not bent or distorted in a crash. Practically a season's flying with one valve is surely not to be grumbled at.

All Hivac valves have not been like that, though reports indicate that the later ones behave much that way. The writer has not had a Hivac valve since March but has been able to help readers to obtain good results with later valves. Early valves may be difficult to deal with. The writer has five, two of which were presented to him for experimental purposes, and the other three were purchased. Despite a great deal of experiment none of these have given a range of more than one hundred yards with a five watt transmitter. Strangely enough one of the unsuccessful valves works well on a higher frequency, so it is still hoped to coax it into respectable working order when time permits.

ENGINE ANALYSIS



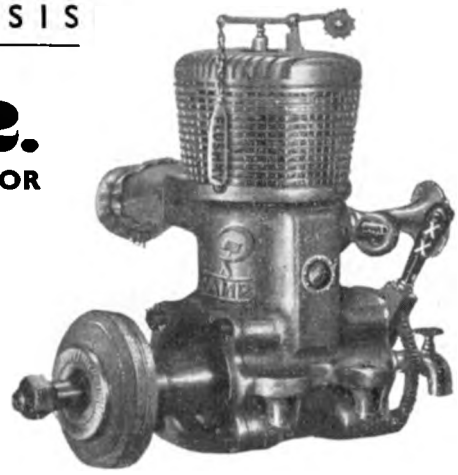
The A.M.P.2.

DNEISOV-GLOVITCH MOTOR

by

LORENZSKI SPARIOVITCH

We regret that owing to illness Mr. Sparey has been unable to complete his usual test this month. We therefore called upon the resources of that other well-known stroboscopic manipulator who strangely enough, since concluding this test, has completely disappeared from public life, following a call from two bearded gentlemen in bowlers.



THIS engine by the celebrated firm of Abramov Mercurivitch Pastoyu was smuggled out in great secrecy accompanied by 3,172 gold watches and the Wakefield results when our editorial staff returned by car from Finland. Since submitting preliminary reports of our tests with a request for replacement parts to the Kremlin, no less than four successive directors of light engineering have been liquidated, whilst a fifth is said to be on a prolonged fishing holiday somewhere between Wapping Stairs and the Siberian Steppes. We are therefore somewhat loth to publish results that we have achieved with the A.M.P.2. in view of the threatening attitude taken up by the bailiff and the telephone enquiry bureau. We are sure it was no coincidence that caused her to express that sinister regret at our being roubled (*sic*).

To proceed with the test—at an output of over 800 stakanovite man-hours producing 4,500 revolutions per annum not counting abortive attempts nipped in the bud by the O.G.P.U. —the screams of the tortured metal, neighbours and political opponents were too dreadful to be endured. After damping down shocks with vodka items two and three ceased to matter, and our first report on metal fatigue was referred back to the gremlin, sorry Kremlin, for at this point the tortured metal confessed and was allowed to plead guilty. So did the first director of light engineering (aeromodelling sub-section archangels, subversive, for the use of) causing some delay in continuing the test.

A careful study of the five-year plan convinced us that this period had no connection with any current F.A.I. records claimed but related either to generous hire-purchase terms available to Sub-Corrosive-Klots or waiting list for delivery. Peking round the iron curtain included with the spares which was intended to protect the engine from the tester or vice versa we found that extensive reparations were necessary. Steppes were accordingly taken to remedy this. Unfortunately the remaining director of light engineering fell off the top and was liquidated.

Owing to unsuspected sabotage by capitalist inspired editorial staff in search of bourgeois Christmas raises it was only at this point discovered that technical editor had omitted to fuel up engine or put on airscrew but had achieved his stundendous results by swinging on the torque bar and drinking in the public bar. This wishful drinking caused the acute depression registered on the attached curve and coincided with disappearances of directors two, three and four giving a fine saw-toothed curve typical of steppe country—mind the steppe — or the Caretaker of the Kremlin. Any resemblance that this report may have to the truth is purely coincidental and has no reflection on the normal careful habits of those preparing it or has it!

GENERAL CONSTRUCTIONAL DATA

Retail Price: 3,000,000 roubles.

Delivery: No rouble at all to stag party members.

Spares: 1 ton misc. included.

Specified Fuel: Samovar distilled triple swilled synthetic vodka, one for you and two for me.

Capacity: Quite incapable.

Mounting: Get up them steppes.

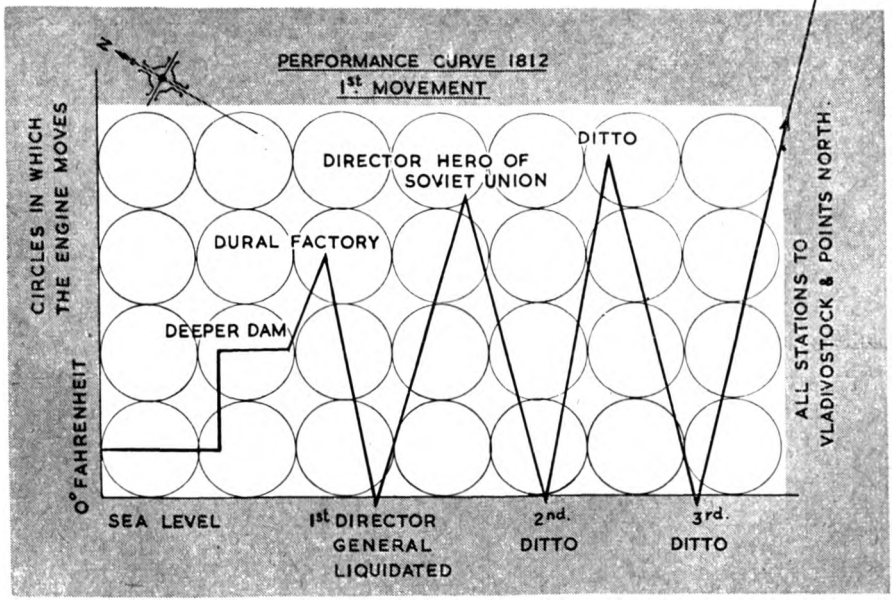
Bore: Very. **Stroke:** Not a.

Crankcase: Yes.

Connecting Rod: No connection with anyone living or dead.

Main Behring: In Straits.

Special Features: Broken nose and beard.



Senior Champion J. A. Gorham, of Ipswich.

1950 WINNERS ANALYSIS

Produced with the co-operation of thirty-three of Britain's most expert aeromodellers, we offer this analyis for the guidance of 1951aspirants. They will, no doubt, welcome this revelation of hitherto rreserved details and benefit by the vital facts made available by the experts.

Junior Champion D. H. Rumley of Kentish Nomads.

Span	Average Chord. ins.	Wing Area. sq. ins.	Weight. ozs	Length. ins.	Contest Duration. secs.	Name and Club
44½	5⅝ max	209	8¾	36½	413	E. SMITH ICARIANS
42	5½	208	8¼	37	824	R. PARHAM WORCESTER
43½	6½ max.	202	8·1	34	753	F. HOLLAND SWANSEA
46	5	205	8½	35	378	R. COPLAND N. HEIGHTS
38	4·6	160	6	29½	167	Miss D. J. KNIGHT KENTISH NOMADS
44	5½	207	8½	34½	776	J. B. KNIGHT KENTISH NOMADS
46	5	205	10½	36	449	R. COPLAND N. HEIGHTS
38	4½	150	6·2	31	337	D. H. RUMLEY KENTISH NOMADS

48	6	576	—	35	—	E. YEAXLEE PORTSMOUTH
83	8½	607	21	—	512	A. R. LUCAS PT. TALBOT

RUBBER CONTESTS

GAMAGE CUP.—Decentralised, April 9th, flown at Eaton Bray; total of 45 entries; model, a Clipper; 18"×2½"×1½" prop. blank, free-wheeler; fourteen strands Dunlop ¼"×1/24" rubber, 48" long, White "rope" tensioning; hook at prop., bobbin at rear; maximum turns 920; Super Model Aircraft Supplies lubricant; motor run, 75 secs.; diamond fuselage, ¼"×¼" longerons; 14½" between T.E. wing and L.E. tailplane; 16 s.w.g. loop skid; modified R.A.F. 32 at 4° on wing, thin Clark Y tail at neutral; 50% C.G.; fuse operated tip-up tail D/T; construction started 1st January, finished in 5 weeks; Jap tissue, two coats Super Model Aircraft Supplies clear dope.

GUTTERIDGE TROPHY.—Area semi-centralised, April 16th, flown at Walsall; total of 417 entries; model a "Damselfly", design by R. T. Parham; high-wing Wakefield; 18" 2"×1½" prop. blank, free-wheeler; eighteen strands American T56 rubber, ¼"×1/30", 44" long, white "rope" tensioning; bobbins at front and rear; maximum turns 900; Jasco lubricant; motor run 70 secs.; diamond fuselage, ⅛"×¼" longerons; 13¼" between T.E. wing and L.E. tailplane; 16 s.w.g. piano wire loop skid undercarriage; Davis wing-section at 5° on wing, thin Clark Y at neutral on tail; 60% C.G. position; fuse operated tip-up tail D/T; two coats Titanine clear dope.

WESTON CUP.—Area semi-centralised, May 14th, flown at Swansea, total of 290 entries, model a "Zombie;" 18"×2"×1½" prop. blank, free wheeler; 14 strands Dunlop ¼"×1/24" rubber, 43" long, white "rope" tensioning; bobbins at front and rear; maximum turns 850; Super Model Aircraft Supplies lubricant; 65 secs. motor run; slab sided fuselage ¼"×¼" longerons; 11¾" between T.E. wing and L.E. tailplane; wire loop skid undercarriage; Joukowski wing section at 4°, thin Clark Y tail at neutral; 45% C.G. position; fuse operated tip up tail D/T; model built in 60 hours this year; two coats Greenhalgh Model Shop clear dope on wings, three coats on fuselage.

MODEL AIRCRAFT TROPHY.—Centralised, May 28th, flown at York; total of 113 entries; model designed by R. Copland; shoulder-wing Wakefield; 18"×2"×1½" prop. blank, free-wheeler; fourteen strands Dunlop ¼"×1/24" rubber, 47" long, White tensioning; bobbins at front and rear; maximum turns 1,000; castor oil lubricant; motor run 90 secs.; slabsided fuselage, ¼"×¼" longerons; 14" between T.E. wing and L.E. tailplane; plug-in bamboo u/c; R.A.F. 32 at 3° incidence on wing, thin Clark Y tail at minus 2°; 40% C.G. position; fuse operated tip-up tail D/T; two coats Cellon dope; streamlined nose with large spinner on slab-sided fuselage.

WOMEN'S CHALLENGE CUP.—Centralised, May 28th, flown at York; total of 7 entries; model designed by brother J. B. Knight; 15"×2"×1½" prop. blank, free-wheeler; ten strands Dunlop ¼"×1/24" rubber, 36" long White "rope" tensioning; hooks at front and rear; maximum turns 800; castor oil lubricant; motor run 45 secs.; slab-sided fuselage, ⅛"×¼" longerons; 12" between T.E. wing and L.E. tailplane; no undercarriage; Joukowski wing-section at 3° on wing, thin Clark Y tail at minus 1°; 50% C.G. position; fuse operated parachute dethermalizer; built in 30 hours during Spring, 1948; two coats Joy Plane clear dope.

PREMIER SHIELD.—Centralised, June 11th, flown at Fairlop; final eliminator for Wakefield Team selection; model designed by J. B. Knight; 18"×2"×1½" prop. blank, free-wheeler; 14 strands Pirelli ¼"×24" rubber, 44" long, White "rope" tensioning; hook at prop., bobbin at rear; maximum turns 900; castor oil lubricant; motor run 55 secs.; slab-sided fuselage ¼"×⅛" longerons; 13¾" between T.E. wing and L.E. tailplane; wire prong undercarriage retracts; Joukowski wing-section at 4° on wing, thin Clark Y at neutral on tail; 50% C.G. position; tip-up tailplane D/T; built in 40 hours; two coats Joy Plane clear dope; wings are slightly swept back.

FLIGHT CUP.—Decentralised, September 17th, flown at Fairlop; model designed by R. Copland; shoulder-wing Wakefield; 18"×2"×1½", free-wheeler; sixteen strands Pirelli ¼"×1/24" rubber, 47" long, White "rope" tensioning; bobbins at front and rear; maximum turns 900; castor oil lubricant; motor run 90 secs.; streamlined fuselage; 24", ⅜"×⅜" stringers; 14" between T.E. wing and L.E. tailplane; plug-in bamboo undercarriage; Davis wing-section 3½° on wing, thin Clark Y tail at minus 1½°; 40% C.G. position; fuse operated parachute dethermalizer; built in 1948; two coats Cellon clear dope; this model was used in the WAKEFIELD TEAM, 1948.

FROG JUNIOR CUP.—Decentralised, September 17th, flown at Fairlop; model a "Thermal Thief" designed by D. H. Rumley; 15"×2"×1½" prop. blank, free wheeler; 12 strands Dunlop ¼"×1/24" rubber, 30" long, White "rope" tensioning; hooks at front and rear; maximum turns 700; castor oil lubricant; motor run 45 secs.; slab sided fuselage, 3/16"×3/16" longerons; 12" between T.E. wing and L.E. tailplane; one bamboo leg; Joukowski wing section at 3½°, thin Clark Y tail at neutral; flip-down tailplane D/T; model built in 50 hours; two coats Joyplane clear dope

PRECISION AND TAILLESS

THE BOWDEN INTERNATIONAL TROPHY.—Centralised, August 6th, flown at Fairlop, total of 25 entries; model, a "Pompey III" designed by E. A. Yeaxlee; a biplane with average power/duration ratio of 3 : 1; finished with two coats O-My colour dope; C.G. at 50% of upper wing; 22" between C.G. and L.E. tailplane; Stant 10"×6" propeller; lower wing was 35" span for contest; designed around an old pair of wings and undercarriage. E.D. II Diesel.

THE LADY SHELLEY CUP.—Decentralised, April 30th, flown at Bryn Maesteg; model designed by A. R. Lucas, known as "Aden Y Gwylan" (the Gull wing); total of 17 entries in contest; own design wing section; long, dihedralled centre section, and flat tip portions; two fins, one at each junction of centre section and tip; two coats Veron clear dope; built in the first three months this year for experimental purposes; model since lost, o.o.s. over Bristol Channel; feature moveable tabs on tips for wash out adjustment.

GLIDER CONTESTS

Span, ins.	Average Chord, ins.	Wing Area sq. ins.	Weight, ozs	Length, ins.	Contest Duration, secs.	Name and Club
71	7¼	512	18	42	260	R. MONKS BIRMINGHAM
61⅜	6⅜	395	14½	42⅜	736 499	R. N. YEABSLEY CROYDON
96	12	990	56½	68	407	K. NICOLL BLACKPOOL
60	8·6	524	14½	46	765	M. L. HANSON SOLIHULL

PILCHER CUP.—Decentralised, April 9th, total of 50 entries; bad weather conditions; model designed by R. Monks; aspect ratio 9·8; 17" between T.E. wing and L.E. tail; 11" between nose and L.E. wing; 45% C.G. position; Joukowski wing section at 2½°, thin Clark Y tail at neutral; slab sided fuselage; parachute D/T; flown off fish line towline; four coats Model Aerodrome clear dope on fuselage, one coat on wing plus two coats banana oil; built in 30 hours August, 1949; features auto-rudder, wing riblets, Jaguar style wing mounting; placed first 1949 AUTUMN MIDLAND RALLY, first PILCHER Midland Area, 1949, second DAILY DESPATCH RALLY, 1950.

K. & M.A.A. CUP & THE S.M.A.E. CUP.—The former Area semi-centralised May 14th, 312 entries, latter decentralised September 17th, 22 entries; at Fairlop; the model a "Revenge" designed by R. Yeabsley; aspect ratio 9·63; 26½" between T.E. wing and L.E. tail; 8¾" between nose and L.E. wing; 45% C.G. position; Gottingen 532 wing section at 3°, tail at neutral; streamlined fuselage; pop up tail D/T; flown off Irish linen towline; two coats O-My clear dope, two coats O-My red dope on fuselage only; model built in December, 1949; (features completely underslung fin and rudder, auto rudder; besides winning the above two National contests, this model also won the A/2 glider contest EATON BRAY INTERNATIONAL WEEK.

THURSTON CUP.—Centralised, May 28th, flown at York; total of 234 entries; model designed by K. Nicoll; aspect ration 8·1; 40⅜" between T.E. wing and L.E. tail, 20" between nose and L.E. wing; 80% C.G. position; Banedek 86356b wing section at 5½°; thin Clark Y tail at 1½°; streamline fuselage; parachute D/T; four coats unspecified dope, built during winter, 1949.

AEROMODELLER A/2 TROPHY.—Centralised, flown at Fairlop June 11th, model a "Swan", designed by M. L. Hanson; aspect ratio 8·6; 22" between T.E. wing and L.E. tail; 12" between nose and L.E. wing; 50% C.G. position; own design wing section at 2°, tail at neutral; pop up tail D/T; slab sided fuselage; flown off nylon towline; five coats Joyplane clear dope; built in 12 hours during May, 1950; of four contests entered, this model gained three first places; first in NORDIC TRIALS, first MIDLAND AREA RALLY, first PERSHORE RALLY.

POWER DURATION CONTESTS

60	8½	470	12	36½	639 16·3 ratio	N. G. MARCUS CROYDON
46	8	340	14	36	356	J. A. GORHAM IPSWICH
36	6⅜	213	10	26½	835	G. COLE UPTON PARK

HALFAX TROPHY AND ASTRAL TROPHY.—Both area semi-centralised, the former April 16th 455 entries, the latter September 3rd 220 entries, both flown at Fairlop, model, a "Jaded Maid", designed by N. G. Marcus; pylon lightweight; Elfin 2·49 Mk. I diesel, mounted side-winder; 9" × 4¾" plastic Tru-flex prop.; Roadway diesel fuel; 1" × 1" × 1" fuel tank with cut-out attached, connected to Elmic diesel timer; slab sided fuselage; own design wing sections at 4° on wing and 11° on tail; wing mounted 6" above fuselage datum; parachute D/T 15" diameter; 18½" between T.E. wing and L.E. tail in plan; 70% C.G. position; polyhedral 6" at tip; single 16 s.w.g. peg leg undercarriage; 2° downthrust; knock off engine mount; covered with Japanese tissue, one coat O-My clear dope all over, plus one coat coloured, one coat banana oil on fuselage, two coats thin banana oil on wing and one coat thin banana oil on tail; model climbs right, glides right; apart from the above two National contests, this model has also placed first 1950 SOUTH WILTSHIRE RALLY, ninth HAMLEY TROPHY, first SOUTH COAST GALA.

SIR JOHN SHELLEY CUP.—Centralised, May 29th, flown at York; total of 268 entries; model, a "Contender", designed by J. A. Gorham; pylon medium weight; Elfin 2·49 Mk. I diesel mounted upright; 9½" × 6" prop.; Mercury No. 3 diesel fuel; modified slipstream fuel tank; cut-out attached to needle valve body and connected to Elmic diesel timer which also flicks auto rudder; X construction fuselage; N.A.C.A. 6409 wing section at 5°, thin Clark Y tail at 3°; pop up tail D/T; 20" between T.E. wing and L.E. tail in plan; 70% C.G. position; polyhedral, 5" at tip; 12 s.w.g. separate undercarriage legs plug into fuselage; motor offset 3° right; model built in three evenings, covered with heavy weight rag on fuselage, modelspan wing and tail; two coats I.C.I. clear dope all over; model averages 18 : 1 ratio in still air regularly; features auto rudder operating when engine stops; this model also placed first 1950 ALL HERTS RALLY, fourth 1950 INTERNATIONAL POWER CONTEST Eaton Bray, fifth KEIL TROPHY, 1950, tenth HALFAX TROPHY 1950, first, JACK REID CUP (Ipswich) 1949 and 1950, second, EAST ANGLIAN RALLY 1950; design also placed first INTERNATIONAL POWER CONTEST Eaton Bray 1950, second KEIL TROPHY, and sixth HALFAX TROPHY, 1950.

THE HAMLEY TROPHY.—Decentralised, June 25th flown at Fairlop; total of 88 entries; model an A.P.S. "Hi-Ball", designed by Pete Neate; pylon light weight; Mills 1·3 Mk. II mounted upright; 8" × 8" prop.; Mills ·75 tank; Mills diesel fuel; streamlined fuselage; Clark Y sections, 5° on wing, tail at neutral; no D/T; 14½" T.E. wing to L.E. tail; 60% C.G. position; polyhedral, 5" at tip; 14 s.w.g. U/C; motor at neutral; model made in 15 hours; covered with modelspan; two coats Titanine clear dope on fuselage, one coat wing and tail; modal features pylon sheeted with 1 mm. ply, otherwise built exactly to drawing.

RADIO CONTROL CONTESTS

Span, ins.	Length, ins.	Weight, ozs.	Wing Area, sq. ft.	Wing Loading, oz. sq. ft	Name and Club
72	38	72	648	16	R. BIRKHEAD ST. GEORGES HEIGHTS
62	40	50	580	12·4	G. HONNEST-REDLICH BUSHY PARK
96	—	—	—	—	F. ASHDOWNE SOUTHEND
96	56	88	1,000	12·6	P. C. DOUGHTY BIRMINGHAM
72	51	64	700	13	D. ALLEN WEST ESSEX

THE RIPMAX TROPHY.—Area semi-centralised, April 16th, 31 entries, triple tie for first place; two flying at Fairlop, Mr. Birkhead at Epsom; Mr. Birkhead's model a "Rudder Bug" designed by Dr. Walter Good; E.D. Mk. IV 3·46 c.c. diesel; 11" × 5½" Truflex plastic prop.; own design transmitter using 6 volt supply vibrator pack, 7193 valve; modified Mercury Cossor receiver with Sigma type relay; E.C.C. standard escapement; rudder control only; finished with Joyplane clear dope and Keil Kraft red dope; built in 1949; maximum tank capacity 15 minutes; transmitter has horizontal dipole aerial.

Mr. G. Honnest-Redlich's model, "Electron V"; E.D. 2·46 c.c. diesel; E.D. hydulygnum 10" × 5" prop.; modified Clark Y wing section; 5 sq. ins. rudder area; E.D. Mk I transmitter; three valve E.D. prototype light weight receiver; prototype E.D. escapement; two coats clear Cellon dope and one coat colour, built in 40 hours during May, 1949; model features removable battery box, sprung undercarriage, fuselage 2/3rds sheeted, has made over 600 flights; this model placed second 1949 FRENCH INTERNATIONAL, second 1949 DAILY DESPATCH RALLY, fourth 1949 TAPLIN TROPHY, first 1950 HAMPSHIRE RALLY, third 1950 MERCURY COSSOR TROPHY.

Mr. Ashdowne's model, a Keil Kraft "Falcon", unspecified equipment; Anderson "Spitfire".

S.M.A.E. R/C TROPHY.—(Mercury-Cossor), Centralised, May 29th, flown at York, 49 entries; model a modified "Stentorian", designed by P. H. Smith; Forster 29 ignition engine, 11" × 5½" Truflex plastic prop.; E.C.C. standard transmitter, E.C.C. standard receiver; Ruddervator two speed ignition control plus Ruddervator; finished with O-My clear dope, and completed in January, 1950; similar model won same contest 1949.

THE TAPLIN TROPHY.—Centralised, August 7th, flown at Fairlop, 28 entries; model a "Radio Rebeller", designed by D. Allen; Frog 500 glow-plug engine, 10" × 8" Truflax plastic prop.; Standard Flight Control transmitter; Standard Flight Control receiver, each built from kits; modified Mercury Cossor escapement using 2 strands ¼" rubber power and two pawls; using rudder control only (7½ sq. ins. area); three coats Titanine glider dope, plus one coat Titanine red dope and fuel proofed; built in 125 hours February, 1950; fifth in MERCURY COSSOR; features wire flex braced wings, 8 : 1 thickness ratio wing section, semi-symmetrical.

CONTROL LINE CONTESTS

Span, ins.	Wing Area, sq. ins.	Weight, oz.	Length, ins.	Wing Loading, oz. sq./ft.	Contest speed	Name and Club
40¾	273	20	28½	10·5	—	B. G. HEWITT S. BIRMINGHAM
38	275	17½	22½	9·1	—	P. RIDGEWAY MACCLESFIELD

GOLD TROPHY.—Centralised, May 27th, 49 entries; flown at York; model a "Stunt Queen" designed by B.G. Hewitt; Yulon 29 glow-plug engine mounted side winder; 9" × 6" Truflo prop.; Champion long reach glow-plug; record power plus fuel; balloon tank; N.A.C.A. 0014 wing section; mid wing; fixed and faired undercarriage; 2° motor offset, 2° fin offset, rudder 10° offset; 20% C.G. position; half oz. wing tip weight; 65 feet line length; flies fairly light on lines at special manœuvres, three leaf clovers from upright and inverted; finished with three coats Kanga dope; built in 40 hours; model features wing and tail on thrustline, with dihedral to balance undercarriage drag below thrustline; placed third EUROPEAN INTERNATIONALS at Knokke, Belgium.

AREA SEMI-CENTRALISED STUNT.—Won at Bolton; model designed by P. Ridgway; motor a P.A.W. 3·5 c.c. diesel, mounted side winder; 9" × 8" P.A.W. prop.; circular P.A.W. tank, around main bearing; own fuel; 10% thickness wing section; mid wing; fixed undercarriage; no motor offset, 3° offset; 20% C.G. position; 2 oz. wing tip weight; 62½ ft. line length; special manœuvre four leaf clover; finished with H. Marcel Guest clear dope; built in 40 hours; model features hollow log fuselage, split elevators; placed sixth EATON BRAY INTERNATIONAL WEEK, second NORTHERN CHAMPIONSHIPS 1950.

AREA SEMI-CENTRALISED SPEED CONTESTS, July 9th.

10	19	4¼	9	36	80	R. SCOTT ST. HELENS
13½	33	9½	13½	41	77	G. RAE MALVERN
21	100	13	20	18·7	85·7	F. G. BUCK FIVE TOWNS
16	37	14	15½	54	107	F. GUEST COUNTRY MEMBER
17	65	28	24	62	97	P. KELSEY CROYDON
18	45	28	18	90	104	F. GUEST COUNTRY MEMBER

CLASS I.—Won at Bolton; model a "Tiniflyte", designed by R. Scott; Elfin 1·49 c.c. diesel engine, 6½" × 8" pitch own carved prop.; Baffle tank; fuel, 33% diesel oil 33% Castrol R 33% Ether plus 5% additive Amyl Nitrate; thin Clark Y wing section; 5° motor inset; mid wing; 0% C.G. position; flies very light on lines; has done 83 m.p.h.; ·008" Tungsten lines; take-off in under half lap, drop out U/C; finished with three coats Barron dope; built in 10 hours July, 1950; engine fins flattened, engine internally polished, jet modified; engine uncowled with fairing block.

CLASS II.—Won at Dudley; model a "46" designed by G. J. Rae; Elfin 2·49 c.c. diesel; Frog plastic 8" × 8" prop.; celluloid tank; Mills blue label fuel; 2° motor inset; mid wing; 7½% C.G. position; model flies fairly light on lines; has done 83 m.p.h.; 33 s.w.g. Keil Kraft lines; take off in three quarters lap; finished in six coats O-My colour dope, red and yellow; made in 11 hours in May; no mods. to engine; model features diamond fuselage, engine mounted inwards at 45° assymetrical wing and tail; fairing behind cylinder.

CLASS III.—Won at Dudley; model a "Phanco" designed by A. R. Buck, a modified Keil Kraft "Phantom"; Amco 3·5 c.c. diesel motor; 8" × 10" pitch Truflo prop.; own fuel; low wing; 33% C.G. position; flies with medium pull on lines; has done 94 m.p.h.; ·010" single strand line; take off in 8 ft.; finished with five coats of O-My dope; made in May, 1950; also placed second at Walsall, first at Blackheath and Halesowen (91 m.p.h.); model features one piece lead out wire with circular ball crank, all enclosed; engine internally polished.

CLASS IV.—Won at Chigwell; model a "Lindy" designed by F. Guest; Dooling 29 glow-plug motor; Stant 7½" × 9" pitch prop.; rectangular tank; 5 parts methanol, 1 part castor oil fuel; thin Clark Y wing section; no motor offset; mid wing; hand launched; flies very light on lines; has done 123 m.p.h.; ·011 inches Mercury three strand lines; takes off in 10 ft.; finished with two coats filler and two coats colour dope, one coat clear Marjonos fuel proofer; built December, 1949; no mods. to engine; has won its class in two contests entered, as above, and at ALL HERTS RALLY, prop. cut down from 8" diameter, 1½" copper spinner with ¼" steel backplate.

CLASS V.—Won at Chigwell; model designed by Peter Kelsey; McCoy 49 glowplug motor; McCoy glowplug; 9" × 11" pitch own carved prop.; half round tapered tank; 60% methyl alcohol, 30% castrol R 10% nitro benzine fuel; thin Clark Y wing section; no motor offset, high mid wing; dolly U/C with adjustable rear wheel; 0% C.G. position; flies light on lines; has done 124 m.p.h.; light laystrate lines; takes off in quarter lap; finished with four coats primer, six coats Titanine colour dope; built in Spring, 1950; no mods. to engine; placed second at BRIGHTON, first CENTRALISED SPEED; model features 20 gauge dural tailplane, one half elevator.

CLASS VI.—Won at Chigwell; model a "Pronto" designed by F. Guest; Dooling 61 glowplug motor; Stant 9" × 10" pitch prop.; rectangular tank, pressurised by engine crankcase; five parts methanol, one part castor oil fuel; Clark Y wing section; 2° motor inset; high mid wing; 0% C.G. position; flies heavy on lines; has done 128 m.p.h.; ·015 inches stainless stranded lines; takes off in 20 ft.; two coats filler, four coats colour dope, two coats clear Marjonos fuel proofer; no mods. to engine; built in February, 1949; placed first, Class VI WEST ESSEX GALA; model features 2° copper spinner plus ¼" steel backplate, plywood sandwich construction wing.

CENTRALISED CONTESTS, August 6th-7th at Fairlop

10	19	6·	11¾	45	72·5	F. DEUDNEY WEST ESSEX
10½	20	6½	13	44	83·3	D. W. FREE SURBITON
11	18	7	12	55	76·5	J. CLAYDON E. LONDON
13½	37	14·7	16¾	54	107	F. DEUDNEY WEST ESSEX
17	65	28	24	62	88	P. KELSEY CROYDON
25	150	34	30	32	101	B. DUNN E. LONDON

CLASS I.—Model designed by F. E. Deudney; Allbon Javelin 1·49 c.c. diesel; 6½" × 8" pitch own carved prop.; D section tank; Mercury No. 3 fuel plus 10% Castrol G.P.; Clark Y wing section; no motor offset; high wing; hand launched; 22% C.G. position; flies with medium pull on line; has done 76 m.p.h. ·008" single strand wire; model is tissue covered; four coats Titanine glider dope; built June 1950; no mods. to engine; also placed second THAME CONTEST, third S.M.A.E. AREA CENTRALISED; model features uncowled engine, fairing to be added later.

CLASS II.—Model a "Comet VII" designed by D. W. Free, Elfin 1·8 c.c. diesel engine; 6¾" × 10" pitch, P.A.W. prop.; celluloid semi-circular tank; roadway diesel fuel; thin Clark Y wing section; no motor offset; mid wing; hand launched; C.G. ¾" in front of front line; flies very light on lines; has done 90 m.p.h.; no fin; ·008" Keil Kraft lines; finished with six coats O-My dope; built December, 1949; also won first place BRIGHTON; model features side winder motor enclosed in pressure type cowling, intake opened to ¾" diameter, cylinder fins filed, exhaust ports fitted.

CLASS III.—Model designed by J. Clayden; Amco 3·5 cc., diesel; 7" × 10" pitch Stant prop.; rectangular tank; roadway fuel; Clark Y wing; no engine offset; high wing; hand launched; C.G. at front line; flies light on lines; has done over 90 m.p.h.; Keil Kraft plated lines; finished two coats grain filler, two coats O-My dope; built in one week of spare time; model also placed first at ALL HERTS RALLY, first in LONDON AREA 1949, model features uncowled engine.

CLASS IV.—Model designed by F. E. Deudney; 1949 Eta 29 glowplug motor; Champion V.G. 2 glowplug; 7·4" × 9½" pitch, own carved prop.; D section, two cubic inch tank; 25% castor oil, 65% methanol, 10% nitromethane fuel; Clark Y wing section; high wing; drop out U/C; C.G. 15% from L.E.; medium pull on lines; has done 110 m.p.h.; ·0108" single strand steel lines; can take off in 20 ft.; finished with three coats Titanine dope over tissue plus two coats Marjonos fuel proofer; built November, 1949; disc valve and piston slightly altered; engine interior slightly polished; model also placed first at THAME, first Class IV EATON BRAY INTERNATIONAL WEEK; features dural tailplane, lines brought close together at tip.

CLASS V.—Same as class V SEMI-CENTRALISED CONTEST.

CLASS VI.—Model designed by B. Dunn; Dynajet powered; tapered wedge tank; pool petrol fuel; semi-symmetrical section; fixed 3 wheel U/C; C.G. at bellcrank pivot point; has done 108 m.p.h.; laystrate lines; model is tissue covered, finished with O-My clear dope; built in one week of evenings; used as a trainer, has made over 50 flights.

DEAR SIR,

The letter of " Neutron " published in your columns of the September AEROMODELLER provides an excellent example of a little learning being a dangerous thing. I have scarcely seen such nonsense expounded in so authoritative a vein, and it is clear that the writer has absolutely no idea of the mode of operation of a super-regenerative receiver, or indeed, of a simple Hartley oscillator. Your circuit in the June issue, was, of course, quite in order, and the phrase that your correspondent used—" even the dumbest of amateurs "—may well have a boomerang effect. I suggest that " Neutron " consult a good textbook, or an article on page 182 of " Wireless World " June, 1946, from which he will find that there is more in super-regenerative theory than his naive remarks would appear to show.

It is plain from his last paragraph that he has made no attempt to carry out the suggestions he puts forward for the " benefit " of others—if he had, the phrase " easily done " would certainly not have appeared in his letter.

Chipstead, Surrey. B. W. MONTAGUE.

DEAR SIR,

In the Bristol and West controversy about pylons Mr. Wilson and Mr. Middleton ask for comments—may I ?

Speaking from my own and the club's experience, as we have had a majority of non-pylon contest models during the past 18 months, I would say that pylons are *not* necessary—*but*.

The " but " is a question of overall power loading by which I mean the power *you extract* from the engine in normal use divided by the all-up flying weight of the job. Where this ratio is 0·1 B.H.P./lb. or less, any sort of layout—Pylon, Hatchet, Midwing, etc., seems to work alright. Over 0·1 B.H.P./lb. a certain amount of side area seems advisable but still pylons seem to have no advantage over high-thrust line hatchets and the like, at any rate up to 0·22 B.H.P./lb. which is the highest we have gone so far—above that who knows ?

Incidentally, the majority of free flight models I have seen in contest are undoubtedly in the up to 0·1 B.H.P./lb. class, simple because their operators were not getting anything like the best out of their engines—usually too few revs.

Hoping the above will heap coals on the fire.

Berks Hill, Chorleywood. J. E. LAMBLE.

Concluding his letter on the deterioration of model aircraft design in the November issue, Mr. S. V. Tucker of Epsom, stated that he would like other people's views on the subject. Well, he has certainly got them, to such good purpose, indeed, that we have found it necessary to extract the most telling parts of various letters as space does not permit the inclusion of even a small percentage of them in toto—(ED.).

From *Donald Blewett of Canterbury :* " . . . What Mr. Tucker does not seem to realise is that most contest-minded modellers are not in the least bit interested in full-size aircraft and aim only at getting maximum efficiency. He calmly passes off functional models as " contraptions." I would advise him to delve a little deeper into the intricacies of contest model design and find out exactly how much skill and knowledge go into a high performance model . . " " . . . I wonder if Mr. Tucker realises that present-day speed designs are based on the findings of specialists in aerodynamics on both sides of the Atlantic . . . "

From *John C. Gibson of Edinburgh :* " . . . An aeroplane, by the way, is a ' heavier than air flying machine ', so that the name is exactly right one for our models, and the fact that many models bear little resemblance to full-size aircraft does not make it incorrect. I refer Mr. Tucker to ' Classical or Functional ' by L. Van Hattum in the January, 1948, AEROMODELLER . . . "

From *A. G. Overfield-Collins of Beckenham :* " . . . I am surprised to see in the AEROMODELLER, in the November issue, that yet another modeller, Mr. S. V. Tucker has raised the rather hackneyed question ' Looks versus Function ' Surely this question can now be considered closed. I, personally, have in my workroom at this moment examples of scale, semi-scale and contest pylon models in the free flight class and also one or two controliners. I enjoy flying all these aircraft . . . "

From *P. Bradshaw of Torquay :* " . . . It is almost inevitable that model aeroplanes should resemble the real thing rather vaguely, as the purpose behind their design is so different at the low speeds at which free flight models fly . . " " . . . As for speed C.L. models our quest is speed and speed alone and any feature which detracts from speed is eliminated. Imagine the effect of cockpit, struts and wheels on a Hell-Razor . . . "

From *P. M. W. Butler, Lower Knaphill, Woking :* " . . . is entirely right in lamenting the prevalence of mere flying machines over models properly so called. One soon realises that flying the former is so easy as to become boring and there is little satisfaction to be gained either from construction, which needs little skill or from the appearance of the finished article, however well made . . . " (? ? ED.) " . . . free-flight power models, I cannot see what interest there can be in making something totally unlike the real thing with the object of securing a rocket-like climb . . "

From *R. Rodwell, Tottenham :* " . . . Pylon models capable of 12 : 1 ratios are fairly common nowadays. That is surely progress in power duration development. Mr. Tucker seems to be under the impression that all models (F/F) are pylons. Nothing can be further from the truth. Any Sunday afternoon at Fairlop during the atrocious summer, "orthodox" planes, resembling full-size jobs were more in evidence than pylons . . . " " . . . I personally have never been interested in speed C.L. but I have respect for a chap who can build a beautifully streamlined airframe, obtain a glass-like finish on it, can obtain the best from temperamental racing motors and then fly his ' angry monster ' at 120+m.p.h. . . . "

From *C. Bates, Totternhoe, Beds. :* " . . . aeromodelling caters for, broadly speaking, two types of modeller. One type is the person who, like Mr. Tucker, builds only exact or near-scale replicas of full-size aircraft and, justly so, takes a pride in seeing a model perform like its big brother. But, on the other hand, and Mr. Tucker should not forget this, there is the type of modeller who builds his machine for maximum performance AS A MODEL AIRCRAFT, not as a replica of a full-size machine . . . "

From *D. C. Joberns of Walsall Wood :* " . . . Then there comes the ' flimsy undercarriage '. The Rev. Callon was perfectly correct, he was referring to the undercarriage of a rubber-powered plane, I imagine . . . " " . . . The function of a zoomer competition plane is to get up as high as possible in as short a time as possible, and to stay up there as long as possible. Obviously, they have to be designed accordingly. The two types of plane are *expected* to behave differently, as they do, so they achieve their purpose, so what are you worrying about ? You say that you have built many models, all of the same type, and so, O experienced one, may I offer you my hearty congratulations on having so much knowledge about other types without having tried them. The reason your Father is appalled at the progress, and it is progress, of models, is because they are travelling away from *his* views. Other people are delighted with the progress . . . "

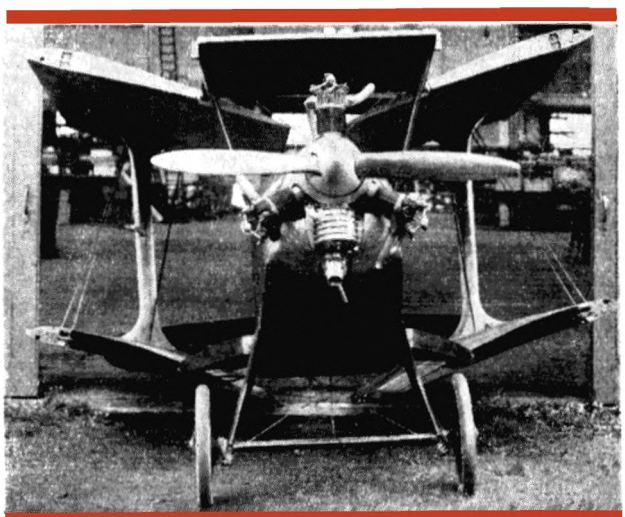
There, Mr. Tucker, you have a representative selection of the opinions of our readers, and the extracts are proportionate to the number of letters received, supporting both sides of the question. Fifteen per cent. were with you, eighty-five per cent. did not agree with your views. Endorsing Mr. Overfield-Collins feelings, this definitely closes the correspondence on this subject—now and in the future. (ED.)

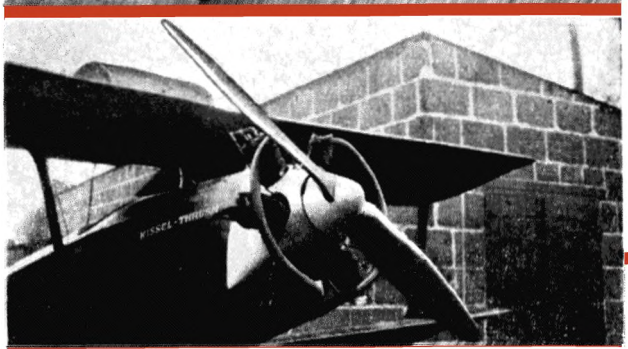
AIRCRAFT DESCRIBED NUMBER 37 BY G. A. CULL

THE A.N.E.C. IV MISSEL THRUSH

WITH the encouragement of the Air Ministry's Lympne Light Aeroplane Trials in 1923 and 1924, the need for cheap-to-run light aeroplanes after the first World War was taken up by constructors with great enthusiasm, and a generation of little aeroplanes were produced which put up amazing performances on very few horsepower. In 1926 the *Daily Mail* put up £5,000 prize money for a contest for dual-controlled two seaters with engines up to 170 lbs. weight and able to carry at least 340 lbs. useful load.

One of the new machines entered was the " Missel Thrush," built by the Air Navigation and Engineering Co. of Addlestone, Surrey. Designed by J. Bewsher, this machine was acclaimed a most ingenious yet simple design, whose streamlining was hardly bettered by the fastest racing aircraft of that day, the whole design being beautifully clean, and, in particular, the fuselage was outstanding. A completely ply-covered semi-monocoque, this changed section from the unexpectedly roomy cockpits to a triangle at the nose, fairing neatly around the crankcase of the direct-drive, 35 h.p. 3-cylinder Blackburne " Thrush " engine. Aft of the cockpits the bottom longerons converged more sharply than the top pair, so giving the fuselage sides an increasing slope towards the tail where the section was an inverted triangle with the tailplane mounted on its base. The staggered wings had laminated " I " struts and the incorporation of a spring clip in the rear spar hinges enabled the wings to be folded and spread by one man. The undercarriage was as clean as were the struts and each leg consisted of two curved steel tubes completely faired-in with ply. A six gallon tank was mounted in the forward decking, and two useful-sized lockers between the cockpits filled what space was not occupied by the legs of the rear occupant.

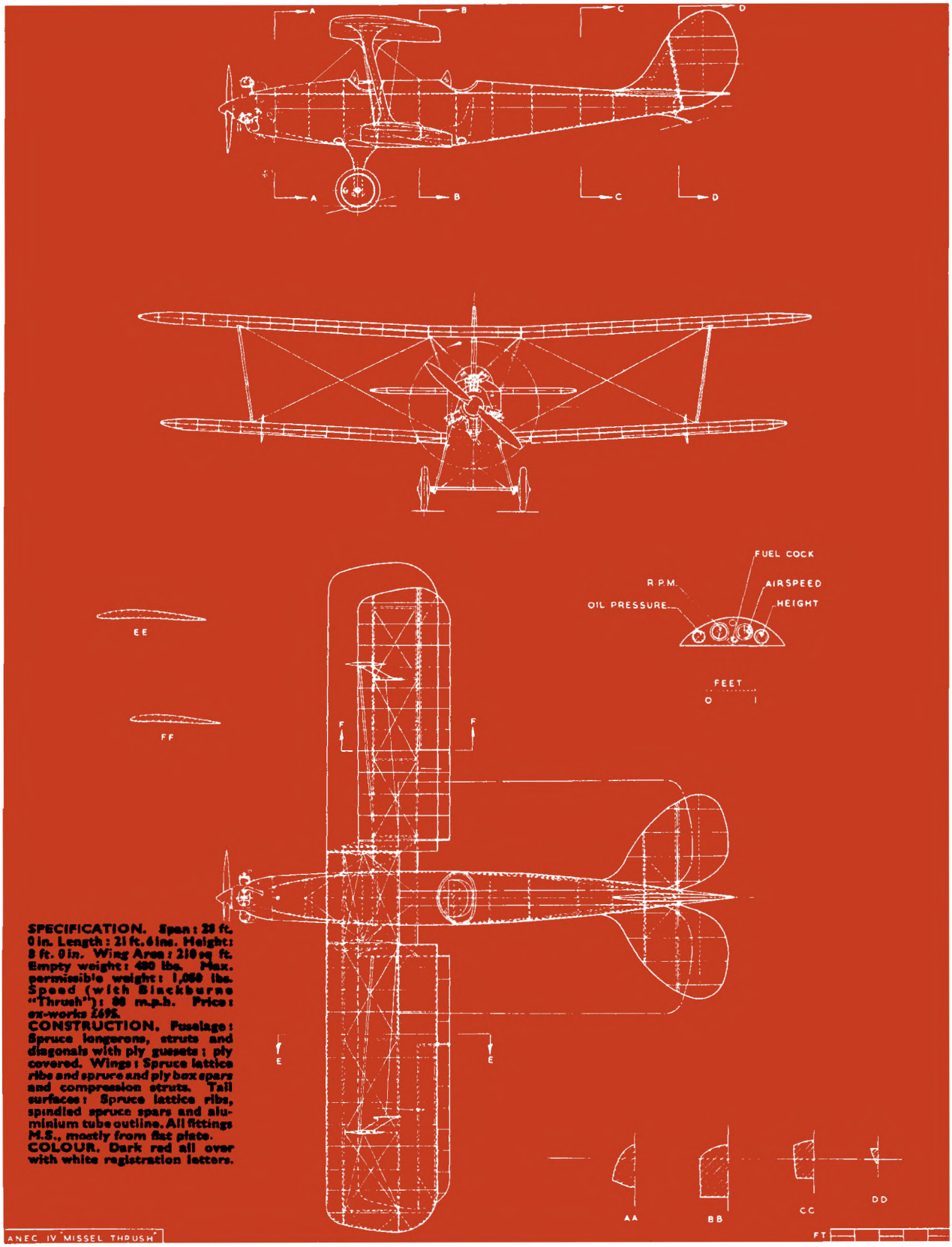




With an aerobatic C. of A., the " Missel Thrush " was flown to Lympne by Col. Henderson, of training fame, but met with disaster the day before the trials, in which it had been allotted the No. 13. A rough landing caused the wheels to deflect so that the bottoms of the undercarriage legs fouled the turf and tipped the Anec. IV onto its nose, which was severely buckled back to the cockpit and the lower starboard wing was also damaged. Now out of the trials, the aircraft was rushed back to the works and five days later returned from Brooklands in time for the race for machines eliminated from the trials. Again luck was against Col. Henderson and plug trouble forced him to land after one lap, and on the next day engine trouble again forced him to retire from the Grosvenor Cup Race, and so the efficiency of the " Missel Thrush's " clean design had no chance to prove itself.

When the A.N.E.C. concern went out of business, the engineless " Missel Thrush " was bought by G. N. Warwick, who, with the co-operation of Mr. Bewsher, modified the airframe to take one of two 45 h.p. Anzani 6-cylinder radial engines he had acquired. All work was carried out in his garden shed at Harpenden and the rejuvenated " Missel Thrush," complete with centre-section tank, new cowling and spinner, was towed by road to a field for flying. Engine seizure brought the machine back into the news when Mr. Warwick made a forced landing in the Polytechnic Sports Ground at Chiswick, after which the second Anzani was installed. This engine eventually gave place to an Armstrong-Siddeley " Genet II " and in this form the Anec IV flew in the 1928 King's Cup. On the Newcastle/Renfrew leg Mr. Warwick was killed when the " Missel Thrush " crashed on Broadlaw Hill near Peebles, and so on 20th July, 1928, ended the career of what to-day would still be a very fine ultra-light aeroplane.

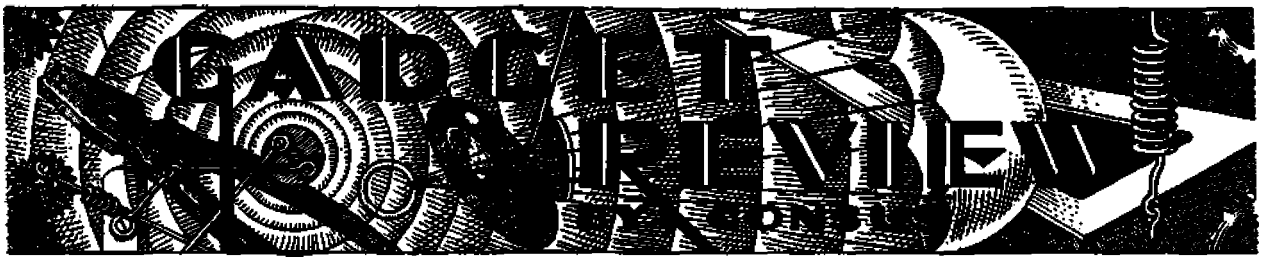
At top of page, the A.N.E.C. IV fitted with racing windscreen and faired cockpit, taking off from Hendon at the start of the 1928 King's Cup Race. Left, top, shows the "Thrush" installation and folded wings, and, below, the Anzani engine and centre-section tank.



SPECIFICATION. Span: 28 ft. 0 in. Length: 21 ft. 6 ins. Height: 8 ft. 0 in. Wing Area: 210 sq ft. Empty weight: 480 lbs. Max. permissible weight: 1,050 lbs. Speed (with Blackburne "Thrush"): 80 m.p.h. Price: ex-works £69/5.

CONSTRUCTION. Fuselage: Spruce longerons, struts and diagonals with ply gussets: ply covered. Wings: Spruce lattice ribs and spruce and ply box spars and compression struts. Tail surfaces: Spruce lattice ribs, spindled spruce spars and aluminium tube outline. All fittings M.S., mostly from flat plate.

COLOUR. Dark red all over with white registration letters.



FRESH from his extra large Christmas cracker, Consus presents eleven brainstorms from his file of aeromodelling gadgetry. Don't forget that the Consus office is always open to bright suggestions, and if you feel that your latest idea is worth passing on to AEROMODELLER readers, we'll soon let you know if it's good and original enough for publication. There's money in it bods! Payment for all published ideas.

How about a nice new line in control line handles? Tailored to fit perfectly in one's own hand, and thus adding that last finesse to your stunt flying, the PLASTER CAST HANDLE shown in Fig. A is easy to make and durable in use. P. M. H. Lewis, the originator, has been wielding his prototype for the past year and reports not a chip or crack in the plaster body.

Shape the 14 s.w.g. piano wire U to any size convenient to your hand, then slip down to the ironmongers, or cadge around the decorators, for a small package of "Alabastine". Find out how to mix the plaster to the stiffest possible consistency, then press a good sized roll of the stuff around the wire base, and take a good grip on the "handle" to form its final shape. Once dry, all excess plaster can be carved away and the handle sanded, doped and polished to your own desire.

Scale fans, always in quest of ideas on the fiddly bits that go to make a detailed scale model, will find Cpl. Geddes' brainwave the solution for PIVOTED UNDERCARTS à la Auster. Take a look at Fig. B, which is sketched as applied to a 6 ft. span model. The U/C legs pivot laterally by virtue of being soldered to a cigar box hinge. The cross brace is lashed by elastic to a fuselage strut, and so takes all the shock; but how to fix a hinge to the fuselage? The answer is to sheet that section of the fuselage side and solder the hinge to a piece of fine filter gauze. This in turn, will cement permanently to the sheet, and voila! an undercart that will take all the bumps and still not rip the body to bits.

Simplicity is the keynote of the CANTILEVER ENGINE BEARERS, C, sent by A/C1 Trunchion. Ideal where one does not want a pair of beams cluttering up the tank department, the plywood/balsa/plywood bulkhead which amounts to about ½ in. thickness, can easily mount wooden bearers in cantilever fashion.

Dual in purpose; but singularly an excellent idea for towline de-hooking, is D, a PARACHUTE cum pennant for towlines. The towline passes through a square parachute, its spreader and attachment, to the normal towing ring. Four rigging lines are stitched to the silk chute and pass through the spreader to their attachment on the line. Not only does the chute conform to towing pennant regs. but it also opens up and drags the ring off the towing hook as soon as tension is released, thus eliminating the job of having to flick at the line. Glider enthusiasts will also note that the parachute should delay the line drop and greatly ease winching-in after release.

Have you ever felt like decorating the top of the wireless pole with a useful wind indicating scale SOLID? . . . Consus knows too well the value of these wind vanes with a difference while H. S. Wiltshire of St. Anthan gives details of his POLE-TOP WIND VANES in diagram E.

The model should have an enlarged scale profile, and reduced wing for maximum sensitivity; any aircraft can be used, as witness Mr. Wiltshire's own range from the Supermarine S.6b to a Mosquito. It should be balanced so that it will swing in any direction, and stay in any position without a tendency to swing elsewhere.

Mount on an old bicycle spindle and clamp the hub, as shown in E, inside a length of tubing which can fit the pole-top. Twin ball races in the hub ensure the free movement, while an additional race can well be employed to allow the prop to spin in the slightest breeze. Why not knock one up this winter and be wind-wise next flying season?

Crankcase standardisation in the E.D. range or diesels lends well to queer modifications, such as fitting a Mk. II barrel on a Mk. III crankcase; but the COMP SPECIAL conversion shown in F, submitted by R. A. Dunn of Cradley Heath, is merely the twisting through 180 degrees of the cylinder and the attached carburettor unit. Mr. Dunn claims economy and greater power if the prop is arranged to pass the venturi as the inlet port opens. It also shortens the diesel for simpler mounting; but watch out for the prop you needle twiddlers!

G, is a gadget which just happened . . . no-one appears to know who originated it, but radio enthusiasts in the London area have employed it for some time with great satisfaction. It's a cycle rear light cover, cemented in the bottom of the fuselage with the bulb connected in parallel with the actuator. Thus when the receiver gets its signal, you get the red light . . . a check on the receiver and the actuator. Beware, however, that the engine vibration does not loosen the bulb and not only create increased blood pressure but perhaps inspire wrong signals at the wrong time!

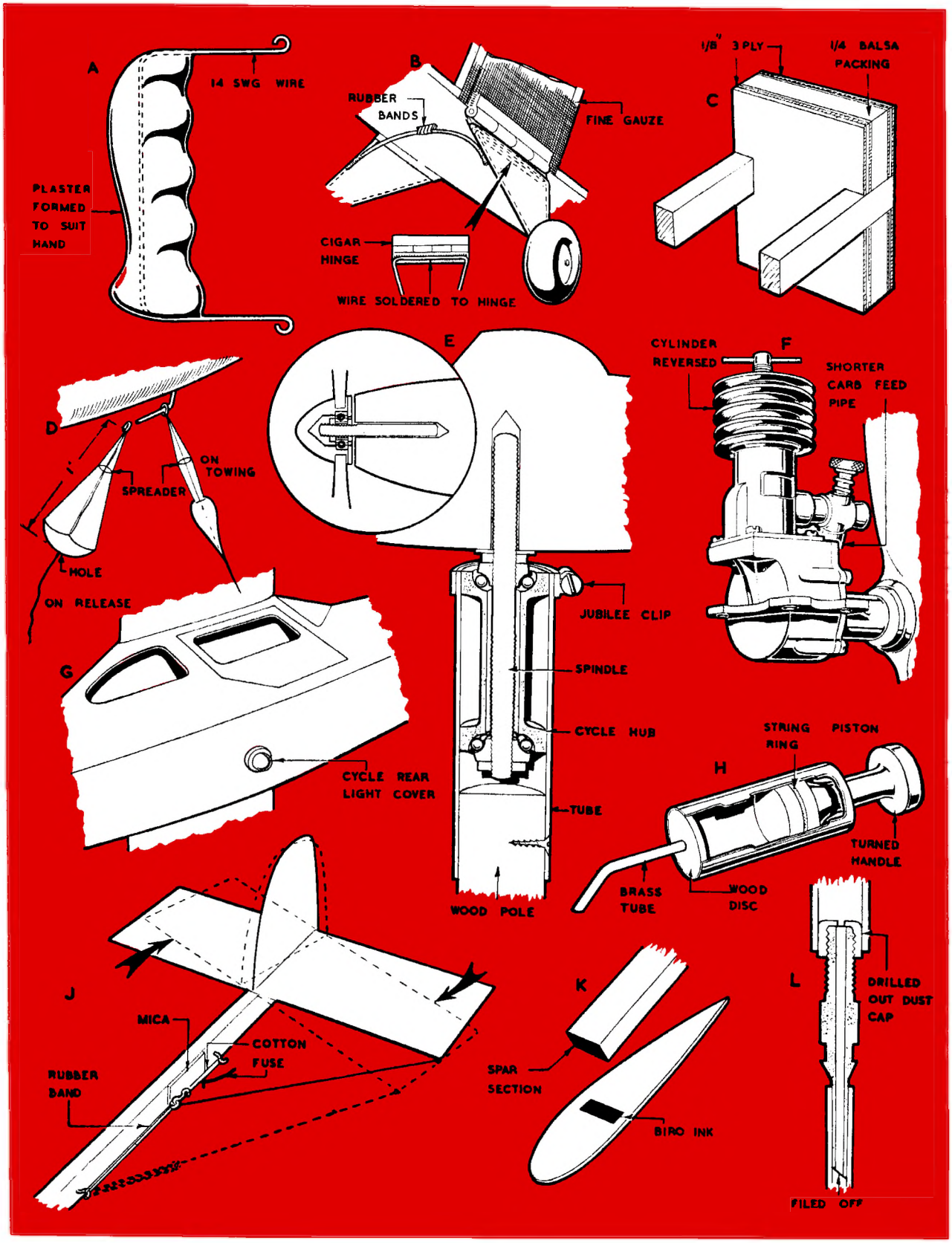
Fra' bonny Scotland, Monifieth to be precise, comes an economic PASTE DISPENSER, H, which Ivor Low declares is worth its weight in gold, among the clubsters there. Assuring Consus that most of the parts can be scrounged "buckshee" from the local plumber, meaning of course the odd length of tubing, Mr. Low also emphasises that only ordinary flour paste need be used. Groove the piston to take a length of string as a piston ring to seal the pressure, and you'll find it easy to cover rib edges and spars without waste and without excess paste.

Can there be anything new in DETHERMALIZERS? R. Rathbone has been using an apparently violent scheme this year on his 30 ins. lightweight glider. Without room for a 'chute, he devised J, to twist the tail through 45 degrees to bring the model out of any lift in a vertical spin, landing every time without a scratch. In flight, there is little or no tension on the cotton thread; but when the fuse burns through the cotton loop, there's a diagonal pull by the rubber band.

Transferring the spar section to be cut out of a rib is made all the easier by E. Page's IMPRESSION suggestion using a Ball-pen, shown as K. Rub the end of the spar with the pen and then press firmly onto the balsa rib. A perfect impression of the spar section will be left on the wood, and the same inking will last for several impressions. Likewise the idea can be employed for bulkheads and stringers.

Free-flight power contestors will be interested in Eric Smith's gadget utilising Schrader valve parts for a FUEL LIMITATION tank. Normally, the outside diameter of the needle valve is about ¼ in. and literally miles of tubing of that bore must be used for a 20 secs. run with the modern thirsty motors. To adapt the ¼ in. tube to a shorter length of larger bore, which can also be unscrewed off, use the drilled out dust cap and valve body shown as L.

Caught resting between flights, Consus recently intercepted that high speed climber of "Scalded-Burnt" and other conflagrant terms, R. H. W. Annenberg. His latest is a pee-wee version of the previous contest models, probably known as "Fried Crumb" or some such hot name, and sporting amongst many ingenious ideas a single bladed prop on the baby 0·5 c.c. Allbon Dart diesel. Believe it or not, the single blade is countered by a single length of 16 s.w.g. piano wire snipped to balance. Equally interesting to note is R. H. W. Annenberg's method of typing the necessary name and address panel directly onto the Modelspan covering.


A
14 SWG WIRE
PLASTER FORMED TO SUIT HAND
B
RUBBER BANDS
FINE GAUZE
CIGAR HINGE
WIRE SOLDERED TO HINGE
C
1/8" 3 PLY
1/4 BALSA PACKING
D
SPREADER
ON TOWING
HOLE
ON RELEASE
E
JUBILEE CLIP
SPINDLE
CYCLE HUB
TUBE
WOOD POLE
F
CYLINDER REVERSED
SHORTER CARB FEED PIPE
G
CYCLE REAR LIGHT COVER
H
STRING PISTON RING
TURNED HANDLE
BRASS TUBE
WOOD DISC
J
MICA
COTTON FUSE
RUBBER BAND
K
SPAR SECTION
BIRO INK
L
DRILLED OUT DUST CAP
FILED OFF

S.M.A.E. NEWS

World Record. Information Circular No. 47 of the F.A.I. indicates a further International Model Aircraft Record in the Class II Control-line speed category. This honour goes to Andre Devillers of France, whose 4·81 c.c. "Meteor" glow-plug powered model recorded 172·116 km/hr. (107·57 m.p.h.) at Clichy Stadium on the 25th June.

1951 Wakefield. A telegram received from Finland indicates that that country will exercise its right to hold the contest in Finland in 1951, and application has been made to the F.A.I. in this connection.

New Trophies. The trophy donated by E. Law & Sons for the purpose of Team-Racing will be known as the "Davies Trophy". It is proposed to award the trophy for a series of contests arranged on a League basis.

The "Aeromodeller No. 2 Solids Trophy" has been withdrawn from competition and re-allocated to the annual winner of the British A/2 Glider Trials, in a similar manner to which the "Premier Shield" is awarded to the winner of the Wakefield Trials. The trophy is re-named the "AEROMODELLER A/2 SAILPLANE TROPHY", the first holder being M. L. Hanson of Solihull, who placed top in the glider trials held at Fairlop last June.

Local Authorities. Much correspondence indicates that far too many clubs are not carrying out the directions issued in connection with the right way to go about approaching local authorities for permission to fly in certain spaces. It is again stressed that clubs should carefully follow these common-sense requirements, and, where possible, demonstrate to the local officials that they are capable of conducting themselves and their models in the proper manner.

S.M.A.E. Liability. In view of a case where the Society is faced with a substantial liability in connection with an Area contest, the following resolution was adopted at a Council Meeting held on October 7th, 1950:

That—"No Area shall sponsor any meeting without direct sanction of Council."

New Area. On the proposal of Mr. C. S. Rushbrooke, and seconded by Mr. H. W. Barker, the newly formed WEST OF SCOTLAND AREA was ratified on October 7th, 1950. There only remains now the North Wales Area to be formed, but doubts are expressed as to the possibility of this happening owing to the sparse population and geographical nature of the territory.

Secretary of the West of Scotland Area is Mr. W. D. Jardine, 22, Thompson St., Kilmarnock, Ayrshire, to whom all enquiries should be addressed.

Engine Run. A London Area proposal that engine run in all contests should be timed to the nearest 1/10 second received no seconder. The opinion was expressed that the existing rule (No. 5, Timekeeping) was adequate, as not all clubs have access to watches calibrated in 1/10 second divisions.

Fellow. Mr. D. A. Gordon, Secretary to the Society for the past three years, will be recommended for Fellowship at the forthcoming A.G.M.

Honorary Member. By a unanimous vote, Mr. Percy E. Chorley, liaison officer of the American Academy of Model Aeronautics, was elected an Honorary Member of the Society on October 7th, 1950.

Contest Results. In order to give Area and Club Competition Secretaries more time in which to forward contest results, future requirements will be that results must reach the Society's H.Q. at Londonderry House, Park Lane, London, W.1, by first post on SATURDAY following the contest. (Up to now, the Thursday following has been the rule.)

R.A.F. Cranwell. Information having been received that R.A.F. Cranwell will welcome certain meetings on that 'drome, it has been decided to hold the 1951 Wakefield and A/2 Glider Trials at that venue. It is understood that feeding and sleeping accommodation is available, and with the excellence of the aerodrome itself, this should be a great advantage to modellers from all Areas.

New British Records and Record Applications. The following new records were ratified at a Council Meeting held on October 7th, 1950, together with Merit Certificate awards:

(1)	A/2 GLIDER—Tow launched L. WHITTALL (Birmingham M.A.C.)	29 min. 51·7 sec. 2/7/1950
(2)	CANARD—RUBBER-DRIVEN R. WOODHOUSE (Whitefield M.A.C.)	2 min. 13·1 sec. 29/7/1950
(3)	LIGHTWEIGHT—RUBBER-DRIVEN E. J. WILLIAMS (Whitefield M.A.C.)	5 min. 15 sec. 9/7/1950
(4)	LIGHTWEIGHT GLIDER—Hand launched J. O'DONNELL (Whitefield M.A.C.)	3 min. 0·1 sec. 19/7/1950
(5)	LIGHTWEIGHT TAILLESS GLIDER—Hand launched R. A. FAULKNER (Whitefield M.A.C.)	1 min. 49·5 sec. 30/7/1950
(6)	C/LINE SPEED—Class IV F. E. DEUDNEY (West Essex M.A.C.)	107·1 m.p.h. 6/8/1950
(7)	C/LINE SPEED—Class I R. SCOTT (St. Helens M.A.C.)	88 m.p.h. 9/7/1950

MERIT CERTIFICATE AWARDS

CLASS B

No.		No.	
209	Exley, C. E. (Sheffield)	259	Johnson, R. J. (Regent's Park)
213	Walker, F. W. (Sheffield)	393	Twomey, R. A. (R.A.F. Cottesmore)

CLASS A

No.		No.	
420	Greaves, R. H. (S. B'ham)	426	Royle, J. (Littleover)
421	Cole, R. (Ewell)	427	Williams, B. (North Wirrall)
422	Gilbert, M. M. (Saddlers)	428	Fairgrieve, T. I. (Littleover)
423	Roberts, E. S. (Coventry)	429	Conrey, J. F. (North Wirrall)
424	Robertson, I. M. (Chorley-wood)	430	Ward, S. A. (Ashton)
		431	Churcher, C. G. (Streatham)
425	Bennison, M. (Ipswich)	432	Firth, R. (York)

NEW APPLICATIONS

(a)	TAILLESS GLIDER—Tow launched A. R. LUCAS (Port Talbot M.F.C.)	22 min. 33·5 sec. 21/8/1950
(b)	A/2 GLIDER—Hand launched J. R. DONE (Liverpool M.A.S.)	3 min. 25 sec. 27/8/1950
(c)	Ditto J. G. JOYCE (Leeds M.F.C.)	3 min. 40 sec. 10/9/1950
(d)	POWER DRIVEN—TAILLESS W. POILE (Country Member)	2 min. 09·6 sec. 23/8/1950
(e)	LIGHTWEIGHT—RUBBER DRIVEN J. O'DONNELL (Whitefield M.A.C.)	7 min. 12 sec. 21/8/1950

F.A.I. (MODEL AIRCRAFT COMMISSION) EXTRACTS FROM STOCKHOLM MEETING 29th–30th MAY, 1950

Present. A. F. Houlberg (G.B.); G. Derantz (Sweden); J. van Hattum (Holland); J. Guillemard (France); H. Orvin (Norway); P. Huarta (Spain); P. Weishaupt (Denmark); M. E. Carl (Observer for U.S.A.).

Election of Officers. A. F. Houlberg (President); G. Derantz (Vice-President); J. van Hattum (Secretary).

Record Holding Models. Data on these models will be published at a small charge together with details of contests and other matters of general interest.

International Contests. Such contests will be authorised as "International" and "Championship" events. Only one annual championship event in free-flight, rubber, glider, power and control-line speed classes will be granted and these only to organisations which have already proved capable of such undertakings. Less stringent rules will apply to granting of "International" Contest permits, but they must not be advertised as "Championship" meetings. Where winning countries must stage the following contest and such a winner would have to run the contest in successive years the task will be taken in turn, but the winner will have first option.

International Classes. Free-flight international classes were agreed as under

Glider:	Scandinavian A-2 Class
Rubber:	Wakefield Class
Power:	Upper engine limit—maximum cylinder capacity 2·5 c.c.

Modifications to Wakefield rules were also agreed.

Contest Rules. New rules are being drafted for free-flight and control line contests and will be published in a separate booklet together with suggestions for organisers, for use in both international and national contests, to encourage uniformity of methods.

Insurance. The importance of insurance was agreed, but no specific directive issued.

Identification of Models. The I.C.A.O. markings will be adopted for models taking part in international contests.

F.A.I. International Competitors' Licences. F.A.I. Licences will be continued as before in view of their value when taking models through the Customs.

Club News

BY CLUBMAN

Happy Weston Control-liners really go to town when there's a rally on. Stunt, Speed, Scale, Team racers and a Jet were taken to the South Western area rally.

AT the end of the "active" competition season it is again my pleasant task to congratulate the top line flyers on the show they have put up during 1950—surely one of the most trying seasons on record. As forecast earlier in the year, J. A. Gorham of Ipswich becomes the 1950 Senior Champion, and D. H. Rumley of Kentish Nomads is top junior. The requirements were much stiffer than in the past, for points were scored in all contests other than decentralised affairs, and called for a degree of consistency over the whole season, which is undoubtedly the fairest way of deciding the National Champion.

Brian Hewitt of South Birmingham is declared Control Line Champion, but as this was virtually decided at one meeting only, i.e. the "Gold" Trophy at the Nationals, there is not quite as much point to this affair as the free flight categories. Bob Copland wrests the Caton Trophy from Revell of Northampton with a display of really consistent flying in all the rubber-driven contests, Wakefield team member J. B. Knight of Kentish Nomads being the runner-up.

It is apparent that Croydon made a very determined effort this year to win the Plugge (Club Championship) Cup, and it only needs a glance through the complete contest results for the season to realise that they were pegging away right through the year with this end in view.

Of the various contests held throughout the season London Area took 15, Midland 5, South Wales 2 and the North-western, South Midlands, East Midlands and Southern, one each. Undoubtedly a fair proportion of the London successes are due to the really appalling conditions that were in existence on most flying days, and it is obvious that the weather has been generally more favourable in the southern half of the country throughout the season. (Logically this should mean that the far southern Areas should have made an even better showing, and it is rather surprising to see the poor support forthcoming from these more fortunately placed Areas in national events.)

Another big factor is that the main centre of London Area flying—Fairlop—is the focal point for so many different clubs' activities that each week-end sees what would in other Areas be regarded as a full scale Area contest. A cursory study of contest results indicates that the stronger the Area the keener the competition and a consequent increase in ability all round.

As indicated in another journal where a writer discussed the eliminations for the Wakefield team, the score required in some Areas would be well below that of others, but I disagree heartily with the writer's suggestion that these "weaker" Areas should be eliminated from the Trials.

Next year should see a number of innovations in competition work, and we look forward with interest to the national programme for 1951 in the hope that some of the anomalies evident in 1950 will be eliminated.

LONDON AREA carried all before them in the closing National contests of the year, though the events held on September 17th were something of a farce as far as country-wide contests are concerned. Only 19 competitors in the "Flight Cup", and 22 in the S.M.A.E. Cup! The junior contest for the "Frog Junior Cup" only brought forward six entrants, and these had their times in the other comps. doubling for the junior event!

Roy Yeabsley turned in two glider flights of over 6 minutes, and a third of 9 minutes plus when helping his club to win the "Model Engineer" Cup, whilst J. B. Knight also performed wonders with his Wakefield model in the "Farrow Shield" event. All this in spite of very poor weather, and it was therefore no surprise to find Croydon running out Champion club for the 1950 season. Congratulations.

The **WESTERN AREA** has done quite well in the contest field this year, and presumably with a view to maintaining form during the "close" season, the four Bristol clubs are getting together to organise open rallies at Lulsgate during the winter months. As a special attraction Bristol & West offer the use of their clubroom complete with stove!!

Though not the first year in which the **NORTH-WESTERN AREA** have conducted Area Championships, this year saw a very interesting innovation in which the lowest duration of three flights was taken as the deciding factor. Run on two different Sundays, the control-line events were flown off at Leverhulme Park, Bolton, in rain and wind. "Gig" Eifflaender flew beautifully to win the Stunt event, but was closely followed by clubmate Ridgeway, and new-comer Pumford from Wallasey. The speed flying was disappointing, except for the efforts of Bailey and Pumford.

The following Sunday the free flight events took place at Hawarden Airfield, Chester. All entrants held S.M.A.E. Merit Certificates, and as an experiment, scoring was made on the lowest flight of three. The Committee insists that a championship class entrant should be capable of making three good flights, and be in possession of his model at the end of the contest. Unfortunately, the gale force winds which swept the field throughout the day made it difficult to assess fairly the merits of the system.

Yet in spite of the 1950 type weather, the interest of competitors and organisers was maintained from the word go, and not until the last third-round flights had been made was it possible to give any results. There was a marathon atmosphere to the whole affair, as three flights had to be made to get any score at all. If a competitor failed to make a flight, then his score for that round was 0 secs., which, being his lowest time, was his score for the contest. Consistency and the ability to control duration were essential.

Although in the first round D. Bennett clocked 246·5 off much less than the 150 ft. of tow-line allowed, he was out of the running as the model was lost. More spectacular were the "Amco 3·5" powered Super Phœnix models flown by Lord and Hindle of Accrington. Their starting and release

drill was faultless—moving from one side of a large pylon type model to the other while the motor is screaming at top revs. and the wind is trying to tear the wings off is no sinecure, as many competitors discovered at the York Nationals. With the engine run maximum at 10 secs., Lord clocked 145 secs.

In the rubber event, an ancient " Evans' Rocket " flown by Frank Dodd of Chester flew with rock steadiness in spite of gusts up to 40 knots. Barry Haisman's canard performed steadily for 94·5 secs. in the first round. Several competitors holding strong positions at the end of the second round failed to keep it up in the third. Success came to those who had flown cautiously and consistently.

A remarkable piece of repair work was done by Fred Clarke of Bolton, who reassembled the **three** pieces into which his Wakefield's fuselage had been smashed in the first round, and then improved on his first flight in the last two rounds. The day's flying was a severe test of models and competitors, and all those who completed three flights deserve congratulations.

Permanent awards were made, consisting of small cups, and shields on wooden supports, all with small S.M.A.E. lapel badges let into them. Such awards have proved more popular than medals. Full results :—

CONTROL LINE STUNT

J. Eiffiaendar	Macclesfield	350 pts.
P. Ridgeway	Macclesfield	345 ,,
T. Pumford	Wallasey	322 ,,

SPEED

CLASS 1		
A. Bailey	Comet	70·0 m.p.h.
R. Scott	Comet	51·5 ,,

CLASS 2			**CLASS 3**		
T. Pumford	Wallasey	86·2 m.p.h.			m.p.h.
J. Eiffiaendar	Macclesfield	83·0 ,,	J. Eiffiaendar	Macclesfield	65·5
P. Ridgeway	Macclesfield	79·2 ,,	P. Ridgeway	Macclesfield	59·0

FREE FLIGHT

RUBBER.			
R. Woodhouse	Whitefield	98·2 (305·7)	O/D Wakefield
F. Clarke	Bolton	81·5 (321·5)	O/D Wakefield
A. D. Bennett	Prestwich	39·5 (272·0)	Mod. Clipper
POWER (10 secs. max. run)			
A. Molyneux	Wallasey	63.8 (225·0)	O/D HI' T/L Elfin 1·8
E. Lord	Accrington	46.1 (245·1)	Super Phoenix Amco 3·5
F. Dodd	Chester	33.1 (115·0)	Slicker 42 Mills Mk. 2
GLIDER (150 ft. towline)			
L. Gabriels	Oldham	41·8 (171·2)	Archangel
A. Molyneux	Wallasey	34·1 (140·0)	O/D Nordic
S. Hinds	Wallasey	23·0 (143·8)	O/D

1950 CHAMPION : A. MOLYNEUX (Wallasey)

***NOTE : The lowest time, i.e. the contest score, is given first, with the three flight total in brackets.**

The **WEST BROMWICH M.A.S.** are very proud of the fact that their finances make them one of the wealthiest in the Midlands, which will greatly help the ambitious schedule of lectures, debates, film shows, etc., arranged for the winter session. Despite strenuous efforts, weather has caused postponement after postponement of the three remaining comps. to finalise the 1950 season, but the Clerk of the Weather is no aeromodeller! They don't mind risking power lines, the river across one side of the field, and the railway, but when the weather man digs up 50 m.p.h. winds . . . well!

Meetings of the **INTERNATIONAL RADIO CONTROLLED MODELS SOCIETY** are announced as follows :—

Manchester : November 19th. 2.30 p.m. at Wellington Chambers.

London : December 10th. 2.0 p.m. St. Ermine's Hotel, Cannon Street.

Birmingham : December 3rd. 2.30 p.m. University, Edmund Street.

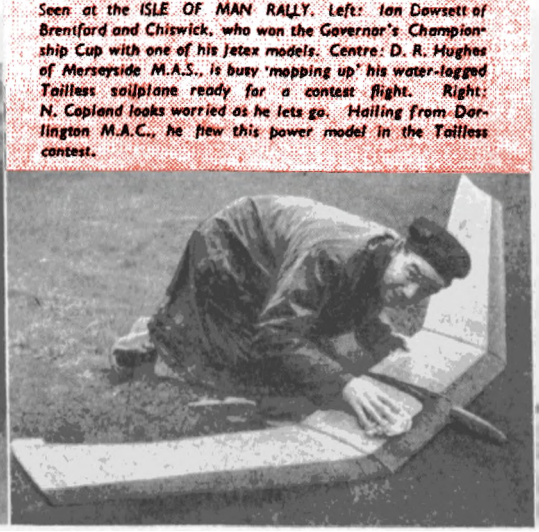
Tyneside : details from N. F. Armstrong, 3, Lilburn Gardens, South Gosforth, Newcastle-on-Tyne.

NORTH KENT M.A.S. congratulate A. R. Parker and A. Hall of the Kentish Nomads on taking first and second places in the Roberts Cup competition for flying boats, organised by North Kent on Sept. 30th at Blackheath. C/Line flying, except for charity shows, is on the wane and free flight and R/C are becoming more and more popular. Bexley Borough Council have adopted a bye-law giving permission for C/L flying in the local park on one evening per week and Sunday mornings, and have allocated a part of the park for the purpose. (A local model aero enthusiast, the Rev. Pollard, now working as a missionary in Africa, writes to say that his chief difficulty in model building in his present situation is keeping a supply of balsa cement, as the natives steal it to use as tooth paste !)

The **ROCHDALE & D.M.F.C.** boys are hard at it r.t.p'ing, and many weird and wonderful kites are appearing. Their main C/L fan, Geoff Barlow, has nearly completed a scale " Blenheim ", powered by two Frog 500's. If successful he intends to graduate onto a B-29 Superfort. Hmm.

Dogged by bad weather, the **SUNDERLAND & D.M.A.C.** has been unable to fly off the last contest of the year, the open glider, and with time restrictions now placed on the use of the R.A.F. field it has been decided to cancel the comp. altogether. An open rubber event was flown off in weather no sane aeromodeller (if such a being exists) would be seen out in, but in spite of that P. McAlroy aggregated 2 : 44 to win with a Warring Lightweight. J. Robson placed next only 6 seconds behind, and R. H. Ellison came third some way back. Winter will probably see a swing back to C/L work, as permitted hours on the airfield are 5 p.m. till dusk, which doesn't give much latitude in the " off " months.

Their " one day of summer " caught up with the **WHITEFIELD M.A.C.** lads on September 9th, and two very good flights were made. Bob Woodhouse's Wakefield did 20 : 53·8 when the D/T fouled—and the job landed only a hundred yards from take-off spot. M. O'Donnell lost his " Millstone " in some houses a mile away after 20–25 minutes, of which over 16½ minutes were timed (stop-watch gave trouble) and has not had it returned. Engine was a Mills Mk. II, No. 25346. At the " Jetex " finals on Sept. 30th J. O'Donnell flew proxy for his brother Hugh, and succeeded in winning the junior first prize with flights of 5·21 and 4·95 ratios.



Seen at the ISLE OF MAN RALLY. Left: Ian Dowsett of Brentford and Chiswick, who won the Governor's Championship Cup with one of his Jetex models. Centre: D. R. Hughes of Merseyside M.A.S., is busy 'mopping up' his water-logged Tailless sailplane ready for a contest flight. Right: N. Copland looks worried as he lets go. Hailing from Darlington M.A.C., he flew this power model in the Tailless contest.

Bob Woodhouse was the only member to attend the Area Championships at Hawarden on October 1st, but made up for lack of quantity with quality. He won the rubber event with a worst flight of 98·2 seconds, his times for the three rounds being 103, 104 and 98·2, which says much for consistency, the key-note of the contest. Model was his own designed " Prefab " Wakefield.

With the end of the season here, the **KENTISH NOMADS M.F.C.** would like to place on record how much they have enjoyed the company of other clubs at this year's competitions. Their first year has brought them a number of successes, among them being J. B. Knight's place in the Wakefield Team, D. Rumley's winning the Junior Championship, and Daphne Knight's taking the Women's Challenge Cup. Besides these, J. Howard won the Queen's Cup at the N.H. Gala, and A. G. Russell took second place in the glider class at Eaton Bray International Week, with the club winning the Farrow Shield, and the London Area Keil Trophy for a team of power-driven models. Three of the machines used engines designed and made by the club Chairman, H. J. Knight.

HARROGATE M. & E.S. report a nearly completed club " Rudder Bug " fitted with automatic aileron control from which good results are expected. The club glider record is held by M. K. Robinson with a flight made last February, time 6 : 16, whilst K. Rutter retains the rubber record with his flight of 5 min. o.o.s. made some time ago. Discussions are now in progress regarding a system of easy recognition of club models and a retrieving service in order to eliminate losing so many models in windy weather !

Now a year old, the **LAMBETH M.F.C.** have found suitable premises for meetings, and welcome any interested modellers who contemplate membership. Meetings are now held at the Beaufoy Technical School, Black Prince Road, S.E.11, and full access is given to the exceptionally fine metal and woodwork shops, plus a large hall for r.t.p. and a playground where C/L work can be undertaken. With such first class facilities a really strong club should emerge.

Another one-year-older is the **LEISTON & D.M.A.C.** Everything has been tried except speed control-line, and at present there is a fairly even distribution of interest in C/L, free flight power and rubber. Flying ground is only a mile from the North Sea, but no models have met a watery grave yet since the wind is usually a sea breeze or blows more or less parallel with the beach. Secretary Miller is currently flying a " Bowden Whitewings " in free flight, having given up attempts with radio control, being of the opinion that commercial sets have a long way to go yet, judging by his experience !

Good news for North-western modellers is that a model club has been formed at **R.A.F. SEALAND**, where a bunch of enthusiasts have some dozen models with a " Rudder Bug " and three gliders under construction. One of the completed models is a radio-controlled Piper " Grasshopper " which looks most realistic when doing dusk flying with navigation lights on. (Perhaps the formation of this club will lead to a restoration of the facilities lost to the Northern clubs at an earlier date.)

Inaugurated on September 1st, the **WEST HANTS AEROMODELLERS ASSOCIATION** has a present membership of 27, most of whom are dead keen, and had apparently just been waiting for someone to form a club in the district.

Much secrecy surrounds the building programme of the **HEADLEY & D.M.F.C.** since it was announced that two trophies have been donated by their Chairman, one for F/F Power Scale models, and the other for Scale C/L jobs. It is proposed to hold the contests on Boxing Day, and some very fine flying has already been witnessed, one notable model being Pete Daniel's scale A.B.C. Robin.

Shock-headed Pete Cock won an engine starting contest staged by the **SOUTHAMPTON M.A.C.**, managing to start his Weston 3·5 c.c. in 18 seconds from cold, and 7·5 seconds hot. A Jetex contest held at the end of September resulted in a win for D. Smith, flying a " 100 " powered model for a total of 135·5 secs.

There are many aeromodellers of Polish extraction in Great Britain who no doubt read this journal, and they will be

interested in the formation of the **POLISH AIR FORCE ASSOCIATION MODEL AIRCRAFT CLUB**, which started activities last August. Premises are at 42, Emperor's Gate, London, S.W.7. Series of lectures in aerodynamics and mechanics of flight are due to commence shortly, and all aeromodellers of Polish nationality are cordially invited to join the club. Applications for membership should be addressed to the Secretary of the club at 14, Collingham Gardens, London, S.W.5.

To keep up interest in view of the almost impossible outdoor weather, members of the **OUTLAWS** (Cannock) **M.A.C.** have been r.t.p'ing small rubber jobs, near-scale Goodyear Racers—complete with spats—being the main attraction at the moment. Quite a lot of fun can be derived from this type of flying, and I remember many interesting evenings spent in the Manchester Tech. buzzing little scale jobs round a pylon on a 12 ft. line. I had a 12 in. span Stearman, fitted with a Frog gear in the nose, which regularly clocked 50–60 seconds in this manner, and gave a lot of fun. Try it sometime.

By consistent placing in club comps., C. J. Davey of the **BLACKPOOL & FYLDE M.A.S.** seems all set to collect the annual club Championship, as he has an advantage of some 60 points over his nearest rival, S. Newton. Here again much trouble has been experienced with the weather, and it has proved quite a job to complete the 1950 schedule.

Newly affiliated is the **LEWISHAM (ORBIT) M.A.C.** where controlining is the main interest, though a few free flight jobs are showing themselves recently. They have some very good Team Racers, one of which, powered by a Frog 500, laps at 78 m.p.h. and averages 35–40 laps per tank. Any keen modellers interested in joining the club should contact the secretary, R. Johnson, 16 Wistaria Road, Lee High Road, Lewisham, S.E.13.

Despite just about the worst and wettest weather for a contest this season, members of the **LUTON & D.M.A.S.** made a good all round showing at the South Midland Area Rally at Halton. Dan Bateman secured a well-deserved first place in the Open Rubber comp., with Roy Clements a close second. I had the pleasure of helping judge an exhibition staged by these chaps in Luton, when Sid Miller won a keenly contested event with his well-known "Lutonia", though he was closely pressed by a very interesting machine designed and built by Geoff Williams. This chap also had a most unorthodox twin-boom, twin Frog 500 powered stunt model on show, and though I have not seen it airborne, I am assured it is somewhat impressive!

In a thick ground mist, the **WIGAN M.A.C.** held its 5th annual contest on Sept. 24th. Conditions cleared late in the day—but the substitute was a wind of gale force, which did not induce good flying. In spite of this some good durations were timed, B. Picken winning the "Morton Cup" for the best time of the day for the second year in succession with a flight of 4 : 31 o.o.s. in the power event. This chap also has the honour of the best time for the year with a duration of 29 : 00 with his own designed Wakefield. Results of the contests (aggregate of 2) were :—

Glider	(Senior)	D. Morgan	3 : 00	B. Picken	2 : 06
	(Junior)	C. Johnson	2 : 14	K. Russell	1 : 33·6
Rubber	(Senior)	B. Picken	4 : 09·2	R. Baldwin	4 : 14·7
	(Junior)	R. Chisnall	1 : 17	J. Buckley	: 56·2
Power	(Senior)	B. Picken	4 : 31·2	D. Morgan	4 : 04·3
	(Junior)	J. Oldfield	2 : 04·2		

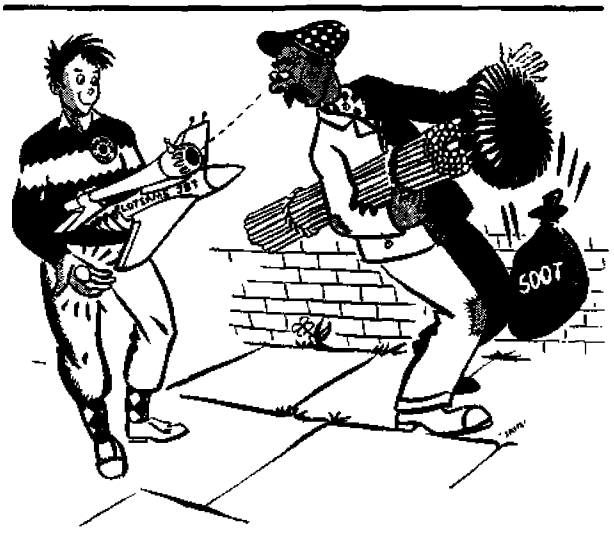
On August 27th the **R.A.F. ODIHAM & D.M.A.C.** held the inaugural contest for the "54 Challenge Cup" for gliders. Except for a rather strong wind, the weather was good and times were consistent if not high. C. H. Froud proved the eventual winner flying a "Fugitive" to an aggregate of 7 : 37, although it was anyone's race up to the final round. H. Godsack, flying a "Sunnanvind" was second with 6 : 36·6, narrowly placed above P. Smith, whose "Thermic 50" achieved 6 : 34·6. The last named effort was particularly pleasing as he was a junior making his first entry into a contest.

CARDIFF M.A.C. has suffered severely this summer, both from call-ups and the weather—two fine contest days so far! Sept. 11th saw M. J. Bennett repeat his last year's success by taking first place in the open glider event at the Swansea club's "Battle of Britain" do, his only flight of 2 : 20 being hurled o.o.s. in a screaming gale. Heartbroken member is Dennis Ridley. His "Thunderking" was lost on its first contest flip of 10 minutes o.o.s., and the remains were returned to him in an envelope after being washed up at Porthcawl—28 miles away. Another noteworthy flight was that of J. Phillip's Nordic Glider, which clocked 4 : 21 hand launched, unfortunately with only one stopwatch operating.

Members of the Aeroklub RCS., Model Odbor, Horice v Podkrkonosi, Czechoslovakia, express a desire to correspond with English aeromodellers. This request reaches us through Mr. Ceslav Rak, to whom communications should be addressed.

Well, don't eat too much and get yourselves out of trim, and remember there are many good days for model flying during the winter months, so we may yet see key contests held in December. It couldn't be worse than some of the "Summer" months in 1950, so don't despair. Till next month, and the start of a new—and we hope much improved—season, cheerio.

The Clubman



NEW CLUBS

LAMBETH M.F.C.
P. W. Hewett, 10, Hutton Road, London, S.E.11.

LEISTON & D.M.A.C.
S. A. Miller, Myrtle Cottage, Knodishall, Suffolk.

HEADLEY & D.M.F.C.
S. F. Plant, No. 4, Green Hanger, Churt, Surrey.

R.A.F. SEALAND M.A.C.
F/Sgt. Nicholls, Sgt.'s Mess, R.A.F. Station, Sealand, Nr. Chester.

WEST HANTS. AEROMODELLERS' ASSOCIATION
H. M. Dick, 5, Wakefield Avenue, Northbourne, Bournemouth, Hants.

SECRETARIAL CHANGES, ETC.

KING'S SCHOOL (Peterborough) M.A.C.
M. R. Bromige, 19, Lynton Road, Peterborough.

RADLEY COLLEGE M.A.C.
N. S. A. Duffin, Paton's, Radley College, Abingdon, Berks.

ST. EDWARD'S SCHOOL M.A.C.
J. Brewer, Cowell's House, St. Edward's School, Oxford.

HOGSTHORPE & D.M.A.C.
P. J. Middleton, Trafalgar Villa, Chapel St. Leonards, Nr. Skegness, Lincs.

HARROGATE M. & E.S.
K. Rutter, 197, Weatherby Lane, Harrogate, Yorks.

HALSTEAD (Essex) & D.M.F.C.
P. Hewitt, 57, London Road, Braintree, Essex.

BOURNEMOUTH M.A.S.
H. F. Weller, 17, Stillmore Road, West Howe, Bournemouth, Hants.

SOUTH-EASTERN SCOTTISH AREA
H. F. Grieg, 19, Loughborough Road, Kirkcaldy, Fife.

1950 CONTEST RESULTS

"MODEL ENGINEER" CUP, 3rd September

1.	Croydon M.A.C.	2,623 points
2.	Pharos M.A.C.	2,397·5 ,,
3.	Streatham M.A.C.	2,032 ,,
4.	Wayfarers M.A.C.	1,896·8 ,,
5.	West Middlesex M.A.C.	1,844·1 ,,
6.	Park M.A.L.	1,734·4 ,,
7.	Sheffield M.A.S.	1,694 ,,
8.	Ipswich M.A.C.	1,675 ,,
9.	West Yorks M.A.C.	1,601 ,,
10.	Northern Heights M.F.C.	1,521·9 ,,
11.	Birmingham M.A.C.	1,508·2 ,,
12.	Scarborough M.A.C.	1,335 ,,

(91 clubs competed, 360 entries.)

"FARROW SHIELD", 3rd September

1.	Kentish Nomads M.A.C.	2,158 points
2.	Croydon M.A.C.	1,991·3 ,,
3.	Northampton M.A.C.	1,856·4 ,,
4.	Littleover M.A.C.	1,783·9 ,,
5.	Leeds M.F.C.	1,344 ,,
6.	Pharos M.A.C.	1,271·9 ,,
7.	Icarians M.A.C.	1,224·25 ,,
8.	Birmingham M.A.C.	1,146·5 ,,
9.	Ipswich M.A.C.	1,066·6 ,,
10.	Thames Valley M.A.C.	1,060·5 ,,
11.	Luton M.A.S.	1,039·05 ,,
12.	Plymouth M.A.C.	1,031·15 ,,

(63 clubs competed, 210 entries.)

"ASTRAL TROPHY", 3rd September, (220 entries.)

1.	Marcus, N. G.	Croydon	16·38 ratio
2.	Ladd, R.	Croydon	14·04 ,,
3.	Lowe, G.	Colchester	11·4 ,,
4.	Gorham, J. A.	Ipswich	10·77 ,,
5.	Cross, P. N.	Scarborough	10·25 ,,
6.	Wingate, J.	Streatham	9·99 ,,
7.	Barr, L.	Pharos	9·6 ,,
8.	Jacobs, P. S.	Ipswich	9·47 ,,
9.	Wright, L.	St. Albans	8·82 ,,
10.	Pepperell, D.	West Middlesex	8·78 ,,
11.	Wickes, P.	Northampton	8·71 ,,
12.	Preston, —,	West Yorks	8·58 ,,

"FLIGHT" CUP, 17th September, (19 entries.)

1.	Copland, R.	Northern Heights	449
2.	Rumley, D. H.	Kentish Nomads	337
3.	Knight, J. B.	Kentish Nomads	308·5
4.	Roper, R.	Icarians	247·7
5.	Richmond, J. S.	Wolves	235
6.	Fuller, G.	Luton	231
7.	Blake, M.	Thames Valley	212
8.	Pitcher, J. L.	Croydon	197
9.	Lawrence, D. A.	Wayfarers	191
10.	Clarke, T.	Luton	167·5
11.	Longstaffe, A.	Belfairs	167·5
12.	Munday, P.	Cleethorpes	153

"S.M.A.E. CUP", 17th September, (22 entries.)

1.	Yeabsley, R.	Croydon	499·4
2.	Beeson, E.	Reading	311
3.	Jones, R.	Wayfarers	217
4.	Hanson, M. L.	Solihull	196·8
5.	Gorham, J. A.	Ipswich	196
	Balding, T.	Cleethorpes	
6.	Osborne, J.	Ipswich	187
7.	O'Donnell, J.	Whitefield	184·9
8.	Longstaffe, A.	Belfairs	150·2
9.	Hudman, J.	Birmingham	146·2
10.	Bennett, A. D.	Prestwich	143·4
11.	Rawley, N.	Leeds	138
12.	Wheeler, B.	Birmingham	120·4

"FROG JUNIOR CUP", 17th September, (6 entries.)

1.	Rumley, D. H.	Kentish Nomads	337
2.	Roper, R.	Icarians	247·7
3.	Richmond, J. S.	Wolves	235
4.	Machlachan, D.	Wayfarers	110
5.	Pizzey, C.	Ipswich	85·2
6.	O'Donnell, H.	Whitefield	26·8

1950 NATIONALS CHAMPIONS

SENIOR	Gorham, J. A.	Ipswich M.A.C.
JUNIOR	Rumley, D. H.	Kentish Nomads
C/L STUNT	Hewitt, B. G.	South Birmingham

"CATON TROPHY"

R. Copland — Northern Heights M.F.C. — 2,638·1 points

PLUGGE CUP PLACINGS, (172 clubs participated.)

1.	Croydon D.M.A.C.	1424·21	points
2.	Pharos M.A.C.	1300·5189	,,
3.	Sheffield M.A.S.	1139·3847	,,
4.	Leeds M.F.C.	1002·5938	,,
5.	Park M.A.L.	1045·3	,,
6.	Northern Heights M.F.C.	1013·4587	,,
7.	Ipswich M.A.C.	983·4078	,,
8.	Birmingham M.A.C.	982·8357	,,
9.	Luton M.A.S.	913·7331	,,
10.	Northampton M.A.C.	881·0855	,,
11.	Loughborough College	841·9375	,,
12.	Kentish Nomads M.A.C.	805·8981	,,

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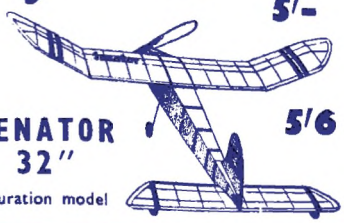

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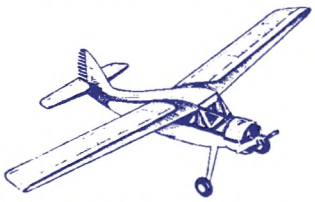

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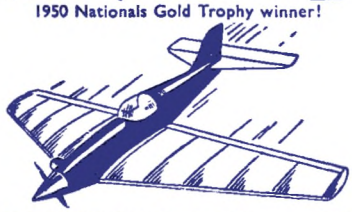

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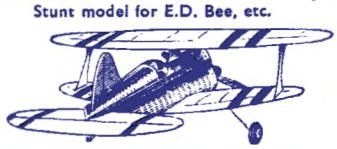

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