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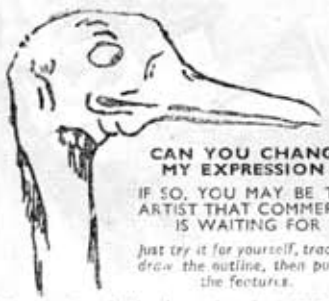

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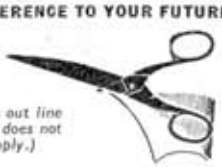

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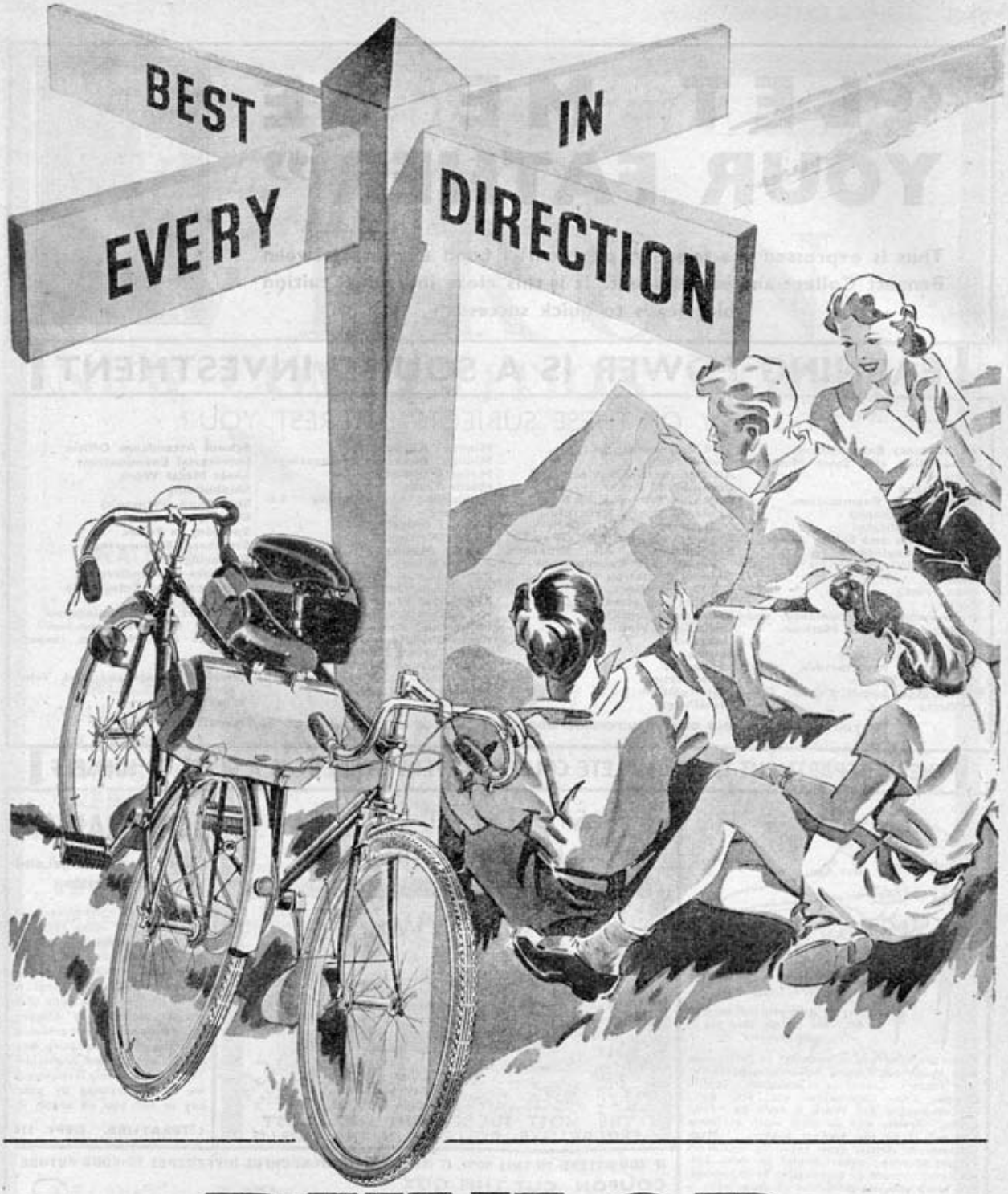

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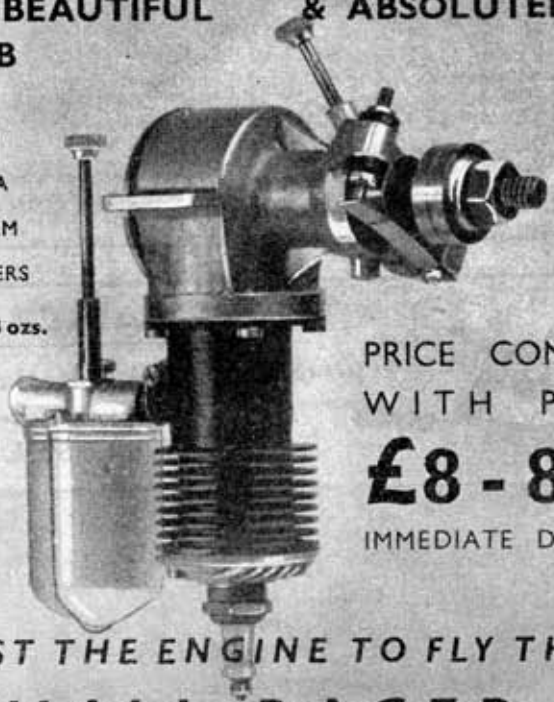

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Contents

Photo : E. J. Riding.

AS SIMPLE AS A.B.C. are the building and flying characteristics of Mr. E. J. Riding's Flying Scale A.B.C. Robin, shown here in a steep climb during its initial test flights.

EDITORIAL

TWO IN THE COLD NOW?

OF late our editorial pages have, perforce, been largely devoted to political aspects of the aeromodelling movement, and we had hoped this month to have confined ourselves to the sporting and technical side. However, there has occurred an event of such importance, in that it cuts to the roots of the principle underlying all democratic activity, that we are impelled, once again, to talk politics. We refer to the staggering action of certain members of the S.M.A.E. that eventuated in a snap vote of " no confidence " in Mr. C. S. Rushbrooke, Editor of this journal, at an emergency meeting of the S.M.A.E. called to discuss another matter altogether.

For some two years now, our Managing Editor, Mr. D. A. Russell, has been " out in the cold," so to speak, as far as the S.M.A.E. scheme of things is concerned; and this move to send Mr. Rushbrooke to join him calls for some plain speaking. Accusations of bias against the S.M.A.E. and in favour of the A.B.A. have been levelled not only against the AEROMODELLER, but against Mr. Russell personally, despite the fact that he has supported the S.M.A.E. with a vast amount of free publicity and spent several hundred pounds in providing that Society with supplies of its former monthly journal. This because he has stood out for the rights of the hundreds of thousands of aeromodellers in this country, and criticized the S.M.A.E. policy of obtaining certain privileges for its members only. Now, a recent reference in our pages (in Clubman's Notes) condemning certain activities by members of one of the S.M.A.E. clubs has brought Mr. Rushbrooke under fire.

Let us briefly recount the circumstances of this recent development. Some months ago, certain proposals (we will not enumerate them, for it is not the proposals themselves, but the principle involved that is of importance) were put before the Annual General Meeting of the S.M.A.E. by (and supported by) the Northern Heights Model Flying Club. These proposals were duly voted upon in a perfectly constitutional and democratic manner, and were turned down by a large majority.

Presently, the S.M.A.E. Council was threatened with the resignation of the Northern Heights Club's three members—Mr. A. G. Bell, the Hon. Secretary, Mr. R. Copland, and Hon. Technical Secretary, and Mr. F. E. Wilson, the Hon. Press Secretary—if the decisions recorded at the A.G.M. were not reversed.

Rightly, the Society decided that it would not be dictated to, even if the price of firmness proved to be the loss of the services of three prominent officials, and their resignations were accepted. These facts were duly reported, with entirely appropriate comments, by Clubman, and immediately, behind the scenes, things began to happen.

The Ex-Hon. Secretary of the S.M.A.E. had another office, that of Chairman of the London Area Council of the S.M.A.E., composed of representatives of the Metropolitan Clubs, and he apparently lost no time in putting a case before it. This was to the effect that Clubman's remarks were based upon information obtained by Mr. Rushbrooke through his membership of the S.M.A.E. Council, and that Mr. Rushbrooke's criticism of him and his colleagues was not only regrettable but a breach of confidence. As a matter of fact, the information did not derive from privileged attendance at a Council Meeting, as Clubman makes clear elsewhere in this issue.

Subsequently, taking advantage of an emergency meeting of the S.M.A.E., there was sprung a motion of " No confidence " in Mr. Rushbrooke that the assembled company, consisting of 48 per cent. of Northern Heights members already primed for the occasion, proceeded to adopt. Mr. Rushbrooke was thereby impelled to offer his resignation. However, this is not all: we have heard that attacks are being prepared on other S.M.A.E. Councillors, presumably with the idea of removing them also and thereby facilitating the return to office of other men, with greater power than before.

We have known for a long time that the ringleader was Mr. Bell, and for the first time we name him as such. Not content with this effort, Mr. Bell has on sundry occasions, when A.B.A. activities have been mentioned in the National Press, seen fit to write to the Editor of the paper concerned, suggesting that the A.B.A. is nothing more than an upstart opposition body.

A further example of Mr. Bell's methods was afforded by the Annual dinner of the S.M.A.E. early this year. One of our most popular modellers, Mr. Len Stott, had expressed the hope that the S.M.A.E. and the A.B.A. would co-operate and maybe merge forces, whereupon Mr. Bell replied antagonistically to the effect that the S.M.A.E. had been willing to negotiate from the start (which was a piece of fiction) and that it was now for the A.B.A. to approach them. We wonder, incidentally, what the distinguished guest of the evening, Sir Frederick Handley Page, thought of this pompous outburst!

We invite Mr. Bell to explain himself, if he can. We would ask him if he thinks that lobbying members for an attack on a fellow Councillor and getting a rigged vote is in the best interests of the aeromodelling movement? In our view, he is a political gangster, who, whatever his past merits or achievements, can now serve the movement best by getting out of it, and leaving the field to those who are prepared to act constitutionally.

Nothing Ventured . . . .

Our new series of articles on unorthodox models, which began in the June issue with " Talking of Canards," by Mr. Laidlaw-Dickson, bids fair to meet with wide acceptance, judging by our postbag. Of the letters received, we have selected two for publication in this Editorial. One is from a well-known (practical) exponent of unorthodox models, and is somewhat provocative as well as eulogistic; the other is from an equally well-known (theoretical) exponent of " theory." We are glad to have it so, for the wider the discussion the better. One of the objects of these articles is to get people thinking, talking and acting along the less obvious and conventional lines. Competition model design has remained far too orthodox for a long time.

Strange it is, that with so individualistic an activity as aeromodelling, there should be so marked a tendency for design to become stereotyped. Go to any model meet and you can safely count on seeing an overwhelming preponderance of high-wing (or maybe near-high) models with mildly tapered wings and the conventional single-fin tail, for all the world as though designers had already plumbed the depths of aeromodelling mystery and discovered that the quintessence of development lay in the conventional lay-out of today.

It is refreshing, on the other hand, to see the bold breakaway from the obvious now taking place in the world of full-scale aircraft. The Miles Libelula series, and the Armstrong-Whitworth, Handley Page and D.H. 108 tailless designs, represent intriguing " curtain-raisers " in relation to the shape of things to come. Happily, the aeromodelling movement is also stirring itself. Rocket-powered models, though in embryonic form, give promise for the future, a jet job has already made a flight of substantial duration, and we now see numbers of Diesel-engined designs disporting themselves at meetings.

In other directions, too, things are moving. Rather belatedly, it is being discovered that the rudderless tail-unit, consisting solely of a heavily dihedralled tail-plane, is something more than a novelty, that in addition to being a weight saver it may improve the longitudinal stability of a model. Such possibilities are well worthy of investigation. Similarly, we believe, there is very much more benefit latent in the canard or tail-first lay-out than has yet been perceived, and we trust that our new series of articles may induce more vigorous activity off the beaten track.

The aeromodelling community has a fine record of inventiveness on the part of sundry bold spirits to set against the conventional and restricted outlook of the many. The composite principle, later exemplified by the Short-Mayo project, was first applied successfully by a modeller as far back as 1916, the rotorplane idea was first persuaded to work by means of a model, and modellers have had things all their own way with the free-wheeling propeller and the " folder."

Incidentally, we recall in the days just before the war, hearing Herr Kronfeld suggest that a folding airscrew, if it could be contrived, would be a worthwhile line of development for modellers, and how interested and surprised he was to learn that modellers had been doing this very thing for years.

The years immediately ahead show signs of being the most interesting in the whole history of flight. Let aeromodellers, then, look to their laurels, and not fall behind their friends in full-scale aviation in bold and imaginative experimentation directed to the improvement of the aeronautical breed.

Dear Sir,

As one who has spent most of his aeromodelling career building (and flying, I hasten to add !) types that most people leave severely alone, I welcome your new series of articles on unorthodox models.

Moreover, in " Talking of Canards," Mr. D. J. Laidlaw-Dickson has made an excellent beginning with a most interesting and helpful article, while Mr. C. Rupert Moore with his artistry, has ably aided and abetted him with a portrayal of a successful " tail-first " well calculated to make readers wish to build it.

So far, only bouquets, though, doubtless you will already have begun to suspect that a brickbat is to follow !

The case for the canard is ably argued, and I am in full agreement with it. Like other neglected types, it only needs to be patiently persisted with and understood to yield good results. But there are one or two observations in the article that call for comment in view of my own experiences with canards.

For instance, it is stated that with this type, stalling is impossible, to which I feel impelled to reply in terms made familiar by Dr. C. E. M. Joad, " It all depends on what you mean by stalling." If what is meant is a rearing up, an unhappy pause and an enthusiastic header for mother earth, then the statement may pass muster. But my own experience is that if the C.G. is too far back (and getting it well forward is none too easy), a canard will rear up, whirl round, turn on its back and remain inverted until the touch-down. If this isn't stalling, all I can say is, I dislike it just as much.

Very well, you may say, if that's what happens (whether it is stalling or not), I'll take care to get my C.G. well forward, even if I have to make the nose-block of lead. O.K., but don't assume that this will necessarily keep you out of trouble. Let that C.G. be even a little too far forward, and the Canard Gremlin is likely to shove the nose down in a steep spiral, and the only cure that I have found is to give the leading-plane a large dihedral angle, say 15 degrees. This again rather cuts across a statement in the article, to the effect that the rear plane should have the larger dihedral angle.

I note that A. Watteyne's successful " Velivole " has little dihedral on front or rear planes, but my canards have definitely declined to function happily and dependably that way. Maybe the side areas and/or the torque value of the airscrew have something to do with it. At any rate, I am not prepared to blame the low-wing layout which I have adopted on both by canards, for, after all, " Velivole " is a low-mid.

Thanks, anyway, for a most informative article ; I shall certainly look forward to the next in the series.

LONDON. *M. R. KNIGHT.*

Dear Sir,

I feel that a few comments on Mr. Dickson's article in the June A.M. would clear the air regarding the standard Canard, or tail first, layout.

It appears this layout suffers from two major disadvantages :—

1. *Dynamic instability may occur due to high fore and aft inertia effects when an oscillation in pitch begins.*
2. *In order to obtain stability, the lift per unit area of the elevator must be considerably greater than the lift per unit area of the main wing. Unfortunately the lift coefficient based on total supporting surface has to be as high as possible (except in very special circumstances) for maximum duration. Since there is an upper limit to the lift per unit area of the elevator (due to elevator stall), then it follows that, for stability, there is an upper limit to the lift per unit area of the main wing which is not dependent on the stalling angle of the main wing but on the condition of steady gliding flight with the elevator just on the point of stalling. This lift per unit area of the main wing is less than that which could be obtained with the standard layout. Thus, it would seem that the lift per total supporting surface of a canard is unlikely to be much better than the orthodox type and may be worse. This, of course, indicates that the overall performance is not likely to be much better.*

In case you think I am prejudiced against the tail first layout I would add that I have already built one successful model and intend to use the layout for competition work later this summer.

KINGSBURY, N.W.9. *R. H. W. ANNENBERG.*

"Aeromodeller" 1s. 3d. — and why

The intimation that, with the August issue, the price of the AEROMODELLER must be increased from 1s. to 1s. 3d. per copy may possibly puzzle readers, in some cases to the point of resentment. "What justification can there be," they will ask, "for a price increase—now that the war has been over for a year or so?" Doubtless, this kind of thing was inevitable during the war, but can an increase *now* be justified?

The answer, in brief, is that it is over four years since the previous increase in the price of the AEROMODELLER—it went up from 9d. to 1s. in January, 1942—yet, in the interim, printing and paper costs have risen considerably. In November, 1943, printing costs went up by 6 per cent., and as recently as February *of this year*, with the war well past, they rose a further 7½ per cent. The price of paper has also been increased by nearly 30 per cent., on top of which, rail charges have been increased by 10 per cent.

It has been our endeavour to avoid passing on to the reader any increases if it could possibly be avoided, or at any rate to hold our hand until the last possible moment, and we think all fair-minded people will agree that we have given ample evidence of this in taking no action in nearly four years. However, for this Journal to continue to give the same high level of service as before, quantitively as well as qualitively, it is no longer possible for a price increase to be avoided.

In telling our readers quite frankly what the position is, we are confident that they will accept the price increase as inevitable, and will still feel that they are being well served. Subscribers' accounts will, of course, be adjusted in accordance with this price increase.

Frequencies for (nearly) all tastes

READERS replies to the ballot held in the May AEROMODELLER have enabled us to present a strong case to the G.P.O. for the allocation of a different frequency for radio control work, and it is with great pleasure and a certain amount of pride that we present the letter below.

Engineer-in-Chief's Office, G.P.O. (Radio Branch),
Alder House, London, E.C.1.
The Technical Editor,
The Model Aeronautical Press, Ltd.,
The Aerodrome,
Billington Road, Stanbridge, Nr. Leighton Buzzard, Beds.

Dear Sir,

RADIO CONTROL OF MODEL AIRCAFT.

With reference to previous correspondence concerning the radio control of models, I have to advise you that in addition to the frequency of 460·5 mc/s already quoted, there is now no objection to the use of the band 27·66–28 mc/s, with power not exceeding 5 watts, for such control purposes.

The apparatus should be accurately tuned and endeavour should be made to ensure that all emissions are within the frequency limits of the new band. Adequate means of stabilising the selected frequency will be necessary.

The 27·66–28 mc/s band is provisional but frequencies that may be definitely assigned for the purpose at a later date will be, so far as can be seen at present of the same order.

The power stated above is the total D.C. power input to the anode circuit of the valve or valves energising the aerial.

The use of the apparatus for communication purposes is not authorised hereby.

Yours faithfully,

Engineer-in-Chief.

The ballot result shows that readers requirements fall into two distinct classes: A in favour of 300–700 mc/s (and higher!), and B 3·5 mc/s to 56 mc/s.

About three per cent. representing some eighteen readers, called for frequencies at the 112–224 mc bands, so that with the exception of these few, most readers will find the G.P.O. allocations favourable.

As all the correspondence on the subject of special frequencies, has been spread over a period of several months, we give below answers to nearly all the queries we have received.

1. Frequencies available 460·0–461·0 mc/s (no objection to parallel rod oscillations). 27·66–28 mc/s (although not specified, crystal control is virtually essential).
2. Power output (both bands), 5 W., i.e. D.C. power to aerial engerising valve or valves.
3. Control, sequence, audio frequency, or pulse.
5. No licence required, no examinations, no morse test, no fees.
5. Operators to inform Radio Branch W2/6 Engineering Dept., G.P.O. quoting ref. No. 16311/46, notifying use of frequency *in all cases.*
6. NO COMMUNICATION.

Well—there it is—two very representative frequencies ready and waiting to be used. The AEROMODELLER places on record readers' thanks to the G.P.O., and wishes luck to all radio controllers.

Victory Championships at Eaton Bray

Unprecedented weather conditions at Eaton Bray on Whit-Monday forced the management to postpone the Victory Championships scheduled for that day. Commenting on Bank Holiday conditions *The Times* weather correspondent reported a wind velocity of 53 m.p.h. at Dunstable, only six miles away so that it can be appreciated that such a decision was necessary. Eaton Bray exists for the entertainment of the greatest number, and while we regret the disappointment caused to those who did brave the storms, the vast majority of would-be visitors was unable to attend.'

We are happy to announce that these Championships, with their impressive prize list of £70 in cash awards together with the Victory Trophy, will now be held on Sunday, July 14th, commencing at 11.30 a.m. There will be events for sailplanes, rubber duration, scale and petrol models with a £10 first, £5 second and £2. 10s. 0d. third prize in each class and in addition the Victory Trophy to the Sailplane Champion.

All clubs are being advised of the new date while national and local papers have been advised. Aspirants to the laurels are advised to make the most of this second opportunity of competing for these worthwhile awards, we trust, under sunnier conditions.

UNORTHODOX MODELS - 2

TAILLESS TYPES

BY S · R · CROW

A pre-war photo of the author with the first Schmidtberg tailless model built in this country to the designer's original drawings.

INTEREST in the development of successful Flying Wing types in this country has been accelerated by such contests as the Handley Page Trophy and the prospects of more events for Tailless Model Aircraft. On the Continent there has been for many years a nucleus of enthusiasts conducting research in this branch of model aeronautics, who in their turn have been unaware of British work in this sphere. Nevertheless in spite of awakening enthusiasm there has as yet been little literature published on the subject, and certainly no attempt to publish any concise description of the sundry variants that have been developed.

Perhaps a note of warning is necessary at the outset. The experimenter may be tempted to devote his research to small all-balsa solid gliders, which in their way are interesting and instructive, but one must not be misled by the behaviour of such models, which in the main have what approximates to a flat plate airfoil and very narrow chords, not that this last is, in itself, neccessarily a bad thing. Equally, experiments with models of too large a size are apt to be costly and limit the amount of research carried out in a given time. Probably a span of three to four feet is the best compromise, it was on a model of this size that the writer gained much valuable data; this machine, the "Crowfly," is reproduced in plan form and illustrated in this publication.

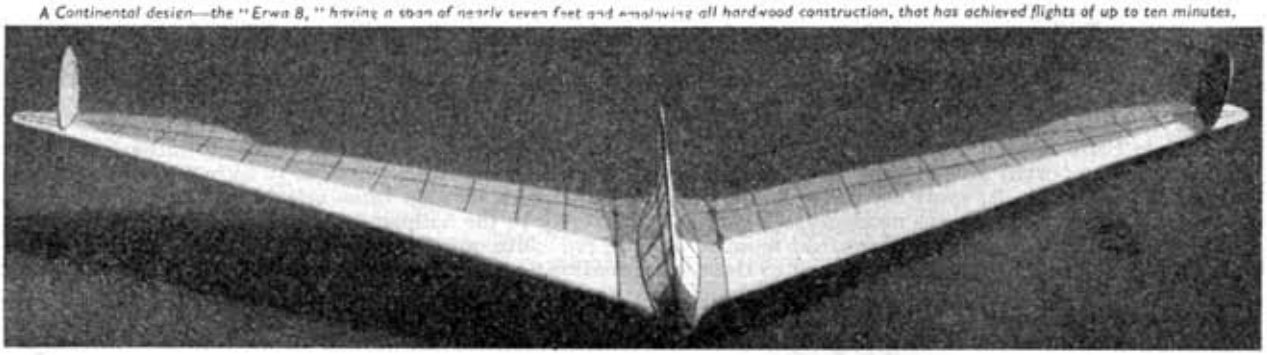
Airfoil Sections. The absence of the controlling effect of orthodox tail surfaces gives rise to immediate problems of stability, and this may be met, in the first instance, by a wise choice of airfoil section. There are a number of proven sections which have a high degree of stability, among which are those with reflex trailing edges such as R.A.F.30, R.A.F.33 and CLARK Y H. which are available as Airfoil Section Sheets. Using these as a basis the keen experimenter may like to develop his own section. Given the requisite apparatus, there is a lot of satisfaction in so doing, otherwise it is better to rely on a proven section; in any event many of the so-called "original" sections can be recognised as very near relations to existing types.

Wing Form. There is a surprisingly wide range of wing forms that may be adopted, and protagonists claim successes with many varied shapes. However, stability needs force the conclusion that a measure of sweepback or sweepforward is essential. The sweptback wing form has proven the most popular basis for experiments to date. Degree of sweepback may be varied within certain limits of, say, 15° and 30°, or may be stated as a total sweepback equal to one chord width, or one mean chord width in the case of tapered wings, as the effective minimum. The sweepback can be accentuated by 5°–10° at the tips for approximately 10 per cent. of the span which adds considerably to the stabilizing effect of the tips. With these types there seems no logical reason to increase the normal dihedral of from one to one and a half inches per foot of semi-span. The dihedral may vary as in orthodox model aircraft, by underslung weight or parasol wing combination being included in the design, giving pendulum stability.

To aid stability it is desirable that the outboard sections should be washed out, for an average airfoil there will be a difference of 5° to 6° between the angle of incidence of the inboard and outboard panels. This can be achieved by building it in or by having adjustable outer panels that can be varied for experiments. Some authorities believe that a definite negative incidence is preferable for these panels, particularly where anhedral tips are used. Adjustable built out ailerons are employed on some designs, and certainly give an added measure of control. Normal lift section in the centre, with increased reflexing of the trailing edge per rib spacing to the tips, is the means of obtaining washout on the "Crowfly" and has proved very successful.

A foreign wingform embodying the straight centre of pressure is the "Flying Plank" employing, as its name suggests, a constant chord wing without sweepback. It

A Continental design—the "Erwa 8," having a span of nearly seven feet and employing all hardwood construction, that has achieved flights of up to ten minutes.



cannot be recommended, however, as little is known in this country of its actual performance,

At this point let us refer to the diagram of Wing Plan Forms. Some of these are only suggestions, and comments on each shape may prove useful. Reflex and washout are shown in shaded lines.

FIG. 1. Here is the orthodox and most popular tailless design, with well sweptback wing and washout at the tips. This wing form has been tried and found most efficient and reliable, especially for the newcomer to tailless models.

FIG. 2. A near semi-circle in shape, with scope for the more advanced designer to develop. Theoretically it is fairly efficient, the writer has tried this form cut from cartridge paper and trimmed it to give quite good glides, the results of a larger job may not be gratifying but is worth trying.

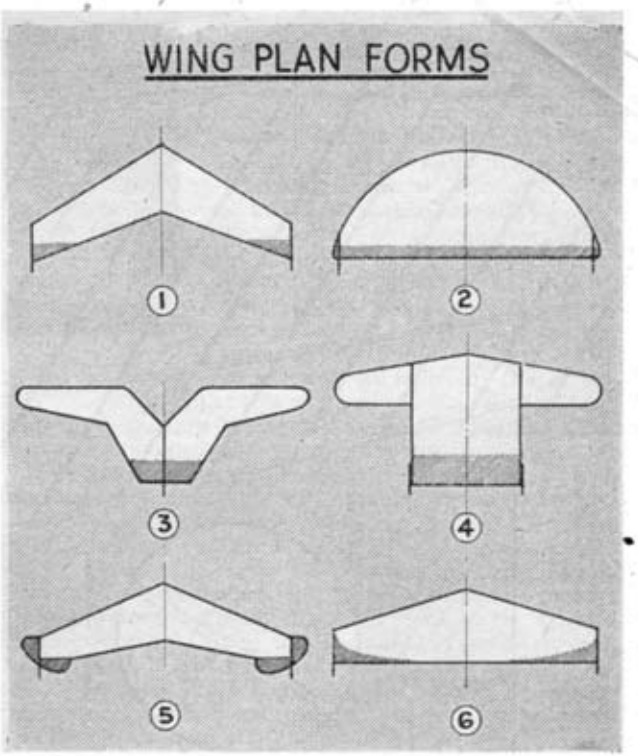
FIG. 3. Here the wing is swept forward from the roots for part of the span, with the stabilizing reflex in the trailing edge of the centre section; the fin is situated centrally. A similar layout has been tried in America, but little "gen" has been gleaned as to performance, etc. This is definitely not the job to tackle as a "first timer."

FIG. 4. Perhaps this should come under the classification of a "Flying Fuselage." The centre bay is of reflex airfoil section, with normal lifting surfaces in the form of stub wings set at a dihedral. The experimenter with this form should be content with short duration flights rather than a high efficiency performance. The design has something in common with the Burnelli Flying Wing, an American full-size craft about which much has been written.

FIG. 5. Confidence has been placed in this plan form by the writer, who is employing it in the construction of a powerful craft with a wing span of 8 ft. The machine is near completion and tests will take place shortly. As can be seen, the tip surfaces are set at a negative angle of incidence to the main surfaces, the fins being located at the change over. The tips are also set at anhedral. Many modellers will want to develop Flying Wings from this plan form which is aerodynamically efficient and looks very graceful when completed.

FIG. 6. This is ideal both aerodynamically and constructionally. The washout of the wing, scribing a curve (on plan) from a normal high lift section such as Clark Y. in the centre, and changing throughout the half span, when at the tips the section is symmetrical with reflex trailing edge. Rib planning is important here, to make an efficient transformation from centre to tip section. The A.V.10 reproduced in this issue is similar in plan, the difference being that the "Borgé 3" airfoil is used throughout the wing taper.

Fins. Once more there are various schools of thought, the fin, or fins, can be placed centrally, above or below, or above and below the wing, at the wingtips or a position between these extremes. It is even omitted altogether at times, though with doubtfully beneficial results! Further modifications include toed-in tip fins, which can toe in laterally or longitudinally. Full size practice, which is equally in an experimental stage, lends support to all these variations, but should be followed with a degree of reservation on models.

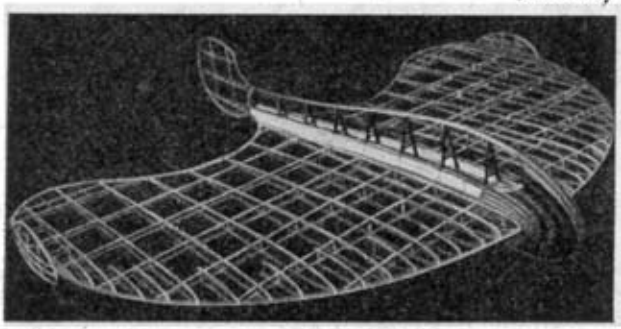


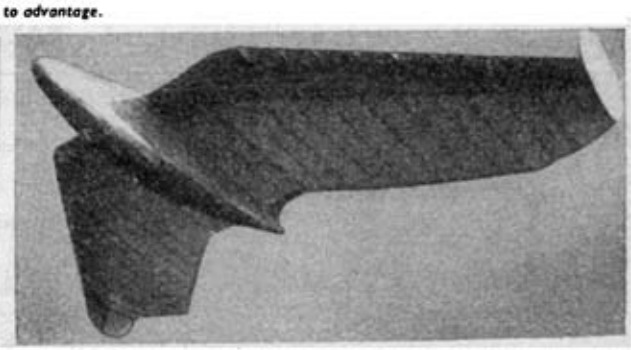
The writer whilst experimenting found the centre fin, when situated above the wing, to be efficient in the glide after a tow launch, but has come to the conclusion that the wing tends to blanket the fin whilst the model is making its launching climb, causing a form of oscillation or wallowing which often led to a "hook flight" crash. The remedy found was the addition of wing tip fins which gives rise to the question, is a centre fin necessary or if used, as efficient, area for area, as wing tip fins. It is likely that should the modeller wish to incorporate the centre fin on a glider, the best place is below the wing where it operates in a freer airflow. The A.V.10 follows these lines.

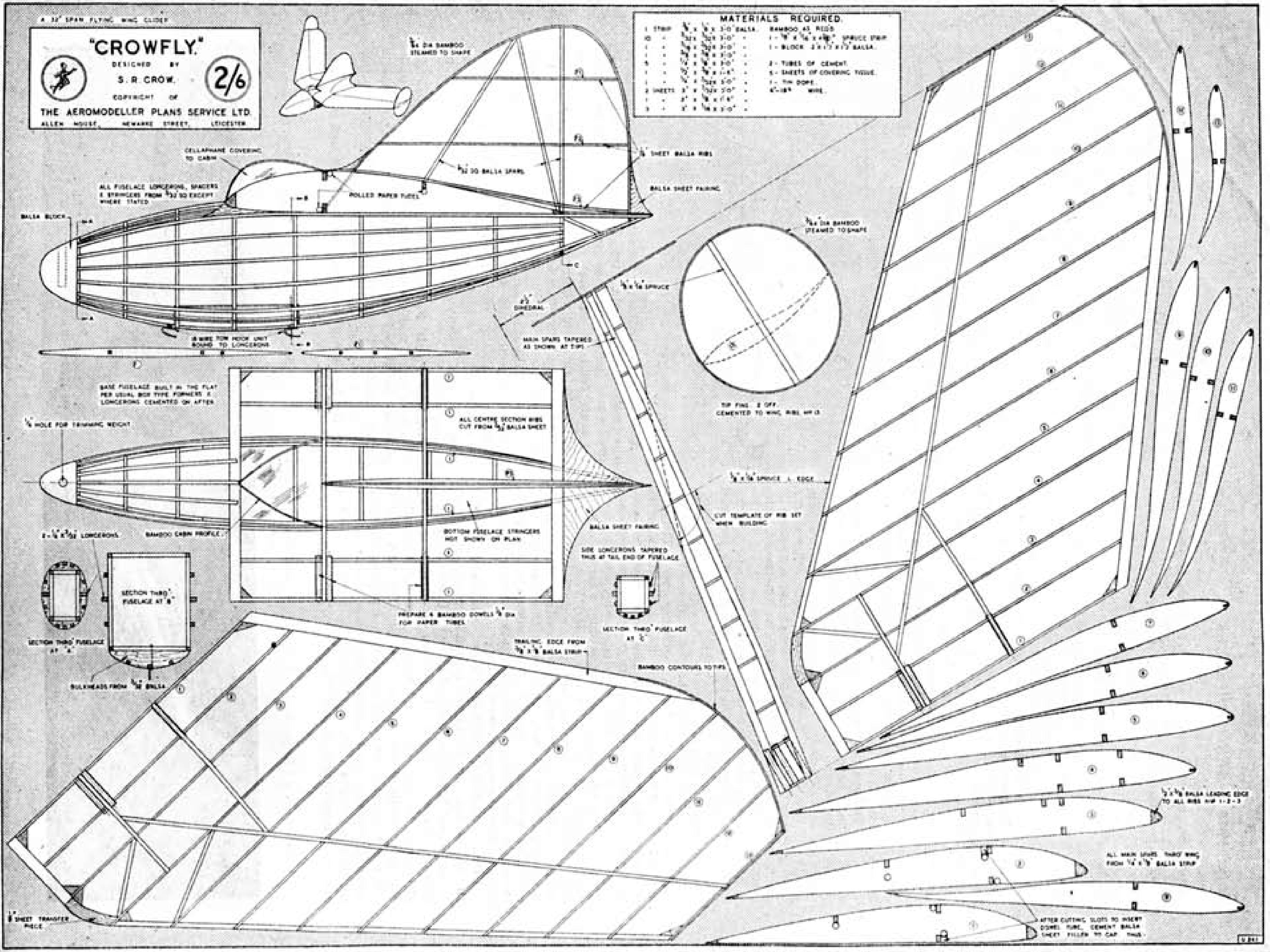
Towline Fault Finding. Anyone with experience of tailless types realises how difficult it is to judge their probable behaviour on a tow launch, from short hand-launch flights. To avoid unnecessary breakages during tests, a few suggestions are offered.

A long towline of at least two hundred feet is recom-

Left: Uncovered view of a German design by A. Armes, using a modification of the plan form in Fig. 2. Right: An excellent shot of "Crowfly" in flight that shows its graceful lines to advantage.







"CROWFLY."
DESIGNED BY
S. R. CROW.
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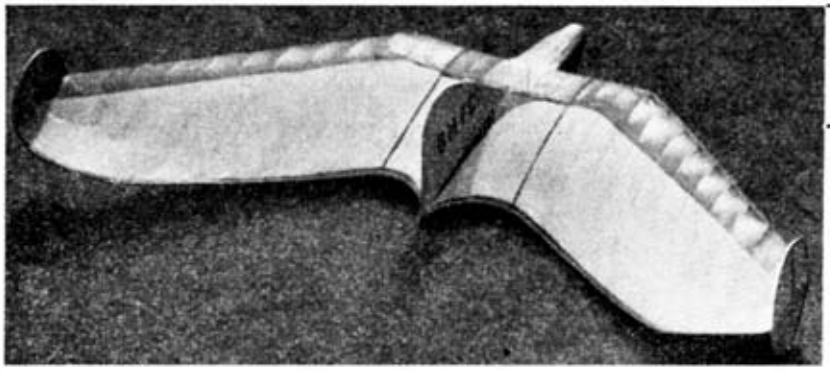
THE AEROMODELLER PLANS SERVICE LTD.
ALLEN HOUSE, NEWARKE STREET, LEICESTER.
2/6
MATERIALS REQUIRED.
BAMBOO AS REQD.
2 - TUBES OF CEMENT.
TIN DOPE.
WIRE.
CELLAPHANE COVERING TO CABIN
ALL FUSELAGE LONGERONS, SPACERS & STRINGERS FROM 3/32 SQ EXCEPT WHERE STATED.
BALSA BLOCK
ROLLED PAPER TUBES
BALSA SHEET FAIRING
SHEET BALSA RIBS
BAMBOO STEAMED TO SHAPE
DIHEDRAL
MAIN SPARS TAPERED AS SHOWN AT TIPS
TOW HOOK UNIT BOUND TO LONGERONS
BASE FUSELAGE BUILT IN THE FLAT PER USUAL BOX TYPE FORMERS & LONGERONS CEMENTED ON AFTER.
HOLE FOR TRIMMING WEIGHT
ALL CENTRE SECTION RIBS CUT FROM 3/32 BALSA SHEET
BOTTOM FUSELAGE STRINGERS NOT SHOWN ON PLAN
BAMBOO CABIN PROFILE
LONGERONS
SECTION THRO' FUSELAGE AT 'A'
SECTION THRO' FUSELAGE AT 'B'
SECTION THRO' FUSELAGE AT 'C'
BULKHEADS FROM 1/16 BALSA
PREPARE 4 BAMBOO DOWELS FOR PAPER TUBES
SIDE LONGERONS TAPERED THUS AT TAIL END OF FUSELAGE
TIP FINS. 2 OFF. CEMENTED TO WING RIBS Nº 13
SPRUCE
SPRUCE L. EDGE
CUT TEMPLATE OF RIB SET WHEN BUILDING
TRAILING EDGE FROM BALSA STRIP
BAMBOO CONTOURS TO TIPS
SHEET TRANSFER PIECE
BALSA LEADING EDGE TO ALL RIBS Nº 1-2-3
ALL MAIN SPARS THRO' WING FROM BALSA STRIP
AFTER CUTTING SLOTS TO INSERT DOWEL TUBE, CEMENT BALSA SHEET FILLER TO CAP THUS.



Another picture of "Crowfly." The increasing reflex of the outboard ribs can be clearly seen.

mended, added to which a short length of 1/32 in. sq. rubber to act as a shock absorber. Models up to four feet span should not be first flown in winds exceeding 10 F.P.S. Larger models up to 15 F.P.S. and not at all in gusty weather. If the model passes its preliminary hand-launch tests, it may then be attached to the towline at the most forward hook, that is, in advance of the normal hook attachment. Perhaps at this point a few words about the position of the hooks would be timely. On orthodox type gliders (that is mainplane *and* tailplane craft) the most efficient position for the tow hook is usually below the leading edge of the mainplane; this does not apply with the increased sweepback of a tailless glider. A hook *can* be fitted at this point, but it will be well forward of the best launching position. A series of three to four hooks, spaced at pitches of 3/4 in. to 1 in., commencing at a point approximately 1 in. in front of the C.G. of the machine, should give sufficient range to cover tow launches under all conditions.

The C.G. should be brought forward temporarily by the addition of plasticine to the nose, this helps to prevent a model that is heavy aft, from going into a loop. It is unwise to trust too much in any apparent appearance of stability from a hand launch. It is better to have these first tests with a nose heavy machine than have "tow loops" and "hook flights" that generally end in disaster.

The towline should be kept as taut as possible to give the operator the utmost control, this is because lateral stability is still an unknown factor. If it is good no harm will be done. But if it is excessive or deficient, control is essential so that the model can be judiciously released. Superstability where the model oscillates from side to side like a falling leaf is a common fault in tailless types, and this often leads to a wing tip landing; similarly a quick release can often save the model from the consequences of a sudden spin in. Superstability is usually due to a large moment of inertia about the longitudinal axis, or in other words, the lack of a normal body leads to the distribution of weight more evenly across the whole wingspan.

Lack of lateral stability may be due to congenital instability in the design or a fault in the construction. Note on each flight whether the model breaks away alternately, to left and right, or only to one or other side. In the first case the design is at fault, in the latter it is incorrectly built; this will mean finding the building fault and putting it right. Probable building faults can be unequal incidence on wings or incorrectly set fins.

If all is well so far, a cautious attempt may be made to improve the gliding angle by lightening the nose slightly of the additional weight added for testing. Do this little by little, noting the behaviour of the model at each stage. Finally the model can be tried by a full launch from the hook position found to be best on test flights.

Conclusions. To-day little is known of the tailless type, especially in the model sphere, thus there are ample possibilities for experiment. Maybe we shall soon see "Flying Wings" competing on equal footing, as regards performance, with the normal wing fuselage and tailplane model aircraft.

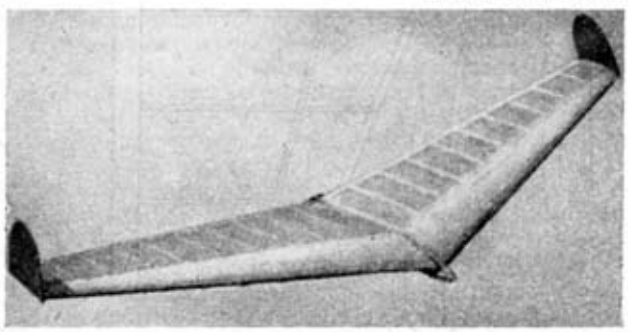
One great advantage of the model flying wing is its suitability for transport. The basic design lends itself admirably to the split wing and dowel method and as there is no tailplane and little or no fuselage, the room required in the modeller's box is very small.

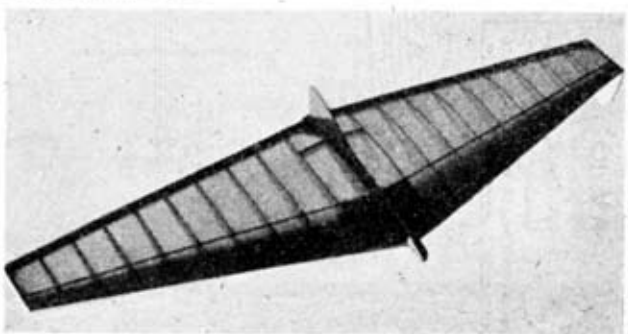
Apart from the very generous rewards awaiting the successful tailless designer, this type is acclaimed as potentially the last word in efficiency. Added to which it requires a minimum of building time and materials.

No attempt has been made to discuss powered tailless flight, but petrol and diesel engined flying wings, not forgetting Howard Boys' rocket-propelled designs, open up immense possibilities for further investigation.

Full-size Plans. As usual, full-size drawings of the two plans appearing in this article are available through Aeromodeller Plans Service, Allen House, Newarke St., Leicester, at 2/6 each post free. The writer can recommend his own design "Crowfly," with every confidence; in the hands of novice or expert alike it has performed well. The "A.V.10" by Guy Borgé has been extensively tested by the Aeromodeller Research Staff, who are loud in its praises.

The simple lines of "A.V.10," a splendid "first-timer," are here depicted. This is a Mark II model with modified fins; other variants flown by "Aeromodeller" Research Staff include a Mark III with adjustable tip ailerons.





A 40" SPAN FLYING WING GLIDER

"A.V. 10"

DESIGNED BY

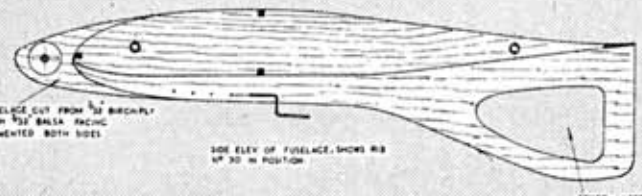
GUY BORGÉ

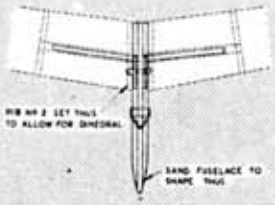
2/6

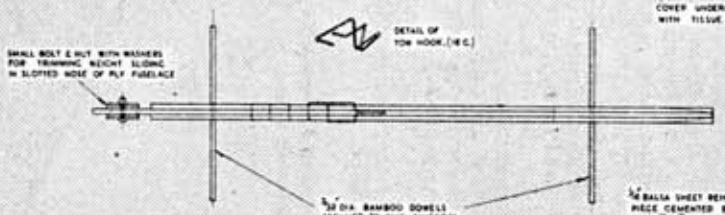
THE AEROMODELLER PLANS SERVICE LTD
ALLEN HOUSE, NEWARKE STREET, LEICESTER.

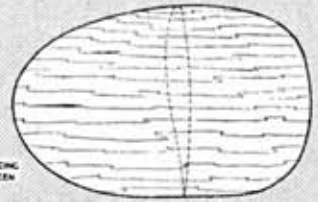
MATERIALS REQUIRED

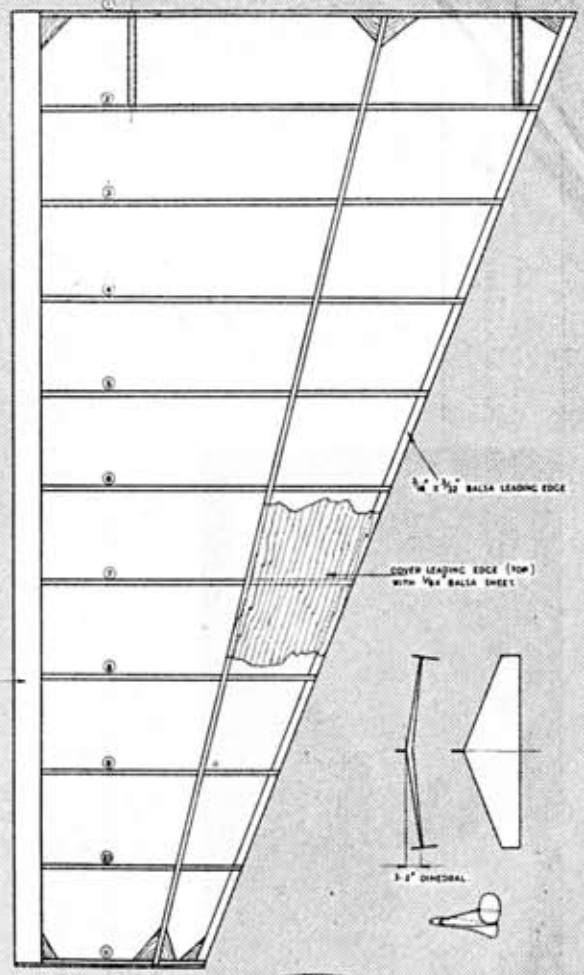
4 STRIPS 1/8 x 1/8 x 2'-0" BALSA	BAMBOO STRIP
2 " 1/16 x 3/32 x 2'-0" "	6 OF 18G. WIRE.
2 " 1/16 x 1/32 x 2'-0" "	3 SHEETS TISSUE.
2 SHEETS 1" x 1/32 x 3'-0" "	2 TUBES CEMENT.
2 " 4 1/2" x 6" x 1/16 " "	1 TIN DOPE.
1 " 4 1/2" x 6" x 1/16 " "	BOLT, NUT & WASHERS.
1 SHEET 3/16 x 12" x 1'-1" BIRCH PLY	

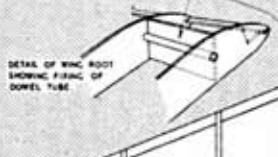


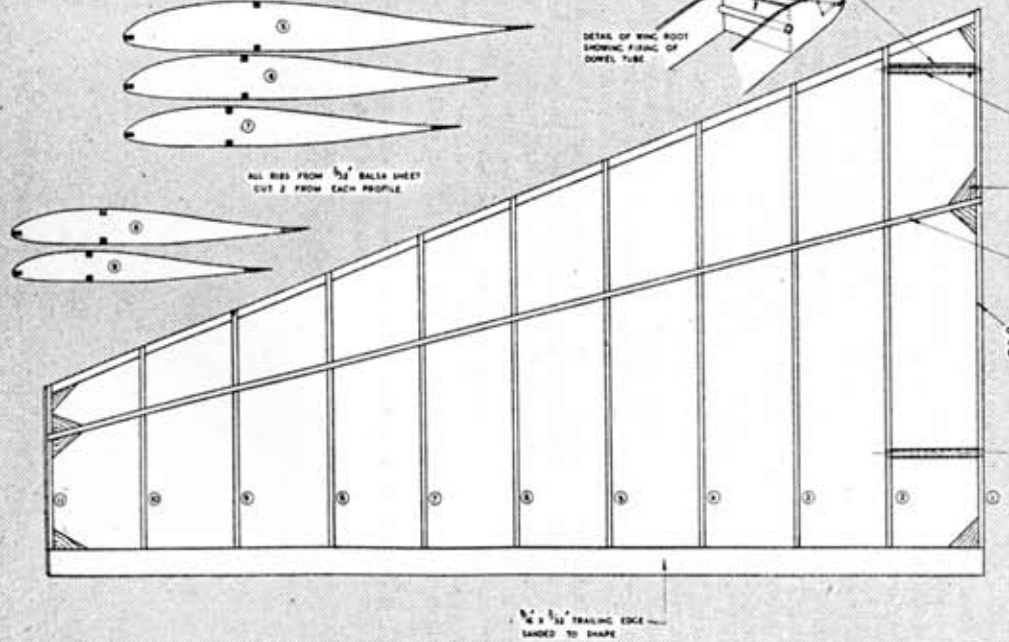


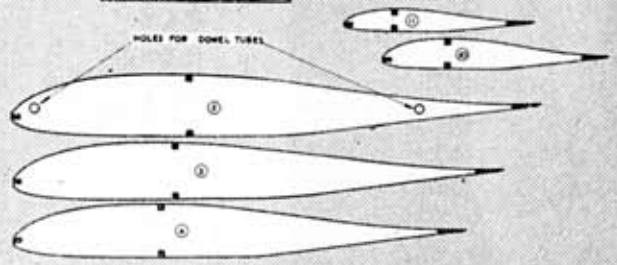












ARMCHAIR AERONAUTICS

This series is for the benefit of aeronautical students, and its main object is to keep them advised of new books as they are published. All books reviewed may be purchased from the Aeronautical Bookshop, 7 Hanover Court, London, W.1.

GUIDE TO FLYING

by S. E. Veale. Temple Press. 192 pages. 5½ in. × 7½ in. 10s. 6d.

Surveying the whole field of flying, this book is intended to serve those who come new to air matters. Presenting a mass of information in a clear and concise sequence, it should prove a great help and guide to trainees during initial training, and to Air Cadets who must understand many things to become truly proficient.

The seemingly dogmatic reasons as to why aircraft are built in certain ways and why engines and airscrews must accept limitations are soon made evident to the reader as he follows the descriptions of these matters.

The aim throughout the book is to wed description with explanation, and in this guide that aim has been more nearly realised than in the average manual.

The aeroplane is not only a weapon of war. In these days there is a rapidly growing interest in it as a means of transport and fast communication and this book is recommended to all those who wish to know about mans' most powerful utilitarian instrument.

THE STORY OF THE AIR TRAINING CORPS

Edited by Leonard Taylor; The Air League of the British Empire. 66 pages. 7 in. × 10 in. 3s. 0d.

Unfolded in the pages of this book is the story of the make up and training of the Air Training Corps, and a cross section of the service lives of some 400,000 cadets, as well as the many thousands of officers and instructors who, since 1938, have made such a substantial contribution to final victory.

Profusely and well illustrated, the pictures tell almost as well as the text, the many sides to the cadets' and their officers', training, and of the great partnership created between the R.A.F. and the A.T.C.

Although it is not written primarily for the present generation of cadets, doubtless many will want it, as it represents a fine historical record of an organisation which in war days inspired the whole country with its boundless enthusiasm and achievements.

THE FLIGHT MECHANIC'S HANDBOOK

by Group Captain G. W. Williamson, O.B.E., M.C. etc. George Newnes, Ltd. 164 pages. 6 in. × 9 in. 12s. 6d.

The treatment of the subject matter is designed from the point of view of the servicing of modern aircraft, and as such it provides a clear guide to the flight mechanic. Very little has escaped the text, there being chapters devoted to routine and maintenance, books, forms and records, as well as to the technicalities of instruments, hydraulics, electrics and the thousand and one items which compose the entire aircraft.

Quite rightly, the first chapter is devoted to outlining the flight mechanic's duties, stressing the responsibility that is his, and ending with the best of advice:—" If you don't know—ask."

A·B·C·ROBIN

1½ INCH TO 1 FOOT
FLYING SCALE MODEL

BY E · J · RIDING

This fine action shot of the model in flight gives some idea of the pleasures in store for builders of the "Robin".

The photographs above clearly demonstrate the simple and sturdy construction of the model.

THE firm of A.B.C. Motors, Ltd., of Walton-on-Thames, were designers and manufacturers of aero engines both during and after the last war, and in 1929 they produced the "Robin," a diminutive wooden single-seater cabin monoplane fitted with a 35 h.p. A.B.C. "Scorpion" twin-cylinder horizontally opposed air-cooled engine.

Details of the "Robin" were: Length, 17 ft. 6 ins.; span, 25 ft. 4 ins.; weight (empty), 440 lbs. Speeds: max., 100 m.p.h.; cruising, 84 m.p.h.; landing, 40 m.p.h. Price £395.

The Robin is C. Rupert Moore's subject for our cover painting this month. It depicts the original machine flying over London, with Hammersmith Bridge and Barnes Reservoir in the distance.

The Model.

The model is of very simple construction and embodies nothing that should present any difficulty to the novice.

The fuselage is made from ¼ in. by ⅛ in. balsa strip, planked at the nose with 1/16 in. sheet balsa. The wings incorporate the same number of ribs (1/32 in. sheet) as the full-sized machine and together with the fuselage and tail surfaces are covered with superfine Jap tissue, given two coats of banana oil and two coats of pigmented dope.

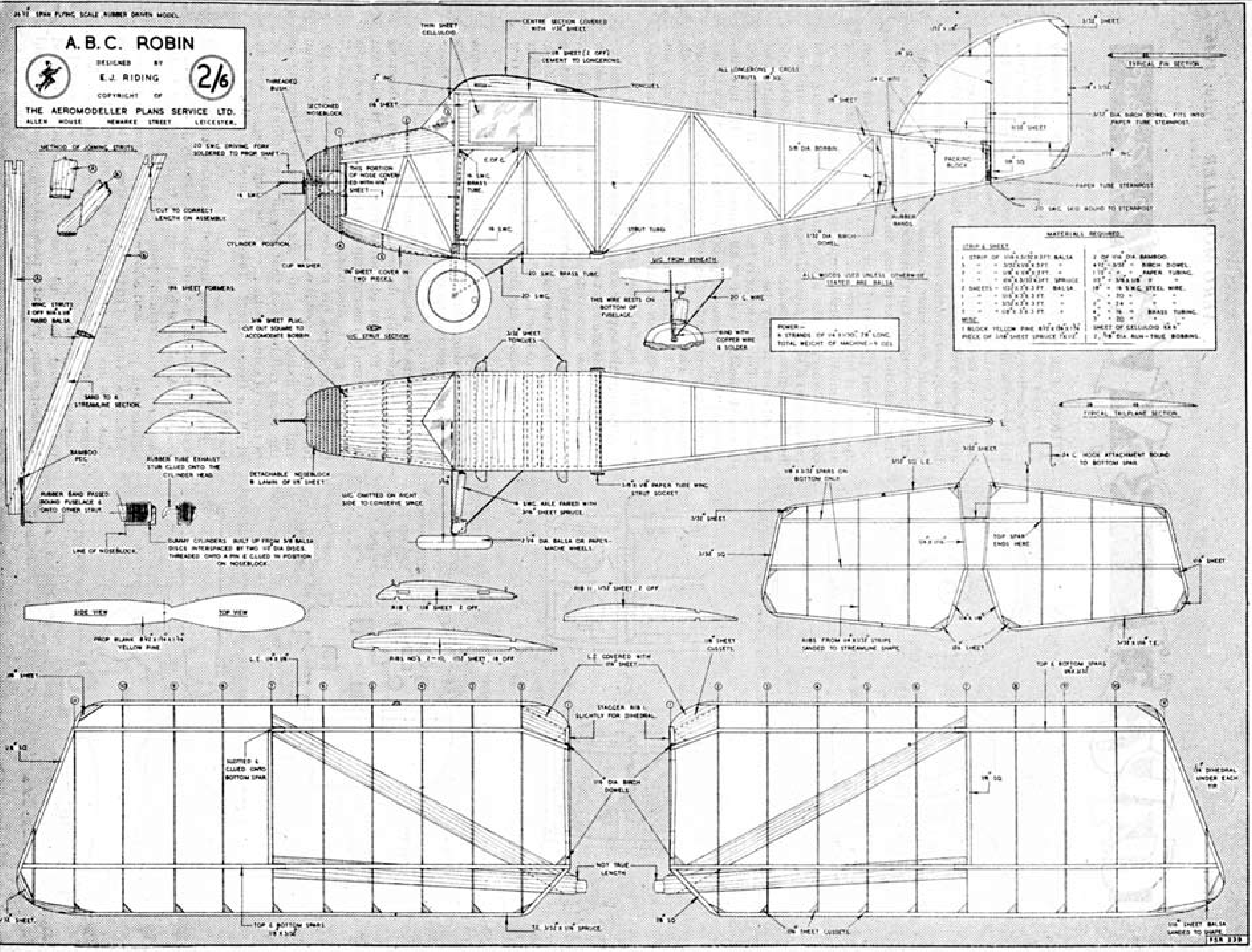
The colour scheme is the same as that used on the full-sized machine and is as follows: Fuselage: Black all over with silver nose and engine cowling. The A.B.C. trade mark and registration letters G-AAID are painted orange. Wings and tail surfaces: Orange with black registration letters, the tops of the letters adjacent to the leading edge of the wing. The dummy A.B.C. "Scorpion" engine is built up from ⅜ in. dia. thin card discs interspaced with 7/16 in. dia. discs cut from 1/16 in. sheet balsa and topped by imitation valve gear and exhaust stubs.

Flying.

The C. of G. position is shown on the plan and before commencing flying operations this should be checked. The best way to flight test the model is to carry out successive "assisted" powered take-offs from a smooth surface until it is trimmed to fly straight and level after leaving the ground—this entails the least amount of damage resulting from a badly trimmed first flight. Trimming is carried out by either altering the incidence angle of the tailplane or by the addition of a small amount of ballast to the nose block. With 450 turns on the motor (six strands of ¼ in. by 1/30 in. rubber in a single skein 28 ins. in length), the model flew for 25-30 seconds with an 8½ in. airscrew. The all-up weight of the model ready for flight is 6 ozs.

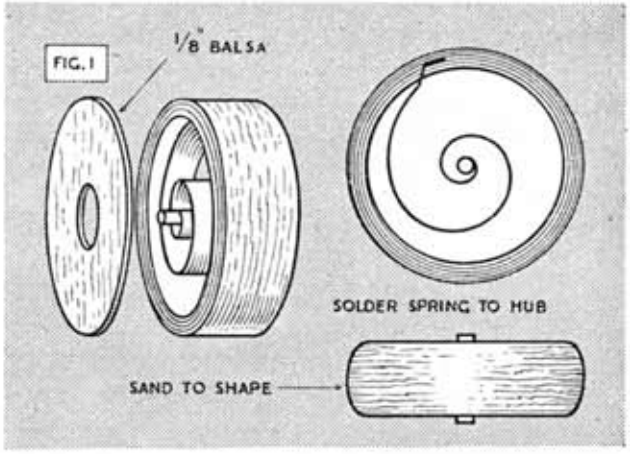
Full-sized plans of the Robin (see ¼ scale replica opposite) are available from the Aeromodeller Plans Service at Allen House, Newarke Street, Leicester.

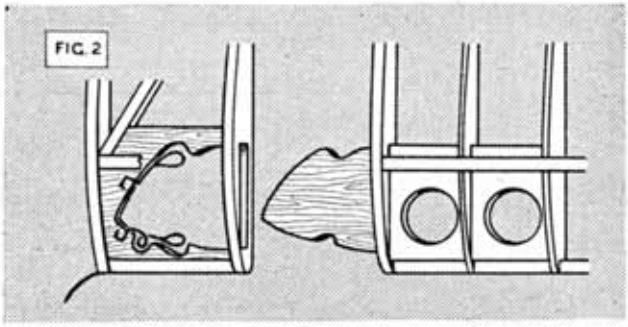
Lower left and right are views of the model and the full-size machine. To differentiate is difficult and in point of fact the model on the right is the better finished of the two.

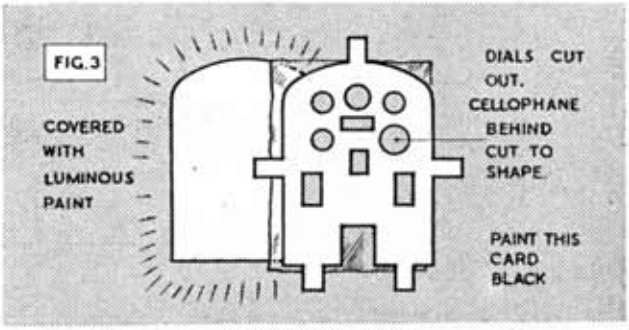


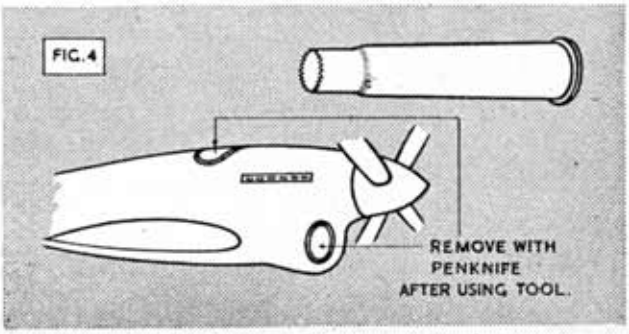
A.B.C. ROBIN
DESIGNED BY
E.J. RIDING
COPYRIGHT OF
THE AEROMODELLER PLANS SERVICE LTD.
ALLEN HOUSE NEWARKE STREET LEICESTER.
2/6
METHOD OF JOINING STRUTS.
CUT TO CORRECT LENGTH ON ASSEMBLY
SAND TO A STREAMLINE SECTION.
BAMBOO PEG.
THREADED BUSH
SECTIONED NOSEBLOCK
CYLINDER POSITION
CUP WASHER
THIN SHEET CELLULOID
CENTRE SECTION COVERED WITH 1/32" SHEET.
TONGUES
ALL LONGERONS & CROSS STRUTS 1/8" SQ.
C. OF G.
STRUT TUBE
5/8" DIA. BOBBIN
PACKING BLOCK
RUBBER BANDS
PAPER TUBE STERNPOST
TYPICAL FIN SECTION
20 C. WIRE
U/C FROM BENEATH
U/C STRUT SECTION
THIS WIRE RESTS ON BOTTOM OF FUSELAGE.
BIND WITH COPPER WIRE & SOLDER.
ALL WOODS USED UNLESS OTHERWISE STATED ARE BALSA
MATERIALS REQUIRED.
DETACHABLE NOSEBLOCK 8 LAMIN. OF 1/8" SHEET
U/C OMITTED ON RIGHT SIDE TO CONSERVE SPACE.
TYPICAL TAILPLANE SECTION.
TOP SPAR ENDS HERE
SIDE VIEW
TOP VIEW
YELLOW PINE
DUMMY CYLINDERS BUILT UP FROM 3/8" BALSA DISCS INTERSPACED BY TWO 1/2" DIA DISCS. THREADED ONTO A PIN & CLUED IN POSITION ON NOSEBLOCK.
LINE OF NOSEBLOCK.
RIBS FROM 1/4 x 1/32 STRIPS SANDED TO STREAMLINE SHAPE.
L.E. COVERED WITH 1/16" SHEET.
STAGGER RIB 1 SLIGHTLY FOR DIHEDRAL.
SLOTTED & CLUED ONTO BOTTOM SPAR.
NOT TRUE LENGTH
TOP & BOTTOM SPARS
SANDED TO SHAPE.

GADGET REVIEW by "Consus"









FIRST of all a "Thank You" for readers. To every reader who has sent in a contribution to this feature—for whether your idea was accepted or not, you did your bit towards making Gadget Review a success and the task of Consus a light one. So good has the response been to my occasional appeals in the past that our files are now so well stocked that we have sufficient ideas in hand for several months to come. Therefore, please will you all hold over your brain-waves for the time being, until I give you the tip that stocks are once more needed. Then, roll them in as before, and thank you once again.

Now that the petrol movement has more than taken up where it left off pre-war, many modellers are coming across annoying little unforeseen troubles. A very common worry is the way a nice wooden cowling gets reduced to a soggy mess through oil being thrown back by the engine. A beaten metal cowling, however nice and efficient it may be, is beyond the capabilities of many modellers, so what is the solution? R. WHILES, of Chesterfield, has got it all ironed out. He has discovered that if he moulds his cowlings from thick celluloid in the same manner as cockpit covers, all the trouble vanishes. This provides a light, strong and smooth cowling which is impervious to oil, and provides an excellent surface for painting that would take hours of careful finishing to obtain on wood.

Although the supply situation has eased considerably, small airwheels are not yet in plentiful supply, and when obtainable are unavoidably not a cheap proposition. During these months of shortage, therefore, a substitute may well prove of use and F. J. S. SECKER, of Belfast, offers a method he has adopted. As can be seen from Fig. 1, the wheels are simple to make and are effective in use.

Occasionally, the mountain-like brain of Consus himself stirs sluggishly and with a great upheaval brings forth some peculiar mouse-size idea, rivalling only those of the Boffin. So it is with some pride and trepidation that he offers the suggestion illustrated in Fig. 2. The Boffin, incidentally, flapping foolishly and jabbering wildly in a mixture of pidgin English and Hindustani (a legacy from his recent trip out East) tried it, and with an air of great discovery pronounced it "Pukka." Consus only hopes his readers do the same! Anyway, for the unenlightened it is a method of securing a tongue and box fixing that prevents the tongue loosening as the years roll by—not that any of the Boffin's models, or those of Consus either, ever last that long, or even fly at all for that matter! Take it or leave it. (*We'll leave it.*—ED.)

Fig. 3 shows a clever method of making an illuminated instrument panel for solid models, used by J. PANES, of Bristol. A piece of blank card is taken and cut to the shape of the instrument panel and is then given a coat of luminous paint and allowed to dry. Another piece of card is taken and cut to the same shape with the exception that tabs are left protruding where shown. Discs are removed from the card in the appropriate places to indicate the position of the various dials. This card is then painted black all over. The cards are placed together when dry and a piece of cellophane or celluloid

is inserted between them and trimmed to shape. The tabs on the black card are glued round on to the back of the other to hold the whole together. The dial calibrations should be marked on the cellophane with Indian ink, by means of a mapping pen.

Next on the list a hint for solid modellers serving overseas or in the Forces, where a set of suitable tools is hard to come by (Fig. 4). That very useful tool, a miniature gouge, can be quickly and easily made from an ordinary cartridge case. This is ideal for the purpose, J. STOREY MALTON tells us, if it is sawn in half at the required diameter, sharpened with a round file and then given sharp teeth with a triangular one. Work it into the wood to the required depth and cut the surplus wood away with a sharp knife. Simple and effective.

W. W. ROBERTS, of Blackpool, thought up the ingenious retracting and detracting undercart shown in Fig. 5. As the governing weights fly out under the torque of the motor, so the undercart retracts, to detract when the torque lessens. The idea is offered " subject to individual improvement." It's worth investigating, anyway.

The problem of colouring white tissue without adding to the weight is solved by Mancunian R. RAMSKER'S method of spraying or painting the model with coloured ink instead of water spraying. Use diluted or undiluted ink according to the shade required. When dry, dope in the normal way.

The old favourite, Meccano, has a thousand uses in aeromodelling. One of these is detailed in Fig. 6, and was sent in by D. COLLIRGE, I. of M. Any form of adjustable retainer, of course, may be used to hold the strips that support the formers together. Meccano used this way makes a very fine jig for all medium-sized models. It may be used for larger fuselages by joining the central rod on to extensions by means of suitably positioned couplings, or by the purchase of a long steel rod of Mecanno diameter and the required length, entailing an outlay of only a few pence. Meccano supports along the length of the rod prevent any sag which may tend to develop.

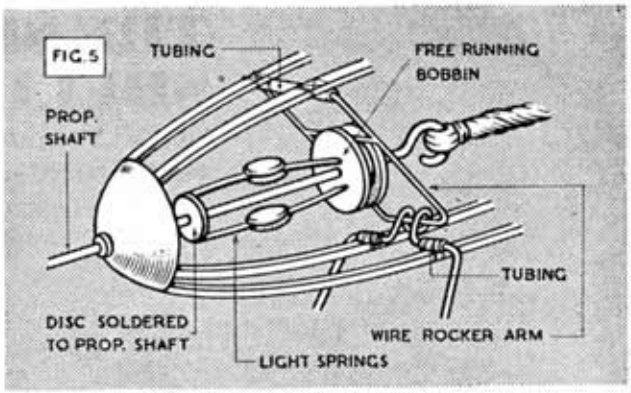
Navigation lights for solids are easily manufactured from chips from red and green toothbrush handles, says F. C. YOUNG, of Littleton, Hants. N.B., you solid fans!

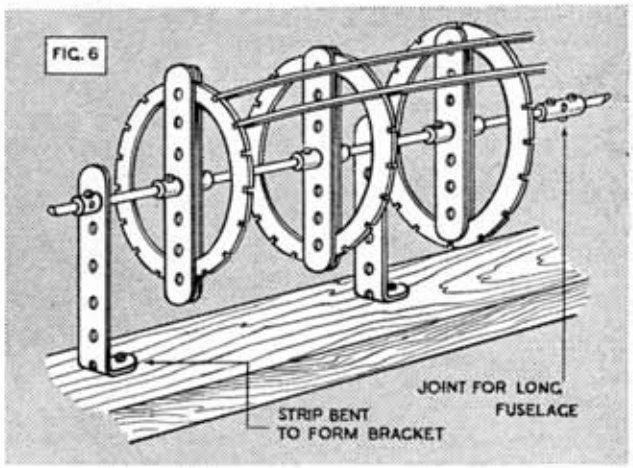
A pocket-saving method of making 1/72nd engine cowls is the idea of E. DOBSON, of Malvern Link, Worcs. He finds that a suitable amount cut from the bottom end of the cardboard case round a number 8 battery is just the thing, with a neatly rounded end which looks very realistic.

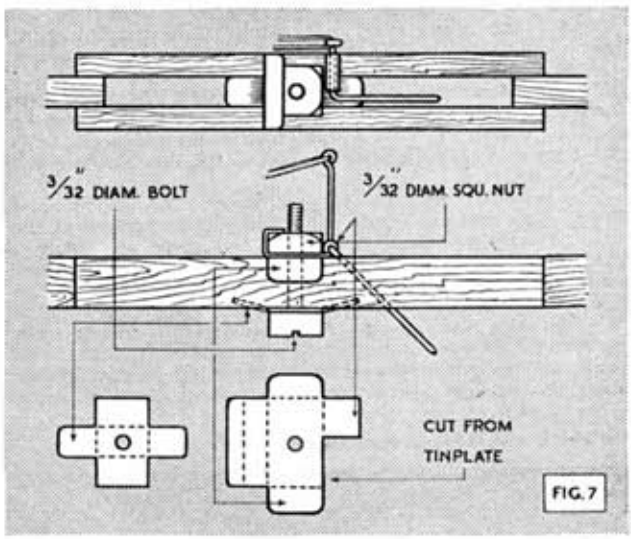
The advantages of alternative towhook positions are well known, but if auto-rudder control is to be fitted, obvious problems arise. S. WITTY, of Hull, overcomes the difficulty by means of the apparatus shown in Fig. 7. This consists of an adjustable towhook of simple design, the movement being controlled by a nut and bolt fitted with tinplate covers that slide in runners of any suitable material. Slack is taken up by means of a miniature bowser and situated within convenient reach of a trap-door near the tail.

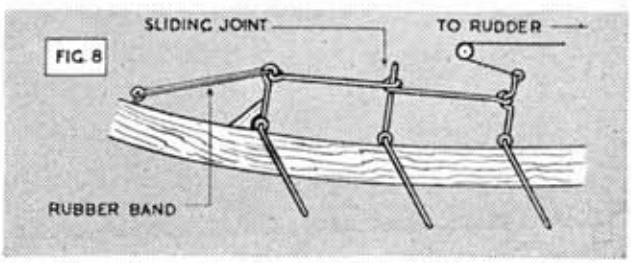
Consus, still over-active this month, has decided he prefers to use a simpler method and launches another idea at his readers (Fig 8), which he considers a considerable improvement on this adjustable towhook idea!

That's all the gadgets for this month. Another batch is on its way in the next Gadget Review—till then Consus bids you "Good luck—and good thermals!"









THE SIR JOHN SHELLEY CUP

HOCKLEY HEATH AERODROME

Nr. BIRMINGHAM, May 4th, 1946

THE contest this year left six strong impressions—three new, three old. New and welcome were the situation, the improved organisation, and the appearance of a diesel engined model at a National Contest. Not so welcome were the old, old stories of bad weather, dilatory starting, and poor encouragement and consideration for the Press.

Hockley Heath Aerodrome was a great improvement over Sutton Park Golf Course, and the general running of the contest was much improved (except for the late starting already mentioned) there being fairly adequate crowd and competitor control, aided by the "Golden Voice" of Mr. S. W. Smith, Contest Director for the day, over the loudspeaker—*essential* piece of equipment at a meeting of any size. The weather preserved untouched its "Shelley" reputation of uncompromising non-cooperation, no matter how pleasant the previous day might have been.

The first round of the Contest got under way around one o'clock, not the "11.30 sharp" prescribed on the circularised newsheet containing the contest gen! Earp of Bushy Park turned in the best flight, being only two-fifths of a second over the stipulated time of 30 seconds. Ken Tansley of Northern Heights came second and Mrs. D. P. Gunter, also of Bushy Park, came third. Silvio Lanfranchi, consecutive winner of the last two years, was disqualified while flying his diesel engined model owing to his dynamic methods of launching. Despite a furious defence his plea was not accepted by the judges. The biting wind was rising steadily and causing havoc amongst untended models in the competition enclosure. The sky was heavily overcast and made good photography difficult. Many of the competitors who flew this round were forced to retire after their flights owing to damage caused mainly through the wind and the bad landings resulting from the trim necessary to bring a good model down within the 30 secs. limit.

The second round, for 45 secs. flying time, started just before three o'clock. Once again competitors arrived at the take-off strip in steady procession, but there was many a disqualification owing to inability to take-off within the three minutes allowed. General cause—refractory engines. The loudspeaker proved its worth in calling competitors to the take-off area and gently admonishing the crowd when necessary. It was interesting to note how most competitors preferred to use the take-off strip of close-mown grass rather than the wooden boards provided a short distance away.

K. Tansley receives the cup from last year's winner, Silvio Lanfranchi, and shares a joke with his wife.

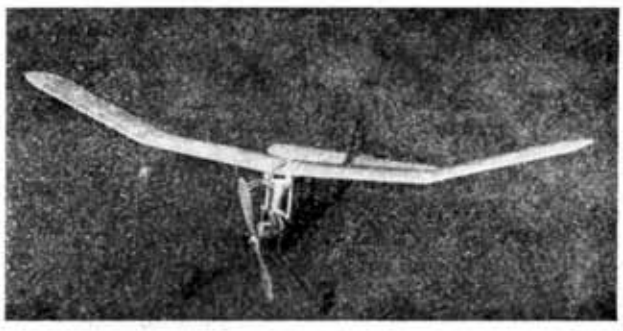
Mr. Taplin, Chairman Midland Area Council, had the brainwave of bringing a petrol mower in a trailer behind his car—a really practical solution to the long grass problem. Earp, second fly-off in each round, was very unlucky with this flight, as his model landed heavily and was seized by the wind to suffer a fuselage snapped clean in two near the tail. The fine stable flights of his new grey model in this round brought Tansley into the lead, with Mrs. D. P. Gunter and Earp close on his heels. The outcome now obviously rested with these three alone, though Earp's position did not seem too happy with a model so badly damaged. However, Red Cross tactics enabled him to repair the damage with balsa splinting of very professional appearance, and he appeared all set in time for the third event. An amusing incident occurred during the second round when Howard's large model dropped a wing tip at take-off, swung round and taxied at full speed towards the group of competitors and photographers around the take-off board. There the starboard wing-tip caught the legs of a lady spectator, who, swathed in a travelling rug, was doing her best to keep warm. Everyone was then treated to the diverting spectacle of the good lady trying to escape the attentions of the model, but because the wing tip still pressed against her leg, as she turned so the model turned with her, and the dancing dervishes had nothing on the ensuing evasive action! At last they disentangled and the model made a perfectly good take-off down wind.

The last round between the three "runners" was started by Earp, who made a very creditable flight despite his damaged model. Mrs. Gunter was another whom the Gremlins fought against, for her model was in the middle of a fine flight when the wings suddenly showed a marked aversion to the fuselage, and the model suffered as a result. Very hard lines, for indeed had this not been so we might have had the pleasing result of a National win by a member of the fair sex. That would have shaken the boys! A few minutes discussion by the judges confirmed Tansley as the winner, and he was presented with the cup by Silvio Lanfranchi, ex-champion. A bottle of wine was then produced, the cup filled, and the contents quaffed ecstatically by the thirsty winner!

A happy augury is the entrance of the two feminine competitors, Mrs. D. P. Gunter and Miss Baker, who might well have placed higher if it had not been for bad luck. Still, a second place in a National Contest is no bad effort. Look to your laurels, my lads!

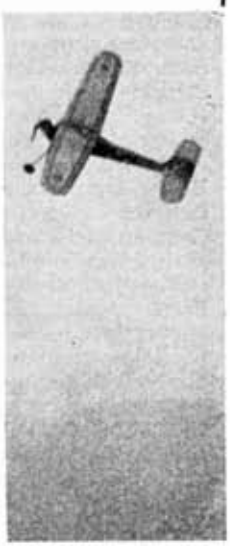
The winning effort—by K. Tansley of Northern Heights.

C. Earp's model—note the numerous rubber bands!



NAME	CLUB	First Time	Second Time.	Third Time.	Total Points.
1. K. M. Tansley	N. Heights	32·25	30·0	62·25	115·5
2. Mrs. D. P. Gunter	Bushy	13·2	41·0	39·3	93·5
3. C. Earp	Bushy	39·2	61·6	No Flight	58·2
4. E. Keil	N. London	21·0	12·4	21·5	54·9
5. G. A. Paul	Bushy	43·0	No. Flight	87·	50·
6. C. Doughty	B'ham	42·75	ditto	92·5	44·75
7. N. D. Howard	Cheadle	29·4	14·2	Scratched	43·5
8. W. S. Warne	Bushy	10·	58·2	No Flight	41·8
9. L. Pribyl	Bushy	13·2	24·25	Scratched	37·45
10. N. Lees	Bradford	50·55	6·0	105·5	29·95.

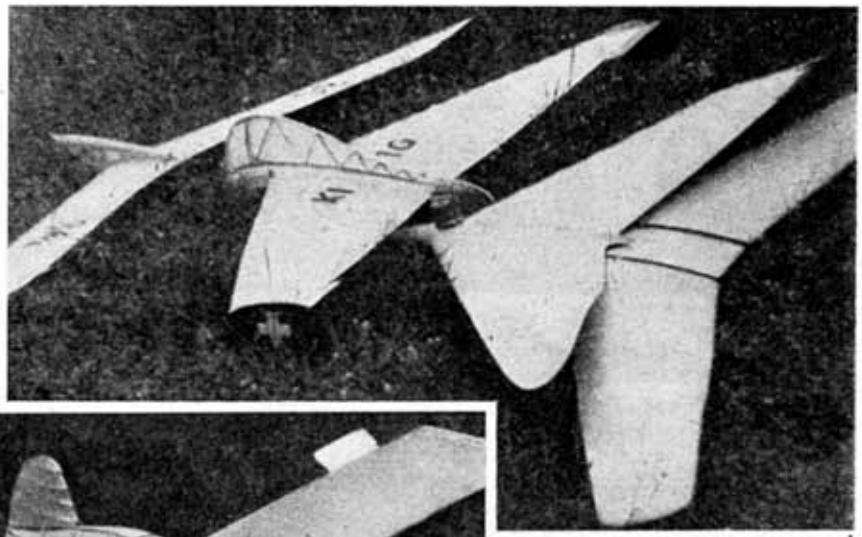
Top left is a view of the competitors' enclosure showing the Records Tent and a selection of the 33 models entered. Note the newsreel representatives. Left: The contest was not without its share of glamour. Red-headed Miss R. Baker of Bushy is becoming a well-known entrant in Petrol Contests with her semi-scale Taylor Cub. Right: Wot! No Diesel? Mr. Taplin does a little haymaking. This model **never** *got off the ground! Below, right: Tansley's model well up. Below, left: Ron Calvert of Huddersfield flew this 36-in. span Atom powered "baby". Bottom: Howard's model scatters the spectators with a little Stuka tactics.*

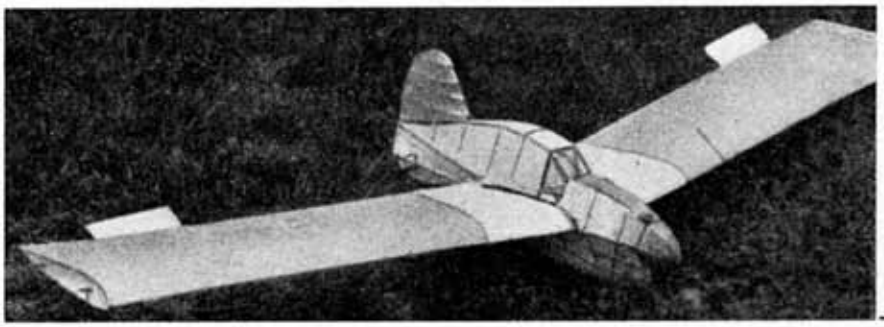


RHÔNE RALLY

FRENCH INTERNATIONAL CONTEST FOR TAILLESS MODELS

DESCRIBED BY HOWARD BOYS





Above. Line-up of Swiss models. The right-hand glider is Rustenholz's—the ultimate winner. Left. A French entrant—note that though dihedraled there is no sweepback.

THE first International Competition for tailless model aircraft including gliders, petrol and diesel driven and reaction propelled machines, was organised by Guy Borgé for the Aero Club du Rhône et du Sud-Est, on May 19th. Guy Borgé is an engineering student who has devoted much time to this formula, plans of one of his successful models appear on page 482.

In addition to the writer the British contingent included Bryon Dun and Bob Purser of Northampton and Ted Hargreaves of the Bury Club. After the usual incidents of foreign travel we arrived at Lyons at 7 o'clock on Saturday evening and contacted the organiser Guy Borgé. Arrangements were made for a coach to pick us up with others of the party at 8 o'clock on Saturday morning.

The bus came and picked us up. It was a 20 seater, and started off with 42 on board. We picked up a few more on the way! We were surprised to see the Swiss carrying their models unprotected, but they were very strong. Someone even danced on one to show how strong it really was; and it suffered no damage!

The flying ground was rather reminiscent of Eaton Bray. On one side was a hangar and club house, and a two seat glider was making winch launched flights. Competitors' enclosures were roped off, and each competitor was supplied with a "caddie."

The first model to take the air was my "Flaming Ptero" which, through "Rip's" kindliness carried a Union Jack. Hooray! Ours was the first flag flying (it takes abitadoing). Also it was the first rocket powered flight most of the people there had ever seen.

Ted Hargreaves was the only entrant in the petrol engined class, but was unable to get a flight. The trouble was that he wanted to borrow a 6 volt accumulator to charge the miniature accumulator in the nose of his model, and none was available. All the engines there, other than Ted's, were auto ignition. Eventually someone brought a car across, and Ted got an engine run but there was not time to charge the battery up properly before lunch. He later found the end of his coil had melted out.

Bob Purser had the misfortune to damage his glider badly during a short test flight, and retired.

Bryon Dun was flying a new model designed and built by Mr. Cockle of Northampton, but was unable to get a decent launch. The trouble may have been due to lack of experience with the long towline, or it may have had something to do with the long towline being too heavy for the model. This was unfortunate as the model had a very good glide, and was quite the most beautifully finished model there.

One Frenchman did quite well with a glider, but it was the Swiss who showed us how it should be done. The climb of their models was amazing, going almost straight up to three or four hundred feet before flattening out and releasing. All the Swiss models were large and heavy and although assorted in design, all climbed in the same way. I think we in England ought to get more practice with the F.A.I. line. We are often told that our gliders should be larger and heavier, without being given a reason. It seems that the International towline needs the large heavy model.

It is rather interesting to note that most of the Swiss models were virtually untried, so it seems that modellers the world over are the same optimistic lot.

I had a shot with one of my models as a glider but it was no good. I tried my "Fire Engine" but with the light wind the take off board was not long enough. I picked the model up and hand launched it before the rocket had burnt out, and the resulting flight lasted more than 20 seconds, so was counted as a competition flight. However, as I was the only entrant with a rocket model it ensured me receiving some sort of prize. Of course the model flew much better after the competition and

made a number of good R.O.G. demonstration flights. The weather was very good for it. The most appreciated flight of the day was with a model I had built for use with French rockets. None had arrived so I was given Swiss ones that were more powerful. With a thrust three times the weight of the model, I warned the crowd, by means of an interpreter, that it might be dangerous. I lit the fuse and " Whoosh ! ! " It shot along the take off board and up into the air at great speed, going to about 200 feet, then over on its back and down again in a perfect loop, like the " Fire Engine " did at Eaton Bray last September, only faster and higher. The glide was perfect, and the spectators showed their appreciation by a burst of applause.

Time went quickly, and we were soon whisked off in cars to a hotel where a special lunch had been prepared for us. It was a most excellent meal, thoroughly enjoyed by all. Besides the Swiss and English competitors were members of the Aero Club with wives and children. One lad was the son of M. Fauvel, one of the best known French designers of full size tailless machines.

After lunch, back we went for a few more flights and much posing for photographs. Flights with the " Fire Engine " were much in demand. Prizes were distributed at 5.30 p.m., and each entrant was given a years subscription to " Je Cherche " a monthly journal similar to " Practical Mechanics." The bus then called to take us back to the hotel where we prepared for dinner.

This was another grand affair. Plenty of tasty food and drink. The President of the Aero Club of the Rhône was in Paris, so he sent his speech to be read by the Vice President; Mr. Arnold Degen, the head of the aeromodelling movement in Switzerland, replied on behalf of the visitors, and I said a few words of thanks from England. I also managed to repeat, parrot fashion, of course, enough French to propose a toast to the Aero Club of the Rhône. The toasts were drunk in champagne.

We then talked together using French, English, German, sketches, and what have you, to make ourselves understood. In particular we English talked to the winner of the competition, and M. Marquet who designs and builds 5 c.c. auto ignition engines for model aircraft, 48 c.c. outboard boat engines, and 12.5 c.c. motorcycle engines. The party broke up soon after 1 o'clock, and it had been such a grand day that we felt as if we had had a good week.

We were late getting up in the morning, and after talking to the Swiss a little while, Guy Borgé brought the morning papers. One printed an account of the competition results, and another had a photograph of me with " Fire Engine."

Competition Results.

1st.	Rustenholz	214 secs. o.s.o.	Swiss.
2nd.	Voit	105 ,,	Swiss.
3rd.	Dailly	96 ,,	French.
4th.	Rustenholz	71 ,,	Swiss.
	Kern	62 ,,	Swiss.
	Dun	34 ,,	English.
	Boys	25 ,,	English.

All the above were gliders and the prizes were respectively, 5 c.c. Marquet auto ignition engine, Lumière camera, 1.3 c.c. A.C.R. engine, and a G.S.R. winch. For myself in the rocket class, 1,000 francs (£2. 3s. 4d.).

Top. At the dinner—from left to right—Bryan Dun, Guy Borgé, M. Marquet.
Centre. Swiss model under repair—note straight trailing edge.
Bottom. Ted Hargreaves endeavouring in vain to get a spark.

CIVIL AIRCRAFT No. 32 BY E. J. RIDING

THE AUSTER V J.1.

Photos: E. J. Riding.

NEAREST approach yet to the aeroplane for the man in the street, the Auster V. J/1 is being mass produced at the Rearsby works of Messrs. Auster Aircraft Ltd. at the rate of fifteen per week. By Government order, fifty per cent. of these machines have to be exported, but even so, a considerable number have been supplied to the clubs and charter firms in this country.

Most of the newly opened flying clubs and schools have an Auster of some sort on their strength and, indeed, a more suitable aircraft in the closed cabin category for instructional purposes would be hard to find. The close cooperation between the pilot and pupil in the Auster, as compared with the feeling of detachment associated with tandem seat trainers with their earphones and speaking tubes is one of the factors which tend to shorten the time taken by the average pupil in learning to fly.

The simple layout of the cockpit gives confidence to the novice, and the manufacturers claim that a 360 degree field of visibility is afforded by the one piece moulded windscreen. A single throttle lever for pilot and pupil is situated in the centre of the dashboard, but as the pupil occupies the right hand seat, the rearrangement does not affect him should he proceed to tandem types later.

Quite a few batches of Auster V's have been issued with consecutive registration numbers, viz. G-AGXB to G-AGXZ and G-AHGV to G-AHHZ, the latter being the largest one of any single type ever issued.

Colour:—The colour scheme seems to have been standardised on all production models, although individual tastes can be catered for. Most Mk. V. J/1's are finished as follows:—Fuselage, wings, tail surfaces, etc., cream, letters and trimmings either green or maroon. G-AGXJ, owned by the London Aeroplane & Motor Services Ltd., is painted in the former colour scheme, and the photograph shows it flying near its home aerodrome at Aldenham, near Elstree, Herts.

The lower photograph shows part of a delivery line-up at Rearsby aerodrome near Leicester.

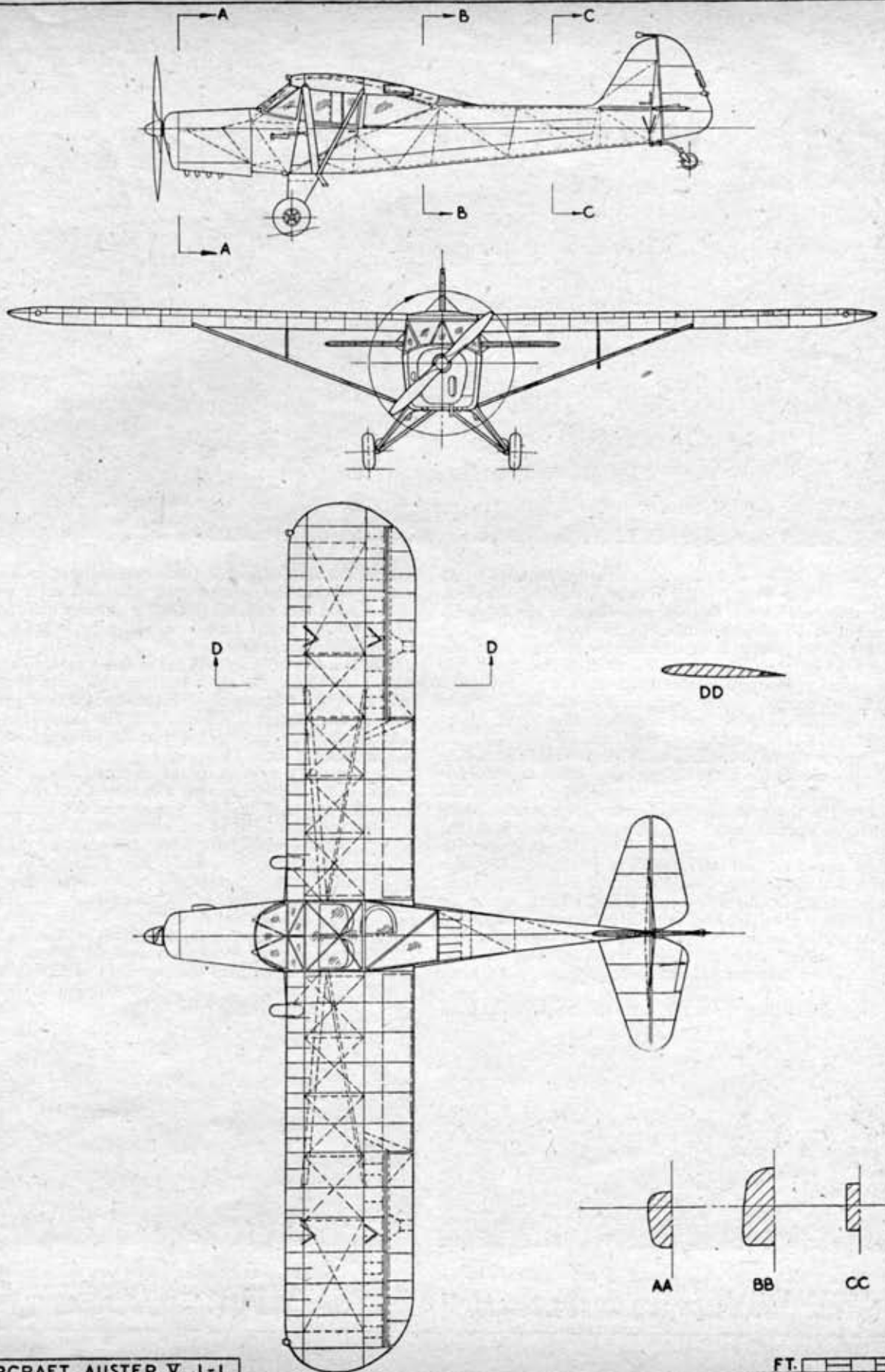
Construction.

The fuselage is an all steel welded structure to which are attached light spruce stringers supporting the covering of madapolam, or glider fabric.

The wings have laminated spruce spars carrying ribs formed from drawn strips of light alloy, the whole being fabric covered with the exception of the leading edge portion forward of the front spar and the split pattern trailing edge flaps. The tail surfaces are also fabric covered metal structures. The undercarriage consists of two simple triangles of steel tube covered with fabric, shocks being absorbed by loops of bunjee cord wrapped round the points of intersection of the radius rods and the centre of the main fuselage cross member. Foot operated brakes working in conjunction with the rudder pedals and a pistol grip lever on the left of the cockpit give ample control during ground handling. Sufficient fuel for a flight of about 290 miles (fifteen gallons) is carried in a tank situated forward of the dashboard.

Specification.

Span, 36 ft. 0 ins. Length, 23 ft. 4 ins. Height, 6 ft. 6 ins. Speed (max.), 125 m.p.h. Cruising, 100 m.p.h. Landing, 30 m.p.h. Weight (empty), 1,052 lbs. Weight (loaded), 1,850 lbs. Ceiling, 15,000 ft. Power plant, 90 h.p. 4 cylinder inverted Blackburn Cirrus Minor Series II. Price, £1,150.



TAYLORCRAFT AUSTER V J-1

FT.

The DORNIER D-1

BY PETER · M · BOWERS

ONE of the most advanced aircraft designs to come out of the First World War was the Dornier D-1, manufactured by the Dornier subsidiary of the Zeppelin concern at Friedrichschaffen, Germany.

Originally produced for the fighter aircraft competition held by the German Air Force in January of 1918, the Dornier was not accepted for service, even though it placed second to the winning Fokker D-7. Pilots and technicians alike were sceptical of a craft incorporating so many radically new features.

Perhaps the most radical, and the one which made the ship the cleanest biplane fighter of all time, was the all-metal cantilever construction of the wings, which did away with the orthodox outer interplane struts. Construction was all dural, the forward two-thirds of the wing being built up of web ribs and full depth spars with metal covering, just as in modern practice. The rear third consisted of metal ribs butted to the rear spar, the covering in this case being fabric. The upper wing was held in place by four bolts fitted to the ends of the rigid centre section struts, eliminating the need for rigging wires, while the lower wing fastened directly to the lower longerons of the fuselage through six more bolts.

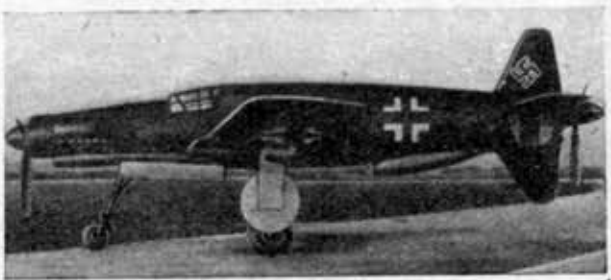
The construction of the all-metal fuselage differed from that of the contemporary Junkers designs in that it did not consist of corrugated skin attached to a welded steel frame, but utilized instead a smooth skin riveted to a built-up dural structure, again in keeping with present-day practice.

Two features tending to give the D-1 a modern appearance were the single strut landing gear, which needed only to have the cross axle-eliminated to make it resemble that of the Gloster Gladiator, and the droppable belly tank under the fuselage, a feature of practically all fighter designs since 1940.

Despite the weight of its metal construction, the D-1 was a small machine, having a span of 25 ft. 7 in. and a length of 20 ft. 11 in. Wing area was 200 square feet, the gross weight of 1914 pounds giving a wing loading of 9½ pounds per square foot, fantastically light by modern standards, but fairly heavy for 1918. Top speed with the 160 h.p. Mercedes was 124 miles per hour.

Only a few examples of this " futuristic " fighter were built, one each being tested by the U.S. Army and Navy after the armistice, while the third was on display in the Dornier museum up to the outbreak of World War II. It is extremely doubtful whether this particular model is still in existence. The accompanying photos are of the U.S. Army's specimen.

Alpha. *Of revolutionary design for its era, the Dornier D-1 had a 160 h.p. engine, and a maximum speed of 124 m.p.h. The view at the top of the page clearly shows the jettisonable fuel tank, neatly cowled engine, and the general cleanness of the whole design.*



Omega! *The latest product of Dornier's is also of unorthodox design. With over twenty times as much power available, this machine weighs twelve times as much as the D-1, whilst its speed of 472 m.p.h. makes it the fastest propeller-driven aircraft put into production by the Germans.*

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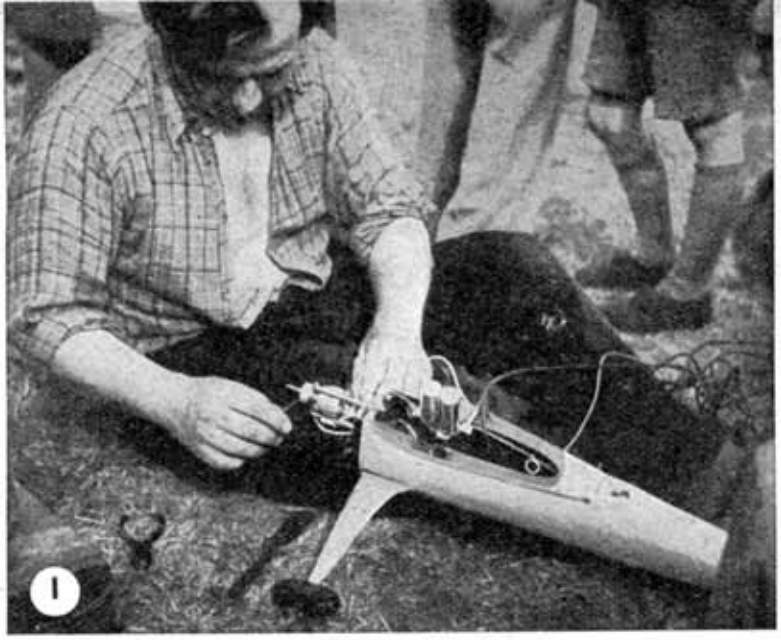
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EVEN with such incidents to contend with as that on the right, Fliar Phil manages to keep happy most of the time, especially now these photos he has been asking for are arriving in a nice steady trickle. He hopes the flow won't show any signs of drying up for a long time.

First of all an S.O.S. Will Mick Smith, designer of the Mercury II (a photo of which appeared in the January Model News and also in last months Rhodesia article) or any person in touch with him, please inform us of his address. Last heard of somewhere in Rhodesia.

Now an apology—to A. O. Sutcliffe of Chester, whose 36 in. span duration model Ariel was illustrated in the May model news. Unfortunately, the "gen" on the photo (No. 6) was omitted, and Fliar Phil hastens to inform all his readers that it was by no means due to the model being unworthy of mention! The model employs a Grant M.8 wing section, a plug-in shoulder wing, and weighs 4 ozs. Best flight to date—4 mins.

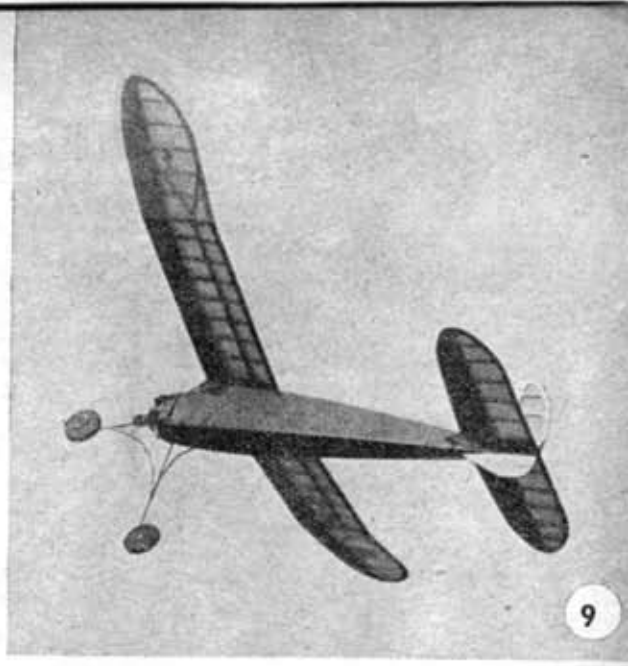
Photo 1 is as usual the Model of the Month—or should it be Model-ler? The photo shows P. E. Norman tuning "Antspants," Ohlsson-powered member of his famous "Natsneez" family of miniature petrol models. Photo 4 shows the result of the tuning—"Antspants" getting away in a steady climb. Notice the trees in the background—yes, you're right, not Eaton Bray. It was Epsom on Gamage Cup Day.

Those who say it can't be done with a biplane should visit B. A. W. Brooks of Camberwell, whose elegant and efficient biplane is seen in Photo 2, in the hands of a winding assistant. This model was developed over several years, and had made dozens of flights without damage. I say had, because a short while after the Aeromodeller photographer's evil aura fell upon it, it suffered a lusty prang which rather put its nose out of joint—literally!

There is no limit to what may be found at Eaton Bray—from a tame steam-roller moored in one corner of the field to something like Photo 3 in another. This model helicopter was built by a member of the Harrow Club, and caused much diversion with its amazing performance. Its rocket-like antics made evasive action as per photo very necessary!

There were well over thirty models at the Sir John Shelley Cup, each with


4



its own interesting characteristics. Of particular interest, however, was the model shown in Photo 5. Built by L. Pribyl of Bushy Park, it is powered by an Ohlsson 23, is 6 ft. span with a 10½ in. chord, and possesses a most remarkable climb and beautiful flat and stable glide. It is one of the few designs that literally " flew straight off the board." Mr. Pribyl was later unlucky in getting the fin knocked off by the wind.

Another unorthodoxy at Eaton Bray can be seen in Photo 6. A member of the Harrow Club appeared with this fiery effort, which cleared many a congested area of spectators with its at times alarming cavortings.

The dethermalizer vogue has many adherents—C. Marcus of Croydon uses a parachute system (Photo 7) operated by a slow burning fuse. Incidentally there at the Gamage Cup another less fortunate modeller using the same system lit his fuse with gay abandon and launched his model, only to find to his horror that all that happened was that the model seemed to create its own private thermal and soar higher and higher gradually enveloped in clouds of smoke. The smoke unfortunately was very soon not confined only to the fuse and the model, well ablaze, drifted out of sight. That's the one risk that N.G.A. doesn't cover !

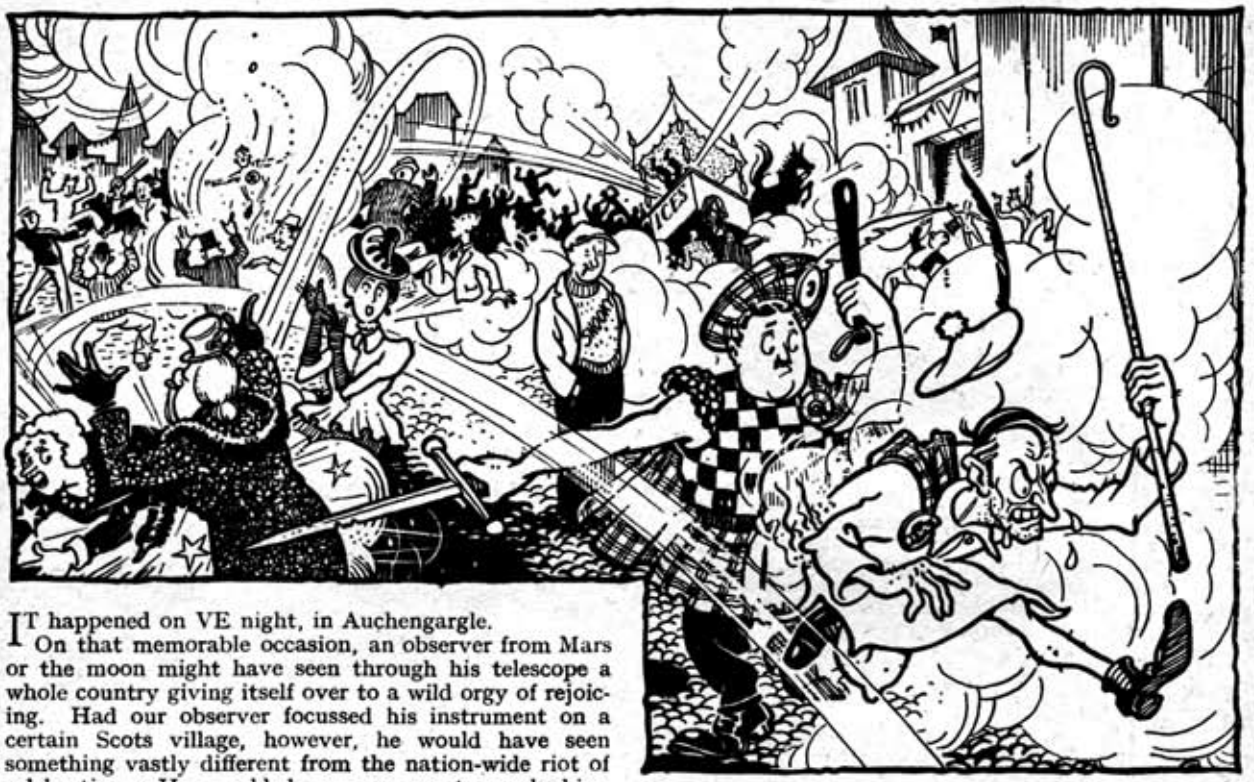
The American type high pylon petrol model has had much praise lavished upon it—in other countries if not so much in this. F. Guest flew a similar design in the Sir John Shelley Cup (Photo 8) but its performance lent little support to the formula, being no better than most of the models of more orthodox layout and he finally placed 13th.

The eager camera of the Aeromodeller photographer caught a splendid shot of N. Gregory's petrol model banking after a hand launch at Eaton Bray at Easter (Photo 9). Finished in pale pink and green, it is 5 ft. span and is powered by a 4.5 c.c. Phantom.

Last photo, No. 10, is of Silvio Lanfranchi's diesel engined model starting to climb at the Sir John Shelley Cup. The motor is a 2.25 c.c. Dyno diesel, a Swiss design. The model is 56 in. span and weighs 2¼ lbs. Diesels are making more and more appearances at National model meets, a pleasant " sign of the times." Fliar Phil has just buried his booster with all due ceremony.

NOW IT CAN BE TOLD!

BY ROBERT JAMIESON



IT happened on VE night, in Auchengargle.

On that memorable occasion, an observer from Mars or the moon might have seen through his telescope a whole country giving itself over to a wild orgy of rejoicing. Had our observer focussed his instrument on a certain Scots village, however, he would have seen something vastly different from the nation-wide riot of celebration. He would have seen a strange-looking figure, clad in a kilt and a top hat, clutching a model aeroplane under one arm, and a squawking seagull with several tail feathers missing under the other. He would have seen this well-meaning individual—accompanied by several other young men—fleeing in terror of their lives; pursued by an angry mob who uttered shrill cries, brandished sticks and gathered stones for missiles as they ran. The leader of the pursuit was a gaunt figure clad in a Tam-o'-shanter, a moth-eaten plaid and a long flowing nightgown—the tail of which was badly scorched. A sorry ending indeed to a day so full of promise. However . . .

When it became evident that Germany had " had it," and that the end of things in Europe was only a matter of days, the Auchengargle M.A.C. immediately prepared to celebrate victory in a fitting manner. The Maestro was almost in tears as he visualised the delights of peace.

" Think of it, lads," he said, his voice choked with emotion, " plenty of balsa in the shops again—rubber and dope and everything—it seems too good to be true."

It was indeed a golden prospect for all good aeromods; but first victory had to be celebrated, and in the work of planning a beanfeast McGillicuddy was never the man to let the grass grow under his feet. With quiet pride in his bearing he produced his plans.

" Rocket planes," he said. " We'll give the folks a real show—and the club will get a big boost at the same time."

" And where did yer get the rockets ? " asked Snooky Munroe.

The Maestro gave him a dirty look.

" If you would just take things as they come, Snooky, without bothering about where they came from, you'd maybe get on a lot better," he told his questioner severely. " As a matter of fact I—humm—er—get them from a friend of mine in the Home Guard—I've got the models all ready, too—but we canna try them out—not enough rockets to spare."

" Will the celebration committee allow us to give a demonstration ? " I asked.

The Maestro treated me to a smile and a wink.

" In the bag," he told me. " McSwindle's is chairman—and while him and I don't maybe agree while's—he'll not let the club down."

Waiting for McSwindle to arrive, McGillicuddy outlined his plan.

" We've got six planes—and rockets for them. We'll let them off one after the other in quick succession—that will catch everyone's attention—then we'll give a demonstration of all our other models."

" Both of them ? " put in Snooky Munroe.

McGillicuddy was riled. " If some members of this club," he said severely to no one in particular, " would spend their time building instead of making daft remarks to their betters, we'd maybe get somewhere."

Snooky—who realised just how far he could go without provoking the Maestro to violence, now retired to a corner, and pretended to sulk. But the occasion was not one in which petty dissensions and quarrels could flourish. The happy expectation of great events soothed over old sores, and made all members brothers. We gathered round and pressed the Maestro for more details of his plan for the forthcoming celebration. But he would say little.

" Wait till McSwindle gets here, lads," he said, " then we'll see."

The man in question entered at that moment, looking highly excited. All present turned towards him, but he had eyes for no one but McGillicuddy. " Maestro," he said, without any preamble, " you'll need to lend me your kilt. I'm taking a leading part in the tableaux." He struck a dramatic attitude. " I'm to represent the Spirit of Scotland ! "

Dead silence greeted his words. No one knew what to say. Unfortunately, just at that moment, Drambuie—the Maestro's pet seagull—uttered a squawk which had a decidedly derisive and sarcastic ring. That broke the spell. Several members tittered, and even the Maestro could not resist smiling. McSwindle flushed angrily.

" Some day I'll wring that blasted bird's neck ! " he declared.

" Nobody will abuse that poor innocent bird while I'm here ! " McGillicuddy retorted. " I'm thinking poor old Scotland must be pretty hard up for spirits when they pick you."

" Did you tell them that we were willing to give a demonstration ? " I asked, anxious to get down to the business in hand before the Maestro and McSwindle came to blows.

" 'Deed and I did nothing of the kind," McSwindle declared, turning angrily round on me. " This is to be a victory celebration—no a schoolboy's outing. Besides, if you were there the whole thing would just be a frost—you would spoil the tableaux—and you know I've always wanted to act."

The Maestro faced him sternly.

" Am I to understand," he asked, " that you never even put our offer before the committee ? "

" You can understand anything you like," retorted the would-be actor. " But if you think I'm going to let a crowd of model aeroplanes interfere with my acting, you're sadly mistaken."

" So you've let the club down," McGillicuddy said, more in sorrow than in anger. " And you want to borrow my kilt forbye."

" Surely you don't grudge me it ? " asked the aspirant for thespian honours.

Slowly McGillicuddy shook his head. " No, Colin," he said slowly, " you'll no make an exhibition of yourself in my kilt—and in years to come you'll thank me for refusing you. It's a kindness I'm doing you. Have you seen your legs ? "

McSwindle lost his rag and let it rip.

" Ach—the whole lot of you are jealous," he roared. " Model aeroplanes ! I'm through with the club. I'm going to see that you're kept out of everything I've got to organise." And he flung himself out of the club, slamming the door behind him.

Consternation reigned. It looked as though our victory display would never come off. But McGillicuddy did not seem in the least perturbed. He smiled to himself, and rubbed his nose with his forefinger.

" I wonder just what he'll wear—seeing he hasnae got my kilt ? " he mused.

The members turned on him angrily.

" Never mind 'im," cried Snooky Munroe. " What are we goin' ter do—no demonstration—and it's all the fault of that there seagull."

But the Maestro refused to be ruffled.

" Tach—don't worry, lads," he said calmly. "We'll give the folks a show that'll be talked of for generations to come. We'll put Auchengargle M.A.C. on the map with a bang. Trust me—we'll show them ! "

" Yes—but how—why ? " demanded the members.

" Listen," said McGillicuddy, " they'll be holding their show on the green in front of the ' Bonnet and Bagpipes ' pub. Well—we'll put on a show without permission. It'll be victory night—no one will object—they'll all be too happy. You know the wee shed the Home Guard used to have ? Good ! We'll assemble all our stuff behind that. We'll release all our six rocket planes at once—to draw their attention ; then—well, it's up to us. You know we can do it."

On the face of it, the Maestro's plan seemed feasible enough, and—for a wonder—everyone supported it enthusiastically. All hands set to repairing and servicing models. The club was united. This was victory.

McGillicuddy concentrated all his attention on his rocket planes. With furrowed brows he began to sketch rapidly on the back of an old plan.

" If the thing's going to be a success, Bob," he said to me, " these six rocket planes have got to go off simul—simul—all at once."

" It'll not be easy, lighting six rockets all at once," I objected.

He smiled happily at me.

" Tach—Bob—you've no imagination," he told me. " Look—it's easy."

He completed his sketch with a few swift strokes and showed it to me. It was a typically McGillicuddy idea. Six rocket planes on the launching rack—with a weird looking arrangement of strips of sandpaper and matches to ignite the touchpaper when a string was pulled.

" I hope it works all right," I said.

He nudged me playfully in the ribs.

" Ach—you're a hopeless pessimist," he informed me. " Of course it'll work all right."

With the happy atmosphere still predominating, all worked with a will. The launching gear was soon completed. The only snag encountered during the building was that of finding a suitable string to use as a " rip-cord." At last the remains of an old fishing net was pressed into service, and seemed capable of taking the strain, despite its somewhat strong smell. The Maestro was jubilant. " Well, lads, we're ready. Let victory come when it will—we'll show them."

We did. But hardly in the way we had intended.

(Continued overleaf.)

(*Continued from previous page.*)

The world will long remember the terrific news on that Monday night. In the wild joy of the moment, the members were all for setting off the rocket planes at once; but the Maestro held us firmly in check.

"No, lads, no," he insisted, firmly but kindly. "Tomorrow night is victory night. We owe a duty to the village. We'll show them what the model aeroplane club can do. Just you wait."

With such a thrilling prospect before us, the waiting period was something of a strain, but we got through that night without any untoward incident.

Early next morning we all assembled at the club, an atmosphere of hilarious goodfellowship prevailing. As the morning wore on, however, a feeling of strain became evident. Would our demonstration go off all right? Would the revellers appreciate our contribution to the celebrations? Would the prestige of the club get the boost we desired for it? No one said anything, but the unspoken thoughts of all were evident, and even the Maestro wore a thoughtful look as the morning wore on.

It was Snooky Munroe who broke the silence. His words echoed all our thoughts.

"Bit of a risk—setting off rocket planes in front of a crowd—I mean—not having tried them out first."

McGillicuddy's reply was mild, considering the circumstances.

"True enough, Snooky; but what else can we do? We've no spare rockets."

The rest of the day passed off quietly enough, and it was only as we were preparing to cart our gear and models down to the green that Snooky gave voice to the words that darkened our horizon with foreboding. As the Maestro locked the clubhouse door, Drambuie jumped to his usual perch on his shoulder. As he did so, Snooky turned on us indignantly:

"That's done it now! With that there bird included in the party, something's sure to go wrong. I feel it in my bones——"

"Then your bones are just kidding you," the Maestro roared indignantly. "It's always the same—when anything goes wrong, you always try to pass the blame on to this poor, innocent bird."

Strangely enough, the Maestro's outburst had a rather reassuring effect. It was at least heartening to know that McGillicuddy was his usual rather irascible self. In this mood we arrived at the green where the celebrations were to take place.

Right in the middle of the open the huge bonfire was erected. Already the usual crowd of small boys were milling round it. Hordes of folk—young and old—serious and giggly—strolled around or stood still, in the manner of all crowds, just waiting for something to happen. We cached all our stuff behind the shed, appointed Snooky as a sentry-cum-guardian, and mingled with the crowds till it was time to start something. The Maestro was in jubilant mood.

"This is the night, lads," he said. "I'll bet our show puts their tableaux an' aw that sort of nonsense right in the shade. We'll stop the show—you mark my words—it'll be a riot!"

At long last the pageant started. The crowd reacted well as it recognised the village characters in their historical roles. Farquarson—the village bobbie—got a big hand when he appeared as King Robert the Bruce. And a terrific burst of applause greeted McSwindle when he came on—looking very sheepish—as the Spirit of Scotland. Lacking the Maestro's kilt, he was attired in a long, white garment—strongly reminiscent of an old-fashioned nightgown. A tam-o'-shanter, a moth-eaten plaid, and a shepherd's crook completed his incongruous costume. Pleased with the ovation he had received, his face wore a self-satisfied smirk. The Maestro turned away from the spectacle in disgust.

"Man Bob, it's terrible," he said to me. "Imagine that man, one of our own members, making an exhibition of himself in public like that——"

Suddenly his expression changed, and he gripped my arm.

"Drambuie," he cried. "I've forgotten to feed him!"

I couldn't understand what he meant, but following the direction of his gaze saw that Snooky Munroe had deserted his post and was watching the show with his hands in his pockets. Away beyond him I glimpsed a familiar white bird—he had something in his beak and was engaged in a frantic tug-of-war. With a thrill of horror I realised that it was the "rip-cord" of the rocket release.

"It's the fishy smell of that net we used!" the Maestro roared. "Run, Bob——!"

But it was too late. McGillicuddy's firing gear worked only too well. With a ragged WHOOSH six rocket planes hurled themselves into the air—unfortunately, they were not too well aimed directionally. . . .

The first caught Drambuie dead astern, and sent him—squawking lustily—to the Maestro for protection. The second got entangled with an ice-cream cart, going about the green on its lawful occasions in pursuit of business. The unfortunate horse—convinced that hostilities had restarted—immediately stampeded and caused the crowd in its vicinity to do likewise. The third landed square on the bonfire, igniting it prematurely, thus depriving one of the village bigshots of an occasion for which he had been long rehearsing. Yet another went plop into the midst of some maiden ladies, who immediately went into hysterics. But the worst of all was the rocket plane which caught McSwindle bending, ruffling his dignity and ruining his costume.

Without the last incident, the affair might have passed off without a riot—but as it was . . .

The Spirit of Scotland gave vent to a bull-like roar of rage which drowned the yells of the crowd. With quivering fingers and staring eyes he pointed—and drew all eyes in our direction.

"It's them!" he shouted. "They've done it on purpose—they wanted to show off—and I wouldn't let them. They're just a public nuisance, the whole lot of them."

Mob psychology is a strange thing. The crowd—startled by what had happened—might have just laughed in relief, or else—goaded by the raging McSwindle—got tough. Unfortunately for the Auchengargle M.A.C. they decided on the latter. . . .

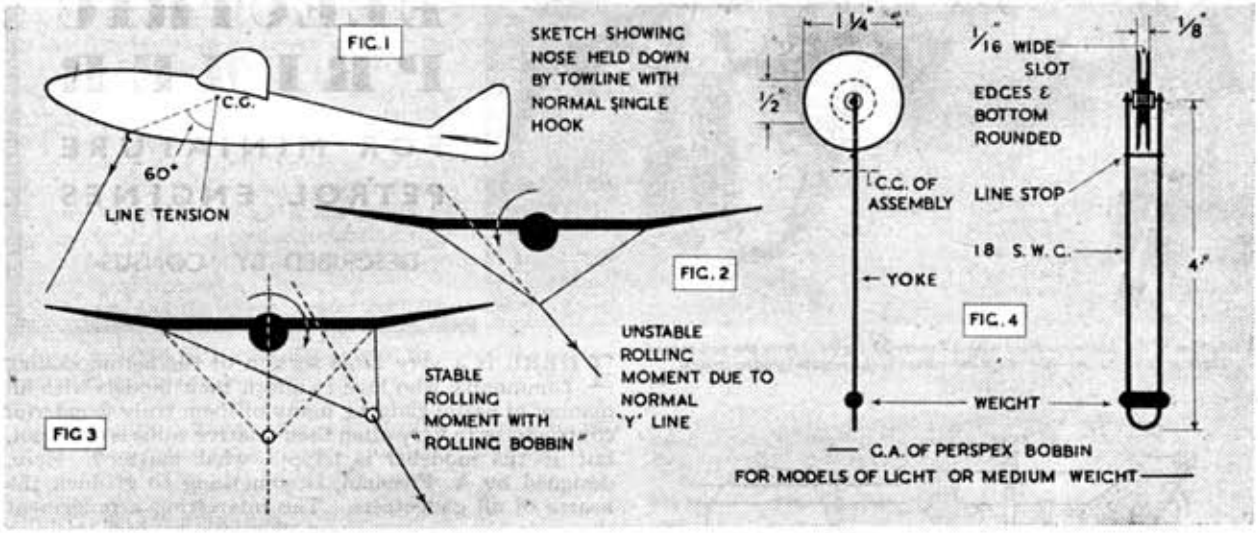
That is why, at the beginning of this narrative, I remarked that an observer from another world, peering through his telescope, might well have wondered at the scene in Auchengargle that night. With Drambuie under his arm, and all our members beside him, Maestro McGillicuddy scrammed from the field; pursued by the crowd he had meant to entertain. A sorry ending to Victory night; a poor reward for what was intended to be a public service.

About a year has passed since that night. Rumours and counter rumours flew about afterwards. The most scandalous stories were put into circulation by disgruntled parties. It is only with the intention of letting the truth be known that I have set down the foregoing. Now, at last, it can be told.

THE LOW SPEED AERODYNAMICS RESEARCH ASSOCIATION REPORT NO. 17

• THE ROLLING BOBBIN •

By R · H · ANNENBERG, B.Sc. (Eng.) & N · K · WALKER, B.Sc.



TESTS with gliders have shown that maximum height is obtained by winching the model up as fast as possible in the initial stages of the launch. Height increases of up to 50 per cent. can be obtained in this manner, but terrific bending loads are applied to the wing which often cause failure, thus accounting for the unpopularity of the very fast launch.

It has been shown that twin tow-hooks suitably positioned on the wing reduce the maximum bending stresses to less than 20 per cent. of those due to a single central hook under the same conditions. In addition, with the latter the tension and weight of the line apply a load ahead of the C.G. which holds the nose down and generally causes the model to stall off the line when the load is released, unless the extra speed is utilised in a turn downwind.

Experiments with twin tow-hooks, at 50 per cent. semi-span, on the 33 in. span sailplane " Flying Suitcase " at Guildford, in May, 1945, showed that the ordinary " Y " type tow-line produced instability in roll at the top of the climb, although the stalling tendency on release was eliminated, as the hooks were positioned almost on the C.G. It was seen that if the model veered relative to the point of launching, Fig. 2, the line loads rolled the model in the wrong direction, causing a further divergence from the line of flight, resulting in a turn downwind off the tow-line, or a sideslip into the ground. The second author suggested that a sliding knot or ring fixed to the vertical part of the " Y " and sliding over the " V " portion might help. This was tried and found ineffective, so the matter was shelved while the theoretical aspects of the device problem were investigated by the first author. The theory showed that if the ring could be made to slide *freely* over the " V " portion of the " Y," the line forces would cause the model to roll and sideslip back to the correct line of flight. This obviously pointed to the use of some form of pulley which was tried out as described below (Fig. 3).

Results.

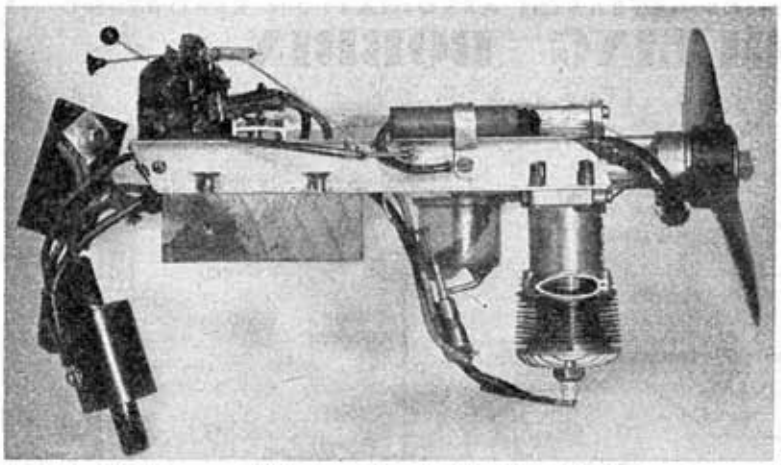
The length of the " V " part of the " Y " or " bridle " was made about twice the distance between the hooks, and a ¾ in. diam. pulley made from 1/3 in. and 1 mm. ply carried on a small wire yoke ran freely over it. The glider was tested on 60 ft. of line and it was found that the model could be played like a fish. The model was under control all the time and could be released at will.

Tests on a long line, however, showed that the bobbin was too violent in its action, and also that the plywood bobbin did not roll on the bridle as freely as the first tests had indicated, so another bobbin was carefully turned from Perspex, polished and brass bushed. The groove in the new pulley was made just wide enough to take the line and also much deeper, and the yoke was weighted at the lower end (Fig. 5). These modifications were made to prevent the bridle slipping out of the pulley as had happened on some occasions with the plywood bobbin. The length of the bridle line was also increased to two and a half times the hook span, to render the device less sensitive.

Tests at Pewley Hill, Guildford, on an extremely gusty day, showed that the model was completely under control. The model was launched on 50 ft. of line, towed up to 30 ft. and allowed to wander out of the wind until a gust came. A sharp tweak on the line pulled the nose into wind just in time to catch the gust and the model soared up into the face of the gust, tow-line being let out until the gust dropped. By this time the model was 60 ft. up. This procedure was repeated until no more line was available, when the model was encouraged to turn downwind and the wings allowed to drift off the tow-hooks.

As a result of these experiments it was decided to apply for patent protection of the device. This has been obtained, *but any person may use, for his own personal use, this or any other invention which has been patented provided that he does not use it for purposes of financial profit without the sanction of the patentee.* Trade enquiries about the bobbin should be addressed to the Director of Research, L.S.A.R.A.

(*continued on page* 503.)



A side view of the device mounted with a Forster 29 engine. Note the bell-shaped black priming button—the round red button is the remote ignition control.

THERMO-ELECTRIC PRIMER

FOR MINIATURE PETROL ENGINES

DESCRIBED BY 'CONSUS'

THERE is a very large section of the aeromodelling community who love to adorn their models with all manner of useful gadgets, many of them truly wonderful contrivances! Very often their relative value is doubtful, but if the modeller is happy—what matter? Here, designed by A. Freeman, is something to gladden the hearts of all gadgeteers. The interesting arrangement shown in the accompanying photographs and drawings is designed to obviate mechanically the contortions normally necessary for choking a model petrol engine for starting. It enables satisfactory starting from cold without any effort on the part of the operator, even if the engine is fully cowled. By pressing the button, the small excess of fuel needed for starting a baby engine is thermo-electrically provided in the intake tube.

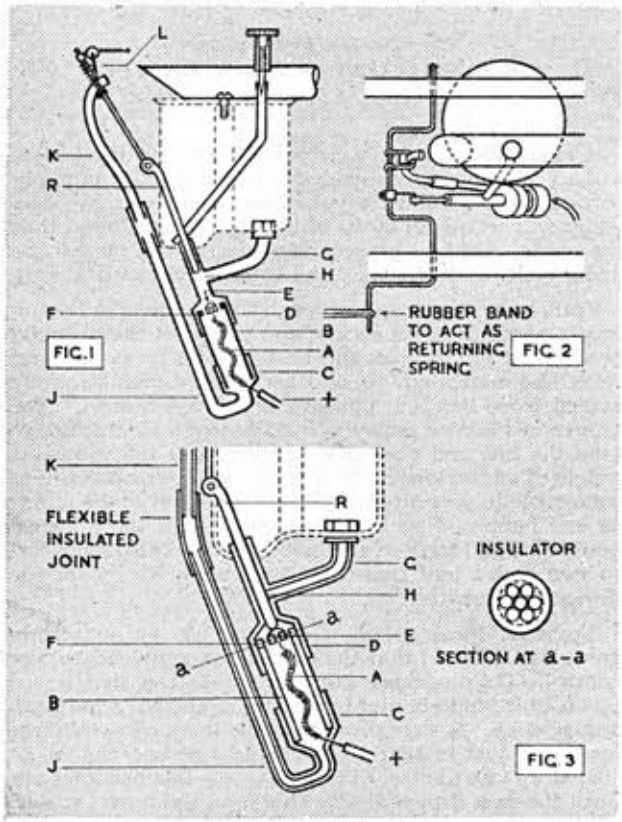
The Mechanism.

A small filament A, made by winding 38-gauge "Eureka" wire round a pin, is enclosed in an ebonite tube B which has brass end-caps C and D. One edge of the filament is attached to a piece of copper wire which is soldered where it passes through C, and forms the insulated side of the circuit. The other end of the filament is connected to the contact-pin E which is in the middle of the celluloid insulator F.

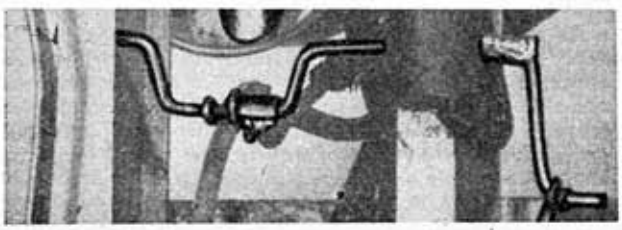
When petrol passes down the tube G through the hole H and through the holes in F it fills B and finds its own level in tube J.

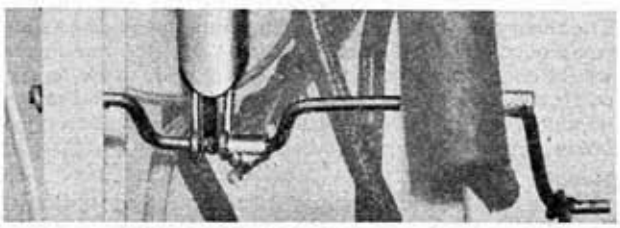
Operation.

The primer is worked by pressing the black starting button, which pushes down the rod R (see Fig. 3). This first closes H and then touches the contact-pinhead, completing the circuit to earth. The filament instantly becomes hot and a small amount of the petrol is turned to vapour which at once forces the rest of the petrol up J and out of the jet K, which was automatically inserted into the induction pipe when the operation commenced. To see if the device is working properly, pull the jet



Photos below show, left, the jet at rest; right, the jet inserted in the induction pipe coincident with the pressing of the priming button.



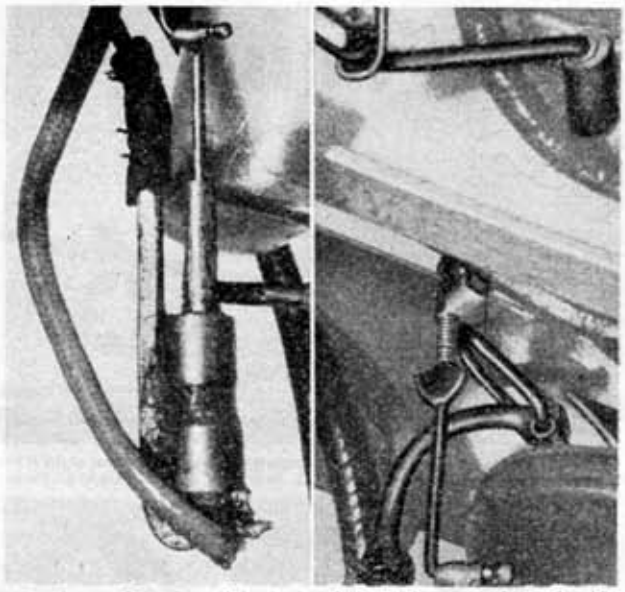


backwards before pressing the black button, when the jet of petrol should be observed to shoot upwards about 3–6 ins. The velocity of the ejection varies slightly as the battery becomes weaker but the volume of petrol ejected while the device is working correctly is always constant. This has been proved by a practical check.

Should only a lifeless dribble be observed at the mouth of jet K, the trouble is probably caused by poor contact at the booster switch and/or a short between J and K inside the flexible joint.

When it is desired to start the engine from cold, all that is necessary is to first switch on the booster switch and then press the black priming button *once*. The ejection of petrol from the jet is instantaneous and the button should not be held longer than a second. The action of the priming jet K should be noted; it is fully automatic and rises to the induction pipe on pressure of the black button and falls away on release. The button having been pressed and released, the priming operation is complete and the engine is started in the usual manner. This apparatus ensures that the engine will start on the second or third flick over. It should be noted that if the engine is warm, more often than not no priming will be necessary.

The needle valve setting will vary according to the engine used, but on the original Forster 29 was $3\frac{3}{4}$ turns, which must, of course, be pre-set.



Left, a close-up of the "heart," the ebonite tube B with the brass end-caps C and D. Right, a close-up of the jet in the inserted position. Note the flexible joint in both photos.

Points of Construction.

When making the filament care should be taken that when finished it should just glow red-hot in air when working from the correct battery. The original is wound for 6 volts and requires a current of about $\frac{3}{4}$ amp, but with thicker wire, of course, can be made to work off 4 or even 2 volts. German silver or tungsten are both alternative materials for the filament.

The main barrel B is made from a piece of ebonite tubing. The fittings C and D are from an old car fuse. The sleeve for the rod R is made from an ordinary standard bush and should cause no worry.

The best way to make the celluloid insulator is to first drill six holes in a sheet of celluloid and then cut round them.

The main advantages of this method of priming over the use of an orthodox pump is that it would be practically impossible to construct an efficient model pump on such a small scale, with all the minute machined moving parts and sensitive pressure-operated valves which are normally incorporated in a device of that kind. Note that the original engine was also fitted with remote ignition control, the connecting rod for which can be seen connected to the lever on the left-hand side of the engine mount. This is in keeping with the design of the rest of the apparatus, allowing the engine to be started and controlled without dismantling half the model. The disadvantages of the system seem to be that provision for a knock-off engine mounting is rather difficult, and that the flexible joints on the original were of ordinary rubber tubing, which is partially soluble in petrol and might provide some tricky problems owing to the gumming up of tubes and valves. The cynic will probably state "A finger over the air'ole is just as good," but, there, the gadgeteer is happy and practical tests by the Research Staff have proved beyond doubt that the device *is* effective!

THE ROLLING BOBBIN—cont.

Warning.

A word of warning is necessary concerning the application of the bobbin to *models of doubtful directional stability, i.e.*, tailless machines. At the beginning of the launch, if the model's centre line makes only a small angle with the line then directional instability may occur, aggravated by the fact that the short or non-existent fuselage of the tailless model makes it very difficult to launch dead straight. If the wind is not too strong the veer may be corrected by allowing the line to go slack, when the offset weight of the line will roll the model back towards the winch.

This will not happen if the model has a good reserve of directional stability, *e.g.* the normal contest sailplane. In any case, if the model is launched very fast the angle of climb will be considerable before the yawing effects become apparent, and since the yaw effects are dependent on the cosine of the angle between the line and the model, it is obvious that they will then be greatly reduced and can be overcome by the stabilising rolling moments.

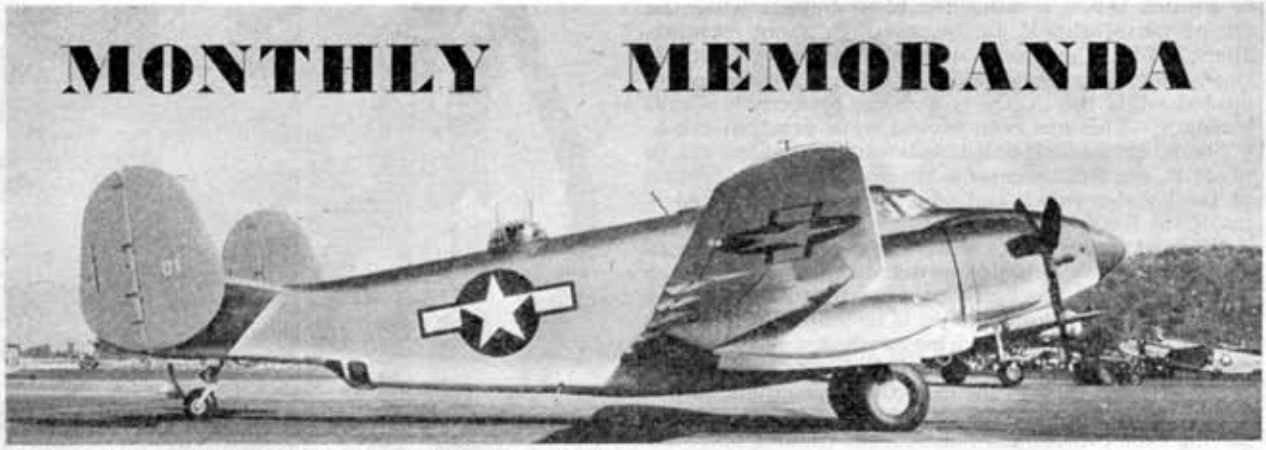
Conclusions.

The bobbin is perfectly safe to use provided that:—

(*a*) It runs very freely on its yoke, and is perfectly round. It must therefore be turned up on a lathe and, if the model is more than 1 lb. in weight, ball races should be fitted to the bearing. (*b*) A reasonable length of bridle line is used, say, three times hook span. (*c*) The model has an adequate reserve of directional stability (it is not wise, or necessary, to use the bobbin for launching tailless models). (*d*) A drogue or streamer is attached to each end of the bridle to ensure release.

It will then allow extremely fast launches without danger of wing failure and gives perfect control over the release of the model, and during the climb. It is not necessary to use an auto-rudder attachment, as the effect of an offset rudder is to cause the model to climb with slight yaw and pass a little to one side of the winch. (In one test so much rudder was applied that the model almost spun in after release, although no difficulty was encountered in towing it up.)

MONTHLY MEMORANDA



Lockheed's *Harpoon patrol-bomber is a development of the Ventura, which it has replaced in the patrol squadrons of the U.S. Navy.* *(Lockheed Photo.)*

American Patrol: *A patrol-bomber with greater range and speed, the Lockheed P2V Neptune is a complete breakaway from the well-known Hudson-Ventura formula.* *(Lockheed Photo.)*

Revival. *The pre-war Fox Moth has been revived by Canadian De Havilland Co. as the D.H.83C. Here is the prototype, CF-BNI.* *(Canadian D.H. Photo.)*

(Below.) **Clubman.** *One of the two D.H. Moth Minors of the London Aero Club at Panshanger. A 1939 type, the Moth Minor is now coming back into service.* *(Photo: E. J. Riding.)*

BY O·G·THETFORD

Wartime R.A.F. Squadrons.

It is manifest that there is a widespread interest amongst readers of these columns in the recognition of R.A.F. squadrons and the correlation of code letters with particular units. During the war, of course, the whole question was secret and no mention was allowed of any particular squadrons and their equipment. Now that peace is with us again information on squadron markings has become more liberal, though even now a complete picture is difficult to obtain. We believe readers will find the list presented here of interest and value in the finishing of models and the recognition of aircraft in photographs. It is the most comprehensive list so far published, but is not complete and we invite correspondence from readers who think they can help to improve it. We hope to obtain a fairly accurate and complete list of squadrons which took part in the recent war, and will, from time to time, prepare supplementary tables as more data becomes available.

Code letters were first issued to squadrons in 1938, about the time of the Munich crisis, but on the outbreak of war in 1939 they were changed, for obvious reasons. Both pre-war and wartime code letters are listed below, the pre-war being indicated by "(1939)".

Airacobra : "UF"—601 Sq. *Beaufort :* "OA"—22 Sq., "AW"—42 Sq. *Blenheim :* "JP"—21 Sq., "YP"—23 Sq., "TW"—90 Sq. (1939), "GB"—105 Sq., "PJ"—130 Sq., "XD"—139 Sq. *Dakota :* "HC"—241 Sq. *Defiant :* "PS"—274 Sq. *Fortress I :* "WP"—90 Sq. *Gladiator :* "NW"—33 Sq., "HE"—263 Sq. *Halifax :* "ZA"—10 Sq., "EY"—78 Sq., "TL"—102 Sq., "NF"—161 Sq., "OW"—208 Sq., "PT"—419 Sq., "NA"—420 Sq., "EQ"—426 Sq., "ZL"—427 Sq. *Havoc :* "YP"—23 Sq., "VY"—85 Sq., "HN"—93 Sq., "TH"—418 Sq. *Hudson :* "QX"—233 Sq. *Hurricane :* "LK"—1 Sq., "YO"—1 R.C.A.F. Sq., "NW"—33 Sq., "US"—56 Sq., "VY"—85 Sq., "TM"—111 Sq. (1939), "HB"—229 Sq., "DX"—245 Sq., "DT"—257 Sq., "SD"—501 Sq., "LU"—M.S.F.U. *Lancaster :* "VN"—44 Sq., "OL"—83 Sq., "GT"—156 Sq., "UM"—626 Sq., "F2"—635 Sq. *Lysander :* "TV"—4 Sq., "KJ"—16 Sq. *Mosquito :* "YP"—23 Sq., "VO"—98 Sq., "GB"—105 Sq., "XD"—

139 Sq., "DZ"—151 Sq., "FK"—219 Sq., "ZK"—302 Sq., "TH"—418 Sq., "RX"—456 Sq., "P3"—693 Sq. *Mustang:* "RM"—26 Sq. *Spitfire:* "WZ"—19 Sq. (1939), "FT"—43 Sq., "LZ"—66 Sq., "ON"—71 Sq., "RN"—72 Sq., "FL"—81 Sq., "DL"—91 Sq., "NK"—118 Sq., "AV"—121 Sq., "MT"—122 Sq., "NX"—131 Sq., "ZD"—222 Sq., "WX"—302 Sq. (Polish), "GW"—340 Sq (French), "MN"—350 Sq. (Belgian), "AU"—421 Sq., "XT"—603 Sq., "AF"—607 Sq., "PR"—609 Sq., "DW"—610 Sq., "KW"—616 Sq., "TJ", "OQ" and "NS"—52 O.T.U., "UU" and "TO"—61 O.T.U., "MV" and "QG"—63 O.T.U. *Stirling:* "MG"—7 Sq., "LS"—15 Sq., "OJ"—149 Sq., "GI"—622 Sq. *Sunderland:* "RB"—10 (Australian), "SE"—95 Sq. *Tomahawk:* "KH"—47 Sq. *Tempest:* "SD"—501 Sq. *Typhoon:* "US"—56 Sq., "SF"—137 Sq., "EL"—181 Sq., "ZH"—266 Sq., "PR"—609 Sq. *Warwick:* "MF"—280 Sq. *Wellington:* "KA"—9 Sq. (1939), "LS"—15 Sq., "LN"—99 Sq., "OJ"—149 Sq., "BU"—214 Sq., "EO" and "FH"—15 O.T.U. *Whirlwind:* "SF"—137 Sq., "HE"—263 Sq. *Whitley:* "ZA"—10 Sq., "KN"—77 Sq., "DY"—102 Sq. (1939), "WL"—612 Sq.

New Prototypes.

Photographs and data on three new prototypes have recently been released. They are the Supermarine 322 torpedo monoplane with variable incidence wing (illustrated), serial number R 1815; the Percival T 23/43 three-seat elementary trainer (illustrated), serial number TV 163; and the Handley Page Hastings transport, serial number TE 580. The Supermarine first flew in February, 1943, the Percival in April, 1946, and the Hastings in May, 1946.

R.A.F. Flashbacks—20.

The Avro Tutor (215 h.p. Siddeley Lynx) two-seat *ab initio* trainer was standard equipment at R.A.F. Flying Training Schools from 1932, when it replaced the veteran 504N, to 1938. The first Tutors in service were doped silver all over and had the red, white and blue rudder stripes. Later, the stripes were deleted and in 1936 an all-yellow finish was standardised for all trainers. The Tutor had a span of 34 ft., a length of 26 ft. 6 ins., and a loaded weight of 2,450 lb. The top speed was 122 m.p.h., and the rate of climb 1,000 ft. per minute.

All-silver Tutors were numbered K 2497, K 2498, K 2499, etc., and a batch of all-yellow machines were numbered K 3261, K 3262, K 2363, etc.

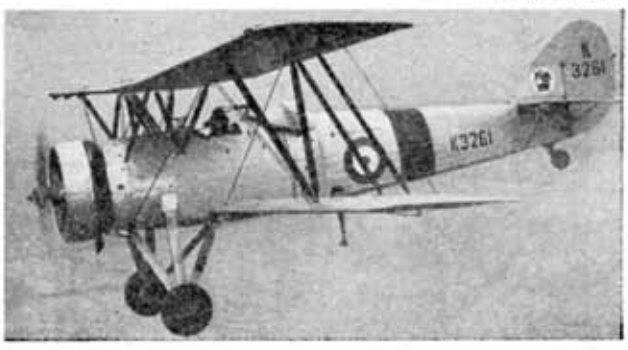
Worm's Eye View. *A Wellington X operational training bomber at R.A.F Station, Wing, Bucks. The white numbers below the wing are now carried on all Service aircraft.* (*Photo: G. A. Cull.*)

Two's Company. *The new Percival T 23–43 three-seat initial trainer or synthetic night trainer. Production of the type (all-metal) is now proceeding under sub-contract at the Blackburn Aircraft Co.'s works.* (*Percival Photo.*)

Pastures New. *One of the two prototype Supermarine S.24/37 aircraft fitted with variable incidence wing. First built in 1943, these aircraft fulfilled a Naval torpedo-bomber requirement.* (*Vickers Photo.*)

Gul's Travels. *An Avro Lancaster I transport of British South American Airways Ltd. Notice the name "Star Watch" and the "Speed-Bird" insignia on the nose.* (*Photo: "The Aeroplane".*)

Ku-Klux-Klan. *A pupil under the hood in an Avro Tutor of the Central Flying School, Wittering, in 1938. Notice the red band on the fuselage and fin crest* (*Aeroplane Photo.*)



ALL SET FOR IRELAND

SILVIO LANFRANCHI showed his usual skill in leading the field at the National Eliminating Trials held by the A.B.A. at Eaton Bray on Sunday, June 2nd.

Flying his well-tried Indian Chief of 5 ft. 6 in. wingspan, this time with an inverted engine, Silvio made first flight of the day: the wind tossed it up fiercely and time was little more than the engine run of 20 secs. After a false start Lane got away his own design model, whose tip slots proved unequal to the weather. Next came Eddie Kiel flying his new Diesel-engined model. This too fell a victim to the wind before it became airborne and tore off a wing. A succession of no flights and ground flights followed. Only Walter Poile got well away, after his Comet II had spun round and then taken off in 3 ft. on the very edge of the concrete area. F. L. Trevett managed to unstick his entry for a short hop and Round I was finished.

Silvio's second flight proved best of the day, getting well up for a flight of 41 secs. Again, in this round the weather took a heavy toll. Eventually, it was agreed to make placings on two rounds only, rather than risk complete write-offs of potential finalists.

Meanwhile the Wakefields had been flying gamely—going out of sight in under four minutes. Once the take-off hazards had been passed a well-trimmed model required a real cross-country chase.

Again the first model off proved the ultimate winner, when R. A. Hinks' red and white slabsider took the honours with a flight of 208 secs. out of sight, followed by Ron Calvert's 172·5 secs., o.o.s. Both these models were unfortunately lost. Third man was C. Houghton—a previous winner at Eaton Bray—who could only manage 90 secs., but this proved enough.

RESULTS.

Petrol Event.

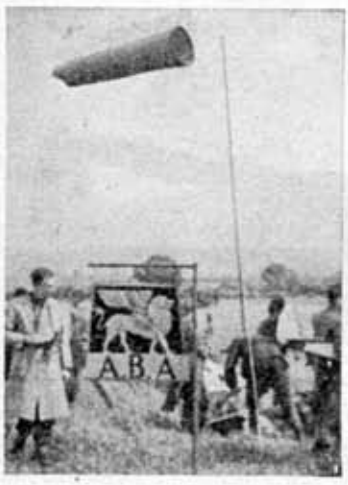
1. Silvio Lanfranchi	Bradford.
2. Walter Poile	Canterbury.
3. F. L. Trevett	Bridport.

Wakefield Event.

1. R. A. Hinks	Luton and Leighton Buzzard.
2. Ron Calvert	Huddersfield.
3. C. Houghton	Luton.

Top centre: Winners, R. A. Hinks and Silvio Lanfranchi receive their trophies from Mrs. Germany. Above left: The winning Wakefield in flight. Below: A.B.A. sign at the Windsock with Capt. Bellew on left. Bottom left: Calvert's model taking off.

Above: Silvio's model going well on its second flight. Below: Eddie Keil watches anxiously as his entry misbehaves. Less than one second later it was minus a wing. Bottom right: F. L. Trevett's petrol model noses over on the tarmac.



AEROPLANES DESCRIBED XLI

The FAIREY SPEARFISH

Photo Chas. E. Brown.

The Spearfish presents a pleasing appearance in flight and carries its entire war-load internally. Undercarriage details may be gathered from the lower photograph.

PRODUCED to a 1943 specification (O 5/43), the Fairey Spearfish strike torpedo bomber represents the culmination of 30 years' experience of naval aircraft design by the manufacturers and is the descendant of such illustrious types as the Swordfish, Albacore and Barracuda. Its range of duties is, however, much wider than any of its predecessors and includes all varieties of carrier-borne operations except pure combat. With a crew of two it can function (in an offensive capacity) as a dive-bomber, precision bomber, torpedo-bomber, mine-layer or rocket-firing aircraft and its capacious fuselage houses all the latest navigational and search radar making it particularly effective for long-range patrol and reconnaissance. The observer operates the radar and the dorsal barbette gun position and when the aircraft is used for dive-bombing a special bomb ejector is installed in the bomb-bay which throws the missile well clear of the airframe even when at the steepest angle of dive.

The design problems peculiar to deck operation have been dealt with efficiently in the typical Fairey manner, though the Spearfish presented many new difficulties owing to its large dimensions and unprecedented loaded weight. The wings fold hydraulically along the fuselage sides, reducing the span to 20 ft., and a "tail-sting" arrestor hook is fitted. Youngman four-position high-lift aerofoil flaps improve the take-off and slow-flying qualities and there are vented dive-brakes above and below the wings. The combination of a Centaurus motor rated for low altitudes and a Rotol five-blade airscrew gives a very short take-off run with full war-load. Special care has been taken in the positioning of the pilot's cockpit and there is an uninterrupted forward view of 12 degrees below the fore and aft line of the machine, giving the best possible conditions for dive-attack and deck-landing.

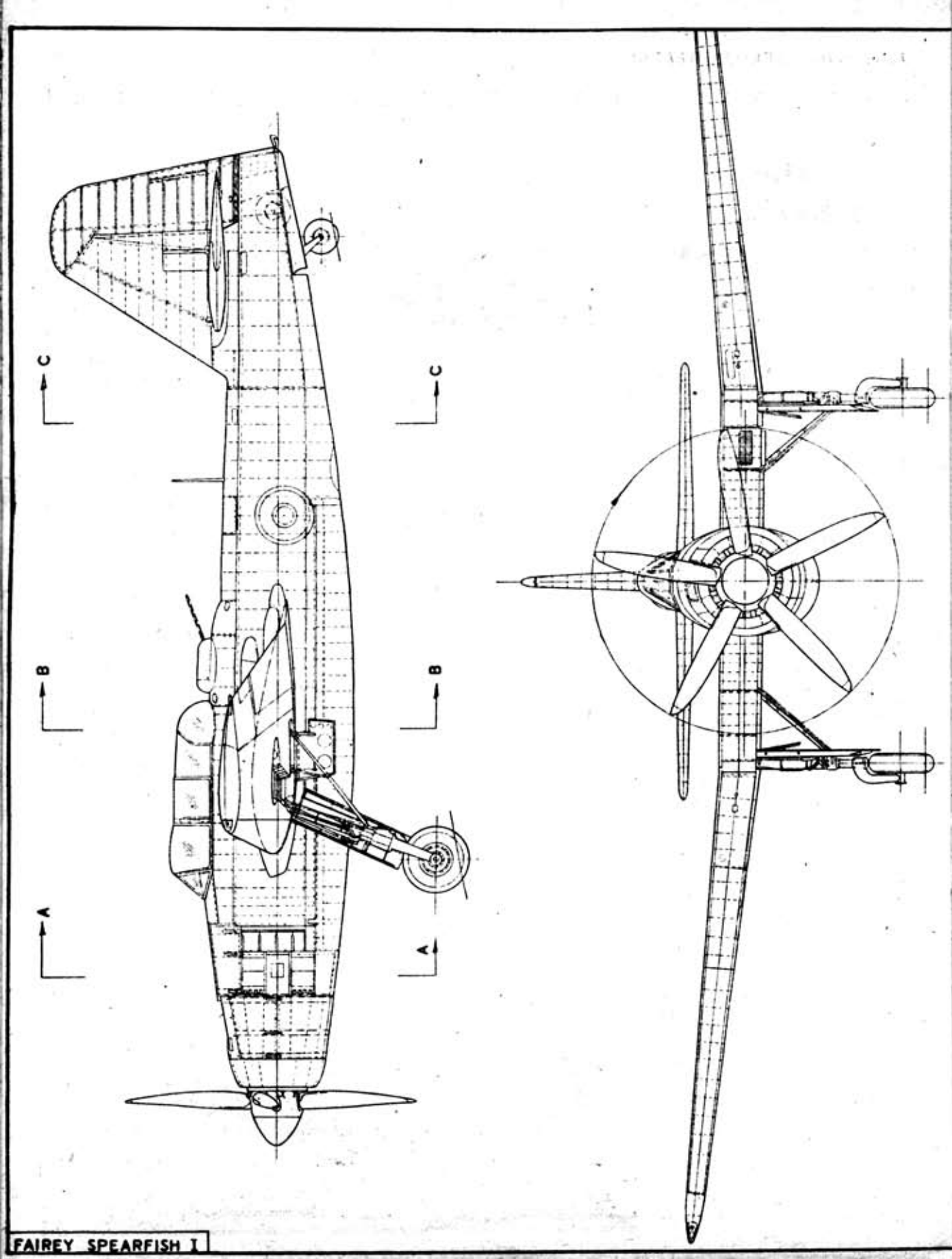
Where the Spearfish scores over its ancestors is in having all its war-load and radar equipment carried internally within the bomb-bay instead of hanging outside in "Christmas-tree" fashion. Radar equipment is fully retractable when not in use and, for its class, the Spearfish is exceptionally clean aerodynamically.

All-metal construction is used throughout, with light alloy skin except for the rudder which is fabric-covered. Self-sealing fuel tanks are mounted in the centre-section and a reserve tank can be fitted in the bomb-bay.

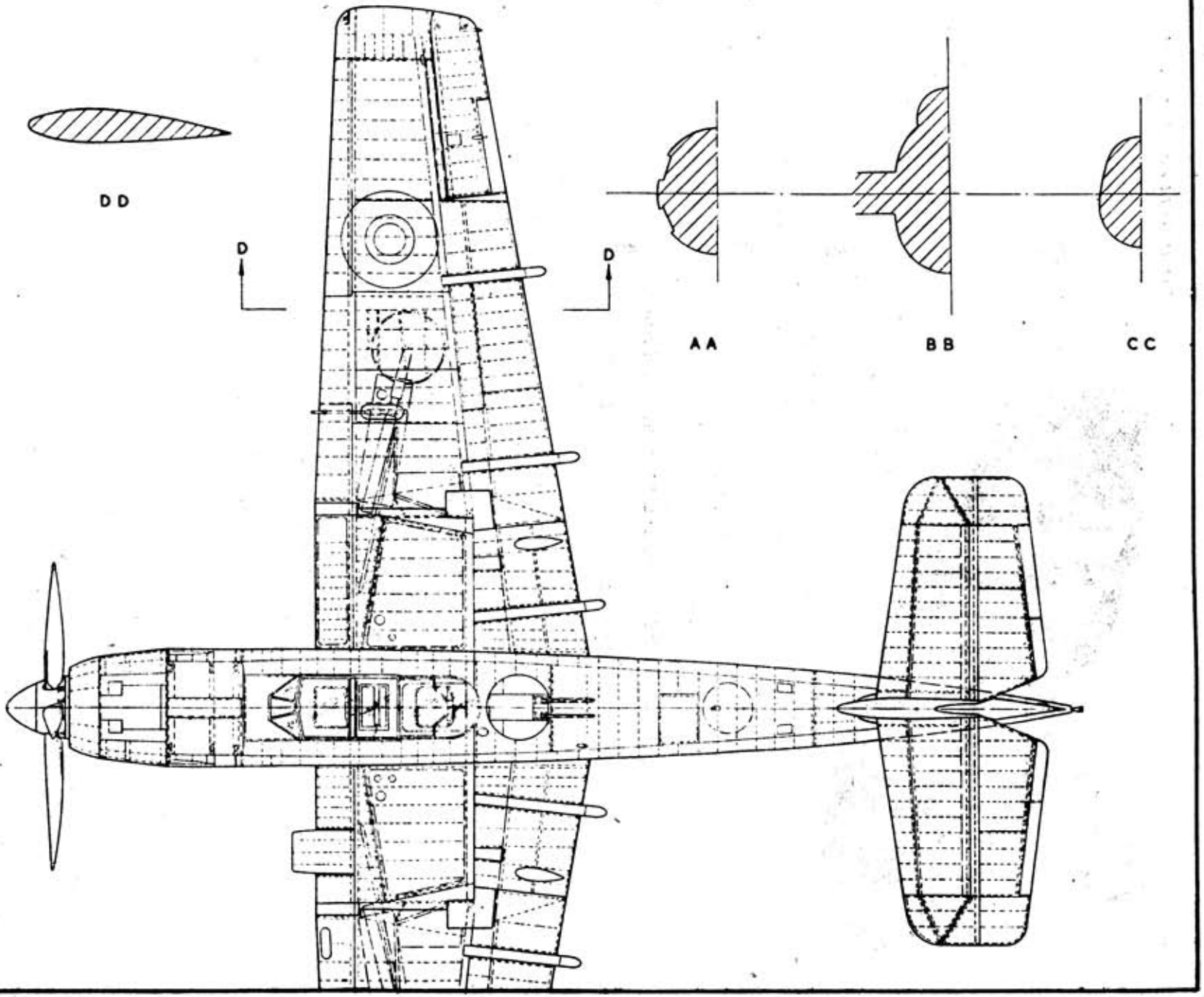
Two prototypes of the Spearfish are flying, RA 356 and RN 241, and orders are in hand for about 50 production aircraft for the Royal Navy, to be built at Hayes. The prototypes are flying with natural aluminium finish.

SPECIFICATION: Two-seat carrier-borne all-purpose strike monoplane. One Bristol Centaurus 58, 59 *or* 60 *eighteen-cylinder air-cooled radial motor, developing* 2,800 *h.p. at take-off and* 2,320 *h.p. at* 14,000 *ft. Span:* 60 *ft.* 3 *ins. Length:* 44 *ft.* 7 *ins. Height:* 13 *ft.* 6 *ins. Normal loaded weight:* 21,642 *lb. Max. loaded weight:* 22,083 *lb. Wing loading:* 41·5 *lb./sq. ft. Power loading:* 7·9 *lb./h.p. Fuel (normal):* 409 *gallons; (max.):* 583 *gallons. Maximum level speed:* 292 *m.p.h. at* 14,000 *ft.;* 262 *m.p.h. at S.L. Climb:* 12 *mins.* 40 *secs. to* 15,000 *ft. Service ceiling:* 25,000 *ft. Range:* 1,036 *miles. Armament: Twin fixed* ·5 *inch Browning machine-guns in the wings firing forward and twin* ·5 *inch Browning machine-guns in FN* 95 *dorsal barbette. Sixteen rocket-projectiles mounted externally below the wings. War-load in the bomb-bay can include—*(1) *One* 18 *inch torpedo;* (2) *One* 22·4 *inch torpedo;* (3) *Four* 500 *lb. bombs;* (4) *One* 1,600 *lb. bomb;* (5) *One* 2,000 *lb. bomb;* (6) *Four depth-charges;* (7) *Thirty multi-flares; or* (8) *One* 180 *gallon long-range tank.*

Photo: Barrett's.



FAIREY SPEARFISH I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CLUB NEWS

BY CLUBMAN

A group of Air Scouts, many of whom were introduced to Aeromodelling by means of chuck gliders. A. D. Bradshaw who sent us the photograph quotes this as a successful means of training beginners.

I TRUST my non-S.M.A.E. readers will forgive me this month for airing a number of matters directly concerning the Society, and, in view of recent happenings, disclosing at long last the identity of your scribe—after many long years of writing under the *nom de plume* of "Clubman."

I adopt this step in fairness to all clubs, as recently I have found it necessary to acknowledge my identity to a favoured few who attended the 1946 Annual General Meeting of the S.M.A.E. As I have always stuck out against discrimination between clubs or individuals, I hereby (albeit a little reluctantly) announce that "Clubman" is none other than your Editor, C. S. Rushbrooke. (Surprise to some, confirmation to many!)

My remarks of recent months, and particularly those contained in the May issue anent certain resignations from the Council, have met with the violent disapproval of a small, yet powerful, section of the London Area S.M.A.E.-ites, and, following a vote of "no confidence" taken at an Extraordinary General Meeting held on May 12th, 1946 (a vote forced through by a "rigged" gathering of a well-known London club) I have been left with no alternative but to resign from the Council.

This decision was taken after much deliberation, and solely on the grounds that I feel the need for greater freedom of action in countering the underground movement at present rampant in our midst—a freedom not possible under any tie of official position.

To those many friends in the North and Midlands who, by means of a democratic postal ballot, voted me into position for the 1946 season, I can only express my sincere regret that this action has become necessary. However, they can rest assured that I shall continue to do my best to further the claims of the provincial modellers, particularly in regard to fair and proper representation at important meetings, where decisions affecting the whole of the country are taken.

The remedy for many things is personal attendance at these meetings, however much it may inconvenience you at the time. I categorically denounce the "rigged" meeting that is so evident of recent months, together with a system that allows matters to be brought before a meeting without previous notification on the agenda, thereby giving not one scrap of opportunity for the clubs as a whole to discuss such items, and cast their votes in a democratic way. The constitution as it stands is open to abuse, and abused it is!

The main trouble is that a certain section of the movement is intensely allergic to criticism, and is also unable (or refuses) to acknowledge that the aeromodelling movement operates and flourishes outside its own midden. Geographical position has favoured them in the past, and now, but I forecast a very great change if ever the provincial clubs really get together and make use of their rights.

Finally, I state here and now that the disclosures made in the May issue were substantially correct—facts based upon information that did NOT come from a Council meeting with privileged attendance. The action taken by the resigning officials was flagrantly unconstitutional—and that by one whose greatest boast was the fact that he prepared the said constitution!

The fight is on, and it is something to know that the enemy has now come out into the open. Our contemporary is unfortunately handicapped by virtue of its link with the Society, but our hands are free—and no punches will be pulled.

Full results are to hand for a further three National contests, these being the "M.E. No. 2 Cup," the "Sir John Shelley Cup," and the "M.E. No. 1 Cup" events. The first of these attracted 138 entries, the Shelley (petrol) 33, while the last event—a team affair for F.A.I. gliders—had 125 contestants from 24 clubs. Quite a goodly support, but I still submit nowhere near the entry to be expected for a movement numbering many thousands. Don't tell me that the old inferiority complex is still at work in competition matters!! Remember what I have always said: "No entry never won silver pot."

S.M.A.E. COMPETITION RESULTS.
Model Engineer Cup No. 2.

1.	R. Copland	(Northern Heights)	821·3 points
2.	P. Hawkins	(Rhyl & Prestatyn)	806·5 "
3.	J. M. Hardman	(Rhyl & Prestatyn)	497·0 "
4.	J. Watkins (Jnr.)	(Croydon)	451·4 "
5.	F. D. Ward	(Ashton)	435·2 "
6.	W. G. Marcus	(Croydon)	426·5 "
7.	C. Wyatt	(Ashton)	425·7 "
8.	J. J. Hull	(Croydon)	425·5 "
9.	D. Twomey	(Sale)	338·2 "
10.	W. Geddie	(Zombies)	338·8 "
11.	B. V. Haisman	(Merseyside)	311·3 "
12.	R. Scott	(St. Helens)	310·6 "

(Entries: 118 Seniors, 20 Juniors.)

MODEL ENGINEER CUP No. 1.

1.	Pharos	2785·4 points
2.	Bromley	1768·1 "
3.	Bushy Park	1498·3 "
4.	St. George's Heights	1358·4 "
5.	Merseyside	1336·9 "
6.	Walthamstow	1333·7 "
7.	Birmingham	1183·4 "
8.	Hayes	1084·0 "
9.	Croydon	1049·6 "
10.	Brentford	920·0 "
11.	Bristol	886·7 "
12.	Blackpool	869·8 "

R. Rock, of Streatham, has been putting in some intensive work on record breaking with his indoor models, and has had three claims recently accepted. Two of these are for R.O.G.-ing a biplane, the r.t.p. figure being 2 : 45, and the free flight record 1 : 23. To round off, his class "A" r.t.p. job careered round the pylon for 5 : 54·4, altogether a very creditable performance. (The latter record surpasses a figure of 5 : 31 set up by Bob Copland a few days earlier.)

A reader with the S.E. Asia Air Force, J. M. Battimer, sends word from Kuala Lumpur of his modelling activities in that salubrious district. He states: "*Whilst stationed in South Burma a small amount of work on flying models was accomplished, with the usual materials for modelling in this part of the world—bamboo and toilet paper! However, later a crashed Mosquito provided some much needed balsa, and some passable though crude results were obtained. The thermals in this part of the world have to be experienced to be believed.*

"*Owing to the fact that there are no Mosquitos (De Havilland variety) here, aeromodelling in Malaya is more or less a negative quantity. The only wood seems to be TEAK, and I have started on a 'very hardwood' glider—and hoping for the best! Ironically enough, although we live in the middle of a rubber plantation, rubber strip is unobtainable.*"

J. Wassell, of the Hayes & D.M.A.C., is chairman of an aeromodelling club formed in his unit with the M.E.F. Kits are bought when a lucky member goes into Cairo, but they are sending home for materials, as this well known "holiday resort" does not have much to offer to the serious modeller.

The S.M.A.E. MIDLAND AREA has really got down to brass tacks, drawn up a proper constitution, and voted in officials for the proper conduct of the Area. (Incidentally, I hear that Bristol is nibbling at the bait for a Western Area, also that Eastern and North-Eastern sections are waking up. Come along, lads, don't be left out in the cold—get in and plug for a place in the sun.)

As was to be expected, a fairly high wind blew for the first 1946 Midland Area Rally, and in consequence entries were few, and times low. This Rally, run by the Birmingham club by arrangement, was well conducted from start to finish, and they hope that their efforts to achieve an organised contest met with success, in spite of the bad weather, and that all competitors and visitors were satisfied with the result.

Open Rubber (2 *flights R.O.G.*).

R. Perry	(Birmingham)	3 : 20
D. Harrison	(Birmingham)	2 : 34·9
J. Owen	(Blackpool)	2 : 24·6

Open Glider (2 *flights*).

R. Monks	(Birmingham)	2 : 57
R. Perry	(Birmingham)	1 : 35·1
G. E. Salt	(Birmingham)	1 : 31·5

Petrol Duration (2 *flights, 25/sec. engine run*).

R. Monks	(Birmingham)	1 : 8·8
C. Doughty	(Birmingham)	1 : 36·4
W. Dalloway	(Birmingham)	1 : 19

Mr. J. S. Wreford, of "Craigmore," Woodlands Avenue, Hornchurch, Essex, is now demobbed, and is anxious to contact all the old members of the ESSEX POWER CLUB in order that they may resume activities. The Air Ministry have again been kind enough to sanction the use of Hornchurch Aerodrome, and flying will commence there in June.

I have a very interesting letter from a young reader who signs himself "An Indignant Young Aeromodeller." His complaint is that, on applying for membership to his local club, he was met with the statement that "the club was only for boys over fourteen"—and he has three years to go before he reaches that age. As he says: "*Isn't that the sort of thing to discourage other aeromodellers of my age? What hope have they got—they can't join clubs, and therefore they don't get to know other enthusiasts of their own or other ages. It is said that you learn from seeing other models—how can we? As I said, it discourages them. They can't meet to discuss difficulties—they have to act as lone wolves—they get faults in models which they can't cure because they don't know how. Indeed, it could be enough to make them give up aeromodelling and all its fun because it seems too hard!*"

Well, "A.I.Y.A.," I fully agree with you, and I hope that the would-be snooty club who turns up its nose at such keen types will have the good sense to open a junior section to cater for these lads—and that applies to all clubs, large or small. Surely some means can be found to assist these lads who will be shining lights in the game a few years hence.

The NORTHERN AREA Centralised Contest for the M.E. No. 2 Cup was held at Rhyl, and after a week of gales and bad weather, the day proved surprisingly warm and sunny. Several bus-loads of visitors came from Ashton, Merseyside, Wallasey, St. Helens, Whitefield, Farnworth, Bury, Cheadle, and Salford, and a real aeromod's holiday was had by all. Best flight of the day was over 9 minutes, by the winner of the Area Contest, P. Hawkins, of Rhyl, who placed second in the final results. The presence of thermals was indicated by wheeling groups of gulls. What more could be asked (except, perhaps, Drambuie to do a spot of towing!)?

News from Ireland this month gives word of the Open Glider event staged by the BELFAST FLYING CLUB on April 28th. Despite the high wind, some good times were set up, best being 2 : 50 o.o.s. by the winner, G. Drew. That hardened competitor, H. Daulman, had the misfortune to lose his model after a fine flight of 1 : 14. Drew aggregated 5 : 46 to win, followed by D. Green 4 : 35 and F. Collins 3 : 08.

Member Jones of the MERSEYSIDE M.A.S. made a fine flight of 5 minutes o.o.s. with his "Ivory Gull" when trying for his S.M.A.E. "A" certificate. He also lost his "Judy" with a flight of approximately ten minutes, though this was not official. He was fortunate in retrieving both models! J. E. Levatt lost his 5 ft. span sailplane on a 5 minute flight—no news since.

J. Smith and his friend reside in Shildon, Co. Durham, and are the lone aeromodellers of that town. However, they seem to do quite well for themselves if the following times are anything to go by!!: 22 : 0 and 6 : 0 with a "Mick Farthing" glider, and 35 minutes with a "Baby Gull," riding the very grandpappy of thermals.

After a lull of a year or so, the ST. HELENS M.A.C. has again started operations. R. Scott, flying a Condor "Clipper," has created a new record by flying the job for 4 : 19·8 o.o.s. Neighbouring clubs are asked to contact the secretary, and the club is determined to enter all the main contests.

During the past month weather has been better in the Oxford district, and the OXFORD CIVIL DEFENCE M.A.C. has had two new records. D. Barnett put up the "under 30 ins. span" figure to 1 : 40·2, and B. Hewitt beat the old glider record with 6 : 38·4.

The VICTORIA M.A.C. is still going ahead, the latest innovation being the forming of three flights in the club, each with its quota of old and new members, thus

splitting up the work of instruction. Although no success had been gained in the main contests, the list of records is quite worth while :

Duration	R.O.G.	G. Oats	7 :10
Duration	H.L.	D. R. Reece	2: 14
Glider	Winch	D. G. T. Reece	6 : 06
Glider	H.L.	L. Steward	25·4
Glider	Tailless	R. Mander	21
R.T.P.		G. Pollard	1 : 10·2

A club League, started at the beginning of April by the WEST COVENTRY M.A.C., has recorded some good average times, which after all gives more credit to the flyer than just one spectacular flight. In perfect weather the first comp. of the season was won by F. E. J. Wintle with a best flight of 1 : 40, the runners-up being well behind this. Gliders seem to put up better times than the rubber jobs, but I suppose that is the same in most places with the current " ersatz " variety of strip.

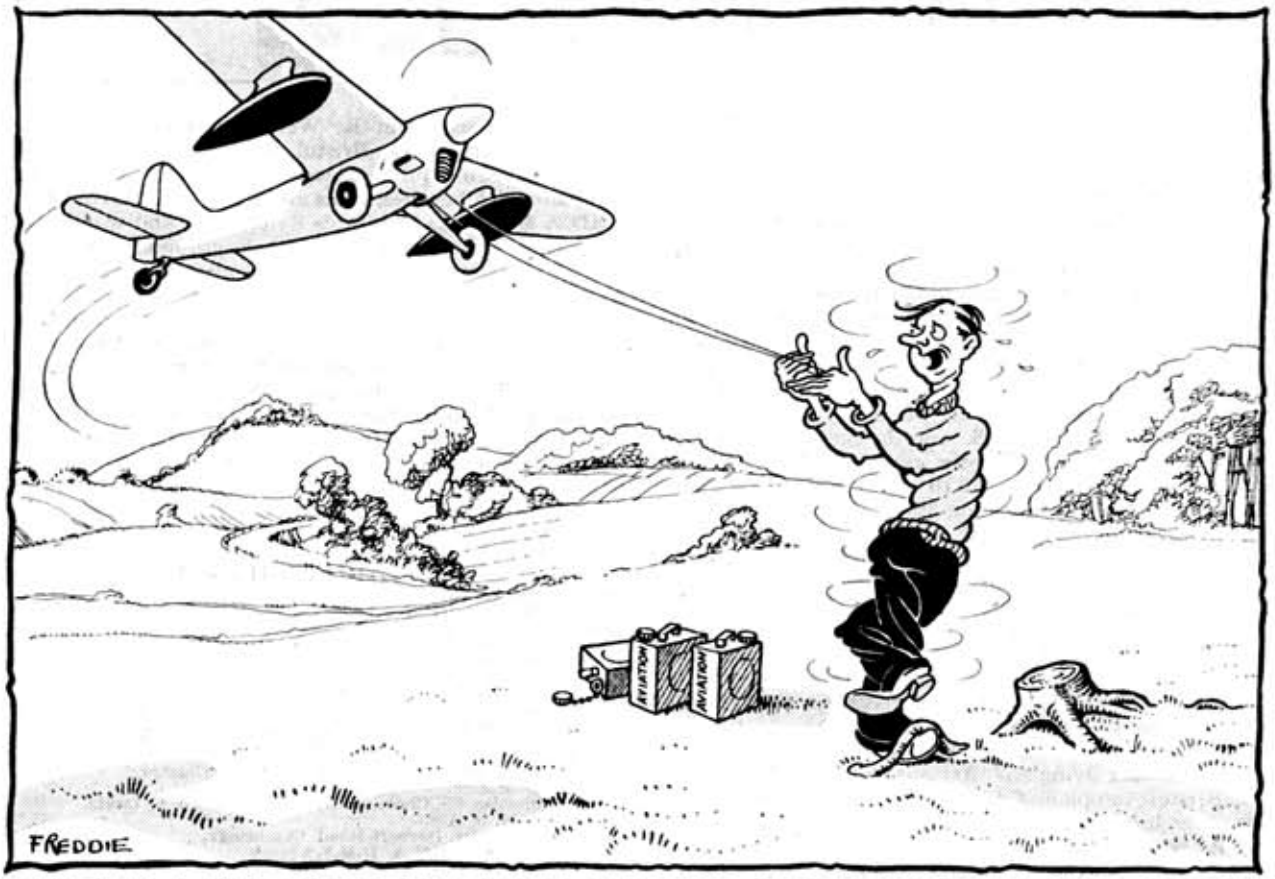
The LEICESTER M.A.C. staged a very fine exhibition in May, and over 5,000 people saw just what the local lads can put up in the way of models of all types and sizes. Nearly 200 models were on show, including 25 beautifully constructed petrol models. A large gallery of prominent folk were present at the official opening, and there is no doubt that the hobby will receive a big boost following this public demonstration of what can be done with a few sticks and a tube of cement !

Flying from Hounslow Heath, the glider fans of the TWICKENHAM & D.M.A.C. have been doing their stuff and raising club records consistently. K. Brown, with a running launch, sent his machine away for 4 : 50 o.o.s., the model being recovered from Islington, while G. R. Turner followed suit by winch-launching his model for a flip of 9 : 43, also o.o.s. Another creditable flight was by R. V. C. Burley's French designed " Canard," which put up a time of 1 : 08.

The BLACKHEATH M.F.C. are welcoming back many of their pre-war members who have been " otherwise engaged " during the past few years. They back up my comments in the June issue regarding the complexity of the contest programme, and have, in fact, dropped their well-known Open Day in favour of properly contesting national competitions on Epson Downs in the usual way. Concentration into Area Rallies is advocated, and the success of the Northern Area in this direction is quoted. Many interesting models are on the stocks, including a petrol-engined tailless job. R. Galbreath has supplemented his 6-ft. span Canard glider with work on a jet engine—of which more news anon.

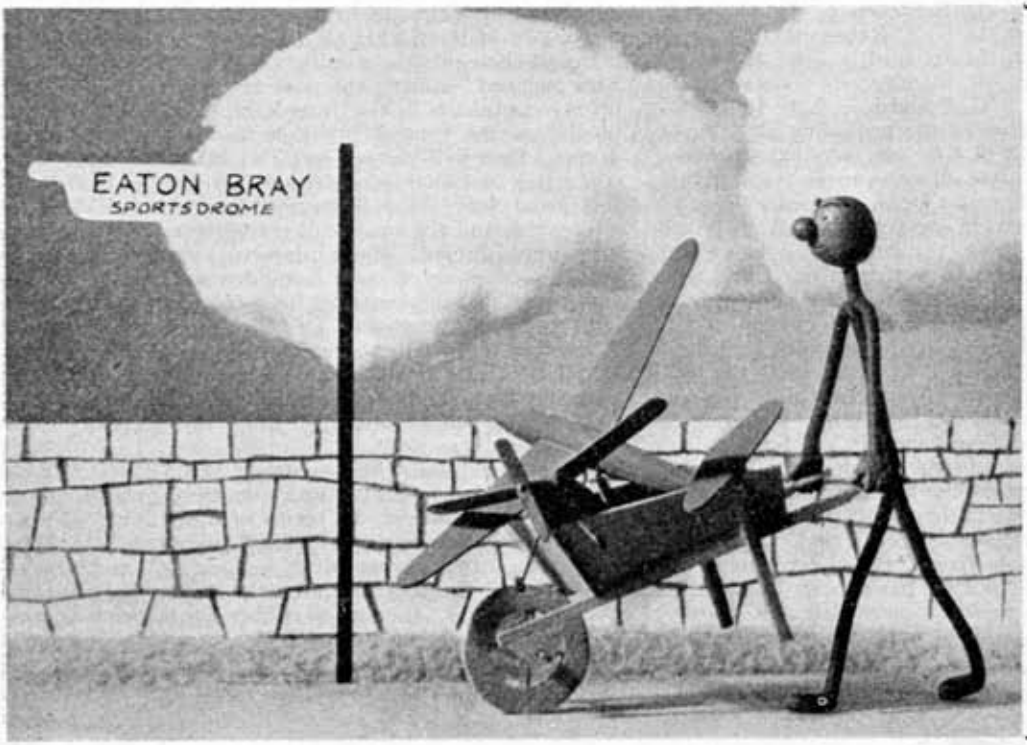
Another old group to get cracking once more is the DARLINGTON M.A.C., who are meeting every Friday, Saturday and Sunday evening, plus Sunday afternoons. Full details can be obtained from the secretary (see " New Clubs " section).

In very cold and windy weather, the NEWCASTLE-ON-TYNE M.A.C. held a Rally on the Town Moor on May 12. The contest, for teams of four (flying gliders) was won by Newcastle with 932·8 points, followed by Easington, 616·5, Eston 461·5, Seaham 243, and Stockton 99. S. C. Fairless now holds the Senior Glider record with 6 : 32 o.o.s., the senior rubber figure being to the credit of I. R. Davidson with 8 : 00.



" JUST AS I FIT OVERLOAD TANKS, I WOULD CATCH MY FOOT IN A ROOT ! "

BEN TWYRE • By J. H. MAXWELL



A well-designed and tested "kite,"

A summer sky, and a wind that's light,

The road that leads to Eaton Bray,

—A formula for a perfect day.

Good Friday saw a good turn-up of the WALTHAM & ENFIELD M.A.C., and some excellent all-round flying was witnessed. Best flight of the day was 5 : 21 by a lightweight glider designed and built by R. A. Parker. Next in order was 4 : 20 by " Icarus," a 50-in. span gull-wing medium-weight by J. Warren, which has a large number of long flights to its credit.

The ULSTER M.A.C. has found the pulley system of glider launch so successful that it has adopted this method of standard for all contests. The club has no rubber, and the more progressive members are experimenting with cycle valve tubing split down its length to prevent the formation of air bubbles.

The LUTON & D.M.A.S. were in the swim with the fine weather so unexpectedly experienced on Gamage day, and R. Minney clocked 10 : 53 on his second flight. The model literally hung on its prop., and was at a terrific height when levelling out for the glide.

The EDINBURGH M.F.C. will hold its Annual Rally on Sunday, August 11th, when Open Rubber and Open Glider events will be staged. A Team and Rally Championship will be held, full particulars from the Secretary, H. A. Wardell, 18, Parkhead Terrace, Edinburgh, 11.

The fine weather that commenced the season with the BRISTOL & WEST M.A.C. deserted them for the M.E. Cup events. Best aggregates were put up by M. Garnett (1 : 17) with his streamlined Wakefield, and 4 : 17 by T. C. G. Butler flying an " Atalanta." Capt. Bartlett, of the Bristol Aeroplane Company, has presented a trophy for interclub contests in the West of England. The event, which will be centralised at Lulsgate Bottom Aerodrome on August 18th, is open to any affiliated S.M.A.E. club in the area west of Oxford. Full details can be obtained from K. W. Moon, Esq., 42, North View, Westbury Park, Bristol, 6.

Though well equipped with a private club-room, complete with benches, tools and library, the GRAVESEND A.M.C. lacks a suitable flying field, and wonders if any of my readers know of a likely ground where they can do their stuff. Any information addressed to the AEROMODELLER offices will be duly forwarded.

Mr. J. Cox, of 5, Chartley Parade, North Circular Road, Neasden, London, N.W.2, is prepared to start a club in his area if enough interested modellers come forward. The same applies to E. C. Harvey, of 211, Balsall Heath Road, Balsall Heath, Birmingham, 12.

And that, chaps, is the lot for another month. Let us hope the weather changes from the high winds and pouring rain of May, and gives us once more a glimpse of the " modeller's paradise " of the Easter period.

THE CLUBMAN.

SECRETARIAL CHANGES

MONTROSE M.A.C.
A. R. Mearns, 3, Upper Craig Street, Montrose, Angus.
ROMFORD & D.M.A.C.
D. J. Foreman, 8, Alloa Road, Goodmayes, Essex.
WOODFORD & D.M.A.S.
D. H. Scrivener, " Little Croft," Lee Grove, Chigwell, Essex.
278 A.T.C. (WEMBLEY) M.F.C.
P. Stracey, 95, Whitten Avenue, Greenford, Middlesex.
BRISTOL & WEST M.A.C.
K. W. Moon, 42, North View, Westbury Park, Bristol, 6.
CHESTER M.F.C.
F. Wilde, 22, Overleigh Road, Handbridge, Chester.
SALFORD M.A.C.
N. Middlemiss, 65, Cholmondley Road, Salford, 6, Lancs.
CAMBRIDGE M.A.S.
A. E. Jordan, 23, Herbert Road, Cambridge.
WELLINGBOROUGH & D.M.F.S.
J. Rycroft, 30, Oxford Street, Wellingborough.
EGHAM M.F.C.
R. Selfe, 19, Grange Road, Egham, Surrey.

FIVETOWNS (STOKE-ON-TRENT) M.A.C.
D. F. S. Ridgway, 8, Stanley Street, Tunstall, Stoke-on-Trent, Staffs.
WYTHENSHAWE LADS' CLUB, M.A.S.
J. Banks, 11, Benchill Drive, Benchill, Manchester.
HERTFORD, WARE & D.M.A.C.
G. L. Tidd, 101, Queen's Hill, Hertford, Herts.

NEW CLUBS

GOOLE OLD PUPILS' M.A.C.
C. W. Charlesworth, 40, Manuel Street, Goole, Yorks.
BRIGHTON & D.M.A.C.
H. J. Tugwell, 5, Montreal Road, Brighton, 7, Sussex.
HOOD M.A.C.
A/A D. Malone, F/L 78304, L2/P.O.'s Mess, R.N.A.S., Worthy-down, Winchester.
WEST SUSSEX M.A.S.
A. Hellyer, 66, Cornwall Road, Littlehampton, Sussex.
LEIGHTON PARK SCHOOL M.A.C.
T. B. Prizeman, 73, Whiteknights Road, Reading, Berks.
PLUMSTEAD (Y.M.C.A.) M.A.C.
K. H. Pullin, Central Hall, Plumstead, S.E.18.
ROCHDALE & D.M.F.C.
P. D. Mason, 4, Channing Street, Rochdale, Lancs.
MARATHON M.A.C. (formerly Paddocks M.A.C.).
D. Haynes, Sindlesham House, Sindlesham, Near Wokingham, Berks.
CHICHESTER & D.M.A.C.
R. F. Boxall, 83, Cleveland Road, Chichester, Sussex.
CROSBY M.A.C.
P. Nield, 44, College Road, Crosby, Liverpool, 23.
GOOLE OLD PUPIL'S M.C.
C. H. Charlesworth, 41, Manuel Street, Goole, Yorks.
ST. HELEN'S M.A.C.
E. L. Ball, 2, City Gardens, St. Helens, Lancs.

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2. Walter Poile
3. F. L. Trevett*

*No. 4 Lane substituting.

Wakefield
1. R. A. Hinks
2. Ron Calvert
3. C. Houghton

Description on page 506

THANKS AGAIN: Second Team Account Gift List.

£40. 12s. already acknowledged. £3. 3s. Premier Aeromodel Supps. £3 Welbeck Prod. £2. 2s. Chinns, E. Keil & Co., Rydalls. £1. 1s. Atlas Motors, C. H. Benson, B. A. Germany, Capt. Grant, Solways, H. Start & Sons, W. H. Ward. £1 Luton Model Aircraft. 10s. 6d. Mrs. Germany, Greaves of Hull, Leighton Buzzard & D.M.A.C., Radcliffe Toyeries, C. A. Wiltshire. 10s. Harper Cycle Co., Jones Bros. 5s. Hills Aeromodel Stores, D. Thorp, Willements. 2s. 6d. G. K. Herzog, S. E. Ogden. 2s. J. Boyce, M. White.

Grand Total £69. 7s. 6d

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