JAN. 1947

AEROMODELLER

1/3

Digital Edition Magazines.

This issue magazine after the initial original scanning, has been digitally processing for better results and lower capacity Pdf file from me.

The plans and the articles that exist within, you can find published at full dimensions to build a model at the following websites.

All Plans and Articles can be found here:

Hlsat Blog Free Plans and Articles.

http://www.rcgroups.com/forums/member.php?u=107085

AeroFred Gallery Free Plans.

http://aerofred.com/index.php

Hip Pocket Aeronautics Gallery Free Plans.

http://www.hippocketaeronautics.com/hpa_plans/index.php

Diligence Work by Hlsat.

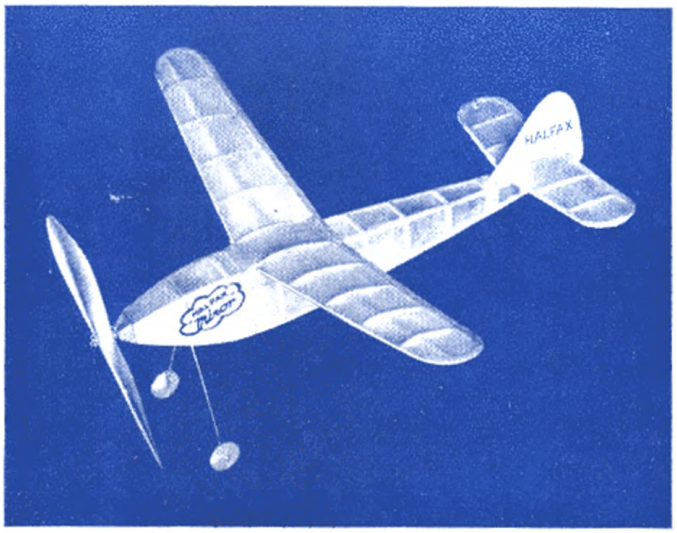
"Halfax" — proudly present

HALFAX PRODUCTS

"THE MINOR"

The complete Kit contains all strip and printed Sheet Balsa in finest quality Balsa Wood, fully detailed PHOTO-VIZ Plan and building instructions, with descriptive diagrams, showing all constructional detail in a clear crisp, super-detailed manner, thus saving constructional time, and yet ensuring accurate reproduction, and of course a host of other items necessary to complete the Model.

Price, Complete 3/9 Post 5d.



THE HALFAX "TERN"

Price Complete 10/- Post 6d.

Britain's most Popular Glider!

THE HALFAX "SPARTAN"

This slick new 5 ft. wingspan free-flying Petrol Model, designed by Harry Austwick and winner of the "HAMLEY" Trophy, will be available late in January. Place your order now with your local dealer and watch out for full details in next month's issue.

Model Aero Supplies

MANUFACTURERS & EXPORTERS • GREEN MOUNT WORKS • HALIFAX • YORKSHIRE

"LET ME BE YOUR FATHER"

Thus is expressed the friendly, personal bond existing between Bennett College and each student. It is this close individual tuition which leads to quick success.

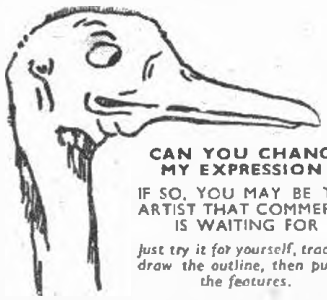
EARNING POWER IS A SOUND INVESTMENT

DO ANY OF THESE SUBJECTS INTEREST YOU?

Accountancy Examinations
Advertising and Sales Management
Agriculture
A.M.I.Fire E. Examinations
Applied Mechanics
Army Certificates
Auctioneers and Estate Agents
Aviation Engineering
Aviation Wireless
Banking
Blue Prints
Boilers
Book-keeping, Accountancy, and Modern Business Methods
B.Sc. (Eng.)
Builders' Quantities
Building, Architecture, and Clerk of Works
Cambridge Senior School Certificate
Civil Engineering
Civil Service
All Commercial Subjects
Commercial Art
Common Prelim E.J.E.B.
Concrete and Structural Engineering
Draughtsmanship. All Branches
Engineering. All Branches. Subjects and Examinations
General Education
G.P.O. Eng. Dept.
Heating and Ventilating
Industrial Chemistry
Institute of Housing
Insurance
Journalism
Languages
Mathematics
Matriculation
Metallurgy
Mining. All Subjects
Mining. Electrical Engineering
Motor Engineering
Motor Trade
Municipal and County Engineers
Naval Architecture
Novel Writing
Pattern Making
Play Writing
Police Special Course
Preceptors, College of
Press Tool Work
Production Engineering
Pumps and Pumping Machinery
Radio Communication
Radio Service Engineering
R.A.F. Special Courses
Road Making and Maintenance
Salesmanship I.S.M.A.
Sanitation
School Attendance Officer
Secretarial Examinations
Sheet Metal Work
Shipbuilding
Shorthand (Pitman's)
Short Story Writing
Speaking in Public
Structural Engineering
Surveying
Teachers of Handicrafts
Telephony and Telegraphy
Television
Transport Inst. Examinations
Viewers, Gaugers, Inspectors
Weights and Measures Inspectors
Welding
Wireless Telegraphy and Telephony
Works Managers

If you do not see your own requirements above, write to us on any subject. Full particulars free.

EVERY DEPARTMENT IS A COMPLETE COLLEGE—EVERY STUDENT IS A CLASS TO HIMSELF



CAN YOU CHANGE MY EXPRESSION:

IF SO, YOU MAY BE THE ARTIST THAT COMMERCE IS WAITING FOR

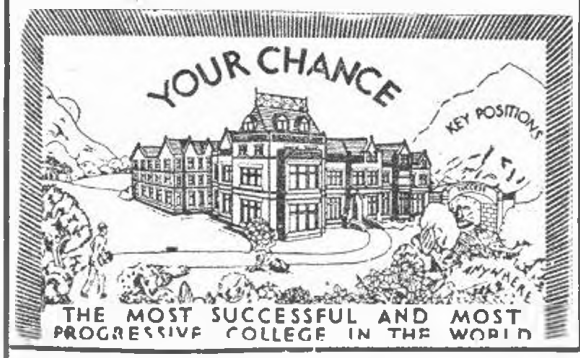
Just try it for yourself, trace or draw the outline, then put in the features.

There are hundreds of openings in connection with Humorous Papers, Advertisement Drawing, Posters, Calendars, Catalogues, Textile Designs, Book Illustrations, etc., etc. 60% of Commercial Art Work is done by "Free Lance" Artists who do their work at home and sell it to the highest bidders. Many Commercial Artists draw retaining fees from various sources; others prefer to work full-time employment or partnership arrangement. We teach you not only how to draw what is wanted, but how to make buyers want what you draw. Many of our students who originally took up Commercial Art as a hobby have since turned it into a full time paying profession with studio and staff of assistant artists—there is no limit to the possibilities. Let us send full particulars for a FREE TRIAL and details of our course for your inspection. You will be under no obligation whatever.

Jessie Duck

ART DEPT. 119.

STUDY AT HOME IN YOUR SPARE TIME



JOURNALISM

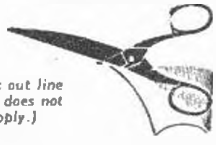
Short Story, Novel and Play Writing

There is money and pleasure in Journalism and Story Writing. No apprenticeship, no pupilage, no examinations, no outfit necessary. Writing for newspapers, novels or pictures is not a gift; it is a science that can be acquired by diligent application and proper guidance. It is the most fascinating way of making pastime profitable. Trained ability only is required, we do the training by post. Let us tell you all about it.

LITERATURE. DEPT. 119

IF YOU ATTEND TO THIS NOW, IT MAY MAKE A WONDERFUL DIFFERENCE TO YOUR FUTURE

COUPON—CUT THIS OUT



To Dept. 119, THE BENNETT COLLEGE LTD., SHEFFIELD

Please send me (Free of Charge)

Particulars of ..... } *(Cross out line which does not apply.)*

Your private advice about ..... }

PLEASE WRITE IN BLOCK CAPITALS

NAME .....

ADDRESS .....

.....

The AEROMODELLER

INCORPORATING "THE MODEL AEROPLANE CONSTRUCTOR"

VOL. XIII No. 134 JANUARY 1947

The Model Aeronautical Journal of the British Empire

Managing Editor :

D A RUSSELL M.I.Mech.E

Editor :

C S RUSHBROOKE

Technical Editor :

P H HUNT

Assistant Editor :

H G HUNDLEBY

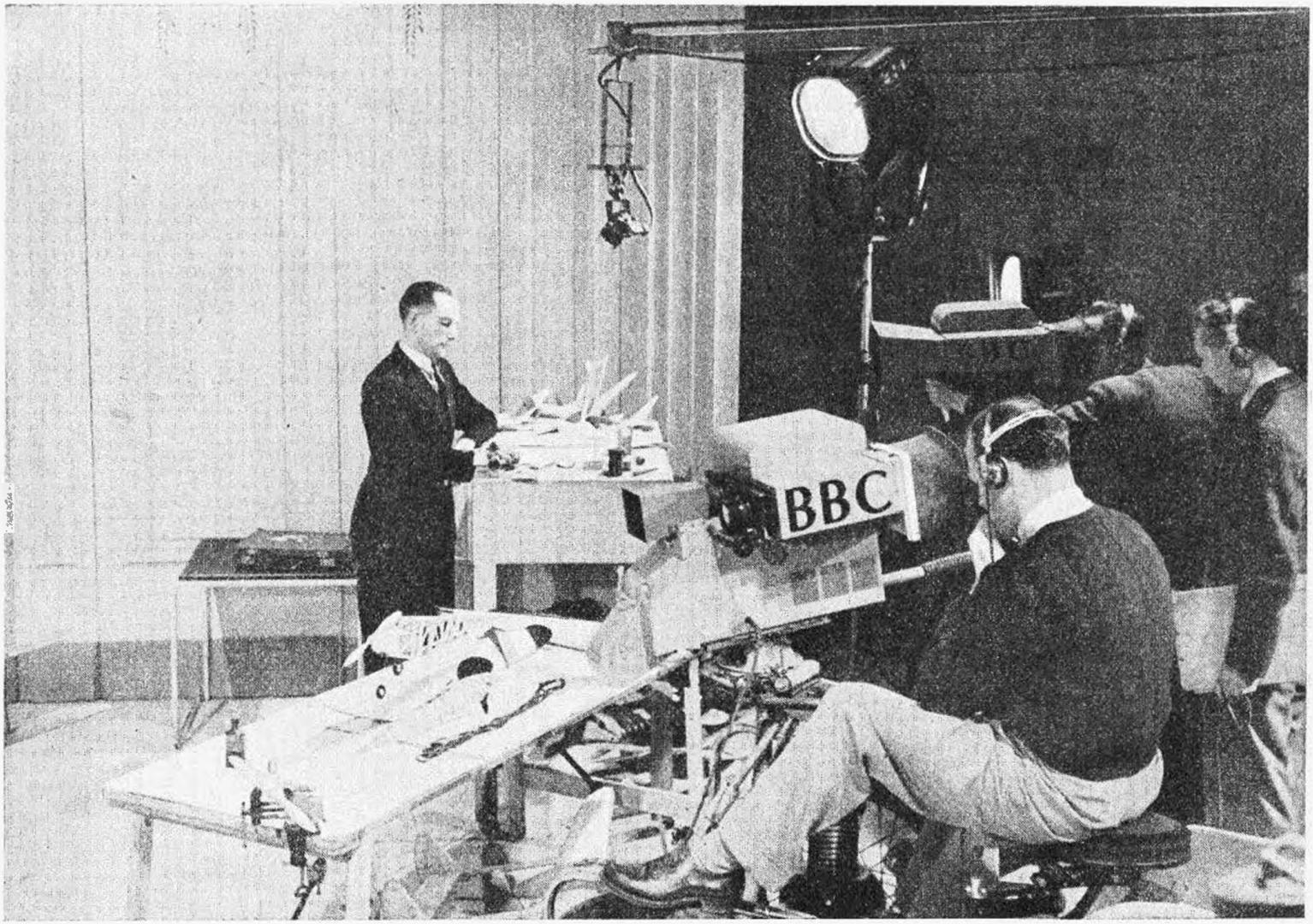
Published monthly on the 25th of the month previous to date of issue by the Proprietors :
The Model Aeronautical Press, Ltd.,
Allen House, Newarke Street, Leicester.

Subscription rate 18/6 per annum prepaid (including Christmas Double Number).

Advertisement Office :
32, Hanover Street, London, W.1

Editorial Offices:
ALLEN HOUSE, NEWARKE STREET
LEICESTER Tel: LEICESTER 65322

Contents



AEROMODELLING ON THE AIR.

Our Technical Editor, P. H. Hunt, recently gave a television broadcast on aeromodelling. Another sign of the increasing public interest in model aeronautics as a sport and constructive recreation

EDITORIAL

FLYING AT DORLAND HALL

BY the time these lines are being read, the Third National Model Aircraft Exhibition, run this time by the *Daily Express* in association with the AEROMODELLER, will have been open for some days. Having to write on the subject a few days before the opening, we cannot say much about the entries except that they will be numerous and diverse in type. But we *can* mention in some detail what will undoubtedly constitute one of the principal attractions, the flying demonstrations by electric-powered tethered models.

In the first exhibition there was one such model, a small replica of the Miles Magister trainer, last time there were two, the attractive little elliptical winged high wing Vertric and the magnificent Viking air-liner. This time, as already mentioned, there will be no fewer than five, and the circular landing strips from which they are flown will be screened so that visitors watching the models will not be distracted by the moving throngs. Here are further details of these "round-the-pole" types.

Model No. 1 will be the famous 1945 Viking again, completely overhauled, and, in recognition of the fact that the full-scale design has been chosen for the re-equipment of the King's Flight, painted in the King's colours. With its two 9 oz. motors, each developing nearly 1/10th horse power, and its retracting undercarriage, both operated by remote control from the controller's box at the end of the hall, the Viking model's flight is most impressive, and at the Paris Aero Show, from which it has recently returned, it attracted vast crowds.

Model No. 2 is a "semi-scale" cabin high-wing "Jackdaw," designed by Mr. C. Rupert Moore, whose AEROMODELLER cover designs are so widely admired, and who is equally famed for his modelling activities. The Jackdaw is not a new type, but has proved very popular, and is included as being one of the best of the "scalish" but simple and dependable makes that we have known. The model at Dorland Hall is powered by one of the new 24 volt motors developed by the AEROMODELLER research staff at Eaton Bray, located in the centre-section. This motor has been the subject of extensive and prolonged development, which has resulted in an uncommonly light and efficient unit.

Model No. 3 is a true jet replica of the De Havilland Vampire jet fighter. Many months have been devoted to this project by the AEROMODELLER Research Staff, and in last month's AEROMODELLER, Squadron Leader Peter Hunt, Technical Editor, who is in charge of the research department, indicated very clearly the magnitude of the problem involved and outlined the various modifications that were made before a unit was produced with sufficient thrust to fly the model at an all-up weight of 17 oz. From then on the story was one of steadily increasing performance. Weight of the fully developed motor is 6½ oz., that of the jet blower is 3 oz., and that of the airframe 5 oz. This model carries, by the way, a substantial "payload" of some 2½ oz. in the very practical form of the retracting undercarriage and its actuating mechanism. At Dorland Hall, the Vampire will be electrically driven.

Model No. 4 will be the increasingly popular Dorland cabin high-wing with tricycle undercarriage, AEROMODELLER Research Department design, which is the subject of a special competition at Dorland Hall. The machine is simple to build and fly, has a modern appearance and excellent performance and has already been built in substantial numbers.

Last of the five is a really majestic model of the "Sandringham" flying boat, built to the scale of ¼ in. to the foot, by Mr. E. J. Riding. Here again, a vast amount of development work has been carried out at Eaton Bray and although the ultimate aim of attaining a normal unassisted take-off has not yet been achieved owing to the fierce drag of the water nevertheless the boat will provide many visitors with a thrill as, with the motors at full throttle, she surges forward from the special catapult launching ramp. When sufficient flying speed has been attained the motors are throttled back as the model makes several stately circuits, finally alighting on the water, for all the world its full size counterpart. The Sandringham is impressive, in fact, even as a static exhibit, as it floats at its mooring buoy in the 27 ft. diameter steel tank—built up of demountable sections—with a miniature flying-boat base as a background. But it is infinitely diverting to see it flying as we did some time prior to the opening of the Exhibition when we were given a special demonstration by the research staff.

Confident, in fact, that these round-the-pole demonstrators will prove highly popular, we have taken care to ensure that fully detailed plans of each design, with the exception of the Sandringham, are available in adequate quantities and at reasonable charges, at Dorland Hall, together with plans of the electric power plants. There can be little doubt that interest in electric models, already quite extensive will receive a tremendous impetus.

Another high-spot of the Dorland Hall Exhibition will be the special stand on which will be displayed some half-a-dozen models, each the last word in its class, which have been constructed specially for the occasion by the respective designers. In the ever-popular duration category, the model shown will be the latest version of Mr. R. Copland's "Wakefield" type. To those not unfamiliar with the work of this modeller, well-known for his achievements in the sphere of national and international contest flying, first sight of this exhibit might suggest that it differed little from earlier versions. The fact is, as he pointed out in an interesting article last month, that he has followed the very sound procedure of developing a sound design instead of trying out entirely new features. This very shapely "streamliner" follows the more or less stereotyped format of plug in shoulder wings with moderate taper, single fin, and plug-in bamboo-legged undercarriage. Interesting points are the substitution of a Davis wing-section in place of the long-popular R.A.F. 32 and what might, as the designer suggests, seem a retrograde step—the use of a two blade freewheeling propeller in place of the more ambitious single-blade "folder," so much favoured in certain quarters. The very sound idea is the elimination of the attendant gadgetry in the interests of maximum reliability, but Mr. Copland also says that he has found the gyroscopic effect of the freewheeling propeller conducive to a reduced sensitivity to slight gusts. Finally there is a "fuse" type dethermaliser to bring the model out of all but the more substantial thermals.

Incidentally, the designer gave last month some clear and highly informative hints on trimming this model.

Another outstanding exhibit in this section is a greatly improved version of Mr. C. Rupert Moore's famous rubber driven replica of the D.H. Tiger Moth trainer, one of the best types yet produced in this category. The machine, which is about 4 ft. in span, and finished in the Liverpool Aero Club colours, was featured on the cover of the Christmas Number of the AEROMODELLER and was described and illustrated in that issue. There is also on view another copy of the semi-scale Jackdaw.

A worthy representative of the sailplane class is Mr. R. F. L. Gosling's famous Ivory Gull, while in the petrol plane class, the larger type is represented by the "Vulcan," designed by Mr. D. A. Russell, and the smaller type by Mr. G. W. W. Harris' "Vagabond." Here again, fully detailed plans of each model will be obtainable at the Exhibition.

For Provincial Modellers

The Dorland Hall Exhibition will be open each weekday from 10.30 a.m. to 7 p.m., but not on Sundays, *with the single exception of Sunday, January 5th, when we have arranged to open from* 10.30 *to* 7 *to meet the convenience of the large number of aeromodellers in the provinces.* Their enthusiasm is second to none, and on their behalf a number of readers have made representations to the Exhibition organisers. These correspondents point out that many in the provinces cannot get up to London until Saturday is well advanced and that there would be all too little time for anything more than a hurried and very cursory glance at the exhibits, and no time at all for those other amenities that commend themselves as much to modellers in town as much as to many other types of humanity.

Recognising the reasonableness of this line of argument and keen to do all we can for these modellers living in places where they lack many of the opportunities enjoyed by Londoners, we have arranged this one Sunday opening. We hope to see them, therefore, from the wilds of Scotland and Wales, as well as the more salubrious Cornish Riviera, not to mention Ilkley, Congleton and Wigan! We trust we may be pardoned for urging that they go light on the "other amenities" on their Saturday in town, so that they may feel sprightly enough to be up betimes on Sunday, and to Dorland Hall in time for a full session.

The Exhibition closes, we would remind readers, at 7 p.m. on Saturday, January 11th. During the following week, from 10 a.m. to 6 p.m. each day, Sunday, January 12th included, exhibitors who prefer to collect their models personally will be able to fetch them from Dorland Hall. Those not called for by Saturday, January 18th, will be returned by the Exhibition organisers.

One final word on Dorland Hall. A fully illustrated report of the Exhibition including the opening ceremony will appear in the AEROMODELLER, partly in the February issue, and the concluding section in March. This has proved very popular not only as a means of enlightening those unfortunate enough not to be able to get to the Exhibition, but as a "memory tickler" and convenient record for future reference by those who were there. Get to Dorland Hall if you can, but in any case you will enjoy those two reports.

New Features

In last month's AEROMODELLER we published the first of a new series of fully illustrated articles for the benefit of those interested in solid scale modelling—"Aircraft in Miniature," by Mr. W. O. Doylend. This series is provided at the request of numerous readers, and in response also—we will readily admit it—to a number of "grouses," if that is not too strong a term for the representations made, that there is a dearth of this kind of material in our pages.

Undoubtedly there is a very large and growing volume of interest in a class of modelling that has many possibilities—the building up of collections representative of full-scale aircraft that one has flown in or been flown in, series depicting the development of aeroplane types through the years, machines of a particular period such as the First or Second World Wars, models for instruction, or simply modelling for the pleasure of modelling.

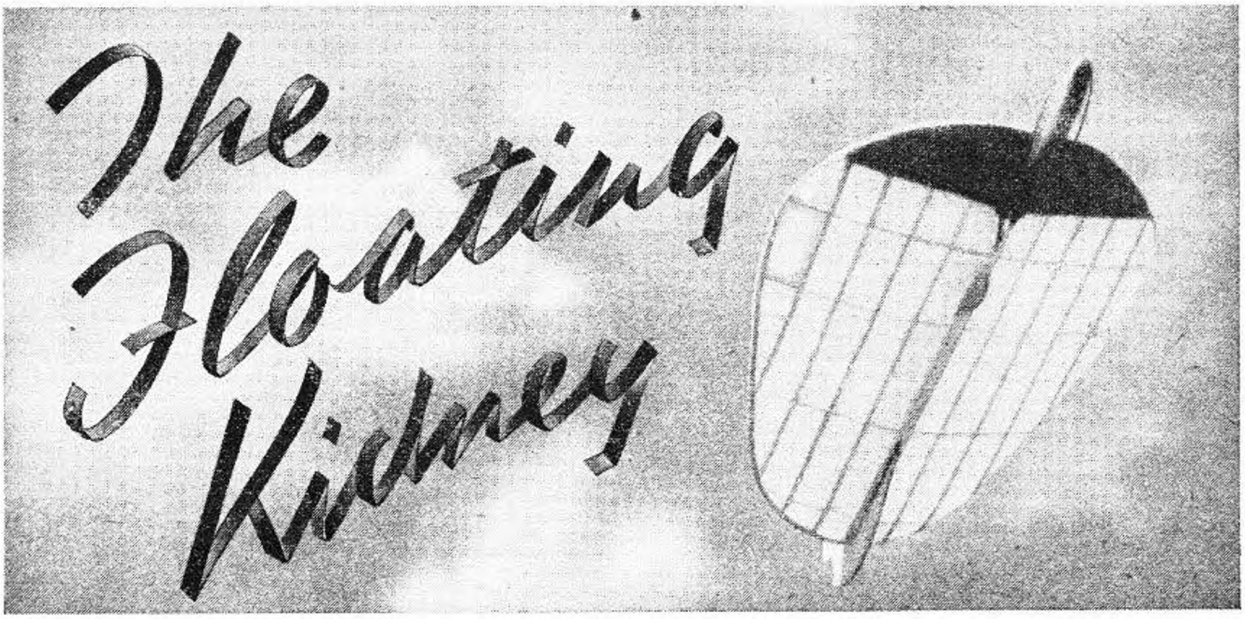
The making of solids is an absorbing occupation, at any rate to a substantial number of the modelling community, and Mr. Doylend will deal thoroughly with all aspects of it. Already as a result of the first article in the series, we have had letters expressing appreciation—and lively anticipation of further good things to come, and we can assure our correspondents that the articles will continue, month by month for quite a time, and will prove as interesting as they expect.

With this month's AEROMODELLER, the first of a new year, we commence a second new series of articles, "Mainly for Beginners," by Mr. M. R. Knight. There is a steady flow of newcomers to our hobby and interested enquirers, and we expect a very substantial number from the crowds visiting the Third National Model Aircraft Exhibition at Dorland Hall. It seems a propitious time, in fact, for the introduction of a section of the AEROMODELLER for their particular benefit, where helpful information can be found, problems and difficulties be discussed, and news and opinions exchanged!

In considering the question of who should be invited to conduct this new feature, we thought at once of Mr. Knight, and it was with considerable satisfaction that we received his enthusiastic acceptance of this commission. "M. R. K.," as he is widely known in the aeromodelling world, has certainly never won the Wakefield Cup, nor, as far as we are aware, any other national contest. For the matter of that he has not shown any marked interest in this branch of modelling. But it seemed to us that he possesses qualities and experiences that fitted him for this particular job of helping newcomers more than competition successes might have done.

To begin with, he pioneered the simple, robust and highly stable type of model suitable for all-weather flying and for use by beginners. Some of these designs were, in fact, intended specifically for beginners. His "Kinglet" was, in its day, the aeromodelling counterpart of the famous Avro 504K on which so vast a number of R.A.F. pilots learnt to fly, and his modern "Kamlet" is not only a thoroughly sound beginners' design, but a model much liked for pleasure flying by more experienced modellers.

Readers of the new series, which, as the title indicates, will not exclusively be devoted to matters of interest to the novice, can therefore be sure of ample enlightenment and entertainment.



AN ALL-WING DESIGN

By F · G · BIRDEN

READERS will forgive our somewhat peculiar title which was given to the model when originally tested at Eaton Bray and since then appears to have stuck! Nevertheless, although peculiar in title and appearance, the Floating Kidney is definitely an "out of the rut" design and will provide many hours of something different in pleasure flying.

Basic Structure.

Trace all spars and ribs from plan on to thin tracing paper, and transfer the outlines accurately to the sheet balsa by using carbon paper. Note that the first two pairs of spars are of $\frac{1}{4}$ in. sheet. In every case grain direction runs along the ribs and spars.

Cut out these parts and glass-paper lightly on both faces, pin together all ribs and spars in their pairs and sand down the outline until it checks with the plan. Slot out the ribs and spars, where shown, to obtain an easy push fixing. The rib positions should be marked on the spar faces clearly using the centre lines on the individual spar drawings. (Do not use the assembly drawing for any purpose, except for checking the steamed outline, as it is a projected view and the dihedral angle of $11\frac{1}{2}°$ causes the spars to appear shortened.)

The spars must be broken in halves to get them on the ribs, start with spar C, and cracking it along the grain, cement it into the appropriate slots in ribs 2, 3, 4 and 5. At the same time, glue the broken spar together.

Next, split all the remaining spars except F, on which splitting is unnecessary, and cement all the bottom halves into the ribs. Pin the structure quickly down to a flat board, and see that the ribs are truly parallel. Check the spars with a set square, ensuring they are set at 90° to the ribs, at the same time see that the ribs lie on their centre lines. Next, fit the top halves of the spars, glueing up the breaks in turn. When dry, the assembly is ready for the fitting of rib No. 1, which faces up flat and true to the spar ends. Cement all joints liberally. Sand down any parts which may not coincide on spars or ribs, if the discrepancy is large check the parts from the plan.

Capping the Ribs.

The cap strips should be stripped off from a straight grained sheet. Their purpose is primarily to lift the covering over the spars to avoid ridges, and to stiffen the ribs without cross bracing, and secondly to give a greater adhesive surface to the tissue. It is very important that these strips fit flush to the spar outlines, and *not*, as is usual, at right angles to the ribs. Cement in place and trim off the ends to within a $\frac{1}{4}$ in. of the rib. These ends form a temporary slot for the outline.

Completion of the Structure.

Select two flexible, straight grained lengths of $\frac{1}{8}$ in. square spruce or birch and steam roughly to the outline shown in the assembly drawing. The outline is in four parts, two front, and two rear, dry these parts in front of a warm fire whilst holding in the curvature. Using the cement liberally, glue the outline between the ends of the capping strips, fitting gussets where shown. Once more, check to see that the ribs are parallel and that no warps have been introduced in the fitting of the outline. Finally add the braces made from scrap $\frac{1}{16}$ in. sheet and the tip of $\frac{1}{8}$ in. sheet. The latter part should have the grain running from front to rear, and should be fitted with its inner end under the capping strip. Its contour should blend smoothly with the rest of the outline. Remove the projecting ends of the capping strips and sand them off smoothly to meet the outline.

Planking the leading edge is not easy, as the curves are compound and of small radius. The method used is not important, that used on the original leaves much to be desired. The planking was cut into strips of varying widths up to $\frac{3}{8}$ in. and was water-sprayed to soften it for bending. The strips were then laid from the leading edge, between the capping strips, being held to the correct curvature until dry by temporary packing inside the structure. The cement was used freely, and the planking was well sanded down. This removed most of the "blushmarks" caused by using

cement on wet wood, but the finish on the original is rather rough. However, any small ridges which may remain run in a fore-and-aft direction, which at least is a far less serious fault than having transverse ridges by planking with the grain across the line of flight, although the latter way would perhaps be easier. Individual builders will no doubt have their own theories on the best method to use.

The completed planking should be sanded carefully down to the correct smooth contour and when finished should be flush with the capping strips and the spruce outline. Cover with jap tissue and apply two coats of thick dope as an undercoat, polishing each coat with fine glasspaper.

The two structure halves are now ready for joining, and the outside faces of the two No. 1 ribs should be sanded really flat, dusted and given a fairly thick pre-coat of cement. This coating should be especially thick in the vicinity of the slots for the nose and fin fixings. Cut out the centre rib and fin stop, leaving the top camber a little overside, sand lightly and pre-coat with cement.

After the pre-coats are dry mark off the position of the fin stop on one No. 1 rib from the drawing, and cement the centre rib and stop to one side of the structure, keeping the undersurfaces of the ribs perfectly level. When dry the other half of the structure may be cemented in place and pushed well up to the centre rib and flush with its undersurface. If this is carefully done the incidence of both halves will be identical, and the dihedral will become automatically correct. Set aside the whole job to dry out thoroughly, then remove any part of the centre rib which stands proud of the two No. 1 ribs.

Nose Skid and Fairings.

The nose is built up of an inner lamination of really hard $\frac{1}{8}$ in. sheet balsa and two outside laminations of medium grade $\frac{3}{8}$ in. sheet, these outside laminations stop at the line shown on the plan to form the base of a small cabin. These edges should be cut—and left—clean and square. Cut an oval hole in the centre lamination for the ballast space.

Recess the front of the outer nose laminations to leave a good wide ballast space—this may easily be done with a carpenter's drill and a broken splinter of razor blade—and cement each to the centre piece. Round off the edges to a smooth contour when dry, fit the wire skid and test for fit in the nose—slot off the main structure, sanding the tongue down if it is tight, then securely cement in position.

Glue on the celluloid fairings, these should extend from the sharp edges of the $\frac{3}{8}$ in. sheet, over the leading edge and as far back along the tongue as they can go, so as to leave no gaps between fairings and structure. A neutral colour, such as grey, for the tongue, will improve the appearance of the cabin. Cover the nose with tissue, apply two coats of dope and the usual polish, and drill a $\frac{1}{4}$ in. hole through the bottom into the ballast space.

Fit the grip and the tow-hook—which is simply pushed and glued into the centre rib—in the positions given.

Fin.

The construction of the fin is clear enough from the drawing. The finish is a thorough sanding down, rounding off the leading edge and knife-edging the trailing edge. Continue the sanding down until the fin enters its slot easily, then cover in tissue and give two coats of dope.

Covering.

Cover the main structure with fairly heavy tissue; if the tissue has a grain it is best to run it crosswise, use a separate strip for each space between the ribs, pasting each tightly to the capping strips. Dope all the joints. Spray with water and dry for 24 hours in a cool room and apply a coat of heavy dope and at least one of banana oil in a warmer atmosphere. Banana oil the fin, nose and grip at the same time.

Finally, cut sufficient lead scraps to bring the centre of gravity of the assembled model to the location given. (The scraps can be temporarily fixed on the tip of the nose.) Melt down these scraps and pour them into the hole leading to the ballast space, and run the tap over the nose to cool it. Contrary to what might be expected, no charring of the wood seems to occur. The end of the skid will now be held firmly by the lead which has been cast round it.

Re-test the balance, and add a little lead shot or drill out a small quantity as required. The resultant trim gives a slight stalling tendency which gives the best flights in calm weather; a little more ballast gives better results in more unstable conditions. A more nose-heavy trim than the one shown seems to do little else but increase the forward speed, and affects the duration by only a second or two.

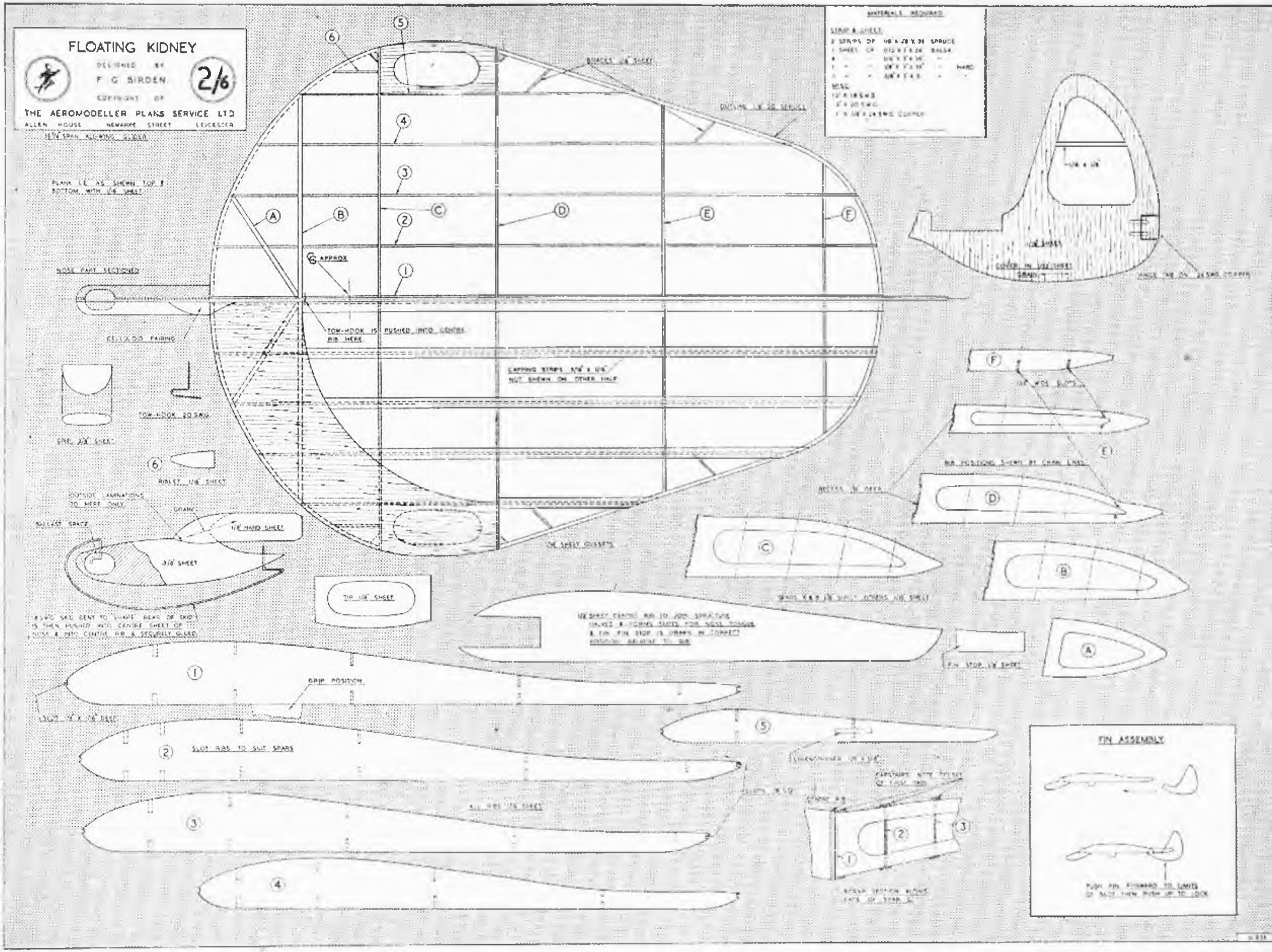
Flying the "Allwing."

Owing to the lack of anything solid to grip on this model and the unusual disposition of the lifting area in relation to the centre of gravity, hand launches are very difficult to make and are useless for test purposes unless made from a height of 10 to 20 ft. The glider should be balanced in accordance with the notes, the trim-tab straightened, and tow-line flights made at once. A calm day is essential and a field with long grass advisable; a fairly light winch is the only suitable means of towing.

Run out 50 ft. of line and hook on the model, instructing your assistant to hold it laterally level and slightly nose-up. He should not release the grip until he feels the model lift as you wind in. Don't try too steep a climb on so short a line; if the glider keeps straight let it climb to about 20 ft. and slow down very steadily until it flies itself off the line, which you should allow to become slack. (Adjust the trim-tab and your rate of winding to give a steady climb if the first attempt is unsatisfactory.) After a gentle release the glider should start a smooth descent immediately; for best results, in calm conditions, it should be on the point of "switch-backing" slightly. In a wind a little more nose-weight is helpful, as this increases the forward speed without appreciably affecting the sinking speed. Normally, the gliding angle is steep with a reasonable sinking speed, the flying attitude being horizontal. Landings are neat owing to the high cushioning effect. Stalls are steady and parachute-like; there is apparently no possibility of a resultant spin.

When good flights are obtained from this short line, extend it to 100 or 150 ft. and try for more altitude. If you trim for circling flights you will get a bank on the line, too, but this can be counteracted in all but the worst cases by walking with the wind, whilst winding, to the side opposite to the turn. Very steep climbs are possible—the "wings" are not likely to fold—but for steady flights the model *must* fly itself off the line in its normal attitude, really steadily. Sudden releases are always detrimental to the duration.

A $\frac{1}{4}$ scale reproduction of the full sized drawings is given overleaf. These drawings may be obtained post free for 2/6 from the Aeromodeller Plans Service, Allen House, Newark St., Leicester.



FLOATING KIDNEY
DESIGNED BY
F G BIRDEN
COPYRIGHT OF
THE AEROMODELLER PLANS SERVICE LTD
ALLEN HOUSE NEWARKE STREET LEICESTER
2/6
MATERIALS REQUIRED
STRIP & SHEET
MISC
NOSE PART SECTIONED
CELLULOID FAIRING
TOW-HOOK 20 SWG
TOW-HOOK IS PUSHED INTO CENTRE RIB HERE
CG APPROX
CAPPING STRIPS NOT SHEWN ON OTHER HALF
RIBLET 1/16" SHEET
BALLAST SPACE
1/8" HARD SHEET
GRAIN
TIP 1/8" SHEET
GRIP POSITION
SLOT RIBS TO SUIT SPARS
ALL RIBS 1/16" SHEET
FIN STOP 1/8" SHEET
FIN ASSEMBLY
PUSH FIN FORWARD TO LIMITS OF SLOT THEN PUSH UP TO LOCK

COVERING

WET

by

C · E · BOWDEN

There is no doubt that nylon covering has come to stay especially for the power model enthusiast. Here is advice from two practical modellers on covering with this resilient material. Many readers will no doubt wonder at

THE days of real silk seem to be over, at least, for a while. They were good days, and silk was delightfully easy stuff to work once one knew the really quite simple technique of covering. Real silk can seldom be come by, so I looked around for something else. I have tried various fabrics, so far without much success. "Planefilm" appears to be used up or nearly so. I heard the other day for what the yarn is worth, that it was from the leftovers of the old R.101 airship spare ballonet covering. Paper covering I abominate, although admitting it can be used moderately successfully if one is desperate. It is not tough enough for use even when used on top of my usual fuselages covered with 1/16 in. sheet balsa.

I think I have found the answer that gives one an even tougher job than silk. It is NYLON. Nylon can be bought for the alarming figure of around eight shillings a yard and two clothing coupons, which was how I obtained my first supply, or one can keep an eye open for those sales of ex-W.D. nylon parachutes for around 50s. each and no coupons! There is an immense amount of nylon in one of the larger parachutes and it is the right weight. You will probably ask "What are the snags of covering with nylon?"

In American articles and over here I had been told that nylon could not be used by the wet method of covering as in the case of silk covering. I therefore at first covered two or three petrol models dry. Being of an inquisitive turn of mind, I decided that maybe the experts were not correct. I therefore decided to cover my next petrol wing wet, and hey presto, a really beautiful job, as perfect as wet silk covering but far stronger was obtained. I had obtained very useful results by dry covering but felt that the job was harder than silk and not quite so perfect.

For the uninitiated, one covers with silk by smearing the outline of the wing, etc., with photopaste, laying on silk, water spraying from a scent spray or flit gun, pulling up the silk *very gently* taut and turning over the ¼ in. overlap edges around the edges of the framework with more photopaste. Weighting the framework until the water is dry and further stretching the silk. Then doping with one coat of *full strength clear full sized glider dope* (*NOT MODEL*).

That is what I call wet covering by silk.

Dry covering with nylon is perfectly satisfactory, but it will be found that wet covering with nylon is easier and better. The actual motions are practically the same, but I will detail them in their correct order so that Mr. and Mrs. Newcomer to petrol modelling or large sailplane making cannot very well go wrong if they carry out the motion in "drill order," and let me say that 90 per cent. of new modellers fall down over the covering.

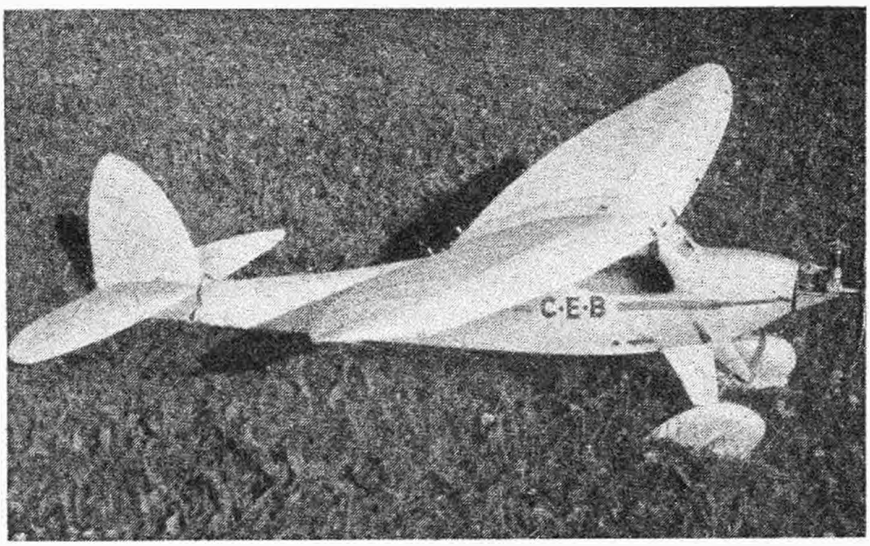
Nylon covering.

1. Lay the wing or tail or other component framework on the nylon and cut around roughly with a small overlap of approx. 1 in. to allow for changes when "pulling up" later. Allow about 1½ in. or more extra overlap for the top of a wing as the camber will require more.

If material is difficult to come by do not bother about the grain direction. In practice provided you use the dope I recommend, it makes not one iota of difference! I cover with the weave or the warp or grain running any way, and I save a great deal of material.

2. Smear plenty of *photopaste* (Gripfix or similar paste but not glue, cement, dope or office thin paste in bottles) along the framework outline of balsa, rub in smooth with the fingers. If the leading edge and trailing edge of a wing on the sides of a fuselage are balsa sheet covered, then be very careful to cover all the balsa surface with photopaste and rub smoothly into the wood. If you do not take these precautions you will probably obtain little air pockets and proud bumps over the wood when the dope dries. I have somewhat spoilt my large 9 ft. span petrol flying wing by neglecting this precaution when originally covering with nylon dry because I thought I would save photopaste as I had covered nearly the whole of the wing with sheet balsa 1/16 in. Do not fall into a similar trap. It is far cheaper in the long run to spend a bob or two extra on photopaste and have a first-class 9 ft. span flying wing or other monster brainstorm!

3. Stretch the nylon covering lightly over the photo-pasted framework. Do not bother about minor wrinkles at this stage. Snip around the edges with a sharp pair of scissors giving a ¼ in. overlap.



Left shows Lt.-Col. Bowden's latest slabsider, st·on ly resembling his original Bowden Co·test, but covered with Nylon by the wet method.

WITH NYLON DOPE

by A · E · LANDON

Col. Bowden's method of wet covering in view of the well known fact that nylon as a plastic should be impervious to water. The proof of the pudding, however, ...

4. For nylon obtain a large sponge and fill it with water and then squeeze most of the water out until it is well and damp but not too wet. Do not be caught by your wife however! Now gently sponge the whole of the nylon covering several times so that it is damp in all its pores, but not soaking wet. I have found that nylon works better this way than by water spray, which seems to stand on the surface too long instead of soaking into the tissues.

5. Smear the inside of the ¼ in. overlap as you go with photopaste and start gently pulling up all the wrinkles in the nylon. I start from the centre of a wing or tailplane, etc., pull out towards the L.E. and T.E. and turn down the tacky photopasted overlaps. I work outwards and towards the wing, etc., tips. But do be gentle, so that there are only just no wrinkles. The nylon will pull up beautifully taut as the water dampness dries. Weight down the covered framework until it is dry to prevent warps occurring as the nylon pulls up during the drying process.

6. When dry, dope one flowing and thick coat of *full size* full strength cellon glider dope. Do not use model dope which is thinned down and quite useless, because it does not keep the framework really stiff and taut where there is damp in the atmosphere. The real full strength stuff gives one a hard and tough taut form of bracing in the form of the covering that will last for years. Be careful to check up that the dope is the real stuff. Certain model shops sell what they call "petrol model dope" but actually it is sometimes diluted dope that is not nearly so effective. Do not work the brush into the covering as it stretches it locally. Just flow on thick and leave.

7. Be absolutely sure that you weight down the framework to a flat board table or boarded floor whilst the nylon and its dope is setting. This will ensure that the whole sets into the true shape you require and it will then last. Remember that nylon takes longer to set really hard. I find that three days under weights is well worth while.

I am now a nylon addict. It is far tougher than silk.

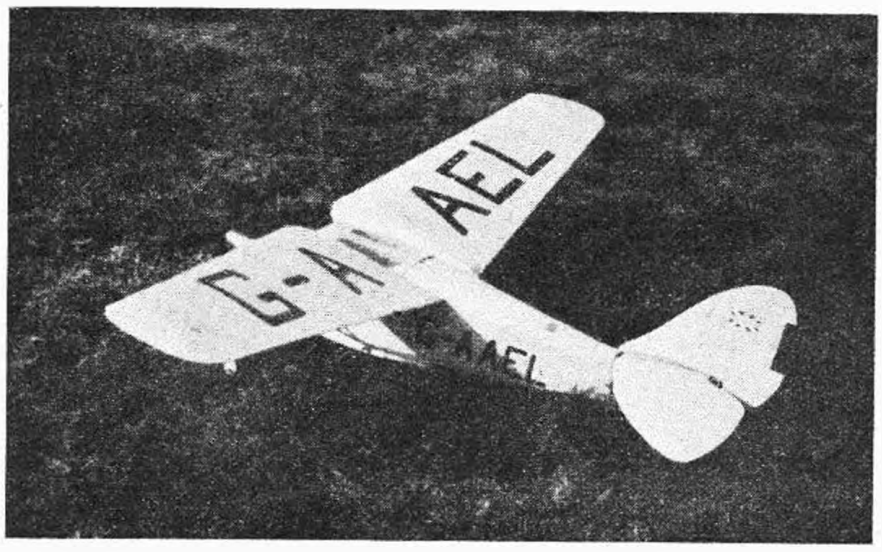
FELLOW Petrolcers, should you be gazing forlornly at your uncovered gas job, wondering just what to hide the framework with, your humble scribe has a suggestion of great practical worth to offer.

Like you, dear Reader, I was perplexed and wondering where I could purchase either silk, good quality bamboo paper or some worthy substitute to enable the airflow to pass *over*—instead of *through*—the structure of my new 'plane, and in despair tried old pillow slips, bed sheets and many other household wares before seeing Nylon hose on a washing line. Lo! that seemed the perfect solution for a pressing need.

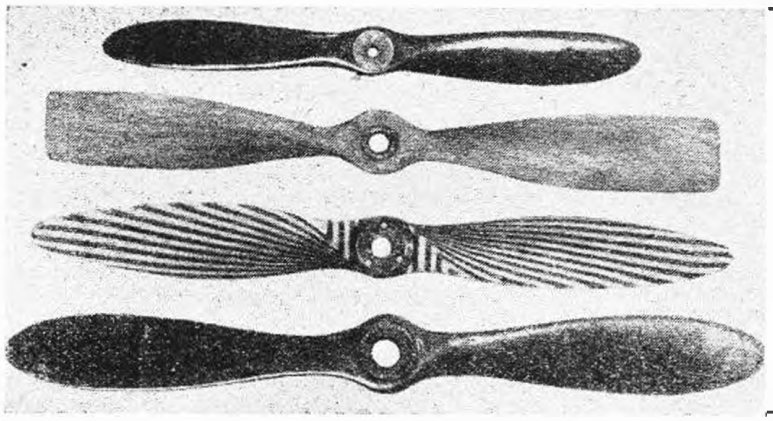
At the sacrifice of two clothing coupons per square yard, I purchased some sheet Nylon from the local drapers, and, full of hope, commenced to cover up the nakedness of my new brain-child. I soon found, however, that Nylon required a special method of handling; unlike silk, it seems best for Nylon to be applied dry, pulled drum-tight, using thin clear dope as the fixing medium instead of photo-paste, and making certain to work in a perfectly dry room. The first coat of clear dope should be applied at 70° F., using a *thin* solution with a firm stiffish brush, working the dope well into the weave and allowing 10 hours to dry and set, followed by a second and third coat, using a soft haired shaving brush or camel-haired mop. My experience is that after the first coat of dope the Nylon slackens off and wrinkles may even appear; however, when the successive coats are brushed on, the covering goes tough and taut. If the foregoing hints are followed, an exhibition standard will be reached in your efforts!

At this stage I have a word of warning to offer—should you decide to sacrifice clothing coupons on Nylon, make certain it's the 8/11 per square yard variety and not the 11/6 kind which is heavier and unsuited for our purpose. A variety of colours are to be had, rendering the use of coloured dopes unnecessary. Clubs could purchase a complete Nylon parachute *free of coupons* at many a West End store.

The writer has covered an 8 ft. span job of some 6 lbs. weight, a 6 ft. span Taylorcraft "Cub," and a mere 5 ft. span effort powered by a 1·3 c.c. "Mills" unit, all of which are giving faithful service—and patching repairs are a thing of the past, thanks to Nylon!



On right is A. E. Landon's beautifully built scale Leopard Moth, to J. M. Coxall's design. For models like this Nylon is undoubtedly the ideal covering.



AERODYNAMIC DESIGN Pt. IV

By JOHN HALIFAX

On the left are four interesting diesel airscrews—Reading from the top, that for a 0·7 c.c long crankshaft Allouchery, contest type for 1·8 c.c Czech Super Atom, laminated high pitch design for 2·04 c.c. Dyno I and medium pitch for 2·65 c.c. Delmo.

IN the two articles prior to this I have dealt with the design of airscrews, with particular emphasis on those powered by rubber motors. There is, however, one thing more we must determine before we have completed our survey of the subject, and that is the thrust developed by the projected airscrew under the designed conditions.

Consider Fig. 1. As we saw last month, torque is made up of components of lift and drag, and in a similar manner, thrust is derived from the two components of these forces, at right angles to the plane of rotation. The difference is, however, that the component of drag, QD, opposes the component of lift, and thus diminishes its value. Therefore the thrust of an airscrew, assuming that its centre of action is on or near the standard radius 0·7R, is given by the equation :

$$T = L \cos \phi - D \sin \phi \quad \text{.....equation 1}$$

where L = lift acting on the blade for L/D max. at A.R. = infinity.

ϕ = the angle between the relative airflow and the airscrew's plane of rotation, given by the expression

$$\tan \phi = \frac{J}{2 \cdot 2} \quad \text{.....equation 2}$$

Expressed in the more convenient form of coefficients, equation 1 becomes

$$T = \cdot 0001368\ V_E^2\ S\ (C_L \cos \phi - C_D \sin \phi) \quad \text{.... equation 3}$$

where T is in ounces

V_E = actual velocity of the blade element given by the formula

$$V_E^2 = \cdot 1333\ n^2\ R^2 + 1 \cdot 21\ V^2$$

as explained in Part 2.

Now equation 3 is very simple to evaluate for any given airscrew. For example, taking an airscrew with Gottingen 417a as its blade section (details of which were given last month) we have $C_L = 0 \cdot 85$ and $C_D = 0 \cdot 03$ for L/D max. D = 10 ins. Total area S, calculated as described last month, is 8 sq. ins.; r.p.s. = 20; axial velocity = 20 ft./sec.

From the equation above, we get

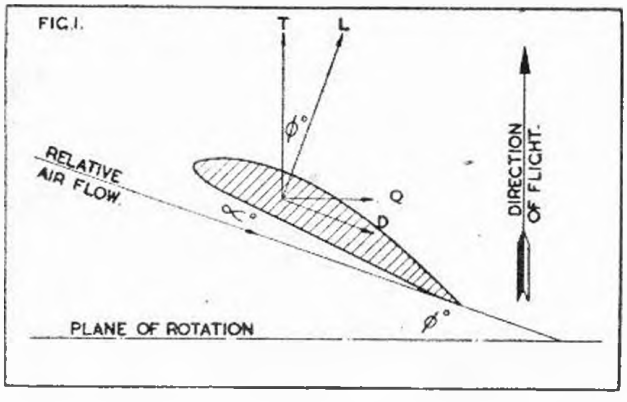
$$V_E^2 = \cdot 1333 \times 20^2 \times 5^2 + 1 \cdot 21 \times 20^2 = 1{,}818.$$

And from equation 2, or Fig. 2,

$$\phi = 28 \cdot 5.$$

Then from equation 3

$$T = \cdot 0001368 \times 1{,}818 \times 8\ (\cdot 85 \times \cdot 8788 - \cdot 03 \times \cdot 4772) = 1 \cdot 2 \text{ ozs.}$$



Design Summary.

Before going any further, it would be as well, I think, to summarise the design procedure for a rubber-powered airscrew. Knowing the size of the motor, h.p. available and approximate r.p.m. when fitted with an airscrew of roughly the same diameter as the projected one (Part 1), the total blade area S is computed from the equation in Part 3. This necessitates a knowledge of the characteristics of the aerofoil section selected, and this must be corrected for infinite Aspect Ratio before use. In addition, the P/D ratio for maximum efficiency must be calculated from the equation in Part 2.

The above method has one drawback ; if a blade shape differing considerably from the normal is used for some reason, the assumption that the centre of lift and drag is situated at the standard radius may be in considerable error. In a later article, therefore, I intend to describe a check on these calculations, whereby the length of the blade is divided into a number of elements and the sum of the torques acting on each of these compared with the original torque value.

Internal Combustion Engines.

We shall be dealing in detail with both petrol and diesel engines their installation and related problems, in a future article, but there are two items which we must make a note of now, before discussing the design of suitable airscrews.

Now the predominant difference between rubber- and " power "-driven airscrews is the speed at which the latter operate. An average figure for the former we have already seen to be about 20 revs./sec., whilst a small engine like the Frog 175, to take only one example, can turn a 9-in. airscrew at 100 r.p.s. In fact, it is essential for an engine to operate at these high speeds if it is to develop its full power, and thus it is not surprising that the airscrews are rather different to their balsa brothers.

I mentioned two things we must know about our engine

before we commence the design: these are r.p.s. under load, and maximum h.p. developed at this speed, and should the engine manufacturers profess complete ignorance of these two values, we must measure them for ourselves; the first with a rev. counter and the maker's "prop" to provide the load, and the second with a "torque meter" of some sort. The use of these are described in any elementary book on applied mechanics, so I will not digress still further from applied aerodynamics to cover ground others have dealt with already in more detail than I could hope to here. Suffice to say we measure r.p.s. and torque, and from the latter obtain h.p. by the simple relation

$$\text{B.H.P.} = \frac{\text{Q.N.}}{87{\cdot}5}$$

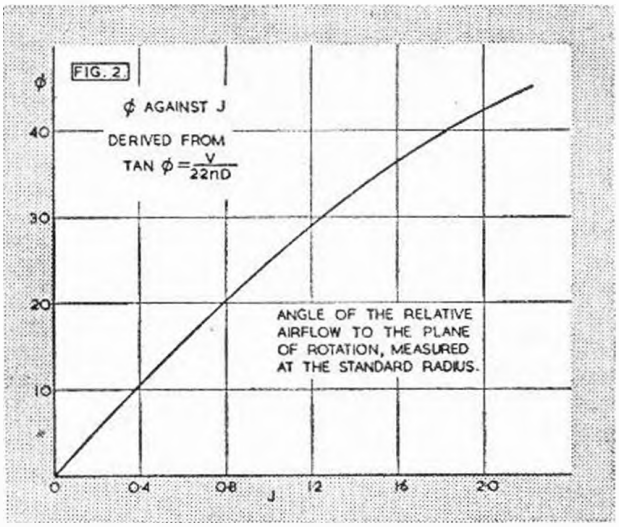
And from then on we follow the general procedure for rubber models—but with a difference. It should be remembered that the b.h.p./r.p.s. ratio is much lower than for a rubber motor, and thus the airscrew blade area will be much smaller in proportion to the b.h.p. This should be remembered when the diameter is decided.

Example:

A 7·5 c.c. engine develops 0·2 b.h.p. at 100 r.p.s. The machine in which it is to be installed has a flying speed of 30 ft./sec.

Now before choosing a blade section, it would be as well to see at approximately what value of VL the blade will be operating. Obviously, if it is greater than the critical VL for an orthodox cambered aerofoil, it would be to our advantage to use such a one.

A diameter of about 14 inches will be the best for such an engine, so, using the velocity formula for the standard radius element, we get

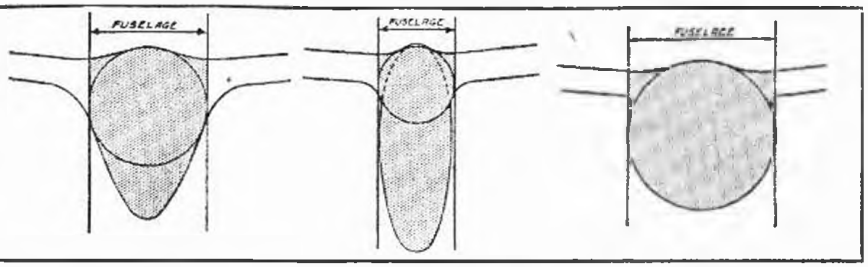


$$V_E^2 = \underset{19,769}{\cdot 1333 \times 10{,}000 \times 14} + 1{\cdot}21 \times 900 =$$

$$V_E = \sqrt{19{,}769} = 140 \text{ ft./sec.}$$

If the chord is one inch, we get VL = 11·67. This is higher than the "critical VL" for most medium camber sections, and thus we must choose a suitable one. In this case we will take N.60, as it possesses good all-round characteristics, and, in addition, we have the structural advantage of a practically flat under surface. A performance graph for this section, corrected for infinite A.R., will be included in this series next month.

NEW MODEL FORMULÆ FOR 1947



AFTER more or less six years of suspension the F.A.I. (the international body controlling all model regulations throughout the world), met in London last September, and a number of proposals from many sources were tabled, discussed, and in some cases adopted.

The items affecting model requirements for future contests are concerned mainly with new methods of arriving at wing area and wing loading formulæs. This also affects the fuselage minimum cross section formulæ. Up to the holding of this meeting the F.A.I. requirements for models stated that the tail plane should not exceed 33 per cent. of the area of the mainplane. Unfortunately this stipulation tended to handicap development of such types as the Canard and Tailless aircraft, but a proposition from France suggested that in future the total area of the horizontal surfaces be taken into consideration when calculating wing loading.

From now onwards any desired proportion of the total area can be devoted to tailplane or other auxillary surfaces according to the designers own fancy. This new method of totalling all horizontal surfaces also affects the fuselage cross section requirements as follows.

For aeroplanes, hydro-planes, etc., the minimum required fuselage cross section area at its greatest portion will be based on

$$\frac{\text{total area horizontal surfaces}}{25}$$

For gliders the figure of 50 will be substituted for 25. (These figures were arrived at during the meeting and are fixed *pro tem*, and it is quite likely that a slight modification of the divisors will be announced.)

A major difficulty in the past has been the defining on certain models of just what does constitute the fuselage, and where the wing starts. There is no question in dealing with the normal high-wing or parasol type of model, but with some of the super streamline types employing heavy wing fillets, much difficulty has been encountered by the judges from time to time. The method illustrated has been introduced to overcome this difficulty, and is used as follows.

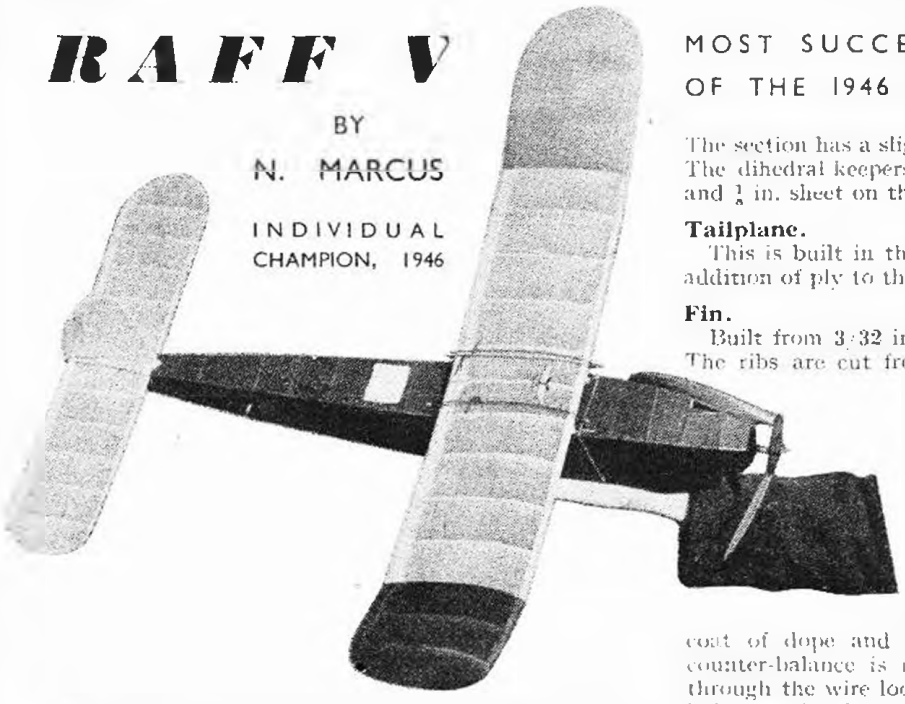
The largest possible circle is inscribed within the fuselage cross section outline, and two vertical lines are drawn touching the outline of the circle. The area within these two lines is counted as fuselage cross section area, and all area outside is counted as wing. The sketches show the method of application.

RAFF V

BY

N. MARCUS

INDIVIDUAL CHAMPION, 1946



MOST SUCCESSFUL LIGHTWEIGHT OF THE 1946 COMPETITION SEASON

THE original model (with a large fuselage to aid o.o.s. flight) was very successful, but it was found that the fuselage produced too much drag in still air, so "Raff" was designed. Raff I was second in Blackheath's 1945 Gala, and the following week flew o.o.s. in a club competition on its first flight. Raff II was built around Christmas, 1945, and it consistently clocked 3 mins. plus during the following months. Finally, the model flew o.o.s. 10 mins. 38 secs. in the Garnage Cup. "Raff III" was finished a few days before the M.E. No. 2 Cup and it needed little trimming. On the day it clocked 87 secs., 155·5 secs. and 184 secs. respectively, an aggregate of 426·5 secs. It placed sixth. This model was lost (dethermaliser failed) a week before Northern Heights Gala. "Raff III" also placed second in the L.A.C. rubber trials with an aggregate of 450 secs.

A new model was built for the Croydon Clarke Trophy (open rubber). The first flight was 172 secs. (dethermaliser), the second, 338·5 secs. (dethermaliser), and the third, 290 secs., when it was lost behind some houses and not returned. The model had previously clocked 3 mins. 2 secs. H.L. on 700 turns at 8 p.m. on July 7th, timed by Messrs. Costenbarder (Cheam) and Pitcher (Croydon). The latest model, Raff V, is still in my possession. It clocked over 2 mins. on each of its flights at the St. Albans Gala, the dethermaliser working each flight. Mr. Anastasiou built a Raff V for his first rubber model and with it he won the open rubber at St. Albans with an aggregate of over 11 mins. for two flights.

Well, that is the history of the model, and I would like to add that with good rubber and full turns, it will turn in consistently flights of over 3 mins. in still air.

Fuselage.

This is of the square slabsider type. It is built in the normal manner. The parasol is 1/16 in. by ¼ in. hard balsa, backed with 24 gauge wire for strength. All the gussets are of 1/16 in. sheet.

Wings.

The soft ¾ in. sq. balsa is carved to shape and then backed with 1 mm. ply for about 8 ins. at the centre. The section has a slight reflex which helps to hold a stall. The dihedral keepers are 1 mm. ply on the leading edge and ⅛ in. sheet on the trailing edge. Ribs 1/16 in. sheet.

Tailplane.

This is built in the orthodox manner, except for the addition of ply to the L.E. Ribs 1/16 in. sheet.

Fin.

Built from 3/32 in. hard sheet with a lifting section. The ribs are cut from 1/16 in. sheet. Set the fin at approx. 2 degrees turn to the right.

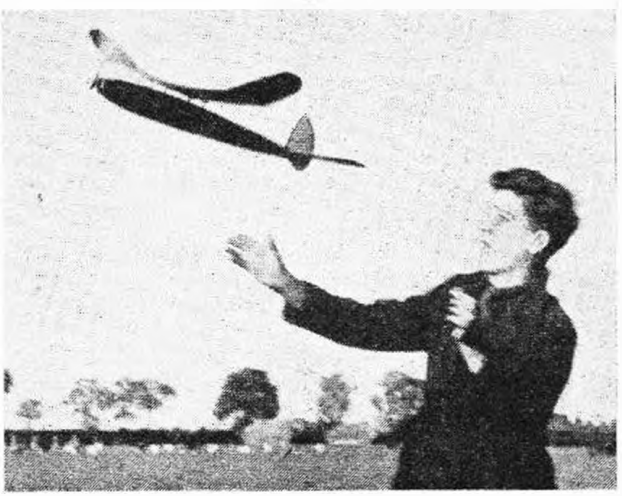
Propeller.

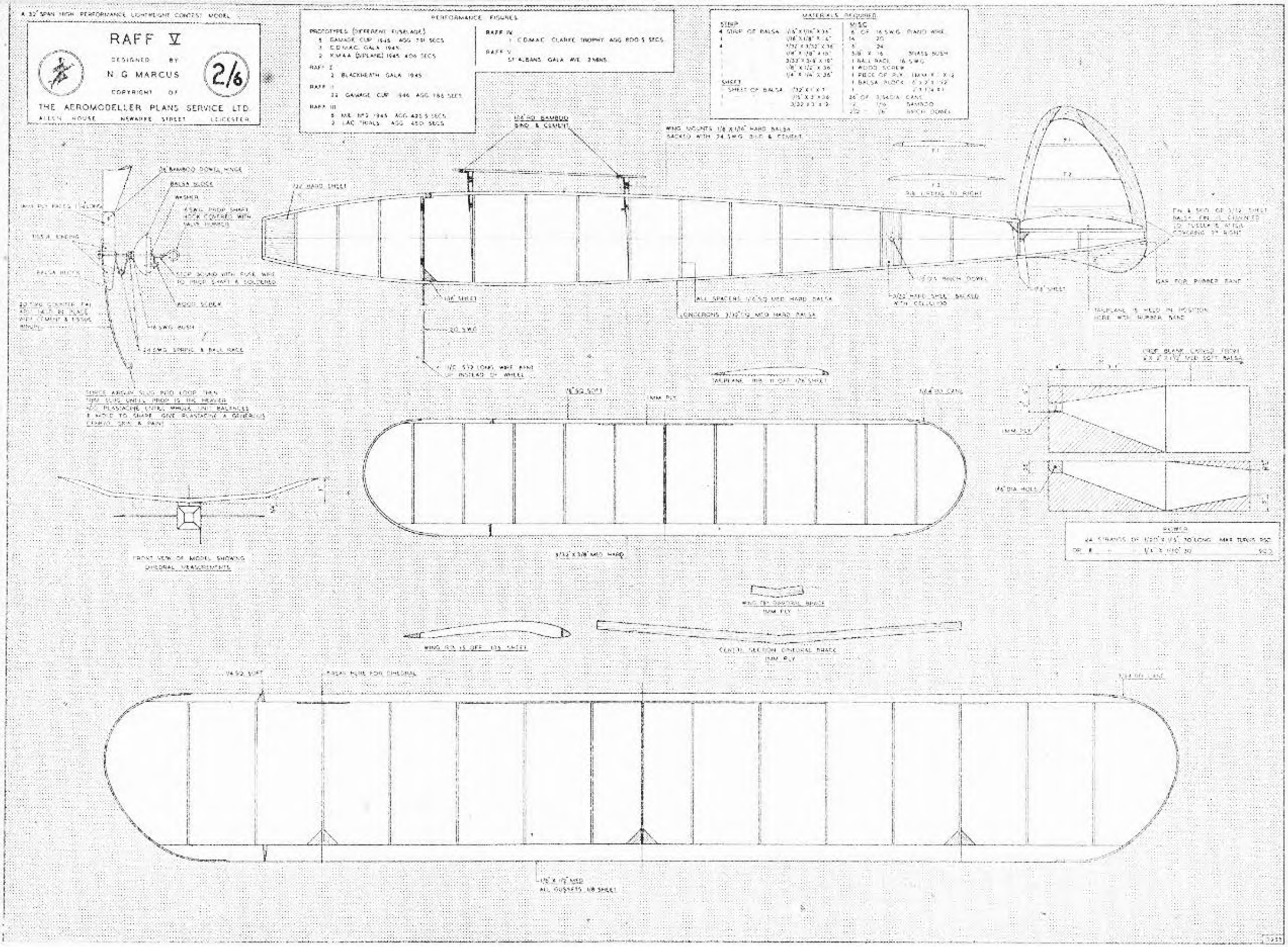
This is carved from 2 in. by 1½ in. by 6 in. medium soft block balsa. It is carved to about 3/32 in. thickness, with 1/16 in. undercamber and about 10 degrees twist at the tip. The prop folds on the left-hand side of the fuselage. The blade is given one coat of dope and is finished with flour-paper. The counter-balance is made by forcing an air-gun slug through the wire loop and squeezing it there. Test for balance—the slug should be the heavier. Trim some of the lead off until the blade is heavier and then add plasticine till the prop balances perfectly. Mould the plasticine to shape and make a cement skin on it, then paint it. This method eliminates filing bits of lead or adding pieces and the complete balancing can be done in a matter of five minutes.

Flying.

Trim the model for glide by altering tailplane incidence (mine usually needs 1/32 in. neg. on tail). Put on 50–100 turns and launch gently into wind. Trim the model so that it turns in 50 ft. dia. circle under power and when gliding. On full turns the model may show signs of spinning because of its speed. To remedy this, wash out the left wing a degree or two at the tip, and a spiral climb between 300 ft.–400 ft. (according to the conditions) will be the result.

Full-sized drawings are available, a ¼-scale reproduction appearing opposite.



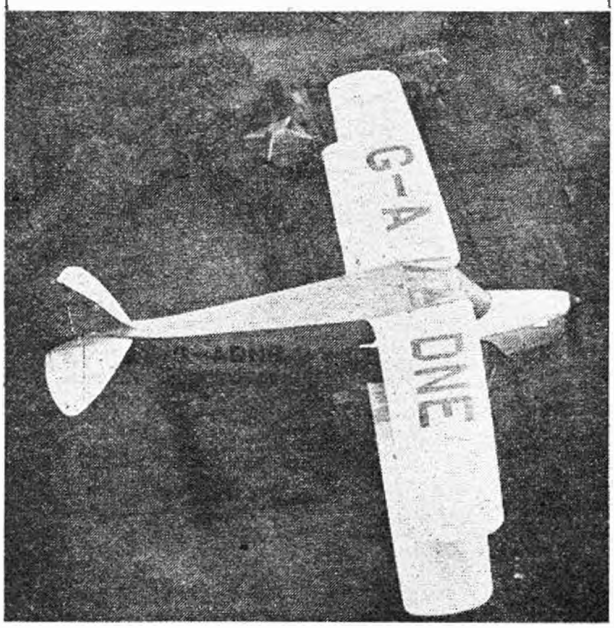

A 32" SPAN HIGH PERFORMANCE LIGHTWEIGHT CONTEST MODEL
RAFF V
DESIGNED BY
N. G. MARCUS
COPYRIGHT OF
THE AEROMODELLER PLANS SERVICE LTD.
ALLEN HOUSE NEWARKE STREET LEICESTER
2/6
PERFORMANCE FIGURES
PROTOTYPES (DIFFERENT FUSELAGE)
GAMAGE CUP 1945 AGG. 731 SECS.
C.D.M.A.C. GALA 1945
K.M.A.A. (BIPLANE) 1945 406 SECS.
RAFF II
2 BLACKHEATH GALA 1945
RAFF III
22 GAMAGE CUP 1946 AGG. 186 SECS.
RAFF III
LAC TRIALS AGG. 450 SECS.
RAFF IV
1 C.D.M.A.C. CLARKE TROPHY AGG. 800.5 SECS.
RAFF V
ST. ALBANS GALA AVE. 3 MINS.
MATERIALS REQUIRED
STRIP
MISC.
4 STRIP OF BALSA
BRASS BUSH
1 WOOD SCREW
SHEET
SHEET OF BALSA
BAMBOO
BIRCH DOWEL
1/16" BAMBOO DOWEL HINGE
BALSA BLOCK
WASHER
BALSA BLOCK
WOOD BEADS
16 S.W.G. BUSH
24 S.W.G. SPRING & BALL RACE
1/16" SQ. BAMBOO BIND & CEMENT
1/32" HARD SHEET
1/16" SHEET
20 S.W.G.
WING MOUNTS 1/8" X 1/16" HARD BALSA BACKED WITH 24 S.W.G. BIND & CEMENT
ALL SPACERS 1/16" SQ. MED. HARD BALSA
LONGERONS 3/32" SQ. MED. HARD BALSA
BIRCH DOWEL
1/8" SHEET
GAP FOR RUBBER BAND
TAILPLANE IS HELD IN POSITION HERE WITH RUBBER BAND
1/16" SQ. SOFT
1 MM. PLY
TAILPLANE
3/32" X 3/8" MED. HARD
FRONT VIEW OF MODEL SHOWING DIHEDRAL MEASUREMENTS
1 MM. PLY
1/16" DIA. HOLE
RUBBER
WING TIP DIHEDRAL BRACE 1 MM. PLY
WING
CENTRE SECTION DIHEDRAL BRACE 1 MM. PLY
1/4" SQ. SOFT
BREAK HERE FOR DIHEDRAL
ALL GUSSETS 1/8" SHEET

CIVIL AIRCRAFT NO. 38.

THE D.H. 87B

HORNET MOTH

By E. J. RIDING



THE advantages of an enclosed aeroplane for the private owner were foreseen by the De Havilland Aircraft Co. Ltd., in the early 1930's and, following the success of the Puss and Leopard Moth monoplanes, the Type 87 Hornet Moth was produced as a replacement for the earlier two-seater open cockpit Moth series. The prototype Hornet Moth G-ACTA attracted a considerable amount of attention on account of its sharply tapered wings, and it was a great disappointment to all concerned when the same machine was eliminated in one of the qualifying heats of the 1934 King's Cup Air Race. Apparently the handicappers, remembering the previous victories of new D.H. machines, had treated it severely.

During the following year two other machines were built and were registered G-ADIR and G-ADIS, followed by a production batch of twenty-seven D.H.87A's. As a result of the questionable suitability of the tapered wing layout, most of the 87A's were converted into 87B's with normal rectangular wings.

Production of 87B's at Hatfield continued until May, 1938, by which time about 158 Hornet Moths of all denominations had been completed, eighty-five of which were registered in Great Britain. At the outbreak of war, most of these machines were impressed into the R.A.F. for communicationary duties. During this year many of these have been "demobbed" and have reverted to their original registration numbers, a few examples being G-ADKC (X.9445) at Broxbourne, G-ADMJ (W.9389) at Sherburn, and G-ADND (W.9385) at White Waltham. A total of nineteen Hornet Moths are now flying in this country, and they are being used by the London Aero Club at Panshanger, and the West London Aero Club at White Waltham, for instructional duties one of these last mentioned being shown in our leading photograph in flight near Wargrave. The other machine, G-ADOT, belongs to the Herts. and Essex Club at Broxbourne.

Construction.

Spruce and ply box fuselage fitted with external longitudinal stringers carrying the fabric covering. Wings have spindled spruce spars with girder pattern ribs. The leading edge of the lower wing is plywood covered, the remainder being fabric covered.

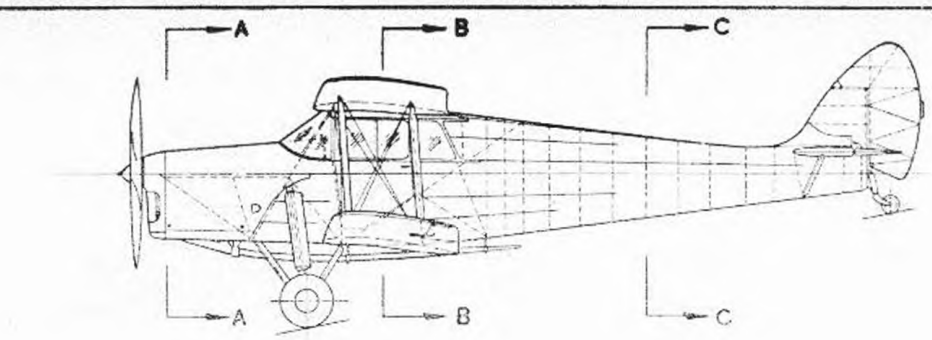
After raising the small trailing edge flaps, the wings can be folded about the rear spar fittings. The tailplane is fixed, and has trimmers on both elevators operated by a lever situated on the top port side of the cabin. A forked control column situated between the two seats, which are arranged side-by-side enables the machine to be flown either by pilot or passenger. There are two sets of rudder pedals, and the throttle control is located on the port side of the cabin. Air brakes in the form of swivelling undercarriage leg fairings can be hand operated from the cabin. 35 gallons of fuel are contained in a tank aft of the seats beneath the luggage locker. The power plant is a 130 h.p. 4-cylinder in-line air-cooled D.H. Gipsy Major.

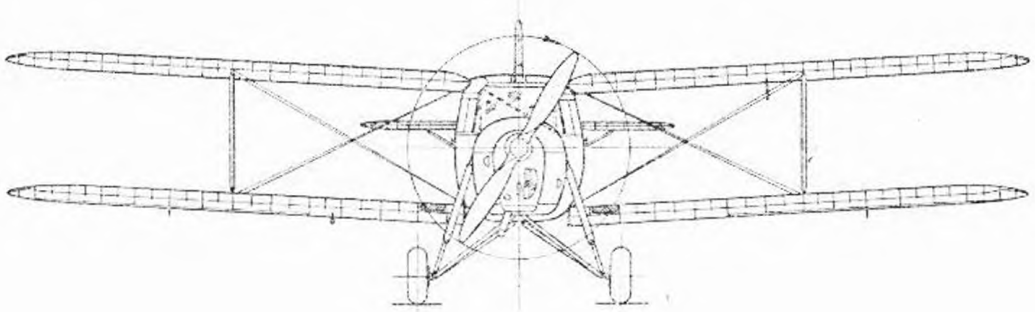
Colour.

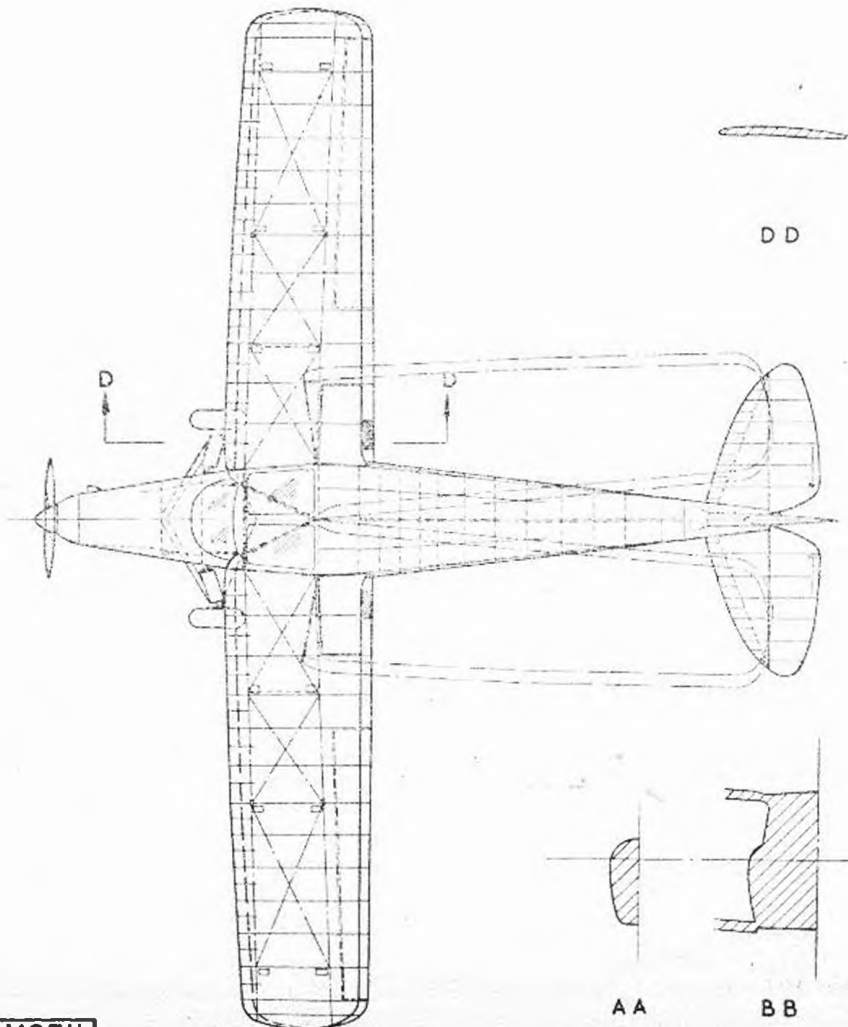
G-ADNE is painted in the following scheme: Fuselage, fin and rudder, royal blue. Wings, tailplane and nose, aluminium. Registration letters on fuselage and wings, crimson. G-ADOT: Aluminium all over with black letters.

Specification: Span, 31 ft. 11½ in.; length, 24 ft. 11¼ in.; height, 6 ft. 7 in.; tare weight, 1,304 lb.; loaded weight, 2,000 lb.; wing area, 244·5 sq. ft.; max. speed, 124 m.p.h.; cruising speed, 110 m.p.h.; landing speed, 45 m.p.h.; ceiling, 14,800 ft.; range, 620 miles; price (1935 figure), £875.

Air Review Photos.







D D

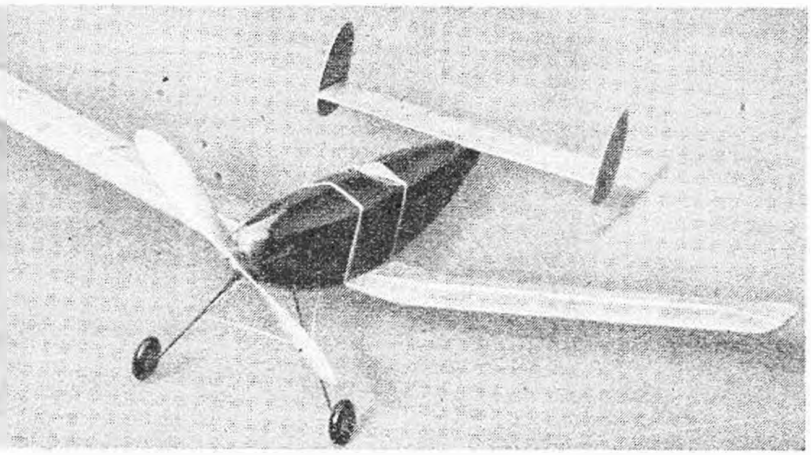
A A B B C C

D.H. 87 B HORNET MOTH

FT.

MAINLY FOR BEGINNERS

BY M. R. KNIGHT



FIRST of all, a word about myself. Perhaps I had better begin by trying to lay some kind of claim to the distinguished title of "P.E.G.B.A." (philosopher, elucidator and guide for budding aeromods).

I have been doing my best to assist beginners for a very long time now, and it all began simply enough. Wandering over Hampstead's Parliament Hill in the days before it was chewed up for allotments, I spotted a youngster doing some queer things with one of the rudimentary "spar" models of those days, and not having at that time acquired the gentle art of minding my own business, I immediately barged in and told him he would get much better results if he put his wing the other way round. He retorted that it was that way when he bought it, and the gaffer at the shop told him it was all set for flying.

Bursting with righteous indignation against toyshop gaffers who presumed to sell aeroplanes without troubling to become acquainted with the first thing about them, I made a bee-line for this particular offender's establishment, where, incidentally, I found that every model had the wing back to front! After a lot of argument, the gaffer was at length persuaded to put matters right. My reputation as a P.E.G.B.A. was made!

Not long afterwards I had another opportunity of trying to deserve the title. The club I belonged to invited me to supervise a new section. Right away we struck a hefty snag. Look where we would, we could not lay our hands on any model designs suitable for the newcomers who were beginning to show up in encouraging numbers (a dearth long ago attended to, notably by the AEROMODELLER).

Never will I forget the fearsome sight of one persistent youngster, manipulating a pair of pliers for the first time, and vainly trying to produce a set of fuselage formers from light steel wire *kinked at each corner to carry a spruce longeron*. I'm not criticising this design—after all, it won the Wakefield Cup that year—but it was certainly no job for a beginner, and, for the matter of that, the designer never claimed that it was. Like other designs it had been published simply because it was a Cup winner, and seemingly it hadn't occurred to anyone to produce or publish a design specially for the beginner. I had to do something about this need for the beginner. I had to do something about this need for our little crowd of enthusiasts at Hackney Marsh, and presently there emerged a little low-wing job that I nearly christened "PEGBA," but eventually substituted "Kitten." This model was voted quite a good looker, it didn't beat the duration record and I never hoped it would, but it flew well enough to interest a good many people. Moreover, it took an immense amount of bashing from trees and fences and small boys, without wilting.

Some 15 Kittens were built, and at once the idea of a special design for beginners was seen to be justified. For, whether the models were painstakingly and neatly built or were rag-tag bobtail affairs, as some undoubtedly were, they all flew. Not one of their constructors was cheesed off to the point of dropping aeromodelling through failure to get encouraging results, as has happened only too often when for one reason or another an unsuitable model has been attempted. Moreover, our membership grew as a result, and soon I found myself needing to turn out another design so that we could pit one group against another. This new model was named the "Kingfisher" and before long we had about 30 keen modellers flying one type or the other every week-end, and keeping it up right through the Autumn gales and the chills of Winter.

Next move was to persuade someone or other in the publishing world that there was a crying need for a beginner's design, for we at the Marsh were being kept rather too busy turning out quantities of Kitten and Kingfisher drawings by hand for the use of friends and acquaintances. I tackled one of the big shots on the subject, and he replied, very characteristically, "Well young fellow-me-lad, it's up to you." Through his representations, there came an invitation to produce a suitable design and the outcome was the "Kinglet," first flown at Parliament Hill on May 8th, 1931, and published in July of that year. This model, it was encouraging to learn as time went on, met with approval from modellers all over the world. Hundreds were built, I am told, and the only criticism that came to my ears—I actually overheard it on Wimbledon Common—that it was a so-and-so wing-flapper, came from a bloke who had departed from the published design by thinning down the wing spars to save weight and obtain a better performance!

All this, of course, is ancient history, and the main reason for mentioning it is, as I have suggested to reassure readers on the subject of my acquaintance with beginners difficulties. To bring the story up to date, I need merely add that another of my fairly numerous beginner's designs, the "Kamlet" is recent enough to be included in the AEROMODELLER Plans Service, and that before and during the war, I was running London County Council evening classes in

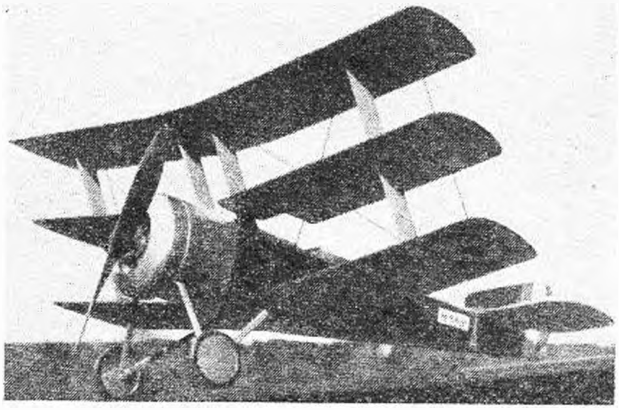
model aircraft construction.

I want to come back to this L.C.C. business presently, but at the moment I wish to stress that in recounting our modelling activities at Hackney Marsh I hope I have made it clear how tremendously important it is for the beginner to start on right lines if he is to enjoy modelling and remain a modeller. This is put very forcefully, as a matter of fact, by Mr. C. S. Rushbrooke, Editor of the AEROMODELLER, in a text book that I have no hesitation in urging every newcomer to aeromodelling to obtain, "The A.B.C. of Model Aircraft Construction." (Incidentally, I should like to explain that I shall be mentioning books and model designs from time to time, and since I am not receiving any commission on sales readers can take it that their suitability will be the only consideration!)

Mr. Rushbrooke goes so far as to say "Aeromodelling loses one enthusiast for every one gained through the selection of the wrong type to start with . . ." I couldn't be in heartier agreement! Ambition can be a fine thing, but it can be a relentless enemy, and this is as true of aeromodelling as of any occupation. Newcomers often feel a tremendous urge to do things on the grand scale, to tackle as a first effort an imposing model really worthy of their efforts, such as a multi-engined flying boat or a jet fighter. Well, flying-scale models can give good results, and even multi-engined jobs have been brought within the bounds of practicability. But, though we shall not exclude flying-scale models from discussion in these articles, such types cannot be said to be suited to a first or even a second venture in modelling. Unless he is a budding genius the beginner will not be capable of building them sufficiently accurately to get good flights and even if he could, he would not find it very easy to make the necessary fine adjustments.

Nor is a record-breaking duration model a suitable type for a first endeavour, though one can well understand the beginner's urge to build one. The point is that it will certainly not be a world-beater in his hands, except probably in the literal sense of bashing Mother Earth good and hard! No, the beginner should, in his own interest, resolutely curb his ambitions and take a realistic view of his prospects. For the time being, the glamour model is not for him. Let him, instead, set to work on a design produced specially for the purpose, and concentrate on making a good and careful job of it. He will then speedily be rewarded with something that despite his lack of experience in building or adjusting, will fly and fly well.

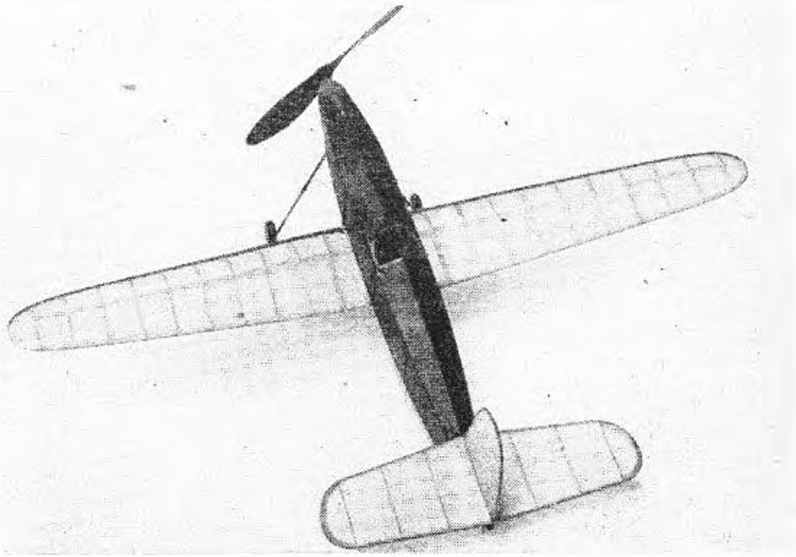
Let us briefly look at some of the distinguishing features of an ideal beginner's design. As to its main characteristic, Mr. Rushbrooke has a word for it—simplicity. To begin with, simplicity of structure—no intricate parts to form, a flat-sided fuselage that can be built actually on a full-size plan and checked for accuracy simply



and easily, a simple wing, preferably without the root-to-tip taper that characterises full scale aircraft nowadays, and many high performance models too, so all the ribs (or most of them) being alike the job will click together easily and accurately. It would also be advisable for the wing to be built as one unit rather than made in two halves plugging into sockets that are none too easy to fashion accurately.

Simplicity should also be the keynote of the aerodynamic design, so that some fairly precise instructions can be given by the designer as to the likeliest adjustments to secure good flights. Biplane enthusiasts might be disposed to argue with me, but as a biplane enthusiast myself and one who may reasonably claim some quite good results with the type, I would say quite definitely that the beginner would do better to tackle the simpler monoplane. Consisting of fewer parts, the cumulative effect of errors, structural and in the matter of trimming is likely to be less. Nor would I suggest a "tail first" or other unorthodox type.

The beginner's model should be neither too big nor too small. A really large model will cost an unnecessary amount to build and operate, and the money would be better spent in building a second model showing a substantial improvement on the first in accuracy and neatness. Moreover, the large model requires a lot of



The heading photo shows the ever popular A.P.S. Komet, while on the right there is the author's Kestrel, slightly more elaborate but still quite suitable for beginners. Above, the author's flying scale Sopwith Triplane — an example of what the beginner must not attempt!

power, which is an unpleasant commodity when it gets out of control through faulty adjustment of the model. It is also inconvenient to transport to and from the flying ground, unless you own a car, and you will tend to go there less frequently than is advisable. On the other hand, a very small model will confront you with the problem of making some very fiddly and delicate parts, and will probably call for quite minute adjustments to get good flying results. An ideal size is from 30 to 36 in. in wing span, which will mean a propeller 9 to 12 in. in diameter, and quite a modest amount of rubber to drive it.

The beginner's model also needs a high degree of natural stability so that the combined effect of faulty construction, imperfect trimming and ham-fisted launching shall not have too tragic an effect! Finally, it needs great structural strength, for there are bound to be occasions when the beginner will make some mistake and the discouragement resulting from a bad crash almost as soon as a model is completed can kill interest very quickly.

Now the inconvenient fact is that to obtain adequate stability and strength some degree of flying performance has had to be sacrificed by the designer, hence the need to draw so sharp a distinction between a beginner's design and a high performance type. But it is a far better proposition, surely for the beginner to possess a model actually capable in his hands of flights of say 45 seconds, than one capable of a far longer flight in the hands of an expert but likely to pile itself up when flown by someone inexperienced?

As to the various beginner's designs available for copying, there is no dearth in these days, and incidentally, it is not inevitable that simplicity shall spell ugliness. Such a model as Mr. C. A. Rippon's "Air Cadet" described in Mr. Rushbrooke's text book, is certainly "easy on the eye," and Mr. Rushbrooke has been kind enough to say of my own "Kamlet," "though mainly designed with an eye to utility, its appearance is far from unpleasing." There is also the very attractive "Dorland," a product of the AEROMODELLER Research Department.

Another matter that I am anxious to mention this month is the necessity of obtaining the fundamental piece of model-building equipment, a good stout, straight and smooth building board on which to place your working drawings as you construct the fuselage sides, wing and tailplane. Look at the side view of the fuselage, and you will see at once that it is shaped in a particular way. This is not just a matter of artistic taste, but a means of ensuring that when all the model parts click together, the wing, tailplane and propeller shall be at such relation to each other as will, allowing for small final adjustments, enable the machine to make a sustained flight.

Unless you reproduce the shape accurately, you will not get the correct angles, and flights, if you achieve it at all it will be a matter of guesswork and therefore uncertain and unreliable. All this is explained in your elementary text-book, but I mention it by way of emphasis. It should be clear as it is futile to try and shape the distance pieces of the fuselage merely by trying to copy what you see on the plan. The wood must be held down on to the places marked on the plan and a building board is a prime necessity if good work is to result.

What is needed is a board free from any twist and at least ¾ in. thickness to prevent it warping. A convenient size would be about 3 ft. 6 in. long, and 8 in. or 9 in. wide. The board should be of deal or similar soft wood, not balsa, and still less oak, elm or plywood.

It is a staggering thing that it doesn't seem to have occurred to the average model shop to stock this vital piece of aeromodelling furniture. Invariably you have to trudge around looking for a timber merchant or woodworker who will be willing to fix you up, and who can be made to understand how essential it is for the board to be unwarped and flat-surfaced. If these conditions are not fulfilled, the parts built on the board will not be accurate. It is an unfortunate fact that the trouble involved discourages a lot of people, and induces them to try and work without a board, the results of which are still more discouraging.

Next essential is a plentiful supply of pins to hold the longerons, cross struts, etc., in place on your drawing. Some model shops sell special pins with large heads, but ordinary domestic pins such as you can buy at the drapers or haberdashers will serve quite well. You also need a fairly light hammer to tap the pins into place and by the way, you don't drive them through the lengths of wood, but place them along each edge.

One final word. Model designs are often printed smaller than the required size. Before you can build you need to scale them up. But full-size drawings can almost invariably be purchased, and it is false economy for the absolute novice to try and make his own unless he understands the need for extreme accuracy and can achieve it. Quite small mistakes in certain parts can make a big difference to the ultimate shape and therefore to the behaviour of the model. Play for safety, therefore, in all these matters. Get a building board, choose a suitable model, get a correct size drawing, build with care and don't be in a tearing hurry.

And now let us revert for a moment to the modelling activities at L.C.C. Evening Institutes. Affairs were run on a free and easy basis instead of the formal method of instruction at this table and pupils at their desks. Though from the administrative point of view, it was a class, in actual fact it was run more on the lines of a club, largely through the medium of a democratically elected secretary, and with the instructor as a kind of benevolent president! Not every member was a novice, quite a few capable modellers found the environment congenial and, I think I can say, helpful.

It seems to me that it would be a good thing for this section of the AEROMODELLER to be conducted on similar lines. Primarily intended for the beginners, I shall certainly endeavour to make it really helpful to him, but not, I hope, as a one-man show. I'm afraid that this month, inevitably I have had all the say, but I am hoping that modellers will send along their queries and their comments, their criticisms too, if they are not quite happy about what they read, and let us discuss things together. There is still much for all of us to learn, and much encouragement to be gained from a knowledge of what the other fellow is doing.

Moreover, there is no need for the more experienced modeller to feel that this section is not for him. As long as he has a query or a point to make, and I can help him or put him in touch with a specialist, his letter will be welcome.

So let us hear from you, modellers, send along your queries, your comments, your criticisms, your news and where possible photographs of your efforts. I shall use as much of this material as I can, but frankly, I hope there will be such a response month by month that inevitably a good deal must remain unused! In that wide interchange of news and ideas lies the possibility of considerable benefit to all.

HELIOS

BY D·A·RUSSELL, M.I.Mech.E.

CONSTRUCTION of this model was put in hand in the early days of the war but was suspended in 1942 when the fuselage was three parts built. Recently time has been made available to complete the model, which is on exhibition at Dorland Hall.

The Cantilever wing is built up in three units—the two "halves," each 3 ft. 9 ins. long, joined to a centre section 18 ins. wide, thus giving a total span of 9 ft.

Construction is of $\frac{1}{4}$ in. × $\frac{1}{8}$ in. stringers notched into $\frac{1}{8}$ in. thick hard balsa ribs, these latter being capped top and bottom with strips of $\frac{1}{4}$ in. × $\frac{1}{16}$ in. balsa. The two vertical load bearing panels are constructed of 1 mm. 3-ply.

The weight of the complete wing unit is $4\frac{3}{4}$ lbs.

The Fuselage consists essentially of six $\frac{1}{4}$ in. × $\frac{1}{4}$ in. birch longerons, notched into $\frac{1}{16}$ in. 3-ply bulkheads, there being a number of secondary stringers of $\frac{1}{4}$ in. × $\frac{1}{8}$ in. spruce.

The rear wheel mounting is of new design, the "beam" pivoting on a $\frac{1}{16}$ in. diameter wooden axle. Tension being provided by a rubber band stretched between the top of the beam and a point on the under-side of the top of the fuselage.

The front undercarriage legs follow the design tried out and found to be very satisfactory in "Vulcan."

The main landing wheels are 6 ins. in diameter and are the product of Z. N. Motors, whilst the rear wheel is 3 ins. in diameter and of American manufacture.

HELIOS

BROTHER OF "VULCAN" AND SON OF "ZEUS"

DESIGNED AND BUILT FOR THE 1947 SEASON

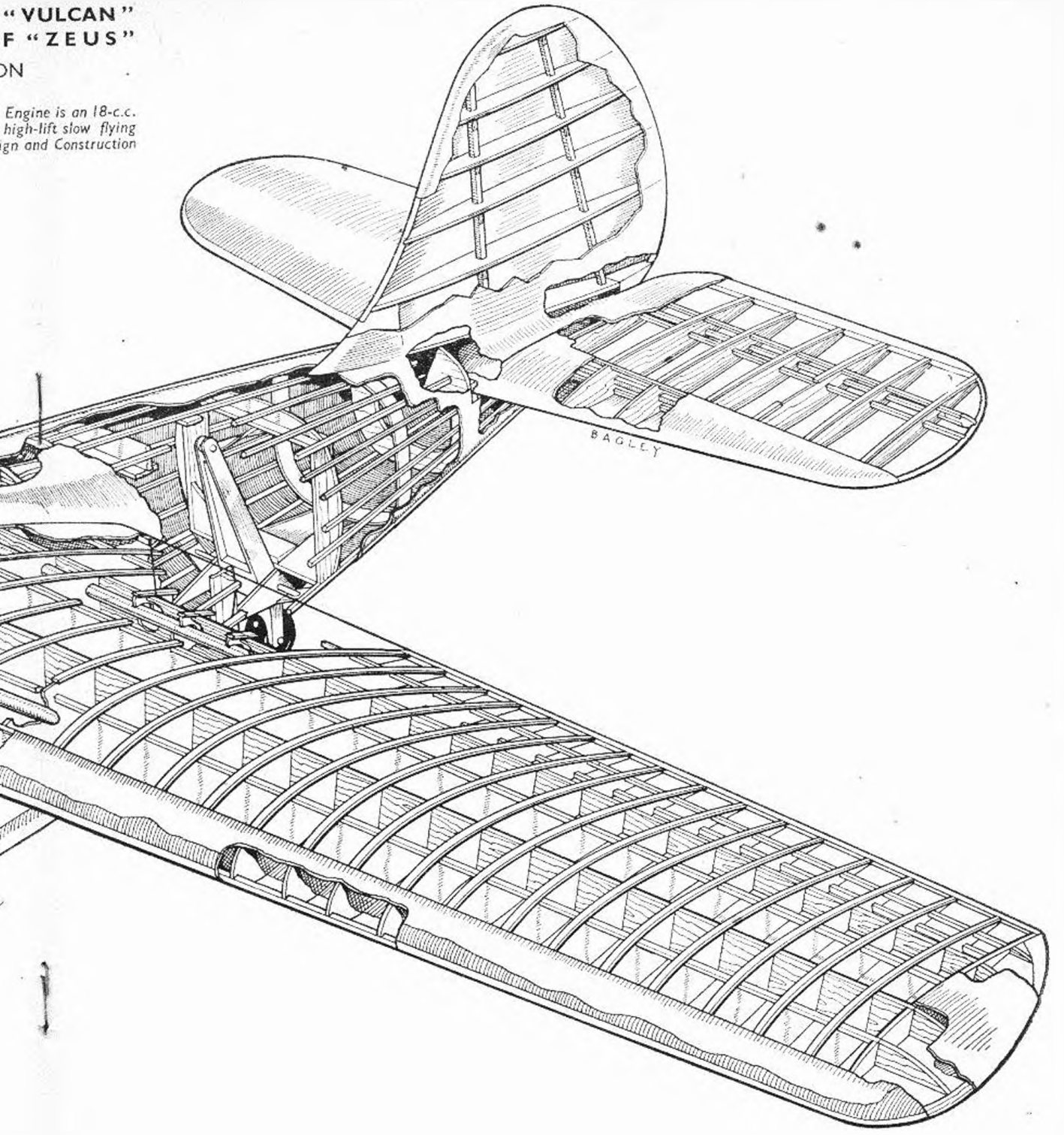
BY D. A. RUSSELL M.I.Mech.E.

Span of the model is 9' ; length is 6' ; wing area 10 sq. feet; all-up weight 13½ lbs. Engine is an 18-c.c. "Comet"; airscrew diameter is 17¾" 12" pitch. The airfoil section is a special high-lift slow flying type developed by Mr. Russell and described in the appendix of his book—"The Design and Construction of Flying Model Aircraft."

"VULCAN"
F "ZEUS"

ON

Engine is an 18-c.c.
high-lift slow flying
gn and Construction



Model of the Month

FOR sheer realism, the photo that wins the laurels of Model of the Month would be hard to beat. The Ju.88 portrayed is a model made from cardboard by L. Young of Liverpool while serving in the Western Desert, where the photo was taken. A realistic crash is very hard to arrange with a solid model, but the arrangement in this photo is very near perfect.

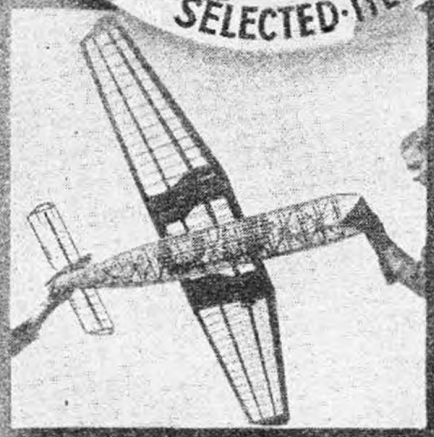
No easy task, the construction of the A.P.S giant Horsa, and A. H. Viles of Worcester is to be congratulated on his mastery of its intricacies, some idea of which may be gathered from the photo on the left.

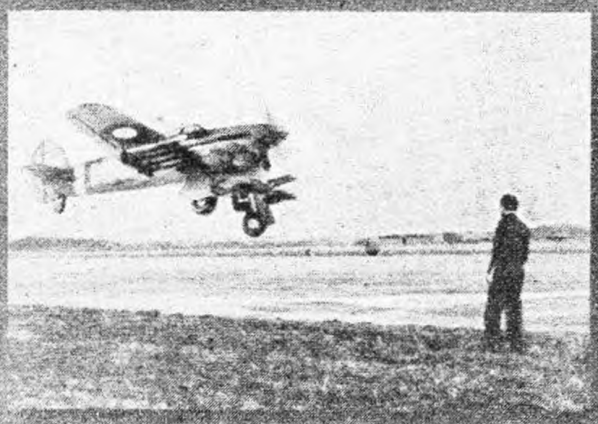
Another type who specialises in cunning deception is G. T. Roberts of Yeovil. Below left shows a clever montage of his 1/48 scale rocket Typhoon with a photo of himself on an aerodrome.

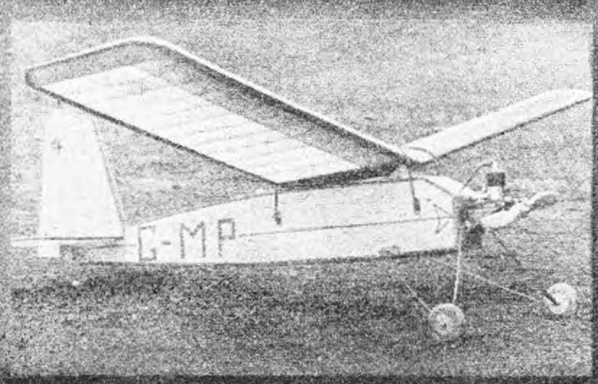
There is no accounting for taste and I. G. Allen of Mapperly, Notts, whiles away the time by building his own conception of what he calls a "Passenger-cum-Privateer," (below right). The model has all controls movable from the flight deck, a retracting undercarriage and electric motors. The span incidentally is 7 ft. and the all-up weight 25 lbs.!

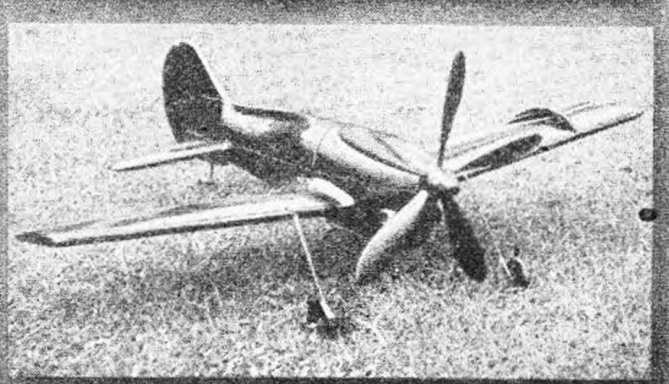
The slabsiders war-cry ("it's simple and strong etc., etc.") is brought to a culminating point by the design shown bottom left. This is a beautifully made petrol model by S/Ldr. J. Crampton which has excellent flying characteristics (see right-hand photo on opposite page).

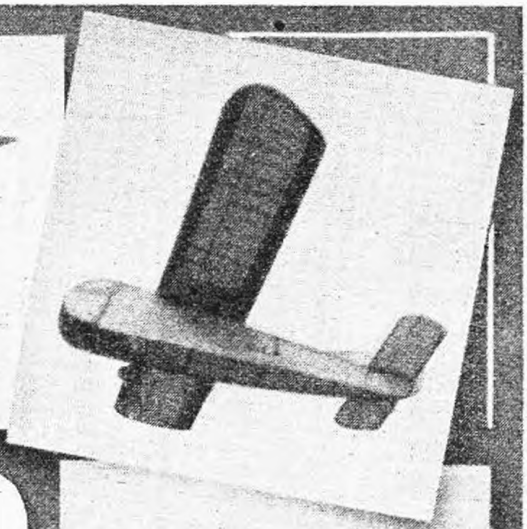
The control-line bug has so far only bitten a few enthusiasts over here, and the brain child of one of them, J. Shenton of Walsall, is shown bottom right. An











unwise creases on seem to have been made with regard to the airscrew, as it was designed for duration model times!

The lovely model shown is the work of L. H. Wherry of Washington, U.S.A., the scale is only 1/48th yet this beautifully finished little job flies well.

One of the most popular flying scale gliders in the A.P.S. range, here is yet another example of the "Waco Hadrian"—snapped in flight by the builder, W. R. Clark of Bethnal Green.

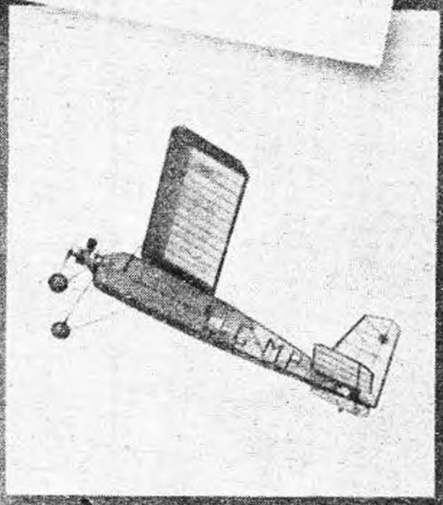
Those were the days, and below left shows you how they used to do it. The gentleman in shorts seems to have a lot of energy mis-spent!

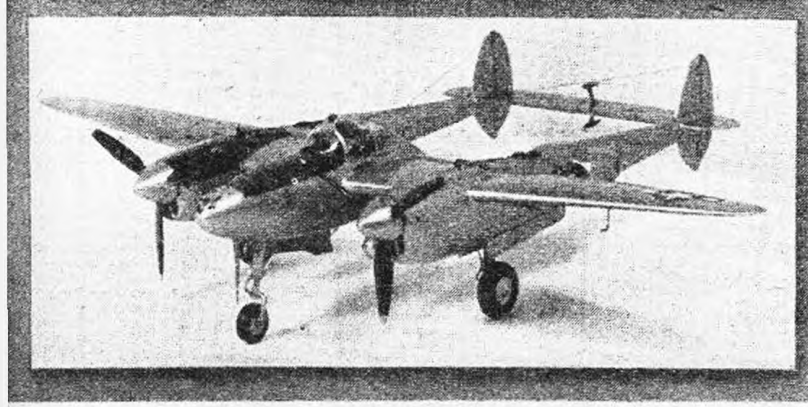
Rocket Master Howard Boys, gets his Fire Engine away in a steep climb in the photo below right, taken from the take-off area at Eaton Bray.

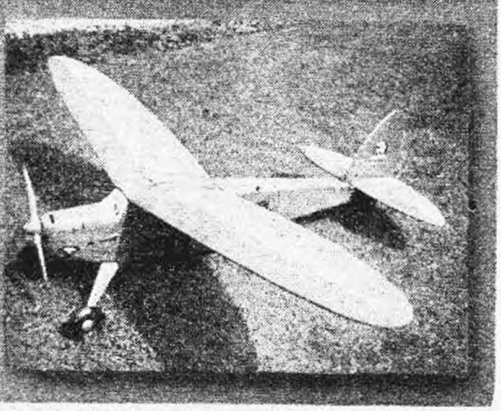
All the way from "Down Under" comes this photo of reader Arthur Salek of Karori, Wellington N.Z. A very nice model which probably owes not a little of its elegant finish to the Californian Redwood used for its construction.

The petrol model that has pumped straight into the affections of aeromodellers both old and young, the Bowden Contest design enjoys an encore with yet another beautifully made replica built by Private Webb of Beckenham, and powered with a Mayesco 4·5 which has proved by make an ideal combination.

That Phil, weak from Exhibition worries, rolls over and firmly hibernates until February.







EATON BRAY CALENDAR

1947

Aeromodellers' Guide to the Principal Events of the 1947 Flying Season

Date	Prizes Value	Event
APRIL 5-7	£30	Easter Week-end Opening Meeting. Contests for rubber duration, sailplane and power models. Novelty events.
APRIL 13	£5	General Flying with events arranged for duration, sailplane and power models according to popular demand.
APRIL 20	£10	"Russell" Power Trophy for Petrol and Diesel-engined Models. Rules to be announced, but will embrace all classes of power models. Duration and sailplane events according to demand.
APRIL 27	£5	General Flying—duration, sailplane and power events.
MAY 4	£5	General Flying—duration, sailplane and power events.
MAY 11	£10	Spring Meeting. Contest for "Dorland" Models with "Dorland Trophy," value £20, and valuable prize list. Duration and Sailplane events.

Date	Prizes Value	Event
JULY 6	£30	Aeromodelling Camp No. 2 opens on Saturday, 5th. Special Summer Meeting for duration, sailplane and power models. Novelty events.
JULY 13	£5	Aeromodelling Camp No. 2 closes, with special contest for students. General Flying and events according to popular demand.
JULY 20	£5	General Flying—duration and sailplane contests according to popular demand.
JULY 27	£30	Saturday, 26th—International Camp opens. International events for sailplanes, waterplanes, experimental models and power. Twenty-five ft. diameter take off ponds available to entrants.
AUG. 3-4	£30	August Bank Holiday—3-day meeting. Sunday—Special Trade Display. Monday—Final events in International contests, including rubber duration, Wakefield type and power contests. Award of "Aeromodeller" 100 Guinea Trophy to Victor Ludorum.
AUG. 10	£5	General Flying, duration, sailplane and power contests according to demand.

MAY 18	£5	General Flying—duration, sailplane and power events according to popular demand.
MAY 25-26	£30	Whitsun Meeting for Model Cars. Opening of the Power Boat Pond. Details of contests and rules to be announced. General Flying according to demand.
JUNE 1	£10	Aeromodelling Camp No. 1 opens Saturday, 30th May. Grand Sailplane Trophy Contest with valuable prizes added. General Flying.
JUNE 8	£5	General Flying. Contest for Aeromodelling Camp No. 1 students. End of Aeromodelling Camp No. 1.
JUNE 15	£5	Genera Flying—duration, sailplane and power events according to popular demand.
JUNE 22	£10	Flying Scale Trophy, value £20. Rules to be announced, but open to all types of flying scale models both rubber driven and powered, where duration alone will not necessarily be the deciding factor. General Flying.
JUNE 29	£5	General Flying—duration, sailplane and power events according to popular demand.

AUG. 17	£10	Saturday, 16th. Aeromodelling Camp No. 3 opens. Special Flying Boat Trophy Contest on the Eaton Bray take-off ponds. General Flying.
AUG. 24	£5	General Flying—duration, sailplane and power events according to popular demand. Special Camp No. 3 contest for students; end of camp.
AUG. 31	£5	General Flying—duration, sailplane and power contests according to popular demand.
SEPT. 7	£30	Saturday, 6th—Aeromodelling Camp No. 4 opens. Autumn Meeting to compete for "Victory" Challenge Cup, value £20, for duration models. Other events for sailplanes, power and novelties.
SEPT. 14	£5	Camp No. 4 closes with special contest for students. General Flying—duration, sailplane and power contests according to popular demand.
SEPT. 21	£5	General Flying—duration, sailplane and power contests according to popular demand.
SEPT. 28	£10	Tailless Event for Pterodactyl Trophy. Value £20. General Flying.

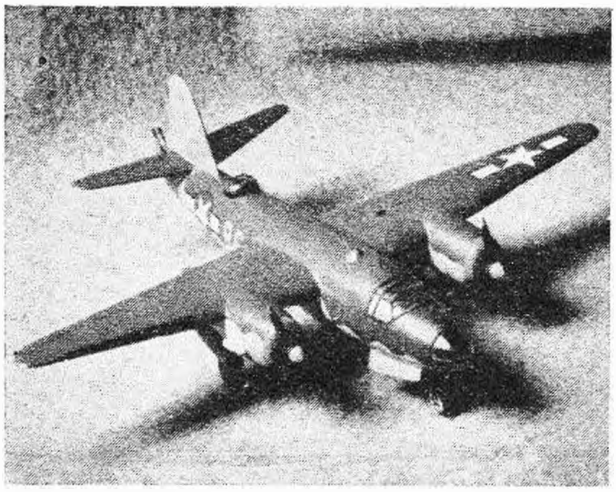
★ Four Camps will be run during the season, each limited to 25 visitors, who will be accommodated, fed and given expert instruction in various aspects of aeromodelling with famous guest lecturers. Full particulars and prices on request. Early booking is essential as numbers are strictly limited.

★★ The Eaton Bray Coach will meet Leighton Buzzard trains every Sunday and return to connect in the evening. Seats must be reserved in advance and tickets for the return trip are available, price 1/-, or book of 6 tickets for 5/-. Similar Coaches will be run on holiday Mondays.

★★★ Pocket size reproductions of this Calendar free on application, or same size wall-calendars. State your requirements and head letters or postcards "Calendar."

EATON BRAY MODEL SPORTSDROME

BILLINGTON ROAD, STANBRIDGE, NR. LEIGHTON BUZZARD, BEDS



A pleasing 1/72nd Marauder built by L.A.C. Kelly whilst on occupation duties in Europe.

AIRCRAFT IN MINIATURE, Pt. II

BY W. O. DOYLEND

SCALE drawings form the basis of construction of all models and the model maker is fortunate enough nowadays to be able to obtain many good books of drawings on the 1/72nd scale. Sheet drawings of a wide range of aircraft types, both British and foreign, are available.

The majority of these drawings are detailed and accurate, and by following them closely it is possible to turn out a most authentic replica. It is always a good plan, however, to supplement the information shown in drawings by paying close attention to any photographs of the type in question which may be available. Photographs will also be indispensable for details of correct painting, markings and lettering when the model has reached the finishing stage. Any reliable sketches of the aircraft or detailed parts should also be examined, and if it is possible, a close study of the actual aeroplane may reveal many points which might not be clearly shown in either drawings or photographs. The successful model maker will always endeavour to obtain a very clear idea of the characteristics of the particular type which he wishes to portray, and a detailed examination of all available illustrations will be well repaid. It is through an attention to accuracy and detail that the vast difference between a good and a bad modeller is obtained.

For one who intends to pursue the hobby on a fairly large scale, it will be more convenient to have all photographs, drawings and sketches filed in such a way that any particular illustration may be found instantly when required. Some sort of loose-leaf binding case is ideal for such an arrangement. The illustrations can be pasted on sheets of paper which may then be arranged in alphabetical order. Illustrations of new types of aircraft can then be placed in their correct positions when they become available.

If the modeller is a reader of some aeronautical periodical he may not wish to remove illustrations from the magazines, preferring to keep all his copies intact. In this case, some sort of index of illustrations and plans may be compiled enabling ready reference to be made to any particular type.

A good library of data and illustrations of aircraft is an indispensable adjunct to the serious modeller.

It may be desired to construct models to a different scale from that shown in the drawings being used. The occasion may also arise when the only available plans for a particular type are the small sketches which are often found in the various aeronautical magazines. When such is the case it will necessitate re-drawing the plans and scaling them up or down as required. Anyone who is a fair hand at drawing will find little difficulty in this, but the task of increasing or decreasing the scale of the plans may present a problem. The following is one method which is simple and which has been found to give accurate results in practice.

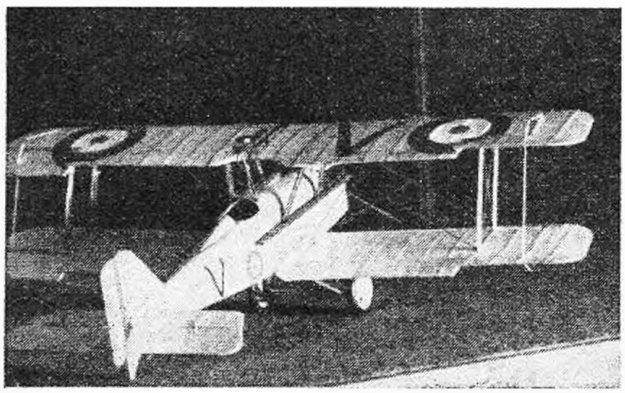
The drawings which the modeller will work from are the three-view general arrangement plans of the aircraft, that is, a plan view, side and front elevations. The overall dimensions are in most cases always given with such drawings and from these a scale may be constructed.

We will assume that the wingspan of the aircraft is 12 ft. and that it is required to re-draw the plans to a scale of 6 ft. to the inch. Therefore, the wingspan of our scale drawing will have to be 7 ins. The drawing printed in the book may be, for instance, much smaller than this.

First, a strip of paper is folded along its length to obtain a dead straight edge. The exact wingspan of the printed drawing is then marked on the folded edge. This marking is in turn pricked off on a straight line which has been drawn on a sheet of paper. Now by dividing this line into seven equal parts we shall produce a scale of inches. The following simple method is used to carry out this division.

In Fig. 1, the line A B represents the wingspan of the printed drawing. Two construction lines A D and B C are drawn at a convenient angle to A B and of any convenient length. They must, however, be parallel to each other. Now mark off seven equal divisions along the lines A D and B C commencing from A and B respectively. These intervals are marked A1, A2, etc., and B1, B2, etc., in Fig. 1. The lines joining A C, A1 B6, A2 B5, etc., will, at their intersections with A B divide that line into seven equal parts. These divisions represent inches on the printed plan. If we now divide A-A1 and C-B6 into a half, quarters, eighths, sixteenths, etc., and draw in the construction lines we shall have divided one of these "scale inches" into similar fractions. The division

Yet another fine effort by M. Crisp. This time a nicely detailed S.E.5.



marks on AB are then transferred to our original folded straight edge in the manner shown in Fig. 2, and we shall have a complete scale for use on the printed drawing. Measurements made with this scale when reproduced in true inches and fractions will enable us to re-draw the plans to the scale of 6 ft. to 1 in.

It seldom happens, however, that the designers of aircraft are thoughtful enough to arrange the dimensions of their machines so that the wingspan works out to an exact number of inches in scale! So we may be faced with the necessity of dividing our line into a number of equal parts plus a fraction of one of those parts, such as 7½ ins. (for a wingspan of 45 feet), or 7¼ ins. (for a span of 44 ft.). In such cases the principle of dividing the line remains the same, the only difference being that the odd fraction must in addition be measured off along the parallel lines AD and EC so that the fraction is either on the right or left of *both* lines. It will be appreciated that since we can choose the divisions of these two lines to suit our convenience, we can also arrange that the divisions are such that they may be easily sub-divided into the fraction required. If, for instance, it is desired to divide AB into seven and one third parts, we may use seven divisions of half an inch each on our construction lines and one division of a sixth of an inch for the odd fraction. See Fig. 3.

It should be remembered that when working to the scale of 6 ft. to 1 in. fractions of 1/12th in. will often be encountered and it may be advisable to divide one of the scale inches into twelfths or twenty-fourths in addition to that divided into eighths and sixteenths.

The following table is useful to keep in mind :—

Measurement on actual aeroplane.	*Corresponding 1/72nd scale measurement.*
6 ft.	1 in.
3 ft.	½ in.
1 ft.	1/6 in.
6 ins.	1/12 in.
3 ins.	1/24 in.
1 in.	1/72 in.

The reader will be aware that it is possible to construct a model direct from the printed drawing using the scale he has made and transferring the measurements direct to the work in true inches and fractions. This may, of course, be done if he considers that his drawing ability is not sufficiently good to enable him to prepare separate drawings or if the time at his disposal is limited. It is, however, infinitely more easy to work from full-scale plans, and the modeller is advised to prepare or obtain full size scale drawings whenever possible.

Having constructed our scale we may now turn our attention to the preparation of the three necessary drawings, the side elevation, the front elevation and the plan. The basis of each of these drawings is a datum line from which all measurements are taken and which forms, as it were, a " backbone " upon which the drawing is constructed.

In the side elevation we use the fuselage datum line. This line, which is shown in the general arrangement drawings illustrated in Fig. 5, can be drawn in any convenient position and usually may be taken through the centre of the airscrew boss at right angles to the airscrew. In the drawings of the De Havilland " Moth Minor " reproduced in Fig. 5, the fuselage datum line comes slightly below the centre of the airscrew boss and has been arranged to follow the line of the top longeron of the fuselage.

The centre line is the datum line which divides the plan and front elevation into two equal parts. On the plan drawing it passes through the centre of the airscrew boss and through the centre of the stern post of the fuselage. In the front elevation it is the vertical line passing through the centre of the airscrew boss. See Fig. 5.

The wing datum line on the plan is a straight line at right angles to the centre line. From it, measurements are taken and construction points obtained for plotting the wing outline. As with the fuselage datum, the wing datum line may be drawn in any convenient position on the plan in relation to the wing. In the case of aeroplanes having no sweep back to the wings, the leading or front edge of the wing may be used as a datum, this may be an extension of the leading edge of the centre section as in Fig. 5.

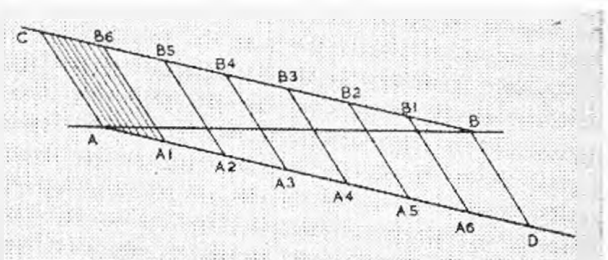


FIG. 1. CONSTRUCTING A SCALE.

FIG. 2. COMPLETED SCALE.

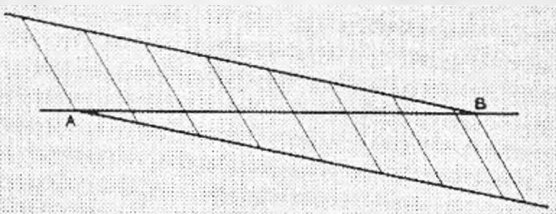


FIG. 3. CONSTRUCTING A SCALE WHICH INCLUDES A FRACTION.

FIG. 4. START OF SIDE ELEVATION DRAWING.

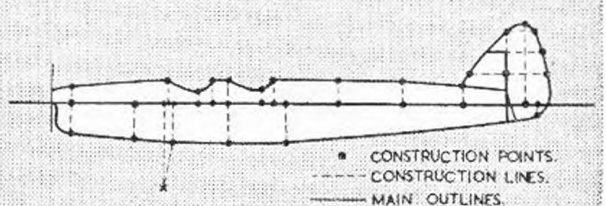
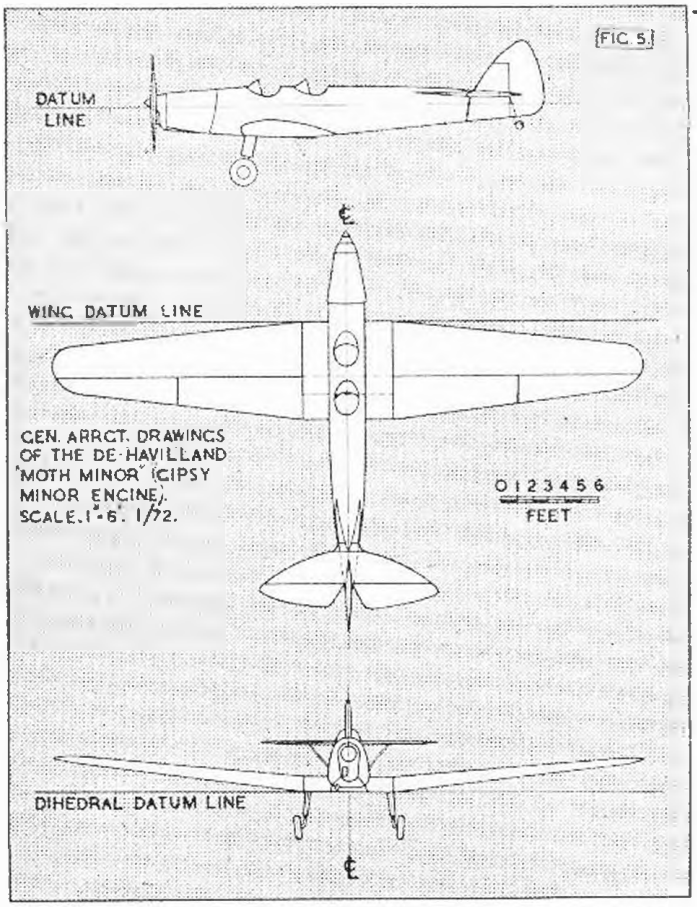


FIG. 6. PLOTTING SIDE ELEVATION.



We would emphasize that these drawings, owing to shortage of space, are purely diagrammatic and are not in actual fact to 1/72nd scale. Detailed 1/72nd drawings of the Moth Minor appeared in the November, 1946 Aeromodeller.

In the front elevation the dihedral datum line is the horizontal line touching the roots of each wing. That is, the points at which each wing meets the fuselage. As its name suggests it is used mainly in fixing the dihedral or upsweep of the wings at the wing tips.

These lines should first be marked on the printed drawing which we are going to enlarge or reduce in scale and then on the sheet on which the new plans are to be drawn. Fig. 4 shows the fuselage datum line for the Moth Minor. The length of the fuselage from nose to stern post has been marked off and the latter marking has been extended at right angles to form the rudder hinge line. When this has been done the construction points are plotted for the side elevation. This stage is shown in Fig. 6, where the various datum points which have been measured from either the nose or the stern post have been marked along the datum line. The construction lines, shown dotted, have been drawn at right angles to the datum line and the construction points marked off. These construction points have been joined up by solid lines to form the complete outline of the fuselage side elevation. It should be noted that for the purpose of clarity in these illustrations the construction points in Figs. 6, 7 and 8 have been greatly exaggerated. In practice they should be as fine as possible and the construction lines need not necessarily be drawn.

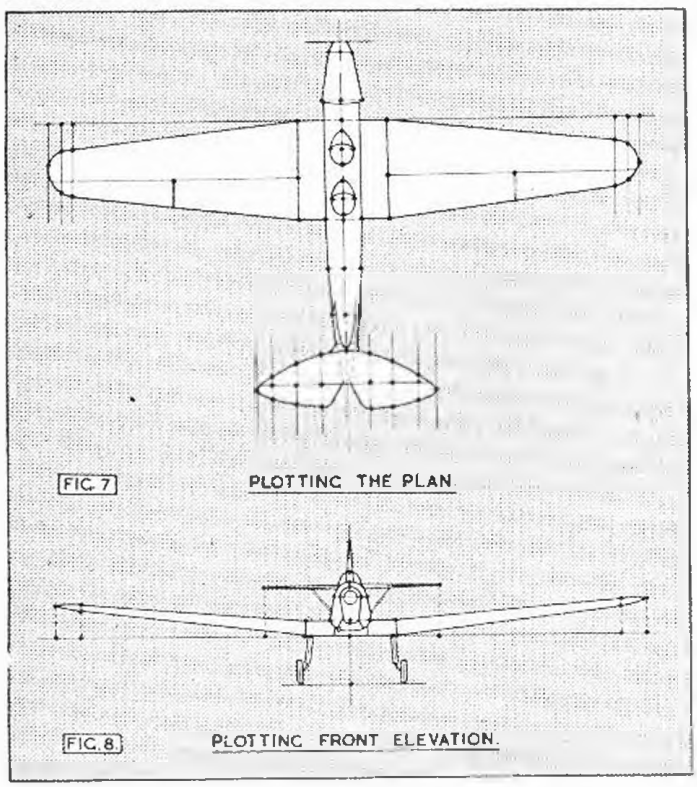
Once the main outline of the fuselage has been obtained, any panels, such as engine cowling panels, should be plotted and drawn in. The wing (or wings) and tail plane are drawn in their correct positions, still taking all measurements in relation to the datum line and the undercarriage legs and wheels drawn.

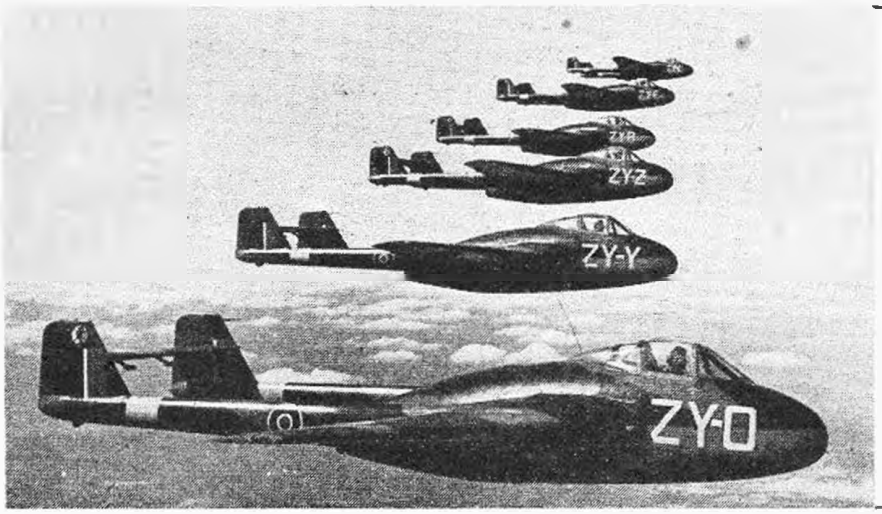
The plan view will not be nearly so formidable as the side elevation. The centre line is marked off for length from nose to stern post, as in the case of the side elevation, and the elevator hinge line which may be used as a subsidiary datum for drawing in the tail planes and elevators may be marked first. Construction points for the fuselage are then plotted on each side of the centre line and the points joined up. See Fig. 7.

The wing datum line is then drawn at right angles to the centre line and the wing plan plotted. Fig. 7 shows a method of fixing the curved lines of the wing tips and tail planes. The grids are formed by parallel lines spaced at equal intervals and the construction points measured from the wing datum line are then plotted on the grid. This method may also be used when the fuselage plan is of curved lines, the points obtained being carefully joined up freehand.

The front elevation is usually simple. Care should be taken to get the dihedral angle of the wings correct. This is plotted as shown in Fig. 8. Wheel track, thickness taper of wings and, in the case of biplanes, wing gap and the position of interplane struts are the important points of the front elevation.

The essential groundwork has now been covered and having collected the necessary tools, arranged a work bench, obtained wood and materials and prepared the scale drawings, the work on the model may be commenced.





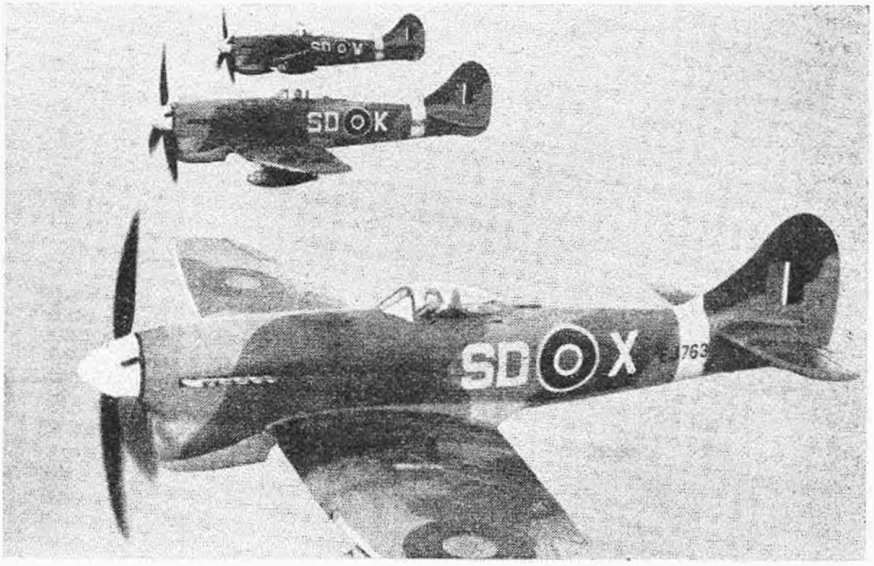
Fox.

MONTHLY MEMORANDA

by

OWEN G. THETFORD

TO complete our series of articles on the wartime markings of British and American aircraft we present in this issue a concise survey of R.A.F. fighter squadron markings. The following list of operational code lettering is the most complete so far published and will prove of immense value to solid scale modellers. Amendments and/or additions from interested readers will be particularly welcome.



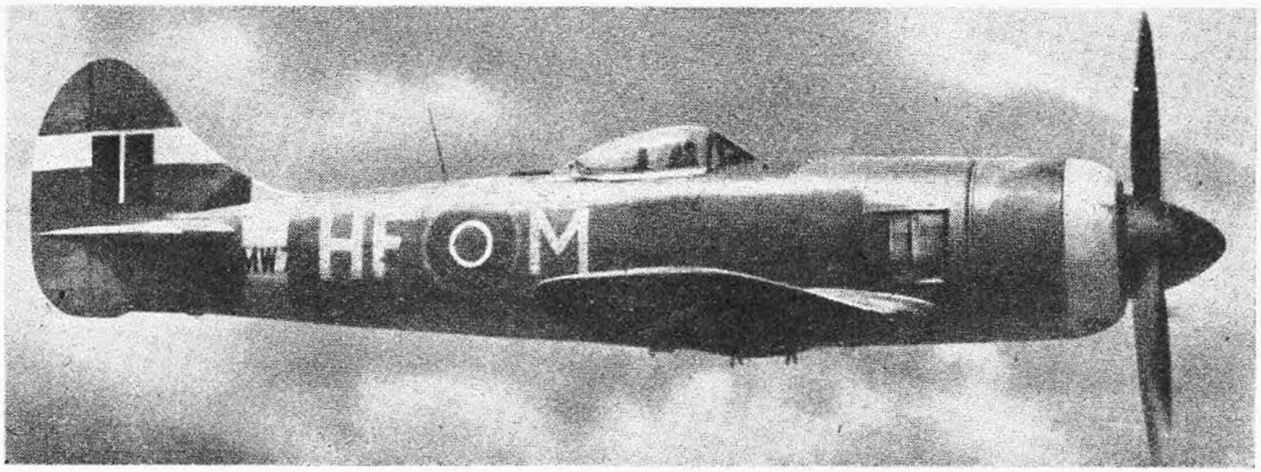
Burnalls.

(Top.) Vampires of No. 247 (F) Squadron. (1946)

(Centre.) Tempest V fighters of No. 501 (F) Squadron. (1944)

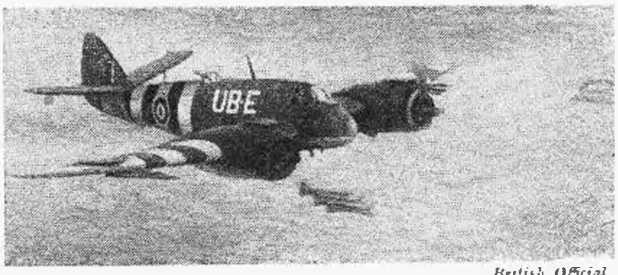
(Below.) A Tempest II of No. 54 (F) Squadron, (1946). This squadron formerly flew Typhoons.

Fox.



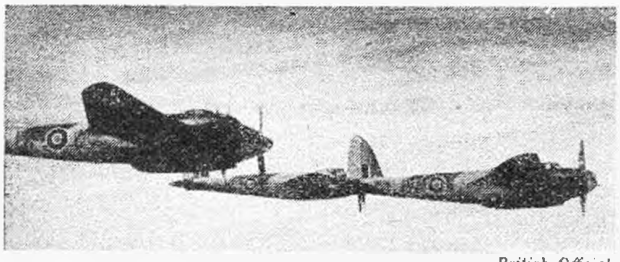
"The Aeroplane."

A Spitfire VII of No. 131 (F) Squadron. (1944)



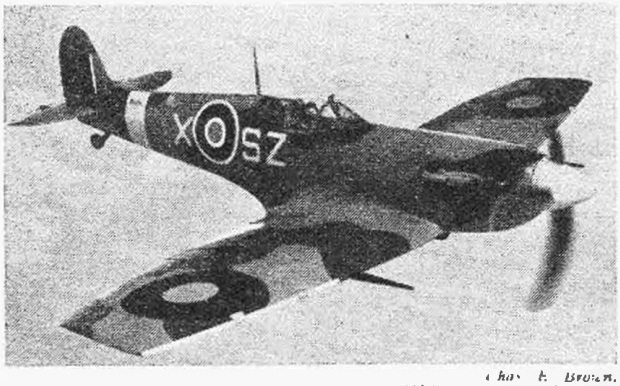
British Official

A Beaufighter X of No. 455 Squadron on a rocket strike. (1944)



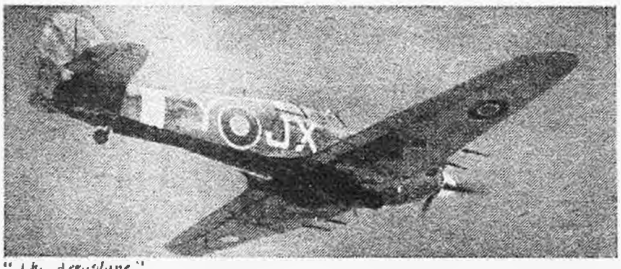
British Official.

Mosquito VI Intruders of No. 605 (F) Squadron. 1943)



Charles E. Brown.

A Spitfire XIII of No. 316 (F) Squadron (Polish). (1944). This squadron also flew Mustangs.



"The Aeroplane."

(Above.) A Hurricane II C of No. 1 (F) Squadron just before conversion to Typhoons in 1944. (Below.) A Defiant night fighter of No. 264 (F) Squadron, which later converted to Mosquitos.

Keystone.

Beaufighters.—No. 29 Sq. (RO); No. 68 Sq. (WM); No. 236 Sq. (MB); No. 254 Sq. (QM); No. 256 Sq. (JT); No. 455 Sq. (UB); No. 515 Sq. (P 3).

Defiants.—No. 256 Sq. (JT); No. 264 Sq. (PS); No. 287 Sq. (KZ).

Havocs.—No. 23 Sq. (YP); No. 85 Sq. (VY); No. 93 Sq. (HN); No. 418 Sq. (TH).

Hornets.—No. 64 Sq. (SH); No. 65 Sq. (YT).

Hurricanes.—No. 1 Sq. (LK); No. 17 Sq. (YB); No. 32 Sq. (GZ); No. 33 Sq. (NW); No. 43 Sq. (ZY); No. 56 Sq. (US); No. 71 Sq. (XR); No. 85 Sq. (VY); No. 175 Sq. (HH); No. 229 Sq. (HB); No. 245 Sq. (DX); No. 249 Sq. (GN); No. 257 Sq. (DT); No. 259 Sq. (FM); No. 303 Sq (RF); No. 310 Sq. (DU); No. 402 Sq. (AE); No. 501 Sq. (SD); No. 601 Sq. (UF).

Meteors.—No. 66 Sq. (SK); No. 74 Sq. (TM); No. 91 Sq. (DJ); No. 222 Sq. (ZD); No. 229 Sq. (HB); No. 245 Sq. (MR); No. 263 Sq. (HE); No. 616 Sq. (YQ).

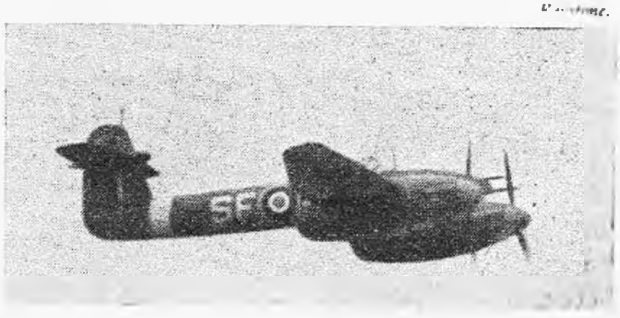
Mosquitos.—No. 23 Sq. (YP); No. 25 Sq. (ZK); No. 29 Sq. (RO); No. 68 Sq. (WM); No. 85 Sq. (VY); No. 151 Sq. (DZ); No. 157 Sq. (RS); No. 192 Sq. (DT); No. 219 Sq. (FK); No. 248 Sq. (DM); No. 256 Sq. (JT); No. 264 Sq. (PS); No. 307 Sq. (EW); No. 315 Sq. (SM); No. 406 Sq. (HU); No. 410 Sq. (RA); No. 418 Sq. (TH); No. 456 Sq. (RX); No 488 Sq (NE); No. 504 Sq. (HX); No. 605 Sq. (UP).

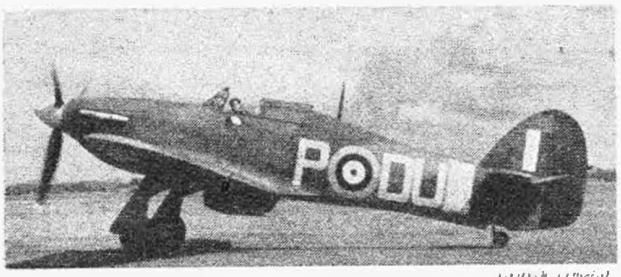
Mustangs.—No. 19 Sq. (QV); No. 64 Sq. (SH); No. 65 Sq. (YT); No. 316 Sq. (SZ); No. 400 Sq. (SP).

Spitfires.—No. 17 Sq. (YB); No. 41 (EB); No. 63 Sq. (FJ); No. 65 Sq. (YT); No. 71 Sq. (XR); No. 72 Sq. (RN); No. 92 Sq. (QJ); No. 93 Sq. (HN); No. 118 Sq. (NK); No. 121 Sq. (AV); No. 122 Sq. (MT); No. 129 Sq. (DV); No. 130 Sq. (PJ); No. 131 Sq. (NX); No. 132 Sq. (FF); No. 133 Sq. (MX); No. 136 Sq. (HM); No. 152 Sq. (UM); No. 155 Sq. (DG); No. 186 Sq. (AP); No. 222 Sq. (ZD); No. 249 Sq. (GN); No. 276 Sq. (AQ); No. 287 Sq. (KZ); No. 303 Sq. (RF); No. 308 Sq. (JH); No. 310 Sq. (DU); No. 322 Sq. (DL); No. 331 Sq. (AH); No. 340 Sq. (FU); No. 350 Sq. (MN); No. 401 Sq. (YO); No. 402 Sq. (AE); No. 403 Sq. (KH); No. 416 Sq. (DN); No. 421 Sq. (AU); No. 452 Sq. (UD); No. 485 Sq. (OU); No. 600 Sq. (MV); No. 601 Sq. (UF); No. 603 Sq. (XT); No. 604 Sq. (YN);

A Whirlwind fighter-bomber of No. 137 (F) Squadron in 1942. This unit later received Typhoons.

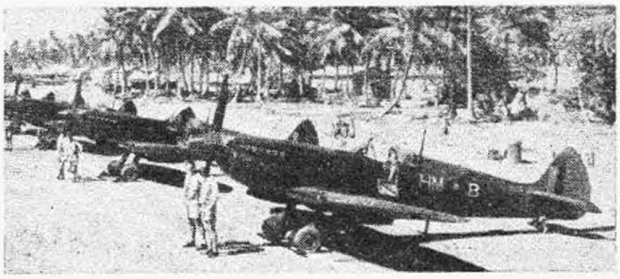
Keystone.





British Official.

A Hurricane of No. 310 (F) Squadron (Czech), which defended Liverpool from Speke in 1940-41. Note Czech insignia below cockpit. Later received the Spitfire.



British Official.

Spitfire VIII fighters of No. 136 (F) Squadron, the top scoring R.A.F. squadron of S.E.A.C. in 1945. This squadron had a "Woodpecker" badge.

No. 607 Sq. (AF) ; No. 610 Sq. (DW) ; No. 611 Sq. (FY) ; No. 615 Sq. (KW).

Tempests.—No. 3 Sq. (J5) ; No. 16 Sq. (EG) ; No. 26 Sq. (XC) ; No. 33 Sq. (5R) ; No. 54 Sq. (HF) ; No. 80 Sq. (W2) ; No. 486 Sq. (SA) ; No. 501 Sq. (SD)

Thunderbolts.—No. 60 Sq. (MU) ; No. 81 Sq. (FL) ; No. 258 Sq. (ZT) ; No. 261 Sq. (FJ).

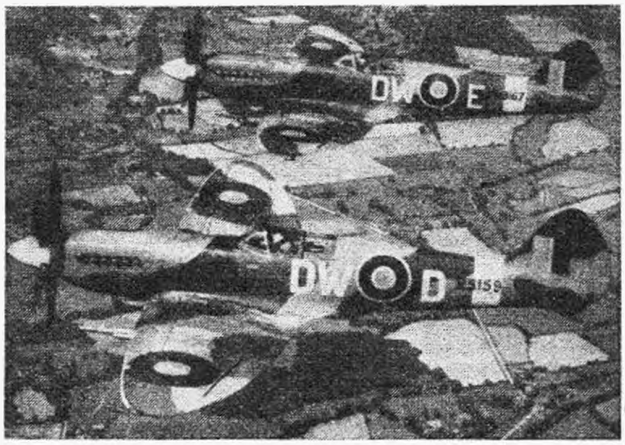
Typhoons.—No. 1 Sq. (JX) ; No. 54 Sq. (HF) ; No. 56 Sq. (US) ; No. 137 Sq. (SF) ; No. 175 Sq. (HH) ; No. 181 Sq. (EL) ; No. 182 Sq. (XM) ; No. 195 Sq. (JE) ; No. 266 Sq. (ZH) ; No. 609 Sq. (PR).

Vampires.—No. 247 Sq. (ZY).

Whirlwinds.—No. 137 Sq. (SF) ; No. 263 Sq. (HE).

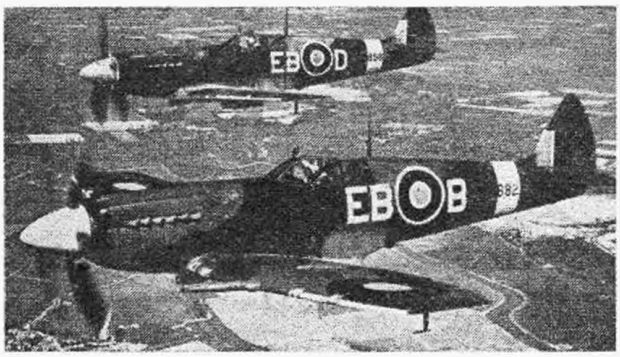
British Official.

A Beaufighter X of No. 236 Squadron, 1944).



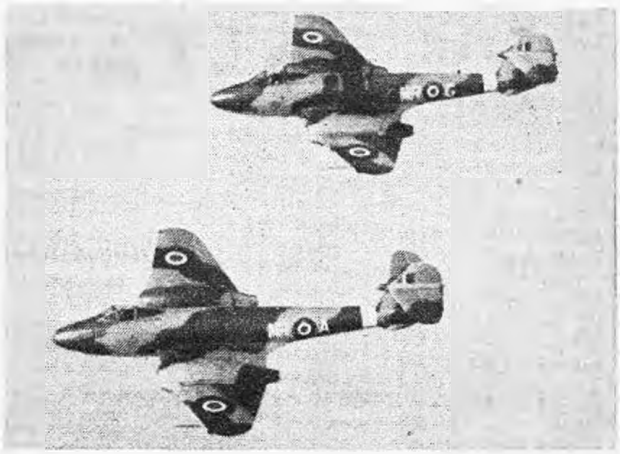
British Official.

Spitfire XIV fighters of No. 610 (F) Squadron. (1944



Flight.

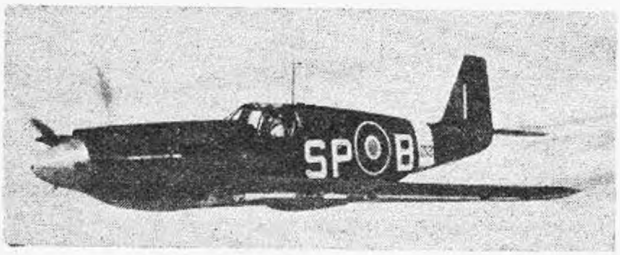
(Above) Spitfire XII fighters of No. 41 (F) Squadron (1944) and (below) a Mustang III of No 400 (F) Squadron, a Canadian unit which operated with 2nd T.A.F. in Europe in 1944-45.



Fox.

(Above) Meteor jet fighters of No. 245 (F) Squadron (1946).

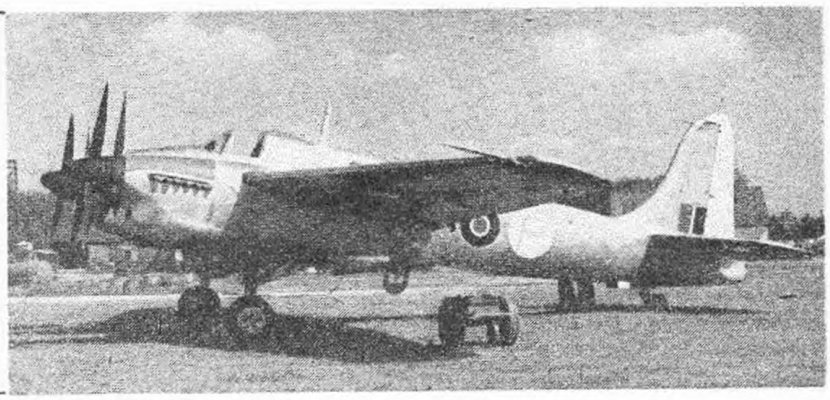
(Below) Spitfire VIII fighters of No. 607 (F) Squadron operating with S.E.A.C. This squadron was disbanded in August, 1945, and has now been reformed as an A.A.F. unit of Reserve Command.



British Official.

AEROPLANES DESCRIBED XLVI

The SHORT STURGEON



FIRST landplane military aircraft produced by Shorts since the Stirling heavy bomber, the S. A1 Sturgeon inaugurates a new class in British naval aviation. The Sturgeon is the first twin-motor aircraft designed specifically for naval use in Great Britain, the Sea Mosquito and the Sea Hornet both being derivatives of R.A.F. types.

The Sturgeon was produced to Air Ministry specification S. 11/43, and the prototype, RK 787, made its first public appearance at the display of British civil and military aircraft at the R.A.F. aerodrome at Farnborough in June, 1946.

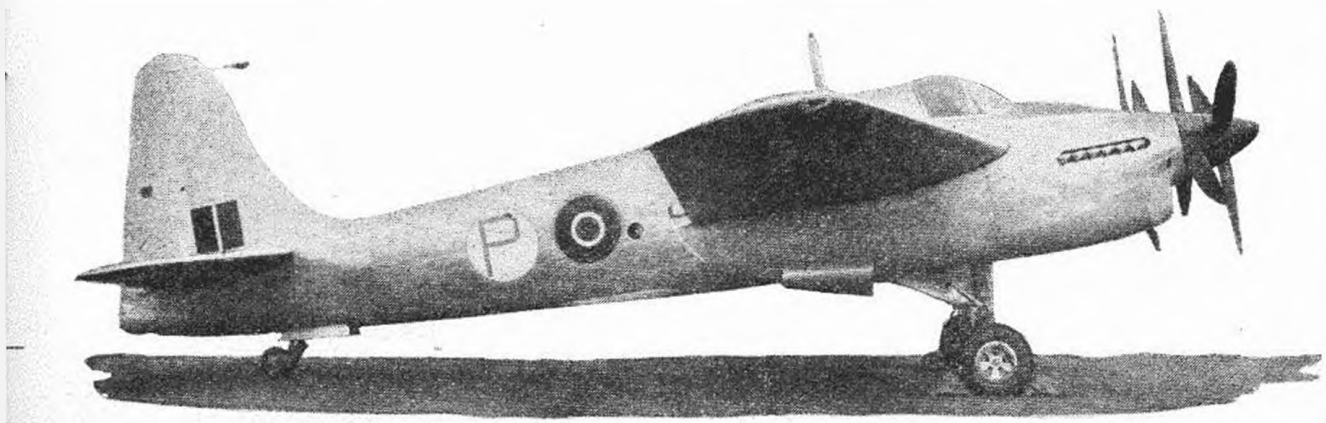
The Sturgeon is intended to operate as a three-seater reconnaissance-bomber over greater ranges than have been previously associated with naval aircraft. It represents the first attempt to produce a combination of a naval " strike " and " P.R.U." aircraft, and it is fully equipped for deck-landing with a retractable arrester hook in the rear fuselage. For offensive operations, the Sturgeon has a bomb-load of 1,000 lb. carried internally, twin ·50 in. machine-guns and eight rocket-projectiles firing forward. For long-range photographic work against enemy fleets the Sturgeon mounts three internally-stowed vertical cameras in the rear of the bomb-bay, and the bomb-load can be replaced by an additional 170 gallon auxiliary fuel tank. Radar search equipment of the latest type is mounted in the nose.

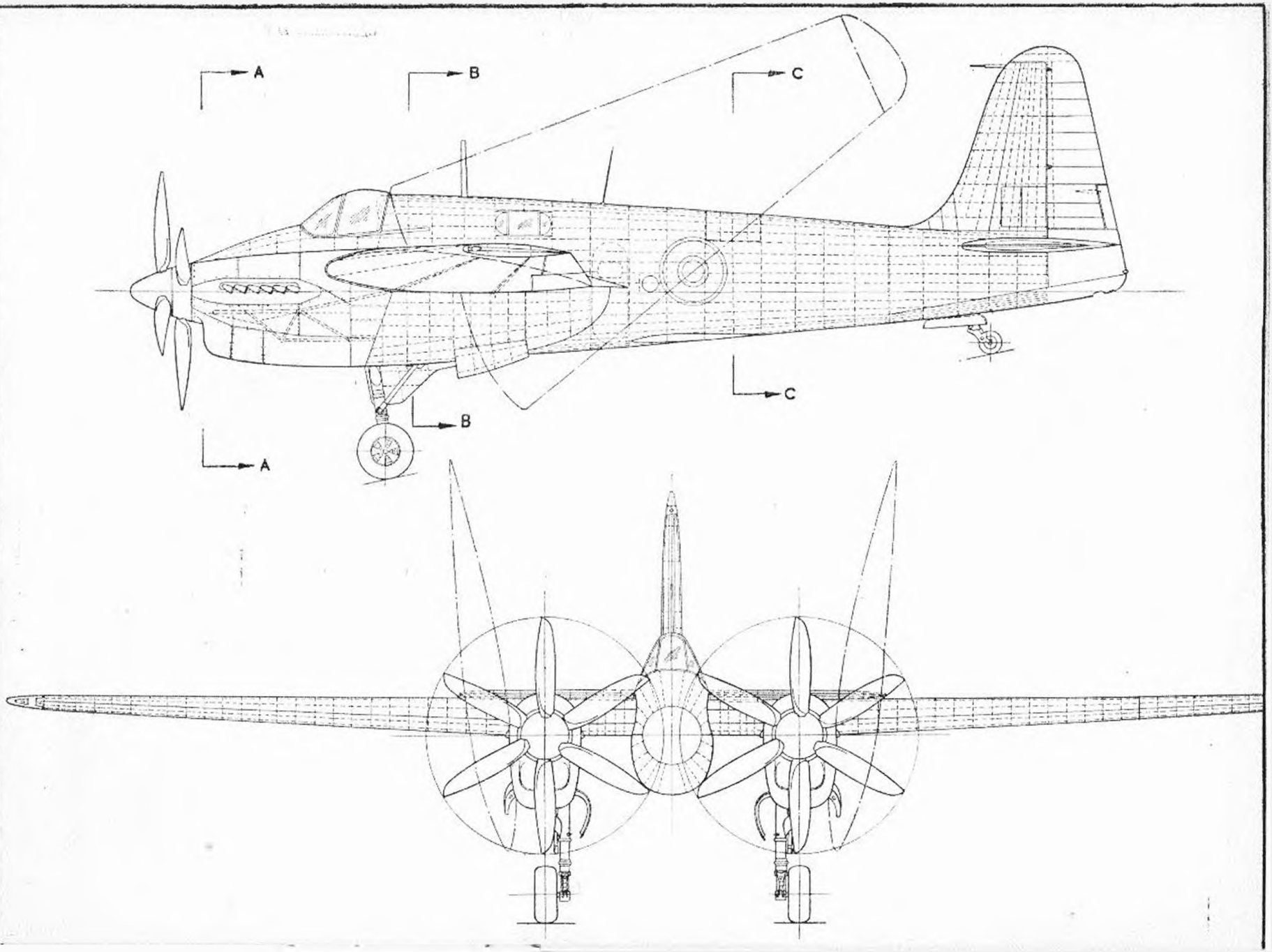
With the needs of aircraft-carrier operation in mind, the Sturgeon was designed with power-folding wings to economise in stowage space. For this reason also the twin motors were mounted close together, the diameter of the airscrews being reduced by contra rotation which provides high initial thrust and steep climb.

The Sturgeon is the first naval aircraft by Shorts since the S.10 Gurnard fighter-reconnaissance biplane of 1929, which did not go into service. The present Sturgeon is the second Short aircraft to bear the name, the first being the S.6 twin-float seaplane of 1927.

At the time of writing the Sturgeon had not been awarded a production contract and was still undergoing acceptance tests. One version of the Sturgeon is to be produced as a high speed target-tug for Fleet gunnery practice.

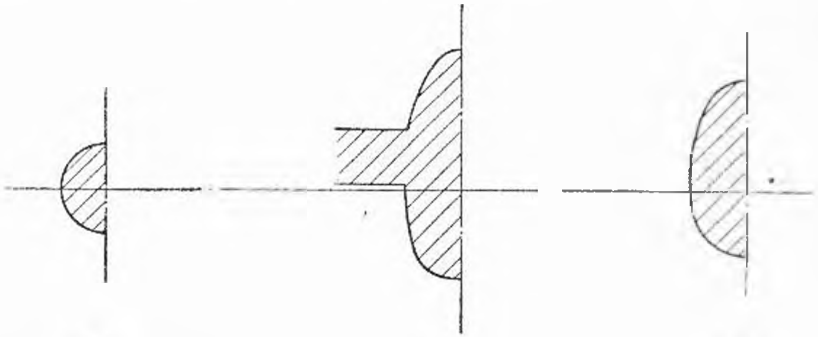
SPECIFICATION. Purpose : Three-seat shore-based or carrier-borne naval reconnaissance-bomber. *Power Plant :* Two Rolls-Royce Merlin 140S twelve-cylinder liquid-cooled vee motors, each developing a maximum power of 2,080 h.p.; all-metal construction with folding wings and retractable undercarriage; two three-blade Rotol contra-rotating airscrews. *Dimensions :* Span : 60 ft.; length : 44 ft. 7 ins.; height 14 ft. 4½ ins. *Weights :* Normal loaded : 21,800 lb.; maximum loaded : 23,300 lb. *Performance :* Maximum level speed : 430 m.p.h. at 19,000 ft.; cruising speed : 361 m.p.h. at 22,000 ft.; rate of climb : 4,120 ft./min. at sea level; range (bomber version) : 1,035 miles, (photographic version) : 1,600 miles; service ceiling (normal) : 35,700 ft., (one motor) : 23,600 ft. *Armament :* Two ·50 in. calibre Browning machine-guns firing forward and provision for eight 60 lb. rocket-projectiles (four beneath each wing). Internal bomb-stowage in the fuselage for 1,000 lb. of bombs.

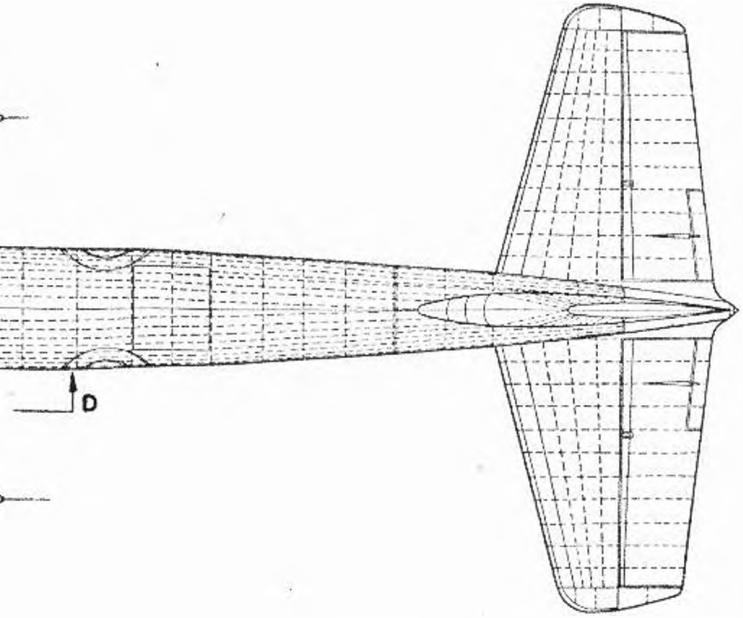



A
B
C
C
B
A

D D

SHORT STURGEON I

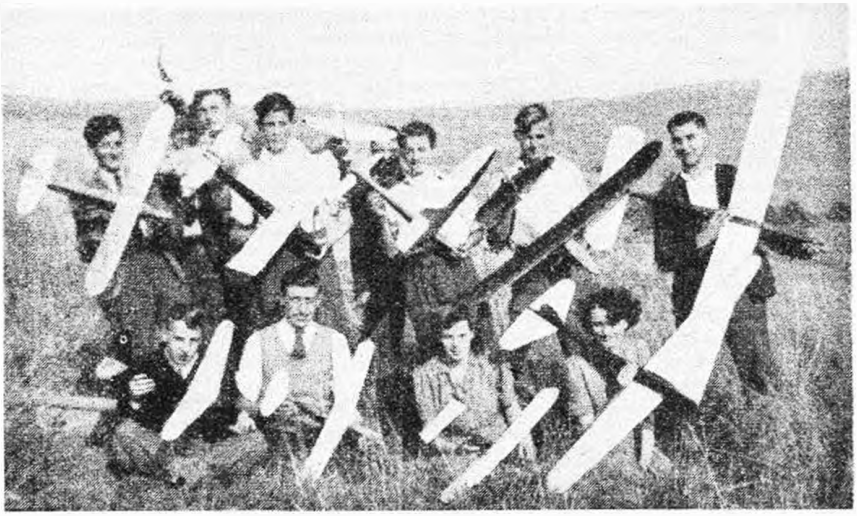




FT.

CLUB NEWS

BY CLUBMAN



Members of the Dover Youth Model Flying Club, doubtless snapped on the "white cliffs" by their Secretary, H. J. Kettle

I HAVE recently been browsing through a number of foreign periodicals, in addition to a surprisingly large number of communications from readers overseas. It is very evident that aeromodelling is catching on to an extent never before experienced, and the situation in America is getting fairly tense. The number of competitors now being dealt with at Regional and National meetings over there is becoming so heavy that moves are now being made to run off certain eliminators, with a percentage of the winners going forward to the final event. With this in mind the Institute of Air Age Activities has been created as a non-profit making educational organisation. This body will run off in co-operation with local sponsors a series of State and Regional meetings and from these events will be selected the final contestants at the Nationals.

I suggest that this is a scheme that could well be introduced over here for the better conduct of official centralised events. Whilst I am all for everyone having every opportunity to compete in these affairs, I do feel that some process of weeding out the rabbits could well be introduced with advantage all round. From the organisers' point of view they would be dealing with a known entry and could set their stall out accordingly. This would enable adequate facilities to be provided; no hold-ups owing to an unexpectedly large entry, overstraining the available supply of timekeepers, etc., and in fact every contestant would be able to receive that which he obviously expects, namely, an equal and fair chance, which I am afraid has not happened in the past where the organisation has been swamped by numbers.

This is a matter I have aired in the past, particularly in regard to the Wakefield Trials, and I suggest that it is not too soon to start thinking about this sort of thing. If eliminating events were conducted in Areas, a given proportion of the finalists could be selected, irrespective of the times put up at such eliminators, and they would all compete under the same conditions at the final meeting as indicated above. It is my opinion that a National Centralised Event with an entry of say twenty, selected by the above mentioned method would create a well conducted and keenly contested competition that would not suffer from inadequate organisation. The event could be well publicised and visitors would be ensured of a good spectacle, knowing the actual finalists.

Apart from all this, is what I consider to be the main advantage, in that the organisers of the final event are relieved of the burden of dealing with inefficient machines (and fliers!), and the latter are saved the expense of travelling to compete in an event in which they possibly stand no chance of success.

I shall be pleased to have my readers views on the above suggestions, as I am definitely of the opinion that it is to the organisation of the conduct of aeromodelling that we have to devote a great deal of time this coming season. We have the models and the fliers and it is now up to us to cater for them adequately.

After a long period of silence we have news this month from the A.B.A., who have been very busy changing premises and generally re-organising all round. The recently formed Club Section held its A.G.M. on October 26th, when Mr. G. Greaves of Hull M.A.C. was elected Chairman, Mr. A. O. Pollock (Gravesend Aero Club) Secretary, and Messrs. Gunn (West Coventry), Davison (Pegasus) and Housman (Portsmouth) as Committee Members. The current issue of the A.B.A. News carries a somewhat pithy editorial regarding possible future petrol model regulations. It is to be regretted that the Editor did not first trouble to elicit the true facts of the case!

For some time past a film has been in the making with the collaboration of the S.M.A.E., the main purpose of which is to popularise the building and flying of model aircraft as a general introduction to aeronautics. I have not had the opportunity of seeing this film yet but I understand the show is just about to go on circuit. A 16 mm. version is also under preparation for hire to clubs, etc. for private showing, and all enquiries regarding this film should be made direct to the S.M.A.E. Hon. Secretary.

An interesting communication received from the **RAND M.A.C.** gives a fair picture of the activities of that very busy group. With a membership of some 180 this club is very well organised, even up to the point of providing transport from Johannesburg out to their flying ground! To quote a few of the times obtained at some of their meetings makes interesting comparison for clubs in this country. At the July meeting F. P. Basson averaged 6 : 39.6 to win the petrol event; E. R. Hill averaged 4 : 20.5 in the rubber contest, and T. C. Mason 1 : 09.8 for gliders. At the August meeting A. Connolly improved on the rubber times by averaging

1 : 46, whilst S. Housman pushed the glider average up to 2 : 43. At a Records Meeting held in September, Basson turned in a time of 13 : 40 with 30 seconds maximum engine run ; Connolly made a flight of 3 : 10 with his rubber duration job, and Housman clocked 7 : 09 in the glider class.

The **LONGVIEW M.A.C.** had their Gala Day on the 15th September in more senses than one—the weather practically washing out all flying. Indoor flying meetings are now taking place on alternate Saturdays in the St. George's Church hut, where some good flying can be seen.

Twelve days later saw almost similar conditions when the **FARNHAM M.A.C.** held its first flying meeting on Hankley Common. The wind was so strong, few models could make headway against it, and the cold hands of the "rubber" fans meant many grounded models! However, in spite of all this, some good flights were put up, a noteworthy and very consistent performer being N. Thorne, flying his canard type model. This model I am told has a climbing angle of more than 70 degrees, and a very low sinking speed. M. Billet showed those present that a flying wing can put up some good times when properly trimmed but is very sensitive to both rudder and aileron. Comp. results were :—

Glider.	J. Crossley	3 : 10	agg.
	N. Thorne	2 : 23	"
	B. Jacques	1 : 28	"
Rubber.	J. Crossley	2 : 35	"
	N. Thorne	2 : 16	"
	D. Poulter	1 : 31	"

The **WEST COVENTRY M.A.C.** has got well away with its winter programme after rounding off a successful outdoor season. The popularity of indoor flying is evidenced by the large number of members attending, and models flown, ranging through orthodox, microfilm and speed types. A. J. Barr won a recent r.t.p. contest with an aggregate time of 4 : 39.3, runner up being Mr. Dudley of the Kenilworth branch with a time of 2 : 9.8.

Someone must get down to a spot of dog training round Rugby way! A recent competition of the **RUGBY M.A.S.** was livened up by the antics of a terrier, who wound up the day by eating one bloke's fuselage!! In spite of this diversion, and the high wind, C. H. Reading aggregated 1 : 54 to win the event, with L. Turner second 1 : 48, and D. Evans third with 1 : 45. Turner put in the best flight of the day with his "Isis," time 1 : 06 o.o.s.

D. Hellwell has again won the **DONCASTER & D.M.F.C.** Club Championship Cup, gaining most points over three events held during the season, with M. Hethermgton a close second. The recent exhibition staged proved a great success with plenty of activity to keep the crowds amused. Good use was made of two electrically driven models, whilst a certain amount of diversion was created by running a petrol driven model race car around the pole! Mr. Cuttriss's film show was highly appreciated by all.

E. J. Horner of the **PEGASUS POWER CLUB** put in some good flying towards the end of the season, winning the Keil Trophy at the last Eaton Bray meeting of the year and later setting up a fine flight of 6 : 15 o.o.s. on an 18 second motor run. E. Blackburn almost equalled this by a flight of 6 : 00 o.o.s. on a 25 second run—both models being recovered some days later.

Although activities have been almost nil for some time, the **BEVERLEY & D.M.A.C.** is still hanging together and the few members left are anxious to get the club back on its feet and organise a full flying programme for the coming season. Anyone in the district who is interested in joining or supporting the club in any way is asked to get in touch with the Hon. Sec., Mr. R. Skinner, 20, Norwood, Beverley, E. Yorks.

Gliders have been the main attraction in the **SPRING-PARK M.A.C.** owing to the rubber shortage earlier in the year. Consistent rather than record breaking flights have been the order, and Mick Farthing gliders have proved themselves very popular. Records to date are 7 : 00 by V. Attfield, the junior figure of 3 : 42·8 being held by R. Carter. The club's annual prize giving combined with a show of work was a great success, over sixty models being on show, with indoor flying also in progress. Prizes for the best exhibits went to D. Proctor for a finely finished Wakefield, V. Leach for his unfinished Copland Wakefield, and V. Attfield for his "Nomad" glider, which showed extremely good workmanship and finish.

Progress is steady with the **HASTINGS A.M.C.** and the club is building up nicely. Indoor flying meetings are being held fortnightly, best time to date being 51 secs. by C. Laker.

The **LIVERPOOL M.A.S.** has been reformed. Will past members and those wishing to join the Society contact Mrs. Dillon of 5, King George's Drive, Port Sunlight, Cheshire.

Since changing their club name, the **PLYMOUTH M.F.C.** have greatly increased their membership, total now being towards the sixty mark. Though minus a clubroom, they have use of a Works canteen and a naval hall for indoor flying—at no charge! R.T.P. work has caught on with a vengeance, and the pressure on the pole gets heavier every week.

It is reported that the late Windsor M.A.C. (Manchester) is about to be revived under the new title of **SOUTH MANCHESTER AEROMODS.** Will any members of the old club, and any interested new members please contact the temporary Hon. Sec., G. K. Bletcher, 2, Leacroft Road, Choriton-cum-Hardy, Manchester, 21, as soon as possible.

Some pretty good times have been put up at the first two meetings of the **COVENTRY & D.M.A.C.** indoor season, and now that a new venue for flying has been obtained, members are taking more interest in the free flying class. R. Toms recently raised the club r.t.p. (Class A) record to 3 : 23·5 with a low-wing "mike" job, while his second string made a flip of 2 : 42, which with A. Barr's 2 : 48 made the club total of 8 : 53·5 for the October S.M.A.E. Contest.

The **CARDIFF M.A.C.** collaborated with the local Engineering Society to put on an exhibition in November, when over fifty models were on show ranging from small solids to hefty petrol jobs. Outstanding aircraft exhibits were Bud Morgan's "Spearhead," H. J. Watkin's "Premier Lion," and L. Popham's own design model. Morgan lost his diesel powered model after a flight of 5 : 00 o.o.s.—recovered after a frantic two-day search.

The indoor season is in full swing with the **SOUTH-EAST BIRMINGHAM M.A.C.** Results of a recent contest night were :—

Free Flying.	R. Oliver	2 : 30·5	agg. of two flights
	J. Phelps	1 : 34·5	" " " "
	K. Thomas	1 : 13·5	" " " "
R.T.P.	K. Thomas	4 : 50	" " " "
	T. J. Patrick	4 : 45·1	" " " "

M/s. A. Pearson and Son of the **DARLINGTON M.A.C.** flew the first club diesel powered model in

November off Croft Aerodrome with dubious results! The model, a 66 inch span high wing cabin job powered with a 5 c.c. "Owat" shifted the trimming weight after a heavy landing, and the next flight ended with a full power dive—engine finishing up half-way down the fuselage!! Fortunately the engine appears to be none the worse for the mishap, but the fuselage . . . !

During the past few months, R. Astles of the **SALE AERO CLUB** has been giving instruction to the local Women's Junior Air Corps. The result, a well built "Mick Farthing Glider" subsequently beat the field in both the hand and tow-launched events at a club meeting, beating the rest by a large margin.

The **MERSEYSIDE M.A.S.** entertained the St. Helens M.A.C. to an indoor r.t.p. meeting, teams of four competing with both Class A and B models. Both clubs were equal in the Class A event, but Merseyside scored seven points to St. Helens' three in the B class event. Times are not given, which is a pity. I appeal to all clubs to include such material in their reports, as this makes interesting comparison for readers.

W. Baker of 23, Barnett Street, Wordsley, near Stourbridge, wishes to start a club in that area, and hopes readers in that district will contact him without delay in order to get cracking.

An appeal comes from M. Green of "Holly Mount," Snowhill, Copthorne, Sussex (an ex-member of the Grimsby club), for aeromodellers in the East Grinstead area to get in touch with him, presumably with a view to starting a club.

And so, back to my model bench, to get stuck up once again with that good old cement! Yes, that long promised model is taking shape, slowly it is true, but none the less surely. Seems the old mousetrap has not lost his skill at putting 'em together, but the question of the moment is—as ever—will it fly!! Time alone will tell. Details are a State secret at the moment, but I can tell you it is powered with a .8 c.c. diesel acquired after much pigeon English, plus the smuggling of one or two sheets of filthy lucre. Well, as ever chaps—keep 'em flying, and, for the next few weeks at any rate, get building.

THE CLUBMAN.

NEW CLUBS.

HIGHFIELD A.C.
W. D. Flanagan, "Acre View," Lower Luton Road, Watford Harpenden, Herts.

SAFFRON WALDEN & D.M.A.C.
B. Daw, 6, Mandeville Road, Saffron Walden, Essex.

THE CITY M.C.
J. Wright, 18, Kingston Avenue, Beurpark, Co. Durham.

EAST KENT M.A.C.
P. F. Barlow, "Highland," Staines Hill, Sturry, Nr. Canterbury, Kent.

SOUTH MANCHESTER AEROMODS.
G. K. Bletcher, 2, Lescroft Road, Chorlton-cum-Hardy, Manchester.

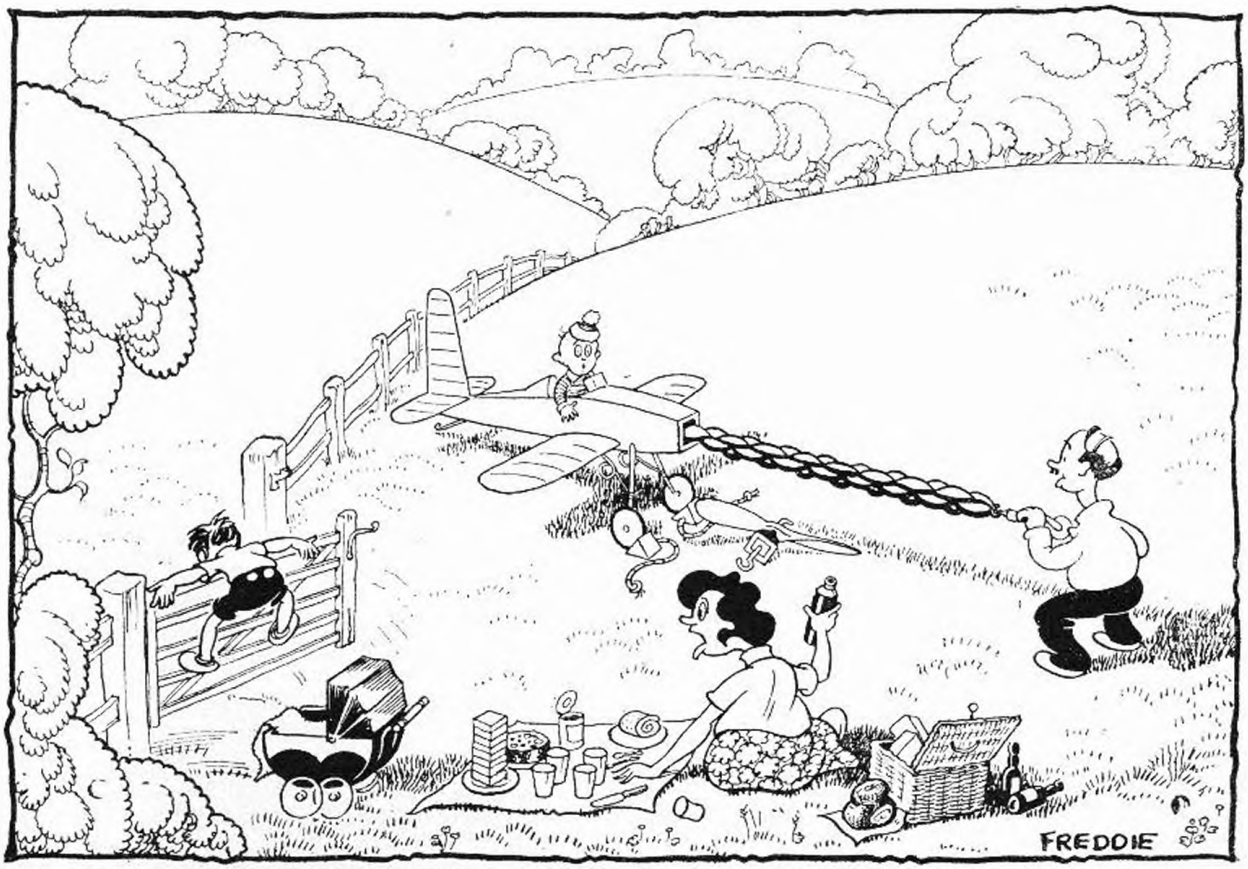
SECRETARIAL CHANGES.

WHITEFIELD YOUTH M.A.C.
N. Wakefield, 100, St. Anne's Road, Prestwich, Manchester, Lancs.

GLASGOW M.A.C.
I. N. Mailer, 75, Walnut Road, Glasgow, N.

LIVERPOOL M.A.S.
Mrs. Dillon, 5, King George's Drive, Port Sunlight, Cheshire.

CHINGFORD M.F.C.
A. Hand, 169, Normanshire Drive, South Chingford, E.4, Essex.



"ERNIE, STOP SWINGING ON THAT GATE, YOU'LL BREAK YOUR NECK"

CLASSIFIED ADVERTISEMENTS

PRESS DATE for March issue—February 1st.
ADVERTISEMENT RATES;

Private Minimum 18 words 3s., and 2d. per word for each subsequent word.
Trade Minimum 18 words 6s., and 4d. 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 DISPOSAL

James, "All the World's Aircraft," 1921. Excellent condition. Offers to Mayes, 134, Milton Street, Kingsley, Northampton.

Ohlsson "23," Firecracker coil, ship timer, etc., in well-finished model, ready to fly, £14. Also Ivory Grill, 42". "A.F.P." Vols. I, III to VI, as new, £5. Nearest offers accepted.—Turner, 3, Riverdale Road, E. Twickenham, Middlesex.

Atlas 8 c.c. engine, ignition coil, matched condenser, plug and 10 in. propeller, only run for half-hour on test block, £6.—11, Beadle, 3, Blake Hall Road, Wanstead, E.11.

Racing car, 40 c.c., special Brown engine, all duralumin job. On show M.E. Exhibition, seen running any evening. What offers? —J. K. Morgan, 33, Monkham Crescent, Greenford, Middlesex.

Majesco 1·5 c.c. engine, just run in, complete with two propellers, three plugs, coil condenser and timer. First offer over £6. 10s. secures.—Goodman, 15, Killarney Road, Wandsworth, London.

Post-war "Ohlsson 60" powered 8 ft. span Parasol model. Similar to original "K-4" layout, excellent weight-lifter, very stable and ideally suited for radio control. Covered parachute nylon all over celastic doped. Fitted 4 in. M.S. wheels, ship timer and mahogany airscrew. Has clocked total of more than 75 minutes this summer. Model would require to be collected from address below. First offer £15 secures.—Thomson, Officers' Mess, R.A.F., West Raynham, Norfolk.

Scorpion, petrol model, with timer, less engine, covered, also pair 3½ in. airwheels, unused, £5 the lot.—Brooks, 10, Alpine Avenue, Tolworth, Surrey.

Atlas 3·5 c.c. petrol engine with prop., timer, new, unused, perfect condition. Cost £9.10s. Offers.—Dringwell, Newdown, Devon.

Frog 1·75 c.c. engine, brand-new, complete with accumulator, compression excellent, bench run only, £5. 10s.—Box 45.

6 c.c. petrol engine, complete, £5. 5s. Junior 60 petrol kit. Air wheels and timer, £3.—28, Garusboro Drive, Newark, Notts.

20 AEROMODELLERS from June, 1944, 11 "Sailplane and Glider," from August, 1948.—Gates, 6, Glenwood Avenue, Rainham, Essex.

AEROMODELLERS, January, 1939—December, 1941, in perfect condition. Offers to F. Ivory, 89, Marsden Lane, Aylestone, Leicester.

Two brand-new engines, 3·5 c.c. Atlas and 8 c.c. Atom Minor, both complete. Would accept any reasonable exchange. Write—D. Gilleonney, 3, Burns Road, Sutton Manor, St. Helens, Lancs.

Brand-new 10 c.c. petrol engine, test run only. Complete coil, condenser, £7. D. Greenslade, Sunnyhome, Park Street, Torquay.

AEROMODELLERS, January, 1942—December, 1946. Good condition, 27/- 6d. post free. "A.F.P." Vols. I and II, sealed, 5s. 0d. each.—Cooper, 58, Newcombe Road, Coventry.

"Peacemaker," with Baby Cyclone, timer, rider wheels, £9. 15s. "Southern Star" (Shadlex Cup Winner, 1939), with Brown Junior, timer, rider wheels, £8. 15s. Both engines excellent, plans and instruction books. "Spitfire," 25 c.c. prop, coil, condenser, £2. 8 oz. Nife Battery as new, 18s. 6d.—Rowe, Bredy, Burton-Bradstock, Bridport.

11 AEROMODELLERS, 9d. each or 7s. 6d. "A.F.P., Vols. III, IV, 18s. 6d. each. "A.F.P., V, 22s. 6d. "A.T.C. Gazettes," 1941-45, 3d. each. Also many other aircraft books.—5d, Kenmore Avenue, Kenton, Middlesex.

Copies of "R.P. News," 1944 September, 1946, 1 missing. AEROMODELLERS, 1941-September, 1946. "Flight" and "Aeroplane," 120 copies, 1944-1946. All in excellent condition. £5 lot or nearest.—Mathews, 55, Abbey Bridge, Lenton, Nottingham.

For sale, Owar 5 c.c. compression ignition engine, plus accessories, etc.—Maitland, William Pearons Bank, 150, St. Ann Street, Manchester.

"Aeroplane Spotters," Nos. 74-174, 1942-1946, £1. 10s. "A.F.P." Vol. III, 16s. 6d.—Goulding, 9, Second Avenue, Dawson Heights, Torquay.

Baldi miniature camera, F2·9, 1-1 500 second compur, cheap, quick sale required.—Tunery, Elder Close Gardens, North Lane, Leeds, 8.

REQUIRED

Ohlsson 23 or 19, Forster 28 or Elf engine, complete, good condition essential. For cash or exchange 18 AEROMODELLERS and 6 rubber models with cash adjustment.—J. L. Roberts, East Coker Road, Yeovil.

Back copies of "Popular Flying," "Air Stories." Also photos, literature, Air War 1.—J. C. Brierley, 211, Halifax Road, Rochdale, Lancs.

—continued on page 160

CLASSIFIED ADVERTISEMENTS—*continued from page 148*

EXCHANGE

Air Cadet, silk-covered fuselage, 40 in. streamlined sailplane, 30 in. model yacht, in exchange for petrol engine or offers.—A. L. Gwynn-Glyndene, Knutsford Road, Alderley Edge, Cheshire.

Model twin cylinder marine steam engine for petrol engine. Without coil, etc., accepted.—S. Winford, 17, Goldsmith Road, Peckham, S.E.15.

TRADE

Save time. All kits cut out ready for assembly. Discounts to clubs, etc. Any model built up, new ideas put into production.—L. Winter, Model Suppliers, 8, Croft, Hailsham, Sussex.

1/48th Blueprints, fully detailed. Meteor, Reliant, Tempest, Tiger-cat, Vampire, etc., 1s. 0d. each. S.A.E. for list. Trade enquiries invited.—A. J. S., 32, Cumberland Avenue, Welling, Kent.

Make your own engine. Atom Six designed by Westbury. Castings and blueprint, 34s. 3d. post paid. Also all accessories, rings, plugs, etc.—Headingley Motor and Engineering Co., Ltd., 8, Otley Road, Leeds, 6.

High-class watch repairs. 7-day service, satisfaction guaranteed. Excellent quality dope, 3s. 0d. half pint.—E. Thompson, Halton, Lancaster.

Sussex Aeromodellers. We stock a large selection of leading model aircraft kits, petrol and diesel engines, balsa, accessories of all kinds. Books, etc. Expert advice willingly given on all classes of Model Aircraft. Models perfectly made to order. Price list on receipt of S.A.E.—Welkane, Ltd., 69, Susan's Road, Eastbourne. Open all day each weekday.

TRADE DISPLAYED

Approximately 3,000 stabilette complete kits of parts to make model aircraft—mostly Flying Fortress and Mosquito—for bulk disposal. Absolutely new.

Boxed with full instructions and working diagrams.

What offers ?—Box 44.

SITUATIONS REQUIRED

Draughtsman—ex-R.A.F. pilot. Keen aeromodellist. Desires position in model aircraft industry. London area preferred but not obligatory. Fully equipped for private work.—P. E. Brett, 29, Worple Way, Harrow, Middlesex.

Competent draughtsman and aeromodeller requires position. Preferably in Midlands area. Write—Perrott, Manor House, Brimpsfield, Ludlow, Salop.

WEST LONDON'S PREMIER MODEL SHOP

JONES BROS., of CHISWICK

All the well-known FLYING & SOLID KITS.
BALSA, OBECHE, SPRUCE, BIRCH & ACCESSORIES
Mail Orders Receive Prompt Attention
Ships Kits & Fittings. Aero Castings. Send 3d. for New List

56, Turnham Green Terrace, W.4. Phone: CHI 0858

BALSA WOOD BARGAINS BY POST

1/16 & 1/8 × 36" 1d. 1/16 & 1/8 × 36" 1d. 1/4 & 1/2 × 36" 2½d.
1 × 1½ 36" 2/6 1/4 & 1/2 × 3 36" 7d.

Write for full price list of Balsa wood, post free 4d.
Postage and packing extra on all orders.

THE SCOTIA MODEL CO.
40 CHAMBERS STREET EDINBURGH 1 Phone: 32053

ALLISON & MONTGOMERY

20th Century Kits
● No. 19. "Sprite Soarer," 11 ins. span. 1/6 post 3d.
● No. 23. "Goblin Glider," 20 ins. span 2/6 4d.
● No. 21. "Pixie Sailplane," 32 ins. span 5/6 6d.

Dealers: we have ample stocks of above fast selling Kits
Order now for Xmas.

273, HIGH STREET, KIRKCALDY, FIFE, SCOTLAND.

NOW OPEN.

G. C. JONES.

All the best Solid and Flying Kits. Ship and Lorry Kits. Balsa. Dopes. Transfers. Cements. Cockpit Covers. Plans and full range of accessories for all Model makers. PERSPEX in all thicknesses. Send S.A.E. for lists.

23, Clements Rd., Broadway, ILFORD, ESSEX.
(2 doors from G.P.O.)

A. N. CUTLER

For Dopes, Tissues, Cements, Propellers, etc. In fact, all accessories for the Aero Modeller for solid and flying kits. Stockist of Drome Studiette, Keil Kraft, Astral, Cloudcraft, Skyleada, Truscale, Halfax, C.M.A., etc.

BRIDGE STREET WORCESTER
Phone: WORCESTER 4137.

REDCAR MODEL SHOP
82, STATION ROAD

The following kits are now in stock:—

FROG: Fairy 6/9. Dart 2/6. Vanda 8/6. Beau Gliders 1, 2 and 3. Baby Gull 8/3. Wotsacraft Rosa 4/11.
KEIL KRAFT. Orion 3/6. Soarer Baby 5/-. Soarer Major 11/6. Ajax 5/6. Achilles 3/8. Invader 6/6. Polaris 2/6.
All Kits by
C.M.A. Airyda Skyleada Ato Veron and Veronic.

THE MODEL SHOPS (Tom Horseman & Son)
17a Whitcombe St., Aberdare, Glam. 4 Hamilton St., Mountain Ash, Glam.

Stockists of Keilkraft Skyleada, Airyda, Astral, Drome, Halfax, Solid and Flying Kits. Balsa Wood, Cements, Dopes, Plans, Accessories of all kinds for rubber or petrol driven Planes, Gliders, Galleons, etc.

Mechanair 6 c.c. engines, £8 8 0. Mills 1-3 Diesel engine £5 5 6. "Spook" all-balsa flying wing Glider 1/6 post 3d. K.K. Scorpion, 44" petrol or diesel, kit £2 7 6, post free, less engine. K.K. Junior 60" for 6 c.c. engines, kit £2 19 6, post free, less engine. Send 3d. in stamps for 1947 lists.

MODELLERS IN EAST MIDLANDS
WE HAVE THE LARGEST STOCKS IN THE DISTRICT OF BALSA, DOPES, CEMENTS, TISSUE, PROPS 4"—18", ETC.
FULL RANGE OF PATHFINDER AEROCASTINGS
VERONITE, TRUSCALE, KEIL KRAFT, SKYLEADA, FROG, SEACRAFT, PETROL, FLYING, SOLID & SHIP KITS.

POST, PHONE or CALL AT (PHONE PETERBOROUGH 3808)
OLIVER CARLEY, 33 LINCOLN RD. PETERBOROUGH

BALSA WOOD
Wholesale Only
Latest lists post free.
J. S. Wreford Ltd., 24 North St., Romford, Essex.

YORKSHIRE AEROMODELLISTS
There are things to delight the hearts of all Aeromodellers in Yorkshire's "pukka" model shops.
SKYCRAFT, LTD., 39a, Boar Lane, LEEDS
BRADFORD A.M. CO., LTD. Godwin Street, BRADFORD
NICHOLL & BROWN, Commercial St., HALIFAX

JORDANS—EXTENSION OF PREMISES

EVERYTHING FOR THE MODEL ENTHUSIAST
Sole District Agents for FALCON ENGINES and 1066 ACCESSORIES.
133-5-7 ST. ANN'S WELL ROAD, NOTTINGHAM
634 MANSFIELD ROAD, SHERWOOD, NOTTM.

SYD TONGE-S, The MODEL SHOP CHELTENHAM.

¼ & ½ Rubber. Tissue paper. Colours. Keil Craft. Petrol Models. Junior £2-19-6. Scorpin £2-7-6.

FLYING KITS: Polydi 14 6. Ajax 5 6. Achilles 3 8. Orion 3 6. Strato Baby 5/-. Major Soarer 5 ft. 11 6. Minor Soarer 4 ft. 8/-. Baby Soarer 3 ft. 5/-. Minimoa 7/-. Invader 6 6. Victory 4/-. Polaris 2 6. Vega 1 3. Spook 1 6. Flying Scale 5 6. *Postage extra.*
Aeromodellers Posted Monthly A-F Power in Stock.

J. McGarrigle & Sons for Model Aircraft & Ship Kits.
Distributors of "AIRYDA," "ATOM," "DRAGONFLY," "SQUADRON," "VERON" flying and solid kits. Schooners, Yachts, Galleons, etc. All accessories. Model ship fittings, dopes, balsa wood, cement, "ROM" crystal clear cockpit covers, rubber lubricants, etc., etc.
Trade Enquiries Invited. Usual Trade Discounts
Retail List 3d. "BOWMAN" Engines, retail.
43 Purbeck Road, Romford, Essex.

AERO MODELLERS *YOU CAN OBTAIN BY RETURN POST THESE FAMOUS KITS*

Gliders:—Ato 52/- 18/- Plans only 3/- Ato 36" 7/3 Club Planes 6/-
Ato 30" 5/- Ato Elf 2/4
Duration:—Club "Blue Bird" 11/- Club "White Wings" 8/-
Ato 22" 6/- and Club Moth 4/-
All Prices include Postage. Direct from

T. FITTON (Model Specialist)
4, ANN TERRACE, NORWICH RD., E. DEREHAM

ZIMPLAN TOY CHARTS

● No. 10044 Toy Engine and Tender. ● No. 20044 Toy Mechanical Shovel. ● No. 30044 Toy Tipping Lorry. ● No. 40044, Toy Paddle Steamer. ● No. 50044, Toys for outdoors. ● No. 60044, Toy Fort. 9d. each from principal handicraft shops or by post (add 3d. postage).

ZIMPLAN, 88 Ware Road, Hoddesdon, Herts

"72nd Solid B 29 Super Fort Kit 19/6 Post 9d 25" span

"Cloud Tickler" Mick Farthings 30" Duration Model Kit 15/6 Post 9d

52" "Air King" Petrol Model Plans only 12/6 Post 6d

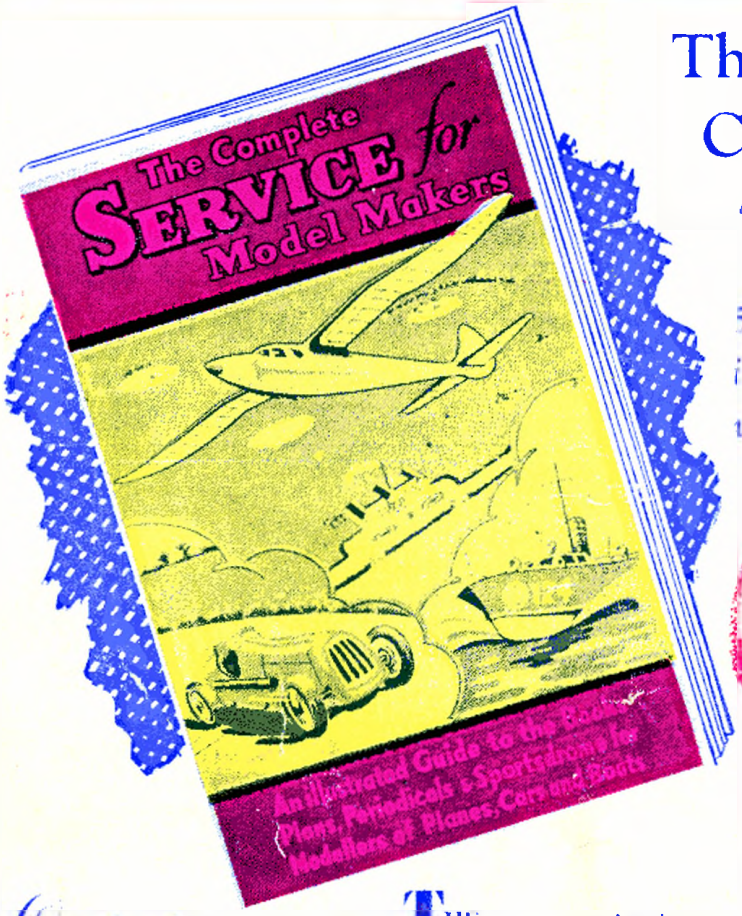
AIR KING MODELS, 213, London Road, Mitcham

LIVERPOOL MODEL AIRCRAFT SHOP
PROMPT POSTAL SERVICE

We hold the most comprehensive stock of kits and accessories on Merseyside. Sole district agents for 1066 PRODUCTS (FALCON ENGINES), PREMIER KITS and LEESIL DIESEL.
Latest plan "JUNIOR GULL" 48" Sailplane, an enlarged modified version of the well known "BABY GULL" 3/3 Post free.
Other plans: "JUDY" 3/3, "IVORY GULL" 2/6, "DABCHICK" 3/-, "REDBREAST" 2/9, "SNAPPY" 1/4 Post free.
402, PARK ROAD, DINGLE, LIVERPOOL 8
Trams Nos. 1, 3, and 20 pass the door.

"TIP-TOP" SERVICE FOR ALL
KITS, PLANS, BOOKS and ACCESSORIES—
for Every Class of Modeller!
Good stock of Wood and Dopes now available. Send S.A.E. for list and with all enquiries to:
"TIP-TOP" MODEL AIRCRAFT STORES *Tel. 73105.*
10, KINGSTON ROAD, PORTSMOUTH.

Made and printed in Great Britain by Adlard & Son, Ltd., London and Dorking, for the Proprietors and Publishers, The Model Aeronautical Press, Ltd., 38-39, Hatton Garden, London, E.C.1. Registered at the General Post Office as a newspaper for transmission by Canada by the Magazine Post.



The Model-maker's Complete Guide

AND CATALOGUE

52 Pages of useful information—brightly written and lavishly ILLUSTRATED

Just Out!

Contents:—

- Descriptions of plans and working drawings for all types of model aircraft — Flying scale, Semi-scale, Duration, Glider, Sailplane, Indoor and Micro-film also Model Car and Speed Launches.
- Lists of 1/72nd scale reference plans for British and Foreign Military and Civil Aircraft.
- News of new books and of books on models, aero-modelling and aircraft generally, also model cars and launches, petrol and diesel engines.
- A Report on Britain's first Model Sportsdrome.
- Introducing two new magazines for model makers.
- How to build tapered wings easily.
- Camouflage — official colour schemes.
- Why professionally built models look so good.
- Learning aerodynamics from a wind tunnel.
- Racing model cars on the track.
- The wisdom of Insurance for your models.
- And other items of interest

THE most comprehensive catalogue for the model maker yet published! A book-catalogue to guide and advise you; holding your interest from cover to cover with its essential information on all aspects of modelling.

Although published at one shilling, this book of model Service is worth double, for the time and trouble you can save. You will find in "The Complete SERVICE for Model Makers" how, where, when and what to get for modelling without tears—see the brief contents list on the left.

This guide to better modelling not only deals fully with model aircraft, but includes model cars and power driven launches. Don't risk disappointment, call or write for your copy to-day.

Obtainable from your local Model-shop or Bookseller or send direct to—

THE HARBOROUGH PUBLISHING CO. LIMITED
Allen House, Newarke Street, Leicester.

PUBLISHED PRICE
1/-

Copies on Sale at Dorland Hall during the Exhibition!