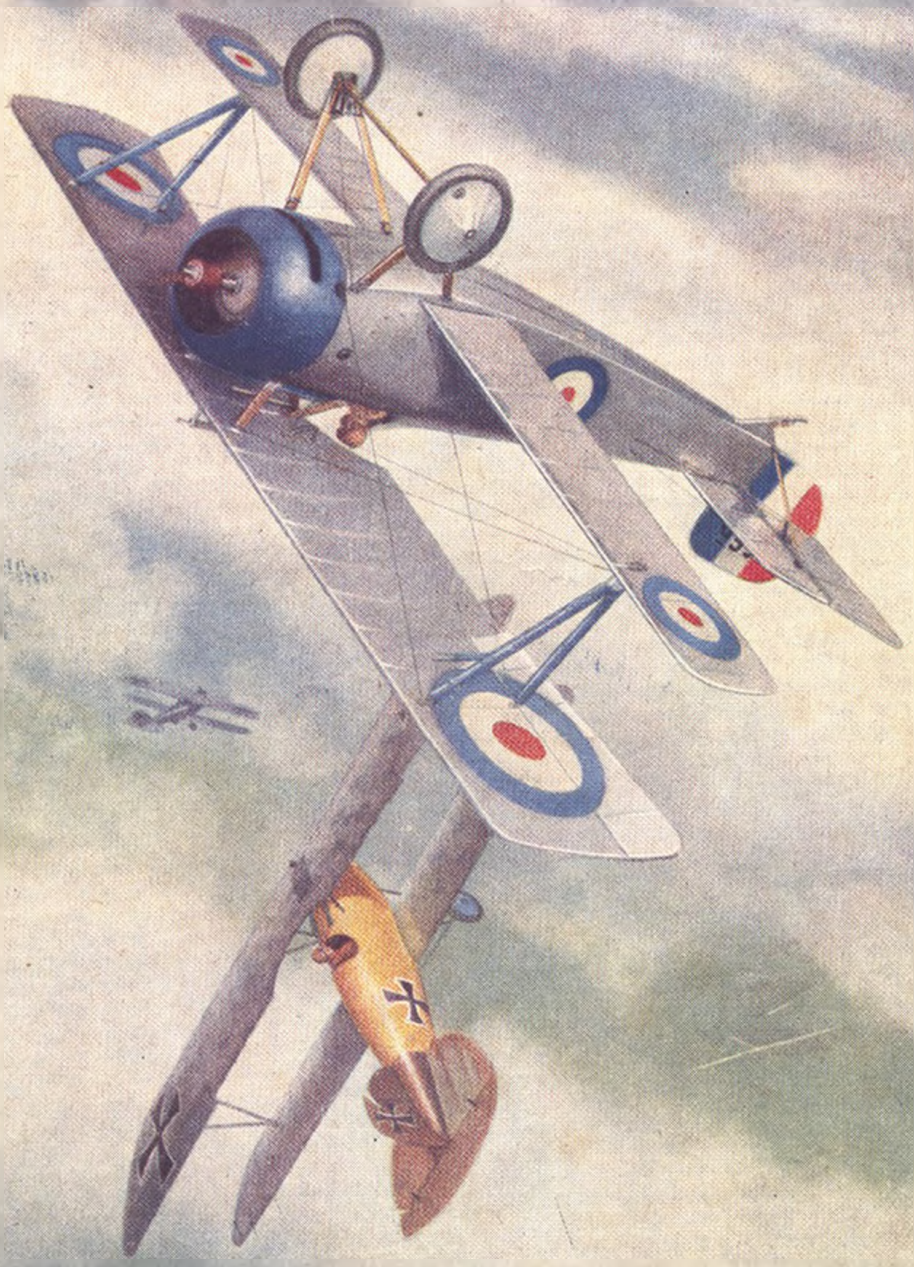
MAR. 1948

AEROMODELLER 1/3



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TO HENRY J. NICHOLLS LONDON—
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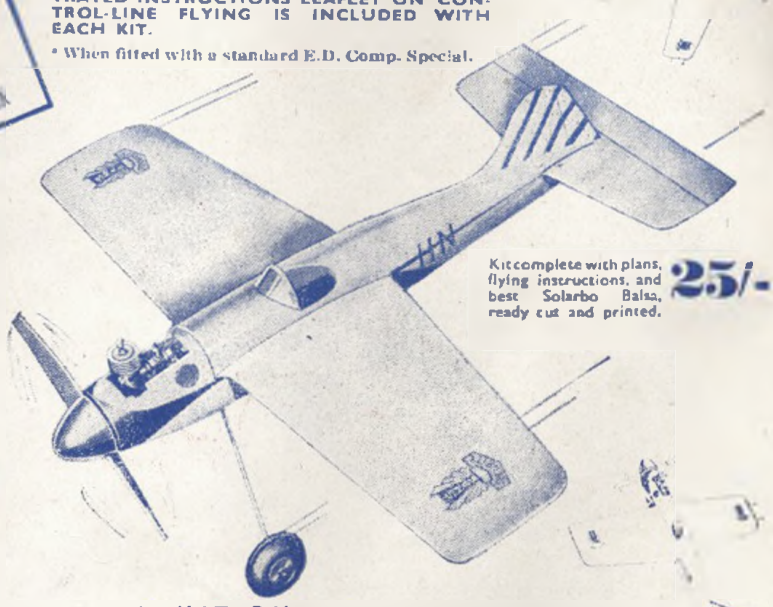
This excellent control-line model was made to CLIMB, DIVE, LOOP, and do a TRUE WING-OVER* before being O.K'd for production. Its outstanding characteristics are extreme ruggedness of construction, simplicity in building, and manœuvreability when in the air. AN ILLUSTRATED INSTRUCTIONS LEAFLET ON CONTROL-LINE FLYING IS INCLUDED WITH EACH KIT.

* When fitted with a standard E.D. Comp. Special.



● TECHNICAL DETAILS

Wing Area - 150 sq. ins
Span - - - - 26¾ ins
Airfoil Section - NCL472
All-up weight (with E.D Comp. Spec.) - 16 ozs.

Kit complete with plans, flying instructions, and best Solarbo Balsa, ready cut and printed. **25/-**

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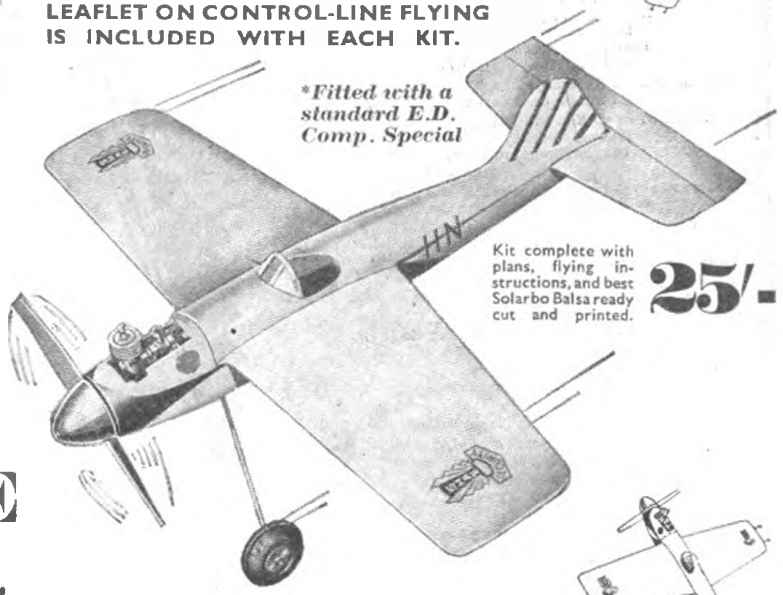

*Fitted with a standard E.D. Comp. Special

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Span — 26¾ ins.
Airfoil Section — NCL 472
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- Structural Design by Ron Moulton
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AEROMODELLER
INCORPORATING "THE MODEL AEROPLANE CONSTRUCTOR"

R.O.G. MODERN STYLE—M. Coxon of the Southampton Club launching his lightweight "Midge II." This model is fitted with the fashionable sprung wire undercarriage hence the peculiar antics of the launcher. This excellent action photograph was taken by V. S. Lodge.

CONTENTS

VOL. XIII No. 146 MARCH, 1948

EDITORIAL

GET CONTEST CONSCIOUS !

WITH the announcement in this issue of the projected resumption of the Wakefield Contests, interest in contest flying is naturally accentuated, and it is on this theme that we devote our monthly "*tête à tête*".

Reference to the Contest Calendar on page 223 will give a clear indication of what is required of the keen competitor this year, and enthusiastic indeed will be the man who decides to "have a bash" at all the events scheduled. However, the trend of aeromodelling nowadays is towards specialisation, for it becomes more and more impossible to tackle everything put on the Contest Menu as the hobby develops.

International events are, by virtue of their requirements, restricted to a minority of those interested in contest flying and it will be noted from the F.A.I. calendar that only two events are being held over here. These are the well known Eaton Bray International Week Meeting which has proved so popular in the past and our old friend the Bowden Trophy Contest. Failure to restore the basic petrol allowance is bound to have an effect on such National meetings as are centralised or semi-centralised. This is a great pity, as various Areas were just getting into their stride with the holding of group meetings, and such travel restrictions can only retard the development of inter-club and group events that were forming a most enjoyable aspect of the hobby. We suppose the Peace will eventually be won—though whether or not our grey hairs will survive the interim period we hesitate to predict !

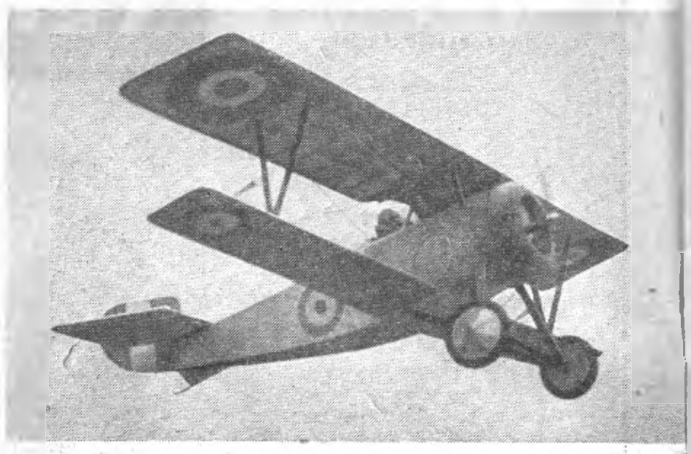
The main requirement for the proper conduct of competitive flying is of course entirely unpredictable, namely the WEATHER. The law of averages goes hopelessly haywire when applied to the British climate, but —with aeromodeller's renowned optimism—we look forward to a summer that will at least provide flyable weather on Sundays, whatever it does to us during the workaday week !

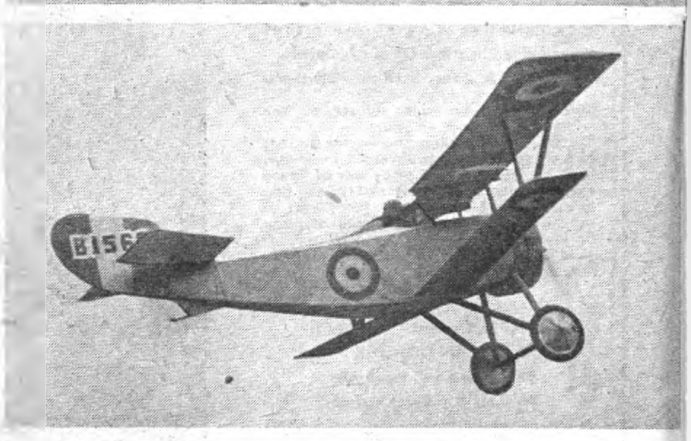
What of the various phases of aeromodelling in 1948 ? Without sticking the Editorial neck out too far, we predict a partial swing-over from power models to their older brethren, the rubber job, with a fair accent on the Wakefield specification model. This is natural in view of the plans now announced for progressive selection of the British Team (advocated by Clubman last month), and it will be interesting to put our forecast to the test as the season progresses.

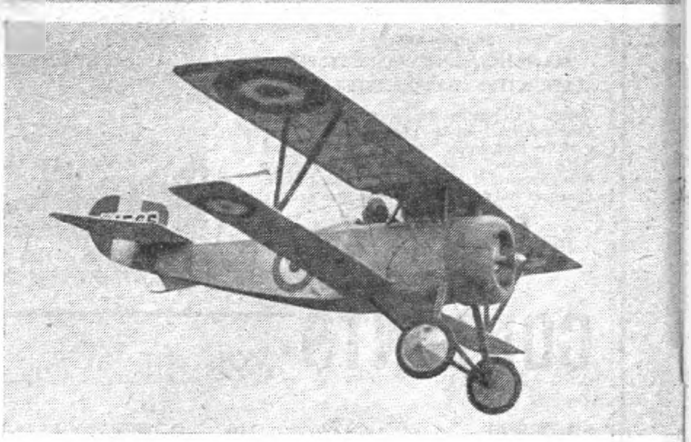
Power modelling is still following its expected boom, but already there is evidence that the average flier is turning his interest to the "better looking" model, as distinct from the accentuated pylon jobs so popular in 1947. Whether this holds good for contest flying is still a moot point, but there are already signs that the more orthodox cabin type of power model is improving, and may yet hold its own.

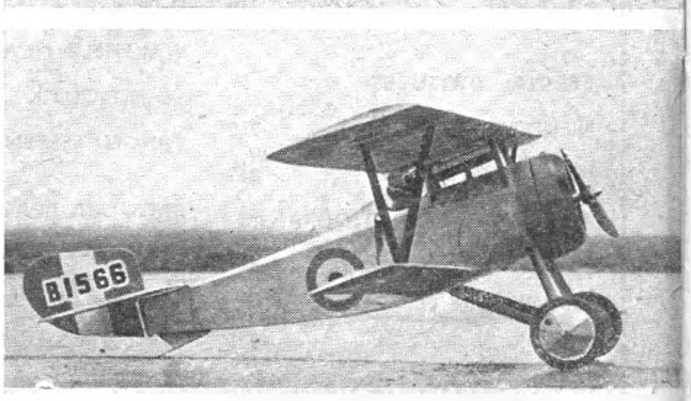
Gliding has naturally fallen off in interest in some directions, due to the return of better quality rubber, and the lifting of the ban on power model flying imposed during the war. However, the improvement in model gliding more or less forced on British aeromodelling by wartime restrictions is bound to show in more ways than one, and we would like to see a resumption of the International event devoted to gliders—i.e. the King Peter Cup. A great deal of design and constructional experience gained from sailplanes is being put to good use in other types of models, and more thought is given to worthwhile streamlining on all classes of models.

However, irrespective of which type of model we prefer, there can be no doubt that competitive flying is the main drive for perfecting design, and we recommend a spot of competition work to all our readers, whether they think they stand a chance or not. Remember, it is always the unexpected that happens in the majority of contests, and the veriest novice can at times show a clean pair of heels to the experts Don't be put off by an inferiority complex—have a go ! It is no shame to lose, but there is no excuse for not having a try. There must always be more losers than winners, but at any rate, make the winner go all out to gain his honours . . . . don't hand it to him by not providing stiff competition.





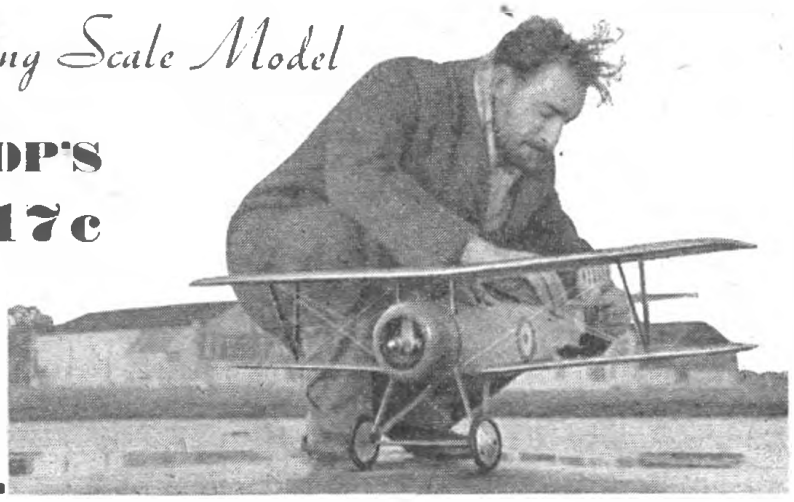




A ½ inch to 1 foot Flying Scale Model

OF BILLY BISHOP'S NIEUPORT 17c

Designed by L · C · Bagley



Left is a series of fine action photographs by the "Aeromodeller" staff photographer, the true to scale flying attitude of the model being amply demonstrated. Right we have the designer making final adjustments to the tailplane prior to take-off.

AS readers will readily appreciate it is our privilege to witness many a fine model in flight but rarely has anything stirred the depths of our hardened editorial hearts to such an extent as did this magnificent model of Billy Bishop's own Nieuport climbing away on its final proving flight. Never before has the romanticism of the 1914–18 era been so vividly portrayed. With the sound of the wind in the wires and the bark of its sturdy Mills' engine echoing in scale the original Le Rhone, the model has more than justified the hours of patient trimming and modification that were necessary before satisfactory flight performance was achieved.

The diesel engine whilst bringing many advantages to the flying scale modeller brings also a large and menacing problem —Torque! In spite of 5 degrees sidethrust and washout in the port wing, flight after flight ended in that sickening spin in that we all know so well. The model after a beautiful take-off would raise our hopes by completing a full turn to port and then—well, you all know the rest so that it is hardly necessary to describe the unhappy ending. However, chastened, but undespaired, we continued the struggle and it was left to an idea brought to this country by M. Balasse of Belgium to provide the solution that finally defeated our arch enemy Torque. Many readers will have seen the stupendous climb with accompanying roll off the top performed by the Belgium shoulder wing contest models that earned such a reputation during their visit to this country last year. The secret of their success was an extremely simple, but nevertheless cunning, pendulum rudder control. This, fitted to the Nieuport and adjusted to give the fullest possible movement under torque, provided the final solution.

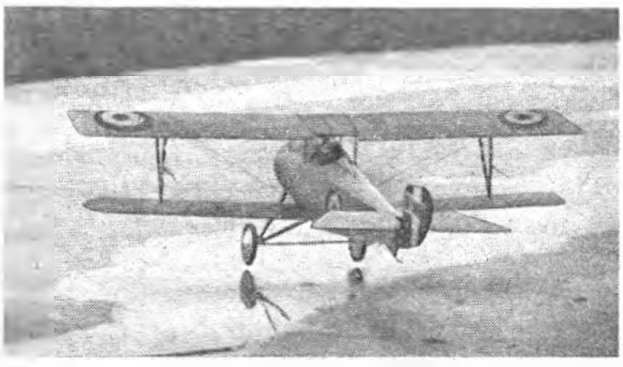
These 1914–18 scale fighters whilst fascinating to behold are rarely foolproof in flight but we can in this case thoroughly recommend the Nieuport. It is as safe to fly as a normal petrol semi-scale job with an equal performance. For those of you who cannot resist it (we are sure that there will be many), we give the following advice on trimming and flying. Firstly, check all flying surfaces, strut fittings, wheel alignment not forgetting your C.G.! Then test glide over a level surface or long grass. The sinking speed of this model is higher than is normally encountered owing to the excess drag of the struts and wires, etc., so do not be misled. The glide will appear steeper than that of a normal duration model and it must not be assumed that the C.G. needs shifting or that more incidence is required.

Satisfactory glide tests completed, a power R.O.G. should then be attempted. Again, check all the fittings and make sure that the pendulum rudder is operating satisfactorily, then warm up your motor for two or three minutes. Slacken off your contra-piston and over-rich the mixture until the Mills is running at the lowest possible revs and then let her go, into wind of course. *We cannot over emphasise the importance of conducting the initial power tests with the minimum amount of thrust and under calm weather conditions.* Two or three flights under these conditions and the power output can be increased in progressive stages until finally the Nieuport is climbing like a contest model.

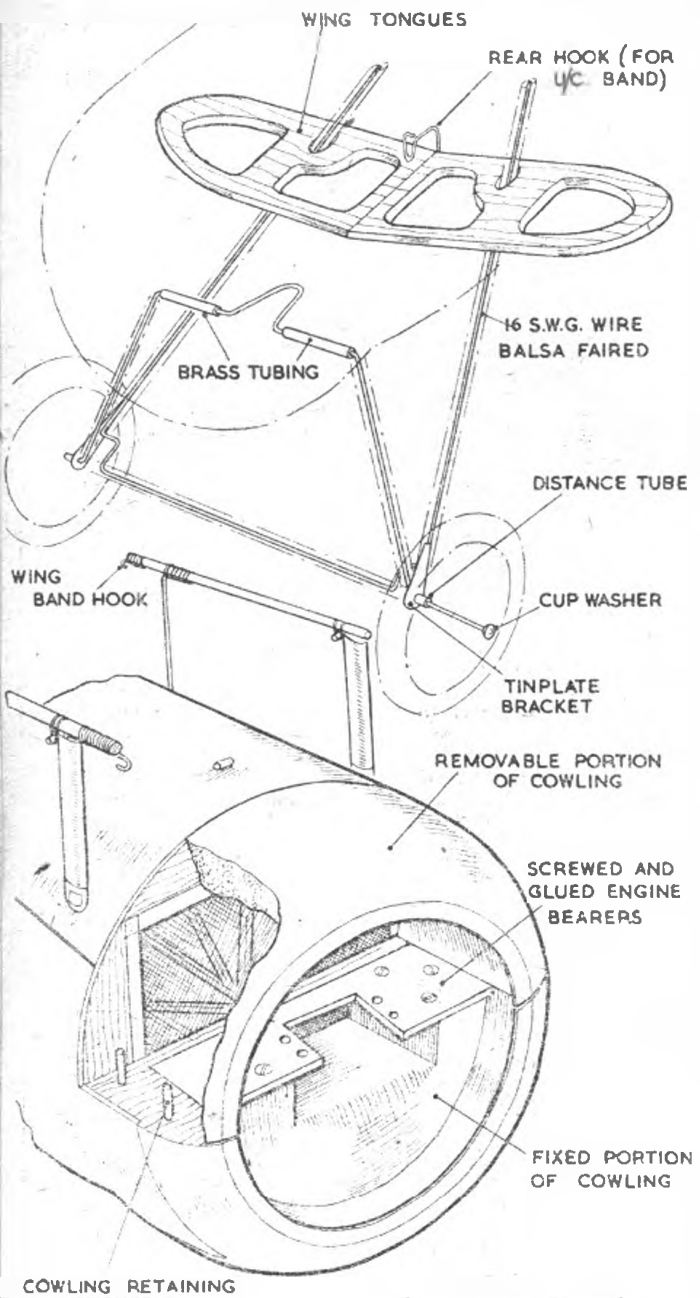
Before passing on to the constructional details we would mention that only minor exterior damage was encountered during the many heavy landings that the prototype endured in its initial stages. Everything is "knock-off-able" and, as our American friends would say, She's rugged!

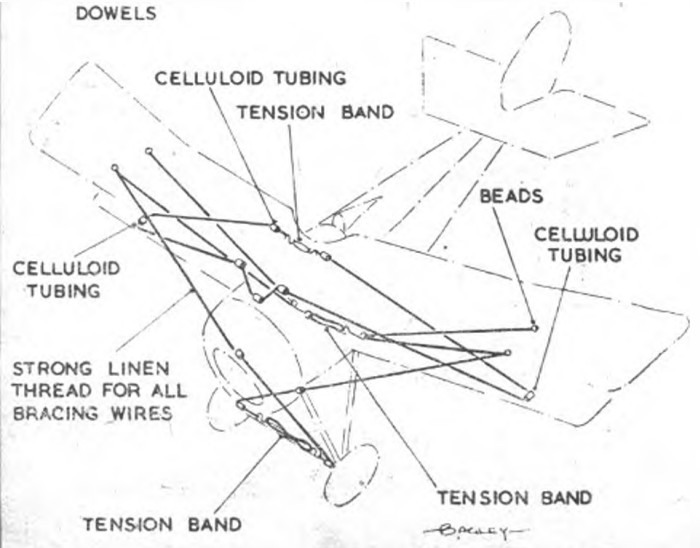
Fuselage. The basic frame of ¼ sq. is built in the usual manner, the top longeron being used as a datum line. It is best to build the lower wing tongue assembly as a separate unit and instal it complete as the lower wing setting at zero lift, is critical. The small side panels which carry the wing tongues are of ⅛ in. hard balsa, care being taken to cut the wing tongue slots with a bevel to take the lower wing dihedral. The wing tongues are of ⅛ in. ply. The dihedral setters are also of ⅛ in. sheet. The cabane strut tubes are bound and glued in position. The undercarriage forward leg assembly is made up and bound into place. The various formers can be glued in position and the nose portion sheeted in with 1/16 in. balsa. The top and bottom rear bays of the fuselage are filled in with ⅛ in. sheet and the tail skid fitted. The lower wing fairings are built up of soft ¼ in. sq. balsa. The remaining details can now be added namely, inspection panels of 1/64 in. sheet on each side of the fuselage, headrest, the door for access to choke, undercarriage tension band hook, inverted Vee struts and windscreen.

(*Continued on page* 214)



A close study of the photograph on the right, showing the Nieuport at point of take-off, reveals just that necessary amount of clearance between the wheels and the concrete to indicate that the Nieuport is indeed airborne.





A 4½" WINGSPAN POWER FLYING SCALE MODEL

BISHOP'S NIEUPORT 17.

SCALE ⅛ FULL SIZE.

DESIGNED BY L. C. BAGLEY.

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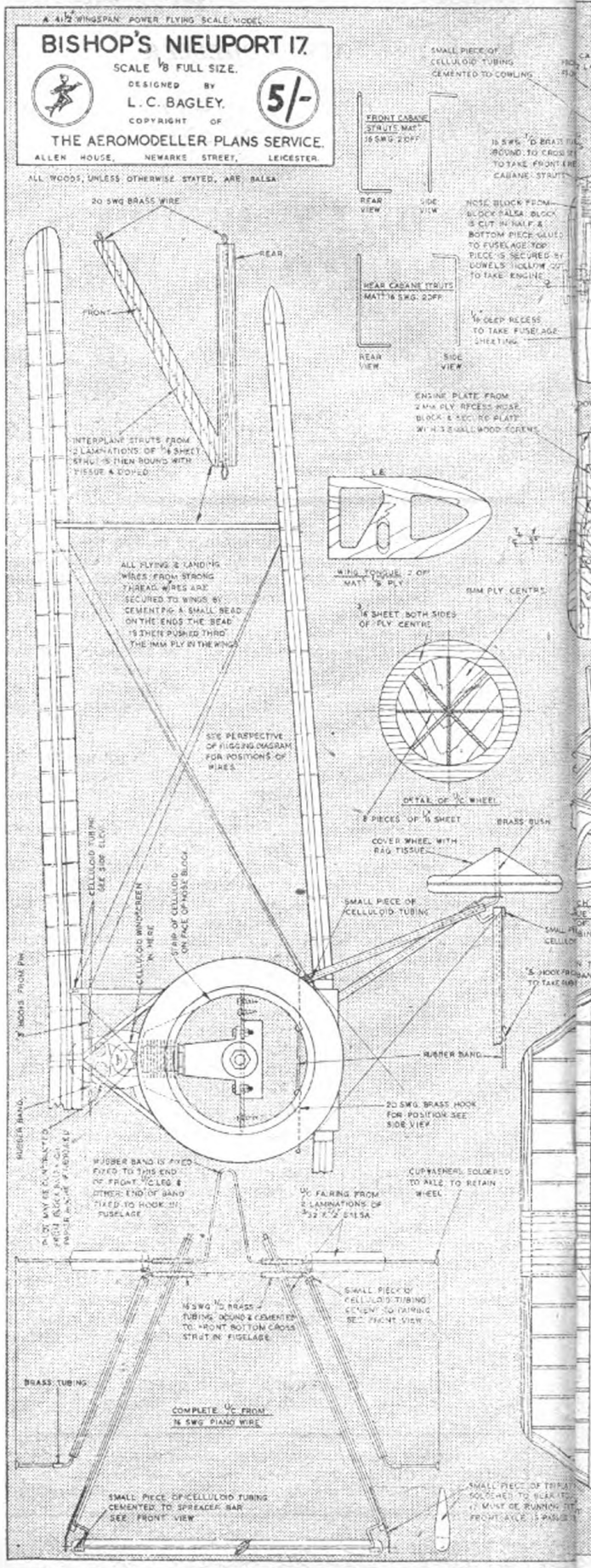
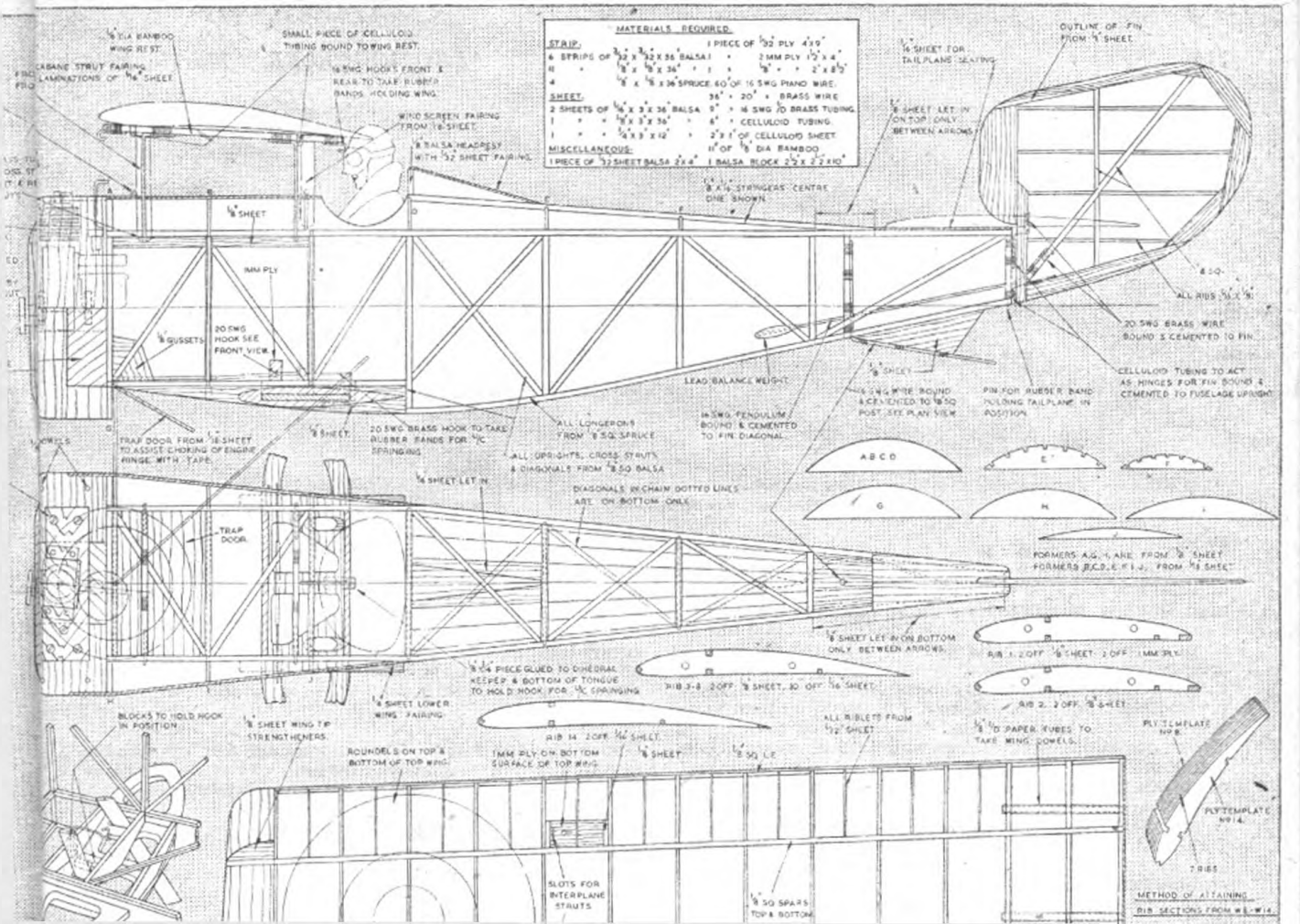
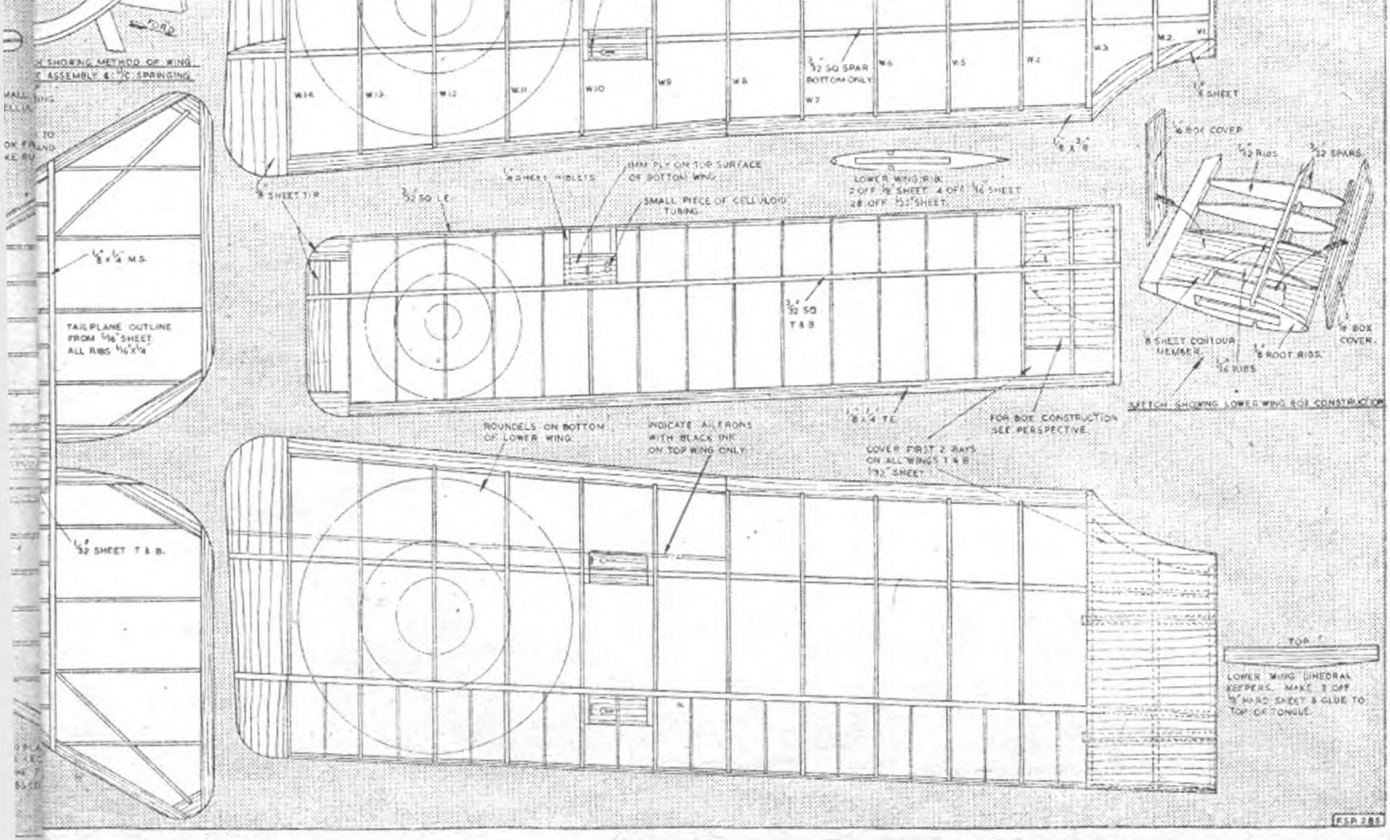



MATERIALS REQUIRED.
STRIP:
6 STRIPS OF 3/32 X 3/32 X 36" BALSA
11 " " 1/8 X 1/8 X 36" "
4 " " 1/8 X 1/8 X 36" SPRUCE
SHEET:
2 SHEETS OF 1/16 X 3" X 36" BALSA
1 " " 1/8 X 3" X 36" "
1 " " 1/4 X 3" X 12" "
MISCELLANEOUS:
1 PIECE OF 1/32 SHEET BALSA 2"X 4"
1 PIECE OF 1/32 PLY 4"X 9"
2 MM PLY 1/2" X 4"
" " 1/8" X 2" X 8 1/2"
60 OF 16 SWG PIANO WIRE.
36" " 20" " BRASS WIRE
9" " 16 SWG TO BRASS TUBING.
" " CELLULOID TUBING.
" " OF CELLULOID SHEET.
11" OF 1/8 DIA BAMBOO
1 BALSA BLOCK 2 1/2" X 2" X 2 1/2"
1/8 DIA BAMBOO WING REST.
SMALL PIECE OF CELLULOID TUBING BOUND TO WING REST.
CABANE STRUT FAIRING LAMINATIONS OF 1/16 SHEET
16 SWG HOOKS FRONT & REAR TO TAKE RUBBER BANDS HOLDING WING.
WIND SCREEN FAIRING FROM 1/16 SHEET.
1/8 BALSA HEADREST WITH 1/32 SHEET FAIRING.
1/8 SHEET
1MM PLY
1/8 GUSSETS
20 SWG HOOK SEE FRONT VIEW
1/8 SHEET
20 SWG BRASS HOOK TO TAKE RUBBER BANDS FOR 'C' SPRINGING
TRAP DOOR FROM 1/16 SHEET TO ASSIST CHOKING OF ENGINE HINGE WITH TAPE.
TRAP DOOR.
1/16 SHEET LET IN
ALL LONGERONS FROM 1/8 SQ SPRUCE
ALL UPRIGHTS, CROSS STRUTS & DIAGONALS FROM 1/8 SQ BALSA
DIAGONALS IN CHAIN DOTTED LINES ARE ON BOTTOM ONLY
1/8 STRIP LOWER WING FAIRING
BLOCKS TO HOLD HOOK IN POSITION
1/8 SHEET WING TIP STRENGTHENERS.
ROUNDELS ON TOP & BOTTOM OF TOP WING
1MM PLY ON BOTTOM SURFACE OF TOP WING
SLOTS FOR INTERPLANE STRUTS
1/8 SQ SPARS TOP & BOTTOM
1/4 PIECE GLUED TO DIHEDRAL KEEPER & BOTTOM OF TONGUE TO HOLD HOOK FOR 'A' SPRINGING
RIB 14 2 OFF 1/16 SHEET.
1/8 SHEET
1/8 SQ L.E.
LEAD BALANCE WEIGHT
16 SWG PENDULUM BOUND & CEMENTED TO FIN DIAGONAL
1/8 SHEET LET IN ON BOTTOM ONLY BETWEEN ARROWS.
RIB 3-8 2 OFF 1/8 SHEET, 30 OFF 1/16 SHEET.
ALL RIBLETS FROM 1/32 SHEET
1/8 SHEET LET IN ON TOP ONLY BETWEEN ARROWS.
1/16 SHEET FOR TAILPLANE SEATING
OUTLINE OF FIN FROM 1/8 SHEET.
1/8 SQ.
ALL RIBS 1/16 X 1/8
20 SWG BRASS WIRE BOUND & CEMENTED TO FIN.
CELLULOID TUBING TO ACT AS HINGES FOR FIN BOUND & CEMENTED TO FUSELAGE UPRIGHT
16 SWG WIRE BOUND & CEMENTED TO 1/8 SQ POST SEE PLAN VIEW
PIN FOR RUBBER BAND HOLDING TAILPLANE IN POSITION
A B C D
E
F
G
H
I
FORMERS A,G,H ARE FROM 1/8 SHEET
FORMERS B,C,D,E,F & I FROM 1/16 SHEET
RIB 1. 2 OFF 1/8 SHEET 2 OFF 1 MM PLY
RIB 2. 2 OFF 1/8 SHEET
1/8 PAPER TUBES TO TAKE WING DOWELS.
PLY TEMPLATE No 8.
PLY TEMPLATE No 14.
METHOD OF ATTAINING RIB SECTIONS FROM No 8 - No 14.


W14
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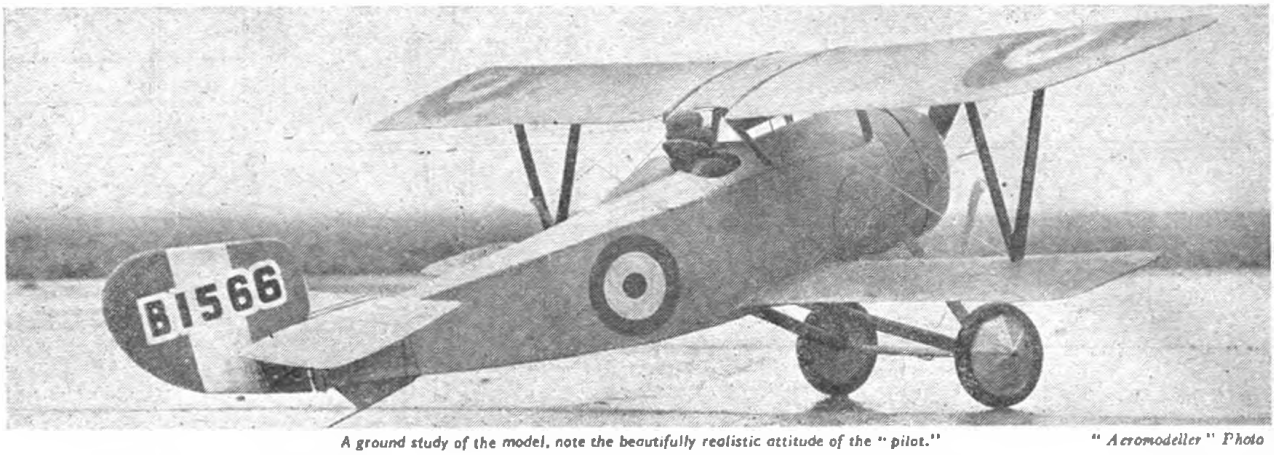
W6
W5
W4
W3
W2
W1
3/32 SQ SPAR BOTTOM ONLY
1/8 SHEET
1/8 BOX COVER
1/32 RIBS
3/32 SPARS
1/8 BOX COVER
1/8 SHEET CONTOUR MEMBER
1/8 ROOT RIBS
1/16 RIBS
SKETCH SHOWING LOWER WING BOX CONSTRUCTION
1/8 SHEET TIP
3/32 SQ L.E.
1/16 SHEET WEBLETS
1MM PLY ON TOP SURFACE OF BOTTOM WING
SMALL PIECE OF CELLULOID TUBING
LOWER WING RIB 2 OFF 1/8 SHEET 4 OFF 1/16 SHEET 28 OFF 1/32 SHEET
3/32 SQ T & B
1/8 x 1/4 T.E.
FOR BOX CONSTRUCTION SEE PERSPECTIVE.
COVER FIRST 2 BAYS ON ALL WINGS T & B 1/32 SHEET
ROUNDELS ON BOTTOM OF LOWER WING
INDICATE AILERONS WITH BLACK INK ON TOP WING ONLY
1/8 x 1/4 M.S.
TAIL PLANE OUTLINE FROM 1/16 SHEET ALL RIBS 1/16 x 1/4
1/32 SHEET T & B.
TOP
LOWER WING DIHEDRAL KEEPERS. MAKE 3 OFF 1/8 HARD SHEET & GLUE TO TOP OF TONGUE
FSP 285



A ground study of the model, note the beautifully realistic attitude of the "pilot." *"Aeromodeller" Photo*

Wings. These are of straightforward construction and require little explanation. The upper plane comprises 1/16 in. balsa ribs and 1/32 in. riblets, an $\frac{1}{8}$ sq. hard balsa leading edge, two $\frac{1}{8}$ sq. main spars, a 3/32 in. rear false spar with an $\frac{1}{4}$ in. by $\frac{3}{8}$ in. balsa trailing edge. The centre section ribs are all of $\frac{1}{8}$ medium hard balsa and the $\frac{1}{8}$ in. i/d paper tubes are positioned between these where shown on the drawing, the root ribs and strut attachment points are of 1/32 in. ply and the wing tip is cut from $\frac{1}{8}$ in. sheet medium balsa. Webs of 1/32 in. balsa are fitted between ribs out to rib No. 00. The centre section is covered in with 1/32 in. sheet and the four $\frac{1}{4}$ sq. balsa guides are glued in place. The lower wing comprises 1/32 in. ribs except where 1/16 ribs occur to strengthen the wing tongue boxes the strut attachment points and the root rib which is of $\frac{1}{8}$ sheet. The leading edge is $\frac{1}{4}$ sq. hard balsa with two main spars of 3/32 in. sq. and an $\frac{1}{8}$ in. by $\frac{1}{4}$ in. trailing edge. The tip is fabricated with $\frac{1}{8}$ in. medium hard sheet and the strut attachment plate is of 1/32 in. ply. The two root rib bays are covered in with 1/32 in. sheet balsa. Wing boxes are made up of $\frac{1}{8}$ in. sheet balsa contour members and 1/16 in. hard sheet covering. When assembled in the wing the boxes are liberally coated with cement.

Wheels. 2 discs of 1/32 in. ply are drilled to take the axle bushes. The 4 circular "tyres" are cut from 3/ 6 in. medium hard balsa sheet and cemented to the disc on either side, being so arranged that the grains are crossed. The eight triangular pieces of 1/16 in. balsa are well cemented into the wheel and these automatically align the bushes. The outside of the wheel is covered with tissue and well doped to give a spoked effect.

Struts. The cabane struts when bound and glued to the bamboo runners form a wing mounting and are made as two separate components. The forward strut only on each side is faired with 1/16 in. balsa, these are wrapped with tissue well doped on, four small hooks are then bound and glued the ends of each bamboo runner to take the wing bands.

Interplane Struts. The backbone of these is 22 s.w.g. brass wire formed to the drawing and faired with the 1/16 in. sheet Vee struts on each side. These are wrapped with tissue doped on.

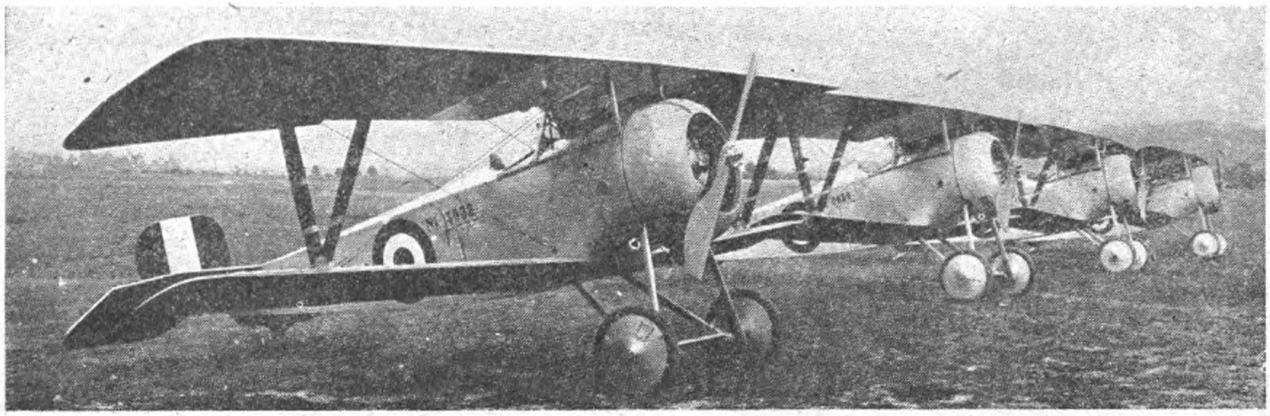
Undercarriage Legs. The two front and rear legs with the axle are faired in completely in the same way as the interplane struts. The tail skid has an $\frac{1}{8}$ sheet fairing of triangular shape.

Covering and Finishing. The model is covered in rag tissue, water sprayed, preferably using the "nailbrush" method to avoid sagging the tissue with a blast of air, after this clear dope the whole machine and wash out the port wing tip of the upper plane only. This is a model of Billy Bishop's Nieuport 17 and the colour scheme is as follows. All silver fuselage, wings and tailplane relieved by a blue cowling ring, roundels and striped fin with B.1566 in black with white edging running across it. Struts are finished in the same blue as the cowling.

Rudder Mechanism. This consists of an arm of 18 s.w.g. piano wire to which is soldered a balance weight, this can be built up with solder itself it should be of sufficient weight to positively swing the rudder in the opposite direction when the machine turns steeply.

* Full size plans as per $\frac{1}{4}$ scale reproduction on previous page are available price 5/–, post free, from the Aeromodeller Plans Service, Allen House, Newarke Street, Leicester.

In comparison to the above photograph of the model here is a squadron line-up of Italian Nieuports during the 1914-18 war.



NYLON COVERING

by J. A. Vincent

EARLY last year my son and I decided to build Temple's "Tribute." With a model of this type we thought that the covering should be something better than ordinary tissue and as Jap silk was unobtainable we decided to use utility Nylon. The question then arose as to what type of dope to use and as my son was taking a course in plastics we made use of a range of text books that he had at his disposal. From these we discovered that the specific gravity of nylon was 1·19 and it occurred to us that any dope having a greater specific gravity would be unsuitable and furthermore have the effect of adding weight whilst lacking in tightening qualities. On checking the specific gravity of various plastics we discovered that "Perspex" had the same value as nylon.

The question then arose as to what chemical would hold "Perspex" in a solution. Here again the text book came to our rescue and it became apparent that the cheapest and most efficient method was to use Glacial Acetic acid. In point of fact "Perspex" cement is made up of these two items and as a matter of interest is used extensively in full sized aircraft production. I was then lucky enough to obtain a gallon can of "Perspex" cement No. 6 which is a product of Imperial Chemical Industries, the price at that time being 5s. 6d.

Various tests were then made in order to discover the best method of covering the "Tribute." By covering an old half plate photographic printing frame with samples of nylon we were than able to check the effects of the perspex solution. A sample was given one coat of the cement which dried in 15 minutes. The nylon then had the appearance of a thin sheet of opaque glass and the material had acquired a satisfactory tension, in fact the nylon when beaten like a drum gave a musical sound. It was found at this stage that the cement had not penetrated through the nylon although this did occur after subsequent coatings.

The next test was to find the effect of heat on the treated nylon and it was found that it could be held near a flame without altering or damaging the fabric or reducing the tension. The effects of water were then checked. The frame being held under a dripping tap which only resulted in a musical sound, the material being completely waterproof. It was then completely immersed in both hot and cold water and here again the nylon remained unaffected. A second coat of "Perspex" cement was then applied, the material becoming even more glass-like and considerably stiffer. It was found that by working in the cement as much as possible that better results were obtained.

Should one desire to dope in colours, Aniline dyes can be used quite successfully although it is of course possible to obtain the coloured nylon used for supply parachutes by the airborne forces. "Perspex" cement being quite clear does not in any way affect the colour.

After these various tests a start was then made on the covering of the "Tribute" and our first effort was to make a "stocking" by sewing along the trailing edge around the wing frame. This "stocking" can then be drawn over the wing similar to the method used by our lady friends when putting on their hose. However, a more simple method was then discovered, which is as follows. Cut your nylon into rectangles sufficient to cover the wings, fuselage, tail surface, etc. Lay your rectangular piece of nylon on a blanket which has been folded into three or four thicknesses and smooth out the wrinkles making sure that the warp or selvedge edge runs parallel with the leading and trailing edges. Under no circumstances use excessive pressure or an iron. With a good brush lightly paint the underside of the framework you are covering with the "Perspex" cement. This operation should be done quickly as the cement dries in a few minutes. Hold your framework over the nylon and press it firmly down on to the material for about thirty seconds and then place on one side with the nylon uppermost. Do not hold it any longer than necessary otherwise the cement is liable to penetrate through the nylon and stick to the blanket. When the underside of the various sections of the model have been covered you are all set to carry on with the next operation, but first trim the lower covering to shape leaving a half inch margin. Making sure to cut darts in the overlap around the curves. Now brush the top surface around the edges with cement and at the same time turn over the overlap so that it is well cemented to the top surface of the framework. Do not use too much cement and carry out this operation in lengths of about two or three inches using the brush so that no undue pressure is applied to the material to cause wrinkles. There are two reasons why all work should be done with a brush, firstly, it is not advisable to let the cement come into contact with the skin as the glacial acetic acid is liable to take the skin off your fingers. Secondly the brush is more effective for smoothing out wrinkles as undue pressure cannot be applied which would normally cause the material to bias.

When top covering the wings it is advisable to coat the main spar and the part of the ribs adjacent to it first, as this will greatly assist in getting the covering on true. For the top covering again lay the nylon on the blanket and paint the main spar, etc., as previously mentioned. Press the framework on to the nylon as before and allow to dry.

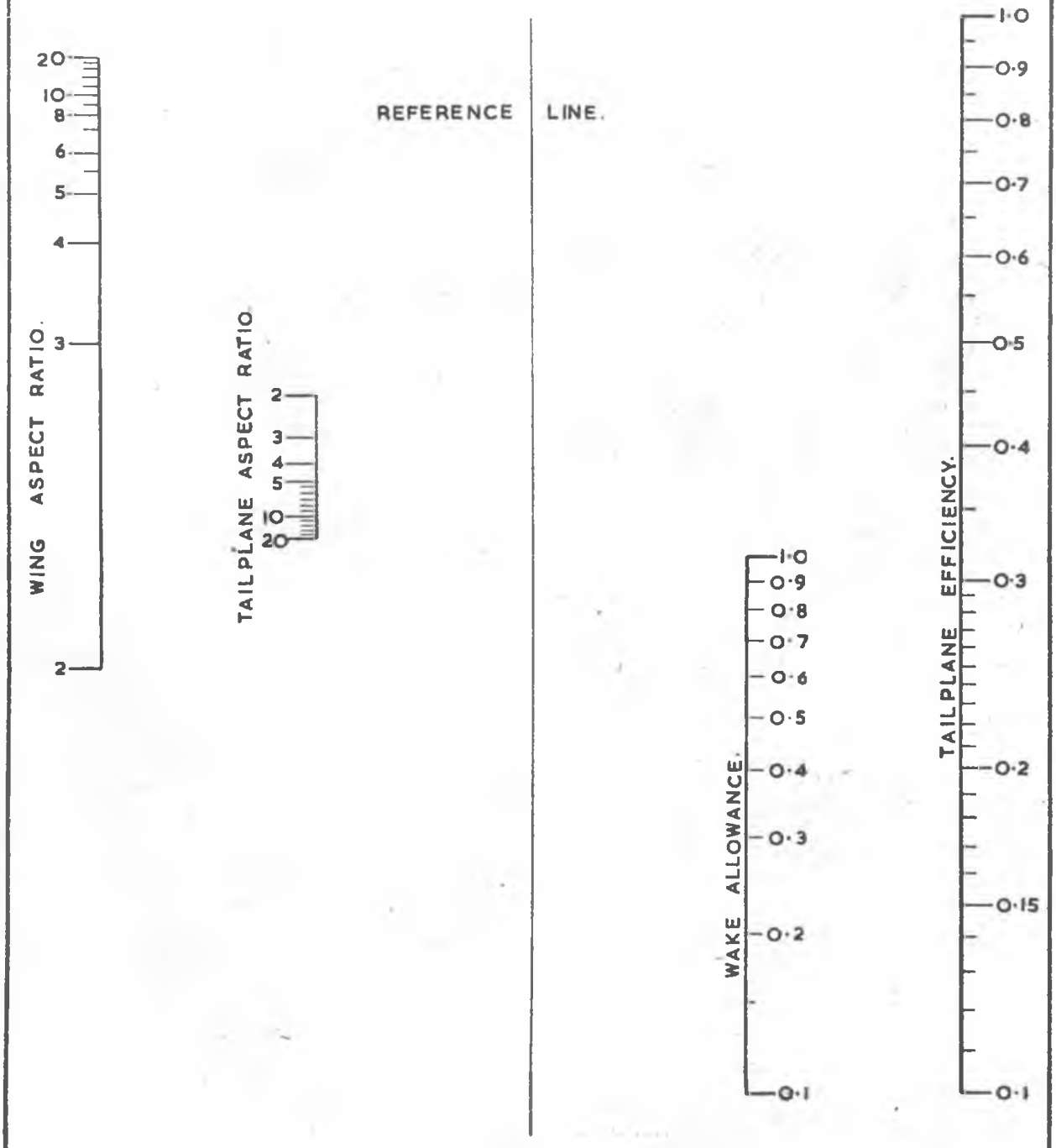
Now take the brush and coat the leading and trailing edges making sure not to use too much cement and lightly stick down the nylon, smoothing out all wrinkles. When dry, trim round the framework leaving again a half inch margin to turn under not forgetting to cut darts where any acute curves occur. Apply cement to the underside around the edges and stick down the overlap. Put the framework to one side and allow to dry thoroughly for at least twenty minutes before attempting to dope.

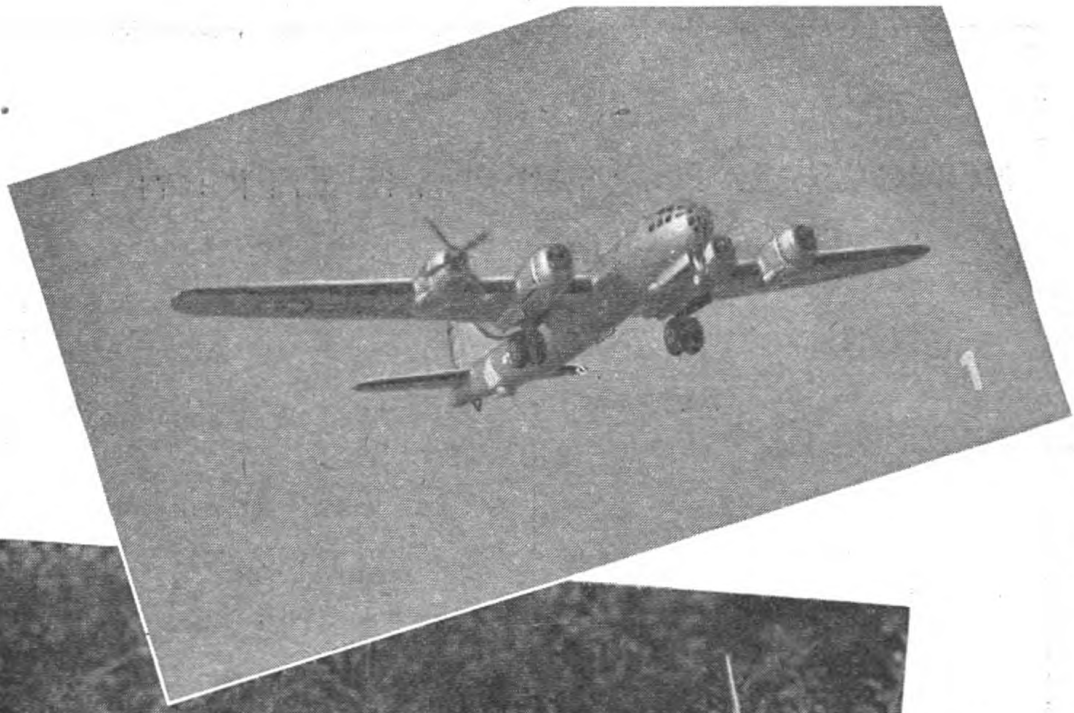
The final job is of course to cover the complete surface with the cement and great care should be taken to see that it is applied evenly and to avoid those areas known to decorators as "holidays." All brush movements should be made from front to back and remember you should work fast. Do not apply second coat until the first is perfectly dry, as mentioned this should normally take twenty minutes but if you have plenty of time an hour or so is far better. All doping should be done in a draught of air and under no circumstances in bright sunlight as this tends to granulate the cement. We ourselves prefer to give the top surfaces three coats and the undersides one coat. This is in accordance with the theory of mine that the top surface should be drum tight but the underside can be slightly slacker so as to give an undercamber when air pressures are varied.

There is no doubt that "Perspex" cement is far superior to any other dope and on the model in question even after ten months of knocking about there was no sign of deterioration in the covering whatsoever. As a point of interest a carving knife fell on to a wing that we had covered by this method, making only a slight mark and not penetrating the covering as one would have expected. A sample was shown to a prominent aeromodeller and trader at the last AEROMODELLER Exhibition and he was invited to try by any means other than mechanical to break the surface. Being a North countryman he brought his forefinger down with all the force he could summon, the nett result being considerable pain and anguish to his indicator! The gentleman in question will no doubt remember the incident and he certainly agreed with me that he had not experienced such strength or finish in any other form of covering.

As both the chemicals mentioned are patented by the I.C.I. no claim can be made for these findings and it was in the interest of the aeromodeller who builds the big jobs, both petrol and glider, that this article was written. Should any difficulties be encountered I should be pleased to answer queries accompanied by a stamped addressed envelope and addressed c/o The Editor.

NOMOGRAM FOR TAILPLANE EFFICIENCY.

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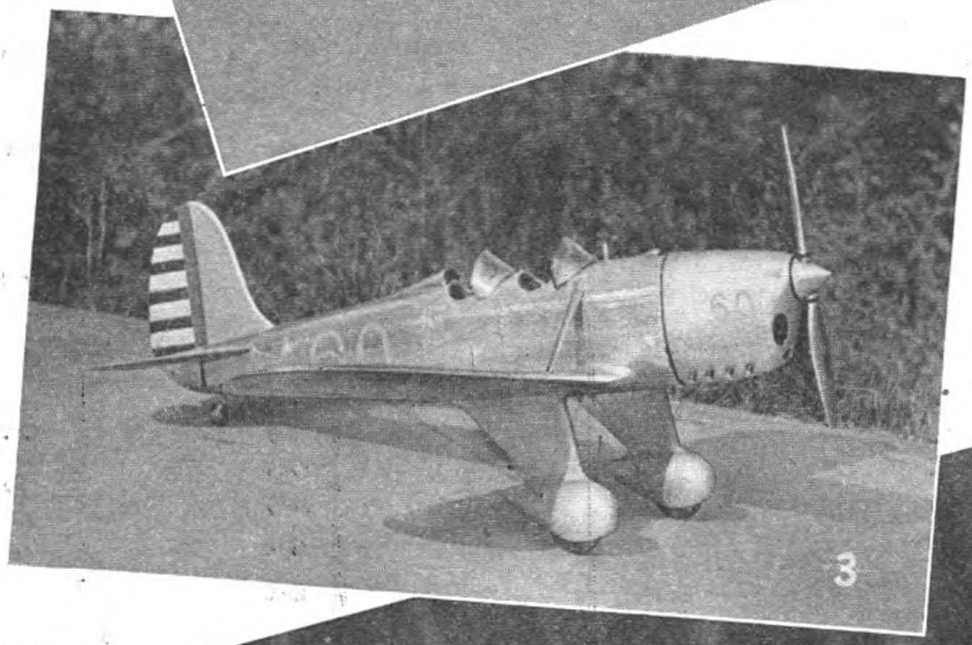
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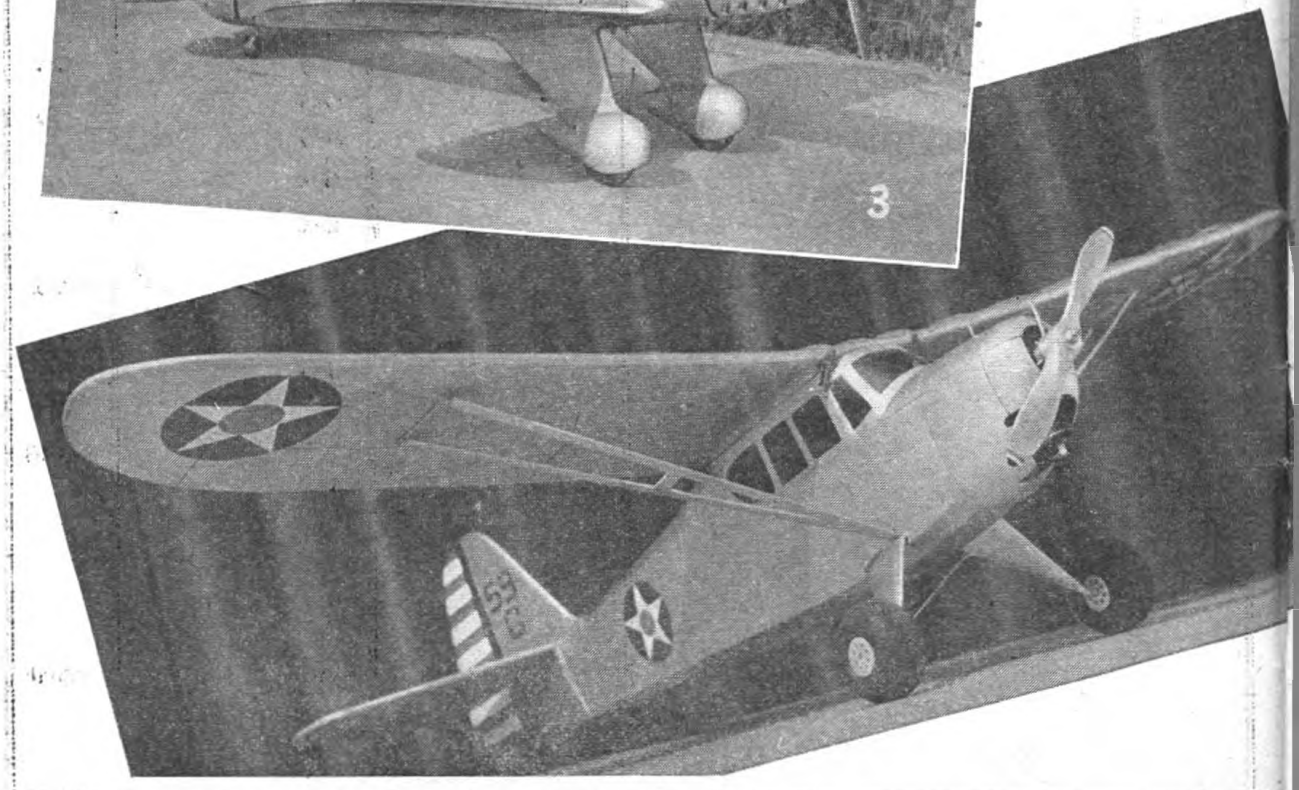
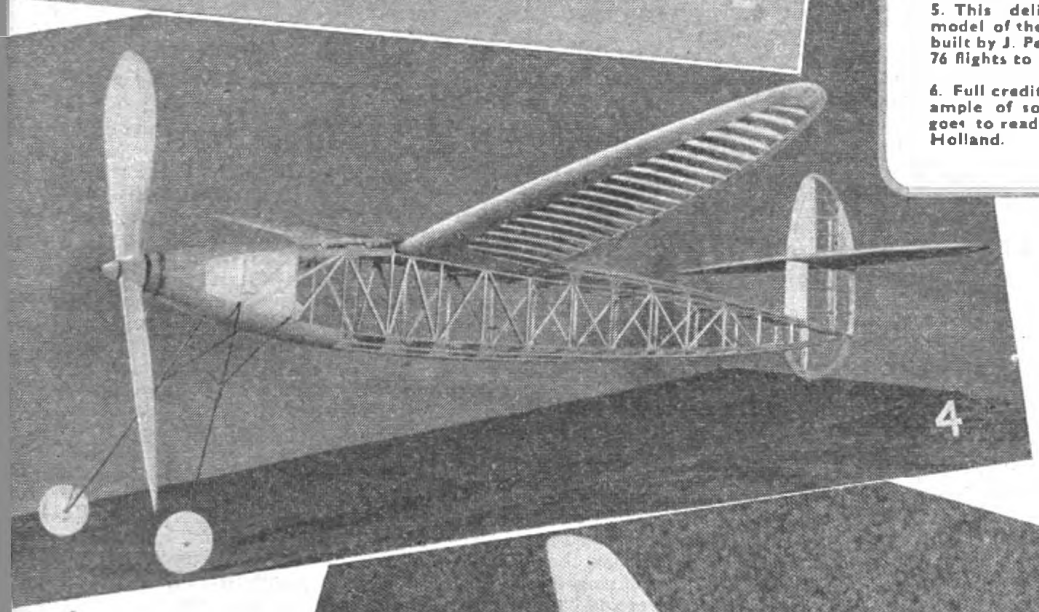
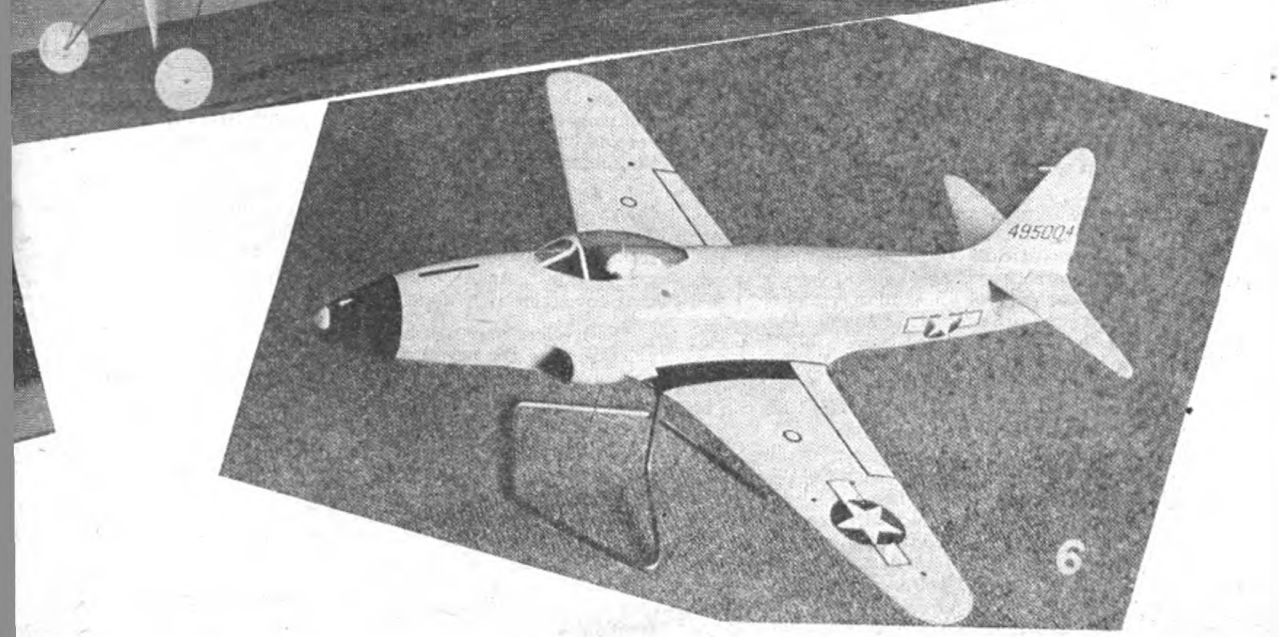






AEROMODELLER

PHOTOGRAPHIC CONTEST SECOND PRIZE WINNERS

1. "Coming in on three engines" one of the best action shots we have seen. A 1/72 scale Super Fort by J. A. Priest.

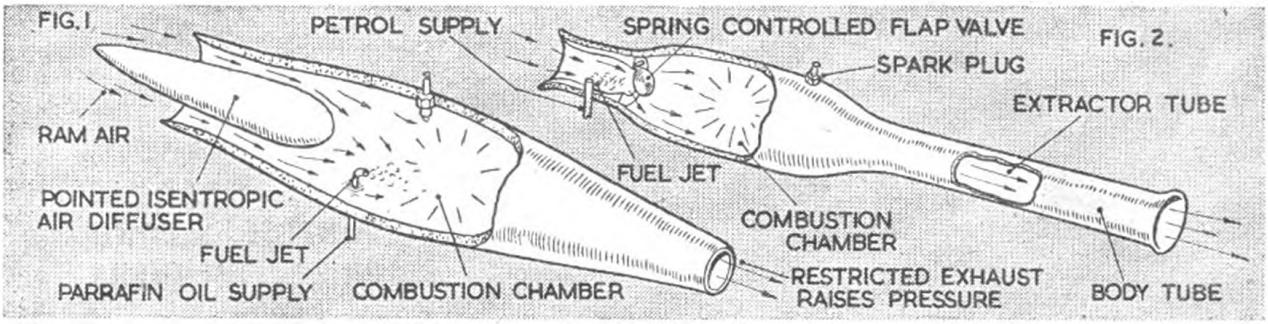
2. D. R. Hughes "Tadilus" a fine study of an interesting glider.

3. A ½" to 1 ft. flying scale Ryan PT-16 by D. H. Elmes.

4. A beautiful example of constructional detail portrayed by R. Ormerod's own design Wakefield Model.

5. This delightful power scale model of the 'Taylorcraft" was built by J. Pearson Evan. and has 76 flights to its credit.

6. Full credit for this perfect example of solid scale modelling goes to reader P. Van de Dyke of Holland.



PETROL VAPOUR . . . . By C. E. Bowden

The Athodyd or Ramjet.

TO give the Athodyd its full descriptive name it is an "Aero-thermodynamic-duct". In principle it is merely a tube with a special diffuser in front, a ring of paraffin fuel jets in the centre, and a restricted outlet at the rear. If the reader will study Fig. 1, he will see how the affair works.

The big trouble for the model man is the fact that at present, the ramjet as designed for full sized experiments requires a speed of around 200 m.p.h. to 500 r.p.m. to start it operating. I wish to emphasize the words " at present ", because it may well be that we can reduce this speed for our purposes.

The engine has to be shot through the air before it can start functioning. This is normally done by the means of rockets, but should a lower speed for operation be developed in the model world, I can visualise starting up our U control line racer in the future by giving the initial whirling around from an elastic catapult using one of the new American Glow Plugs for the starting ignition of the fuel. Do these remarks set the No. 8 hats amongst you thinking ? *For the Athoayd is the simplest possible form of jet engine* and is therefore a very attractive proposition.

A Commercial Jet Engine.

Before we jettison this jet business, let us examine the basic principles of another and more likely type for model work.

Once certain difficulties are overcome, the type is so simple that the purchase price will probably prove a very attractive inducement to the impecunious modeller, apart from the glorious fact that propeller torque reaction that at present tends to turn over the model is entirely eliminated. Just ponder on that you laterally unstable types !

Most people have heard of these engines even if they have not seen them operate, and by the way they are worth hearing. The noise is something to talk about even in this age of terrific events !

The two American examples of model jet are comparatively large, being about 21 inches to 28 inches long. They are extremely powerful, a point that American designers have to pander to because the lads over there demand terrific speeds for their racing jobs, car control line and speedboat. I feel that we in this country require smaller jet engines because we like baby models as well, and because we are a highly populated land and also like free flight and a smaller less dangerous unit is safer in the hands of the general public. Possibly half the size or even less is what is required, provided this can be made to function reasonably efficiently.

The American jets as they are at present, require quite large models of the free flight type to absorb the power and even control liners must be of the very fast type. A speed of 98 m.p.h. was recently put up by Mr. M. Guest using an AMERICAN DYNAJET engine, U-controlled in this country. I have one of these jet engines and I am fitting my Dynajet to a flying boat, a control-liner, and a free flight model rather like a full sized " Meteor ". The jet tube is simple to mount in clips which I have fitted to my models so that I can change the jet over in a minute or so. Owing to the fact that these engines glow red hot it is advisable for the sake of simplicity to mount them externally.

The " Dynajet " produces a static thrust of three and a half lbs., and there is now a later model " Red Head " that produces over four and a half lbs. static thrust for a weight of only approx. one lb. These figures are a lot of power.

The Principle of the Flap Valve Resonance Jet.

The flap valve jet engine was first used by the Germans in their " Buzz bombs V.1.".

Fig. 2 shows air suck-in at the forward end of the engine which unlike the Athodyd, can start up from rest and if necessary run at rest. The air is speeded up by a venturi so as to suck up petrol from a fuel jet which is connected to a tank. The resulting explosive or combustible mixture, like that in a normal petrol engine, flows through the flap valve which is situated beyond the jet, into the combustion chamber where an electrical spark ignites it for the initial start. As soon as the engine has started and has warmed up this spark is switched off, and combustion is carried on by the heat of the combustion chamber. It should be understood that this type of jet engine is driven by the reaction of a series of very rapid expansions of gas or " explosions " unlike the Athodyd which has a continuous combustion going on. Thus, when an explosion takes place, the force closes the flap valve and creates a forward pusher action in the body of the engine because the rear of the jet tube is open and the expanded gasses rush down this tube escaping to the rear. This rush creates an extractor effect in the combustion chamber, which opens the flap valve again and draws in a new charge of gas by a further suction of air past the fuel jet which picks up petrol on its way. This new charge is ignited by the heat of the combustion chamber and goes off bang again and so the cycle of operations goes on until the fuel is exhausted.

In the case of the " Dynajet " it is interesting to note that the cycle of explosions or expansions is 260/280 per second. The American " Minijet " has a cycle of slightly less per second. No wonder there is a noise. The " Dynajet " has a very thin tempered steel flap valve having ten little petals that cover ten little holes on the nigger boy principle.

The readers may ask how does the initial flow of air take place so that the petrol is sucked up past the jet, before the engine pulsations start ? This is quite simply attained by pumping air from an ordinary car or bicycle pump.

A continuous spark takes place at the sparking plug by means of the old fashioned type of trembler coil that we used on early motor cars. This is switched off as soon as the engine starts and warms up. One should mention that resonance affects the speed of the combustion cycle and here we find the thickness of the tube comes into the picture, whilst the length affects the extractor effect as in the case of the racing motor cycle exhaust. The amount of fuel the jet admits is important, and so is the flap valve which has to dither back and forth in great heat at a pretty hot speed.

A MINIATURE ELECTRIC MOTOR

BY P. O'KEEFE

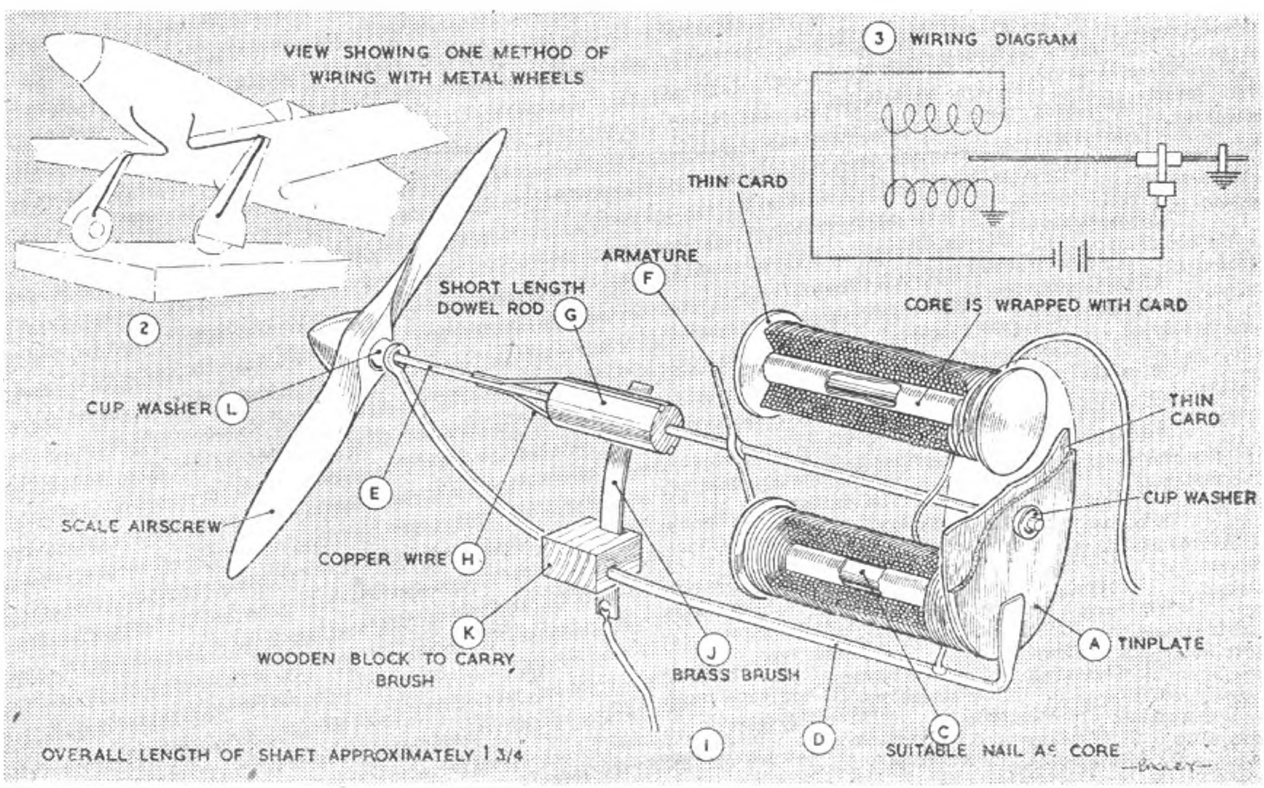
HOW often have we wished our tiny 1/72nd scale models would "come to life" and we could see the airscrew flashing round as if preparing for take-off? Miniature electric motors have been described in the pages of this magazine before, but how many modellers possess a lathe or the equipment to build such motors? Here is a simply-made motor, which will spin the airscrew realistically from a 4 volt battery. The only materials needed are odd lengths of wire, an iron nail, some fine enamelled copper wire, a short length of any insulating material (ebonite or wood will do), and some paper. These, combined with a little patience, and an hour or two of spare time, will produce a motor to fit into any in-line engine space of 1/72 scale models.

A piece of tin is cut to the size and shape of "A" in Fig. 1, and a similar piece of thin card cemented to the front of it. In the centre a small hole is drilled or punched to form a pivot for the spindle "E". "D" is a length of wire shaped as shown, and soldered to "A" with a loop at the front for the other pivot. A small piece of wood or any insulating material is shaped as at "K" in Fig. 1 and is fixed on "D" to carry the brush "J". The cores "C" are cut from an ordinary iron nail, and some paper cemented round them for insulation. Two rings of thin card are then fitted on as shown, to form bobbins. They are then wound with fine enamelled copper wire, with approximately the same number of turns on each, taking care to wind one clockwise and the other anti-clockwise. The number of turns on each bobbin is approximately 250 to 300 according to the gauge of wire used and it is recommended that the maximum number possible be wound on. When wound they can be fixed to the rear plate "A" with a good smear of cement on the rear card ring, and in this way the difficulty of winding the bobbins in a confined space is eliminated.

On the wire shaft "E" is soldered the armature "F" of any soft iron wire, shaped as shown. "G" is a piece of any insulating rod, a short length of dowel rod will do, cemented on to "E" in the position shown. Two pieces of bare copper wire "H" are soldered on "E", and the ends flattened by hammering, then cemented into shallow recesses in "G", so that their surfaces are slightly raised above that of "G". A thin piece of springy brass "J" is then fitted into a slot in "K" so as to rest lightly on the commutator, and make contact with each metal piece "H", as "G" revolves with the shaft "E".

The complete shaft, armature and commutator is now slipped into its bearings, front end first, and a cup washer "L" soldered on, to prevent the magnetic attraction from the field magnets pulling the armature and shaft to the rear. Wire up as shown in Fig. 1, with one end of the bobbin wire to the frame, the other to the battery. A wire from the brush "J" connects up to the other pole of the battery, and a flick of the shaft or airscrew will set the motor going, as a two-pole motor is not self-starting. A wiring diagram is shown in Fig. 3, in case it is not clear in fig. 1, but the whole motor is simplicity itself, needing no particular tools or skill yet will work efficiently from a 4 volt flash-lamp battery.

A novel way of mounting such a model would be as shown in Fig. 2. Wires from the motor are run along grooves cut into the wings, out as far as the undercarriage legs. The grooves are subsequently filled in with plastic wood, or filler, and sanded so as to be invisible. The wires are then run down the undercarriage legs, either within the legs, or down the side, and fixed to metal bearings on which metal wheels are fixed. A small portion of metal is bared at the bottom of each wheel, and the wheels are then soldered to two contact plates on the stand. The stand takes a 4 volt flat battery, and a small switch, which should be inconspicuous. If metal wheels are unobtainable run the wire down the inside of each wheel to the contact plates, as they will hardly be noticed in such a position, so long as they are fairly thin. That, then, is the whole set-up, try it on your next miniature plane, and make it a little more realistic than the normal 1/72nd scale model.



THE FLYING SCALE MODEL

By C. Rupert Moore, A.R.C.A.

NOW the diesel has ceased to be a novelty many modellers, some for the first time, are building flying scale models, intending to instal one of these little engines. Because of the diesel engine it looks as though the scale model is coming into its own at last. The sudden interest in this field suggests that it is now time that whatever is known about the problem of flying scale models should be made common knowledge.

In the past the problems facing the scale modeller, using rubber as a motive power, have been formidable and few have persevered long enough to get real results.

Excepting for the actual motive power the problem of the rubber and diesel powered scale model is the same, therefore it seems obvious that the new diesel scale modeller should know what has been done with rubber and this is my excuse for these articles. Don't make any mistake, rubber as a motive power for scale models is by no means finished, and therefore I shall not treat rubber as if it were finished. In certain cases such as multi engine models it is still superior to diesel or petrol.

The correct conception of a problem is probably the biggest single step in its solution, but the application of the solution to a parallel problem often only serves to confuse the issue. There is no doubt in my mind that the attempted application of quite sound duration methods has been the cause of a great deal of failure to scale models. The duration type has only a few artificially imposed limitations, applied merely to turn the whole thing into a "sporting" event, which has in practise limited the layout to one type only. The scale model on the other hand is limited strictly to layout, by the layout of the prototype, and good flying must be attained *without departing from the general outward appearance!* As a matter of fact I believe it is the incomplete understanding of what a flying scale model should be, particularly among competition organisers, which has lead to the very small number of models entered in scale model competitions. This small "field" has naturally been interpreted as lack of interest in this type of model. Judging by the crowd one gathers when flying a really good scale model, it is obvious that it is only the difficulty of the problem which prevents most modellers turning to scale. Wherever span or wing area limits have been imposed models have ultimately become stereotyped. This is inevitable as obviously one type must have more chance particularly if coupled with an airscrew span ratio limit. Biplanes and triplanes have no hope against monoplanes with an area limitation because they are far too small. In a similar way a limit of a twelfth scale (1 in. to 1 ft.) favours the larger models in most cases. A span limit, unless in the nature of 6 ft. favours single-engined models, as twin and multi-engined models only pay dividends with size. To demand true areas and allow "any sized" airscrew is not quite fair, surely to make a "Typhoon" with its huge airscrew and *very small* tail areas fly is a far more difficult problem than it is to make a Sopwith 1½ strutter with its huge tailplane and "any sized" airscrew do the same?

A flying scale model is a work of art and no art thrives on artificial laws.

It might be as well to jot down the points which I believe to be essential in a flying scale model. The aim should be: to be able to make a flying scale model of any (or every) full sized prototype; monoplane, biplane, single-engine, twin or multi-engine, land-plane, float-plane, ancient or modern. This as I have mentioned before, without departing from the general *outward* appearance, Dihedral on no account should be increased. Should the type chosen incorporate a retracting undercarriage then the model should. The undercarriage working automatically on take off and what is more detracting BEFORE landing. Frankly I have no use for a model whose landing gear is "retracted" into the owners pocket before hand launching.

The duration aimed at should not be less than 60 secs. You will note that I do not consider such "legacies" as wing areas, wing loading, spans and fuselage formulas, the only classes I recognise are "Rubber Driven" and "Other forms of Motive Power." Let me make it clear that I am writing strictly about scale models and that I believe this very loose classifying to be necessary to off-set the far higher standard of achievement arrived at, and also to give scope to the pure inventiveness of this class of model.

I think you will agree that this is an extremely high aim, but let me reassure you that many of the basic problems have been solved and a few models reaching this high standard are in existence. To mention a few: E. J. Riding's "Bristol Bullet and Bristol Monoplane;" John Greenland's "Bleriot Monoplane" and "SE5A" all to ⅛th scale; also my own ⅛th scale "Tiger Moth" and 1/12th scale "Typhoon," "Short Scion," "Blenheim," and semi-scale "Castor." I know there are many others of equal merit and I mention the above models only because I know them well and have personally seen them perform. I show two photographs of my own ⅛th scale "Tiger Moth," one showing the model well away and

still climbing, which is perfectly genuine and is to show that scale models are capable of performance.

Simplicity and the avoidance of gadgets has become the rule for duration competition models and is to be commended in that sphere, but, performance can only be improved in scale models by following full-sized practice and adopting any complication which is dictated by greater efficiency. If this had not been so, real aircraft would not have developed beyond the Bleriot monoplane. Every complication should have a very definite end in view and should be reduced to its simplest form compatible with 100 per cent. efficiency and on no account be added just as a novelty as it then becomes merely " gadgetry." I think this is roughly the difference between legitimate complication and gadgetry for I use complications only as the easiest way of overcoming any particular difficulty. Real aircraft have had to add " George " to many other complications and until we can persuade Mr. Desoutter to lend us some of his " little horses " we shall have to think along similar lines. Already several of my models have various very simple self trimming devices, but this will be discussed much later on.

There are a few real aircraft which might have been designed with a view to being turned into flying scale models. I mention two, the land version of the Vought Sikorsky " Kingfisher " and the Lockheed " Lightning." In the " Kingfisher " the wing is the customary ¼ back the dihedral 8 degrees on the undersurface, the tail is nearly half the wing span. The airscrew-span ratio being 1 to 3·7. The backward placing of the landing gear is the only item not conforming to model practice. The only complication in the " Lightning " is the retracting undercarriage. The Fairchild " Argus " and the A.B.C. " Robin " (both in Plans Service) are also in the same class and these should be the types chosen to begin on. Retracting undercarriages and twin drives should be avoided at first and only attempted when considerable experience has been gained. Plans by well known aeromodellers should be chosen and strictly adhered to. Reputations are not lightly won and a good modeller rakes out all the snags before allowing his model to be published. I do stress this point as it seems to be a particular vice of most modellers to buy a good plan and either " improve " or ignore it.

A long time ago the production of a flying scale model for me was a very slow business. My method used to be to build the model with all surfaces of scale size and section, rigged as on the real aircraft and then try to make it fly. Ballast was added all over the place and the whole machine rigged and re-rigged. If it was obvious that flight was impossible I would take it home and as a rule make a larger tail unit usually 100 per cent. larger and then make the . . . thing fly. Now the process began in reverse reducing the area and trying different sections and rigs until I attained the best compromise. Slowly and laboriously I have found methods of solving many of these problems partly by aerodynamics, partly by structure and materials, and partly by self trimming devices and it is of these developments I propose to write.

The heading photograph and that below are of the author's ⅛th scale Tiger Moth, a perfect example of the flying scale modellers' art. The diminutive size of the model in the lower photograph gives a fair indication of the flying capabilities of the scale model.

CONTEST CALENDAR 1948

We append below for the benefit of all contest modellers this season's main events. Information regarding venues is lacking at the time of going to press, but we hope to give full details at a later date.

F.A.I. INTERNATIONAL EVENTS.

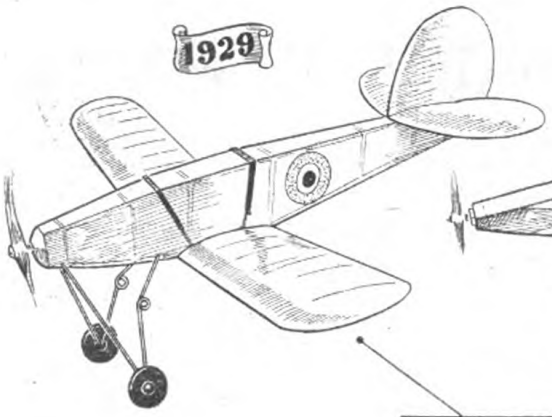
Date.	Event.	Place.
Mar. 27th April 4th	Exhibition of Model Aircraft.	Principality of Monaco.
Mar. 28th „ 29th	Municipality of Monaco Cup for model Hydroplanes, rubber driven.	Monaco.
June 13th	Henri Bardel Cup for model aircraft with mechanical motor.	To be announced.
July 31st August 8th	International Model Aircraft Meeting, organised by Eaton Bray Model Sportsdrome, Ltd.	Eaton Bray, Beds.
August	Annual Anglo-Dutch Competition for model gliders and rubber driven aircraft, organised by the Section des M. R. of the Royal Aero Club of the Netherlands.	Holland.
August	Benelux Competition for model aircraft between Belgium, the Netherlands, and Luxembourg.	Holland.
August 1st	Bowden Cup for model aircraft with mechanical engine. London Region.	To be announced.

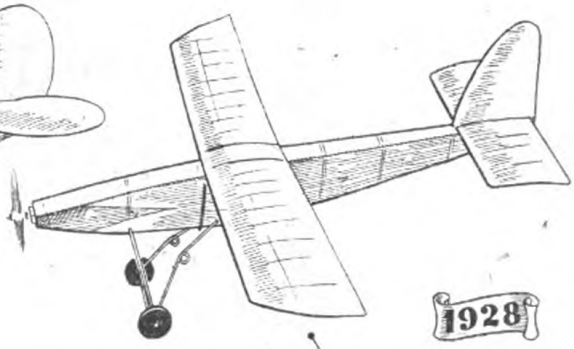
HOME EVENTS.

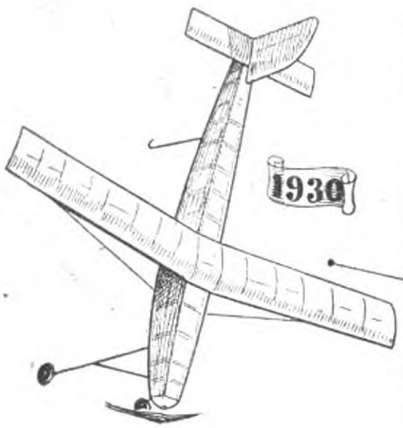
April 4th	Gamage Cup (Open Rubber)	D.C.
April 11th	M.E. No. 1. (Open Rubber) Flight Cup (Team Glider)	A.S.C.
May 2nd	**Gutteridge Trophy (Preliminary Eliminating Trials for Wakefield Contest).** Power (ratio) Contest	A.S.C.
	Nationals.	
May 16th	Shelley Cup (Power Duration) M.E. No. 2. (Cup Open Rubber) Pilcher Cup (Open Glider)	C.
May 17th	Weston Cup (Wakefields) Thurston Cup (F.A.I. Glider) Women's Cup Control line contests	C.
June 6th	**Final Wakefield Eliminating Trials**	C.
June 13th	K. & M.A.A. Cup (Open Glider)	D.C.
July 4th	Arnhem Glider Contest Russell Power Trophy Victory Trophy (Open Glider)	E.B.
July 11th	Power Duration. Hamley Trophy Control Line.	C.
July 17th–24th	Eaton Bray Camp No. 1	E.B.
July 25th	Lady Shelley Cup (Seaplanes) Power (ratio) Contest	D.C.
Aug. 14th–21st	Eaton Bray Camp No. 2	
Aug. 15th	Tailless F.A.I. Power Duration Dorland Flying Trophy	D.C. D.C. E.B.
Aug. 21st–28th	Eaton Bray Camp No. 3	E.B.
Aug. 22nd	Pterodactyl Trophy	E.B.
Aug. 28th–Sept. 4th	Eaton Bray Camp No. 4	E.B.
Aug. 29th	Flying Scale Trophy	E.B.
Sept. 4th–11th	Eaton Bray Camp No. 5	E.B.
Sept. 5th	Flying Boat Trophy	E.B.
Sept. 11th–18th	Eaton Bray Camp No. 6	E.B.
Sept. 12th	C.S.A.A. Cup (Open Glider) National Cup (Team Rubber)	A.S.C.
Sept. 26th	S.M.A.E. Cup (Open Rubber/Glider)	D.C.

C.—Centralised. D.C.—De-centralised.

A.S.C.—Area Semi-centralised. E.B.—Eaton Bray.







GREAT news for rubber powered model fans is the projected resumption of the far-famed Wakefield Trophy Contests.

Efforts are now being made to hold the first post-war contest this year, and approaches have already been made to the American Academy of Aeronautics with a view to staging the 1948 event at Cleveland, Ohio in the latter part of August.

The F.A.I. Conference is scheduled to be held in the States this year, and it is proposed to hold it at Cleveland to coincide with the National Air Races, the famous American fiesta of air racing, etc. To hold the Wakefield Contest at the same time and venue would enable all three events to be covered in one trip, and I am sure our American friends will concur with this suggestion.

Last held in 1939, when the Trophy was won by Dick Korda with a record flight from a field in New Jersey, a resumption of the premier model aero contest will find favour in all countries. The Trophy, donated by Lord Wakefield in 1927, was competed for annually up to 1939, and to date has been won five times by Great Britain, five times by America, and once by France. (America also won the Cup in 1932, but the contest was declared void on a technicality.)

Model specifications are expected to be the same as in 1939, and for the information of readers who intend to compete for the honour of being a member of the British Team for 1948, the requirements are given here in brief form for guidance. Quoting the S.M.A.E. published rules, these state;

(a) The contest shall be for fuselage type, rubber driven models, the rubber motor or motors of which must be enclosed in the fuselage, the fuselage/s to be fully covered and conform to the following formula: —

$$\frac{\text{Overall length of model}^2}{100} = \text{Minimum area of the maximum cross section.}$$

(b) The total area of the mainplane or mainplanes to be 200 sq. inches, with a plus or minus tolerance of 10 sq. inches. The area being the actual plan area of the cambered surfaces measured on the chord line, without allowance for dihedral, polyhedral angle, etc.

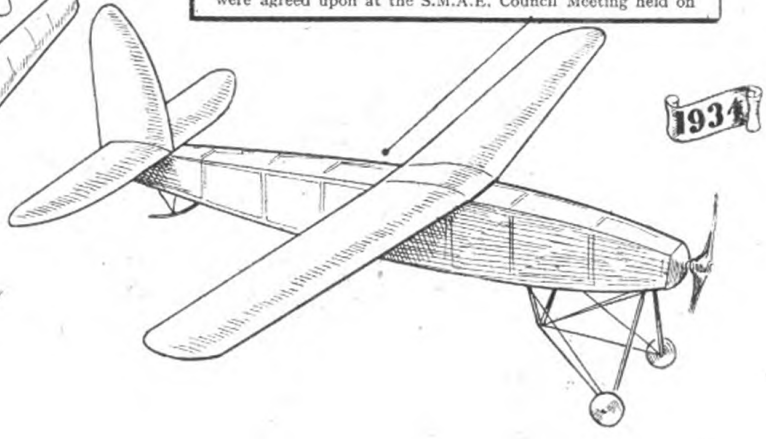
(c) The area of the tailplane shall not exceed 33% of that of the mainplane/s.

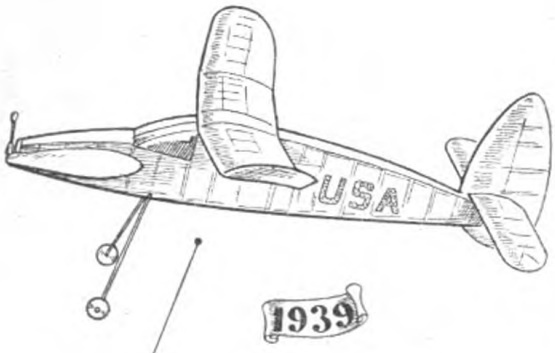
(d) Minimum weight of complete model 8 ounces.

The model must be solely constructed by the entrant, and no part of the model shall be detached in flight (i.e. undercarriage dollies may not be employed). The contest comprises three flights R.O.G. the competitor setting the highest average for three flights being the winner.

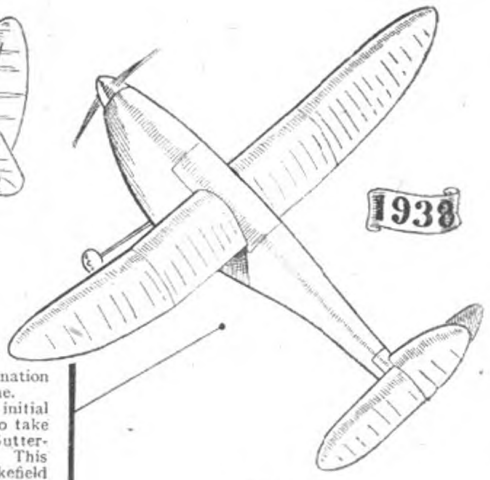
Arrangements for the selection of the British Team were agreed upon at the S.M.A.E. Council Meeting held on

- **T. H. NEWELL** (Gt. Britain)
- **R. N. BULLOCK** ,, ,,
- **J. H. EHRHARDT** (America)
- **J. H. EHRHARDT*** ,,
- **J. W. KENWORTHY** (Gt. Britain)
- **J. B. ALLMAN** ,, ,,

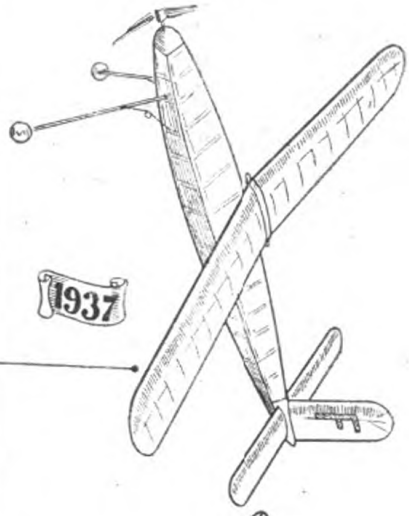




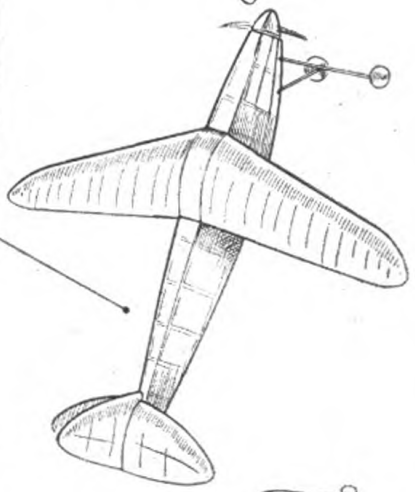
1939



1938



1937



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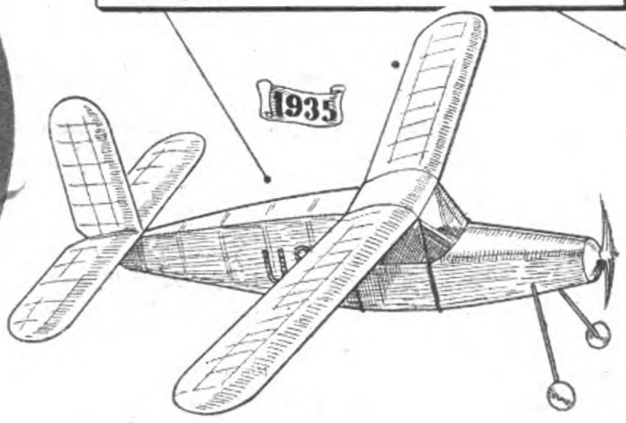


1935

January 18th, and a system of progressive elimination adopted, as indicated by Clubman in the February issue.

Intending competitors will be required to fly off the initial round under Area control at the meetings scheduled to take place in specified districts on the 2nd May, where the Gutteridge Trophy event will be utilised for the purpose. This contest, originated for the development of the Wakefield class of model, forms an ideal means of securing a preliminary selection of proven fliers.

20% of the Area finalists in the Gutteridge Trophy contest will go forward to a centralised meeting which will take place in the London district on June 6th, and from this event the final team of six members will be adjudged. By this method, only chaps who have proved their worth in the early stages will require to travel to London—and the organisation will have a seeded percentage to handle. This method is an innovation in this country, the results should be interesting.

Nothing is known yet regarding arrangements for the conduct of the Finals in America, but it is naturally hoped that suitable transport and finance can be forthcoming to enable the British Team to compete personally. Proxy fliers have always been forthcoming, and do their utmost for those they represent, but there is nothing to compare with a modeller flying his own "brainchild." Preliminary information gleaned last year gives hopes that one of the Air Lines can be persuaded to place a machine at the disposal of the European teams, so we keep our fingers crossed and carry on hoping.

Up-to-date information will be given each month in the AEROMODELLER but in the meantime we urge all our readers to get their machines ready for the initial round due on May 2nd. We know we have plenty of expert modellers with this type of machine, but remember, the known expert had to make a start sometime, and it may be your turn now!

As our American friend, Bill Winter, states in the February issue of "Model Airplane News"—"Given our choice of anything in modelling, we would much prefer to win the Wakefield Cup, for it is the greatest of all trophies in this modelling world."

Remember these dates :—

Preliminary Round—"Gutteridge Trophy" [May 2nd, 1948.

Elimination Trials—London, June 6th, 1948.

Finals—(Proposed) America, August 1948.

• *Readers will note that there is no illustration of Joe Ehrhardt's 1931 Contest winner. Repeated enquiries have so far failed to produce one single scrap of information on this model and we would be glad to hear from anyone who can provide an illustration or description.*

R. KORDA (America)

R. CAHILL ..

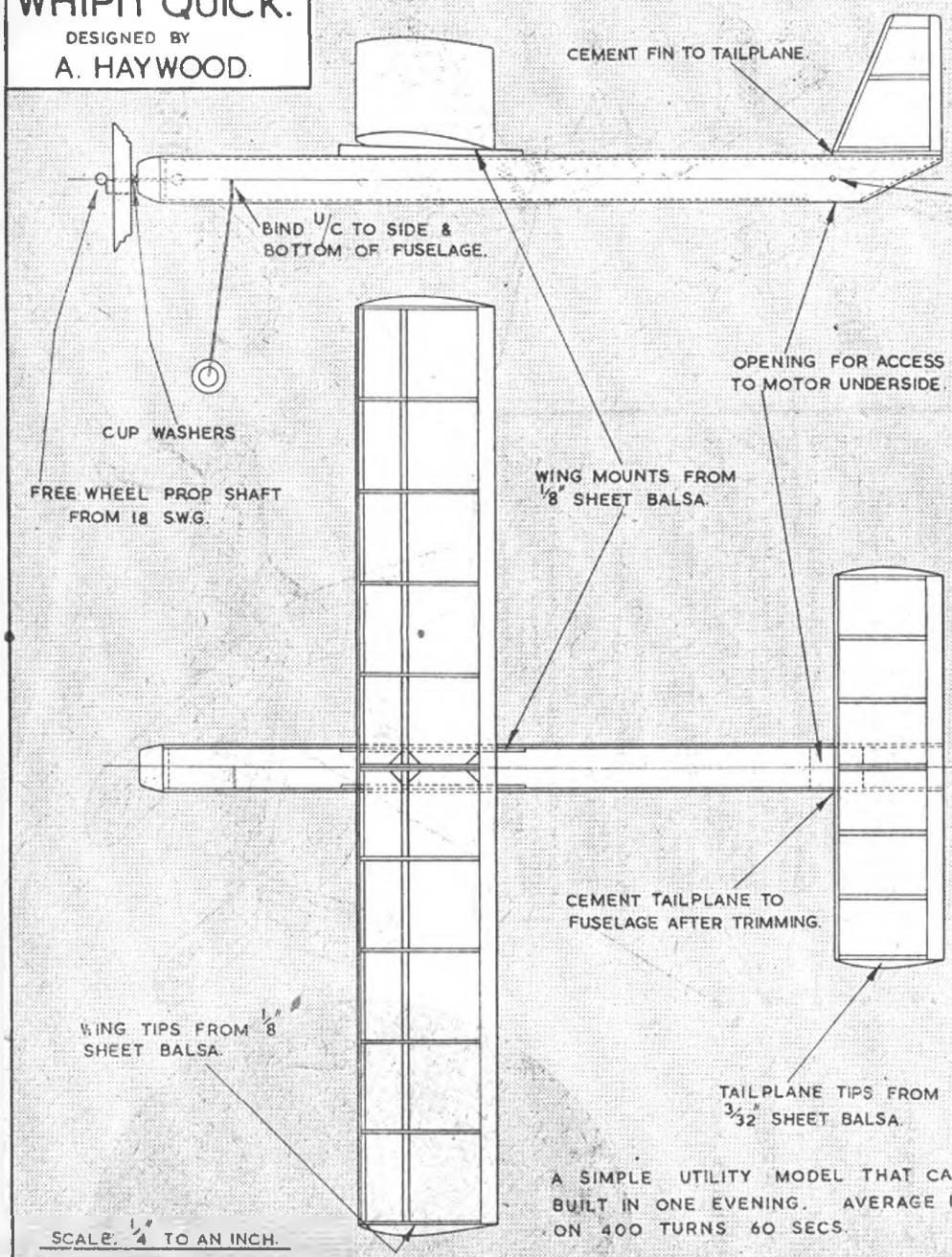
E. FILLON (France)

A. A. JUDGE (Gt. Britain)

G. LIGHT (America)

WHIPIT QUICK.

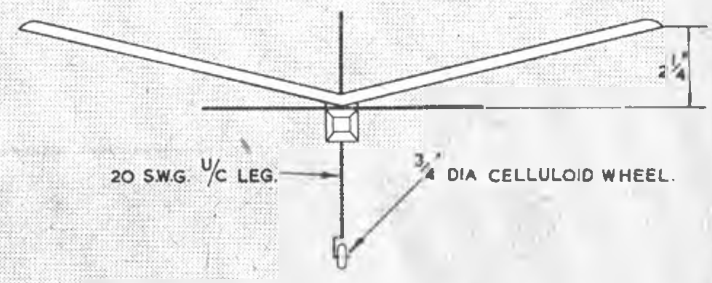
DESIGNED BY
A. HAYWOOD.



SCALE. 1/4" TO AN INCH.

A SIMPLE UTILITY MODEL THAT CAN BE BUILT IN ONE EVENING. AVERAGE DURATION ON 400 TURNS 60 SECS.

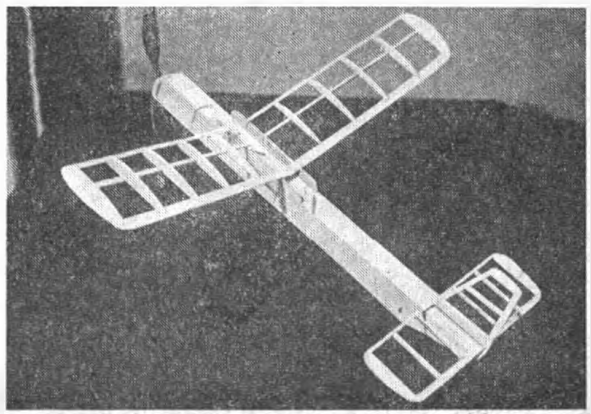
TYPICAL WING RIB Nº OFF 12.
MATL 1/16" SHEET BALSA. SCALE FULL SIZE.



FRONT VIEW NOT TO SCALE

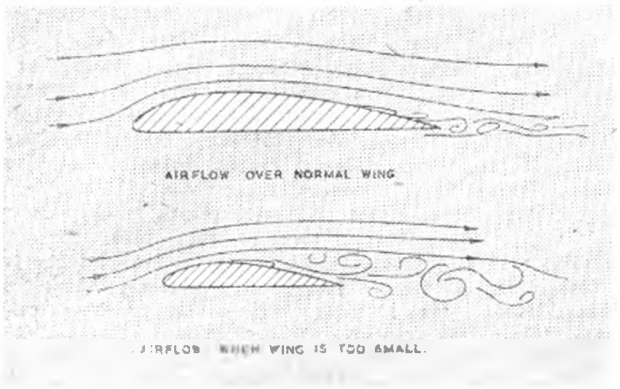
CONSTRUCTION.

FUSELAGE	TOP, BOTTOM & SIDES FROM 1/16" SHEET.
WINGS.	1/8 SQ L.E. & SPAR. 3/32 X 3/8 T.E. 1/16 SHEET RIBS & 1/8" SHEET TIPS.
TAILPLANE	3/32 SQ L.E & RIBS. 3/32 X 3/8 T.E. 3/32 SHEET TIPS.
FIN.	3/32 SQ L.E. & RIBS. 3/32 X 1/4 T.E. & TIP.
PROPELLER.	8" DIA MEDIUM PITCH.
POWER.	16 STRANDS OF 1/4" SQ. 24" LONG.



FACTUALITIES

PART FIVE BY JOHN HALIFAX



SURPRISINGLY enough, one still hears that ancient truism about wing sections and flat plates uttered in these enlightened days. As originally stated by the author of the idea it said that " wing sections whose chord is less than 3½ inches have an efficiency equivalent to that of a flat plate ": this was a disadvantage one presumed. In point of fact any orthodox section with a chord of less than 5 inches would be very definitely inferior to a flat plate, on a model which did not fly faster than about 25 feet per second. It is only very recently, with the innovation of Laminar flow sections that it has been at all possible to get worthwhile efficiencies from small chords.

The accompanying drawing illustrates the reason behind all this. When the chord is small we find that the air does not flow smoothly over the wing but breaks away from the upper surface when it reaches the thickest part. Thus only the part of the wing in front of this break-away point (or " transition point " as we call it) is generating any lift: moreover the large eddies above and behind the wing indicate that the drag is abnormally high, and with this state of affairs we must expect to get a poor performance from any model.

In contrast to this, we get an entirely different picture for the same section increased in size, as shown in the second half of the illustration. Since the airflow is smooth over most of the wing, and the eddying much less, it is obvious that, quite apart from the difference in sizes, we get more lift and much less drag than for the example above.

It is very evident from this that we cannot go below a certain chord size if our model is to be efficient, and we shall want to know just what this critical size is. We could, of course, have a wing of 15 inches span and 12 inches chord, but very low Aspect Ratios introduce many complications for an ordinary model, not the least of which is the high drag caused by vortices coming from the wing tips. The best solution is to make the chord just a trifle larger than the critical value, and this is all a theorist means when he talks about " Optimum Aspect Ratio."

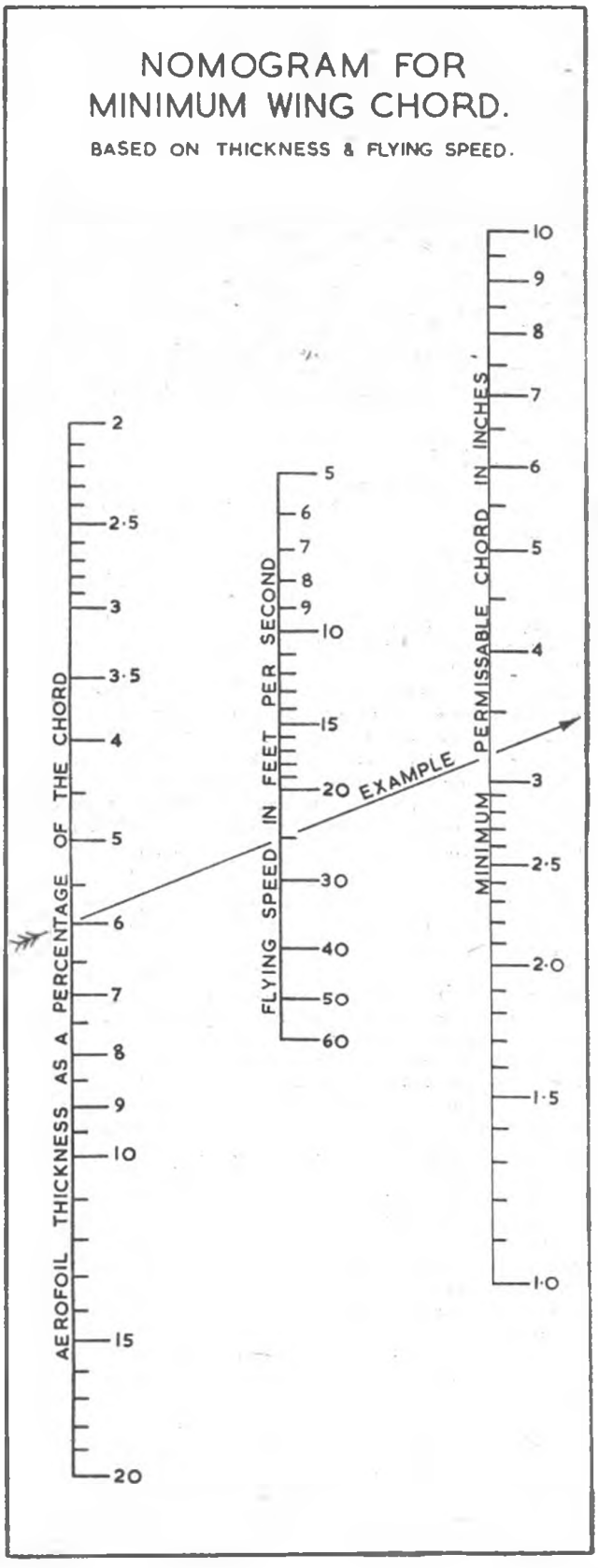
Now the smallest permissible chord is not the same for all wing sections but varies with its thickness, and the model's flying speed. A very thick section, or a very low flying speed mean that it must be larger than usual, and conversely a small chord may be used when the section is very thin (*e.g.* a flat plate) or when the flying speed is very high. Summarising this from a different point of view, we may say that,

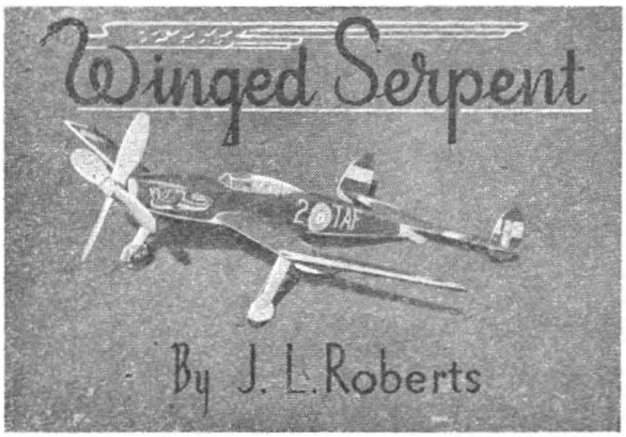
Lightweights and small models require a thin, highly cambered section, with a low Aspect Ratio.

Medium sized models (F.A.I. loadings) require sections of medium thickness: say, 6-8 per cent. of the chord.

Large models may use sections of up to 12 per cent. thickness.

The next " Factualities " will explain the why and wherefors of Laminar flow sections.





THIS model was designed originally as an experimental type of low-wing model of monocoque construction, to incorporate a retractable undercarriage, but was never built as such. After the advance of our army on the continent after " D-Day " it occurred to me that here was the basic idea for what the Americans call an attack bomber, such as was used with the tactical air force during the liberation. Briefly, then, the original was re-designed with several mods. to improve its semi-scale appearance, and was finally built in its present form as " Winged Serpent."

It gives a very good performance in the air and has a good turn of speed so essential for such a type that has been much admired locally. The four-blader paddle-type airscrew was necessary to keep the undercarriage dimensions reasonable, and gives a smart climb. The duration of the model is in keeping with its type and loading, but naturally does not compare with a light-weight duration model of the same dimensions.

Construction.

This model is built of balsa throughout, the fuselage being a pure monocoque with 1/16 in. sheet balsa skinning and the inner wings also covered with 1/16 in. sheet, except behind the spar on the upper surface. The fuselage frames were assembled on a jig, ¼ in. square and planked, the planks running full length. The two frames, 6 and 7, are worthy of note, as they also incorporate the main spars of the inner wing which locate the wing boxes, and care must be taken in aligning them correctly before planking. These inner wing spars are very rugged, being built up from T section booms top and bottom with bracing of 1/16 in. × ⅛ in. strip. The inner wing ribs are fitted and the upper skin on the L.E. applied before the fuselage is removed from the jig on the assembly board. The coupe is covered in celluloid and planked with 1/16 in. sheet balsa strips behind the cockpit, thus obviating the necessity for moulds to press a cockpit cover, while maintaining a very good streamlined shape. The rear rubber door is made and fitted, the tail-wheel fairing and wheel, the cylinder fairings carved from scrap block and cemented in place. These are important as they add to the stiffness of the front fuselage. The root fairing is flat, and very simple in design, avoiding double curvatu e. It is merely a piece of 1/16 in. sheet balsa, triangular in shape, cemented between the inner wing inner rib and the fuselage planking. The undercarriage is made from 16 s.w.g. piano wire and mounted in tubular steel rivets for hinges, which in turn are carried on plywood plates cemented to the leading edge and the main spar. Retraction is by a short rubber band and a linen thread attached to the u/c leg. The fairings are of 1/16 in. sheet, cemented to the legs and held out in position by balsa supports. The entire undersurface of the inner wing is covered with 1/16 in. sheet balsa, and the wing boxes are of 1/16 in. sheet too.

Mainplanes are straightforward, with a built-up T section leading edge into which is butted the top and bottom skins of 1/32 in. sheet balsa, glued to every rib and finishing on the spars of 1/16 in. × ⅛ in. section. Tongues to fit the wing boxes are built up of ⅛ in. sheet and 1/16 in. ply, as shown in the drawings, to give correct dihedral, and cemented firmly in place. Tailplane is of very similar construction and incorporates detachable tips carved from ¼ in. sheet and fitted by dowels into paper tubes. These tips secure the fins in position and allow easy stripping for packing the model for transport. The main block ribs in the fins should be made with care, and made a flush fit with the tailplane end ribs to ensure a neat job when assembled. Alternatively, a single large fin may be used; the model flies with either type. Note that the tailplane has ½ in. dihedral each side, as this must be built in on assembly. The tailplane leading edge is covered with 1/32 in. sheet balsa back to the spars, top and bottom.

Airscrew is of 9 in. diameter and of a medium pitch. The original was made of two 9 in. airscrews, carved in mahogany and laminated together. Paddle-type blades are used to absorb the power of the motor, which has ten strands (five loops) of ¼ in. × 1/30 in.—any of the well-known makes is satisfactory. The spinner is built of balsa block, and a free-wheeling device and ball thrust-race fitted to the shaft of 18 s.w.g. Covering on wings and tail is of medium grade Jap tissue, shrunk and doped with shrinking dope. Colouring is olive green above and pale bluish-grey below. Bands of white are painted across wing tips, fins and tailplane; the mainplane L.E. is yellow, as in Fighter Command aircraft. The coupe is yellow, and nose block and spinner yellow, too. The prop hub is signal red, the interior of cabin is red, and wheel discs, cannons, bomb racks and wheel fairings are sea-grey. Transfer is applied to the nose on port side, and whole machine polished with wax polish after painting on R.A.F. cockades and squadron letters TAFR.

Flying.

The model should balance very slightly nose-down at the main spar, and be weighted to balance should it not already do so. The original did not need any balance weights, down or side thrust, and glides flatly enough to make several of the club sailplane fans envious! Don't be afraid of the weight, as a monocoque can " take it," and when the motor breaks you just laugh to your friends and make a new motor. This model needs launching faster than the average and has a terrific climb under full power. Any tendency to stall under power can be averted by use of 1/16 in. down-thrust behind the nose block, but this should not be necessary. Don't be afraid to launch with bags of speed, as this model is very clean, and being rather heavy has a fast gliding and flying speed. Flights of 30-45 secs. are turned out regularly, and a little wind that downs the light-weight fans will be helpful to this job, owing to its higher flying speed.

Full sized plans of this machine (see ½ scale reproduction opposite) may be obtained as usual from Aeromodeller Plans Service, Allen House, Newarke Street, Leicester, price 3/–, post free.

A 35" WINGSPAN RUBBER POWERED SEMI-SCALE MODEL

WINGED SERPENT.

DESIGNED BY J.L. ROBERTS

3/-

ALL WOODS UNLESS OTHERWISE STATED ARE BALSA.

MATERIALS REQUIRED

STRIP		MISCELLANEOUS
2	STRIPS OF 1/16" X 1/16" X 36"	1 PIECE OF 1MM PLY 6"x4"
7	" " 1/16" X 1/8" X 36"	1 BALSA BLOCK 1.3/4" x 3"
3	" " 1/16" X 1/16" X 36"	12 PIECES OF MAHOGANY 1/8" x 1/32" x 9"
2	" " 1/16" X 1/4" X 36"	17" OF 18 SWG PIANO WIRE
2	" " 1/8" X 1/2" X 36"	2" " 18 " "
SHEET		2 HARDWOOD WHEELS 1/2" DIA
2	SHEETS OF 1/32" X 3" X 36"	4 OF 1/8" DOWLING
4	" " 1/16" X 3" X 36"	8" " 1/16" "
1	" " 1/8" X 3" X 36"	1.1/2" " 16 SWG 1/16 BRASS TUBING

DOTTED LINE SHOWS POSITION OF PIECE OF SCRAP BALSA GLUED TO SIDE OF RIB TO TAKE 1/16" SHEET WHICH IS LET INTO UNDERSIDE OF WING

CHAIN DOTTED LINES SHOW 1/16" SHEET LET IN

CUT AWAY END OF WING RIBS

W1

W2

W3

W4

W5 & 6

W7

W8

W9

W10

W11

W12

W13

W14

W15

W16

W17

WING RIBS W1-W4 & W7-W17 FROM 1/16 SHEET. W5-6 1/8 SHEET

T1

T2

T3

T4

T5

T6

T7

TAILPLANE RIBS T1-T6 FROM 1/16 SHEET. T7 FROM 1/8 SHEET

F1

F2

F3

FIN RIBS F1-F2 FROM 1/16 SHEET. F3 FROM 1/8 SHEET

SCREWED BRASS BUSH

THRUST RACE

18 SWG CLUTCH BOUND WITH FUSE WIRE & SOLDERED TO PROP SHAFT.

18 S.W.G. WIRE INSERTED INTO CELLULOID TUBING & TUBING GLUED TO BACK OF HOLE. FOR SHAPE OF WIRE SEE PERSPECTIVE VIEW.

16 S.W.G. PROP SHAFT

BALSA SPINNER

SCRAP BALSA PLUG

WINGED SERPENT TRANSFER

WING TONGUE 2 OFF 1/8 HARD BALSA

WING TONGUE SCORED & BENT ALONG LINE & GLUED WITH DUROFIX

1/16 SHEET SHAPED TO COCKPIT CONTOUR

1/16 SQ STRINGER

CELLULOID COCKPIT

1/16 SHEET FAIRING

CYLINDER FAIRING SOFT BALSA BLOCKS

1/32 SHEET TO F5 ON TOP 1/32 SHEET TO F5 ON BOTTOM

1/8 SHEET

TONGUE IS GLUED ON WING

1/16 SHEET TIPS

1/16 X 1/16 & 1/8 X 1/16

1/16 X 1/16 & 1/16 SQ IN FRONT OF FORMER

1/16 X 1/16 IN FRONT

WING SHEETING

1/16 SQ DIAGONAL BRACING

1/16 X 1/16 UPRIGHT BRACING

1/16 X 1/4 & 1/16 SQ SPARS

1/16 X 3/4 IN FRONT OF FORMER 1/16 X 1/8 AT REAR

1/16 X 1/8 & 1/16 SQ TOP SPAR

1/16 X 1/4 & 1/16 SQ BOTTOM SPAR

7 LAMINATIONS OF 1/16 SHEET

WING BOX 1/8 SHEET TOP 1/16 SQ SIDES. BOTTOM OF BOX IS FORMED BY 1/16 SHEET LET INTO WING.

1/16 X 1/16

1/16 SHEET

1/8 X 1/16

1/8 SHEET

1/16 SHEET ON TOP TO F5

1/16 SHEET LET IN ON BOTTOM

CHAIN DOTTED LINE INDICATES SHAPE TO BE CUT OUT OF 1/16 SHEETING UNDERNEATH

1/16 DIA HOLES TO TAKE TIP DOWELS

FIN IS PLACED BETWEEN T7 & TIP SECURED WITH DOWELS

TIN 1 OFF

1/16 DIA HARDWOOD WHEELS

SMALL WASHERS SOLDERED TO AXLE

1/16 DIA TAN. MATERIAL S.W.G.

1/8 PAPER TUBE

BLOCK BALSA HOLLOWED OUT SEE PERSPECTIVE

SCRAP BALSA BALSA WHEEL

TOP & BOTTOM CHAIN DOTTED LINES INDICATE 1/8 SHEET COVERING

THIS PANEL CUT OUT OF FUSELAGE FOR ACCESS TO RUBBER MOTOR & FIX 1/8 STRIPS CEMENTED TO PANEL

1/8 DIA HARDWOOD DOWEL FOR RUBBER MOTOR ANCHORAGE

1/8 SHEETING

BALSA BLOCK IS HOLLOWED OUT & CEMENTED TO 1/8 SHEETING & PLY FORMER 'C' PAPER TUBES ARE THEN CEMENTED INTO BLOCK TO TAKE DOWELS PROJECTING FROM TAILPLANE R/S

POWER 10 STRANDS OF 1/20 X 1/8 X 25"

CYLINDER FAIRINGS

A

B

C

D

E

2 OFF 1MM PLY 1 OFF 1/8 BALSA

1/16 SHEET

1/16 SHEET

1/16 SHEET

1/16 SHEET

H

I

J

K

L

1/16 SHEET

1/16 SHEET

1/16 SHEET

1 OFF 1MM PLY 1 OFF 1/16 SHEET

1 OFF 1MM PLY 1 OFF 1/16 SHEET

TIPS FROM SCRAP BALSA

1/8 SHEET DIHEDRAL KEEPERS

COVER WITH 1/16 SHEET BACK TO SPARS TOP & BOTTOM

1/16 DIA PAPER TUBES

CEMENT 1/16 DIA DOWELS INTO TIPS

T7

T6

T5

T4

T3

T2

T1

1/8 DIA DOWELS

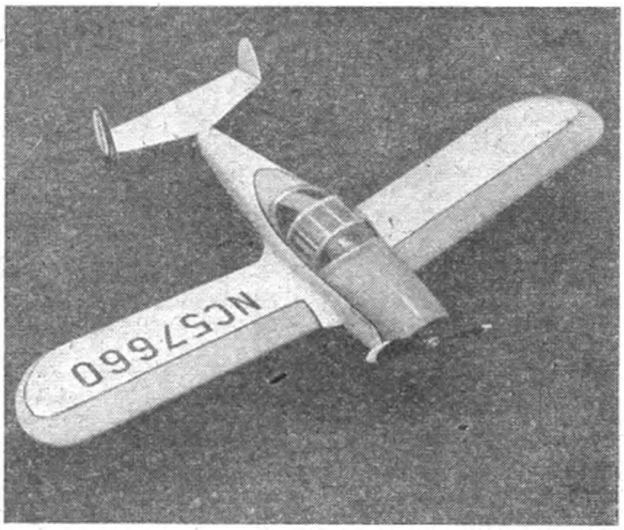
1/16 SHEET F.G.

TAILPLANE SPAR. 2 OFF FROM 1/8 SHEET

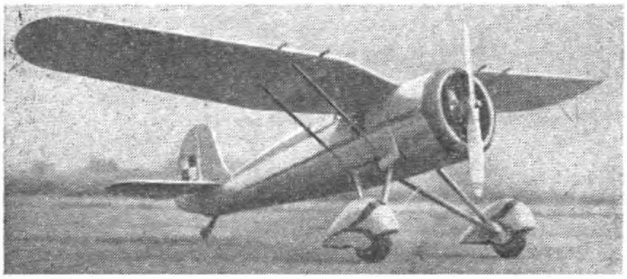
RDG 262

CONTROL LINE COMMENTARY

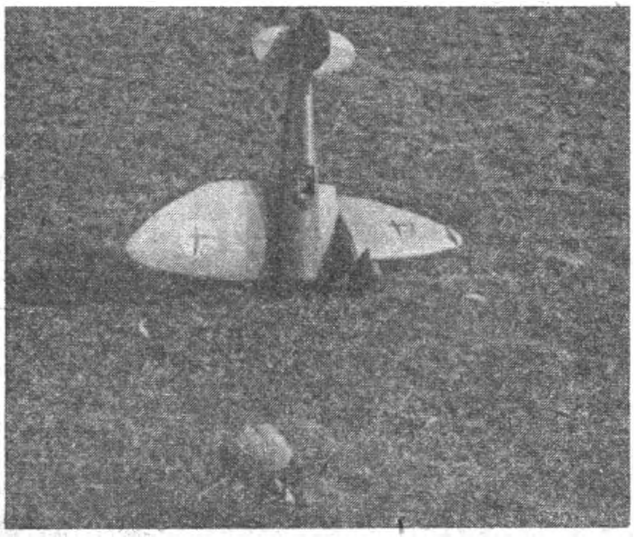
By F. B. THOMAS



A beautifully made 40" span Ercoupe powered by an Ohlsson 23, built from a Capitol kit by A.C.s Moore and Wady in Southern Rhodesia. Both cockpit and cowling are hinged for interior access.



Above, another example of superb craftsmanship. Ft./Lt. Wojda's ½th-scale Polish P.Z.L.24 F fighter. Note the details and finish. The model has excellent flying qualities. Below—ugh! It happens to all of us! In this case it happened to A. H. Mustard's 25" span Mills-powered machine.



THERE must be many modellers in this country who have now built control-liners, and perhaps got a bit bored with flying them sedately and safely in normal circuits, and who have the urge to try some stunting. Like myself, they may never have had any success with aerobatics, due to lack of precise information as to the characteristics required of a model capable of aerobatics. In the American aeromodelling journals I have read frequent accounts of the stunts performed by the experts, but not a single article has given precise details of the model which can perform these stunts, or particulars such as length of line, fuel tank installations, etc. At the end of a recent "Control-line Commentary" I asked readers who had attempted aerobatics with U-control models to write to me giving details of their efforts and achievements and I have had a couple of interesting and informative replies.

The first letter was from Mr. Mike Booth of Blackpool, and he gives me a most complete account of the aerobatic side of control-lining. His letter has "put me in the picture" as no other account of control-line stunting has done, and I fully intend building a model to his specification, and "having a go" myself.

I feel that I cannot do better than to quote verbatim the greater part of his letter to me. He says he has been looping successfully for about three months. His first successful stunt model was powered by a Mills Diesel, and this model he finally wrecked "trying to cut Players packets to bits by clipping them with the prop while flying inverted. This may sound like a good line, but when you consider that I had used thirty-nine bottles of Mills fuel in that engine and model, and had got safely past climbs, dives, vertical wing-overs, loops, consecutive loops (three), bunts, figure 8's above my head and balloon popping, you can see that flying inverted is quite easy". And that provides the first lesson that Mr. Booth's letter has taught me—the necessity for literally hours of flying to achieve the precision of control required for stunting.

The second point he makes is that if you really intend to teach yourself aerobatics, you must be prepared to wreck a model or two in the earlier phases of your self-tuition. As Mr. Booth says "I don't mean to be rude, but by your articles and the pictures of all those apparently serviceable models I conclude that you will *never* get to do advanced stunts because it really is necessary to risk a prang. After the first good crack-up the pilot has begun to learn the routine of that particular stunt and next time will probably execute it, perhaps a trifle sloppily, but nevertheless successfully and so it progresses and the poor model gets more and more tattered as time passes; and the pilot gets more proficient. I say definitely *you can't learn to stunt without smashing a few models.*"

Mr. Booth goes on to describe in detail his procedure for looping, and here is the "gen" in the words of the expert. "To do your first loop you require a little courage. I first tried a series of vertical wing-overs, then hoisted on full 'up' elevator when into wind at deck level. She went over alright but the pull-out just wasn't! She landed like a flounder. The undercart spread and the prop shrunk to about 2 in. diameter. The second try was better and finally I evolved a reasonable formula for a loop."

"Don't try to force her over—let the model fly round. After all, it is an aeroplane. On my model the trick was to fly around at about 15 feet deck clearance, checking each circuit for wind direction. Now having plucked up enough courage—when the model is between down and into wind—*ease* on elevator. When she is going straight up bang on the rest *sharply*. When upside down get back to neutral quick. After about 1/5 sec., ease on up increasing up until the model

starts to pull out, then with a bit of ' whipping ' complete the pull-out but don't forget where the horizon was when you last saw it, and don't panic."

" Your first loops will be awful and you'll probably need a couple of aspirins and, of course, a new prop ! But the diagram (Fig. 1) should help, and note that for a loop to be a loop it must take place within one quarter of a circuit and the lines should not exceed an angle of 60 degrees with the ground. So keep wing-loading down, and power loading up."

In connection with inverted flying, Mr. Booth has an excellent tip, and that is to turn the hand (and control grip) through 180 degrees to the left as the model goes over on to its back, so that a normal up and down movement of the arm still causes the model to climb or dive, although it is inverted. As he puts it " when flying anti-clockwise and half looping into inversion, the hand is turned through 180 degrees to the left. Then, with a correctly designed model, it is merely a case of flying the other way around. Simple, until you try to get back to normal flight. My first two tries resulted in a *very* loud crash as the model ploughed into the concrete." I wonder if anyone has ever thought of fitting a second undercarriage on the top of a stunt model, to permit inverted landings without tears !

And here is Mr. Booth's specification for a full aerobatic U-control model.

Power : Mills diesel (or similar motor) driving an 8 in. × 8 in. airscrew, and fitted with a " wedge " tank. *Span* : 32 in. wing area, 160 sq. ins., Section R.A.F. 30 and 0 degrees incidence. *Length* : 21 ins. overall including elevator. *Stabiliser area* : 24 sq. ins. *Elevator area* : 24 sq. ins. with 45 degrees up and 45 degrees down. *All up weight* with full tank (twice normal size) 14 ozs. *Speed* : in level flight, 37·4 m.p.h. *Line length* for stunting : 40 ft. *Line* : 8 pound breaking strain steel fishing leader.

The second letter is from Mr. R. J. Herbert of Bridgwater, Somerset, he says :

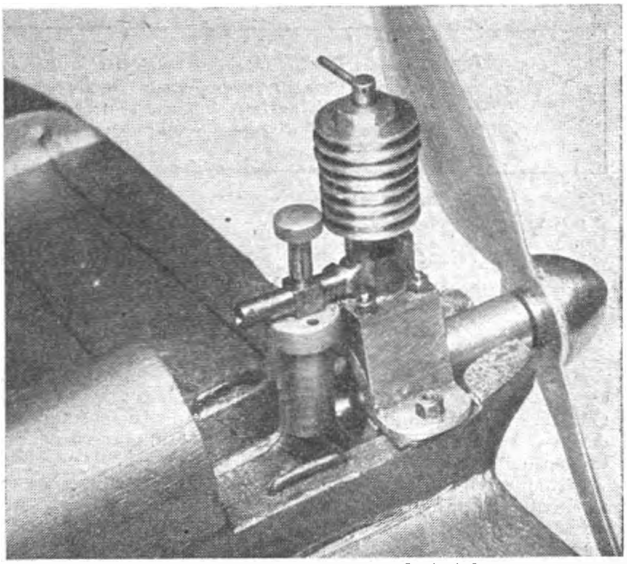
" I have been experimenting in stunt control-liners lately and have built three models which have looped—two fairly successfully and one with complete success."

" The first is powered by a Movo 2 c.c. diesel all up weight 17 ozs., wing area 1 sq. ft. 30 in. span. Moment arm (T.E. wing and L.E. tail) 10 in. Elevator is 50 per cent. of tail area with 30 degrees movement. This model is still in existence. Wing-overs are child's play and I have looped it. However, the lines are at an angle of about 76 degrees at the top, so I do not call this a real loop—lines should not exceed an angle of 50–60 degrees in my opinion." (It would be hard to exceed this angle with 25 ft. lines as Mr. Herbert states he uses, unless the looping radius of the model was very compact.)

" The second model was a biplane, span 18 ft., area 100 sq. ins., weight 10 ozs., Mills powered. This model had two flights only. The first was taken steadily with only gentle climbs and dives. On the second flight the elevators were pulled right back after a few circuits, and the model went straight up into a loop of very small radius, turned on her back, and then the lines went slack ! It was, however, three parts of a loop, the line angle being about 45 degrees at the top."

" The third model (now also defunct owing to attempting an outside loop with a special tank) was the most successful. It performed real loops, but line tension on the second half of the loop was troublesome, and much rudder off-set was needed. This model was a monoplane, span 24 ins., wing area 100 sq. ins., weight 9¾ ozs., Mills powered. Lines used on all models were 25 ft. long 8 pound breaking strain fishing line."

This letter underlines the point made by Mr. Booth in his that stunting is impossible without a spot of wear and tear on models ! Mr. Herbert mentions a difficulty that I have encountered that is not referred to by Mr. Booth, slack lines on the second half of the loop. The only successful loops I have achieved have been on a rubber-powered model, and I found great difficulty in maintaining line tensions. I found it was necessary to walk quickly backwards as the model was completing the second half of the loop. But probably the weight of the model is important in this connection. A very light model produces a very small centrifugal pull when the speed is reduced after reaching the top of a loop. The only power model I have tried to loop (Mills engine 20 in. span, 10 ozs. net) met its end owing to the lines slackening just after the model had turned on its back (Mr. Booth's model weighs 14 ozs.).



Close-up of the engine installation of reader R. A. Fisk's 16" span control-liner. With an all up weight of 6¼ ozs. and a speed of 35 m.p.h. this model is powered with a ·8 c.c. Sparey diesel.

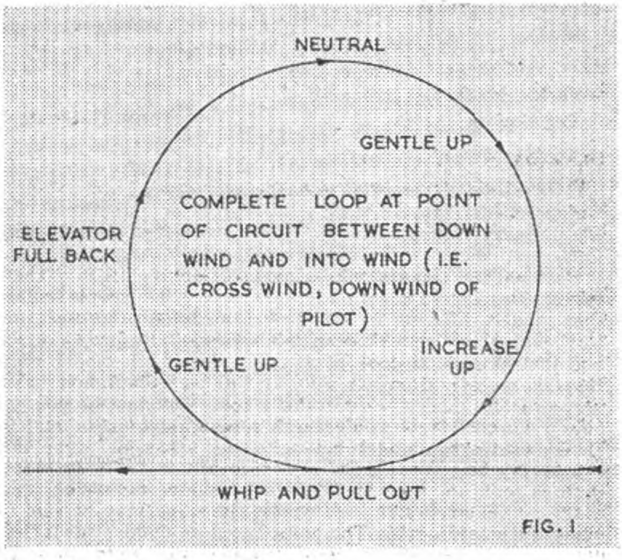


FIG. 1

I hope these two letters will help the aeromodellers as much as they have helped me. To sum up, the requirements for successful stunting appear to be :

1. A model with light wing loading, good power/weight ratio. Symmetrical wing section at 0 degrees incidence. Liberal elevator area with plenty of up and down movement, and a tank permitting inverted flight.
2. Fairly short lines, to help to maintain line tension at low speeds.
3. Hours of practice.
4. A stoical pilot, resigned to the prospect of breaking a few models before he achieves proficiency !

The Editor does not hold himself responsible for the views expressed by correspondents. The names and addresses of the writers, not necessarily for publication, must in all cases accompany letters.

We expected a deluge of answers to reader Maxwell's letter and it certainly arrived. The letters below are typical of the general run of replies—the few anti-pylon letters usually missed the real point, i.e. efficiency and merely condemned the characteristic pylon appearance.

DEAR SIR,

In reply to J. H. Maxwell's letter in the Christmas issue, and as one of " the three gentlemen " under censure I should like to suggest that he join us and complete the ignorant Quartet! For as I understand it, he explains the spectacular climb of a pylon model by proving that the tailplane is nearer its stalling angle—" which is sheer nonsense."

Mr. Maxwell is often acutely aware of the sign and slope of moments, and that is probably the reason behind his fall since the matter in hand is a matter of simple forces. But since the subject has arisen, I should like to suggest that the climb is attributable to two reasons :

(1) The tailplane is well out of the wake left by the wing, with a corresponding gain in its efficiency.

(2) The improved spiral stability enables the model to be trimmed much more critically.

Other effects may come to light, and in this respect it will be very interesting to read N. K. Walker's long awaited report on " Downthrust "— theory which I believe to be very different from Mr. Maxwell's published in 1943.

Teddington. JOHN HALIFAX.

DEAR SIR,

Congratulations on printing such an interesting and unbiased article as Mr. Van Hattum's " Classical or Functional " in the January AEROMODELLER. I for one agree entirely with these sentiments.

Personally, I can appreciate good examples of both of these types. But I have never understood why some people believe that models differing in any way from full size aircraft, are freakish. Many contest designs are beautifully proportioned and just as good to look at as a graceful cabin model. Mr. Bowden recently drew attention to Fillons " Champion " as a very graceful model—quite rightly too. But just as you get ugly pylon models, so you get ugly semi-scale or cabin models. Mr. Bowden's own models belong to the " classical " type, but can hardly be termed graceful in appearance. For instance, there is room for improvement in the engine mounting, spat shape and cabin design. Of course the same may be said of many full size aircraft. The point I wish to make clear is that not all cabin models are good looking— any more than all pylons are ugly.

Take Mr. Van Hattum's proposed " Bombardier " in the January AEROMODELLER—although this is highly unconventional, I for one find this a very attractive model. Everything has a definite purpose and each part is related to the whole. Obviously nothing has been tacked on as an afterthought. Modellers may criticise this design, but to dismiss it just because it breaks away from the more conventional layout, is pointless. How about giving the " functional " boys a break— you seldom hear them denouncing the " classical " types, just because they favour a cabin. As Mr. Van Hattum points out —there is room for all shades of opinion in the hobby.

Thornton Heath. BILL DEAN.

DEAR SIR,

I am delighted to learn from Mr. Maxwell's letter (January AEROMODELLER) that that gentleman has boiled down the " somewhat involved explanation of the superiority of the pylon model "—a convenient expression, that !—to the simple phrase—" a parasol wing prevents a model stalling."

Go fly a few power models, Mr. Maxwell, and find out something about rigging angles!

Wing drag, and its varying effect with different layouts is one thing. Thrust line position relative to tail rigging angle is also extremely important. Power-duration models tend to be grossly overpowered—expecially when you can get nearly 1/3 h.p. from a 6 c.c. motor—and whatever layout the model is—parasol, high- or shoulder-wing, a certain tail rigging incidence is necessary for control. Pylon models are particularly prone to loop—have you ever flown one, Mr. Maxwell ?—and generally demand a generous positive tailplane rigging incidence relative to the thrust line to counteract this tendency.

But the main advantage of the layout is that such rigging incidences *are generally less critical* than those for models with lower wing position. Hence the pylon model offers the *safest* solution, although not necessarily the most *efficient*. To say that the ultra-high wing position automatically makes you rig the model so that it will not loop is plain nonsense. It is far easier to loop a pylon job than any other type, but, given adequate spiral stability, that loop can become an upward roll.

With a lower wing position you have got to be more exact or, simply you have less margin of error in both design and trimming.

It is now generally appreciated that torque is a very important factor, best tamed by generous dihedral angles—or has that not got around to Mr. Maxwell yet ?—and a high rate of roll arrived at, even at the expense of a certain amount of dutch rolling on the glide. All this makes the pylon even " safer." But the model has still got to be spirally stable, mainly in the sense that it does not drop its nose in a yaw or turn under power—and tailplane rigging enters this factor. The looping tendency of the pylon model is then readily turned into a spiral climb.

Many successful pylon models lack some of these features and you will generally find that these are best flown in relatively straight lines under power. This is achieved by rigging the tail to contribute a considerable proportion of the total lift and flying the wing at a moderate or even low angle of attack under power. Such practice often makes the model extremely sensitive to tailplane setting and even more tricky to adjust than many high wing types. So here the pylon alone has not provided the complete solution. And when you fly a pylon model in straight lines the looping tendency is often most marked.

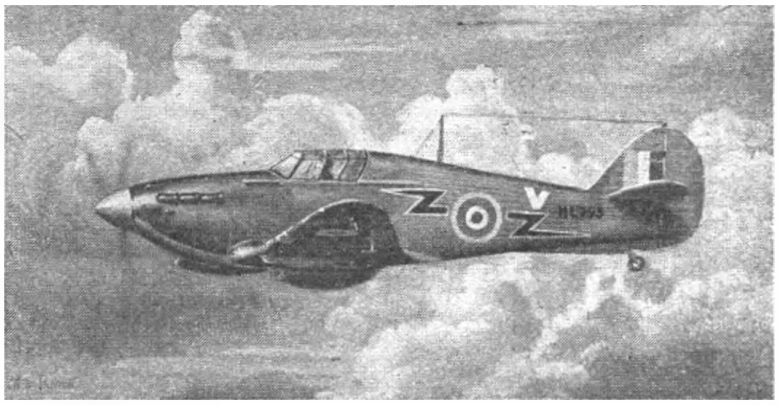
Theoretically a shoulder wing model has a greater potential performance since, for similar models, the shoulder wing layout has less overall drag—tailplane incidence, for example, is lower—but stability is more critical and therefore the design must be more exact and optimum trim more difficult to arrive at.

Since nowadays we are handling abnormally high power in many power-duration jobs, the *safest approach*, i.e. the pylon model, is the most attractive proposition and, having already been developed to a considerable degree, is likely to remain the most popular type in this field.

Beckenham. R. H. WARRING

MONTHLY MEMORANDA

by O. G. THETFORD



Western Desert Heraldry.

Since the publication of the photograph in the January issue illustrating the squadron markings of a No. 73 (Fighter) Squadron Spitfire, many letters have reached us concerning the subject of fighter markings on Western Desert aircraft.

A former member of No. 73 Squadron, Mr. K. R. Grace of Slough, Bucks, informs us that the squadron device seen on the Spitfires was used at an even earlier date on the Hurricane IIc aircraft with which the squadron was equipped during the siege of Tobruk and which were employed on night intruder raids in addition to their day fighter duties.

Another correspondent, Flight-Lieutenant Donald McKay of Desford, Leicester, writes to us concerning the markings of No. 274 (Fighter) Squadron which was equipped with Hurricane IIb fighter-bombers in the Western Desert in 1942. As seen in the illustration, this squadron used a "lightning flash" device on its aircraft with the individual aircraft letter appearing above the rear half of the squadron marking and the squadron letters deleted. The squadron marking was painted in black, edged in red on "A" Flight machines and in blue on "B" Flight aircraft. Flight Lieutenant McKay's own Hurricane, letter "V," was numbered HL 795. The official squadron letters of No. 274 Squadron were "NJ" and these were once again painted on the aircraft when the Hurricanes were exchanged for Spitfires in 1943.

A third squadron in the Western Desert with unorthodox markings was No. 213 (Fighter) Squadron. Hurricanes of this squadron had the unit crest, a hornet, superimposed on the centre of the roundels on the fuselage. This was later discontinued, and the official recognition letters "AK" were revived as the sole means of identification.

In the First World War No. 213 Squadron was No. 13 Squadron of the Royal Naval Air Service, equipped with Sopwith Camels, and was re-designated No. 213 Squadron on April 1st, 1918, when the R.A.F. was formed. It was disbanded at the end of 1919 and re-formed under the R.A.F. Expansion Scheme at Northolt in March, 1937, equipped with the Gloster Gauntlet. No. 213 Squadron flew Hurricanes in the Battle of Britain and at the end of the war was equipped with the Mustang IV. The squadron is now disbanded.

Aer Lingus Fleet.

News that the Irish airline, Aer Lingus, proposes disposing of its fleet of Vikings prompts us, for historical interest, to list the names and registrations of these aircraft before their departure for foreign climes. The Vikings operated by Aer Lingus on the Dublin-London route were :— *St. Ronan* (EI-ADF); *St. Senan* (EI-ADG); *St. Celsus* (EI-ADH); *St. Mel* (EI-ADI); *St. Flannan* (EI ADJ); *St. Jarlath* (EI-ADK); and *St. Felim* (EI-ADL).

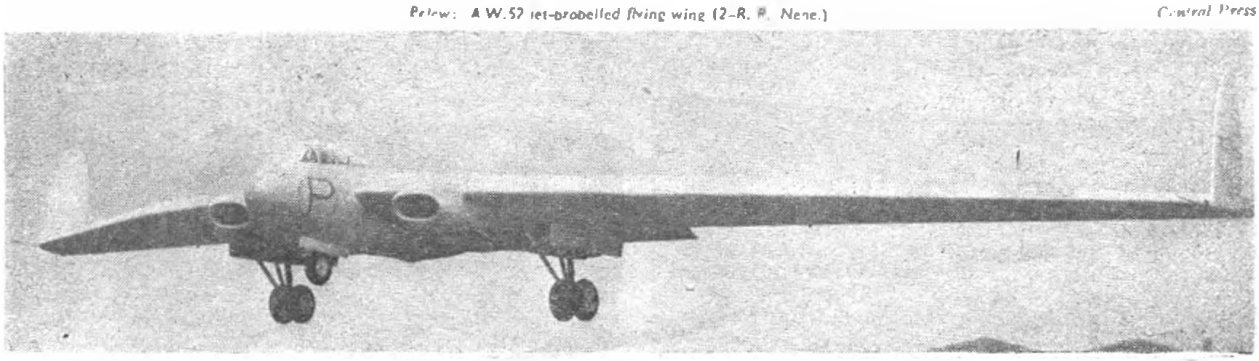
Aer Lingus also operates eight Douglas DC-3 and Dakota aircraft. These are named and registered : *St. Comcille* (EI ACE); *St. Kieran* (EI-ACF); *St. Malachy* (EI-ACG); *St. Aidan* (EI-ACI); *St. Albert* (EI-ACK); *St. Declan* (EI-ACL); *St. Fintan* (EI-ACM) and *St. Coleman* (EI ACT).

Associated with Aer Lingus is Aerlinte Eireann, the company scheduled to operate the Irish transatlantic services. Five Lockheed Constellations comprise the fleet of Aerlinte Eireann, the first *St. Patrick* (EI-ACS) being delivered towards the end of 1947. The other Constellations are :— *St. Brendan* (EI-ACR); *St. Bridget* (EI-ADA); *St. Kevin* (EI-ADD) and *St. Finbarr* (EI-ADE).

British Aircraft Exports 1947.

Of interest to scale modellers are these figures on the types of aircraft exported from Great Britain during 1947. The initial identification letters of each country are quoted in parentheses) :— *Argentine* (LV): 12 Consuls, 2 Autocrats, 2 Arrows, 14 Bristol Freighters, 13 Doves, 3 Lancastrians, 2 Messengers, 1 Gemini, 1 Spitfire XI, 2 Yorks and 16 Vikings. *Australia* (VH): 1 Dove. *Belgium* (OO): 14 Arrows, 3 Avro XIX's, 5 Doves, 1 Hawk Trainer, 1 Gemini and 2 Messengers. *Brazil* (PP or PT): 4 Autocrats, 1 Arrow, 2 Rapides and 1 Dove. *Burma* (XY): 1 Consul. *Canada* (CF): 1 Avro XIX, 3 Doves and 1 Aerovan. *Chile* (CC): 2 Messengers. *Colombia* (HK): 1 Aerovan. *Denmark* (OY): 1 Arrow and 5 Vikings. *Egypt* (SU): 1 Gemini. *Eire* (EI): 2 Consuls, 2 Arrows, 1 Gemini, 2 Proctors and 7 Vikings. *Ethiopia* (ET): 2 Tiger Moths. *France* (F): 4 Consuls, 2 Bristol Freighters, 1 Wayfarer, 16 Hawk Trainers. *India* (VT): 2 Consuls, 2 Avro XIX's, 2 Wayfarers, 4 Doves and 9 Vikings. *Iran* (EP) 1 Messenger. *Iraq* (YI): 2 Doves, 1 Gemini and 1 Viking. *Netherlands* (PH): 6 Tiger Moths, *New Zealand* (ZK) 2 Autocrats, 6 Auster VJ-5 s, 2 Hawk Trainers, 3 Geminis, 4 Proctors and 1 Sandringham. *Norway* (LN): 1 Arrow, 1 Halifax VIII and 3 Sandringhams. *Peru* (OB): 3 Rapides. *Portuguese Colonies* (CR): 1 Gemini. *South Africa* (ZS) 8 Autocrats, 1 Arrow, 1 Bristol Freighter, 4 Doves, 1 Messenger, 1 Gemini, 1 Proctor, and 8 Vikings. *Sweden* (SE): 1 Arrow, 1 Bristol Freighter and 1 Martinet. *Switzerland* (HB) 1 Auster VJ 4, 1 Hawk Trainer, 1 Messenger, 1 Aerovan, 1 Gemini and 1 Proctor.

Below: A W.52 jet-propelled flying wing (2-R. R. Nene.) *Central Press*



AIRCRAFT DESCRIBED
No. 5.

THE B.A.T. FK23 "BANTAM"

BY
E. J. RIDING

ANOTHER machine in the same category as the Nieuport Nighthawk and Martinsyde F.4. Buzzard was the British Aerial Transport Companies Bantam, a very small single-seater biplane scout designed in 1917 by the late Frederick Koolhoven, who was responsible for the design of the Armstrong-Whitworth F.K. series of two-seater biplanes, the Ara and Armadillo scouts and the experimental quadruplane F.K.10.

With its monocoque fuselage construction and lack of complicated forgings and machined parts the Bantam seemed to provide the answer to the problem of quick production, but unfortunately the machine never went into quantity production, and was never used on active service. In most respects the Bantam was at that time streets ahead of anything we had in the single-seater class, and remained so until the early nineteen twenties. At first it was fitted with the 170 h.p. A.B.C. " Wasp " 7-cylinder air-cooled radial engine which was in a relatively experimental stage at the time. A later version was fitted with a Wasp Mk. II of 200 h.p., increasing its top speed to 146 m.p.h. at 10,000 ft., the climb from ground level to 17,000 ft. taking a little over sixteen minutes.

It is interesting to remember that the figures for the standard contemporary R.A.F. fighter, the Sopwith Snipe were 121 m.p.h. and twenty-three minutes respectively, both with full war load. Service Bantams were allotted the serial numbers F.1655 to F.1661, and their armament consisted of two Vickers machine guns mounted inside the fuselage on either side of the pilot.

After the Armistice, seven Bantams came onto the civil register and they were a popular mount for sporting and racing pilots. Two were entered in the 1919 Aerial Derby, one being registered K.123 in the early system of civil registration, and the other K.125. This latter was a special hotted up version having a clipped lower wing. They were flown by Clifford Prodger and Major Christopher Draper respectively, and although Prodger was forced to retire, the latter gained second place in the scaled handicap, and fourth place at 116·78 m.p.h. in the speed contest.

Later on in 1919 when the letter system of civil registration was adopted, K.123, K.125, K.154, and K.155 became G-EACN, G-EACP, G-EAFM and G-EAFN respectively, the remainder being registered G-EAJW, G-EAMM, and G-EAYA (previously F.1661). It is extremely doubtful however, whether any of the above ever carried their registration letters before being broken up or sold abroad. I should be glad to see photographic evidence to the contrary.

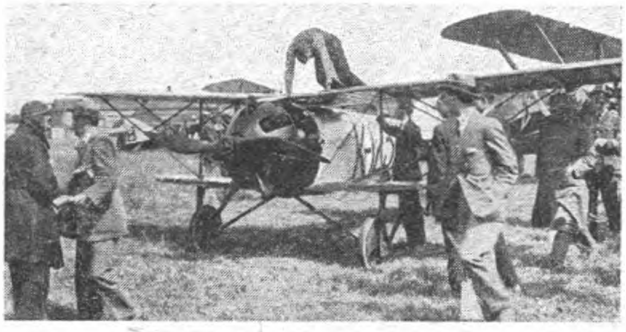
After twenty-seven years of retirement, all that remains of K.123 can be seen at Primrose Garages, on the Radlett Road near Watford, Herts.

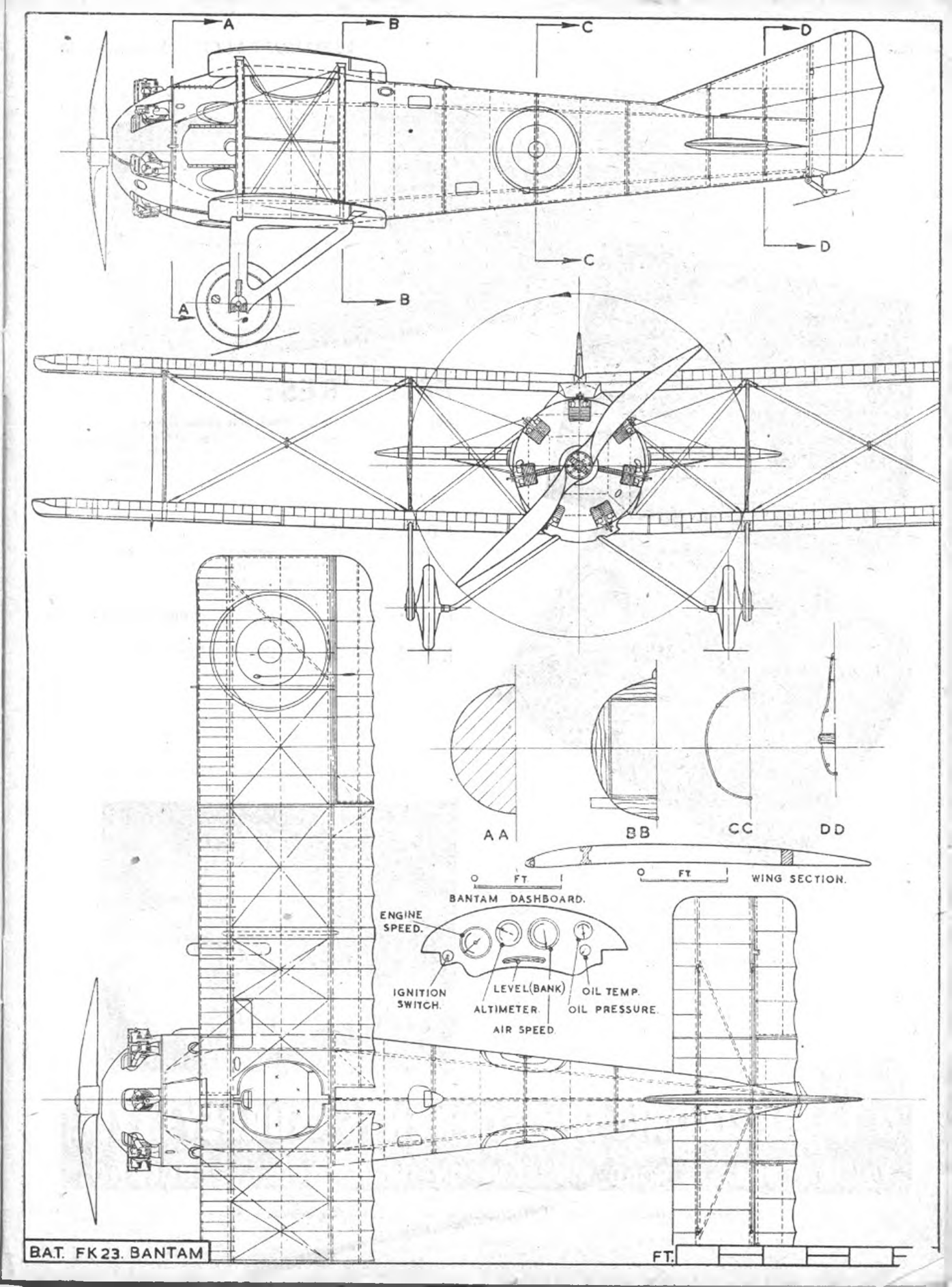
Mr. C. P. B. Ogilvie, who bought both K.123 and F.1661 in 1920, has assembled the former and hired it out to local cinemas on occasions when they have shown World War I flying films. It still carries the white patch on which the racing number 1 was painted for the 1919 Aerial Derby, and also the registration letters K.123 in black outlined with white on the top surface of the starboard upper plane. The other machine, F.1661 was bought by Koolhoven in 1924 and taken back to Holland, where, fitted with an Armstrong-Siddeley Lynx IV engine it is said to have attained a speed of 250 m.p.h. Mr. Ogilvie's other exhibits include a brand new Bristol F.2b Fighter Mk. III, complete and in excellent condition.

Construction : The monocoque fuselage was made from sheets of three ply, wrapped round spruce formers carried on six ash longerons. The wings embodied spindled spruce spars and girder type ribs closely spaced and with two nose-ribs between each main rib. A length of piano wire was attached to the trailing edge of each main rib, which under the tautening effect of doped fabric gave the pleasing scalloped appearance shown in the photographs. A spruce trailing edge member was located at a distance of about 4 ins. in advance of the wire one as shown in the G.A drawing.

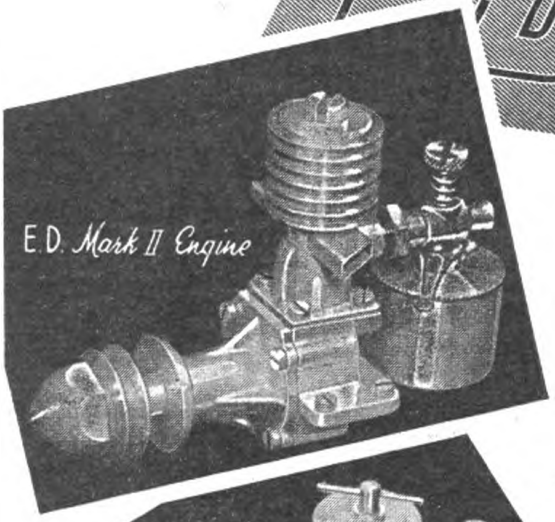
Colour : Standard drab green camouflage on top surfaces, clear doped undersides. Cowlings and metal parts black: Red, white, and blue roundels outlined in white on fuselage and wings, flashes on rudder with red stripe at trailing edge. The racing Bantams shown in the lower photographs differed from this only in the colour of the fuselages which were white with black letters.

Owing to the diminutive size of the Bantam, the accompanying G.A. plan has been drawn to 1/36th scale. ½" to 1' reproductions of it may be obtained price 1/- from our Leicester offices.




A
B
C
D
AA
BB
CC
DD
FT
BANTAM DASHBOARD.
WING SECTION.
ENGINE SPEED.
IGNITION SWITCH.
ALTIMETER.
LEVEL(BANK)
AIR SPEED.
OIL TEMP.
OIL PRESSURE.
B.A.T. FK23. BANTAM
FT.

E.D. 2 C.C. MARK II and the COMPETITION SPECIAL Diesel Engines



FEATURES:

Adjustable compression head, one piece Crankshaft, aluminium or plastic Fuel Containers, runs inverted and in either direction, develops considerably more power than its petrol driven counterpart. Built-in cut-out Control, easy finger starting, every engine guaranteed.

E.D. 2 c.c. MARK II

Bore ¼ in. Stroke ⅜ in. Width 1⅞ in. Length 4 in. Height 3 in. R.P.M. 6500. Static Thrust 18 ozs. Hole centres for Engine bearers ⅝ in. × 1⅛ in. Flywheel 10/6

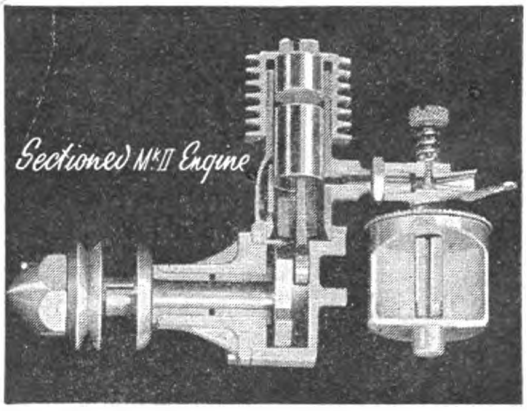
Price £4. 4. 0. Prop. 10" 6/-

E.D. 2 c.c. COMPETITION SPECIAL

Bore ¼ in. Stroke ⅜ in. Width 1⅞ in. Length 4 in. Height 3 in. R.P.M. 8500. Static Thrust 23 ozs. Hole centres for Engine bearers ⅝ in. × 1⅛ in. Flywheel 10/6

Price £4. 17. 6. Prop. 11" 6/6

As recommended by Henry J. Nicholls for his Mercury Magnette.



A precision engineering job throughout. Limits of 0.0001 in. maintained. Phenomenal performance. No plugs, coils, condensers, wires—and NO TROUBLE. An engine that has been accepted the world over as the very best of its kind.

Suitable Kit Sets in addition to the many control line kits that are being marketed (for which the E.D. Diesels excel); Keil Kraft Slicker 50, Scout Biplane Phantom, Dromes "Club" models, Frogs 45, Scorpion, Tiger Moth, etc., etc.

E.D. ELECTRONIC DEVELOPMENTS (SURREY) LTD.

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Club News

by Clubman

Mayoral Interest noted at the Northampton M.A.C. annual dinner and prizegiving. Left to right Mr. F. Mason, (Chairman, N.M.A.C.) Mrs. H. Boys, Mr. H. Boys (President N.M.A.C.), The Mayor (Alderman Mrs. H. M. Nicholls), the Mayoress (Mrs. L. M. Vorse), Mr. A. F. Hjulberg (Chairman S.M.A.E.). Mrs C. S. Rushbrooke and the Editor (Clubman).

Photo: Northampton Chronicle.

YOU will have noted before reaching this section that the accent is on Wakefield models. This is the direct outcome of a proposition I was able to get passed at a Council Meeting of the S.M.A.E. on the 18th January, by virtue of which (a) the American authorities have been approached with a view to the resumption of the Contest, and (b) detailed arrangements for the selection of a British team have been put in hand.

Correspondence from various American friends indicates that there will be no question regarding their co-operation in this direction, for you will have gathered from earlier issues of this magazine that the Americans wanted to resume the Wakefield Contest in 1947, although it was not practicable from our standpoint to get started then.

The method for selecting the team to represent Great Britain will be very much on the lines advocated in the Club News columns last month. Preliminary elimination trials will be staged on May 2nd, and the Gutteridge Trophy Contest (which is for Wakefield class machines) will be utilised for this purpose. This event will be conducted on an Area semi-centralised basis, and 20% of the finalists from each area will go forward to the final selection trial on June 6th. In this way no Area is handicapped by local conditions obtaining on May 2nd, and each Area will forward to the finals a number proportionate to the entries received at the preliminary contest, which I think you will agree is the fairest method that could be adopted.

The meeting on June 6th will take place somewhere in the London district, this being decided upon in view of the much better travel facilities to this centre than elsewhere.

Preliminary correspondence indicates that the Contest proper will take place at Cleveland, Ohio, towards the latter end of August, around the same time as the American National Air Races. At the same time it will be noted that the F.A.I. Conference (including the Model Commission) will meet at about the same time and all three activities can be accommodated together. Whether it will be possible for the individual team members to travel to America is still a moot point, but I know our American friends are doing their utmost to obtain the necessary sponsorship and transport. Failing this we shall have to fall back on the proxy flier system as in previous years, but we naturally hope that arrangements can be finalised to enable the lucky six to go to Cleveland.

Another matter of extreme interest to the keen clubman is the introduction of a revised schedule of British National Records. The old list was both unwieldy and hard to understand by the average aeromodeller. It was with these points in mind that the new list has been prepared (see page 239) which will enable you to know what you have to tackle in this direction during the coming season. A revised list will be published at the end of the recognised flying season, and in this way modellers will be able to keep track of both what they have to tackle and what has been accomplished.

An interesting letter just to hand from Dr. E. Allen, now of Pretoria, S. Africa and formerly well known in London districts, gives first hand news of the forthcoming South African National Championships. Due to be held at Easter the meet will spread over four days, and include nine contests covering all types of model. Detailed report of the meeting is promised at a later date, and should make interesting comparison with our own Nationals which are due at Whitsun. Dr. Allen asks me to announce that any aeromodeller immigrant from the U.K. to S. Africa will be made very welcome. A letter addressed to the Secretary S.A.M.A.A. (the National body) at 80, Koll Road, Forest Hill, Johannesburg will produce information re clubs etc. in any part of the Union.

At the invitation of the **KODAK S.E.E.C.** the London Area clubs held their Indoor R.T.P. and Free Flying competitions in the Kodak Hall on the 25th January last. The meeting was well attended, and some 100 models of all types were displayed. S. Mayo (Streatham) started off with a good flight of 3 : 08 in the Class A r.t.p. event, the comp. finishing up with Jimmy Wingate the winner with a flight of 3 : 30. Bob Copland put up a time of over 8 minutes in the microfilm section—and requests that the roof be made higher for the next contest! In the fuselage class Reg Parham (Worcester) made best time with a flight of over 2½ minutes, using an automatic feathering device on the prop., a very ingenious piece of engineering.

A. McBurnie of the **OSWIN AVENUE M.A.C.** flew his sailplane o.o.s. for 16 minutes at the Doncaster Open Day, and followed up with a second flight of over 35 minutes after a hectic chase per tandem. Weather was dull with ten-tenths cloud. His two scale gliders were the centre-piece of the exhibition staged at the club H.Q., a show which included control-line flying by three jobs at once!!

The sailplane record of the **NORTH LEICESTER & D.M.A.C.** stands at 7 minutes with a "Pegasus" lightweight model, another model which went o.o.s. after 32 minutes apparently not being officially timed.

After a few difficulties, the **WIGAN M.A.C.** are now going ahead nicely with a membership around the twenty mark. Club records at present are :—

Glider	—	N. Morton	10 : 32
Rubber	—	R. Baldwin	2 : 47
Wakefield	—	T. Read	2 : 17·5
Jun. Glider	—	H. Barton	2 : 42·7
Jun. Rubber	—	W. L. Mercer	1 : 37·6

After winning a club r.t.p. contest with an aggregate time of 3 : 21·2 M. J. Richards of the **SOUTHAMPTON M.A.C.** decided to try to break the club record of 1 : 51·6 held by Doug. Gordon. At the first attempt he failed by one second, but, piling on the turns for another attempt was duly rewarded with a flight of 2 : 09·7.

Looking back on a first year's activities the **GREENFORD & D.M.A.C.** are optimistic for the future. Places have been gained in all events entered, and at the moment the comp. sec. is looking for his Frog "100" powered pylon Powerhouse job. 30 ins. span, coloured orange and green (ugh!), last seen

heading towards Wembley. Pete Gilbert is delving into the realms of heavyweight soaring, and is now carving a fuselage out of solid teak. Current records are :—

Rubber R.O.G.	L. Barr	12 : 35
,, H. L.	R. Mills	17 : 45
Glider W. L.	D. White	15 : 00
,, H.L.	R. Cummings	12 : 15·2
Wakefield	L. Barr	6 : 19·7
Power	L. Barr	24 : 10·2 (20 sec. run).
R.T.P.	K. Baker	2 : 55·3
Free Flight	L. Barr	2 : 09·6
Control line speed	L. Barr	47·7 m.p.h.

They must live on thermals down Greenford way ! !

BARNSLEY & D.M.A.C. turned up in force at the Doncaster Indoor meeting, and went away highly satisfied, P. Brown and E. Midgley carrying off first places in the Class B and speed classes respectively. Bad luck has struck the club with the Ministry of War Agriculture busily engaged in ploughing up the flying field.

Following an earlier postponement, the **HARROGATE M. & E.E.S.** will stage their Exhibition at the Christ Church Schools, from 31st March to the 3rd April, from 2.30 to 8.30 p.m. each day. Entry forms for the competition section can be had on application to the Secretary.

Results of the **NORTHERN AREA** Indoor Contest held at Doncaster were as follows :—

Class " A " R.T.P.	M. A. Hetherington	(Doncaster)	9 : 46 agg.
	C. E. Exley	(Sheffield)	8 : 44
	C. D. Helliwell	(Doncaster)	8 : 16
	T. Muxlow	(Sheffield)	7 : 26
Class " B " R.T.P.	D. Brown	(Barnsley)	2 : 17
	— Joyce	(Leeds)	1 : 11
Speed	H. Midgley	(Barnsley)	24 m.p.h.
Free Flight	M. A. Hetherington	(Doncaster)	3 : 28
	T. Muxlow	(Sheffield)	2 : 24

The four top men in the Class " A " section form the Northern Area team for the Manchester meeting on Feb. 22nd.

After their first year of work the **ROTHERHAM & D.M.F.C.** find themselves with sixty members, including eight ladies, and a healthy bank balance. They are fortunate in having a reasonable flying ground and clubroom, and after overcoming the inevitable " growing pains " are all set for the coming season. Present flying records are :—

Rubber R.O.G.	(Sen.)	E. Darby	3 : 36
,, ,,	(Jun.)	K. Jones	: 59.5
,, H.L.	(Sen.)	J. T. Jackson	8 : 40
,, ,,	(Jun.)	K Jones	1 : 51.5
R.T.P. Class		R. Cooke	1 : 00

An Open Glider Gala will be staged by the **SURBITON & D.M.F.C.** on the 21st. March on Epsom Downs, commencing at noon. Contests will be for team and individual classes, 200 ft. towlines, with the five minute limit on all flights.

The fourth A.G.M. of the **SCOTTISH AEROMODELLER'S ASSOCIATION** took place at Glasgow on the 17th January, Mr. G. Leask in the chair. Seventeen clubs are now affiliated to this body, and a very healthy situation was revealed by the various reports. A motion tabled by the Dundee delegates which in effect would have barred " professionals " from holding office was defeated by 9 votes to 3.

Lost in April 1946, from Chingford Plains by P. Russell, a sailplane has just been found near Redhill, Surrey. When picked up it just fell to pieces! The model was timed for 11 minutes, together with another model which was recovered from Croydon.

A pleasant occasion for yours truly was the annual Dinner and Prizegiving of the **LEICESTER M.A.C.**, when it was my pleasure as Vice-President to welcome M/s Houlberg and Cosh, also F/Lt. Hewes of the Leicester Aero Club, with which the club is co-operating in order to make an early start with the Whitney Straight Report scheme. Mr. Houlberg presented the cups to the lucky (!) winners, Mrs. Stothers collecting both the Aeromodeller Cup and the Caton Trophy. Keith Laverick was presented with a E.D. engine for the best junior performance for the 1947 season. An engine starting contest staged at a later date caused great interest, the event being won by Mr. Smith with his 3·5 c.c. B.M.P. Diesel. His total time for 6 starts was only 16·2 seconds. Junior top man was M. Tarratt with his E.D. Comp. Special—time 32.5 secs. The club has been " adopted " by the Norwood S.M.E. of America, and a lively exchange of ideas etc. is in full swing.

The class " A " r.t.p. record of the **TORQUAY M.A.C.** has been raised by J. Worrall with a time of 2 : 29·2 J. Pearce has also succeeded in flying his one inch scale " Tiger Moth " (Ace powered) on 8 ft. lines—and getting somewhat giddy in the process. Electric flying is popular in this club, and for your interest they state that standard 4·5 volt motors with the armature rewound with 25 s.w.g. wire, and run on 20 volts A.C.

A lone hand at aromodelling, S. J. Fulwell, of 24, Jillcot Road, Sheldon, Birmingham, 26, lost his brand new all white painted " Slicker " during test flights on the 25th January, the darn thing disappearing into the blue in a N.N.E. direction. News of the wanderer will be welcomed.

No correct answer was received regarding the Blackpool club's Wakefield Quiz, so to refresh your memories, here are the correct replies.

1. (a) America (b) R. Korda
2. (a) 1928 (b) T. H. Newall
3. R. Korda
4. R. N. Bullock
5. (a) 1937 (b) E. Fillon
6. R. N. Bullock
7. 1937
8. Six
9. J. H. Ehrhardt
10. Halifax M.A.C.

Many only had one detail wrong, usually the answer to No. 10. I wonder what name we can put down for 1948?

Well chaps, once again we are at the end of another Club News chin-wag, and as paper gets scarcer and scarcer, I must pipe down till next month. Get those Wakefields trimmed, and go all out on May 2nd.

The CLUBMAN.

NEW CLUBS.

HONINGTON GREMLINE M.A.C.
AC/2 G. F. Clarke, Block 71, Room 8, R.A.F. Honington, Bury St. Edmunds.

HARPUR TRUST CENTRAL SCHOOL M.F.C.
M. A. Girdlestone, 19, Westbourne Road, Bedford.

TIVERTON D.M.A.C.
D. Forward, Marley Farm, Bolham, Nr. Tiverton, Devon.

NEWQUAY M.C.
W. C. Wellington, 15, Quintrell Road, St. Columb Minor, Newquay.

BROCKLEY M.A.C.
J. R. Mabey, 17, Merrit Road, Brockley, S.E.4.

SOUTH BRISTOL M.A.C.
M. F. Dadds, 4, Jasper Street, The Chessels, Bristol 3.

BATTERSEA & D.A.M.
B. G. Fry, 78, Bolingbroke Bungalows, Bolingbroke Grove, S.W.11.

WEST KENT M.F.C.
A. H. Dadd, 30, Highfield Drive, West Wickham, Kent.

RUNCORN M.A.C.
E. E. S. Rippen, 42a, Church Street, Runcorn, Cheshire.

CROSBY M.A.C.
E. V. Grundy, 33, Burdett Road, Waterloo, Liverpool 22.

ST. EDWARDS SCHOOL M.A.C.
J. G. Wilson, Macnamaras House, St. Edwards School, Oxford.

TOTNES & D.M.A.C.
W. H. Taylor, 15, Collapark, Totnes, Devon.

GRANGE A.C.
R. O. MacDemitria, Farnborough Grange Hostel, Hawley Lane, Farnborough, Hants.

NOTTINGHAM HIGH SCHOOL M.A.C.
M. G. Saunders, 12, Arno Vale Road, Woodthorpe, Nottingham.

ANDOVER M.A.C.
F. E. Taylor, 26, The Crescent, Weyhill Road, Andover, Hants.

ODIHAM & D.M.F.C.
C. R. Foot, " Jolly Miller Cottage," North Warnborough, Odiham, Hants.

DUBLIN S.M.E.E.
J. H. Carroll, 73, St. Helens Road, Booterstown, Co. Dublin.

SECRETARIAL CHANGES.

MONIFIETH A.M.C.
D. Webster, 18, Ferry Road, Monifieth, Angus.

RUISLIP & NORTHWOOD M.A.C.
D. C. Hill, 96, Torcross Road, South Ruislip, Middlesex.

YEOVIL S.A.M.
K. B. Evans, 3, Matthews Road, Yeovil, Somerset.

WIGAN M.A.C.
R. Baldwin, 10, Rose Avenue, Beech Hill, Wigan, Lancs.

MOONRAKERS M.A.C.
C. F. Amor, High Street, Rowde, Devizes, Wilts.

MOUNTAIN ASH M.A.C.
R. Williams, 39, Bailey Street, Mountain Ash, Glam.

NEWARK & D.M.A.C.
E. C. Crowder, 28, Gainsboro Drive, Newark, Notts.

SOUTHGATE & D.M.F.C.
A. O. Rogers, 19, DeBohun Avenue, Southgate, N.14.

BRIGHTON & D.M.A.C.
A. Mussell, 38, Surrenden Road, Brighton, Sussex.

REGENTS PARK & D.M.F.C.
R. G. Harris, 49, Pratt Street, London, N.W.1.

ISLINGTON M.A.C.
R. A. Porter, 70, Abbey Road, St. Johns Wood, N.W.8.

HATFIELD M.A.C.
J. E. Foxon, 93, Lemsford Road, Hatfield, Herts.
BLAYDON M.A.C.
T. L. Dunn, "Westview", Quarry Gardens, Blaydon Burn, Blaydon on Tyne.
WHITEFIELD M.A.C.
N. Wakefield, 100, St. Ann's Road, Prestwich, Lancs.
ST. HELENS M.A.C.
R. Scott, 28, Clark Crescent, Eccleston, St. Helens, Lancs.
SPRINGPARK M.A.C.
P. L. Petch, 200, Langley Way, West Wickham, Kent.
COLCHESTER S.M.E.
A. E. Andrews, 1, Highfield Drive, London Road, Colchester, Essex.
MAIDSTONE & D.M.A.C.
I. G. Berresford, "Darlen", Pear Tree Lane, Looso, Maidstone, Kent.
WOLVERHAMPTON M.A.S.
K. T. Goodchild, 11, Mount Road, Penn, Wolverhampton.
DOVER YOUTH CLUB M.F.C.
R. J. Bent, 46, Tower Hamlets Street, Dover, Kent.

ERRATUM.

We regret that in our report of the F.A.I. Model Commission in our last issue under the paragraph dealing with the system of defining the size of models, the limiting maximum area was given as "150 square centimetres" which should of course have read "150 square decimetres."

Absent Friends . . . .

This is the first AEROMODELLER to appear under our latest austerity conditions and readers will probably note the absence of one or two well known regular advertisers. Their absence is the result of a space rationing scheme that we have been forced to evolve and we take this opportunity of thanking all advertisers for their co-operation and forbearance in this present difficult period.

NEW SCHEDULE OF BRITISH RECORDS

Ratified at a S.M.A.E. Council Meeting on February 1st, 1948

NATIONAL RECORDS.

OUTDOOR

RUBBER DRIVE	SAILPLANE
Monoplane	Tow Launch
Biplane	Hand Launch
Wakefield	
Canard	Tailless Tow Launch
Scale	,, Hand Launch
Tailless	
Helicopter	
Rotorplane	
R.O.W. Float Type	
,, Flying Boat	

POWER	CONTROL LINE
Class "A" (0-2·5 c.c.)	Class I (0-1·5 c.c.)
Class "B" (over 2·5–5 c.c.)	Class II (over 1·5-2·5 c.c.)
Class "C" (over 5 c.c.–10 c.c.)	Class III (over 2·5–5 c.c.)
Tailless	Class IV (over 5 c.c.–10 c.c.)
Scale	
R.O.W. Float Type	
,, Flying Boat	

INDOOR

FREE-FLIGHT	R.T.P.
H.L. Stick	Class "A"
R.O.G. ,,	Class "B"
H.L. Fuselage	
R.O.G. ,,	Speed
H.L. Tailless	
R.O.G. ,,	
R.O.G. Helicopter	
R.O.G. Rotorplane	

Note :— All models shall be to F.A.I. (1948) specifications.
All records are for Duration except where otherwise indicated.
All models shall R.O.G. with the exception of Sailplanes, Waterplanes and certain Indoor sections where indicated.
The Council have the prerogative to request submission of both models and/or means of record timing if necessary.

Readers will remember us describing "Rip" in a recent issue as "Aeromodelling's best dressed man." "Rip" retorted in style with the above photo on which was inscribed "A man in his time plays many parts, now the joke's on you!" A joke we felt should not be restricted to the Editorial offices only.

CLASSIFIED ADVERTISEMENTS

PRESS DATE for May issue—April 1st.
ADVERTISEMENT RATES :
Private **Minimum 18 words 6s., and 4d. per word for each subsequent word.**
Trade **Minimum 18 words 12s., and 8d. per word for each subsequent word.**
Box numbers are permissible—to count as 6 words when costing the advertisement.
COPY should be sent to the Classified Advertisement Dept., the "Aeromodeller," The Aerodrome, Billington Road, Stanbridge, Beds.

FOR SALE

"E.D." Diesel flywheel and prop. Bench run only. £4 5s. or near offer. Thomas, 28, Huntingdon Road, London, N.2.

6 c.c. petrol engine with coil, condenser, accumulator and plug. £6. Good condition. Boughton, London Inn, Stamford, Lincs.

"Ace" 5 c.c., 80/-. "E.T.A." 5 c.c., £8, both bench run only. "Mills" diesel, good condition 90/-. "Frog 45" and "Drome Typhoon" flying condition. Offers. Box 114.

£7 worth of books. "Fighter Pilot," "Red Knight," etc. Offers. Humphrey, 4, Alpha Cottages, Pulborough, Sussex.

"Stentor 6" petrol engine, prop, coil, condenser, run one hour. Excellent starter, reason for sale given. £6 10s. Box No. 113.

"Majesco 45" excellent condition with coil, condenser, propeller, 2 plugs, timer, £7. N. Marcus, 11, Wilmot Way, Banstead, Surrey.

Partly built 8 ft. "Vulcan" 150 ft. birch strip, ply, etc. 2 "Hallam" 10 c.c. engines, both with coil, condenser, plug, prop, cost over £14. The lot £10 or best offer. Box No. 112.

Test-flown "Frog 45" fitted "Frog 175" engine, snip timer, sorbo wheels. Best offer, complete or separately. Scott, 13, Teviotdale Place, Edinburgh.

"Arden" ·099 complete with coil, condenser, prop, spare plug. Bench run only, guaranteed brand new, £8. Bason, 62, Ivy Road, Northampton.

"Bowden Contest" 4·5 c.c. "Phantom" powered, "Bowden Meteorite," "Frog 100" powered. Both models Nylon covered, airwheels, good fliers. "Phantom Mills" 1·3 c.c. powered "ERAC" pistol camera, £10. Books for £5, including "A.F.P." S.A.E. for full details; A. Imrie, Station Cottages, Humble, East Lothian.

"Popular Flying" (Complete) April 1932 to July 1939, clean. Newnes "Cyclist" (complete) Feb. 19/1936 to April 24/1940, clean. Offers wanted. Norman, "Ashdowne", Hivings Hill, Chesham, Bucks.

"Halfax Rapier" with "E.D." diesel, timer, airwheels, also Hornby Speedboat; offers. Radford, 16, Glengate, Kirriemuir, Angus, Scotland.

"K.K. Phantom" super finish in red, detailed cockpit and pilot, powered by reconditioned "Mills" diesel, £6 10s. C.O.D. "Sandhurst", Stanley Common, Derbyshire.

Superbly finished "Frog 45" rigged for "Mills" new undercart, airwheels, timer, engine mount. Excellent flier, less engine £4 10s. Williams, 560, Bath Road, Bristol, 4.

"O.K. Super 60," "McCoy Super 60," "Ohlsson 23" complete with accessories all new. Offers. Osborne, Field Road House, High Ham, Langport, Somerset.

"H.P." petrol engine, good starter, M.1. coil, excellent condition, £6. Long, 16, Third Avenue, Torquay.

1947 "Arden" ·099 with Banks coil, both brand new, fitted in "Hells Angel", £12. Box 116.

"Frog 45" Nylon covered complete with "Mills" diesel, flies excellently, £9 or nearest offer. "K.K. Phantom", complete less dope and engine, £1. (Owner posted overseas.) Barker, "Broadway", London Road, Amesbury, Wilts.

"Veron Stentorian 72" span kit, £3. "Stentor" 6 c.c. engine inc. tank, 2 plugs, coil condenser, timer and 13 in. propeller, £7 15s. Brand new and complete, money refunded if not satisfied. Box 117.

Partly completed kits. Super Scale 50 in. "Westland Lysander" Comet, 21 in., "Gloster Gauntlet," Frog, 14 in. "Wellington" and 8 in. "Lysander". Offers. Deeside Cafe, Parkgate, Wirral.

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American "Forster 29" 4 c.c. petrol engine, unused, with accessories, inc. timer. Write, Wilcox, 31, Northumberland Avenue, Margate.

"K.6." engine, with prop, coil and condenser. Bench run only and 2½ in. rider wheels, £8. Checksfield, 20, Hannibal Road, Stepney, London, E.1.

15 c.c. "Magpie" inverted petrol engine, unused except for short bench test on delivery last autumn. Cost £12 10s. Offers invited. Teague, Pevorall, Uplands Crescent, Truro, Cornwall.

Bargains. "ETA" 5 c.c. diesel, £6. 6 c.c. petrol engine, £4. Both brand new. "Mills" diesel, £4. All with props. New 4 in. MS airwheels, 7/6. K.K. Rover kit, 10/-. Orf, Purlieus Farm, Ewen, Cirencester, Glos.

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44 in. span "Scorpion," practically finished, new "Mills" diesel, timer, £8. Bailey, 13, Wendover Drive, New Malden, Surrey.

New "Mills" diesel and complete "Frog 175" and accumulator, £9, or nearest. Box No. 119.

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TRADE

"Aeromodeller" back issues can be obtained from W. H. Forway, Elizabeth Villa, Coventry Corner, Hockley, Essex. Early copies bought.

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Magazines direct from America: yearly subscription rates, "Flying Models", 20/-. "Model Airplane News", 17/6. "Model Craftsman", 25/-. Send stamp for list of 500 American magazines. J. Johnston, 65, Curling Vale, Guildford.

Back issues of "Air Review." Vol. 7. Nos. 3, 4, 5, 6 and 7, price 3/-, each post free. Vol. 8. Nos. 1 and 2, price 2/- post free. The Studio, The Aerodrome, Billington Road, Stanbridge, Beds.

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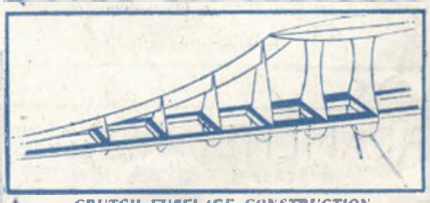

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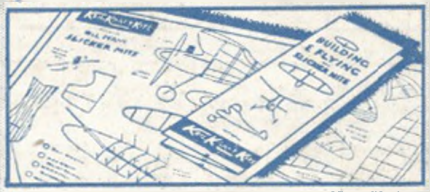

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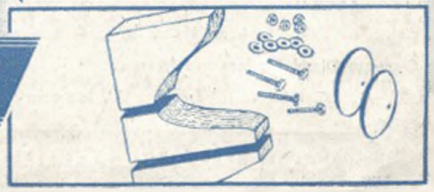

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