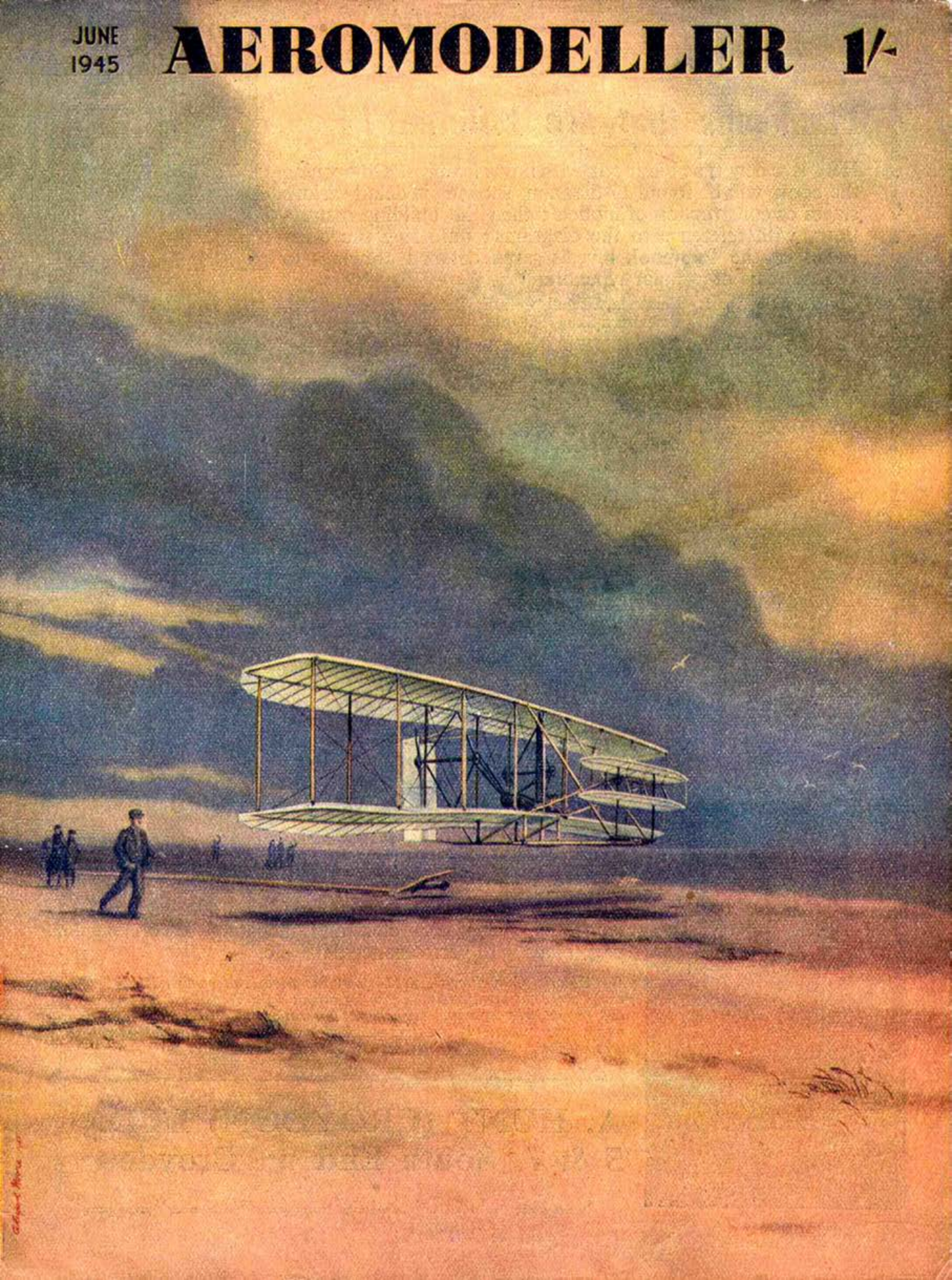


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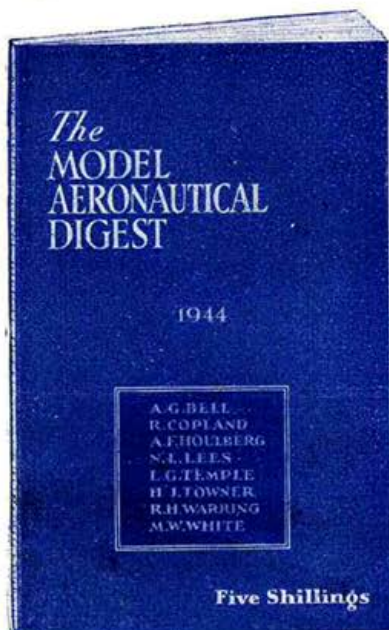
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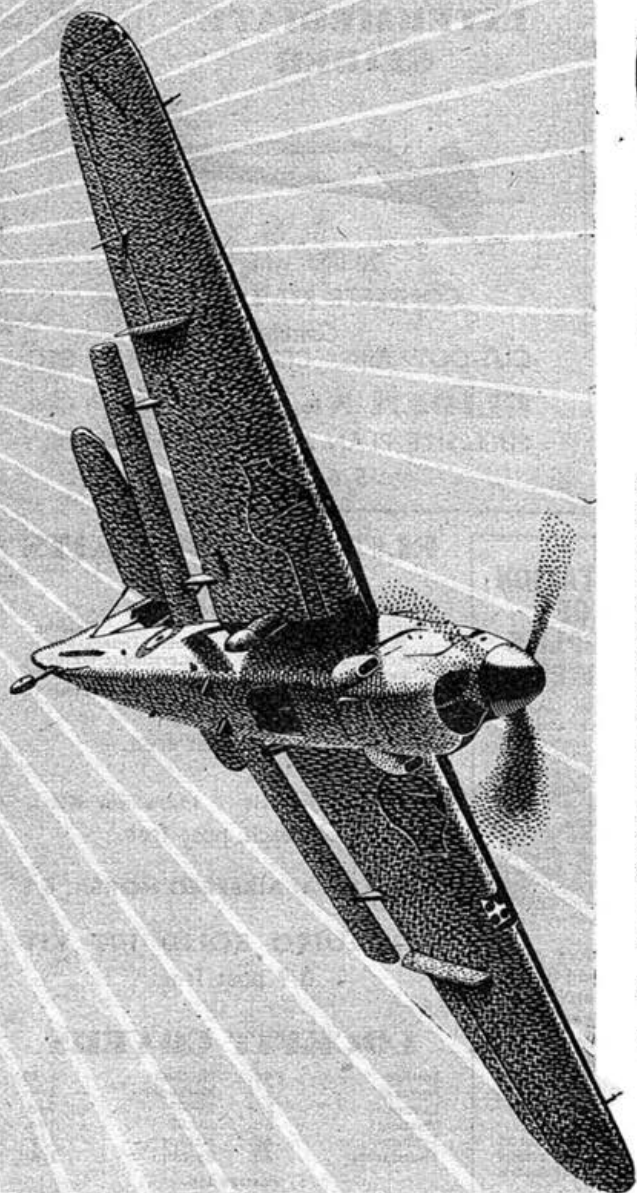
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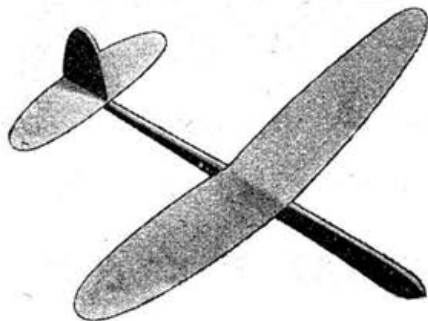
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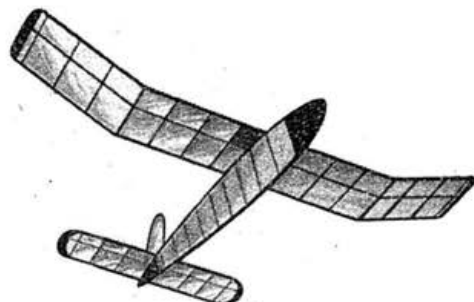


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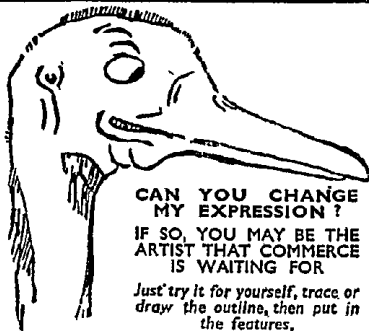
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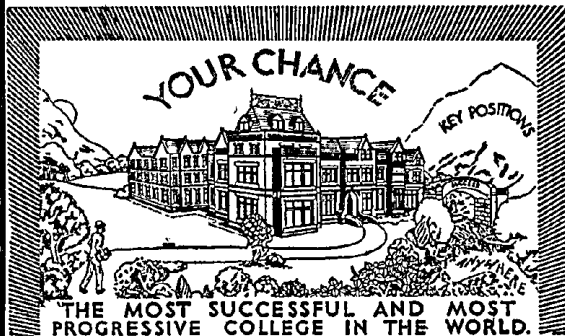
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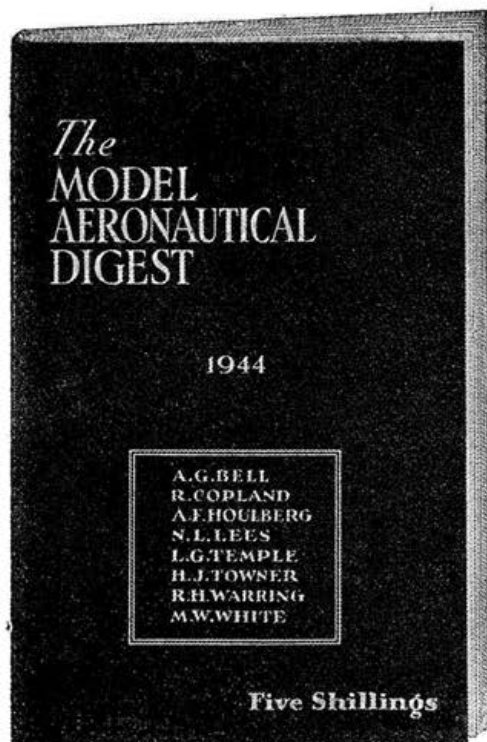
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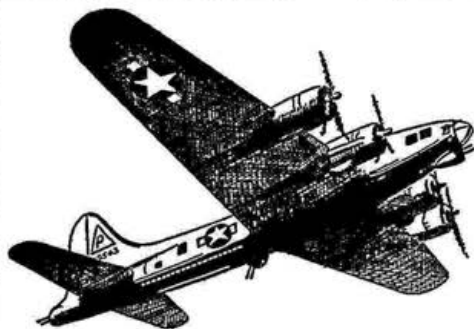
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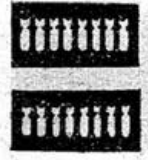
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VOL. X

No. 114

JUNE, 1945

POLLING DAY

In this issue, on page 363, we are publishing the form on which readers are asked to indicate their preferences in the matter of articles appearing in the AEROMODELLER.

The idea of this census of readers' opinions on this subject, it will be recalled, arose from the spate of correspondence that had been received in recent months. Various viewpoints had been expressed, and having already referred to these at some length we had not originally intended to offer any further comments. However, a letter from a valued correspondent, a Mr. J. H. M. Smith, contains some observations of a character so conducive to the balanced and unbiassed attitude of mind desirable in filling in the voting form that we feel an extract from it should prove beneficial.

Mr. Smith begins by making the excellent point—often overlooked—that flight is not fundamentally a human invention, but a natural phenomenon which man has succeeded in reproducing by means of what may be termed "synthetic flying creatures." He goes on to define theory as the describing of facts in nature (to the best of the theoriser's ability, of course), and practice as the demonstration of those facts; theory and practice, therefore, being complementary.

He adduces by way of example a green pea sown in the ground a short distance from a stick. When the plant has grown sufficiently to bring it above ground level, says Mr. Smith, it does not spread around indiscriminately, but makes a bee-line (a pea-line seems more appropriate!) for that desirable stick and proceeds to climb around it. "The pea, presumably, forms a theory about the usefulness of sticks not immediately within reach, and goes on to put it into practice *without quarrelling with itself*." And Mr. Smith asks, pointedly, "Need we?"

This, we feel, puts the relationship between theory and practice in proper perspective, and before that vision is lost or some pressing engagement supervenes, we would beg readers to turn to the polling form and deal with it.

The form, it will be seen, contains a list of 32 subjects for articles in the AEROMODELLER, and readers are asked to select 20 only and number them in the order of their preference. That will leave 12 subjects unchosen.

Let us take a hypothetical case by way of example. Suppose the reader's principal interest is in petrol models. Obviously, he will place the figure 1 in the square opposite the line "Petrol Models." Doubtless, he will be interested, too, in articles on petrol motors, so figure 2, and perhaps figures 3 and 4 will be placed in certain of the squares opposite the various sizes of motors. A reader so mechanically-minded may very well be interested in jet propulsion, and so place the next figure opposite "Power units other than petrol motors." Again, he may be interested in designing his own models, if not already doing so, in which case he will cast a vote for articles on "Design," and probably another for articles on "Construction."

This imaginary reader may be interested, too, to some extent at any rate, in rubber-driven models, and perhaps solids, and so he will go on casting votes, ceasing when he reaches the number 20. He may not be interested in full-size aircraft, and that will decide several of the eight squares to be left blank.

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Subscription rate 15/- per annum prepaid (Including Christmas Double Number).

Other readers will doubtless have quite a different range of interests, and so, if *everyone* will go to the trouble of voting, instead of reserving his views for airing on a later and far less appropriate occasion—a very prevalent human failing—we should be able to secure a really reliable cross-section of opinion on this basic question of what types of articles are favoured by the majority.

One other important feature concerning the AEROMODELLER, on which we are anxious to receive the benefit of Readers' opinions, is the size. At the foot of the Census form will be found two squares, one for the present

size of 7½ in. by 9½ in. and the other for our "pre-war" size of 8½ in. by 11 in. Indicate your choice by placing a X in the appropriate square, remembering that the larger size must necessitate a slightly smaller number of pages but will, of course, contain more material per page. The opposite will, of course, apply to the smaller size page.

So let us have the voting forms in thousands—filled in after careful and open-minded consideration, and posted to our Leicester office as soon as possible, so that our staff can make an early start on the not inconsiderable job of sorting and working out the results of the poll.

Mother Nature's Challenge

To see things in true perspective is not only an aid to the expression of a worthwhile opinion *via* the medium of a polling form, but also an essential to the shedding of prejudices that bar the way to the sound judgment that every aircraft designer needs, whether working on full-scale types or models. A sure sign that we are hidebound and timorous in our thinking is the facile labelling as a fool the fellow whose ideas and practices differ from our own.

These observations are prompted by some interesting facts and pertinent comments contained in the letter from Mr. J. H. M. Smith, from which we have already quoted. We rightly pride ourselves, he says, on the Atlantic air ferry service, but we should not forget that the wild geese beat us to it by many thousands of years. There is still much, therefore, to learn from Mother Nature. With the approach of the breeding season the older geese will fly hundreds of miles from their winter billets to the breeding grounds, leaving the young unmated geese to follow when the colonies are established. But, should a bird fail to complete the journey to the breeding ground, or die after arrival there, *another of the same sex will immediately set out from the "pool" to*

fill the vacancy!

Obviously, that bird has picked up a long-distance signal, and Mr. Smith comments to the effect that some men can sometimes receive communications other than by the normal channels of the eye or the ear, but as we are too mentally conditioned by history and our narrow experience to develop the appropriate faculties, we look askance at such persons, and airily dismiss the achievement of the birds as the blind following of instinct.

Surely, he goes on, the key to this nature mystery lies in the fact that the light we can detect with the naked eye, the light that we can feel (heat), the light that the photographic plate registers, the light that the radio can pick up, and the light that most animals and some humans seem able to attune themselves to, differ only in the matter of frequency.

In other words, there are vast tracts of life of which we have no experience whatever, and today's impossibilities become tomorrow's commonplaces. And the moral is the obvious one that we widen our mental horizon in recognising these things, and are enabled the more nearly to relate our theories to reality and so hasten true progress.

Boeing "Model Boys"

When Boeing's, the producers of the Fortress and Super-Fortress, design a new type of aeroplane, the fellows in the photograph which we reproduce below build the first one—in miniature—for testing out in the wind-tunnel. Shop 29, in which they are employed, concentrates on constructing models for aerodynamic research, and since 1928 has made miniatures of all

Boeing designs, ranging in size from the 2 ft. wing span of the "66" to the 37 ft. 6 in. of the model of the XB-15.

All these "model boys" have trophies and medals to testify to the fact that they are champion model plane builders in the more familiar sense of the term. Shop 29 had its genesis 17 years ago when 19-year-old Phil Dickert (seen on the extreme left of the photograph

comparing a display model of an early torpedo bomber with the wind-tunnel of the original Fortress) attracted the attention of Boeing's by carving two little biplanes out of wood and winning two important prizes with them. The firm promptly offered him a job building solids. His first "shop" was a bench in the wood-working shed, and his first products were for display purposes. In 1929, work began on jobs for the wind-tunnel. Other builders joined Dickert, and in 1943 the "model boys," now numbering 49, moved to their present quarters at the new wind-tunnel. Dickert is now general foreman.



For each type of 'plane tested in the tunnel several different models are needed. The simplest is the block model, a duplicate of the design outline in laminated mahogany and maple, used in low-speed tunnels to check the flying characteristics. Then there is the dynamic model, with its weight distribution approximating to that of the new design, which enables the C.G. position to be ascertained. There is also a model in solid metal, able to withstand the strain of a 700 miles-an-hour synthetic gale! And there are a cooling model for testing air ducts, and a special rig for testing wing sections.

Three New Harborough Publications

A twelve-gun fighter with fixed undercarriage, yet nearly as fast as a Spitfire, and built in nine weeks during the Battle of Britain—the "M.20" is only one of many interesting designs described and illustrated in "The Miles Book of Aircraft," second in a series by the Harborough Publishing Co., Ltd.

Very arresting, too, is the picture of a "Mercury" flying into a net to test its ability to "take it" in the worst of forced landings! Other types include the projected eight-motor "X" transport with wings merging into the fuselage, the successful scaled-down "X Minor," and two of the tandem-winged series (popularly known as "tail-firsts"). There is also a concise history of the firm's activities.

Compiled by A. H. Lukins and edited by D. A. Russell, M.I.Mech.E., the book is printed on fine art paper, the page size being 11 in. by 8½ in., and is bound in dark blue with gilt lettering, and enclosed in a highly attractive dust cover. The price is 10s. 6d.

Two entirely new two-shilling books, with 64 pages, 8½ in. by 5½ in., are also announced by Harborough.

"Aerodynamics Analysed," by T. E. G. Bowden, a frequent contributor to the AEROMODELLER, contains numerous formulæ, though not of a particularly advanced character, and is presented in the unusual form of question and answer. The idea is to provide appropriate ammunition for A.T.C. or R.A.F. instructors bombarded by a class of enthusiasts wanting to know!

The chapter titles include The Atmosphere, The Aerofoil and Airflow, Wind Tunnel and Measuring Instruments, Stability and Equilibrium, Control and Manœuvre; and among the intriguing matters dealt with are the boundary layer, the compressibility stall, the downwash angle, the incidence angle, spiral stability, and thickness ratio. There are numerous diagrams and some excellent photographs. The cover bears a striking representation of a model in the wind-tunnel.

"Practical Design," by L. B. Mawby, holder of the British rise-off-ground rotorplane record, is a most helpful and readable book containing the minimum of technicalities. There are numerous sketches of a very lucid character, a number of good photographs, and a glossary of the technical terms that cannot be avoided.

Of outstanding interest, especially as so many writers hold forth as though only high-wing layout existed, is the clear exposition of the design differences between parasol, high-wing, mid-wing and low-wing types (all of which Mr. Mawby considers practical and worth while), a description of the working of a lifting tail (so well proved on contest-winning models), and an account of how a switchbacking model was cured without the aid of that hoary old cure-all, "down-thrust," by adding lead to the bottom of the fuselage.

The final chapter deals with rotorplanes, and is all the more convincing for the fact that the author's models are among the few rotorplanes that one has seen behaving equally well under power and on the glide.

Contents Column

Readers will notice that we have made a change in the arrangement of the editorial pages, transferring the list of contents from the bottom of the third page to a prominent position in the right-hand column of the first page. This should prove much more convenient when referring to the list of contents after the year's issues have been bound into a volume.

Binding and Re-binding

Many readers will doubtless be interested to know that arrangements have been made with the North London Bookbinding Co., Ltd., for the binding of each year's issues of the AEROMODELLER. The charge is eight shillings per volume, which must be prepaid, and which includes the cost of packing the bound volume and sending it back to the reader. The issues to be bound should be sent, with remittance, direct to the firm mentioned.

Incidentally, they have in stock about 100 copies each of Volumes VIII and IX, already bound, for immediate delivery. The price is one guinea per volume inclusive of packing and postage. Orders should be sent direct to the North London Bookbinding Co., Ltd., 82, West Hill, Highgate, N.6, and *not* to the AEROMODELLER Offices.

Arrangements have also been made with the North London Bookbinding Co., Ltd., for the re-binding of worn volumes of "Aircraft of the Fighting Powers." The price is seven shillings per volume, prepaid, which includes packing and return postage. This offer has a double advantage. Books that have been much used may have several pages damaged, and where there are sheets available the damaged pages are replaced. Secondly, the gold blocking as in Volumes IV and V, is now standardised, and earlier volumes with the title running along the spine can now be brought into line with the latest arrangement.

Exhibition Film

Those who missed the AEROMODELLER Exhibition at Dorland Hall may see something of its exceptional interest and comprehensiveness, while those who were there may recapture something of the spirit of it, by means of the 16 mm. Kodak "safety" film that we have had made for loan to clubs and groups interested. Prepared by the Aircraft (Technical) Publications, Ltd., at a cost of several hundred pounds, it runs for about 28 minutes, and shows Lord Brabazon opening the Exhibition, making a complete tour, and finally, taking his leave. The film can be hired (on a spool in a container, and with a spare spool on which to wind it, also in a container), direct from our Highgate offices for 10s. 6d. per week.

A Vacancy

There is a vacancy in the North London drawing office of the AEROMODELLER for a junior of 17 or 18 to work on our photographic and reference files. The commencing salary would be about £2. 10s. 0d., the precise amount being determined by age and experience. An aircraft recognition enthusiast should prove eminently suitable.

A VISIT TO A L.C.C. MEN'S EVENING INSTITUTE

I recently had occasion to visit one out of the five London County Council's Men's Evening Institutes that include aeromodelling in their curriculum (see list on page 329). This was the Islington Men's Evening Institute, fortunate in being under the able direction of Mr. Bird, himself a keen and active aeromodeller who acts as Chairman and Treasurer to the Club. His keenness and vitality are reflected strongly in the accomplishments of the Club and the most notable enthusiasm of its members.

Due credit must be given to Mr. Phillips, the instructor. Here is a man who knows his subject, and backed by many year's experience of the game, gives freely of his knowledge to the youngsters under his tuition.

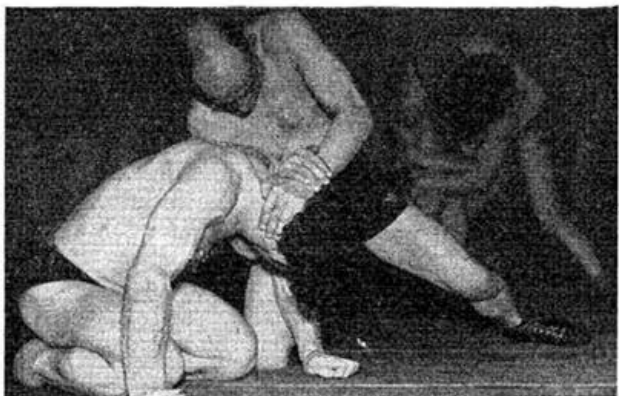
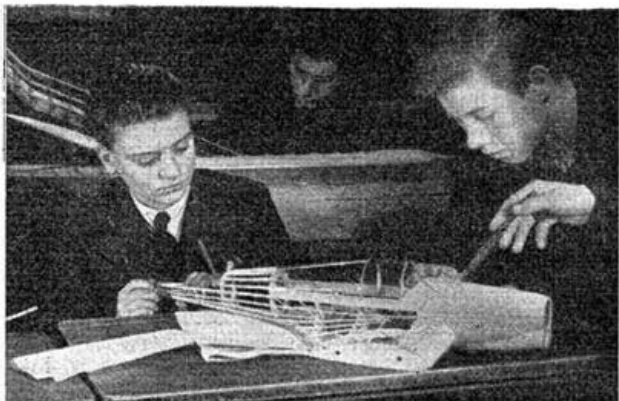
A word here of the teaching methods. There is definitely no "classroom" atmosphere. Constructive discussion takes place between pupil and instructor, between old hand and beginner, whilst the models are being built. Pupils are encouraged with their original designs, and should they not work out as intended, constructive criticism is then given by the instructor on the finished model. All the whys and wherefores are explained, and our budding designer starts afresh with the great advantage of knowing his original mistakes plus a large store of the instructor's knowledge and advice that has been practically demonstrated.

Visiting the Institute for the first time one is greatly impressed with the large number of amenities available to Club members for a total cost of 1s. per term.

Here you have a large, airy club room with benches, drawing boards, T squares, etc., for all members, who also have an unlimited supply of tools at their disposal. Materials are obtainable at cost price, including balsa, dope, cement, tissue; in fact, the whole bag of tricks. Large halls are available for R.T.P. flying, and the woodworking shop is open to all for the making of jigs, use of lathe, etc. There is even a scientific balance for weighing purposes.

The club room is central heated, well lit, and when the sawdust dries your throat there is a canteen with refreshments at amazingly cheap prices. No aeromodeller could ever wish for so many facilities for such a small outlay. Classes are held from 7.30 to 9.30 three nights a week, Monday, Tuesday and Thursday, but such is the enthusiasm of members that when I arrived at 7 p.m. the old familiar smell of cement filled the air and the balsa dust was flying. It was 10 p.m. before the last member could be persuaded to leave. Such is the enthusiasm of the Club.

R.T.P. flying is popular; K. Tansley put up an unofficial time of 90 m.p.h. with a rubber-driven model, and one former member of this Islington Institute now serving in the Navy is reported to have carried out R.T.P. flying on the flight deck of his ship!



Top photograph shows Major Nichols, one of the older members of the Club, supplying "Gen" to D. Kidd and F. Watson, whilst below Mr. Phillips, the instructor, discusses points on Major Nichols' sailplane with two other members of the Club. In the third photograph D. Ward and J. Sargeant are shown working on a flying scale Miles Kestrel. We offer apologies for the bottom photograph. Our photographer, let loose in the Institute, appears to have strayed from the aeromodelling classes. Possibly this is one method the Club uses to settle the "Slabside" v. "Streamliner" controversy!

Taking a cross section of the models under construction during my visit—flying models were predominate, including large sailplanes, duration models and flying scale models. The standard of workmanship was good, a high standard being attained by some of the older members. Amongst these was Major Nichols, who has only been modelling a matter of three months, but in this short space of time has managed to produce models such as the 59 ins. sailplane of fully elliptical design shown on this page. To complete this modeller's "Shangri La," I understand that negotiations are almost completed for a flying ground in North London for the use of Club members. This will most certainly complete the facilities of one of the most magnificently equipped Model Aircraft Clubs it has ever been my pleasure to visit.

H. G. H.

BATTERSEA MEN'S INSTITUTE, Latchmere Road, Lavender Hill S.W.11. BAT. 5876. REL. 2950.

*BERMONDSEY MEN'S INSTITUTE, Pages Walk School, Old Kent Road, S.E.1. BER. 1873. BER. 3204.

BETHNAL GREEN MEN'S INSTITUTE, 229, Bethnal Green Road, E.2. BIS. 5341.

DEPTFORD MEN'S INSTITUTE, Childeric Road School, S.E.14. TID. 4079.

*DOWNHAM MEN'S INSTITUTE, Durham Hill School, Bromley, Kent. HIT. 2577.

*FULHAM MEN'S INSTITUTE, Holford Road School, S.W.6.

*ISLINGTON MEN'S INSTITUTE, Robert Blair School, N.7. NOR. 2123.

KENTISH TOWN MEN'S INSTITUTE, 87, Holmes Road, N.W.5. GUL. 4892.

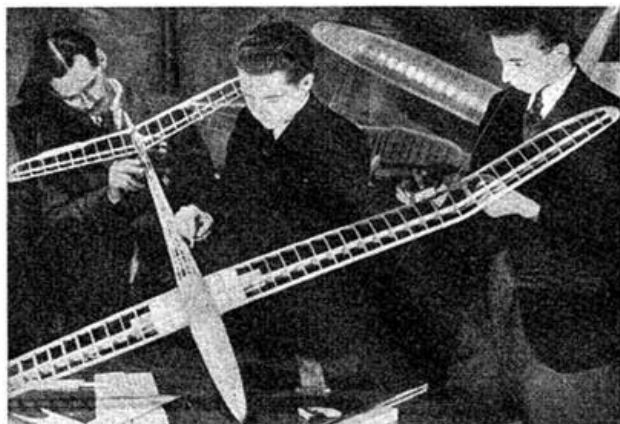
*NORTH SOUTHWARK MEN'S INSTITUTE, John Harvard School, S.E.1. WAT. 4601. PUT. 3074.

STEPNEY MEN'S INSTITUTE, Smithy Street, E.1. STE. 3358.

*WALWORTH MEN'S INSTITUTE, Avenue School, S.E.5. REL. 1895.

For any further particulars call or write to A.B.A. Offices, 28, Hanover Street, W.1, or apply direct to your nearest Men's Institute listed above.

* Already have Model Flying Clubs in operation.



Top photograph shows Major Nichols, and centre R. B. Selwyn, Press Secretary of the Islington Club, with a "Temple Tribute." Centre photograph shows D. H. Holloway about to release a little 18 in. span R.T.P. model which incidentally clocked 33 m.p.h. Lower photograph is a view of one corner of the Clubroom. One member in the foreground is working on a "Thermic" 50, Frank Zalc's well-known design.

GADGET REVIEW *By "Bonew"*

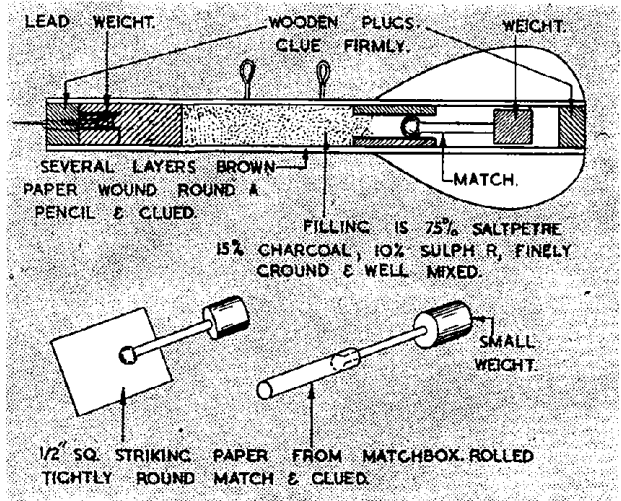


Fig. 1

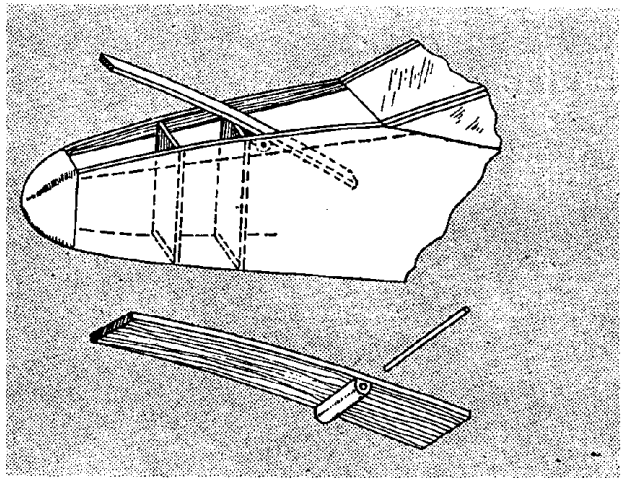
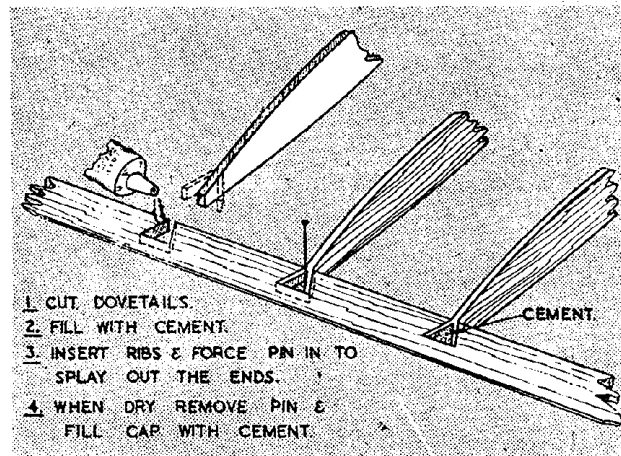


Fig. 2

Fig. 3



The flying season now being in full swing I decided that Gadget Review this month should become a feature for the flying modeller. Here, therefore, is a goodly collection of helpful tips for the duration and the flying scale fans.

The first gadget comes from H. G. BEETON, of Newmarket, and is something that will appeal to flying scale modellers in particular. It consists of an ingenious explosive bomb which may be dropped by means of any of the many release gears described in previous issues of the AEROMODELLER. Fig. 1 shows all the working details, but there are one or two points to watch. The ignition device consists of a half-inch square of striking paper peeled carefully off the side of a new safety-match box, rolled tightly round a safety-match and glued to form a tube. It must then be glued inside another paper tube, which is in turn glued inside the casing. This forms the ignition tube upon which the effective working of the bomb depends. When the "innards" are completed, add the four fins made from any light material such as thin sheet balsa and you are all ready to go. Providing it is made with reasonable care the bomb never (or so the designer informs us) fails to go off with a loud bang!

From R. L. BIGGS, of Worcester, comes a method of making a hinged panel for easy access to the interior of the nose of a glider or sailplane. (Fig. 2.) The drawing again is self-explanatory. The gadget was designed to suit an "Ivory Gull" but could be adapted for any other glider.

A method of attaching wing ribs to the trailing edge, which is as strong and far simpler than extensive gusseting, comes from C. N. SMITH, of Holbrook, Suffolk. (Fig. 3.) The method makes use of a dovetailed joint very simply carried out with the aid of a razor blade. The diagram is completely explanatory. When set the only method by which the rib can be moved is by breaking it.

From the same contributor comes an ingenious modification of the "Air Cadet" type undercart. This is shown in Fig. 4. The great advantage of this undercart is that it allows of quick detaching, but is held firmly while in place. The bamboo leg has an extra piece of bamboo or hardwood cemented to the top which is gouged to take a length of brass tube. The whole is then cemented together and bound. A convenient distance down the leg a rubber block is bound and cemented as shown. A wire saddle in a brass tube is inserted in the fuselage and plugs into the rubber blocks, through the tubes bound to the tops of the legs, the blocks holding it securely in place. A wire spacer, the ends beaten to a flat tang, is bound and cemented to the legs, and holds them firmly, thus preventing swivel. Adjustments may be made for greater prop clearance, etc., by moving the legs up or down on the saddle. Backward springing is by rubber bands in celluloid tubes, "Air Cadet" fashion, but any other form of springing may be used.

An arrangement which will appeal to those model sailplane enthusiasts who indulge in twin tow hooks comes from M. S. HOWARTH, of Burnley, and is shown in Fig. 5; it is intended to counteract the effect of the pull of the two hooks tending to dislodge a wing which is held by tongue and box fittings in the wing roots.

The drawing is entirely self-explanatory.

Also from M. S. HOWARTH comes the idea shown in Fig. 6. This gadget is designed to keep a sailplane in a constant left-hand circle once the model has been released from the towline. The device is intended for use with twin tow hooks; the drawings explain all other details.

With a limited flying ground or a good model (or a combination of both), flyaways may not only prove annoying but even disastrous. A dethermaliser would appear to be an ideal preventative, but as our correspondent, W. M. WALBANK, of Teignmouth, points out, the trouble with most dethermalisers attached to the fuselage or tail is that they result in the model stalling. His idea (shown in Fig. 7) is to use split flaps operated by the mechanism shown in the drawing. In the fuselage is a light cylinder 5 in. long, $\frac{1}{2}$ in. dia. At one end a small by-pass groove is filed. At the same end of the cylinder is fixed a length of flattened fine tubing such as an old hypodermic needle (*readers may have some difficulty in securing this article; judging by an inoculation Consus recently suffered doctors never discard these needles! Ed.*) A piston is made from a well-oiled leather disc and is forced down the cylinder by a light spring. The piston rod carries a cross bar which engages the levers on the flaps and protrudes through a slot in the fuselage. The apparatus is almost fool-proof, the only points to watch being as follows:—the spring in the cylinder must be strong to overcome the spring holding the flaps up; the leather washer on the piston must be kept well oiled. The area and angle of the flaps are best found by experimenting with a sheet of aluminium bent and attached to the wing to represent the flap. The optimum size for a 5 ft. span sailplane was found to be 9 square inches. This area brought the glider down in a steep slow glide.

Now that light and efficient wheels for flying models are practically unobtainable, W. R. FRASER'S method of making these should prove very acceptable. (Fig. 8.) On 1/16 in. sheet balsa mark two concentric circles to indicate the outside and the inside of the tyre. Cut this out slightly larger to allow for sanding down. Now

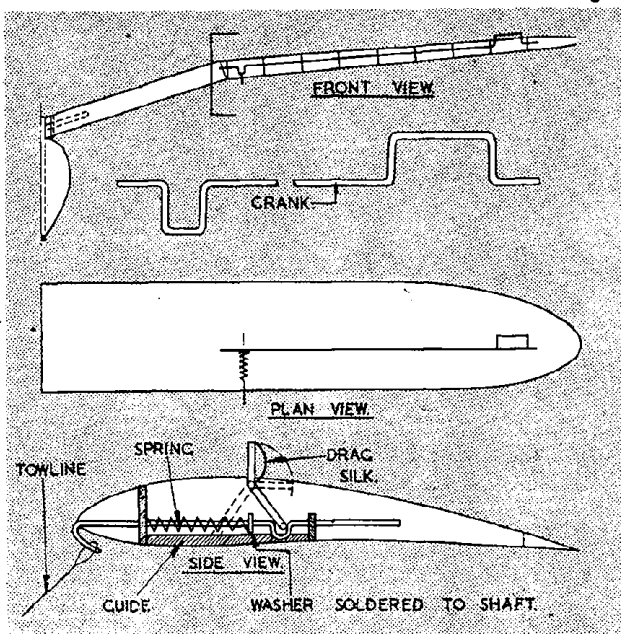


Fig. 6

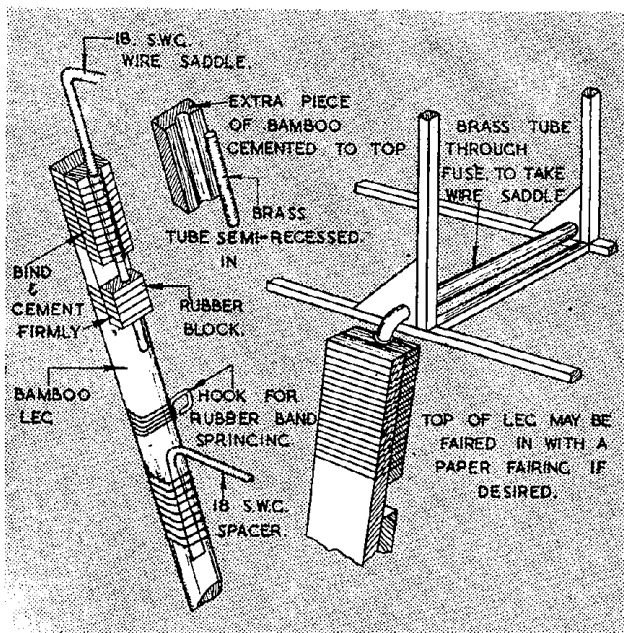
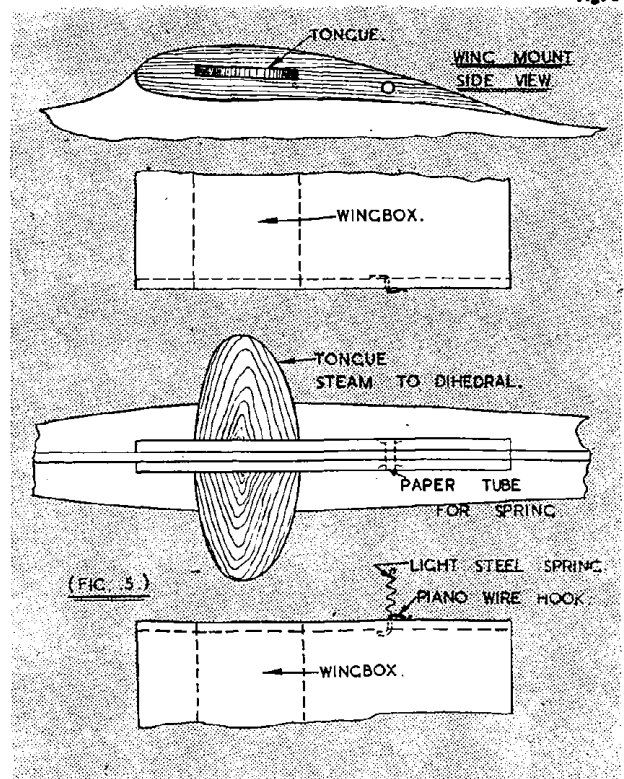


Fig. 4

make a template from thin card as follows. Draw two circles as before with compasses, divide the smaller circle into 6 parts and draw a chord across two adjacent points A B (Fig. A). Draw C D parallel to chord touching the outer circle. Draw A C B D, which should if extended pass through the centre of the circle. Cut out figure A B D C and use as the template. Cut 12 pieces from 1/8 in. sheet and 12 from 1/16 in. sheet,

Fig. 5



(FIG. 5.)

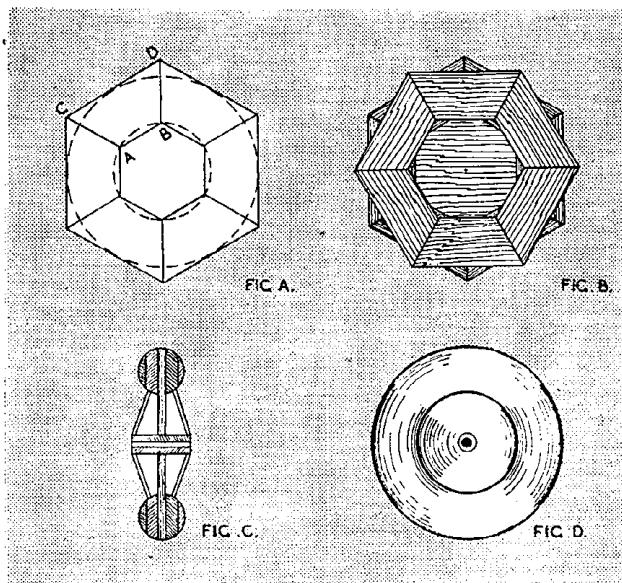
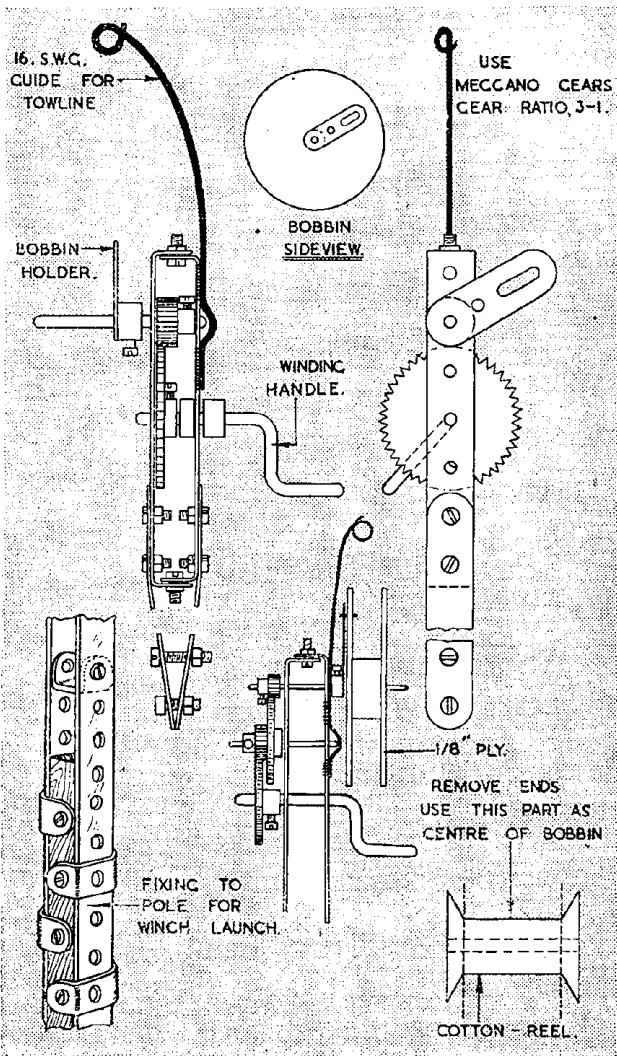


Fig. 8

Fig. 9

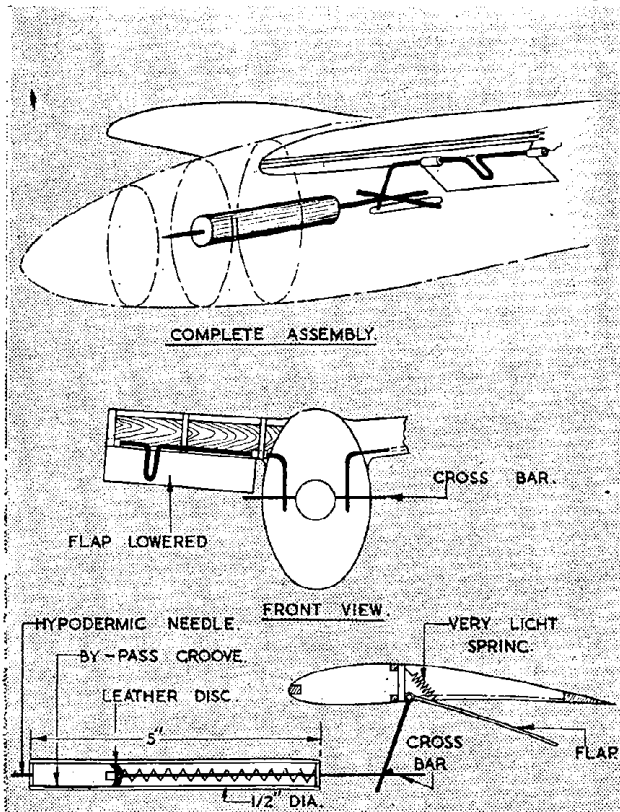


grain running in the direction shown. Cement the 1/8 in. pieces 6 on each side of the disc across grain, then add the 1/16 in. pieces, setting the joins midway between those of the 1/8 in. pieces. (Fig. B) Roughly sand to circular shape. Fix the semi-completed wheel on a lathe and sand down to shape. Drill a hole to take a piece of 3/16 in. dowel about 1/8 in. longer than the width of the wheel, and cement securely in position, making sure it is set centrally and squarely. Cut two circles of thin card with a 3/16 in. hole in the centre and cut along the radius so that they can be bent round to form shallow cones. Fit one each side of the hub. Clean up with fine sandpaper and carefully drill the axle hole. Finished wheel is shown in Figs. C and D.

J. VANDELDE, Belgian aeromodeller and refugee, at present of Ripon, sends us the arrangement shown in Fig. 9, utilising odds and ends of Meccano. If the bobbin centre made from the cotton reel is loose on the shaft, it must be packed with cork and the shaft forced through it. If the bobbin shaft is removed and a hook substituted the winch may be used as a winder. Larger gears may be substituted by fixing them on a shaft *outside* the Meccano strips. The apparatus in either case may be fixed to a pole—the pole must be tapered to a half inch square for some distance at the top so that the strips may slide over and be bolted to it as shown. To conclude, I am sure that all our readers will join with me in wishing this fellow modeller a safe and speedy return to his own country.

Until August then, when the next "Gadget Review" appears, let me sign off, reminding all readers who have one or two helpful tips still up their sleeves to pass these on for inclusion in this feature and so benefit the rest of the aeromodelling community.

Fig. 7



PROBLEM OF THE RUBBER-DRIVEN FLYING-BOAT

BY H · E · WHITE, B.Sc.

In this article and its completion in our next issue the author sets out and discusses the many difficulties and problems besetting the modeller who embarks on the design and construction of a rubber-driven model flying boat. This branch of aeromodelling is an extremely interesting one about which little is known compared with other branches. It provides an interesting theme for those who delight in wrestling with unsolved problems, and as the accompanying picture shows (the author paddling with his model "Ganda"), it fully gratifies the urge to walk in every available puddle that most people possess when wearing rubber boots. [Ed.



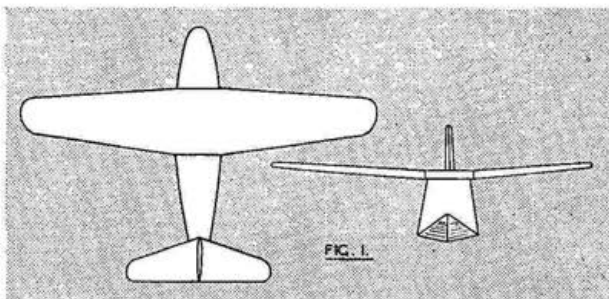
AT the Model Aircraft Exhibition recently held at Dorland Hall two model flying boats were exhibited, in spite of the fact that there were three cash prizes offered in this section. This lack of response was, of course, exactly what we should have expected, since one rarely sees a model flying boat at any of our flying meetings. Why is this? It may be argued that model flying meetings are not often held in places where there is access to a suitable stretch of water; but flying boat models, just like other models, can be hand-launched for testing purposes, and, therefore, if they were being built in any numbers, we should expect to see them more often. The fact is, of course, that for several reasons, flying boat models are not popular: there appears to be a generally accepted notion that there is some subtle and unsurmountable "difficulty" in designing and flying this type of model, just as there was in the case of the biplane some years before the war until it was demonstrated very forcibly, by the writer among others, that model biplanes could be flown just as satisfactorily as monoplanes, provided their design was understood.

This unfriendly attitude towards the model flying boat may be accounted for in many ways, but I am afraid that the main reason is that, unless considerable liberties are taken with the design, the airscrew in this type of model cannot be conveniently fitted to the forward end of the hull, in the usual tractor position! The typical flying boat of to-day is either driven by two or four airscrews mounted on the leading edge of the wings, or by a single airscrew, or perhaps "tandem" airscrews, mounted above the hull in the amidships position. At present neither of these arrangements lends itself to a simple rubber-driven layout, and this difficulty, and to some extent the craze for "duration," which is still very strong, are responsible for the comparative stagnation in design towards which the rubber-driven model was apparently tending before the war.

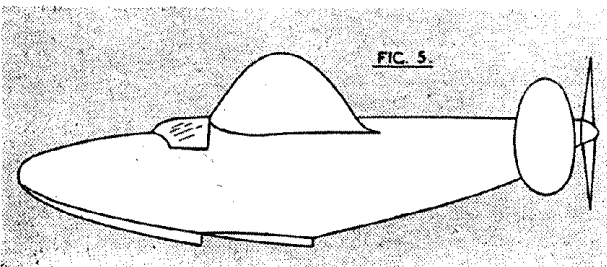
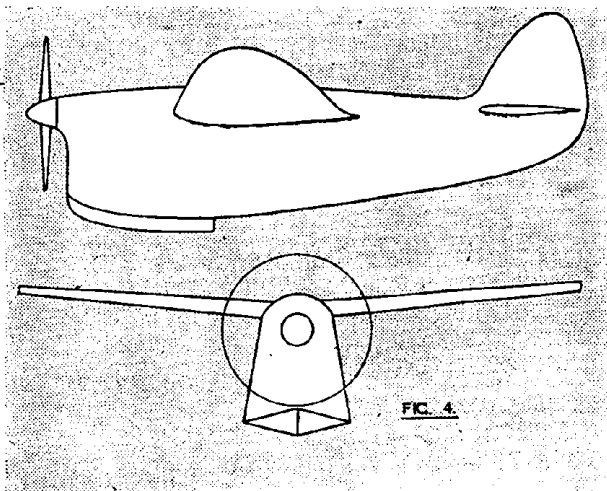
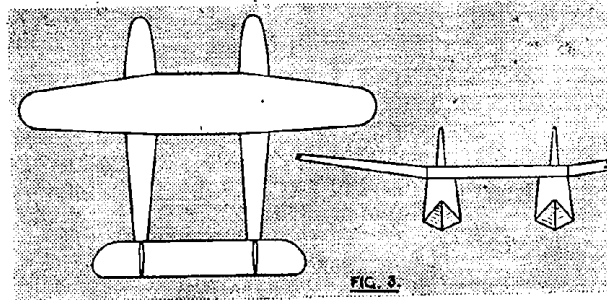
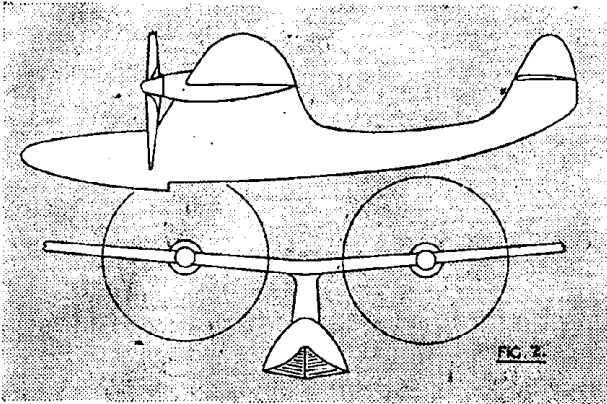
Let us, therefore, as experienced aeromodellers, face up to these difficulties fairly and squarely, and see what they really amount to. It seems to me that the first difficulty is that a model flying boat must be *designed*. Before a number of my "Wakefield" friends start throwing things, let me hasten to explain what I mean

by this. It is an undoubted fact that the design of the high-wing, tractor airscrew, slab-sided type of competition model has reached such a state of efficiency and standardisation, and the materials available—or which would be available under normal conditions—are so simple to use for the purpose of constructing such models, that it is possible for a beginner to construct a satisfactory flying model without the necessity for much originality in design. One cannot tackle the making of a model flying boat quite so easily: so very little preliminary work has been done for us already—we even have to make up our minds as to the general layout of the model, choosing from half a dozen quite different types of aircraft.

This choice of types is rather interesting in itself, and should surely make the question of model flying boats even more attractive to the enthusiastic experimentally-minded aeromodeller. To start with, considered as an aircraft, the model may be of the normal high-wing-mounted-on-the-fuselage-top type of monoplane, with a standard tail unit (Fig. 1), and with the exception of complications regarding the drive; this is the nearest layout to the conventional type of aircraft. Next we may consider the parasol type, in which the boat is shallow, resembling the conventional idea of a boat-hull, and the wing is mounted on a streamlined platform or column (Fig. 2). This type of hull also lends itself very readily to the use of a biplane superstructure, mounted directly on the top of the hull. Next there is the type



which uses two hulls, as distinct from floats; that is to say, the two hulls are used as part of the main structure of the aircraft, no normal fuselage being used (Fig. 3).



In addition to these considerations, we have to make up our minds how the aircraft is to be driven. The tractor airscrew, using the fuselage as its housing, is extremely difficult to utilise for this purpose: it is even difficult to house the rubber in the fuselage, or, as it is in this case, the hull. It becomes more and more evident, as we consider this important question of power application, that the whole design will be seriously affected by this decision alone. Furthermore, before the housing of the rubber motor can be considered, the position of the airscrews themselves must be decided. It is possible to use a tractor airscrew in the nose of the hull, and from a pure "duration" point of view, this might be considered desirable. In this position the direct drive, with the maximum permissible length of rubber, and the absence of mechanical complications, should lead to the greatest possible economy in power expenditure, and a high power/weight ratio. Unfortunately, these considerations also demand a reasonably large diameter for the propeller, and this would mean a correspondingly deep hull in order that the tips of the airscrew blades may be clear of the water for the take-off (Fig. 4). Although such a "flying boat," if it could deserve such a name, would approximate more closely than any other type to the duration-hunter's dream, I do not think its design would attract many model makers away from the more normal-looking model types; it would certainly look even more of an abortion than some of the other duration types to which we have been accustomed during the pre-war years. A much more attractive-looking boat might be designed with the single airscrew fitted at the after end of the hull, because it would be possible to raise this portion of the boat without spoiling its personal appearance too much (Fig. 5). If two contra-rotating airscrews, or even a four-bladed airscrew, were used, the necessary height above the water-line could be reduced, but the disadvantage of added weight at the tail end would have to be taken into account.

But why worry about pure duration? Surely the most interesting properties of this type of model are its ability to take-off from the water, fly under control, and alight on the water, in a realistic manner. These aspects of a flying boat's performance provide the experimenter with so many interesting problems that duration, surely, becomes of very minor importance, just as it has in the case of the petrol-driven model. If we are willing to sacrifice a certain measure of duration, many interesting applications of the rubber driving principle offer themselves for our consideration.

My large model flying boat "Ganda" had a useful power run of only 15-20 secs., yet it flew as far as I cared to walk after it at Fairey's aerodrome on a great many occasions, with an added advantage that I knew to some extent where it was likely to be at the end of the power run when it was being flown from water, and I could therefore always be certain of a landing on the water—one of the greatest thrills of a model flying boat's performance. Forty-five secs. is considered to be the desirable maximum power duration for power-driven models nowadays, and in my own experience with flying boats, a rubber-driven boat with a run of 30 secs. can give very satisfactory flight durations. Let us, then, tell the duration merchant to go and—well, design his own flying boat, and we will examine the possibilities of using the rubber so that it can be adapted to the type of machine which we are considering.

The application of power in full-size flying boat practice may be roughly divided into two classes:—

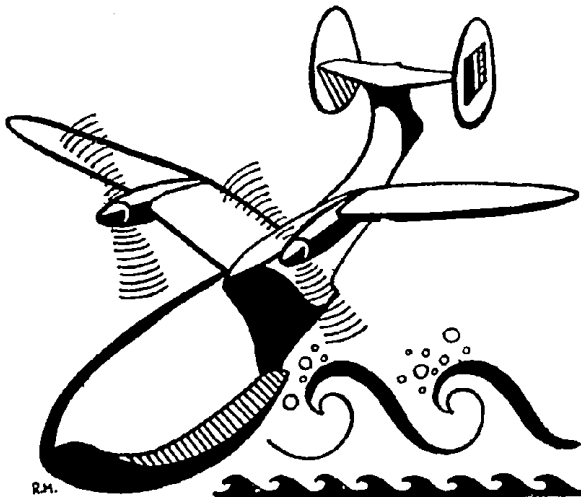
- (1) airscrews mounted on the leading edges of the wings (this class would also include, for our purposes, models having airscrews mounted on the trailing edges of the wings), and
- (2) airscrews mounted amidships, above the hull, usually mounted on some kind of raised structure.

Now both of these arrangements may be quite easily incorporated in our design: both have been well tried, and can be used with confidence. The first has the advantage of a better position for the thrust line than the second, in which the position of the airscrew necessarily places the thrust line very high above the centres of gravity and drag. This is offset by the fact that with the airscrew in the amidships position, the rubber motor may be accommodated in the hull itself, and maximum length between rubber hooks obtained.

If the airscrews are to be placed on the leading or trailing edges of the wings, they may either be driven by separate motors, or by a single motor in the hull. If the first arrangement is used, the rubber motors may be housed in nacelles, or small fuselages, mounted on the wings themselves, and unless a freakish design is adopted, these nacelles will have to be shorter than the hull. It is, of course, possible to arrange some form of articulated or flexible drive, using a single motor in the hull, but this will not appeal to so many designers as the more simple method of separate motors, owing to the fact that the majority of aeromodellers tend to avoid mechanical complications, judging by the normal trend in design observable in the last few years before the war. At the Exhibition, however, I was very pleased to note the success with which Mr. Moore had adapted simple gearing and articulated driving methods to this problem of multiple airscrew drive, not to mention his other gadgets, all of which appear to be intensely practical, and of such a simple nature that one wonders, as with all truly simple mechanisms, why they were not thought of before! There is no doubt, therefore, that if we are prepared to open our minds, and to become model engineers as well as aeromodellers, the scope of our work will increase enormously, and our designing will become more progressive as well as truly experimental.

(To be continued.)

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THE SPARTAN ARROW

BY E · J · RIDING



Photo: A. J. Jackson.

CONTEMPORARY with the D.H. Moth, Avro Avian and Blackburn Bluebird light aeroplanes, the Spartan Arrow was the natural outcome of the original Simmonds "Spartan" design of 1928.

Those who were familiar with the first Spartan will recollect that it had an ingenious method of obtaining component interchangeability, for by using a symmetrical wing section it was possible to fit one wing to any of the four positions on the aircraft. Similarly, the rudder was interchangeable with part of an elevator and one half of the undercarriage structure was common to both port and starboard sides.

In the Spartan Arrow, the symmetrical wing section was deleted and a non-symmetrical high lift wing section adopted. Interchangeability was, however, still preserved by making the wing tips and trailing edge portion aft of the rear spar detachable; thus it was possible to use the wing tip and aileron at either end, depending on which side of the fuselage the wing was to be fitted. The two halves of the undercarriage were still interchangeable, but the tail unit had an entirely new shape from that of the Spartan. It was hoped that these features would simplify the question of replacement in the event of damage.

The construction of the Arrow followed along orthodox lines, the fuselage being of the familiar spruce and plywood pattern, the wings being built up from 'I' section spruce spars and girder type ribs with fabric covering. The wings could be folded, enabling the machine to be stored in an average sized lock-up garage. Provision of Handley Page type automatic slots was optional, the complete arrangement being supplied as a unit capable of being fitted in a very short time.

Petrol was carried in either a 22 or 34 gallon gravity

tank situated in the top centre plane, giving the machine a range of 300 or 500 miles, depending upon the tank capacity. Early models had ailerons on all four wings, but later production machines had them on the lower planes only.

Although it never proved as popular as its near relation, the Spartan Three-seater, about fifteen Arrows were registered in Great Britain. They were used by a number of private owners and by the Isle of Wight, Romford, and Portsmouth Flying Clubs for instructional purposes. The prototype, G-AAWY, made its debut in May, 1930, and the second machine, G-AAWZ, was still in service with the Portsmouth Club at the outbreak of war. Both these machines, together with a later model, B-ABBE fitted with a D.H. "Gipsy II" motor, were entered in the 1930 King's Cup air race, but their performance was disappointing.

'BE and 'WZ finished 54th and 58th at average speeds of 100.4 and 94.3 m.p.h. respectively, having failed to make up their handicap allowance, and 'WY retired during the course of the race. One of the later models, G-ACHF, was owned by the Romford Flying Club at Maylands, Essex, but was destroyed in a fire during February, 1940. It had a red fuselage with white registration letters and silver wings and tail surfaces.

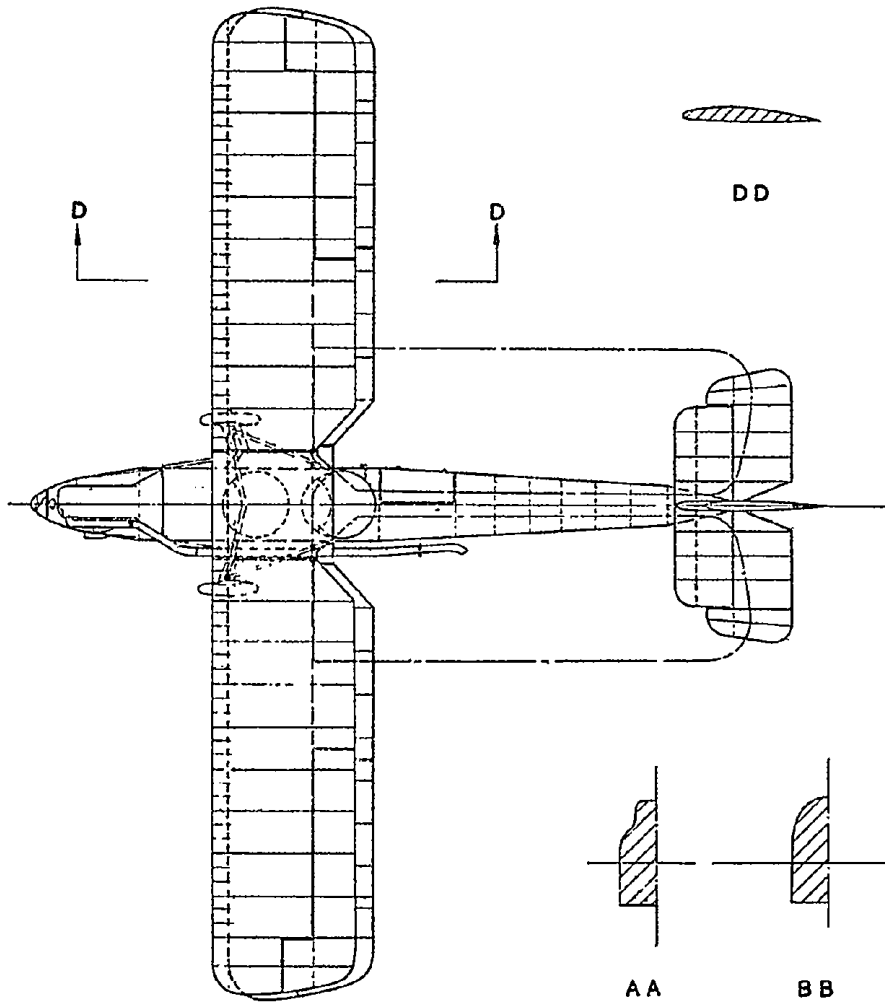
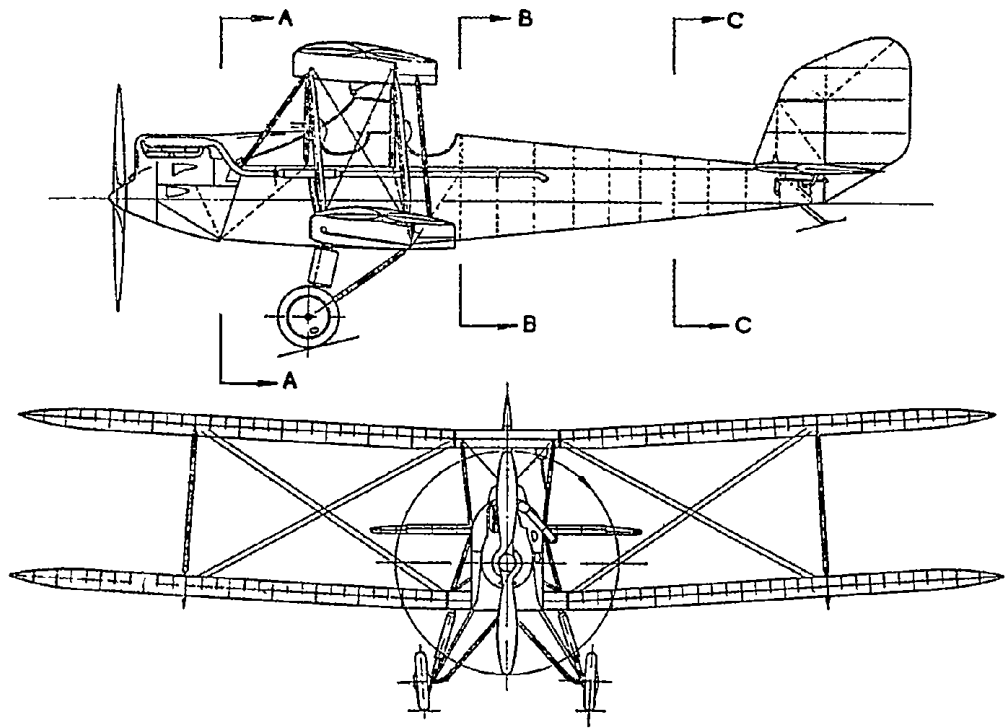
SPECIFICATION: Length, 25 ft. 0 in.; span, 30 ft. 7 in.; height, 9 ft. 6 in.; wing area, 251 sq. ft.; tare weight, 965 lbs.; loaded, 1,500 lbs.; speed (max.), 106 m.p.h.; landing, 40 m.p.h.

Engines fitted: D.H. Gipsy I or II, A.D.C. Cirrus III and Hermes I four cylinder in line aircooled units.

Photos: G-AAWZ, $\frac{3}{4}$ rear. ("Flight.") G-ACHF. Side. (A. J. Jackson).

"Flight" Photo.

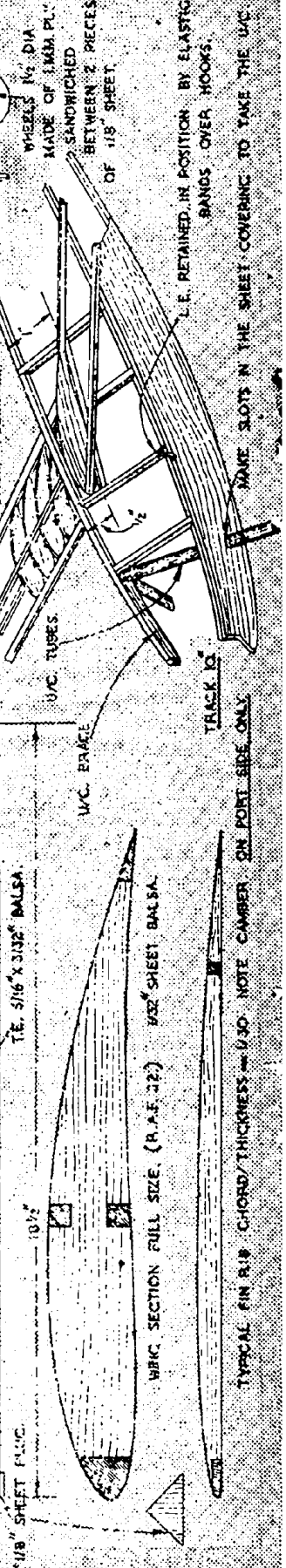
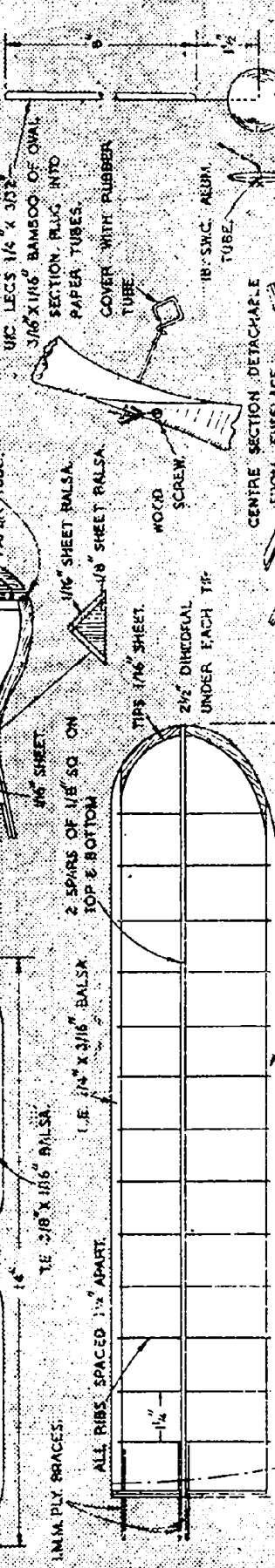
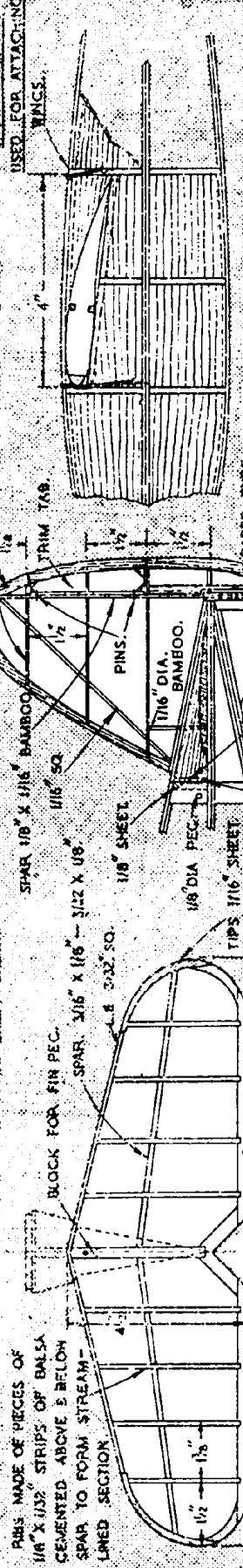
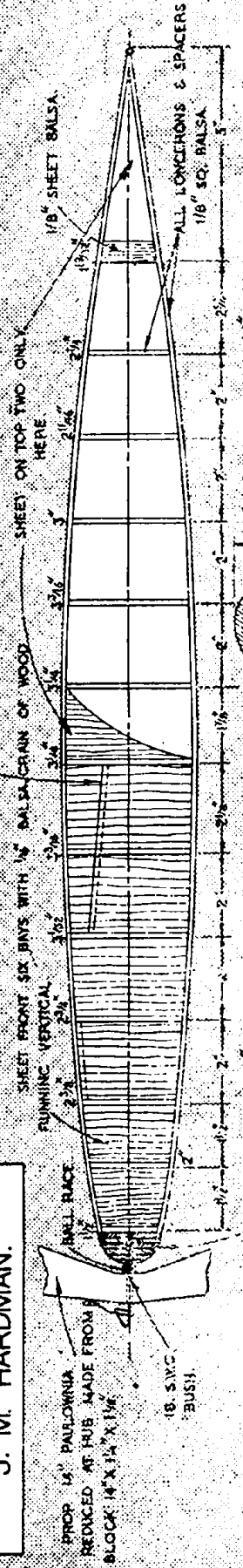




"FLIGHT CUP" MODEL.
DESIGNED BY
J. M. HARDMAN.

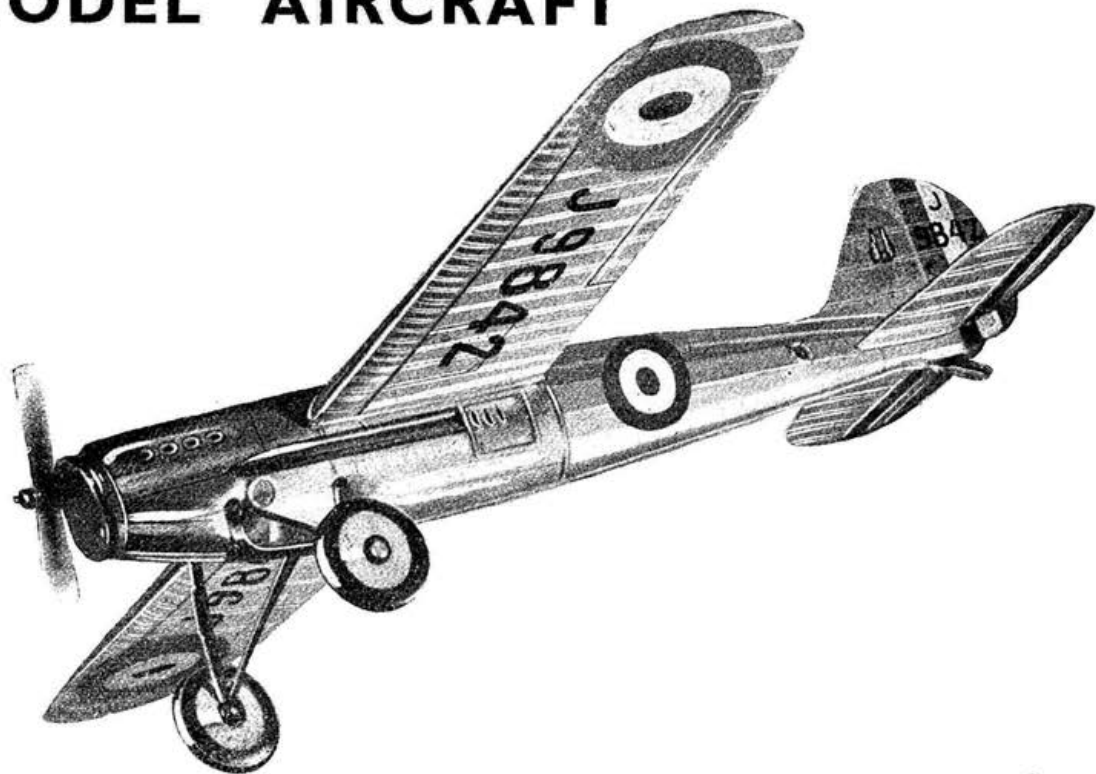
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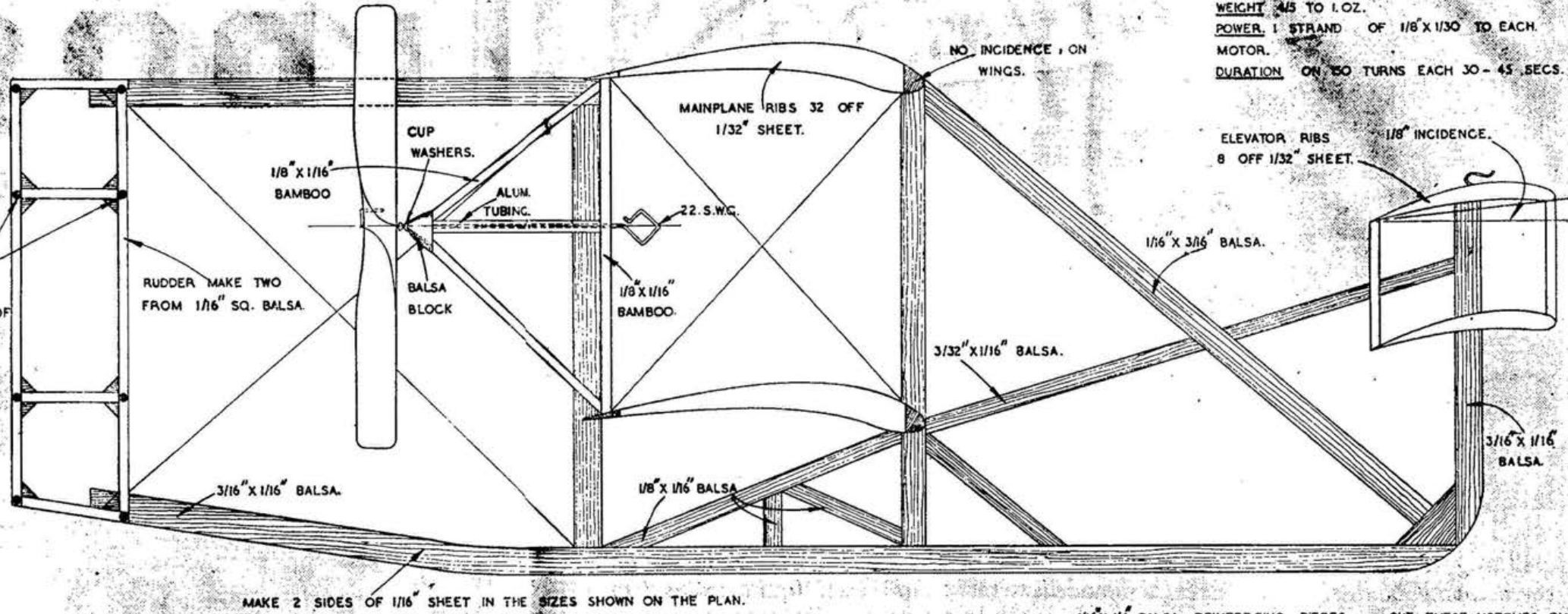
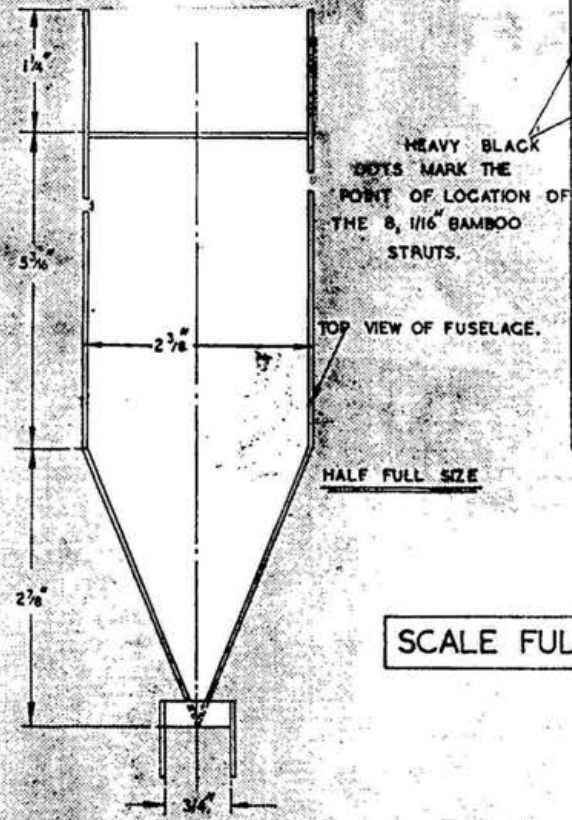
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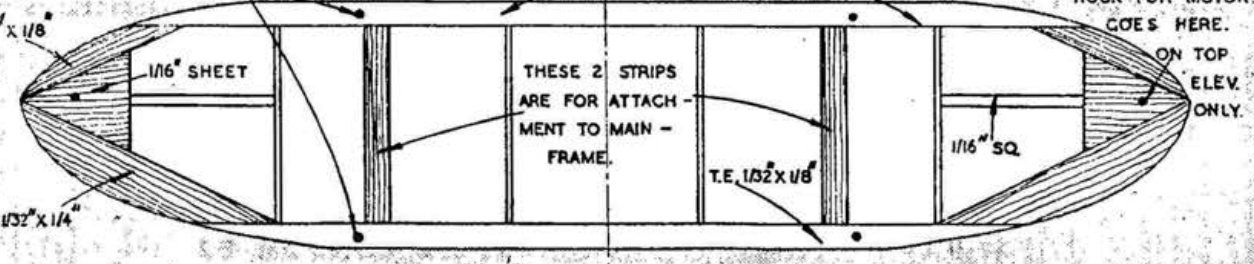
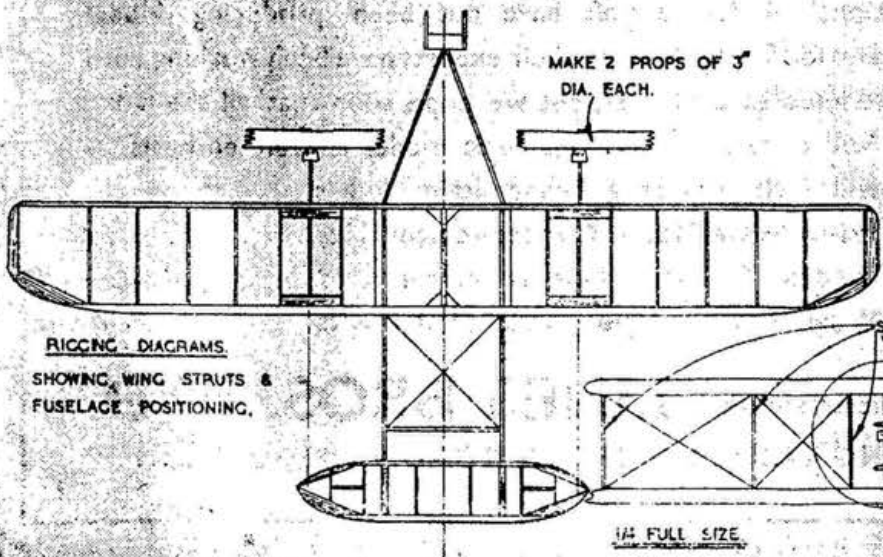
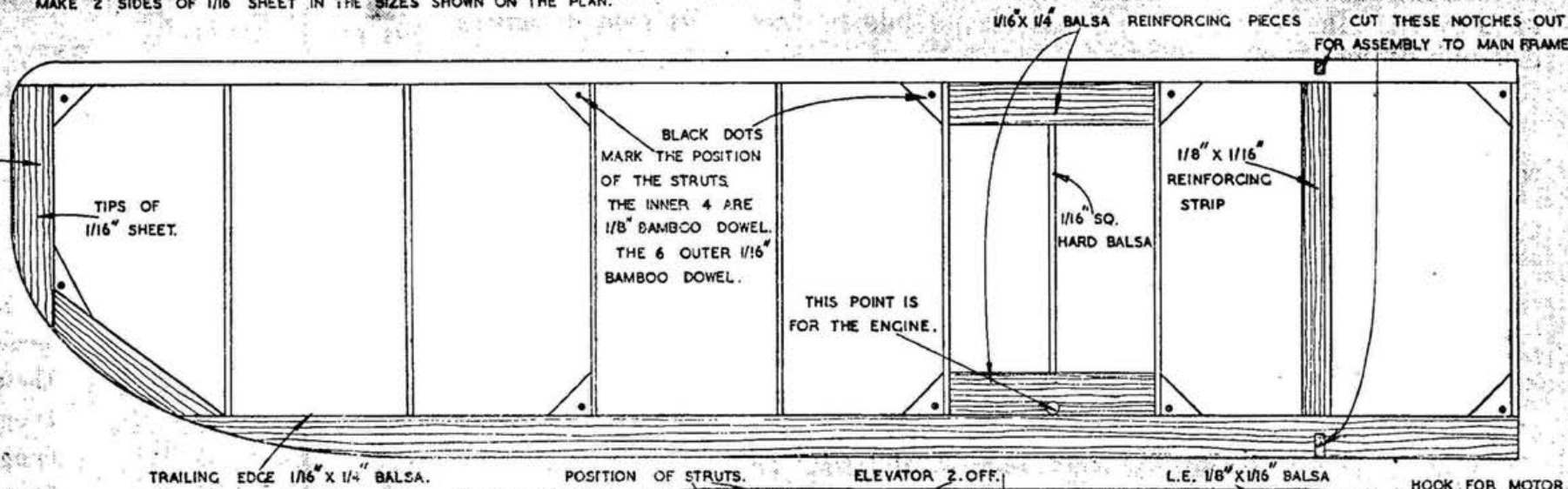
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• SUBJECTS FOR SOLIDS •

BY W · A · BODDY

THE question of what to model where solids are concerned often provides quite a problem of its own. This article, it is hoped, may suggest to modellers a few ways of escaping from the groove into which so many solid modellers find they have fallen.

Publication of that excellent book "Camouflage 1914-18 Aircraft," by O. G. Thetford, together with the range of 1/72 scale plans of over 1000 machines available through the AEROMODELLER Plans Service, put the subject of old-time aircraft very much to the fore. Much interest is lent if the modeller collects all the data he can about such types, not only technical, as found in the last war issues of "The Aeroplane" and "Flight" but also historical or reminiscent. So far as the last-named information goes, if you can single out and chat with ex R.F.C. old-timers, you will be sure of the real atmosphere, but it can be cultivated quite well by reading flying experiences of the period, such as Macmillans' "Into the Blue" and that fine work "Sagittarius Rising," by Cecil Lewis. Some modellers may jib at showing 1914-18 aircraft alongside more modern models, but they must not forget that the late Richard Shuttleworth's reconditioned veterans, and those of Richard Nash, were flown at displays and parked amongst the current stuff! On the other hand, if a last war atmosphere is wanted, models to scale of typical backgrounds and items of equipment—the famous R.F.C. Crossley tenders, canvas hangars, "Shell Aviation" fuel cans and the like, come to mind—will repay the time devoted to them, especially if photographic studies are to be made.

Another theme would be to build only aircraft of the "biplane era" but in great variety. Those who wish to use existing sets, at all events at the commencement, will still find commercial kits of such aircraft as "Hart," "Albacore," "Tiger Moth," "S.E.5," "Bristol Fighter," "D.H. Dragonfly," etc., advertised.

If, however, the modeller prefers to work entirely to his own plans, his series might well confine itself to types so rare that they are not listed even amongst the many plans available from the AEROMODELLER. Before starting on such a model, make certain that you have sufficiently good illustrations of it to be able to make the details accurately and to correctly paint and mark it. Otherwise all your labours and hopes will result merely in a curious "one-off" job, too unusual to be beautiful, and of no historic worth.

A safer method would be to work to existing plans, giving the completed model individuality by colouring and marking it after a famous example of its type. For instance, a "Moth" can be given the letters and finish of a machine which made world history on a long distance record flight, or standard light aircraft can be modified slightly to represent an example flown in a classic race. One might even concentrate for a time on one type only, but turned out in various famous guises, denoted by using the correct colouring, lettering and small external differences. The interest in this case is the complete knowledge on the part of the modeller of just how each aircraft depicted fits into aviation history and the research necessary to make the distinguishing characteristics really true to life. A similar

series showing the evolution of a given type would be more generally instructive, and in this connection aircraft such as the immortal Hawker "Hurricane," the ever appealing Supermarine "Spitfire" or the many versions of the Bristol "Blenheim" spring to mind.

Those who prefer their history spread over a longer period may decide to feature famous "milestones" of well-known manufacturers. Another excellent plan would be to model winners of famous contests, such as the King's Cup, Schneider Trophy, etc., which, spreading as they do over a couple of decades, embrace a fine variety of advanced, unusual and rapid flying machines! Study of old aviation periodicals is the best method of obtaining data about aircraft of this sort, their fame ensuring that photographs of them appeared, not only when they were in the immediate limelight, but often at intervals thereafter.

Please don't bother the makers for details until the war is won, although in peace-time they are often most helpful, and their letters add greatly to the interest of modelling their products.

A class of subject for solid modelling that I have not seen previously discussed is that of the ultra-light types. The Lympne Light Aeroplane Contests of 1923 and 1924, the former limited to "motor gliders" with engine not exceeding 750 c.c., the latter to 1,100 c.c., two-seaters, produced hosts of most intriguing little aircraft, such as the Avro "Avis," Supermarine "Swallow," Parnall "Pixie," the better known A.N.E.C., and Manning's famous 400 c.c. E.E.C. "Wren."

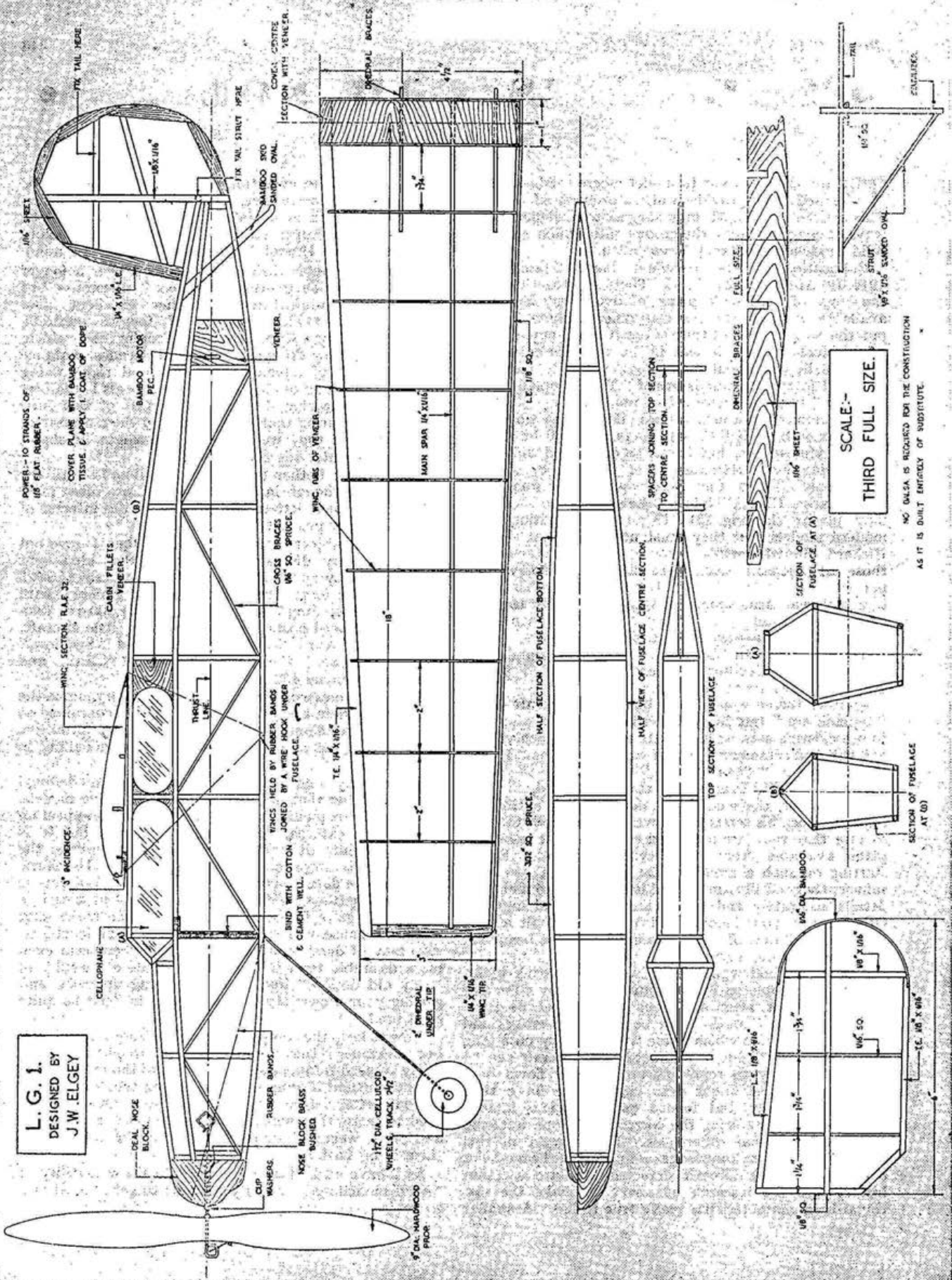
Such machines would not take up too much room in the study, if made to the 1/72 scale (!) but they contained so much of the detail interest, albeit of very primitive construction, as to make them ideal for modelling in larger sizes.

There really *is* no limit to the scope of solid modelling! But, remember that, in direct contrast to flying models, the "solid" is inanimate. It depends for its appeal on accuracy of external detail and good finish, but it is apt to fall into disrepute after it is made, unless the constructor is interested in what it *represents*. Therefore, collect all the data you can about the aircraft you propose to model; better still, develop your interest in a certain type or range of full-scale aircraft and then make your models because you crave a record of such machines. Accuracy of detail and good finish will then seem even more desirable than if you merely made a "solid" of "any old design" just to enjoy slicing up wood and getting your fingers sticky—which *can* in itself be quite good fun!

How to keep the completed models is another problem, but remember if they are used as paper weights they are likely to need frequent servicing, due to the attention of the duster, and if hung from the ceiling they may result in your better half leaving you for good! One modeller used to insist that his seaplane models had cork floats, and were weighted correctly, so that he could float them in his bath!

As I have said, there is no limit to the versatility of "solid modelling." It only remains to get started and go to it.

L. G. I.
DESIGNED BY
J. W. ELGEY



SCALE:-
THIRD FULL SIZE.

NO DALSIA IS REQUIRED FOR THE CONSTRUCTION AS IT IS BUILT ENTIRELY OF SUBSTITUTE

Readers' Letters

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

DEAR SIR,

Enclosed is a rough sketch of a machine I would like to build after the war. Ohlsson engine and radio controlled. The idea behind the design would be a perfect aerodynamic form. So distributing all the main components, wings, fins, tailplane, that the drag of each component would be along the centre-line of the aircraft, resulting in the cutting out of turning moments produced from the resistance of each component. The undercarriage would retract electrically and the traverse of the wheels in retracting would be such that the nose wheel would balance out the main wheels causing no change in the position of the C.G. The cooling system would consist of a main duct entrance in the nose, where the air pressure would be at its greatest, and exhaust towards the tail. The shaft drive would be of thin steel tube with a self-aligning ball race at the tail end. Batteries could be movable to correct the C.G., although in the construction of petrol models I have always had fixed batteries and had no trouble in getting the C.G. correct. In my opinion movable batteries often prove a menace owing to possible movement in flight. The machine would have a four-bladed airscrew which would reduce the diameter very effectively.

Wilts.

L.A.C. THOMASON.

A revolutionary idea, but one with possibilities. There are, of course, several snags in the design as it stands at present, and we invite constructive criticism from readers in this respect.—ED.

DEAR SIR,

I have read with considerable interest the letter by C. Middleton in the April AEROMODELLER. I regret that I can answer Mr. Middleton's letter only in part because without seeing his sailplanes and observing how he trims and flies them the question of where he goes wrong is one which may have many answers.

Your correspondent may have been led up the garden path by previously quoted sinking speed figures, and for my own part I must state that I do not agree with Mr. Warring's figure of 3 ft./sec. for a glider, let alone a really excellent sailplane. I contend that a well-built, well-trimmed and aerodynamically efficient sailplane will knock 50 per cent. off the above figure with ease, and if special care is paid to details a further reduction can be made, bringing the performance within the 1 ft./sec. category. From my own experience and observations I would suggest that the figure of 3 ft./sec. is more of what would be expected from a slab-sided "Wakefield," without such refinements as folding prop and retracting undercart.

The necessity for jiggling during the building period cannot be stressed too strongly, and the desirability of designing the airframe so that this can be accomplished easily, both during the time the model is under construction and when ready for the contest field, is a feature worth considering when designing any aeroplane.

Going back five years to when I built and flew the "Elmira I," I find that I am quite justified in claiming a sinking speed of 1 ft./sec. Throughout 1940 this excellent little sailplane made flights of something under 2 mins. from a 100 ft. line, when I was able to use the full extent of the line available. During the Thurston Cup the same year the total time for three flights was 256.6 secs., using a 100 ft. line. For this aggregate I did not get an overhead release for all three flights, due to adverse weather conditions, and sag was present in the line. I will be detrimental to the performance on this day by assuming that the full 100 ft. was available for height, as all three flights, the average sinking speed was thus: $300 \div 256.6 = 1.17$ ft./sec. approx. I would like to mention

that when the above flights were made the sailplane was partly waterlogged as rain had been in evidence all day and the contest flights were made after test flying earlier on in the rain; furthermore, a hole had been punched in the forward fuselage, thus impairing the efficiency still further.

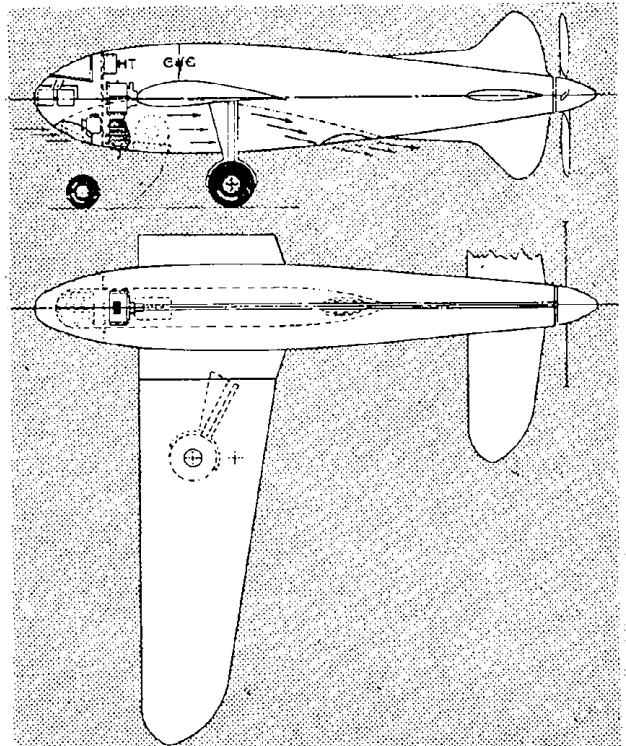
My "Tarpon" was built to F.A.I. rules and was primarily intended as a slope soarer, but in view of the impending S.M.A.E. contests and the fact that I hadn't time to build a towline sailplane, the "Tarpon" was used after a hook had been fitted under the fuselage. Owing to bad weather after completion, I was unable to follow my usual practice of stringent testing before the Weston Cup (1943) was upon me, and my contest flights were made without any pre-flight testing whatsoever. Even under rain conditions the total time was 141 secs., thus the average sinking speed was $300 \div 141 = 2.125$ ft./sec. approx., assuming that the useful length of the 150 ft. line was 100 ft., which I doubt, because on that day the line was like lead!

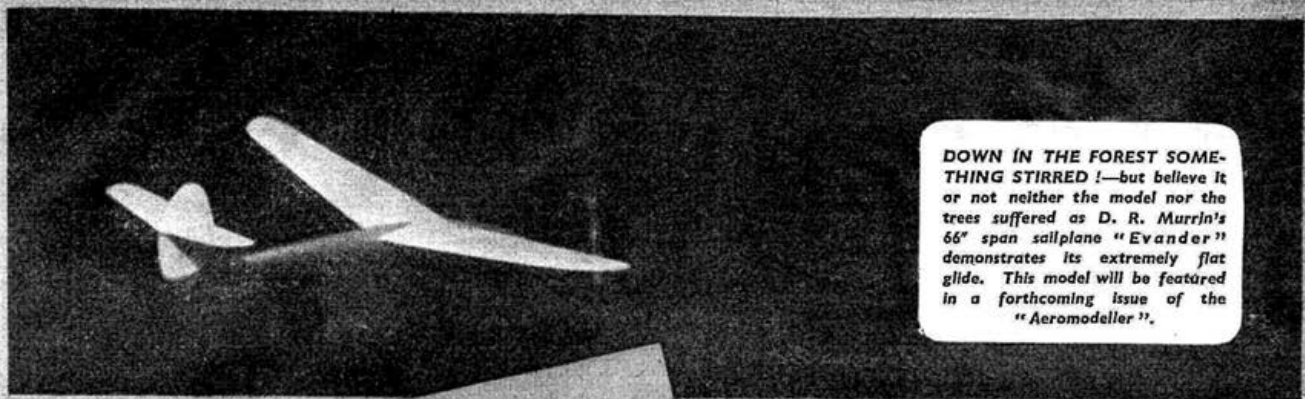
During the Pilcher Cup the same year the "Tarpon" aggregated 355 secs., and this aggregate was made up of three flights which were 2 mins. \pm 5 secs. Again assuming that the full length of the line was useful, the average sinking speed works out at 1.27 ft./sec. approx. This, all will agree, represents a maximum value for obvious reasons.

A visitor to Merseyside from Northern Heights who has witnessed my "Tarpon" flying on many an occasion will say that he has never seen a sailplane sink so slowly, nor has he seen one perform so consistently. Others will say the same.

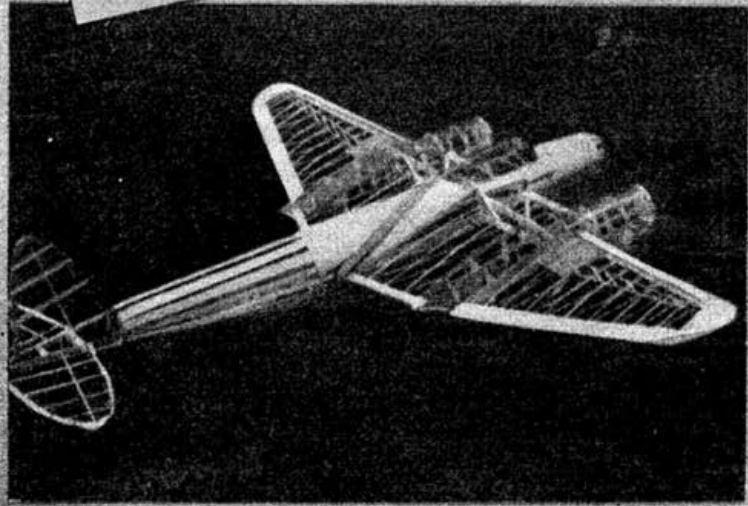
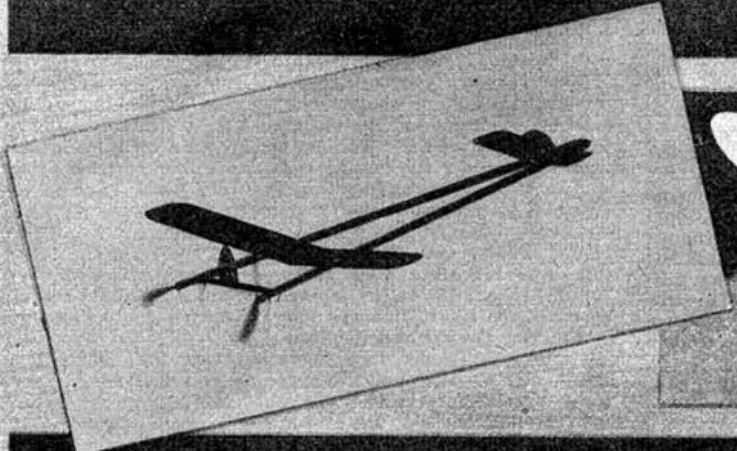
Cheshire.

I. S. CAMERON.





DOWN IN THE FOREST SOMETHING STIRRED!—but believe it or not neither the model nor the trees suffered as D. R. Murrin's 66" span sailplane "Evander" demonstrates its extremely flat glide. This model will be featured in a forthcoming issue of the "Aeromodeller".



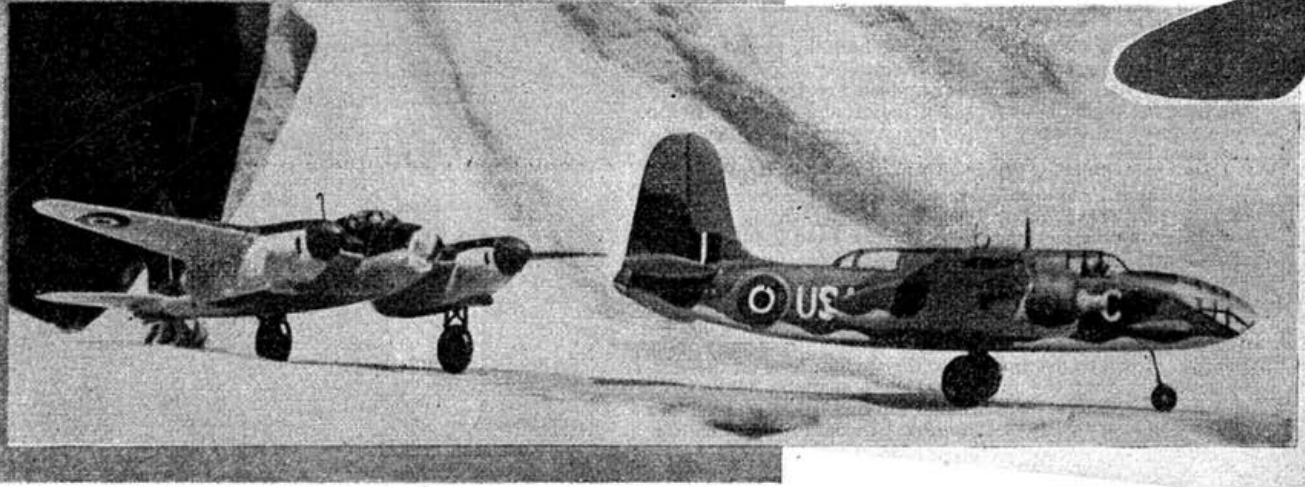
MODEL

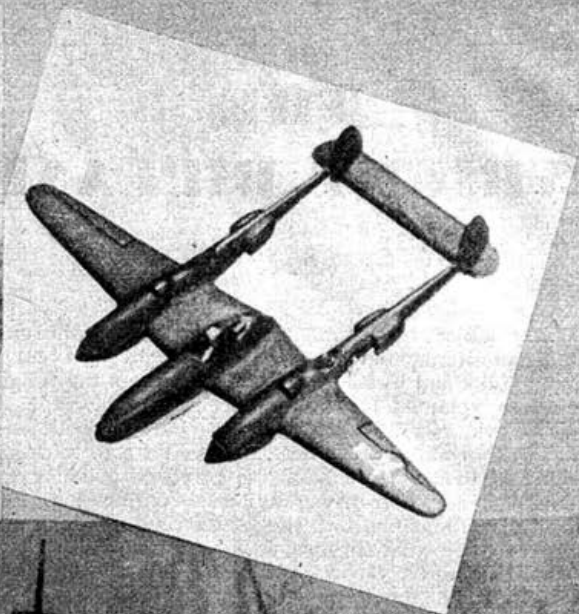
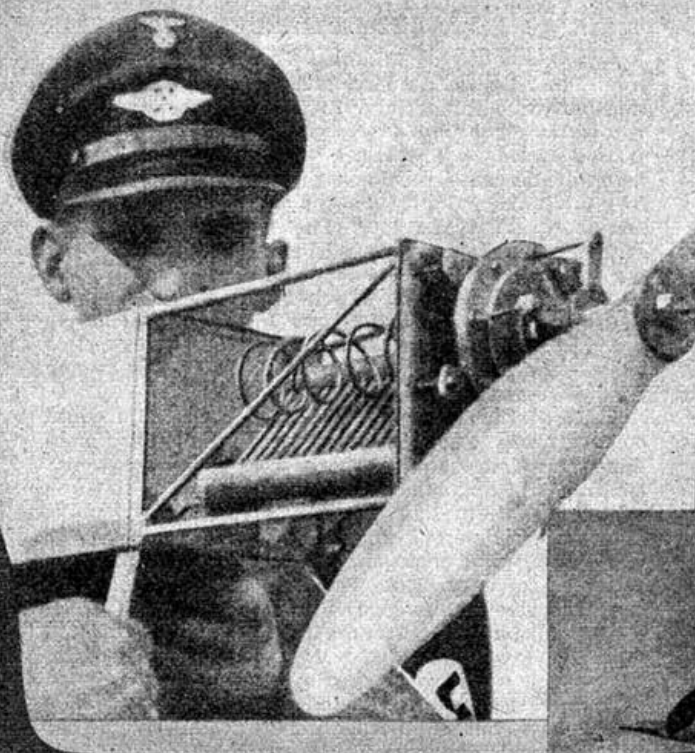
(Top left.) **COMING OR GOING?** A tall first A-frame Italian stick model of 1932 vintage which is in actual fact flying towards the right-hand side of the page!

(Above.) **COCKERMOUTH CLIMBER.** Original design by H. Bowman of the Cockermouth Club. This model clocked 2.25 on 275 turns before coming to an untimely end through a slip on a frozen hillside.

(Left.) **NAKED MOSQUITO.** Flying scale model by C. Chaplin of Keswick. A better back-ground would have shown the model up to greater advantage.

(Below.) **SEVENTYSECONDS.** Boston and a Mosquito by E. J. Graves of Southgate.





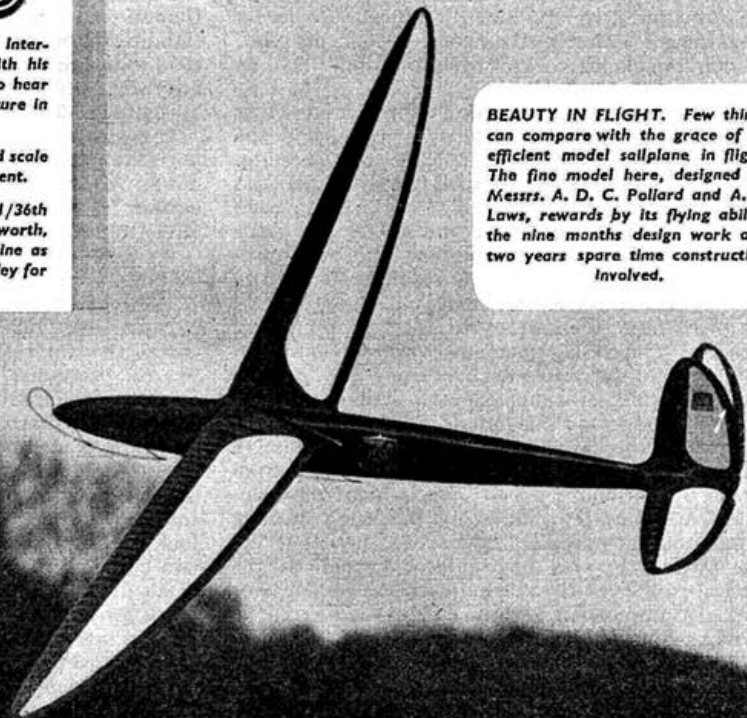
NEWS

(Above.) **TEUTONIC TURBINE.** A very interesting photo of a German S.S. Trooper with his steam turbine driven model. We have yet to hear of any practical developments of similar nature in this country. How about it?

(Top right.) **HELL BENT.** Realistic 1/72nd scale Lightning by R. G. Wigley of Burton-on-Trent.

(Centre right.) **TYPHOON.** A very fine 1/36th scale R.P. Typhoon by L.A.C. Holley of Emsworth. The model is detailed right down to the engine as the photo shows. Top honours to L.A.C. Holley for his constructive ability.

BEAUTY IN FLIGHT. Few things can compare with the grace of an efficient model sailplane in flight. The fine model here, designed by Messrs. A. D. C. Pollard and A. E. Laws, rewards by its flying ability the nine months design work and two years spare time construction involved.



THE WRIGHT BIPLANE

BY C · B · MAYCOCK

THE subject of this month's cover, the first heavier-than-air machine to sustain in free flight itself and its human pilot and by its own motive power, is the Wright tail-first biplane. It was on December 17th, 1903, at Kittyhawk, North Carolina, before only six witnesses, that Wilbur and Orville Wright, tossed a coin to decide which of them should have the privilege of being the world's first power-driven aviator. Wilbur lost, but assisted the machine into the air by running along and steadying the wing tip until it became airborne.

Mr. C. Rupert Moore's excellent painting has very well captured the atmosphere of the scene on those desolate dunes, where the first flights were made against a 25 m.p.h. wind. Altogether four flights were made that day and it was some considerable time before the news filtered through to the outside world, which was so thoroughly sceptical that it gave little credence to it. This is not altogether surprising, as so many "cranks" had claimed to have built flying machines in the past, and the only successful flying machines in those days were lighter than air. It is therefore of considerable interest, the recent discovery of a patent specification published by Hanlon, lodged by Alphonse Penaud and Paul Gauchot at the Paris Patent Office on 18th February, 1876, and granted on the 8th of April, for a flying machine, which reads like a modern specification. Full cantilever wings, stressed skin construction, retractable tricycle undercarriage, twin controllable pitch propellers, revolving in opposite directions, driven by submerged power units in the wing, automatic pilot, artificial horizon, glazed cockpit enclosure and-to crown all, amphibian operation.

However, to get back to the Wright brothers. Their machine was the outcome of intensive study, and the gleaned experience of Lillienthal, Pilcher and Chanute. They even built themselves a small wind tunnel and tested their airfoil sections in it. Both brothers were very reserved about their work, and preferred to try out their experiments with minimum publicity until they were absolutely sure of their results. It was on Octave Chanute's advice that they chose Kittyhawk Bay for their tests because of the steady prevailing winds there. The 1903 machine was virtually an enlarged version of their biplane gliders, and incorporated their patent wing warping device. Ailerons were "invented" to overcome this patent in the pioneer days. The pilot lay in the prone position, facing direction of flight, at his hips was a form of cradle, which moved from side to side by his body, pulled wires which were connected via appropriate pulleys to the wing trailing edges, thus pulling one side down and the other up, and vice versa. It was also interconnected to the twin vertical rudder at the rear adjusted to rudder over just the right amount in a turn. In his left hand he held a lever which actuated the biplane front elevator, through a series of "K" links, cross shafts and pulleys, which tilted the leading edges up or down. On his right lay the power plant, a four cylinder in line, water-cooled petrol motor of the Wright brothers' design and manufac-

ture. The cylinders faced inboard and were equipped with camshaft driven inlet valves. The exhaust valves were automatic. The unit developed approximately 12 h.p. It was cooled by a vertical radiator mounted on the forward mid-centre section strut. A small cylindrical fuel tank was mounted on the port out-board centre section strut at the top. The twin propellers were supported on diamond-shaped brackets located between the top and bottom rear spars and were constructed of bicycle tubing. The Wrights were bicycle makers, by the way. Transmission was by chains of bicycle type ducted through guides of bicycle tubing to reduce whip. The port transmission was crossed so as to give counter rotation to the propellers.

The air-frame was constructed of ash and spruce and covered with rubberised cotton fabric. The main dimensions were as follows: Span 40 ft. 4 in.; overall length 19 ft. 9 in.; max. chord, 6 ft. 0 in.; gap 5 ft. 9 in.; overall height 8 ft. 7 in. approx.

Its rather dolorous appearance was caused by the marked anhedral angle, or more correctly in this case, inverted catenary arc. The landing gear or skids owed their lineage obviously to the toboggan.

The launching apparatus deserves mention. It consisted of a pylon which carried a heavy weight, suspended from a rope which was passed over a pulley in the head of the pylon, down and round a corresponding pulley in the base, out to another pulley at the end of the launching-rail, and back to the launching cradle: The procedure of launching was as follows:—the machine was mounted on the cradle, which ran on guides on the launching-rail. The engine was then run up, and on a signal from the pilot a catch was disengaged allowing the weight to descend, which naturally pulled the machine along the rail until it passed a trip-catch which released the cradle from the machine, thus allowing the latter to become airborne.

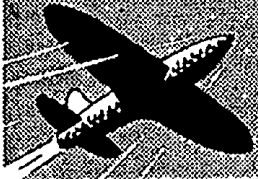
The idea was good, but had the great disadvantage that the machine had to return to its point of departure. Landing elsewhere meant dismantling and cartage by road to its launching site. Perhaps it was this more than anything which caused the French so to decry the Wrights in 1908.

It seems curious that such painstaking people as the Wright brothers should not get beyond the dead-end design of their tail first biplane; it became practically extinct by 1913. Yet the wheel seems to be turning full circle, tail first designs are very much in evidence again.

At this point it might be as well to mention that in all probability this famous 1903 machine, which has been in the custody of South Kensington Science Museum, London, since 1928, will be returning to America at the end of the war. We only had it in this country because of the famous Wright-Langley dispute with the Smithsonian Institute, U.S.A., which so exasperated Orville Wright that this priceless piece of aeronautical antiquity was entrusted to our care. By right it should be in America, where it will most likely be housed in some colossal edifice, specially erected and suitably inscribed, where only the keen will bother to go and look at it. But let us hope that it won't go before it can be seen in this country again.

Also in this month's issue (page 340) can be found the plans for building a very creditable flying model of this famous machine, which is, according to the constructor, a very good performer for its type. All credit to him for breaking away from the usual run of models and giving what might be termed the "sailing ship era" of heavier-than-air craft its due attention.

Rising to Great Heights!



AEROMODELLING in this country is skyrocketing to limitless altitudes

This magnificent movement has already attained a measure of success very gratifying to those who have patiently and persistently endeavoured to

Promote, Encourage, Develop and Protect its Future for All Time



In less than a single year **The ASSOCIATION OF BRITISH AEROMODELLERS** has emerged from the stage of the newly-hatched chick to the fully-grown cockerel. And now it may be forgiven if it crows—and crows loudly!

In that short period of time—and in the midst of a major World War—it has gathered together a splendid, enthusiastic body of members numbering many thousands. Every post brings completed membership forms, requests for further information, and, indeed, bulk enrolments.

It has maintained a year of exceptional progress under the able guidance of a cautious Council of tried and true Aeromodelling experts and enthusiasts who know their job, understand the problems of the uninitiated youngsters, and who are determined to see that the Association stands four-square with any similar movement the world over.

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can join as an individual member,
can co-operate by recruiting your friends to join,
can take an interest in the conduct of the affairs of the Association,
can start a local club,
can feel proud to belong to an Association that is forging ahead with high ideals and aspirations.

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It provides you with a complete exchange of information on everything connected with Aeromodelling.
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It promotes National, Local and International Competitions.
It promotes research, education and exhibitions.
It safeguards your every interest.
It helps you to solve all your problems through the service of a corps of experts.
It has no fewer than nine sections to which you can join.

GREAT NEWS TO AEROMODELLERS' NATIONAL AERODROME!!



By the middle of August members of the Association of British Aeromodellers will be able to fly their models on Britain's First National Model Aerodrome, which is situated some thirty miles north of London, and therefore easily accessible from all parts of the country. Here you will be able to meet many other members, test out your models, enter National Competitions, and enjoy social intercourse and comradeship in ideal model aircraft surroundings; in fact, you will realise that, as a member of the A.B.A.,

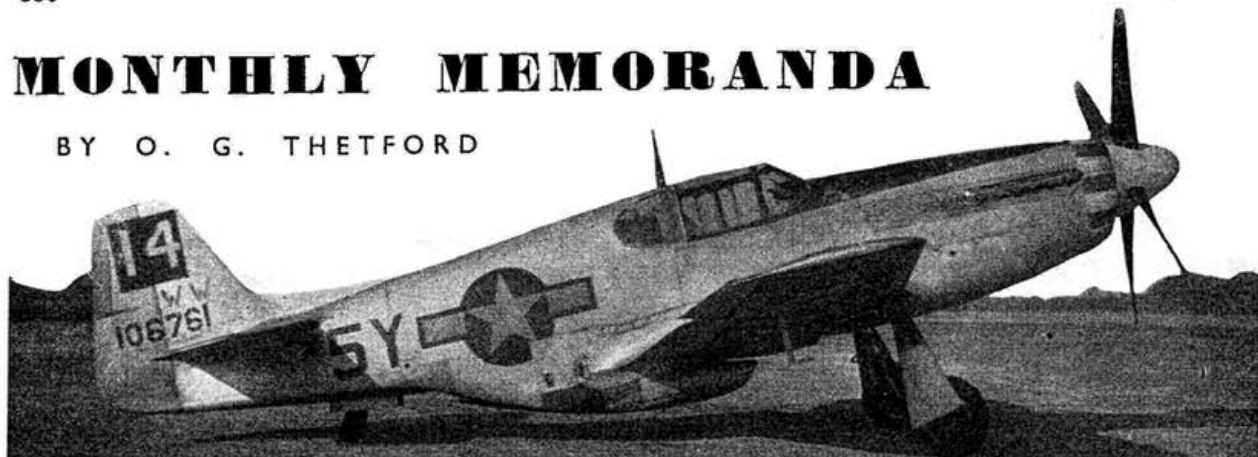
AEROMODELLING IS WELL WORTH WHILE

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MONTHLY MEMORANDA

BY O. G. THETFORD



A.T.P. Photo.

A New Mustang Variant.

The photograph above is, we believe, the first to be published in this country of a P-51B Mustang fitted with the extended fin usually associated with the later P-51D version. A number of older types of Mustang have apparently been retrospectively modified at U.S. Air Service Command Bases.

The P-51B illustrated, No. 106761, was attached to a station of the U.S. Eighth Air Force in the Eastern Counties. The black square on the tail assembly was the standard marking of the Bombardment Group (a Fortress unit) to which it was attached. The checks on the nose appeared in blue and white.

This Mustang was no longer operational and an interesting point in this connection is the "W.W." marking on the fin, painted in yellow. This is the standard code in the U.S.A.A.F. indicating a "War-Weary" aeroplane which has completed its spell of first-line service and has been withdrawn for overhaul or non-operational duties.

Light Weather Mosquitos.

Since early in 1944 large numbers of Mosquitos have been seconded to the U.S. Eighth Air Force for duties as photographic reconnaissance and meteorological flight machines. These Mosquitos are flown from the De Havilland factory to a U.S. Service Command Base where they are suitably modified. They are painted in standard British P.R.U. blue and have the U.S. insignia on the top of the port wing, beneath the starboard wing and on each side of the fuselage. A single recognition letter is usually painted in white block capitals on the fin. These machines are known as "Light Weather" aircraft to distinguish them from the special "Heavy Weather" converted Fortresses. The U.S. Mosquitos are of the Mk. XVI variety.

White Tails.

It can now be revealed that the various types of aircraft ferried across to the Middle East from ports in West Africa during 1941-43, including the Hurricane, Tomahawk, Kittyhawk, Blenheim, Baltimore, etc., were given a temporary coat of white paint on the fuselage decking just ahead of the fin, and above the horizontal tail surfaces. These aircraft were ferried across in formation with a Blenheim in the lead, and all the navigation was done by the Blenheim crew. The white tail marking assisted recognition in the air.

It is also learned that in the Pacific Theatre aeroplanes of the Royal Australian Air Force usually have the

rudder painted all-white when the machine is being flown by the C.O. of any particular squadron.

British Roundel Changes.

With the exception of heavy night bombers, the vast majority of British aeroplanes now flying with the R.A.F. in this country bear the original type of red, white and blue roundels above the wings in place of the red and blue roundel standardised in 1938-9.

Aeroplanes carrying the new roundels include Spitfires, Mosquitos, Beaufighters, Warwicks, Hudsons, Oxfords, Ansons, Masters, Magisters, Harvards, Tiger Moths, Proctors, Arguses, Dakotas and Dominies. Roundels on the fuselage and beneath the wings remain unchanged, as do the fin stripes.

Certain aircraft of R.A.F. Transport Command are now flying without camouflage, and are silver all over; red, white and blue roundels being standard. These include the Warwick Transport, the Avro York, the Douglas Skymaster, and the H.P. Halifax.

Aeroplanes of the R.A.F. Second Tactical Air Force in Holland, including the Spitfire XIV, the Typhoon, the Tempest, the Boston IV, the Mitchell III, etc., are carrying a red, white and blue roundel outlined in yellow above and below the wings. The fuselage roundel and the fin marking remain unchanged.

R.A.F. Flashbacks—7.

The Gloster Gamecock I is the subject of this month's "Flashback." A development of the Grebe, the Gamecock was generally similar in appearance to its predecessor but had a revised type of tail assembly and a Bristol Jupiter nine-cylinder radial motor instead of the fourteen-cylinder Armstrong-Siddeley Jaguar.

The Gamecock was used by five fighter squadrons of the R.A.F. in the latter half of the nineteen-twenties and a few were still in service in the early thirties. When it finally became obsolete, about 1932, there were no Gloster fighters serving with the R.A.F. until 1935, when the Gauntlet joined No. 19 Squadron.

Squadrons equipped with the Gamecock included Nos. 3, 19, 23, 32 and 43. The machine in the picture opposite, J 8037, bears the black and white checks of No. 43 (F) Squadron. Machines of No. 3 had a green bar; of No. 19 blue and white checks; of No. 23 blue and red squares, and of No. 32 blue band with white diagonal intersections.

The Gamecocks were, of course, doped silver all over. Red, white and blue stripes on the rudder had the blue foremost, as in Great War days, and the roundels on the wings overlapped the ailerons.

PHOTO NEWS

(Top.) **MISSION COMPLETED** :—A Boeing B-17G Fortress of the U.S. Eighth Air Force photographed a second before it touches down on its home base "somewhere in England" after a daylight raid on Dresden. (A.T.P. Photo.)

(Middle left.) **ON THE PROWL** :—One of the later versions of the Vickers-Armstrongs Spitfire VII (Merlin 61) with standard elliptical wings in place of the original pointed wings. (A.T.P. Photo.)

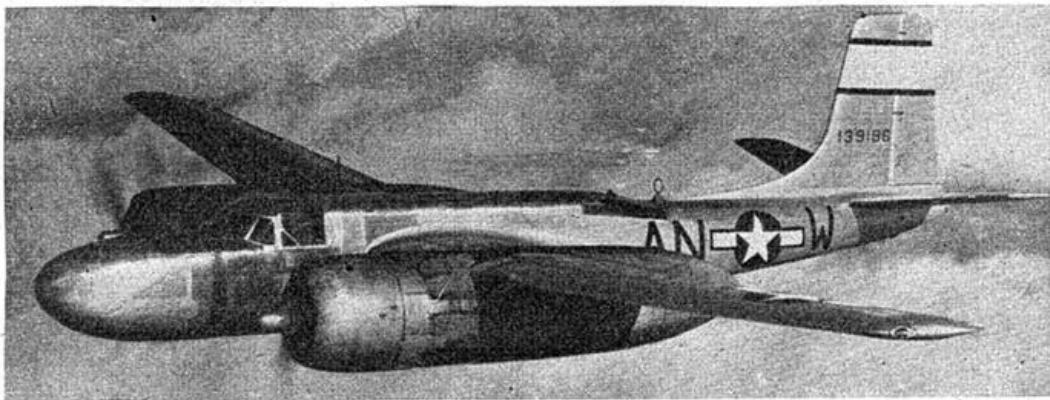
(Below right.) **BACK TO THE TWENTIES** :—A typical 150 m.p.h. R.A.F. biplane fighter of the late twenties—the Gloster Gamecock I (Bristol Jupiter.) See this month's R.A.F. Flashbacks on opposite page.

(Bottom left.) **FOR NIGHT OPERATIONS** :—Avro Lancasters of Bomber Command, which have pounded Germany unceasingly by night (and occasionally by day) since 1942. (Photo: "Illustrated.")



(Above right.) **VETERAN TRANSPORT** :—A Douglas C-47 Skytrain of U.S. Troop Carriers Command coming in to land at a British base. (A.T.P. Photo.)

(Below right.) **IN THE HAVOC TRADITION** :—The Havoc's successor on the Douglas production lines, the Douglas A-26 Invader, now operating with the U.S. Ninth Air Force in Germany. (Photo: P.N.A.)



The Republic P-47D-25 THUNDERBOLT II

AEROPLANES
DESCRIBED XXVIII
BY H · J · COOPER



Photos by courtesy of Republic Aviation Corp.

VERSIONS of the P-47 Thunderbolt now in service with U.S.A.A.F. and R.A.F. are, like most fighters, now fitted with completely transparent "bubble" cockpit covers. This modification greatly affects the appearance of the P-47, and the manufacturers claim that the performance and general practicability of the type has been enhanced.

Thunderbolts are now mostly operating with the Tactical Air Forces in the advance into Germany, and their sturdy construction and big radial motor affording protection for the pilot enables them to "take it" while ground strafing more than any other operational fighter. Higher altitude fighting is now left to the Mustangs and the various British fighters.

The initial test-flying of the prototype Thunderbolt, the XP-47, was made in May, 1941, the first flight being made on the 8th of that month.

Less than a year later the Thunderbolt was in large-scale production, and many hundreds have been built. Except for a few P-47Bs, known as the Thunderbolt I, the type was not used by the Royal Air Force until the current model was issued. This version is known to the

R.A.F. as the Mk. II and corresponds to the types P-47D-25 to D-28 of the U.S. Army. All are fitted with "bubble" cockpits.

The motor is the 2,000 h.p. Pratt & Whitney Double-Wasp eighteen-cylinder air-cooled radial, with an exhaust-driven supercharger, and can develop 2,300 h.p. for thirty minutes with the aid of a larger water-injection system. A four-bladed "paddle" airscrew is fitted to the latest versions and the rate of climb is considerably increased.

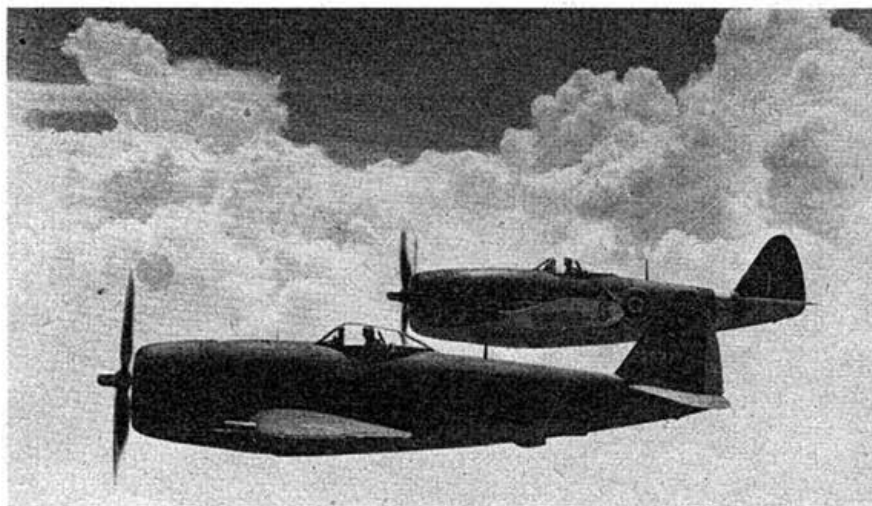
The Thunderbolt is well into the 400 m.p.h. class, is very manoeuvrable, and is designed to withstand diving speeds up to 700 m.p.h. The ceiling is about 40,000 feet, and the radius of action, with maximum fuel capacity, is 637 miles.

The armament of the P-47 consists of eight .50 machine-guns mounted four in each wing, and two 1,000 lb. bombs can be carried underneath the wings. An alternative arrangement is for a 1,000 lb. bomb to be suspended beneath the fuselage, with a 500 lb. bomb below each wing. In each case a long-range fuel tank can replace the bomb.

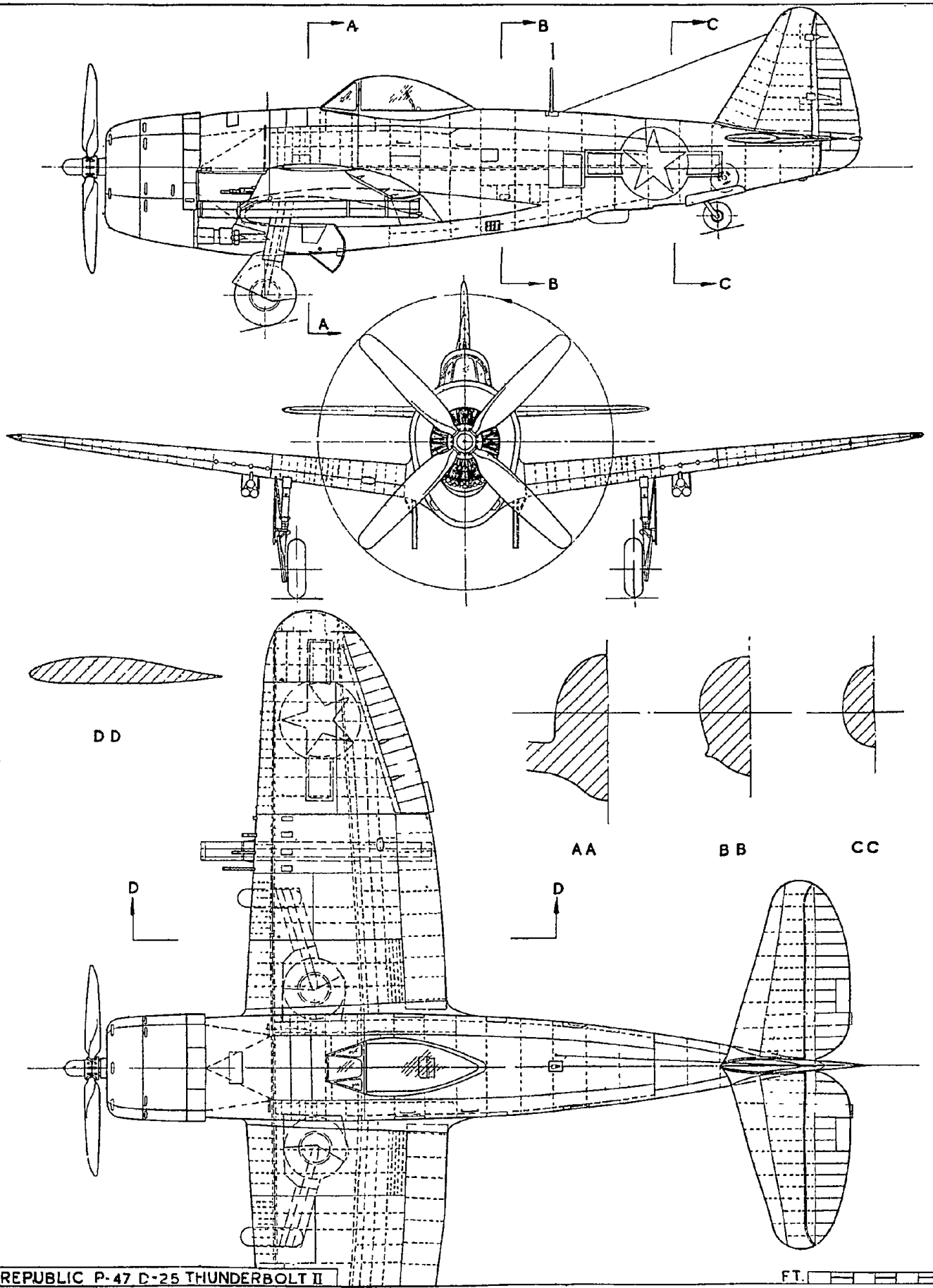
Thunderbolts are now flying with three R.P. tubes below each wing.

The pilot's cockpit is extensively armoured against fire from any angle, and this contributes very much to the P-47's all-up weight of about 16,000 lb.

Main dimensions of the P-47D are: Span, 40 ft. 9 in.; length, 36 ft. 1 in.; root chord, 9 ft. 0 in.; tailplane span: 17 ft. 0 in.; track, 15 ft. 0 in.; air-screw diameter, 13 ft. 0 in.



Next month:
The Armstrong-Whitworth
Atlas I

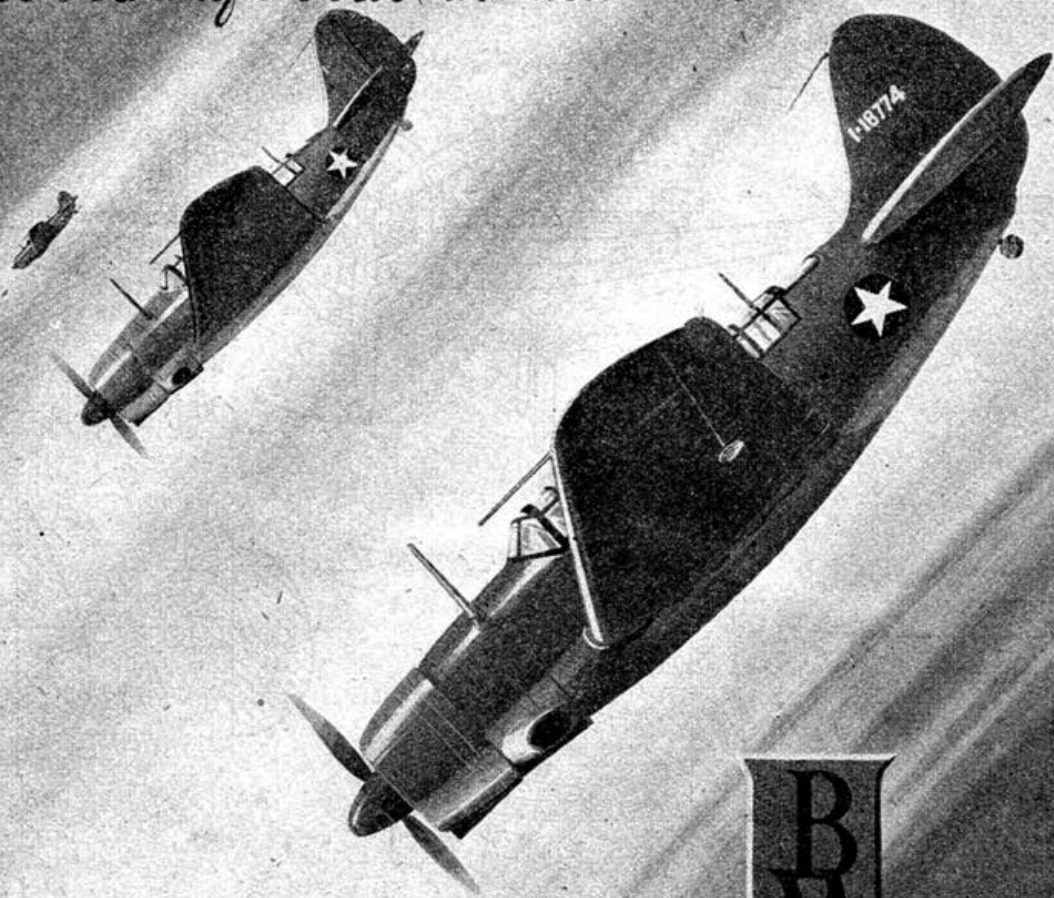


REPUBLIC P-47 D-25 THUNDERBOLT II

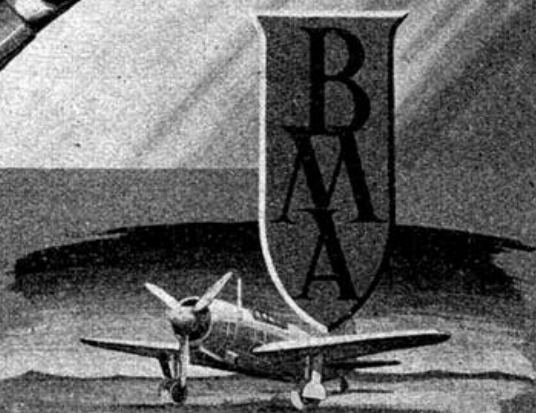
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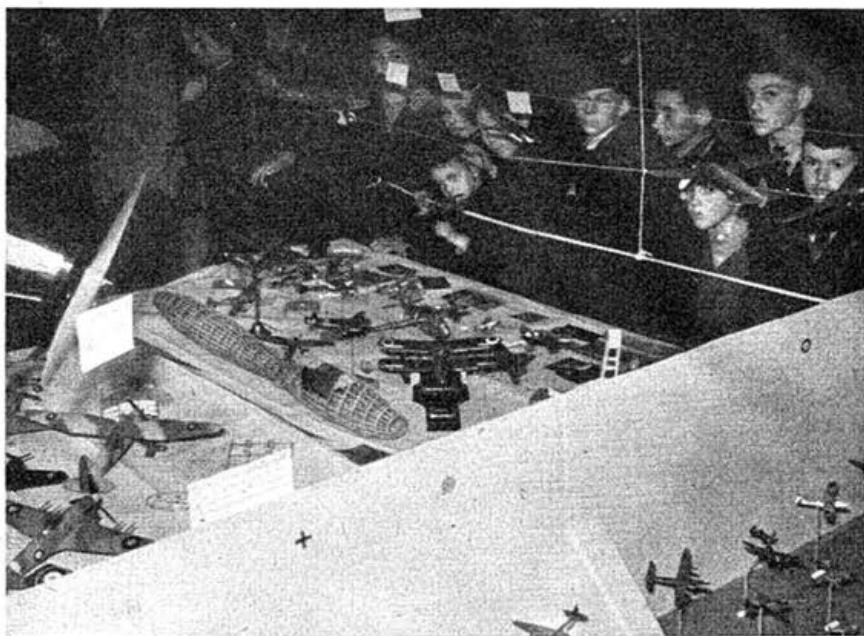
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CLUB NEWS

BY CLUBMAN

A crowd of youngsters surveying the model aero stand at the Exhibition organised by the North London Society of Model Engineers.



THE 1945 competition season started with a bang, the Clerk of the Weather relenting from his usual pranks with wind and rain and, from what we learn, conditions were reasonable all over the country on April 15th for the annual Gamage Cup. Entries were up on even last year's record entry, the total being 310, from some 45 clubs.

The winner, M. A. Wright of Bushy Park, set up an aggregate of 1,248 seconds, an increase of approximately 25 per cent. on last year's winning time, and thus maintains a very creditable record in National competitions.

The first three place men flew in the London area, and this fact gives point to a suggestion I received during last season. My correspondent gave as his opinion that the London modellers were favoured when it came to materials in short supply, particularly rubber, and that it was mainly this access to rubber—small though the supply might be—that gave the London area clubs an advantage in the power-driven contests. Personally, while agreeing that there may be some truth in the above suggestion, I think the real answer is that the majority of the London clubs were in possession of fairly substantial stocks (either private or club owned) and these have been carefully conserved, and in some cases reserved for the club experts in order to have the best chances in the more important competitions. Who will argue with this practice anyway?

A few more details are to hand this month regarding the special contest to be conducted this year, sponsored

by Sir Frederick Handley-Page, and organised by the S.M.A.E. It seems that my suggestion of a centralised event may take place, as latest news states that semi-decentralised eliminating events will take place in five areas, which suggests that the finals will take place at a central venue. Models must be of the tail-less category, with a minimum area of 300 sq. ins., and either gliders or power-driven types can be flown. Power-driven types—other than rubber—are limited to a power run of 15 seconds, and gliders limited to a towline length of 200 ft., and must comply with F.A.I. loading requirements. One of the real tit-bits of the contest is the requirement that models must demonstrate their controllability by performing left and right-hand turns—a factor that I predict will give many headaches to would-be designers!

Well, as I expected, I thoroughly enjoyed myself at the S.M.A.E. Prize-giving Dinner and Dance, and was delighted to meet so many of the old friends of pre-war model meetings at Faireys, and numerous other modellers' haunts. Naturally, there were many new faces that have appeared in the modelling firmament since the days when I could pride myself on knowing everyone who was anyone in aeromodelling; but that is inevitable under current conditions, and a situation I hope to remedy at the earliest opportunity after the war when we get the old meetings back once again.

It was a pleasure to meet so many of the real "old-stagers" who never seem to age, and retain their enthusiasm with all the vigour of the newest newcomer to this greatest of all sports. In particular, I would congratulate Mr. C. Burchell, surely one of the oldest members of the Society, and one of the keenest. I have never met him yet but what he has some gadget in his pocket, displaying a degree of workmanship that some of the younger members could well attempt to copy.

One or two items of news are to hand this month from overseas, and one in particular from a Dutch reader, now serving in the R.A.F. in this country. He is Harrie Veenstra, who won the Dutch championships for tail-less type gliders in 1941, and a friend of Van Hattum, the leader of aeromodelling in Holland before the war—

1945 GAMAGE CUP.

April 15th.

		Secs.
1.	M. A. Wright Bushy Park	1,248
2.	N. Paterson Blackheath	989
3.	S. Mayo Streatham	900.5
4.	B. Noble Surbiton	884.2
5.	N. G. Marcus Croydon	791.7
6.	E. Buxton Croydon	782.0
7.	P. Lee Pharos	774.4
8.	P. Buskell Surbiton	735.8
9.	M. Withey King's Heath	731.8
10.	A. T. Taylor Bushy Park	714.5
11.	R. Rock Streatham	684.7
12.	N. Gregory Harrow	666.5

310 entries. 48 clubs.



The ubiquitous "Cruiser Pup" in the mystic East. The model was built in the Lahore Cantonment by L.A.C. Fowler, who is also visible in the photo!

The SURBITON & D.M.F.C. Team Glider Challenge meeting was held under dull but dry conditions on March 25th, the meeting being well attended by both competitors and spectators. So many lines were in use that models were at times flying through what was at times a miniature balloon barrage, and some jobs were brought down through striking the cables. Best flight of the day was made by Mr. Marcus of Croydon with a time of 5:09.5, followed by Mr. Wright of Bushy Park, 4:55.5 o.o.s. The most notable machine on view was a canard type of some 6 ft. span belonging to Mr. Galbraith of Croydon. This model was of superb construction, and made some very good flights, best being 3:30. Full results were:—

Bushy Park	..	..	1730.1	points
Croydon	..	..	1617.4	"
Surbiton	..	..	1316.0	"
Cheam	..	..	1243.7	"
Blackheath	..	..	948.5	"
Brentford and Chiswick	..	..	895.2	"
Bromley	..	..	773.0	"
Thames Valley	..	..	766.2	"
Streatham	..	..	700.1	"

J. A. Bones of the AYLESTONE M.F.C. has recently broken the club lightweight H.L. record three times, it now standing at 4:27. His model is a 20-in. span parasol type with a good, steady climb, giving a regular duration of 1½ to 2 minutes. Gamage day was fine but windy, and members who flew in the morning had the worst of it. However, H. Spikings managed to break the lightweight r.o.g. record with a flight of 2:28, his aggregate for the comp. being 6 minutes. K. Chandler has brought out a new, beautifully made mid-wing glider of 48-in. span, and is putting up good time, the model appearing to have exceptional soaring qualities.

The WOLVERHAMPTON & D.M.A.S. (formerly Penn M.A.C.) held its first outdoor meeting of the season on March 18th, when the following times were put up:—

Tow Launch Glider:

R. Jones	..	..	..	4:15
A. Griffiths	..	..	..	2:00
S. A. Ward	..	..	..	1:39

Records to date are: F.A.I. glider tow-launch, K. Greaves 5:03; Lightweight Glider, J. Reid 7:15.

There were approximately 150 models of all classes on show at the exhibition staged by the WEST COVENTRY M.A.C., ranging from 1/72 solids of a few inches span, to gliders of over 7 ft. All models were without doubt of first-class workmanship, and the public showed their appreciation by generous donations to the club funds. The elaborate precautions taken to safeguard the models were rewarded by the fact that not one model was stolen—surely a record for exhibition work!

A solids contest staged by the DALMELLINGTON Y.S.A. saw some very fine models submitted, the winner being A. Robertson with a "Flying Fortress," followed by T. Mitchell (Beaufighter) and a special prize to J. Burgess for a very fine Spitfire cut from solid brass. J. S. McChesney won the best flying contest of the

and, in fact, up to 1942, when the Germans forbade the meeting of model clubs in that country. (Incidentally, has any reader news of Van Hattum? If so, I should be obliged for any news that can be passed on to the many friends he has in this country.)

Pte. W. E. Alcock, of 54, Westlake Avenue, Toronto, Ontario, Canada, would like to correspond with modellers over here, and exchange ideas, plans, etc. He is the proud owner of two Ohlsson motors, and had considerable success with models using same for power. A member of the Toronto Gas Model Club (the membership of which has risen from the original five to nearly 150), he is becoming rather tired of the usual run of orthodox models, and fancies a scale monoplane type, getting more pleasure out of a heavy job than a lightweight, "as they look like the real thing, and are not easily lost."

A. Williamson of the CRANWELL M.A.C. lost his "King Falcon" glider on April 15th, after a flight of 26 minutes out of sight, and is interested to know whether any reader has bettered this time with a similar model. Any news of the lost machine, which had a black fuselage and white mainplane, will be appreciated.

Another model of which news is sought is a 6 ft. glider belonging to F. B. Adams of 19, Wood Lane, Hednesford, Staffs., which vamoosed o.o.s. after a ten-minute flight on the 17th April. This model is finished in brown-red dope all over, with A.B.A. transfers, and the owner is particularly anxious to find the job as it was a new model being flight tested.

All entries for the first Northern Area Rally to be held at the Springfield Park Golf Course on the 1st July must be in by the 23rd June, in order to give the organisers an opportunity of knowing how many to cater for in the way of refreshments, as this will be somewhat difficult in this wartime rally. Five events will be held, consisting of Concours d'Elegance, Open Rubber (r.o.g.), Open Glider, Consistency and a general Open Rubber and Glider event, with special prizes for juniors. Correspondents and entries should be sent to either Mr. W. Titterton, 13, Lakes Road, Dikinfield, Cheshire, or Mr. R. Lawton, 10, Dalton Avenue, Whitefield, near Manchester.

season—a glider event—with three flights of 1:52, 1:49 and 1:25: consistent flying indeed. The members were amused by G. Pask's model "Hell's Bells," the bells surely ringing by the manner in which said model shook Mother Earth on several occasions!

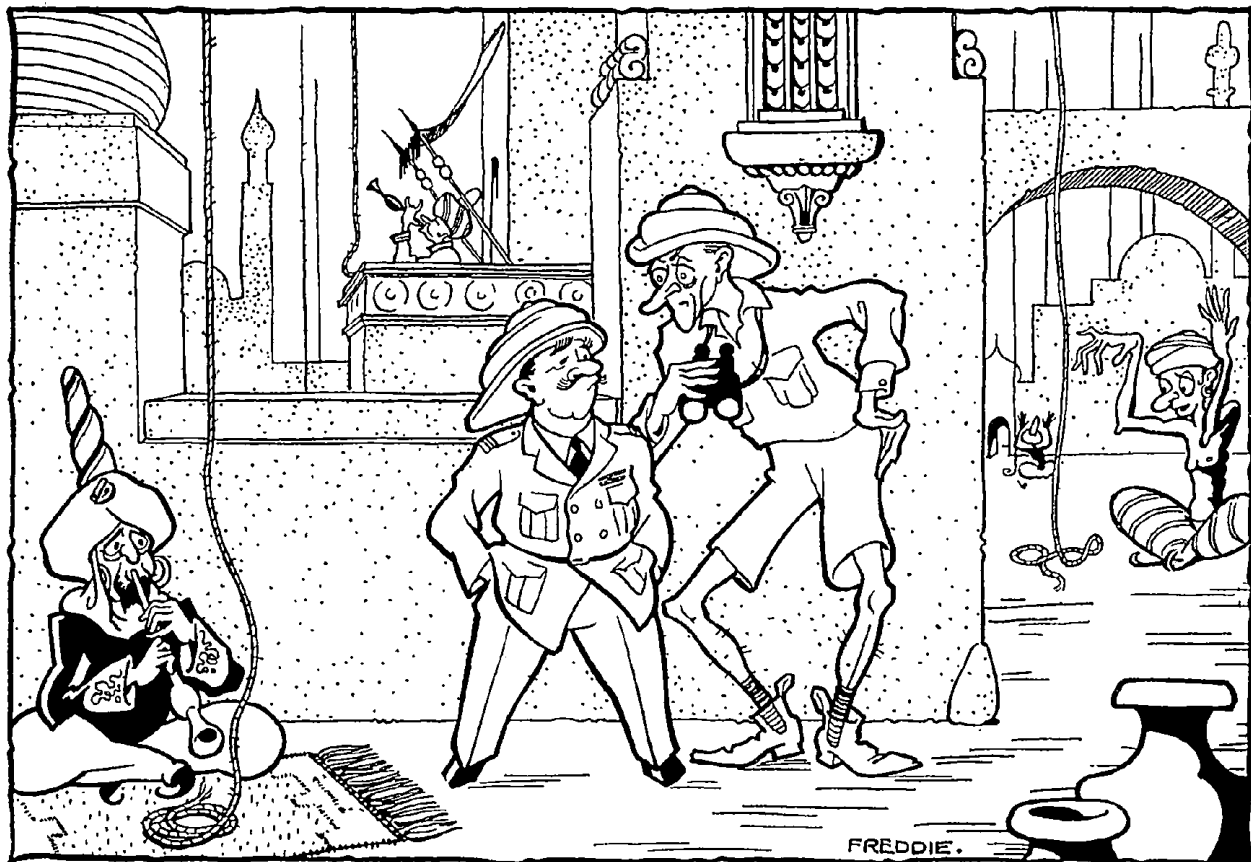
The MERSEYSIDE M.A.S. did not do a great deal of flying before the Gamage event this year, members saving their models for the club exhibition. Weather on Gamage day was better than usual this year, but strangely enough, the times were not at all out of the ordinary. Best time of the day was 1:39 by D. R. Hughes, flying a four-year-old "Clipper." A. O. Sutcliffe flew a promising looking shoulder-wing machine of his own design, and there were several "Zippers" (by now quite a favourite) in the running. A slope soaring meeting at the Glwyd Hills has been arranged for May 6th, when they optimistically hope to raise the British H.L. record even higher. Anyone interested is cordially invited to attend these meetings, another of which will be held later on in the season.

The recently established NORTH LONDON SOCIETY OF MODEL ENGINEERS held their first exhibition from April 5th to 7th at the Ewan Hall, Barnet: 3,645 people visited the exhibition, which was opened by Mr. Jeffrey de Havilland. A grand total of £100 was collected at the gate, this sum being donated to the British Legion—a very creditable effort for a new society. A large display of over 200 model aircraft of all types included an interesting collection of approx. one hundred detailed 1/240th scale models built from visiting cards

by G. Dyer of Southgate. Several petrol models were on show, one interesting exhibit being a scaled down "Kestrel" engine of '45 c.c.

WALLASEY M.A.C. members are now well prepared for the new season with a splendid range of new models, including "Dabchicks," "Terns," and several original designs. A noteworthy flight was put up by R. L. Tizard with his "Huron," time being 4:30 o.s. The model was of 36 in. span, Clark Y wing section, and slabsided fuselage. The model finished up in "the drink," otherwise the River Mersey, and Tizard became Mermaid No. 1 of the Mermaid Club for those members whose models are lost over water!

The BRADFORD M.A.C. had better weather than usual for the Gamage Cup contest, though wind soon took the models o.s. R. Calvert, who made best time for the club, was flying a slabsided Wakefield with polyhedral mainplane. His first flight of 4:40.5 was best of the day, and in order not to lose the model turns were restricted on the second flip, which resulted in a normal flight of 2:37. On winding for his third flight the motor broke and damaged the machine, and on repairs being carried out and an old motor installed, the model could not get enough height to take advantage of thermals. N. Lee had his "Payload Wakefield" out for the first time. This model carries 4 oz. dead weight, and has an all up weight of 12 ozs. The model has a spectacular climb and a long, flat steady glide, but requires really expert handling. This model also suffered damage through rubber breakage, putting the



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undercart retracting mechanism out of action. The day finished with Silvio putting up his usual good performance with his gas jobs.

Steady progress is being made by the SALFORD M.A.C., the first comp. of the season having just been held. Times were not high owing to poor rubber motors, D. Brown winning with a modified "Scarlet Ranger." H. Middlemiss holds the H.L. glider record with his "Waco Hadrian," time 46 seconds.

TORQUAY & D.M.A.C. started the flying season early, the Senior Tow Launch Glider contest resulting in a win for J. Higgins in gusty weather, with an aggregate of 2:35 for three flights. M. Yate, the club's youngest member, won the Bullocke Junior contest with aggregate of 2:38.5. Slope soaring at Petifor Golf Course resulted in J. Higgins raising the club H.L. record to 58 secs.

The BATH & D. MODEL MAKER'S CLUB has been in operation for three months, and now numbers 52 members. All branches, of model making are catered for, and the aero section is making steady progress. Anyone in the area interested should get in touch with the secretary, J. H. R. Cade, 25, Upper Boro' Walls, Bath, or attend the clubroom at 11, Union Passage on Mondays and Fridays from 6.30 to 9 p.m.

M. Hetherington of the DONCASTER & D.M.F.C. put up a 17 minute flight with a model of his own design on April 8th, but times on the Gamage Cup day were nowhere up to this standard. A howling gale in the afternoon settled down to almost perfect conditions in the evening, but all flying had been completed by this time! F. Gearing put up the best aggregate of 3:29.7, B. Fox totalling 2:50.9.

The glider record in the AYR M.A.C. has been getting a bashing lately, being broken three times recently, the final going to W. Rille, whose "Thermic 50" put up a time of 2:18. Results of the first comp. of the year—a glider event—were:—

W. Rille	Thermic 50	..	5:14.5
R. Hosie	Victrace	..	4:23.6
T. Moore	Ivory Gull	..	4:15.8

The NOTTINGHAM & D.M.A.C. reopened activities on April 8th, with a flying meeting held at Hayes Farm. Gliders were the order of the day, and good performances were specially noted by F. Potter and P. Waller, the latter, first time out with a new design, clocking 4:15 o.o.s.

The annual solids contest of the NORTHAMPTON M.A.C. was well supported, the winners being (senior) J. Letts, "Fairey Fantome," and (junior) R. Goodman, "Mustang IV." Much interest is still being in reaction propelled models R. M. Glass being successful with a rocket propelled flying wing. This chap has also been flying a 1 in. scale "Tiger Moth" r.t.p., this model having been designed for the 1943 Wings for Victory competitions.

The seventh annual exhibition and competitions of the KODAK RECREATION SOCIETY will be held at Wealdstone from the 14th to the 17th June, and full particulars can be obtained from the secretary, K.R.S., Wealdstone, Harrow. Six classes are open to model aircraft, and this show is notable for the first-class organisation experienced in previous years.

AYRSHIRE AEROMODELLERS' ASSOCIATION have just concluded a league r.t.p. contest, Stewarton M.A.C. being the undefeated winners. Times were generally low, due mainly to the state of rubber motors, which seemed to fail at about 50 per cent. usual turns. The winner's average times over 36 flights was 50 secs.

Members of the GREAT YARMOUTH M.A.C. took advantage of the recent spell of fine weather, and some excellent models were displayed. J. Mannall clocked 3:30 with his "Buzzard" glider, the model being retrieved from the top of a friendly (?) tree after an anxious search. J. Lamb's "Cruiser Pup" became winner of the club r.t.p. record (H.L.) with a flight of 32 secs., while R. Woodcock won the solids contest with a model of the "Black Widow."

Two recent contests of the SOUTH BIRMINGHAM M.F.C. for gliders and rubber-driven jobs resulted:

<i>Gliders.</i>	A. Cope	..	1:20
	P. J. Boonham	..	1:10.5
	H. G. Cook	..	1:07
<i>Rubber</i>	D. McMillan	..	3:39
	H. G. Cook	..	1:25 (2 flights)
	P. J. Boonham	..	1:56

Boonham put up the best club flight of the 1944 season with his "Atalanta" glider, time being 10:45 o.o.s., though the model remained visible to other observers for over twenty minutes.

The BURTON ON TRENT M.A.C. is having some enthusiastic flying, and is anticipating a record season. The lightweight glider record has been raised from 4:10 to 6:45 by R. G. Wigley, flying a "Mick Farthing" glider, while D. A. Lacey (doing a spot of modelling whilst on leave) put up a new r.t.p. speed record 27.5 m.p.h. with a model of his own design.

The newly formed SOUTHBEND MUNICIPAL COLLEGE M.A.C. held its first flying rally at Hadleigh on April 8th. A large number of members took part, and several models put up excellent performances in spite of the poor weather conditions. K. C. Branfield raised the club sailplane record to 12:10 o.o.s., the model being last seen at a height of approx. 600 ft. and still climbing. A fin-less glider showed great promise on test flights, keeping its nose into the rather considerable wind which was blowing. An "Ivory Gull" used rather scalded-cat tactics by putting its tail into the wind and flying at tremendous speed for a considerable distance.

Mr. Schofield of the BLACKPOOL & FYLDE M.A.S. has been flying a sensational speed model at recent club meetings. It is a twin motor/twin boom job, and the underslung fins act as skids. Quite a commotion was caused recently when this model left the line at high speed! C. Davey has been putting up some good speeds, averaging almost 25 m.p.h. for ten laps with a converted "Achilles."

2328050 Sigm. F. Gardner "D" Section, 8 Indian Divisional Signals, C.M.F., would be pleased to know if any reader would like to build some models for him so that he can fly them when he gets home on leave. Any offers?

Chaps wishing to start clubs in their particular districts still continue to request my help, and this month's batch covers a wide field. They are: D. Hulyer, 39, Franks Lane, Cambridge; N. Rice, 32, Caird Street, Liverpool, 6; D. Geary, 31, Robin Hood Road, Brentwood, Essex.

Well, that's all for this month, chaps, and it would seem from the increased number of reports that clubs are coming now out of their winter hibernation. Let's hope they all have good weather—though as I write this it's SNOWING! The Clerk of the Weather seems to have gone really crackers this year, doesn't he! Till next month, happy flying.

THE CLUBMAN.

NEW CLUBS

WILMSLOW M.A.C.
R. Marriott, 9, Wycliffe Avenue, Wilmslow, Ches.
SANDEHURST & D.M.A.O.
D. Bartlett, The Birches, Sandhurst, Camberley, Surrey.
PORTSMOUTH GRAMMAR SCHOOL M.A.C.
A. G. Freeborn, "Devonia," Fardington, Portsmouth.
CARSHALTON (Surrey) M.A.C.
K. D. Prior, 68, Carshalton Park Road, Carshalton, Surrey.

SECRETARIAL CHANGES

AYR M.A.C.
D. G. Hodinott, 3, Crestwick Road, Ayr, Scotland.
ARBROATH M.A.C.
W. H. Littlejohn, 31, Ernest Street, Arbroath, Angus.
ROMFORD M.A.C.
J. W. Bell, 255, Dagenham Road, Romford, Essex.

S.M.A.E. COMPETITION PROGRAMME.

May 13th.	M.E.2 Cup.	Open, rubber.
May 27th.	National Cup.	Open, rubber (team 4).
May 27th.	Frog 2 Cup.	Open, rubber (Juniors under 14).
June 3rd.	Sir John Shelley Cup.	Petrol models. 3 flights R.O.G. nearest to 30 and 60 secs.
June 3rd.	Control Line Contest.	Petrol models. Duration with set amount of fuel per c.c. of engine.
June 10th.	Pilcher Cup.	Open, glider.
June 24th.	Flight Cup.	Max. wing area, 144 sq. in. Area of tail plane not to exceed 33 1/2 per cent. of mainplane. Min. total weight, 5 oz. Max. weight of rubber, 1 oz. S.M.A.E. fuselage formula to apply.
July 8th.	Hamley Trophy.	Petrol models. 3 flights R.O.G. nearest to 80 secs.
July 15th.	M.E.1 Cup.	F.A.I. gliders (team 4).
July 22nd.	Frog 1 Cup.	Flying scale models.
July 29th.	K.E.M.A.A. Cup.	Open, biplane. S.M.A.E. fuselage formula. Area of smaller wing must not be less than 50 per cent. of larger wing.
July 29th.	Ladies Challenge Cup.	Open, rubber or glider.
Aug. 12th.	S.M.A.E. Cup.	Open, rubber or glider.
Aug. 19th.	White Cup.	Flying boats.
Aug. 19th.	Lady Shelley Cup.	Seaplanes.
Aug. 26th.	Thurston Cup.	F.A.I. gliders.
Sept. 2nd.	Bowden Trophy.	Petrol-driven model aircraft. International contest.
Sept. 9th.	Gutteridge Trophy.	Wakefield models.
Sept. 16th.	Civil Service Cup.	Each model must carry a 2 oz. payload. Wing area max. 210 sq. in.

Further details can be obtained from the Hon. Comp. Sec.: H. J. Towner, "Trencrom," King's Drive, Eastbourne.

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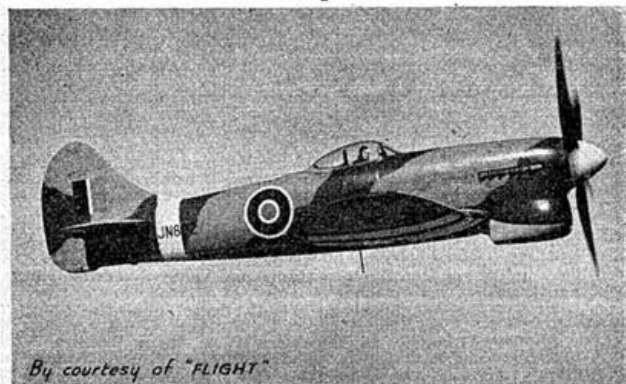
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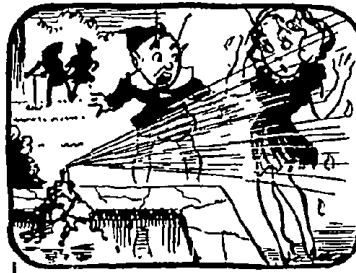
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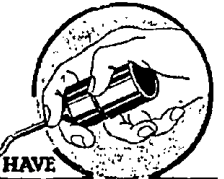
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