NOV. 1946

AEROMODELLER

1/3

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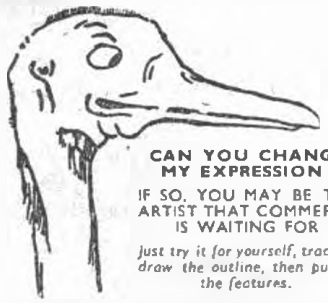

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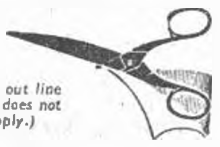

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COVER PAINTING
DORLAND

IDYLLIC AEROMODELLING. A beautiful scene from the Swiss Nationals held on the lower slopes of the Juras. An article on Swiss Aeromodelling will appear in our Christmas number.

EDITORIAL

STATIONARY OR MOBILE

Now that the results of the 1946 outdoor competition season are being tabulated and studied as a preliminary to planning for 1947, it seems appropriate to refer to a matter concerning which there seems to be a considerable cleavage of opinion—the timing of national and international duration record attempts.

In 1939 the F.A.I. adopted a rule which permitted the timekeepers to follow models in flight by any means of locomotion available and to make use of binoculars or other optical aids. This method of timing had been strenuously resisted by the S.M.A.E., and that body tabled an amendment for the F.A.I. Conference planned for the Autumn of 1946, with a view to securing a return to the "stationary timekeeper" rule. Whatever the result will prove to be, we feel that a discussion of the pros and cons is desirable, and we hereby open our columns for the expression of readers' opinions.

Here, briefly, are the opposed points of view. Those who deprecate the 1939 F.A.I. rule do so on two main grounds. In the first place, they complain that it unfairly benefits wealthier individuals and groups able to obtain adequate transport and the most powerful binoculars, and, if need be, a full-size aeroplane to follow a model in flight. They contend that, strength of the model movement lies in the large number of adherents with moderate means, and that things should be so arranged as to give everyone an even chance of success.

They also point out that record attempts are most likely to be made in the course of model contests, particularly when fine weather has brought together a large number of entrants. How, they ask, is a meeting to be conducted without chaos and without being protracted until dark if a substantial number of timekeepers have disappeared over the skyline in pursuit of potential record-breakers?

Those on the other side of the fence agree that these are very practical difficulties that may well justify the application of the stationary timekeeper rule for ordinary contest purposes. But they contend that though this may constitute a very reasonable means of keeping a meeting within manageable bounds, it is illogical to apply the rule in record attempts where the object is or should be to elicit a model's full capabilities. If such attempts are to be serious, they argue, surely everything available in the way of timekeepers, timing apparatus, and transport, should be brought into use, and while it is clearly not possible for every individual club to be equipped with the necessary items, any national organisation to whom would-be-record-breakers could apply for timing, should be adequately prepared for the job.

Unless record attempts are to receive such serious attention, it is contended, the timing might resolve itself into less a measure of the model's endurance than of the visual powers of the various timekeepers. Possibly, they agree, there might be some disinclination to the employment of two different rules for timing, one in the case of ordinary contests and the other for record attempts, but it could scarcely override the necessity of dealing adequately with record attempts.

Well, there are the opposed viewpoints put forward briefly and without bias, and we invite readers to express their opinions, with ourselves acting, so to speak, in the capacity of Chairman of an open forum.

Helpful History

From many quarters we are receiving appreciative letters regarding Harborough's recently-published "History of Model Aircraft," by Lt.-Col. C. E. Bowden, but interspersed with eulogies have been one or two quasi-complaints from those who appear to be under some misunderstanding as to the make-up of the book.

Basically, as the title indicates, it is a chronological survey from Penaud's feather-plane of 1874 down to the present day. It is, in fact, the only history of the movement and the men in it, and while it is manifestly impossible within the scope of an 80-page book retailing at 8s. 6d. to deal exhaustively with so vast a subject, it is most certainly representative.

But history, competently written, has a dual function—to interest and to instruct, and Bowden's book is as effective in the second sphere as in the first. Before we enlarge on this, however, let us briefly clarify the position by explaining what the book is *not*. One or two correspondents have complained that it doesn't explain how to build models, which is true in one sense, though not in another. It is certainly not a constructional textbook for beginners or the more advanced.

Bowden's book is invaluable to the designer and builder of models, in that, apart from the stimulus afforded by a well-written account of what others have achieved, it does set out clearly and in considerable detail, the basic technical facts in the line of development of the high performance model aircraft of today.

The book is printed on fine art paper, page size 11 ins. by 8¼ ins., with stiff coloured cover depicting one of the author's petrol models flying at Gibraltar, and is lavishly illustrated with photographs of successful models and happy aeromodelling occasions.

International Week

Readers will, no doubt, have wondered at the absence of the International Week report from out last issue. Whilst apologising for this omission we would point out that it was a last minute step to prevent a big delay in the publication of the magazine as a whole. The cause of the delay was, of course, the "no overtime" ban prevailing in the printing industry at the time and now that the situation shows signs of improvement we are hoping that this will be the last of any delays as far as the AEROMODELLER is concerned.

THE HAMILCAR 1

A 1/24th FLYING SCALE MODEL — BY R · BASE

THE existence of the General Aircraft Hamilcar heavy transport glider first became known when our troops opened the Second Front during the war. Hamilcars, towed by special tug versions of the Halifax, Lancaster and Stirling, operated for the first time with the famous Sixth Airborne Division in Normandy, and contributed a great deal to the success of the operation. Light tanks were flown across the channel to reinforce parachute troops, and the Hamilcar was, in fact, the first British glider to carry tanks into action.

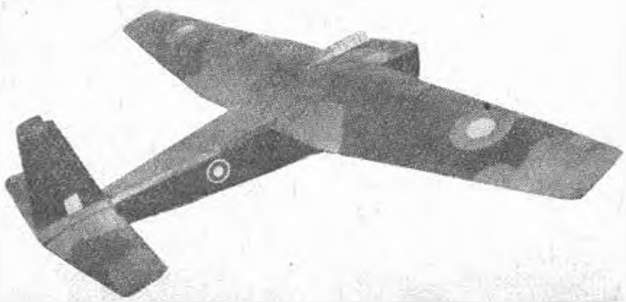
Two types of undercarriage assembly are employed—the operational type, as illustrated in the photographs of the model, and the non-operational type, which has full oleo shock absorbing. The operational type undercarriage is, of course, jettisoned once the machine is in the air.

Here is a model whose scale appearance by no means detracts from its flying capabilities. From performance figures it is apparent that the model compares very favourably with the average tow-line glider. On a calm day with no thermals, an average of 1 min. 40·6 secs. was obtained from a 200 ft. line, R.O.G.

Hardwood is used throughout the construction, with the exception of the tail surfaces. Owing to simplicity of construction, only brief building instructions are given.

Fuselage.

The frame-work is built up of $\frac{1}{8}$ sq. in. in the usual way. The front top decking formers are added after the centre section has been fitted, as is the cabin. The fuselage is covered with 1/64th sheet on the sides and bottom to the T.E. of the wing. The noseblock is carved out of balsa and hollowed out to take lead shot.



Undercart.

The axle is of 16 s.w.g. wire, bound to a $\frac{1}{4}$ in. square cross-piece which is both cemented and pinned to the fuselage. The tail wheel is $\frac{3}{4}$ in. diameter and the wire 18 s.w.g. The skids are $\frac{1}{4}$ in. × 1/16 in. bamboo, steamed to shape, drilled and pinned to the fuselage and spacer blocks cemented into place.

Centre Section.

The two ribs are cut out of 1/16 in. sheet and slotted to take the spars, etc. They are cemented on to the top longerons and spars and T.E. added. The tongue is slid into place and well cemented. The tongue is lightened in the centre and made of $\frac{1}{4}$ in. sheet hardwood. The L.E. and top surface are covered with 1/64th sheet.

Wings.

Build up the inner panels first, firmly fixing in place the wing box, which is $\frac{1}{8}$ in. sheet spaced by $\frac{1}{4}$ in. × $\frac{3}{8}$ in. pieces. The inner panels are sheeted in top and bottom with 1/64th in. sheet. Then build up the outer panel with $2\frac{1}{2}$ in. dihedral. Fit two hooks into their balsa blocks in each wing.

Tail Surfaces.

Build up in the usual way, using balsa for lightness.

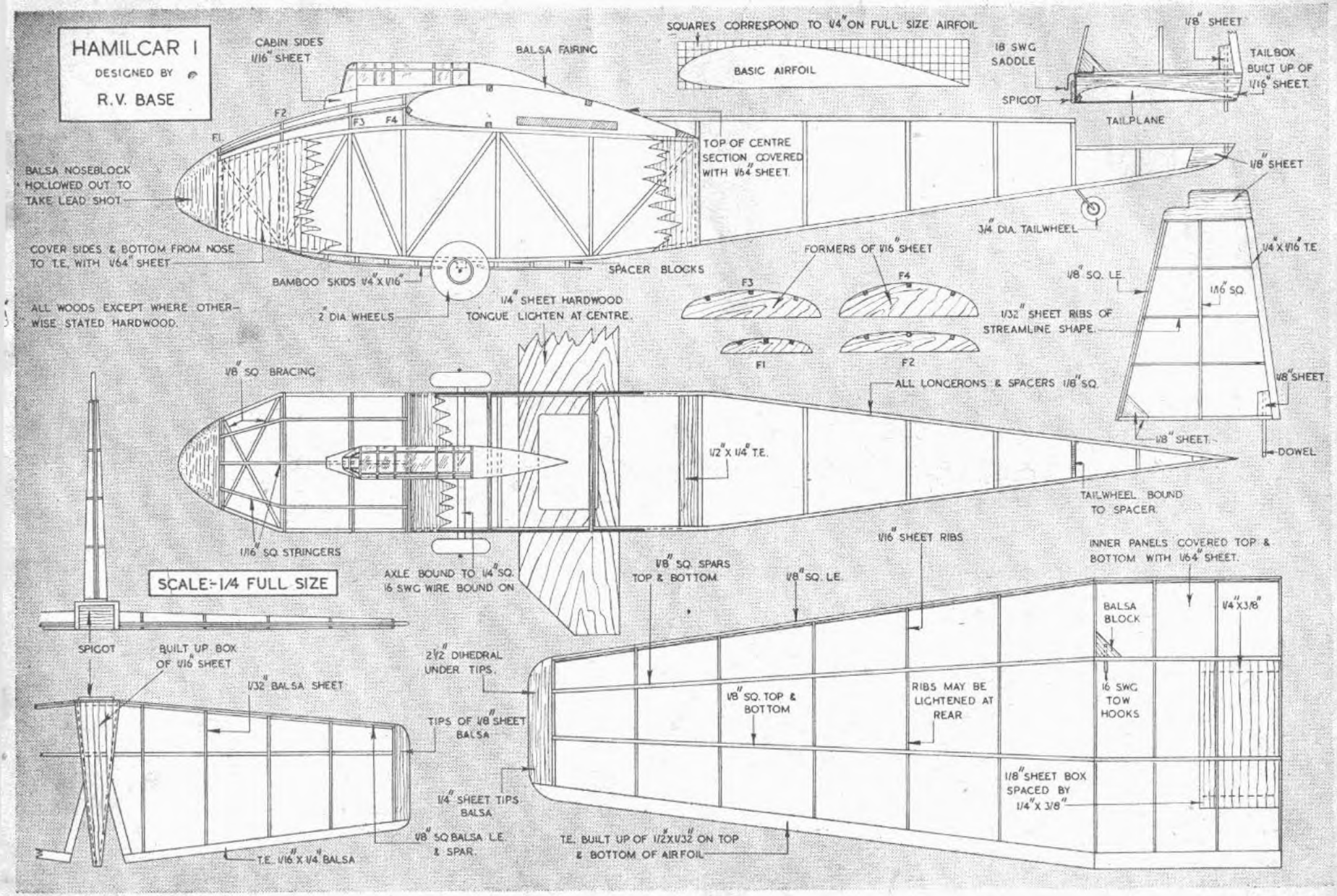
Covering.

Cover with tissue, spray with water and give one coat of clear dope. The top surfaces of the wings, fuselage and tailplane are camouflaged in brown and green, whilst all undersurfaces, fuselage sides, fin and rudder are black. There are red and blue roundels on the upper wing surfaces, with red, white, blue and yellow roundels on the fuselage sides. Serial numbers are in white on the undersurface of the wings, and there is the usual red, white and blue flash on the fin.

Flying.

The model will be found to require some lead shot in the nose. Using a double tow-line and pulley launch, the Hamilcar will give a good performance and a long, flat glide.

It will tow off R.O.G., but needs a fairly calm day otherwise, if a swing develops, it cannot be controlled.


HAMILCAR 1
DESIGNED BY
R.V. BASE
CABIN SIDES 1/16" SHEET
BALSA FAIRING
SQUARES CORRESPOND TO 1/4" ON FULL SIZE AIRFOIL
BASIC AIRFOIL
18 SWG SADDLE
1/8" SHEET
TAILBOX BUILT UP OF 1/16" SHEET
SPIGOT
TAILPLANE
F1
F2
F3
F4
TOP OF CENTRE SECTION COVERED WITH 1/64" SHEET
BALSA NOSEBLOCK HOLLOWED OUT TO TAKE LEAD SHOT
1/8" SHEET
3/4" DIA. TAILWHEEL
COVER SIDES & BOTTOM FROM NOSE TO T.E. WITH 1/64" SHEET
BAMBOO SKIDS 1/4" X 1/16"
SPACER BLOCKS
FORMERS OF 1/16" SHEET
1/4" X 1/16" T.E.
1/8" SQ. L.E.
1/16" SQ.
2" DIA WHEELS
1/4" SHEET HARDWOOD TONGUE LIGHTEN AT CENTRE.
1/32" SHEET RIBS OF STREAMLINE SHAPE.
ALL WOODS EXCEPT WHERE OTHERWISE STATED HARDWOOD.
1/8" SQ. BRACING
ALL LONGERONS & SPACERS 1/8" SQ.
1/8" SHEET
DOWEL
1/2" X 1/4" T.E.
TAILWHEEL BOUND TO SPACER.
1/16" SQ. STRINGERS
SCALE:-1/4 FULL SIZE
AXLE BOUND TO 1/4" SQ. 16 SWG WIRE BOUND ON
1/16" SHEET RIBS
INNER PANELS COVERED TOP & BOTTOM WITH 1/64" SHEET.
1/8" SQ. SPARS TOP & BOTTOM
1/8" SQ. L.E.
BALSA BLOCK
1/4" X 3/8"
SPIGOT
BUILT UP BOX OF 1/16 SHEET
2 1/2" DIHEDRAL UNDER TIPS.
1/32" BALSA SHEET
1/8" SQ. TOP & BOTTOM
RIBS MAY BE LIGHTENED AT REAR
16 SWG TOW HOOKS
TIPS OF 1/8" SHEET BALSA
1/8" SHEET BOX SPACED BY 1/4" X 3/8"
1/4" SHEET TIPS BALSA
1/8" SQ BALSA L.E. & SPAR.
T.E. BUILT UP OF 1/2" X 1/32" ON TOP & BOTTOM OF AIRFOIL
T.E. 1/16" X 1/4" BALSA

"GLIRT"

By P · A · LATHAM

THE construction is quite simple and straightforward, but great care must be taken in making the soldered joints secure and in lining the wire booms up correctly.

The wings are constructed from $\frac{1}{8}$ in. medium sheet balsa with a strip at the leading edge of either hardwood or hard balsa. The wings must be strengthened at the appropriate places with either hardwood or thin ply to avoid wear from the tail booms. The guides for the tail booms are of hardwood with the grain running as in the drawing. The space between the guides is best judged by using a piece of 20 s.w.g. wire when they are being fixed. The two wings should be first joined together at the correct dihedral angle, the joint being covered on both sides with cement-saturated $\frac{1}{2}$ in. strips of tissue paper. When they are firmly set, No. 3 lamination of the fuselage should be cut away to take them so that they form a good fit and the wings cemented in. The incidence of plus 2° can be checked here and any alterations made. The rest of the fuselage laminations can be attached and the block sanded to shape. It will be seen that the cut-out portion of the rear of the fuselage is covered with a sheet of metal foil. It is attached by cutting out tangs on the edge and forcing them into the wood.

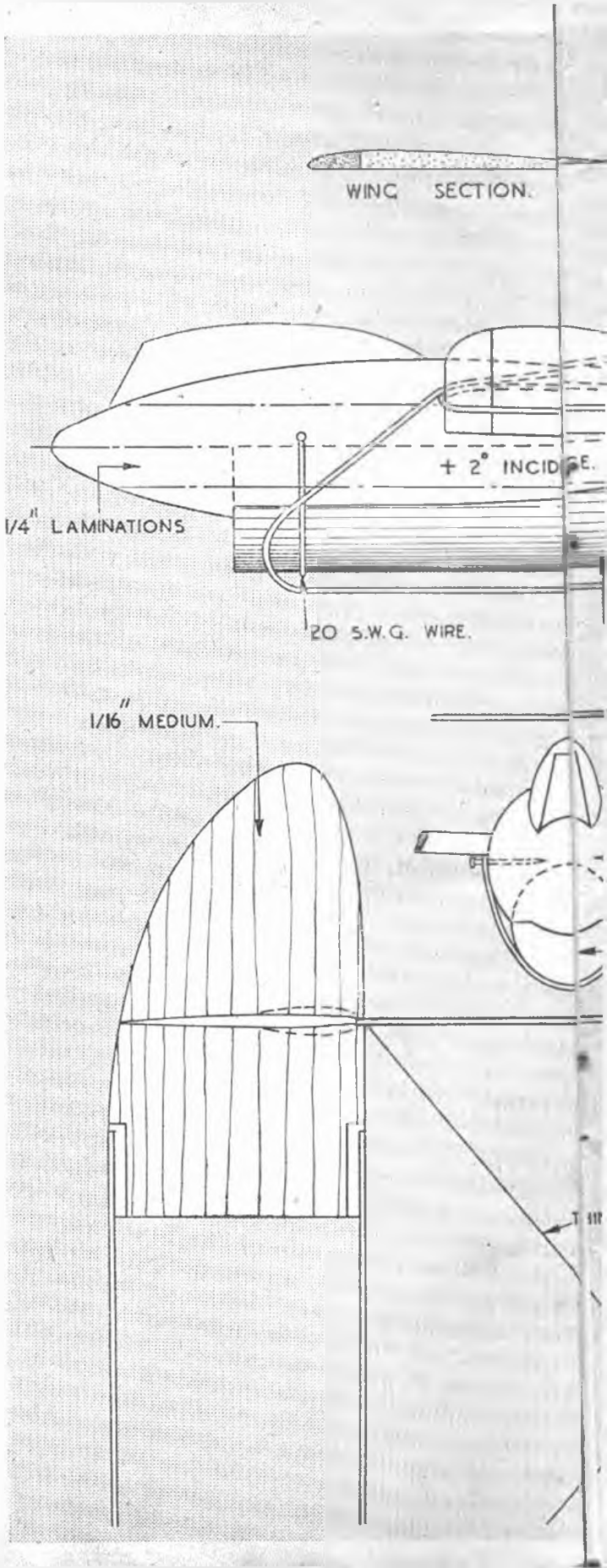
The tail is also quite straightforward. The wire brace across the cut-out piece being attached to the rest of the tailplane by strips of cement-saturated tissue holding the wire in its grooves. The fins are attached to the tailplane by cutting a slot halfway into the rear of the tailplane and another halfway into the front of the fins. The slot in the front of the fins should be wide enough to take the wire extensions from the tail booms. When the tail has been fixed to the booms, a 1/16 in. square strip of balsa should be cemented either side of both fins to enclose the wire extensions. The upright piece at the end of the tail booms is let into the fins and covered with cement-saturated strips of tissue.

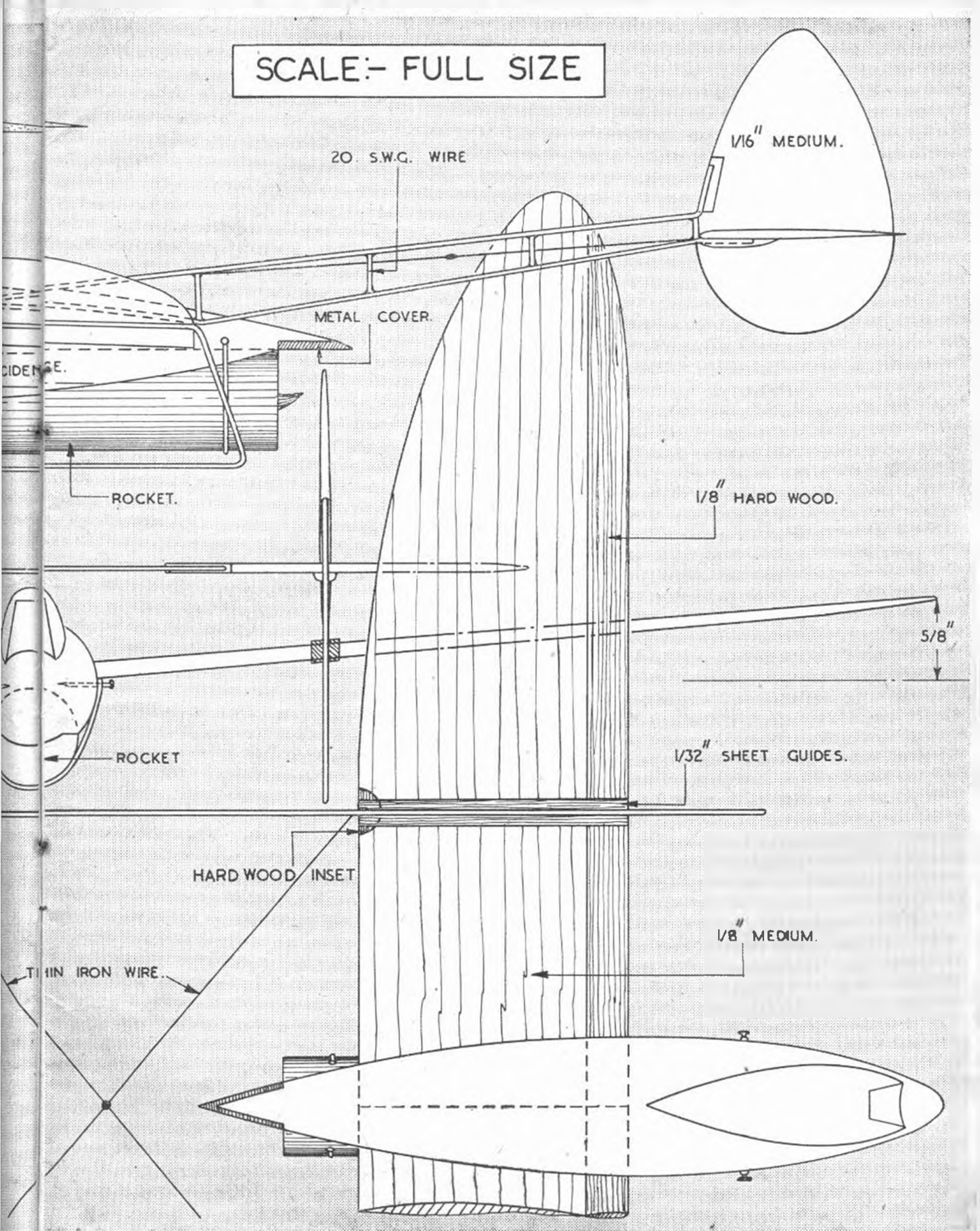
The wire booms are the only things which may cause trouble. The plan clearly indicates the shape of them. In order to make a perfectly accurate job, the following method may be used :—Trace the shape onto a piece of flat wood and cut grooves to this shape with a penknife or patent modelling tool. Bend the main outline in 20 s.w.g. wire and make sure that it fits into the grooves. It can be held firmly in the grooves with bent pins used as staples. The cross-pieces, of similar wire, can then be put in : it may also be advisable to hold these with pins as they have a tendency to stick to the iron when soldering them and come out of the grooves. Make sure that both booms are exactly the same, especially the angle between the wing slot and boom.

The wings are fixed to the boom by sliding them into the slot in the boom, the boom being held firm in the 1/32 in. strip guides.

The model flies powered with the ordinary twopenny rocket, which is attached with two elastic bands ; the heat is not sufficient to burn them. The model is launched by placing it on a flat board a foot or so wide and about four feet long. The board should be at an angle of between 30 and 50 degrees to the horizontal. If any instability is found during the take-off, strips of wood can be nailed to the board for the skids to run between. Before the model is flown, it should be balanced accurately about its fore and aft axis and then trimmed to fly straight.

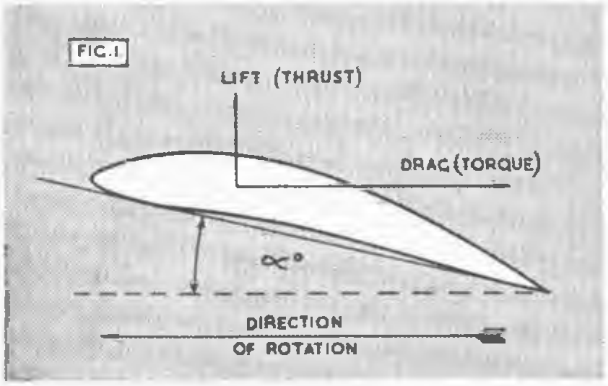
The model climbs at about the same angle as the take-off board till the rocket is spent. The glide is improved by finishing all the wooden parts with banana oil and sanding down smooth. Do not use explosive rockets !

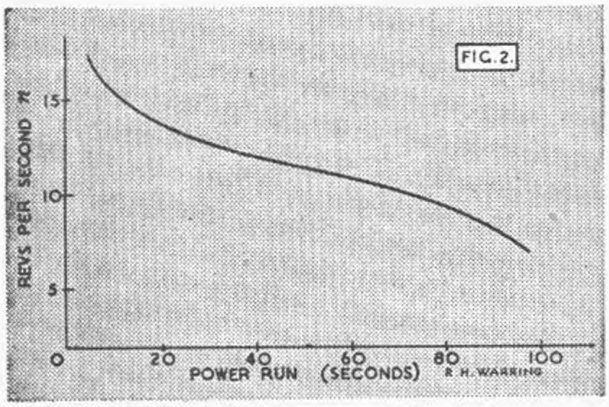


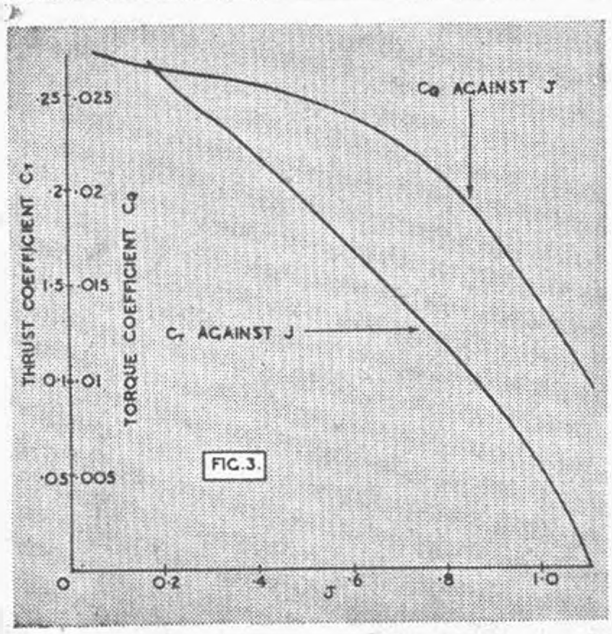

SCALE:- FULL SIZE
1/16" MEDIUM.
20 S.W.G. WIRE
METAL COVER.
ROCKET.
1/8" HARD WOOD.
5/8"
ROCKET
1/32" SHEET GUIDES.
HARD WOOD INSET
1/8" MEDIUM.
THIN IRON WIRE.

AERODYNAMIC DESIGN—PART II

BY JOHN HALIFAX







Airscrew design (Rubber-powered machines).

In dealing with rubber motor design last month we saw that an airscrew creates thrust by pushing a mass of air backwards (the slip stream) and that the mass and velocity of this air determines the amount of thrust. This was sufficient for our object, but now we must make a more detailed examination of airscrew theory before attempting to understand the design procedure.

Imagine a section of an airscrew blade (the correct term is "blade element"), as in Fig. 1. It is obvious that this moves relative to the air exactly as does an ordinary wing, and thus the forces acting on it are the same: lift at right-angles to the airflow, and drag parallel to it. Thus, when a motor is turning an airscrew, the power required is proportional to the drag, and the thrust is equal to the total lift on the two blades, and these can be said to be two rotating wings.

Once this similarity between an airscrew blade and an ordinary wing has been grasped, the rest is simple. For an ordinary wing we know that the lift is given by the equation

$$L = C_L \frac{\rho}{2} V^2 S$$

Similarly, for airscrew thrust we have

$$\text{Thrust} = C_T \frac{\rho}{2} n^2 D^4 \quad \ldots\ldots\ldots\ldots\text{equation 1}$$

Where C_T = coefficient of thrust

ρ = ·00238

n = revs. per second

D = airscrew diameter.

The "drag" of an airscrew is known as torque, and is denoted by Q, and measured in pound-feet. Airscrew torque is thus the moment of resistance which opposes its rotation, and is given by the formula

$$Q = C_Q \frac{\rho}{2} n^2 D^5 \quad \ldots\ldots\ldots\ldots\text{equation 2}$$

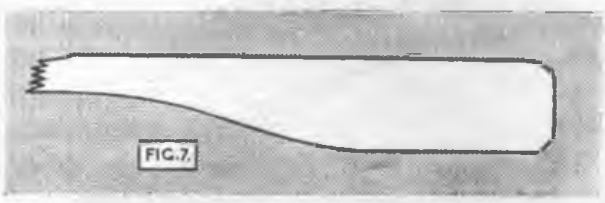
Where C_Q = torque coefficient

and the other values are as above.

For constant revs, this must equal the motor torque, and this should be noted particularly, because it is the basis of airscrew design. For a rubber motor then, the general design condition is that the airscrew torque shall be such that the motor run is limited to a certain pre-determined length of time, and that the efficiency shall be maximum.

Revolutions per second.

The torque, and therefore the r.p.s., of a rubber motor under load varies widely, as Fig. 2 clearly shows. Thus, the value of n taken for the design must be a compromise, and for ordinary purposes it is most satisfactory to take the average of the whole run, (the design of an airscrew operated by a petrol engine will be dealt with in Part 4.)



If, however, a particularly snappy climb is desired, it should be taken as the average of the first part of the power run, whilst for a long cruise it should be taken from the latter part.

If no motor characteristics are available, n can be taken as the maximum number of turns the motor will safely take, divided by the desired motor run in secs. As the size of the motor is already known (see Part 1), it is an easy matter to assemble one and find by practice the maximum safe number of turns.

Effect of Forward Speed.

Reverting for the moment to our comparison between an airscrew and a wing, it will be remembered that for the latter, C_L and C_D depend on the angle of attack. Similarly, for an airscrew, C_T and C_Q vary with a quantity known as J.

I am constantly surprised by the numbers of people who shy at the sight of "J": it is simply the name we give to the expression

$$\frac{V}{n\,D}$$

where V = *forward* speed of the aircraft

n = revs. per sec.

D = airscrew diameter.

A graph of C_T and C_Q plotted against J can be drawn in exactly the same way as C_L and C_D are plotted against α (Fig. 3).

Efficiency.

Like all simple machines, the efficiency of an airscrew is given by the expression

$$\eta = \frac{\text{work done } \textit{by} \text{ airscrew}}{\text{work done } \textit{on} \text{ airscrew}}$$

and expressed mathematically, this is

$$\eta = \frac{1}{2\pi}\,\frac{C_T}{C_Q}\,J$$

The calculated efficiency for the curves in Fig. 3 is shown in Fig. 4: note that the airscrew is most efficient when J = 0·8.

Now, for maximum efficiency the blade elements must strike the air at that angle of attack corresponding to L/D maximum for the section used, for infinite aspect ratio (*i.e.*, the maximum value of lift divided by *profile* drag). This means, of course, that the actual blade angle will vary all along the blade, and thus the P/D ratio (Pitch divided by Diameter) must be calculated for various stations along its length.

The value of P/D for maximum efficiency at a station of distance r from the hub centre is given by

$$P/D = \frac{J + \tan\alpha\,\pi\,r/R}{1 - \dfrac{J\tan\alpha}{\pi\,r/R}}$$

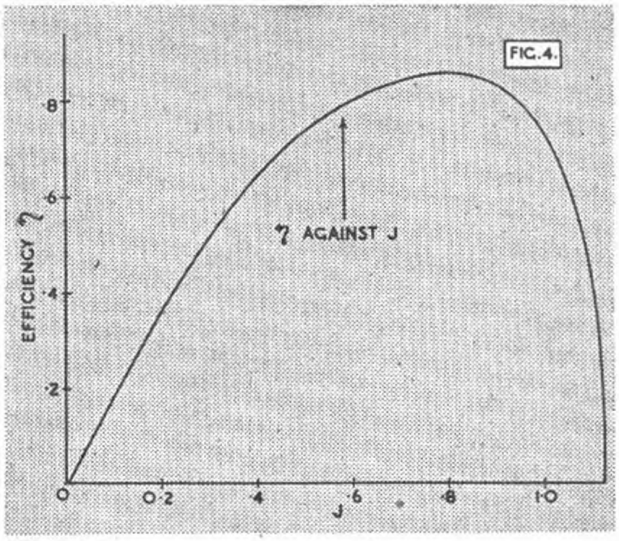
where r = radius of the blade element being considered, from the centre

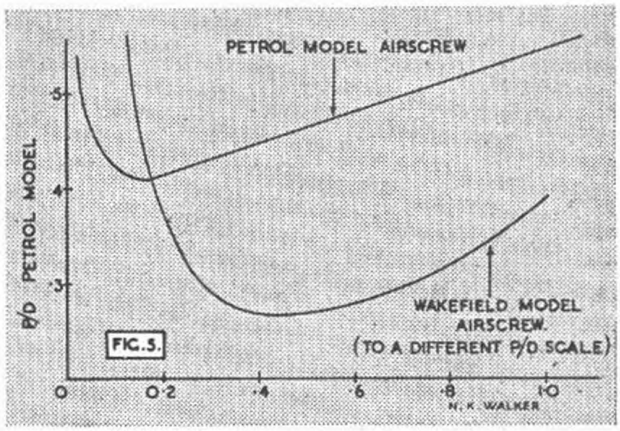
R = overall radius of the airscrew

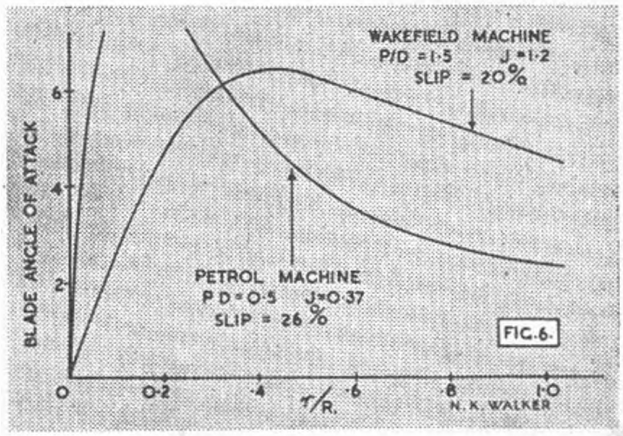
α = angle of attack of section for L/D max. at infinite aspect ratio

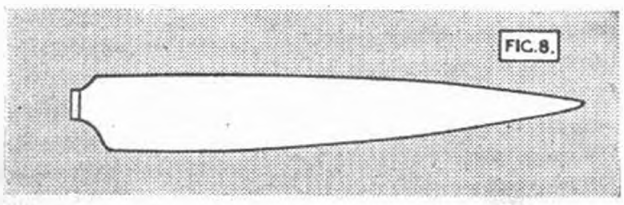
P/D = Geometric pitch divided by diameter.

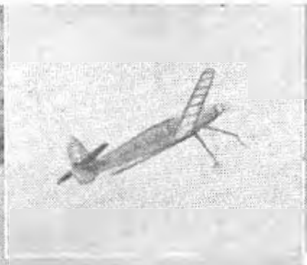
(continued overleaf)

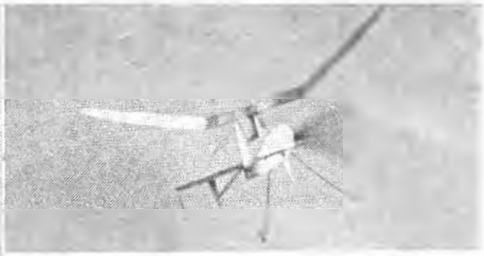












MICHAELMAS GALA AT EATON BRAY

Left. E. J. Horner, winner of the Keil Trophy, lets go for his second flight. Above centre. C. Houghton's low-wing Wakefield "flying over" for the Premier Trophy. Above right. A veteran pylon duration model enjoys its first outing for seven years.

THE Michaelmas Gala at Eaton Bray opened in fine style with the arrival of coaches from Yarmouth, Southend, Norwich, Basingstoke, Northampton, Edmonton and Harrow, until they were lined up nine in a row. A full programme had been arranged and commenced with the Rubber Duration Event. C. E. Houghton, of Luton, romped home with 3 : 23, followed by another local lad, A. E. Hopkins, of Leighton Buzzard, with W. J. Prescott, of Harrow, third. The Sailplane Event gave Hopkins another opportunity to shine when he won with a flight of 2 : 25, with J. Evans, of Leighton Buzzard, second at 2 : 18, and K. Lloyd, of Harrow, a good third at 2 : 10. Running concurrently was a Flying Scale Event which fell to A. H. W. MacBean, of Bedford, flying a seven-year-old Leopard Moth, with original covering and *original rubber*.

Main event of the meeting, however, was the Keil Power Trophy—an open contest sponsored by the A.B.A. Flights were required to be of nearest to 45, 60 and 75 seconds, with additional points for take-off, landing and workmanship.

Eight entries lined up for the start, five of which were diesel-powered. First off, and ultimate winner, was E. J. Horner, flying a modified Scorpion with 2·04 c.c. Dyno I, with a flight of 48 seconds. His fellow members of the Pegasus Power Club, flying two similar models, followed without success. Then came Mr. Walter Poile, flying his historic Comet II, fitted with a new 10 c.c. engine.

Other competitors had trouble with their first and second round flights, until for the third and final round only three remained, Messrs. Horner, Houghton and Poile, with less than forty points between them. Houghton was flying a 0·8 c.c. Micron-engined miniature which weighed only 8 ozs. all up. Only Horner kept under the 75 seconds of this round and held his lead to win with 212·5 points; Houghton came next with 185·25, and Poile third with 179. The event proved another field-day for the diesels.

The Premier Trophy for a low-wing Wakefield model was taken by Houghton with a shoulder-wing that had been altered to low-wing to comply with the rules. This was a flyover as no other entrant came forward.

AERODYNAMIC DESIGN Part II *(continued from previous page)*

This looks rather horrible at first sight, but it is very easy to evaluate, involving nothing more than simple arithmetic. The result divided by the airscrew diameter will give us the pitch, of course, when we have determined the value of the former.

Fig. 5 shows the P/D variation along the length of a blade of a typical Wakefield model airscrew, and Fig. 6 the blade angle of attack. In both figures a curve for a typical petrol model is included for comparative purposes. It will be seen that from $r/R = 0{\cdot}4$ towards the hub, the pitch increases rapidly to infinity (*i.e.*, for infinity the blade element would be parallel to the motor shaft). Fortunately, however, there is no need to construct the airscrew like this, as practical considerations demand the incorporation of a hub or boss of some sort. The most efficient compromise is to fit a large spinner, as this prevents the creation of violent turbulence in the air round the hub; improves the airflow over the fuselage, and, in general, more than pays for its weight in reduced drag.

The Airscrew Boundary Layer.

In previous articles I have explained that for every aerofoil section there is a critical value of VL (velocity × chord) where the boundary layer, laminar for lower speeds, becomes turbulent. This results in the airflow adhering over most of the upper profile instead of breaking away approximately at the maximum thickness point, and the result of this is a very great improvement in the efficiency of the aerofoil. Thus, it is desirable that the blades of an airscrew operate at a speed greater than that corresponding to their critical VL.

Now it is a fact that thin, highly cambered sections have a relatively low critical VL, whilst thick sections have a relatively high one, and thus it is obvious that a model airscrew should make use of the former. Again, the chord should be as large as possible, and thus we have the most efficient blade shape as in Fig. 7, as against Fig. 8, which is a good "full-size" outline. A curved plate, such as 417a, is an admirable section for such an airscrew, and characteristics for infinite aspect ratio will be included next month for design purposes.

For very large diameters a thicker section may be used, such as RAF 32 or N.60, and a graphical illustration of the nature of the boundary over various sized airscrews incorporating this latter section will also be included next month.

PETROL TOPICS

By

J. F. P. FORSTER

Tail well up for take-off, A. Wilson's of Hayes, Bowden Trophy winner rips over the concrete take-off area at Eaton Bray during the August Bank Holiday Gala. A beautifully made, stable flying machine.

SEVERAL requests from old readers for the revival of this dormant feature have hitherto found me with little material of general interest to work upon. Apart from my own doings, which cannot often be of general interest to petroleers, I have infrequent opportunity of observing the doings of others at first hand, so that unless readers keep me posted with their news, and particularly with good photographs worth publishing, " Petrol Topics " must lie low.

Originally " Petrol Topics " started as a protest against the lack of petrol reading matter in the only British Aeromodelling Magazine at that time. We petroleers could never count on there being petrol matter in every issue of that period. Furthermore, the clubs generally did not encourage petroleers and I found that probably the majority of petroleers were " Lone Hands " either from choice or necessity. These men needed catering for and " Petrol Topics " was an attempt to satisfy their demand for at least one regular petrol feature in every issue.

Soon, however, the wartime petrol ban clamped down upon us, and I determined as best I could, with little in the way of readers' contributions to help, to try and keep alive the interest in petrol modelling through the war years. Though at times I began to wonder if I had failed after all, I think that anyone visiting Heston Airport on August 4th for the Bowden Trophy, or Eaton Bray on July 7th for the A.B.A. Gala, will readily agree that the petrol game is not merely alive but bids fair to rival the rubber-driven model in popularity as soon as engines are still more readily obtainable than at present.

Contacts with various well-known personalities at these events lead one to hope that very soon now the market will be supplied with several quite good British engines of various sizes and several Diesels, too, and what any one firm fail to make good in *quantity* may be offset by the number of different makes available. In due course the good ones will win out of sheer merit, and their makers will then be in a position to increase their quantity, having built their reputation on quality.

Whither Petrol ?

What are we after ? This question is still very difficult to answer. At present there seem to be roughly three main schools in Britain and, strangely enough (in view of America's obsession with U-control), tethered flying in any form does not at present form one of these main schools of thought. The three types would seem to be :—

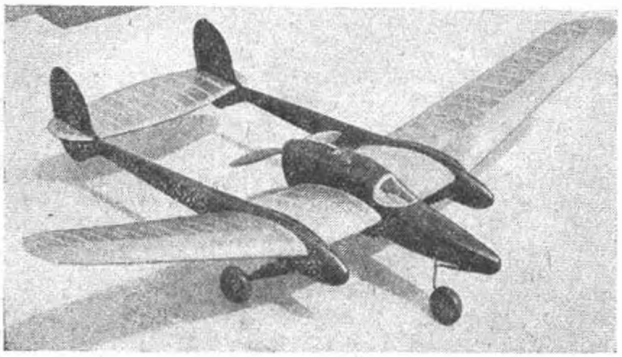
I. The Free Flight American Contest Model built ultra light for duration of *glide* on a limited but high-powered engine run.

II. The pre-war British " all-weather," super stable heavyweight—usually slow flying slabsiders with no imagination ; no looks and no performance (in the American sense of the term !).

III. The good-looking scale, semi-scale or " scale type " model designed to fly realistically and to take off and land under good conditions of weather and terrain—in short, models designed for sheer pleasure flying and not for competition (though they are frequently entered and sometimes win ! !).

Apart from the fairly numerous adherents of the out-and-out American contest type (and even including many of these), a great number of petroleers seem dissatisfied with the general objects of most British competitions. They don't want the American rules since these do not favour the type of model they themselves like ! The question arises should the rules be designed for the model or the model for the rules ? Hitherto the latter has been practically impossible since, in the case of the Bowden Trophy (which, after all, is the biggest annual International petrol event held in this country), the S.M.A.E. have not announced the rules or the venue of the event in the national press in time for any British, still less foreign, entry to be built expressly for that competition. Even supposing the rules are announced, say six to nine months in advance, is this a generally desirable object ?

Originally, the Competition was intended to be open to any size or type of machine. This was all right in the early days, but with the variety of both to be seen nowadays, no single contest can possibly give every type of model an equal chance without some system of handicapping. Assuming points are awarded for take-off and landing, the small (American, Class A) model is practically ruled out unless the competition is held on seashore sands or a perfectly mown grass field like a cricket field. Some day hence we may expect Eaton Bray to fulfil these highly desirable conditions, but that day is not yet. Where else in the country are we *ever* likely to find such a site ? The small model which cannot land in rough grass is therefore *out* for competition purposes. Yet a number of manufacturers are turning out small



Harry Austwick's unusual black and orange twin-boom pusher petrol model on the concrete at Eaton Bray. This, like many others, suffered from engine trouble.

Class A and B engines and staking their reputations on them. They evidently realise that people *will* have small models, competitions or no competitions!

The large light model with enormous wheels and terrific power for a "jump" take-off is about the only safe bet for a contest run under the conditions which prevailed at Heston this year. For the benefit of absentees let me inform them that after a few canvas "tarpaulins" spread on the long grass had proved quite inadequate in area and impossibly soft in "consistency," a few hastily mustered duckboards with gaping slits wide enough to swallow some contestants' wheels and tail skid were placed in position, forming a take-off scarcely 10 yards long and perhaps 5 or 6 yards wide. There was a very light but variable wind, while the drome surface itself was responsible for at least 80 per cent. of landings being "nose-overs" or worse!

My object in this seemingly critical analysis of the Bowden Contest is a sincere desire to arrive, with correspondents' help, at a better competition all round than has been the case for the last two years. As Mr. K. Tansley archly remarked to me: "No reformer has ever been popular." Last year crowd control was none too good and I criticised the unfortunate choice of take-off site *across* instead of *along* one of the numerous runways running in all directions to choose from. The width of that runway was probably more than 20 yards and, despite a stiff breeze, proved inadequate for many models to clear the facing crowd, and some, indeed, were scarcely airborne in its width. This year, with a bare 10 yards of indifferent boards and a very light wind, it was hardly surprising that 50 per cent. of models, even if they kept straight, failed to become airborne and started grass-cutting manœuvres beyond the end of the boards. This might have been mitigated by spreading the aforementioned tarpaulins beyond the boards; it might have enabled many moving machines to make a flight which only just failed to become airborne.

It really is time the S.M.A.E. officials who run petrol events began to think in terms of petrol instead of rubber, and to make sure that conditions of terrain are suitable a few days in advance instead of leaving things to an hour after the scheduled time of the start. Most models with sufficient power to unstick in that short run were grossly overpowered in flight unless judged by American duration standards. The rules this year required a total flight time of 40–60 secs., so there was no need for terrific altitude and a long glide.

It was obvious from the late start that three rounds would be impossible. With the three minute rule for getting airborne (including three attempts each round) 60 entries would alone account for three hours each round. For some unknown reason the S.M.A.E. have a rule prohibiting contest flying after 7 p.m. Why 7 p.m., when sunset varies even during the summer months by three hours, I can't imagine. In any case, if quiet conditions prevail, it is the same for everybody and one must take the luck of the draw for order of flying. Anyway, this being so, allowing for "drop-outs" before the last round and a few quick get-aways and flights lasting less than three minutes in all, at least eight hours should have been allowed, and flying should have started at 11 a.m. It was only just possible to get in two rounds, and by that time spectators were "browned off"!

From lack of crowd control last year, control this year was carried to an extreme, where the spectator saw none of the fun and couldn't even discern who or what model was attempting that exacting take-off. Last year I criticised the commentary for failing to give *us*, the crowd, any information we couldn't already see for ourselves. This year there was none whatever, the public address system being used solely to direct competitors on their long hike out to the take-off from the enclosure, and for largely abortive efforts at crowd control. Again the spectator was left in complete ignorance of any interesting details of the model being flown and had no idea whose model it was.

Why does a crowd collect round the take-off? Chiefly, I think, because they can't see it from where they already are. By all means control the crowd within reason, but (*a*) they must be able to *see* the take-off even if at a distance, and (*b*) give them the "gen" which only a close inspection (and often not even this in these days of cowled motors) can give. Even the bare facts of the motor, span and wing loading of the model and the competitor's name would be better than nothing.

These suggestions would make for far more interesting contests from the spectator's point of view and improve matters for the actual competitor, while removing the spectator's irritation and urge to congregate around the take-off. Two judges; four timekeepers; one commentator with mike and three or four contestants who have either had or are about to have their turn would seem to be all that are really necessary at the take-off at any one time. Add to these one or two press reporters at a time and one or two genuine photographers, and provided it is made clear that they must not stand between the crowd and the take-off, then little difficulty should be experienced in keeping the crowd contented, entertained and within bounds. Unless these points are thought of, no crowd will be controllable except by force!

Is your "Stooger" Really Necessary?

Although there were few entrants who dispensed with a booster, nearly all brought at least one and sometimes an army of so-called assistants to the take-off. Just who, out of these "teams" were really flying the model would be difficult to say, and whether they all built them or jointly owned them would be still harder to say! *I would like to see all assistance ruled out.* If you can't fly your model alone then you're no petroleer. Some people get an "expert" to start their engine for them! Others have a self-considered expert to shout encouragement or advice while they do the cranking. In some cases the person cranking left someone else to do a lot of fiddling with controls, timers, boosters and gadgets placed so awkwardly that two or three pairs of hands seemed to be required to get the model away. As to the Diesel merchants, whose proud boast it is that all they need carry is a fuel can and perhaps a pair of pliers to restrain wayward props from "flying off the handle," what

possible excuse have they for an army of assistants? All this assistance is intended to cheat the three-minute rule, though from my observations I think in many cases chaps might have got away more quickly without it!

Engine (mis)Management.

The widespread lack of elementary understanding of 2-stroke operation is a serious reflection on British petroleering. Without doubt the most prevalent failing (apart from most models to R.O.G. unassisted) was again the difficulty in starting engines. An easy second came the failure of engines to continue to run when the booster was disconnected. In other words, more trouble was experienced with getting proper carburation than with ignition. Ignition troubles may be due to contact breakers, plugs, coils, condensers, wiring, and chiefly to dry batteries, but *not* to the human element. Carburation troubles on the other hand are almost solely due to human mismanagement. The amount of fiddling with needle valves that goes on is unbelievable.

Using suction fuel feed (as most of us do) and (most important) *clean* fuel, any engine should start and continue to run without any adjustment to the needle valve whatever. If the needle is left as it was the last time the engine ran smoothly, with approximately the same fuel level in the tank, *this is the setting required.* If, after choking or priming the induction pipe for starting, the engine peters out after burning off the excess richness (usually 4-stroking), then there is foreign matter in the jet or the needle has been closed slightly.

The technique adopted by most offenders consisted of first over-choking and getting a swamped engine. Then the needle was completely closed. With luck and lots of cranking the excess richness was "worked out," and if the engine burst into life they were often too late to reach and open up the needle valve enough to keep the motor running and it petered out weak. The whole process of choking and starting had then to be repeated *ab initio* and frequently *ad nauseam!!*

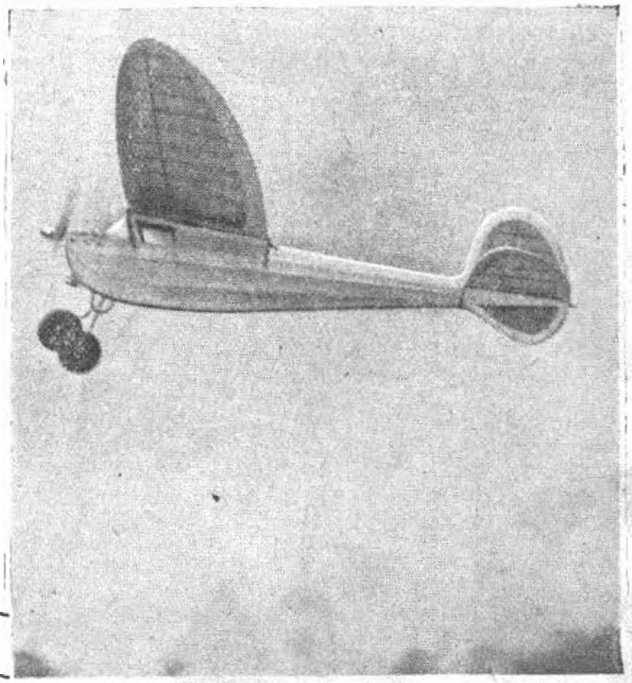
Freedom for All.

By way of contrast, the A.B.A. Gala with perhaps half the area at our disposal, and blessed by just such another perfect day's weather as the Bowden Contest, provided freedom for all to fly any type of model at any time, yet detracting nothing from the efficient running of the various competitions. The idea that two or more petrol models in the air at the same time constitutes a menace, is an old bogey which should by now be dead.

With nearly the whole of Heston Airport to play with, no possible interference with the competition could have occurred from other people flying non-contest models downwind of the competition take-off. It was delightful to see the air thick with models of all sorts immediately the competition was over, but again the voice of doom came over the amplifiers, "All flying must now cease" after only a few minutes of this spectacle for which many spectators and flyers had waited all day. No doubt the Aerodrome authorities were responsible for this and not the competition organisers, but had flying been permitted throughout the day much resentment would have been avoided. Many people travel big distances for a day's flying on a big aerodrome at these events, and their enthusiasm deserves something better than senseless restriction of their enjoyment.

The most spectacular events of the day occurred outside the competition. Most pleasing of all were the perfectly stable flights turned in by a tail-less pusher about 6–7 ft. span. In spite of perfect change over from power flight to glide and steady flat glides, the drome surface did not give it a chance in a hundred of landing well. One over-powered or over-elevated American type Pylon job finally made a perfect loop after several abortive attempts in a competition flight, but it still had sufficient altitude to settle down into a fairly steady glide before touching down. Before the start of the competition the most dramatic spectacle occurred at about 80 ft. above the heads of the crowd when a mid-air collision occurred between a Bantam powered Polyhedral Pylon job and a scale-type high wing cabin machine. They fell spinning dizzily and locked together beside a hangar. The one in a million chance had happened!! Both engines had fortunately cut at the time and the smaller machine was quite undamaged and flew well the rest of the day. The larger model, after first aid repairs to one L.E., showed that its efficiency was not impaired by making a 7-mile o.o.s. thermal flight, to land (and be retrieved) safely in a tree in Southall High Street!! Then there was the (?) Diesel engined lightweight which shed its engine at about 150 ft. in the competition! The results were exactly as imagined!!

Altogether two delightful days, marred only, in the case of the Bowden Trophy, by unnecessary and petty restrictions and a certain lack of foresight and preparation by practical and petrol-minded organisers. Next year I understand that considerable alterations in the rules are under consideration. It is to be hoped that these will be announced soon after (if not before) Christmas, and the date and place of the Bowden Trophy announced in *all* the technical magazines published in Britain and in ample time for foreigners to make that date. It was good to see the well-known faces of van Hattum and Father Amiard again on this side of the Channel and to meet at last Dr. Charles, the very keen and hospitable Chairman of the Model Airplane Council of Eire. Let us hope that next year's representatives of Canada and America may join in the fray. Again, I ask, "Whither Petrol?" The answer, my readers, is YOURS!



Mr. Horner gave an interesting unofficial demonstration of the amount of control available by means of contra-piston adjustment with his neat little Dyno-powered diesel model at the August Bank Holiday Gala.

EVERY club knows the sweat behind the organisation of its first inter-club rally. Portsmouth & D. M. A. C. were no exception, and their Southern Counties Rally was, on the whole, a credit to its organisers. Main trouble, lack of co-ordination among officials, became acute at times but, with the experience gained next year's effort should be vastly improved. Sunday, the 15th, dawned and continued fair and sunny, with a pleasant light breeze. The contests, which were due to start at 11 a.m., attracted well over a thousand spectators.

Indication of things to come occurred early in the morning some time before the contests started. T. Pyle, of Southampton, took his sailplane out for a test glide and lost it, 8 : 26 o.o.s. The judges later awarded him a special prize for the best flight of the meeting The Concours d'Elegance started the ball rolling, the first prize going to P. Smith, of Bournemouth, with his beautifully-made " Kiwi," shown in the centre top photograph.

Eleven-thirty began the Sailplane event. Thermals were elusive and the best flight was only 66·7 secs., giving the first place to N. L. Hudson. At 1 p.m. the rubber contest for models to Wakefield specification got under way. Competitors followed each other in quick succession for their three flights. Left, below, shows R. Harris, of Gosport (cousin of G.W.W.), getting his eight-year-old " Korda " off in its usual breathtaking climb —three feet forward and then straight up!

The winner was declared to be Mr. Leadbetter (who, with P. Smith and Bill Foster, formed a stout team from Model Aircraft Stores, Bournemouth), with an aggregate for three flights of 282·8 secs. Right, below, shows the two latter members in the throes of winding.

Rubber fans still held the field for the next contest, this time an open one. Mr. Caddick, took the honours in this one-flight event with a very nice flip of 121·3 secs. The top right-hand photo shows him with his model.

The competition for " exhibition flying," where marks were awarded not for duration, but for the quality of the flying was next on the agenda. A. Palmer, of Eastleigh, was judged the winner, flying an R.F.L.G.53 tail-less Plans Service design, shown in the top left-hand photo. Second place was well earned by Mr. Wallace, of Portsmouth, with his demonstration of a parachute drop from his duration model.

Closing the day came the petrol and Diesel contest at 4-30. A fair number of entrants competed, the winner being D. R. Byfield, flying a seven-foot-span eight-year-old Cloud Airmaster powered with a 9 c.c. Dennymite, closely followed by J. M. Coxall, of Hayes. Mr. Coxall also won the Diesel event with a tiny model with a great performance, " Judy," powered with a 2·8 c.c. Micron.

The meeting came to a fitting conclusion with presentation of prizes by the wife of the Vice-President, Mr. Vincent, whose crowd control (centre photo.) was startlingly effective,

THE MIDLAND AREA RALLY

HELD AT STOUGHTON AIRFIELD, LEICESTER

THIS event, staged by the Midland Area clubs on September 15th, was held on the Leicester M.A.C.'s new ground at Leicester East Aerodrome, which proved a fine venue with reasonable access. The Weather Clerk decided for once to play ball with the organisers, and in contrast with earlier patchy samples, the day was one of bright sunshine—and, more important, no rain! However, this was marred by a high wind, which at times made taking off most difficult and took models far away, far too quickly.

The original Petrol event had been cancelled in favour of the Centralised S.M.A.E. Petrol Duration Contest, and, in the writer's opinion, this detracted from the Rally as such. It is true that a few modellers attended who might otherwise not have turned up, but there seemed far too much emphasis on the "gas" event, to the detriment of the programme staged for the Rally participants.

B. Dennett, of Birmingham, made best time of the day with a fine flight of 5 min. 44 secs., in the Open Glider event, the best rubber-driven time being Toms, of Coventry's, 4 min. 10 secs., both models lost.

The entry, though not large, brought out a number of interesting machines, and it was a pleasure to meet lads well known in the past, but missed during the war period.

The Petrol event brought out a total of 28 entries from widely separated districts—plus an array of weird headgear seen (hm, to advantage?) on the heads of the Bushy Park boys. Shades of the States!! Some spectacular flying was seen, in particular by Tansley's model, which persisted in making hair-raising swoops at the crowd, and in some cases a series of loops and vertical banks. Copland put in a spot of high-pressure repair work following a hectic ground loop on his first attempt, and coped to such good purpose that he was able to make all his flights, gaining a very creditable sixth place.

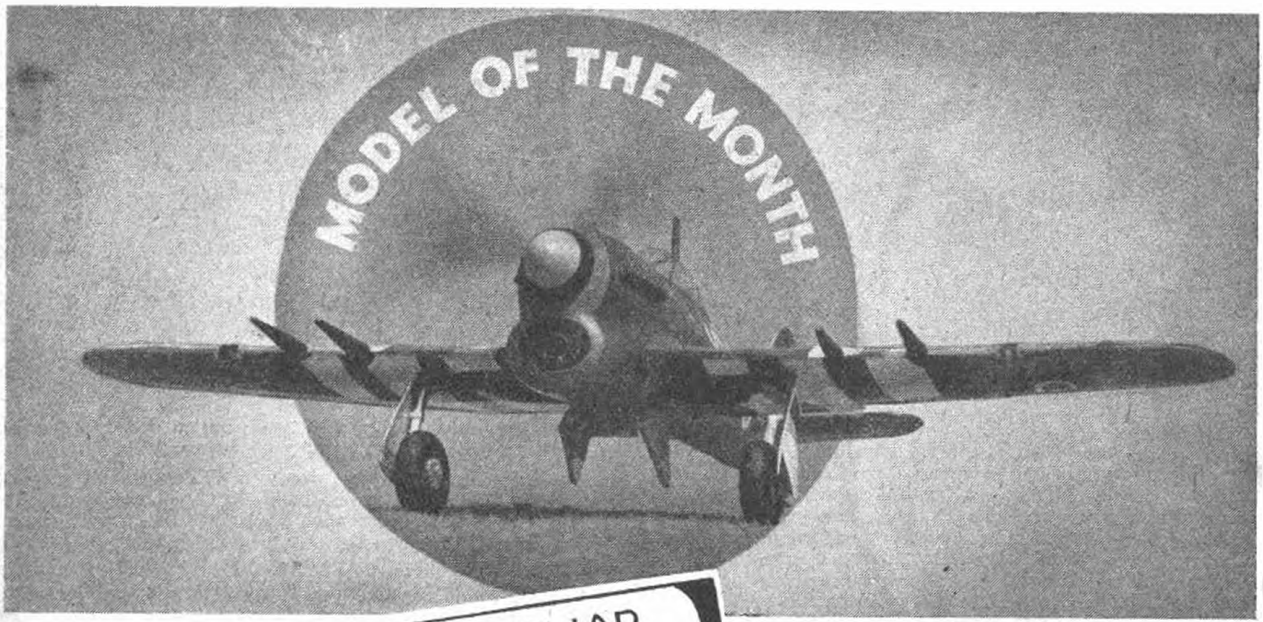
The usual troubles were much in evidence, and motors spluttered—or refused to splutter—with all the regularity one has come to expect at such meetings. It is a treat to see (and hear) a well-tuned motor get cracking without a lot of fiddling, but oh, how rarely one sees such a thing.

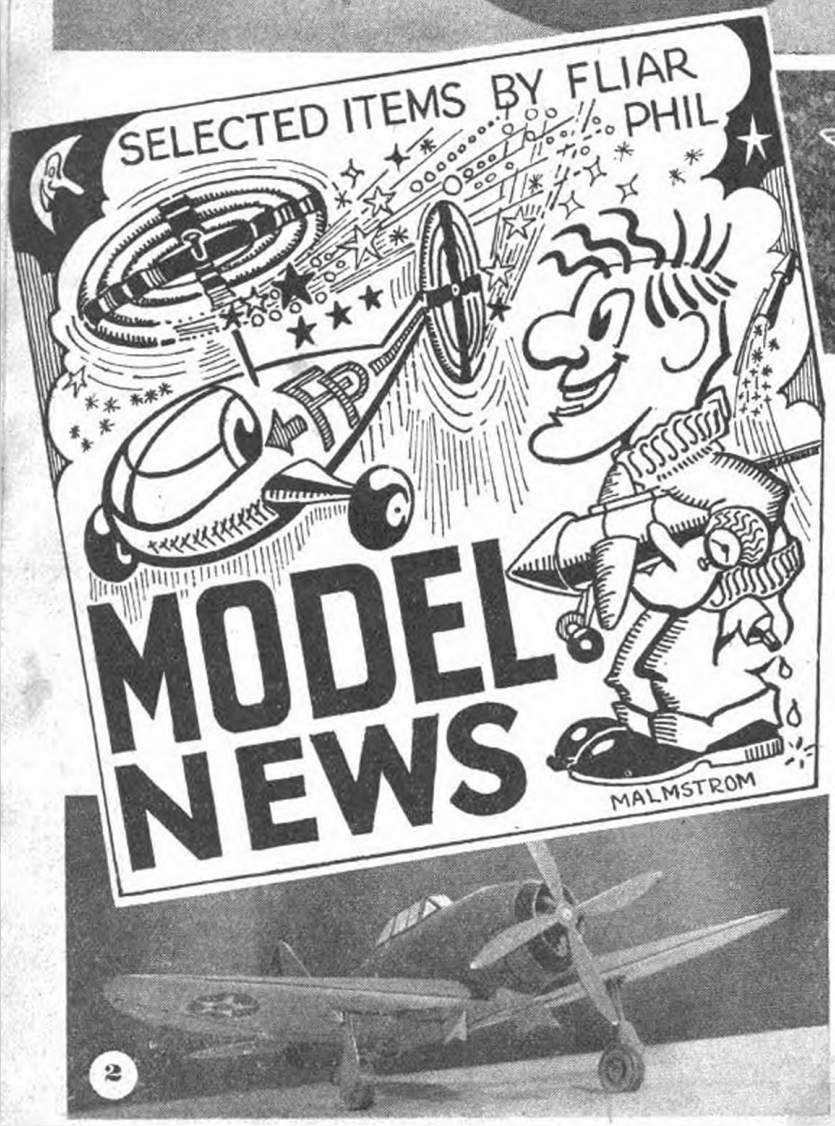
Ron Monks, of Birmingham, flying a parasol wing job with fully cowled-in motor, had the contest buttoned up almost from the first flight, and won by a handsome margin—a good show, as we understand the model was brand-new and had hardly been flown before the meeting.

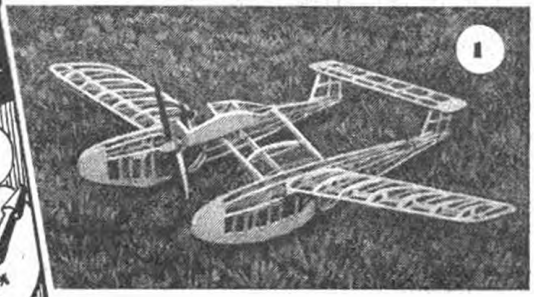
Mrs. Taplin, wife of the Midland Area Chairman, kindly presented the prizes, and brought to a close an enjoyable meeting held under ideal conditions—if we forget that arch Gremlin, the WIND.

RESULTS.

Open Rubber :	**Perry, B.**	**(Birmingham)**	**408**
	Adams	**(Bushy Park)**	**400**
	Bishop	**(Worcester)**	**308·4**
Open Glider :	**Dennett, B.**	**(Birmingham)**	**539**
	Ward, S.	**(Wolverhampton)**	**316**
	Dallaway, W.	**(Birmingham)**	**308·5**
Juniors :	**Bantock**	**(Leicester)**	**87**
	Hill	**(Wolverhampton)**	**81**
Petrol Duration :	**Monks, R.**	**(Birmingham)**	**258·45**
	Taylor, A. H.	**(Bushy Park)**	**162·8**
	Gunter, Mrs.	**(Bushy Park)**	**147·5**
	London, T.	**(Bradford)**	**142·1**
	Guest, M.	**(Bushy Park)**	**134·4**
	Copland, R.	**(Northern Hts.)**	**112·95**



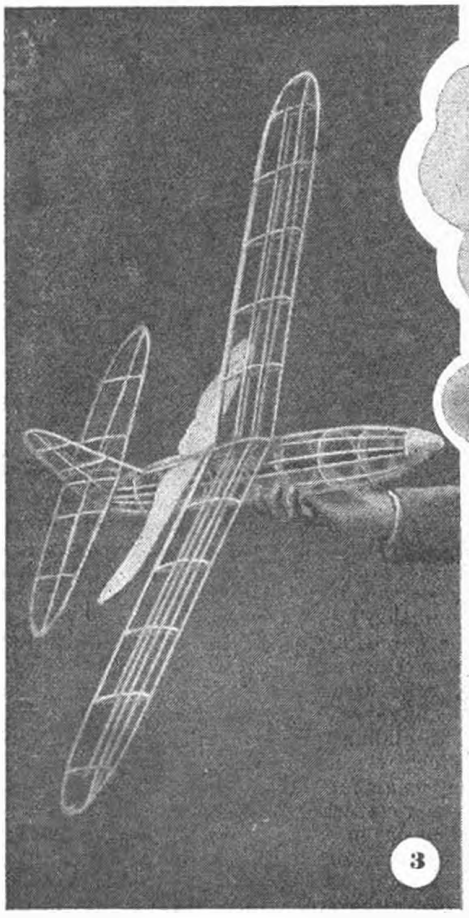


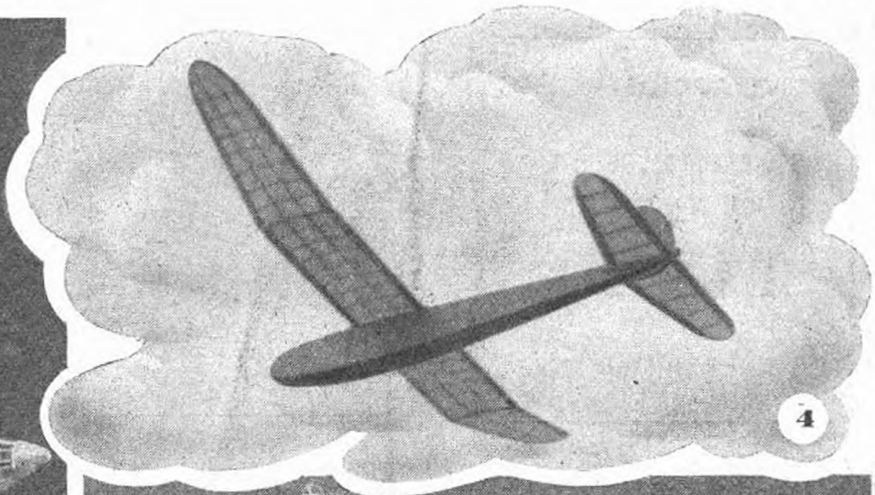


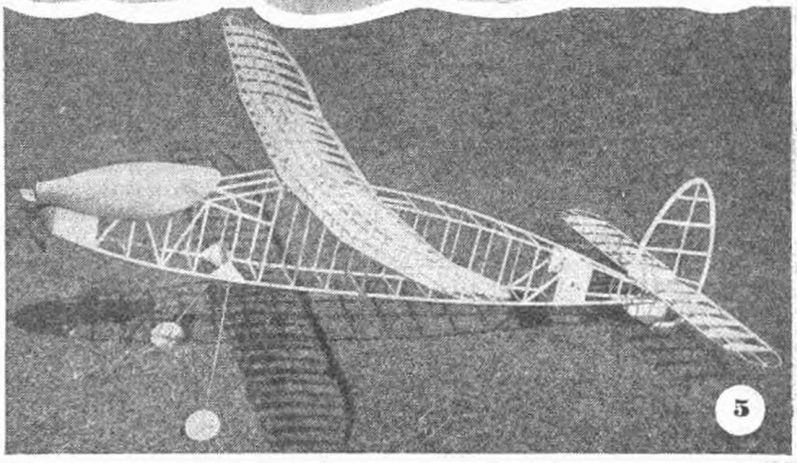
ROCKETS have always fascinated Fliar Phil, his only trouble being their predilection when used in his models for adopting the habits of maroons. Maybe he *was* better off with helicopters . . .

Top of the bill, our Model of the Month is the product of G. Massy-Collier in the Camera Department of Denham Studios. It is a non-flying scale model built on flying model lines, with wing ribs, stringers, etc., of balsa. This fellow makes these models a dozen at a time, his collection including Typhoons such as the one illustrated, Mosquitos, and Spitfire XII's, all made on a miniature production line. We hope to publish further photos in a future issue. Mr. Massy-Collier is to be congratulated on the quality of the photography —and incidentally, that prop. effect is genuine rotation, effected by cunning use of the wind!

Continental modellers take a bow with Photos 1, 2 and 3. Photo 1 is of a most interesting diesel engined water-model built by H. Meyer, of Biel, Switzerland. Known as the "Sea Eagle," it is hard to say whether it should be termed a seaplane or a twin hull flying-boat. Photo 2 hails from Italy—from our correspondent Giovanni Fabbi—where these models are put out in booklet form as card cut-outs, and are very popular. They certainly preserve a far more accurate outline than any similar production in this country. One of these booklets in our possession for building the Thunderbolt illustrated is







beautifully produced and printed. Photo 3 is of the first flapper to meet with success in Italy, where this type of model is known as an "elitroplane." The actual flapping pinions are covered with stiff paper.

No need for any introduction to I. J. Marrett's photographic craft, and this shot of his six-foot span sailplane enjoying its own particular thermal and cumulus (the latter, admittedly, supplied by Fliar Phil I) shows no deviation from his usual standard. The model features a highly cambered high-lift wing and an excellent glide which has resulted in flights of 2½ to 4 minutes in December.

L. R. Hughes, of West Kirby, is another staunch follower of that Old Faithful amongst Wakefields, Dick Korda's 1938 unofficial record holder, and built the replica in Photo 5.

Coming, as the control-line fan said when his lines gave up at eighty miles per hour, to the end of our tether, we pass on to Photo 6, taken in South Africa in 1941. F/Lt. D. Robertson built this Copland's Wakefield and enjoyed some fine flying before his return home. The model is fitted with an "austerity" prop., owing to the shortages current at the time.

Fliar Phil breaks away in time to prevent the placing of a jumping cracker in his hip pocket by some evil-minded aeromods, and signs off to return in a splurge of colour in our Christmas issue.

CIVIL AIRCRAFT No. 36

THE D.H.94 MOTH MINOR

BY E. J. RIDING

ONE of the many pre-war designs to receive a new lease of life on the resumption of civilian flying in Britain, the Moth Minor, was produced in 1938 as a replacement for the Moth and Tiger Moth trainers in service with clubs and schools all over the world.

Unfortunately, the advent of war curtailed the production programme, and in 1940 all the jigs and tools were shipped out to Australia, where many hundreds of machines were built for the Royal Australian Air Force.

At the outbreak of war, about a hundred and ten Moth Minors had been built at the Hatfield factory, seventy-four of which were issued with British registration numbers. A large majority of these were, however, sold abroad either soon after the date of issue or during the first few months of the war. Batches of Moth Minors were registered as follows :—G-AFNE to G-AFNK, G-AFOA to G-AFOG, G-AFOM to G-AFPE, and G-AFPH to G-AFPO, inclusive.

As an experiment, one of the production machines was fitted out with a coupé top, covering the two cockpits, and this machine, G-AFOJ, is still in use at Hatfield. During the war it was used as a service hack by the firm and was issued with the serial number EO.236.

Many Moth Minors were impressed for duties with the R.A.F., and some of these have now been "demobbed." Examples seen recently are : G-AFNH I and J, G-AFOD, G-AFOZ, G-AFPD, H and M.

At the moment, clubs or schools using this type are as follows :—The Royal Air Force Flying Club at Panshanger, Herts (G-AFNJ and G-AFOZ) and the West London Aero Club at White Waltham (G-AFNI and G-AFPT).

Construction.

Fuselage : Four spruce longerons with cross-members and verticals covered with plywood. Wings employ two spruce and plywood box spars and are detachable from the centre section, which is built integral with the fuselage. The portion aft of the rear spar can be lifted to allow the wings to be folded for storage. The covering is plywood, with the exception of the fabric-covered tail unit. The ailerons and rudder are mass balanced, and a spring-loading device corrects trim when changing from powered to gliding flight. Twelve gallons of fuel are housed in centre-section tanks—sufficient to keep the machine in the air for three hours at cruising speed. The undercarriage consists of cantilever shock legs employing rubber blocks in compression. Power plant is a 90 h.p. four-cylinder in-line air cooled D.H. Gipsy Minor.

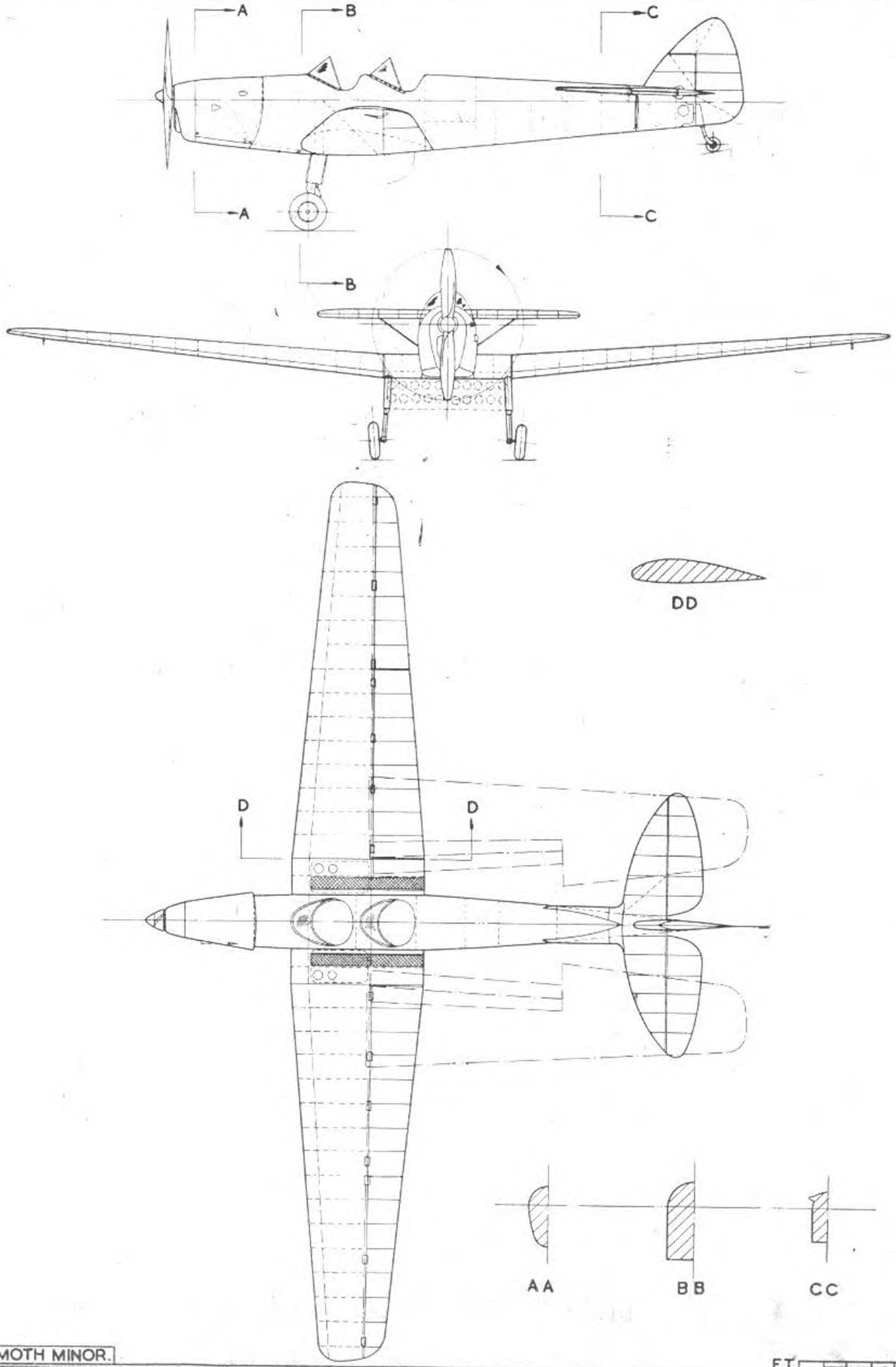
Colour.

Our heading photograph, taken over Maidenhead recently, shows one of the West London Club's machines, painted aluminium all over with red letters on fuselage and wings. The machine in the lower photograph, taken at Elstree, is aluminium all over with black letters. The crest on the side is that of the R.A.F. Flying Club.

Specification.

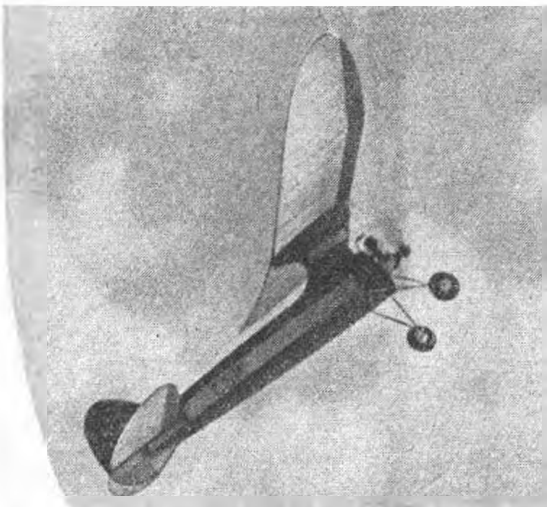
Span, 36 ft. 7 in. ; length, 24 ft. 5 in. ; height, 6 ft. 4 in. ; loaded weight, 1,550 lb; tare weight, 983 lb. ; max. speed, 118 m.p.h. ; cruising speed, 100 m.p.h. ; landing speed, 40 m.p.h. ; service ceiling, 16,500 ft. ; Price, £575 (this is the 1939 figure).

Air Review Photos.



D.H.94.MOTH MINOR.

FT.



International Week

BY H. G. HUNDLEBY

U. S. A.
FRANCE
MONACO
HOLLAND
BELGIUM
DENMARK
GREAT BRITAIN
CZECHOSLOVAKIA

AEROMODELLERS from seven different countries speaking six different languages, some of them travelling nearly one thousand miles, were present at Eaton Bray for a truly "International Week." They designed, constructed, flew and lived together for seven whole days, enjoying the same sunshine, enduring the same rain and all in perfect amity. Drawn together by a common bond, the Science and Sport of Aeromodelling, they symbolised the spirit of a free Europe where the right of every man to intermingle and converse with his neighbours now remains unchallenged.

Many came by air including 15 members of the Belgium team who, after returning to base on one engine and then encountering sundry thunderstorms, eventually landed at Croydon five hours late. Vagaries of the weather, not forgetting passport and visa difficulties, could not prevent a total of 77 foreign visitors attending the event. We would mention here the expression of incredulous amazement on the face of a certain London Transport official when viewing a London omnibus bulging with French Aeromods and their innumerable model boxes. A further incident of adventure en route concerns our old friend Guy Borgé who, arriving at Leighton Buzzard in the early hours, decided to sleep in a nightwatchman's tent until transport was available!

Sleeping accommodation proved a temporary headache for the Organisers as several contingents arrived at the last moment without prior notice of their coming. However, by dint of special efforts on the part of the aerodrome staff all visitors were accommodated in dormitories in the Eaton Bray buildings with the exception of the Czechoslovakian team who preferred true camping accommodation.

Eaton Bray presented a veritable aeromodelling atmosphere with an ever present wail of diesels, a pungent smell of dope and ether from the workrooms and technical discussions in many tongues ensuing in all parts of the buildings. Not forgetting that very popular spot, the communal dining room, where "pass the butter please" became synonymous in all languages.

At 6 a.m. on Sunday, 18th, several true enthusiasts were already testing models and by midday a galaxy of all types was on show in the enclosure for the Concours d'Elegance. The display of models was a real education in Continental model design. On the power side, particularly among the French and Belgian entries, design tended to be rather stereotyped with one or two exceptions. Pylon wings with pronounced polyhedral were predominant and the extreme forward position of the wing in relation to the fuselage was noticeable on

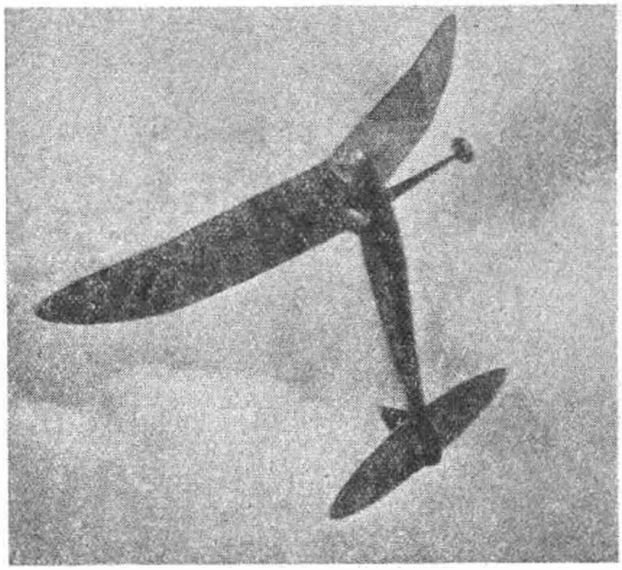
the majority of models. Sailplanes, generally speaking, were larger than the average British model and varied types of automatic rudder control were used extensively.

The Concours set the panel of International Judges a difficult task, but all eventually agreed upon M. Fillon, of France, well known pre-war Wakefield winner, as the owner of the winning model. This, a splendid 8 ft. span sailplane proved that it was not only of first-class appearance but also capable of a similar performance which won it the sailplane contest with a time of 9 mins. 8·5 secs. o.o.s. from a 300 ft. line. The handling of models on the line by these experts was a pleasure to watch and excellent times of over 5 minutes were put up by M. Ferber of Belgium and M. Varache of France. We congratulate Mr. Dawson of the Harrow Club for placing 6th; against the cream of Continental aeromodellers this was an excellent effort.

There were many wives and lady friends nobly supporting the French and Belgian competitors and we would mention here Madame Sablin, who was a dab hand at tow-line launching, and placed well in the event.

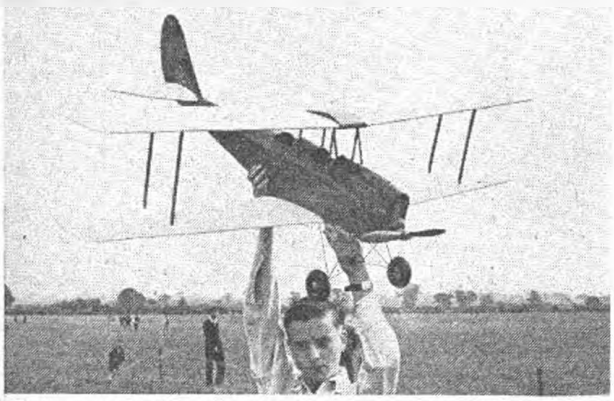
In the experimental contest, besides Howard Boys' familiar rocket-driven flying wings and Mr. Hopkins' Canard, there was an interesting high wing model of orthodox design by M. Bougueret. Powered by a rocket of French origin mounted along the centre section, the model climbed in steep circles with an amazing duration of rocket run.

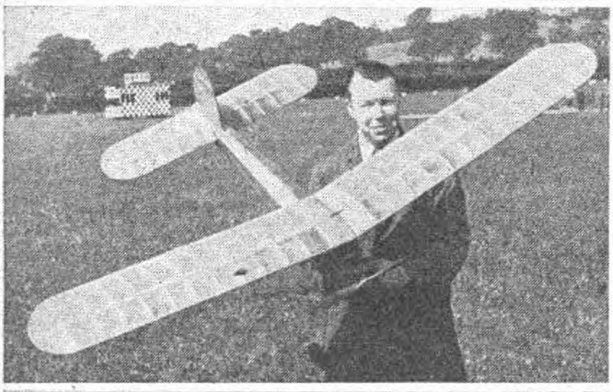
For the Power-driven event spectators were treated to the largest display of diesel-driven models ever seen in this country. Ranging from baby models of 30 in. span with 7 c.c. engines to 7 ft. span models powered with 5 c.c. engines their ease of starting and phenomenal performance was an education to the large crowd of British spectators present. Their rate and angle of climb far exceeded anything the AEROMODELLER Staff have even seen in all their travels, either in this country or America. Many of the models climbed so rapidly that in the stipulated 20 sec. motor run they were sufficiently high for the timekeepers to have difficulty in ascertaining when the motor had actually cut out. M. Maraget gave the most unusual demonstration of the



Above is a diesel powered French Contest model in a typical "corkscrew" climb. Below, three members of the Model Aero Club d'Asnieres adjusting the model.

Our heading picture is of Mr. Horejsi's winning Czechoslovakian model. Below are the International judges at the Concours d'Elegance. They are left to right, Mr. Morgen Larsen of Holland, Mr. Semrad and Ing. Bukovsky of Czechoslovakia, Mr. De Kat of Holland, Commandant Bareniet of Belgium Mr. Quicroix of France and Messrs. Russell and Hunt of Great Britain.





day when his tiny, pylon wing model climbed almost vertically without turning left or right, until it finally disappeared into cloud at 5,000 ft. What a splendid example of trimming !

By no means all of the models were of the pylon wing duration type. Messieurs Vaysse and Varache both flying models of over 6 ft. span produced vertical climbs that were terrifying to watch. A significant point was that many of the wings were braced with flying wires to stand the immense strain during climb.

It was distressing to say the least that out of the 40 competitors in this event, and in spite of adequate advance notices to the clubs, there was only one British entrant. The Continental competitors were naturally chagrined at not having the opportunity of crossing swords with well-known British petrol model enthusiasts. However, we must reluctantly admit that their presence could scarcely have made any difference to the results, as those British aeromodellers who were present with petrol models evidently thought.

Nearly 3,000 spectators attended this first Sunday's contests under excellent weather conditions and seldom have any of them witnessed such an interesting display of Model Aeronautics as took place that day.

Various outings were organised for our foreign guests during the following week. After a day to settle in the majority visited London on Tuesday accompanied by an admirable guide, our old friend Father Amiard of Flers. On Wednesday the company were split into two parties. One travelled by coach to Whipsnade and found polar bears, etc., an interesting diversion from aeromodelling. The other visited Messrs. Percival's Aircraft Factory at Luton where they gave a demonstration of models to 500 of their workers. The demonstration ground by the way was a football field, but with an excellent tea aboard them, very kindly supplied by Messrs. Percival, the lads showed their skill by keeping the models on the pitch. They were then shown over the works, seeing Proctors under construction and generally a good time was had by all.

Thursday was an " at home " when Messieurs Quicroix and Borgniet, leaders of the French and Belgian teams, organised a series of competitions among the visitors. The slick and purposeful manner in which these competitions were run was an eye-opener to those of us present and a special word of praise is due to the above two officials not only for their efforts on this day but for the valuable assistance and hard work they put in during the whole week. Their help was invaluable to the organisers and their enthusiasm unbounding.

Friday saw the whole party at the Model Engineer Exhibition, accompanied by Mr. Laidlaw-Dickson, who very ably looked after their interests during the whole week. Here they were welcomed by Mr. Houlberg, who showed them over the Exhibition. Great interest was shown by the visitors in the models on show and prodigious were the quantities of balsa that they purchased from the trade stands, as this commodity is still virtually unobtainable in Continental countries.

Photos from top to bottom are as follows :—Mr. Terret of Great Britain with his petrol driven Gipsy Moth ; M. Vincre of France with his diesel contest model ; M. Maraget with his fascinating baby model powered with a ·7 c.c. diesel that climbed like a lift ; finally, M. Aubertin of Monaco with an interesting low aspect-ratio sailplane.

Saturday the lads were hard at it preparing Wakefield and duration models for Sunday's contest. A dinner was held in the evening, when speeches were made by leading representatives of all the countries present. Mr. D. A. Russell, M.I.Mech.E., Managing Director of Eaton Bray Model Sportsdrome, officially welcomed the guests on behalf of all British Aeromodellers and expressed his pleasure that so many aeromodellers from many countries were gathered together in friendly rivalry for the first time since 1939. He stated that next year it was intended that the Rally should be held on an even bigger scale extending over a period of a month.

Mr. Semrad, Director of Aeromodelling, Ministry of Civil Aviation of Czechoslovakia, extended an invitation to all present to attend an International Contest to be held next year in his country, and other speeches of appreciation were given by M. Quicroix, Chairman of the French Federation of Air Sport (Aeromodelling Section), Commandant Borgniet of the Belgian National Aeronautics' Committee of Belgium, Mr. Morgen Larsen of the Danish Model Flying Union, and Mr. De Kat of the Rotterdam Model Flying Club.

At the conclusion of the dinner there were the usual small groups engaged in fervent discussions of aeromodelling problems not forgetting a doubtful after-dinner story told in perfect French by Technical Editor Peter Hunt, a relic of no doubt his R.A.F. experiences in France during the War!

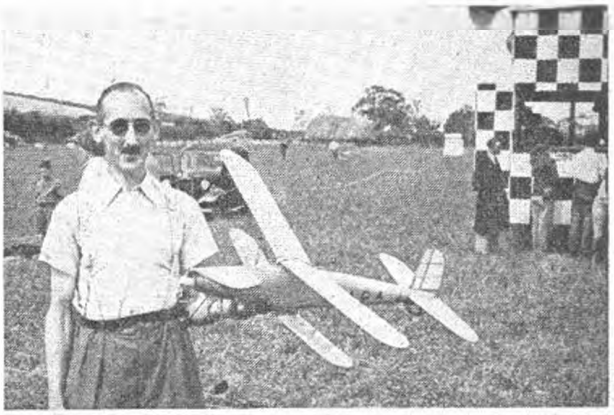
In spite of Saturday night many models were airborne before breakfast on the Sunday and the workshops were soon buzzing with activity as last minute modifications were carried out.

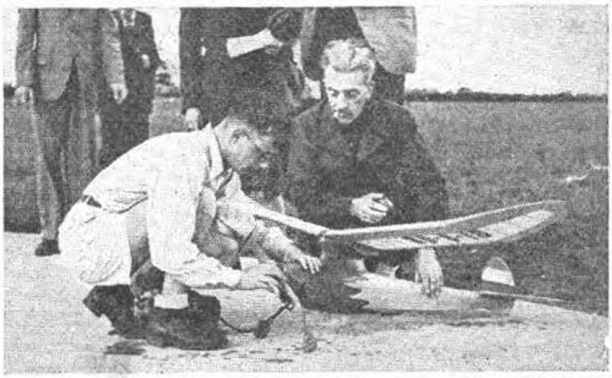
Crowds of visitors were now arriving and British enthusiasts were busy assembling and testing their models. Clubs were arriving by the coach load, from as far distant as Cardiff, and with perfect modellers' weather at hand it was obviously going to be a grand day.

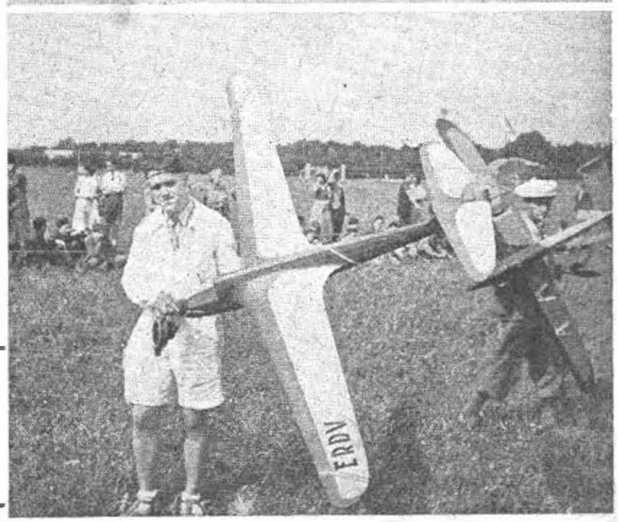
M. Tournadre won the Concours with a beautifully constructed monocoque biplane with Mr. Terret of Great Britain second with a scale petrol-driven Gipsy Moth, and M. Ferber of Belgium third with a diesel-powered scale Piper Cub.

Soon the Wakefield and Open Rubber events were well under way and with a total of 95 entries the time-keepers were kept busy. Here in contrast to other events British entries predominated, but this was mainly due to the lack of this type of model among the Continental enthusiasts, a result of the complete absence of rubber and [illegible] age of balsa on the Continent.

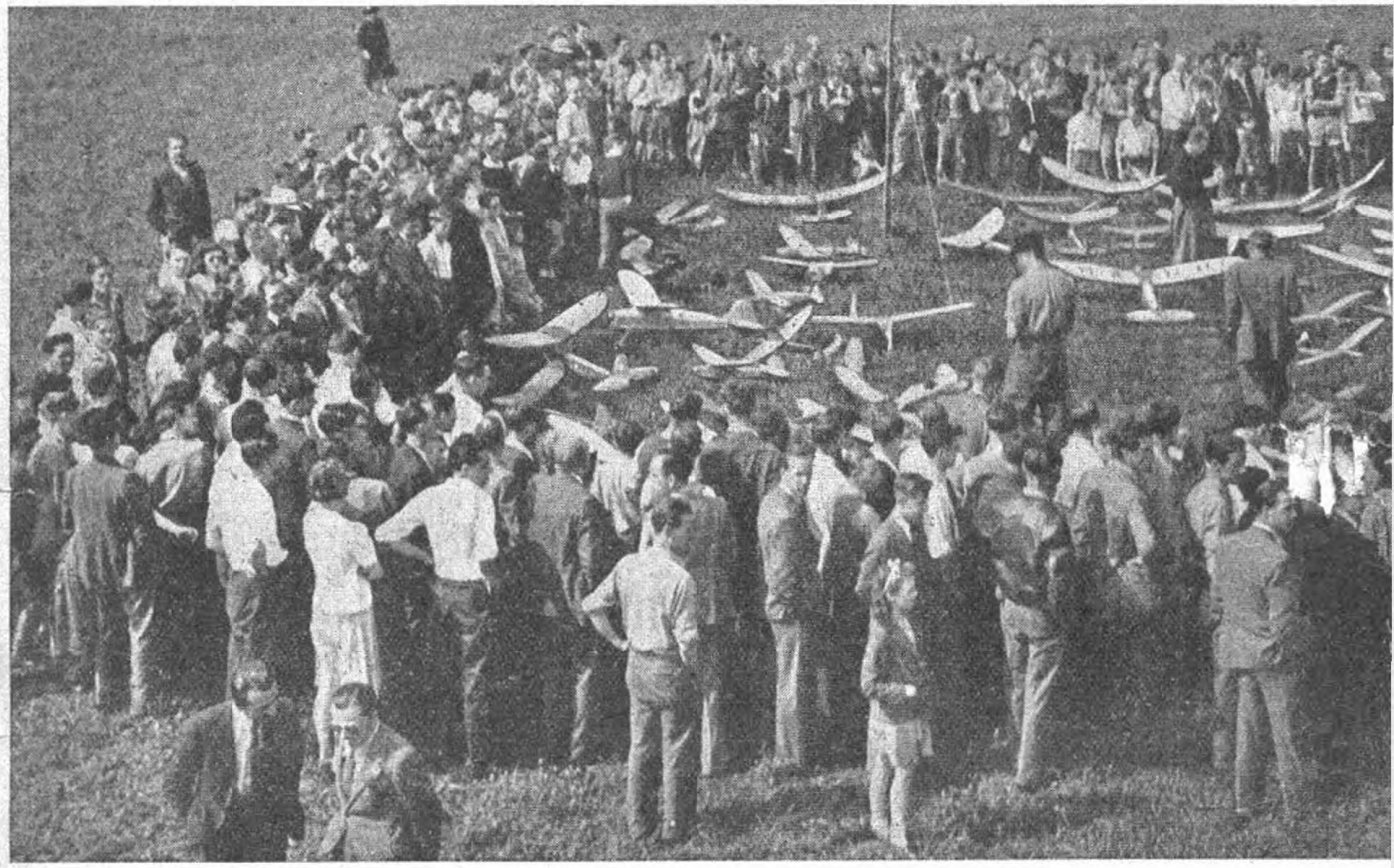
In point of fact nearly all the foreign entries that were flying had been built during the week at Eaton Bray, and it is worth noting that M. Clasens of Belgium won the Wakefield contest and M. Fillon of France came third in the Open event which portends well and should serve as a warning for us to look to our laurels in future International events. Mr. A. J. Barr of Coventry with an excellent flight of 12 mins. 17·5 secs. won the Open event, ably supported in second place by Mr. H. White of Luton with 11 mins. 59·5 secs.





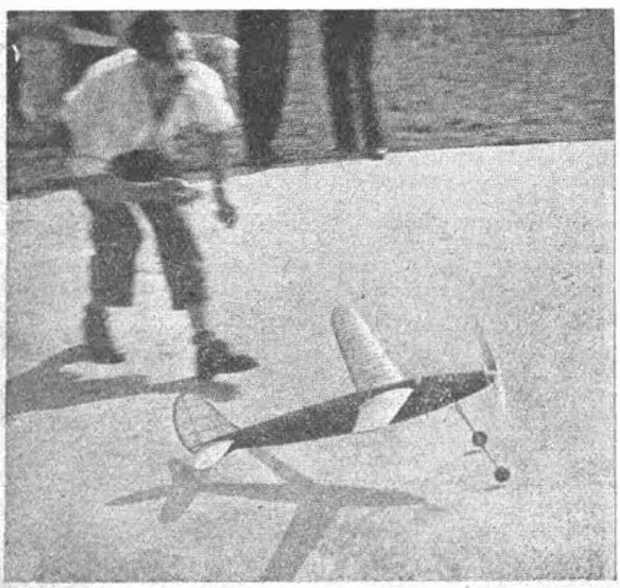


M. Tournadre of France with his beautifully finished monocoque rubber-driven biplane. M. Ferber of Belgium with a flying scale, diesel-powered Piper Cub. M. Severin of Belgium assists M. Kuyl of Holland in starting his petrol model. M. Fillon with his magnificent sailplane that won both the Concours and the Sailplane Contest.

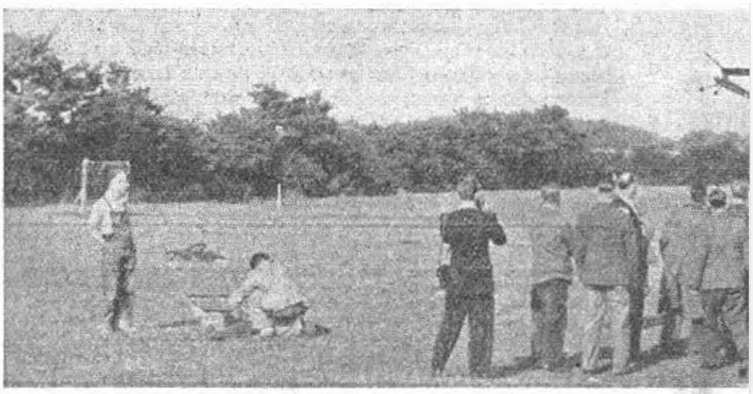


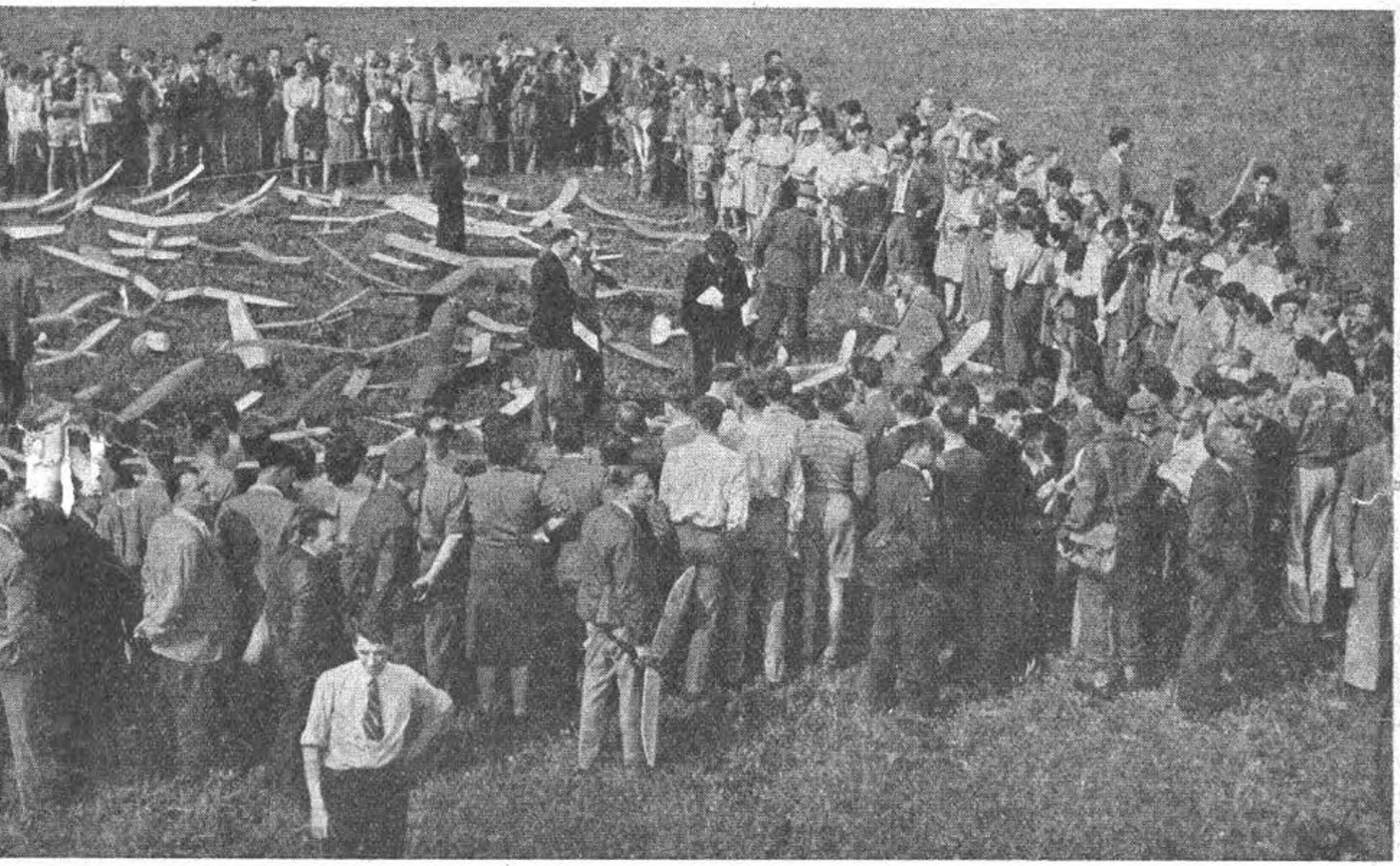
Our old friend Mr. G. W. W. Harris came second in the Wakefield flying a streamlined model with his familiar skill. A word of praise to another well known modeller, George Temple, who arrived rather late by train with a badly cut hand and 14 stitches in his leg, having skidded off his Brough at 75 m.p.h., with a petrol model across his knees! Such is enthusiasm, and we need hardly add that the model was U.S.

At the conclusion of the rubber model events a demonstration was given by M. Bougueret and Mr. Boys, the rocket kings. But to quote the famous tag, "The best laid plans of mice and men . . ." Fate, or should we say French rockets, took a hand. M. Bougueret's



Above, shows the Concours d'Elegance in full swing with a large crowd in attendance. Left is Mr. H. C. Aitken of Great Britain getting his streamliner away nicely in the Wakefield event.

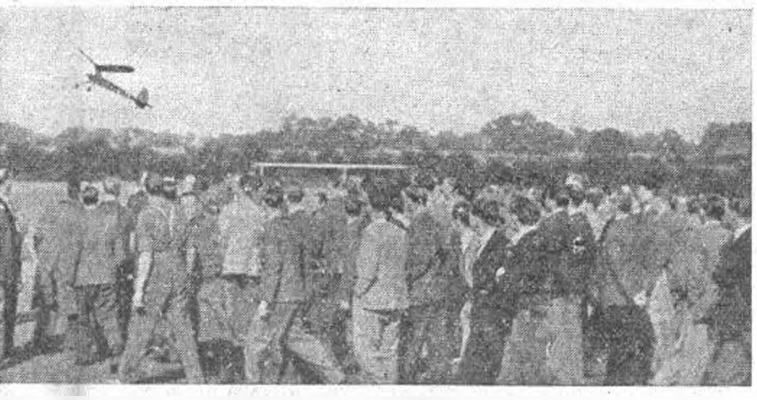


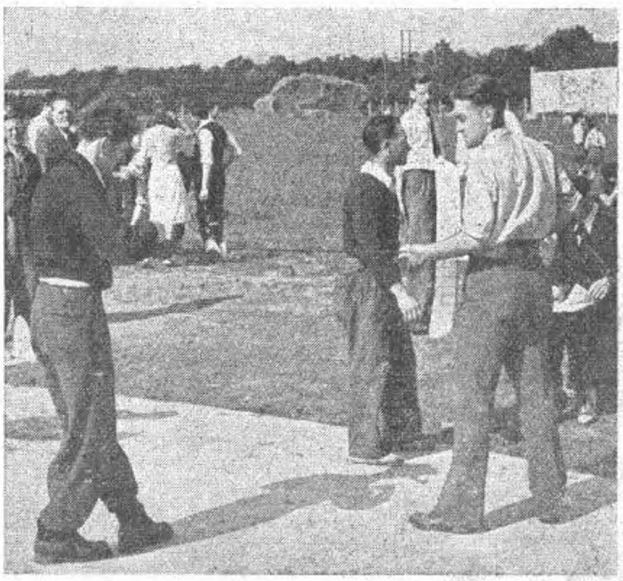


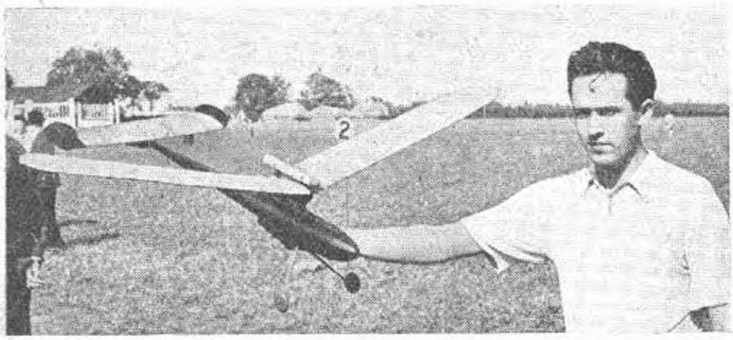
model had just become airborne when a loud explosion occurred which completely wrecked the machine. Mr. Boys' flying wing met a similar fate a few minutes later. Although entertaining for the spectators it was an unfortunate occurrence as both models had flown consistently before the demonstration and the trouble was due to the faulty French rockets they were using.

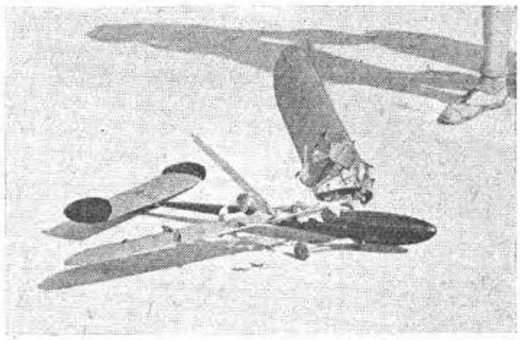
Many interesting models that had not been seen the previous Sunday were brought out for the Power event. Those by the Czechoslovakian competitors being extremely unorthodox to say the least. One diesel-driven pylon wing model had a stick fuselage with what appeared to be a small beer barrel at the forward end.

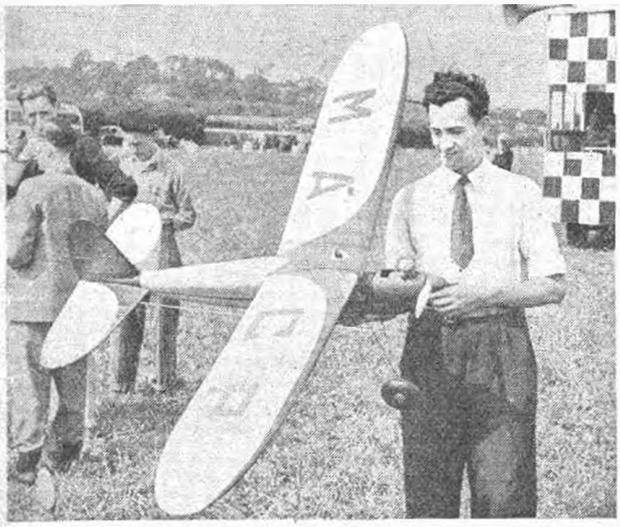
Below, workers at Messrs. Percival's Aircraft Factory watch a diesel model demonstrating its amazing climb. Right, Mr. Tage Hansen of Denmark piles on the turns in the open contest.









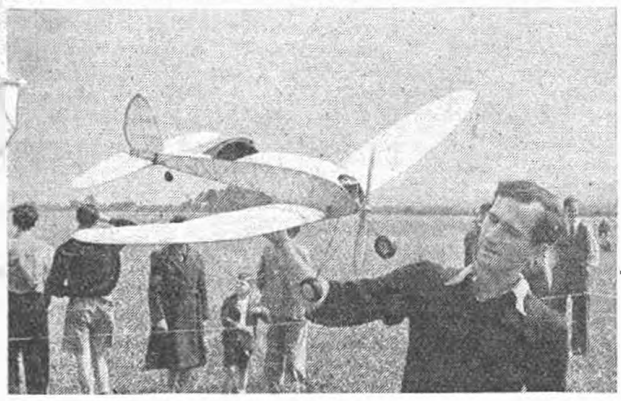


Above, M. Bougueret with his rocket model and a view of the model after its rocket had exploded. Left, M. Varache of France with his smart looking 5 c.c. diesel model.

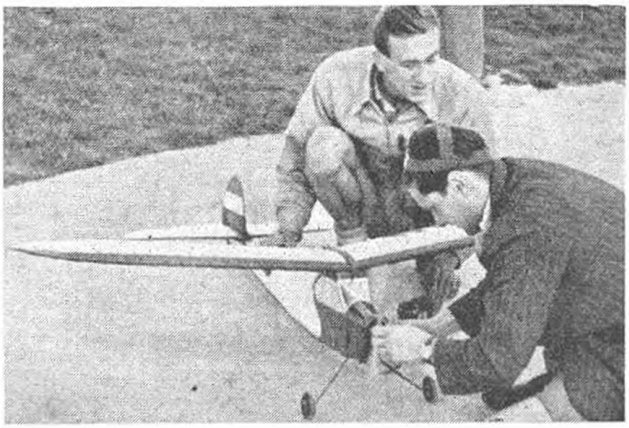
It was, however, an orthodox model built by Mr Horejsi of Czechoslovakia that won the contest with splendid time of 2 mins. 30 secs. from the specified 20 seconds motor run. Fillon was second and Kuyl of Holland third. The highest British competitor out of a total of 50 entries was G. W. W. Harris who placed thirtieth, due to a recalcitrant motor. We name here the other three British competitors, for there were only four in all, so that they may be held as an example to petroleers in general. They were Messrs. Blackburn, Horner and Ginns and to them and Mr. Harris a vote of thanks is due for at least putting up some sort of a show against large foreign entries.

A very large crowd were treated to more than the usual amount of thrills with diesel and petrol models of six different nations screaming skywards in a steady stream. Mr. Brandwood, the only American competitor, flying a typical American contest model placed well with 61 secs. Most of the other petrol models showed their usual reluctance in starting and it was a pleasure to see the diesel machines being flown off in rapid succession with no bother whatsoever.

However, all good things must eventually come to an end and soon the usual enthusiasts who could not tear themselves away were being called over the loud-



Left, M. Vaysse of France with a diesel model he built during International Week. Bottom left, M. Jancarik with his unusual diesel model. Below, Messrs. De Kat and De Leeuw of Holland start their petrol model.



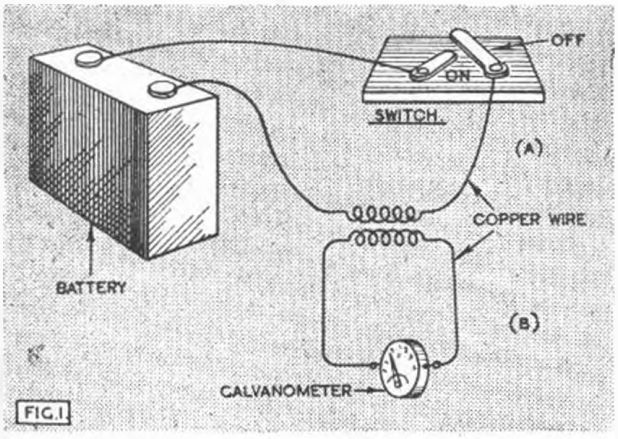
Above, Members of the Belgian team conducting winding operations: note the shade being provided for the rubber! Top right, Mr. Brandwood of America with his contest model. Right, M. Tournadre with a typical French glider.

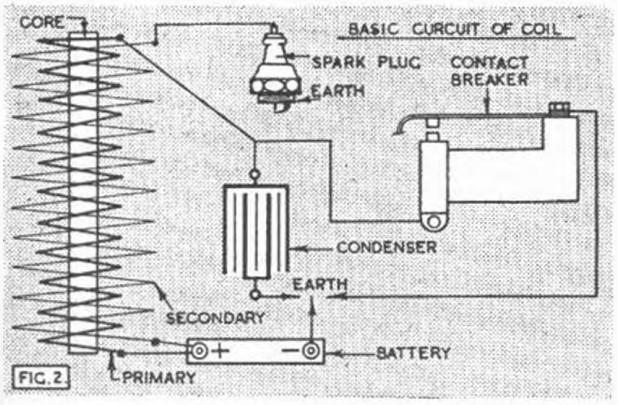
speakers to report to their coaches. We can understand their reluctance on this occasion as the French and Belgian competitors were very sportingly selling off their diesel engines at extremely reasonable prices. In fact, with the bargaining in pidgin French and English, accompanied by much gesticulating and arm-waving, etc., that was taking place, Eaton Bray had the appearance of Caledonian Market on a Saturday afternoon!

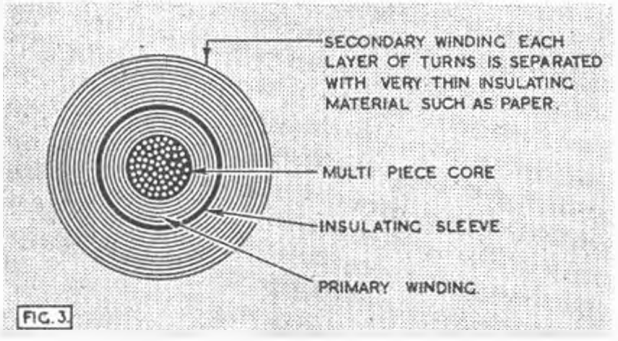
Eventually goodbyes, au revoirs, and farewells in a multitude of tongues were exchanged, with one and all agreeing that it had been a grand day in all respects. The British visitors commenced their homeward journeys and our foreign guests returned to their dormitories for their last night at Eaton Bray. By lunch time on Monday the waiting coaches were packed tight in true aeromodelling style with boxes of all shapes and sizes, as the last of our visitors squeezed aboard to drive off on the first stage of their homeward journey amid mutual expressions of goodwill and friendship.

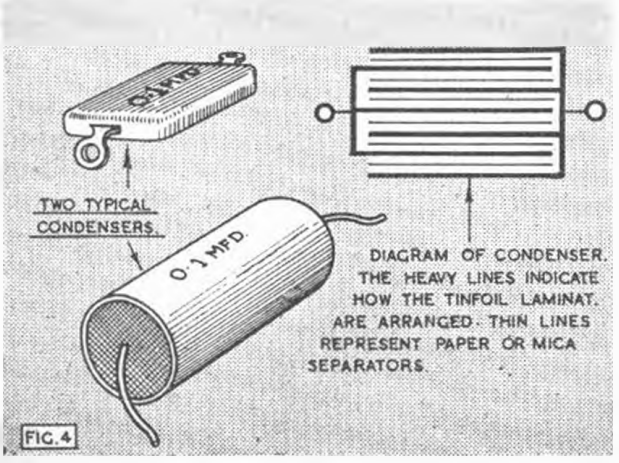
Thus came to an end a memorable week that has done more than anything to establish this country as an International Aeromodelling Centre in the eyes of enthusiasts throughout the length and breadth of Europe.

Right, an International Group with Father Amiard in the centre. Bottom right, M. Guillemard with a very graceful gull-wing sailplane. Below, a 5 c.c. shoulder wing diesel model of M. Vaysse's taking off.









BASIC POWER

A SERIES FOR THE NEWCOMER TO

Part 1. Ignition

Ignition Coils.

Today ignition coils are usually referred to (in our sphere) as spark coils, ignition coils, or just coils. But the older and more correct title is inductive ignition coil. According to the dictionary, Induction (Elect.) means: (1) The production of an electric or magnetic effect by one body upon another without contact. (2) An electric or magnetic condition produced in a body when placed in an electric or magnetic field. This is the basic principle on which our spark coils depend. This induction principle can easily be demonstrated (see Fig. 1A). Here you will see a simple electric circuit composed of a battery and a switch connected up by wire. The switch, you will notice, is in the *Off* position. If we place a second circuit in close proximity to the first (see Fig. 1B), composed this time of a coil of wire with its ends connected to a galvanometer (a sensitive instrument for recording electrical current), we can show that by manipulating the switch *On* and *Off* the galvanometer needle will be disturbed and will flick backwards and forwards in sympathy with the switch contactor.

Now, in a spark coil the first circuit of our experiment is known as the *Primary* and is a length of insulated wire wound round an iron *Core*. This core helps to promote the induction phenomena (see Fig. 5). The ends of the coil are connected as before, but this time, as the switch will be mechanically operated, it will henceforth be termed a *Contact Breaker*, and instead of saying it's *On* or *Off*, we will say *Closed* or *Open*. This, so far, with one exception (the condenser), is the primary circuit. The secondary circuit is brought in close proximity by winding it over the primary windings with often a thin, insulated sleeve separator (see Fig. 3).

The two ends of the secondary coil are connected to the sparking plug and earth respectively. The current developed in the primary coil is induced into the secondary coil. The intensity of the current flowing through the two circuits is governed by the thickness and length of the wire used in each circuit. In practice, the windings of the primary consist of, for example: 200 turns of 26-gauge enamel-covered copper wire, and the secondary of 12,000 turns of 46-gauge enamel-covered copper wire. This is very thin wire indeed. A difference in the ratio of turns of 60–1 is probably the average for modern ignition coils. You will find on looking at the complete wiring diagram (Fig. 2), which will be gone into presently, that the circuit is a bit more involved than just described. More experienced readers, however, must be tolerant for the benefit of the younger and inexperienced, who must be considered.

The Condenser.

Reference was made just now to the condenser. This is the little joker that is sometimes blamed for the more obscure of engine troubles. It rarely meets with any respect or consideration, or, for that matter, any care. It happens, however, that this little morsel of mystery is very essential, and a glimpse into the task it has to perform will be sufficient to see why it should merit as much care as any other vital part of your power unit. First of all, what does it do?

The answer given to this question is invariably "It prevents undue sparking at the contact breaker points."

MODELLING

POWER MODELLING BY G. W. W. HARRIS

This answer is of course correct, but unfortunately misleading, because it is inadequate. It is apt to leave our novice with the impression that if it only reduces sparking at the C.B. points it cannot be very important—" after all, what's a few sparks matter ? "

We must revert to basic principles for a moment. When the current from the battery flows through the primary windings, the iron core is magnetised ; the current flows for that brief time when the C.B. points are closed ; when the points open, the current ceases to flow and the iron core is de-magnetised. In the interests of efficiency this de-magnetisation must be extremely rapid, and it is the task of the condenser to remove the self-induced current from the primary by absorbing it, thus bringing about an instantaneous collapse of the magnetic field. Actually, there is a current surge that takes place between the primary and condenser. The speed of this surge is something like the speed of light (180,000 miles per sec.). That the self-induced current exists is shown by testing an ignition circuit without a condenser connected across the C.B. As the points open a fat spark will be observed and heard jump across the opening points. With a condenser shunted across the C.B. points there will be but the faintest of sparks.

A condenser is composed of sheets of tinfoil, separated by a non-conductive material such as wax-paper or mica (Fig. 4). The sheets of tinfoil are connected up as shown. For convenience, this little lot is rolled up and fitted inside a cylindrical container.

It will now be obvious to you that the condenser is not to be ill-treated. If it is the type that has protruding wire tags, great care must be taken when soldering the connections that the condenser is not heated, or trouble will be sure to follow.

Some condenser cases are not oil- and petrol-proof, so care should be taken to see that they are not in a place where they can be so affected. Condensers should be fitted as near to the C.B. as is reasonably convenient.

Contact Breaker.

Because this item is mechanical, it's the weak link of the ignition system ; regrettable, but true. Any bother that emanates from this source often causes trouble elsewhere in the circuit. For instance, fouled points will often for various reasons be the cause of that state of affairs when one happens to inspect the coil and finds that it's resting in a pool of pitch and paraffin wax—unless your coil happens to possess a hermetically-sealed case which won't leak. The internals will then probably be stewing in their own juice, so to speak, and you may at the time be none the wiser. For this reason, when engine-starting trouble is prevailing, it is desirable to form the habit of feeling the coil for signs of warmth. If it is unduly warm, then let it cool before continuing any further tests.

We know already that a low voltage is sent through the primary windings of the coil and that this current is interrupted by the contact breaker ; also that these fluctuations (influenced by the condenser) induce a very high voltage current into the primary. The high tension voltage can be anything between 10,000–20,000 volts. It will be obvious that for two-stroke engines the contact breaker must make and break every revolution of the crankshaft. This means that any working, or rather moving parts, involved in the contact breaker must be

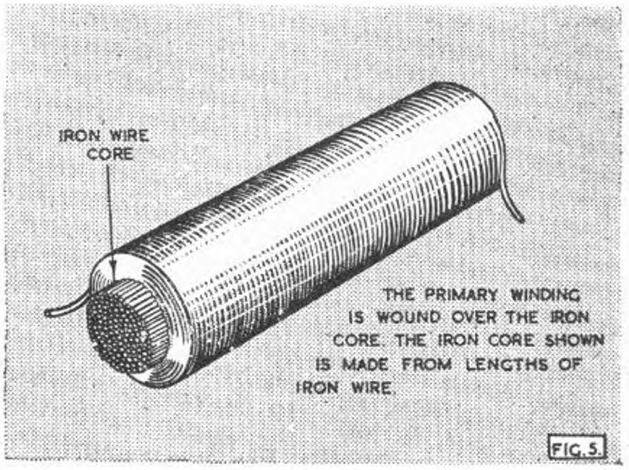


FIG. 5.

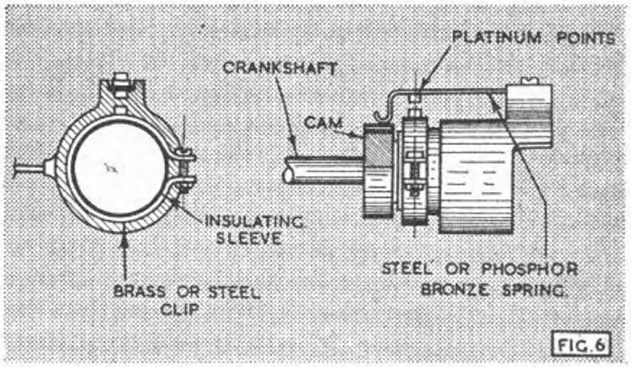


FIG. 6.

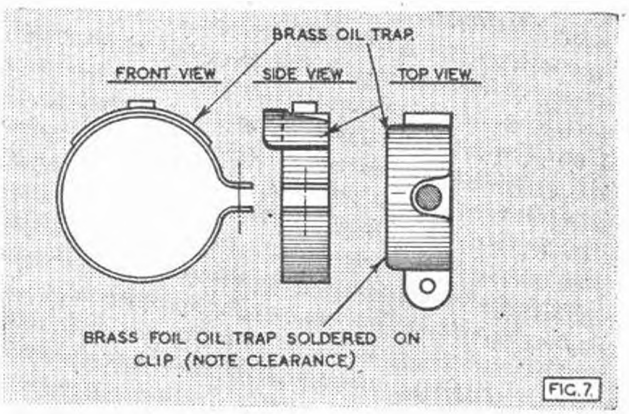


FIG. 7.

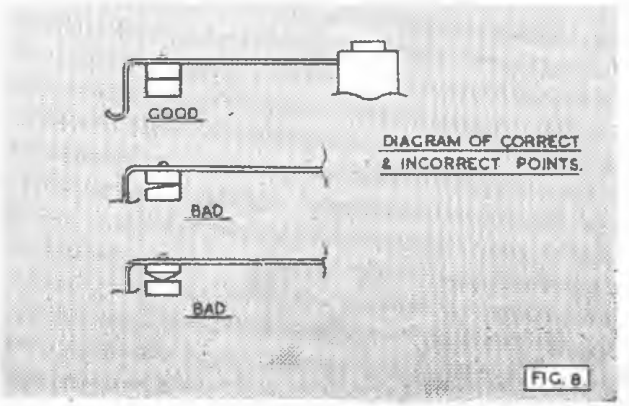


FIG. 8.

light, strong (*i.e.*, stiff), and friction must be kept to a minimum. Fortunately for us, one of the most efficient and trouble-free types is also the simplest (see Fig. 6). This type is fitted to many makes of engines. The spring is usually phosphor bronze. One snag with this type of C.B., and many others for that matter, is that oil thrown out by the crankshaft makes its way up the face of the main bearing bush across the insulated clip, and finally accumulates around and between the C.B. points. To reduce this possibility I have tried fitting a small oil trap or retainer around the base of the fixed point. This scheme when tried out on a Bunch Tiger engine and two home-made engines has proved to be very successful, and I recommend its adoption to those who find trouble in this direction. (See Fig. 7.)

While we are on the subject of C.B. points I feel I must emphasise the absolute necessity for the point faces being not only kept clean, but smooth to a degree of mirror-finish. They must be flat and mate up evenly *all* over their faces (see Fig. 8). Partial contact causes high resistance, misfiring, sparking and erosion of the points. Some writers have suggested that the points, or one point, should be rounded off, *i.e.*, convex. Just how this idea came about I do not know, unless possibly they happened to hear or read a few years ago that certain aircraft magneto points were to be so treated; if so, then it should be pointed out here that this order was confined to a certain mark of magneto which was fitted with special points, and that the idea was that the rounded point bedded *itself down*. The only way a smooth, bright finish can be imparted to contact breaker points is by stoning. To do this it is necessary to dismantle the fixed point and with a small oil stone resurface it until it is is shiny and true, fit the moving point in place and check up the alignment of the faces; look for the high spot. Now remove the top or moving point again and proceed to re-surface it—bearing in mind the high spot that has got to be removed. Once this task has successfully been accomplished, subsequent cleaning will be confined to wiping with slips of paper only, for many a long day. Filing will not be necessary or desirable. Experience has shown that for our purposes magneto files are definitely unsuitable.

To be continued.

Readers' ..... Letters

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

DEAR SIR,

I visited Eaton Bray on Sunday, August 25th, which was the second meeting of your International Week, and since this was my first visit I felt that I should like to pass you word of appreciation.

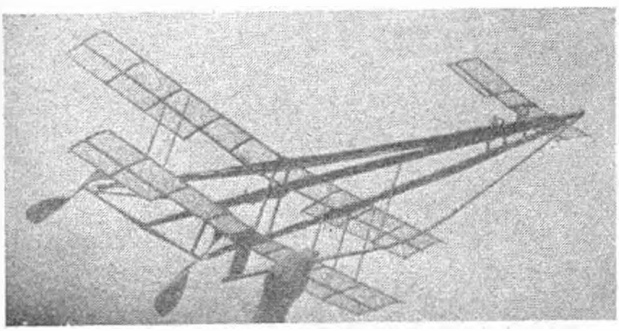
I had previously heard quite a lot about Eaton Bray, and had also heard quite a bit of criticism, but I must say that my visit dispelled any justification for criticism. I was very impressed with the general lay-out of the whole place, and particularly so with the organisation and the running of the various competitions.

Whilst you already have two large circular concrete take-off discs on the ground, I understand that these are going to be augmented by a further four or five in due course, and I cannot help feeling that it is a great pity that this Model Aeroplane Drome cannot be made the recognised rendezvous of all International and National Centralised Contests in this country.

It is well situated " amidships " our Island, and the general geography of the whole place makes it, in my opinion, ideal for the job. It is my belief that the average modeller interested in competitions would welcome some fixed point for these competitions rather than having the present position with no fixed " home." This will certainly not be my last visit to Eaton Bray.

Incidentably, talking of canards, what about this? Built and flown in 1916!

Birmingham. H. J. TAPLIN.



DEAR SIR,

Although my experience with engines is quite limited, it extends over some years. Here is one point which may help modellers.

An engine without cowling forces the air directly backwards over the petrol tank, past the filler cap, probably fitted with an inlet hole.

I have found that this condition produces a powerful suction (acting over the hole like a spray). This spray of petrol can extend several feet to the rear—resulting in wasting petrol and opposing the suction on the jet feed. By placing an inch of plastic tube on the filler cap and slicing it off to a point like a cat's ear, with the ear facing the airscrew, the result is now a pressure air feed into the tank. With my engine (a 2·5 c.c.) it has completely cured a very puzzling habit of irregular running and frequent stoppage.

Mr. Graham Sax by wrote a very interesting letter concerning a creature which had worried him by ticking. The description and drawings are very accurate. They are wingless insects known as booklice or psocids and are very common in most homes. They are very fond of starch paste, and this would account for their presence on the model.

Reading. W. A. SMALLCOMBE, B.Sc.

Also confirmed by several other Aeromodelling Entomologists. (ED.)

DEAR SIR,

I have read your article on the thermo-electric primer and also of the difficulties which arise from rubber tubing when used for connections. I should like to point out that if polyvinyl chloride tubing is used no difficulties will be experienced, as this plastic has a very high resistance to solvents. This tubing is now available commercially and can be bought at any hardware or electrical shop.

Co. Durham. LEO A. CULLINAN.

DEAR SIR,

I see that in the A.M. recently Lt.-Col. C. E. Bowden mentions that the capacity of the Ohlsson 23 is 4·3 c.c. If anyone troubles to work it out they will find that it is really 3·8 c.c.—a difference of ·5 c.c. I hope that you publish this letter or make some note in the A.M. in the very near future, as nearly every modeller seems to think that it is 4·3 c.c. I heard it mentioned twice at the Northern Area Rally which I attended yesterday, and each time it was described as 4·3 c.c.

Halifax, Yorks. D. STOLLERY.

Over to You

THE BOFFIN'S NEWS OF MODELLERS OVERSEAS

The Boffin by nature must fly all lopsided,
An instrument panel not being provided,
But allowing for drift,
The whole thing's a gift,
He aims at a hangar and comes down insided.

Red Sky on the Volga.

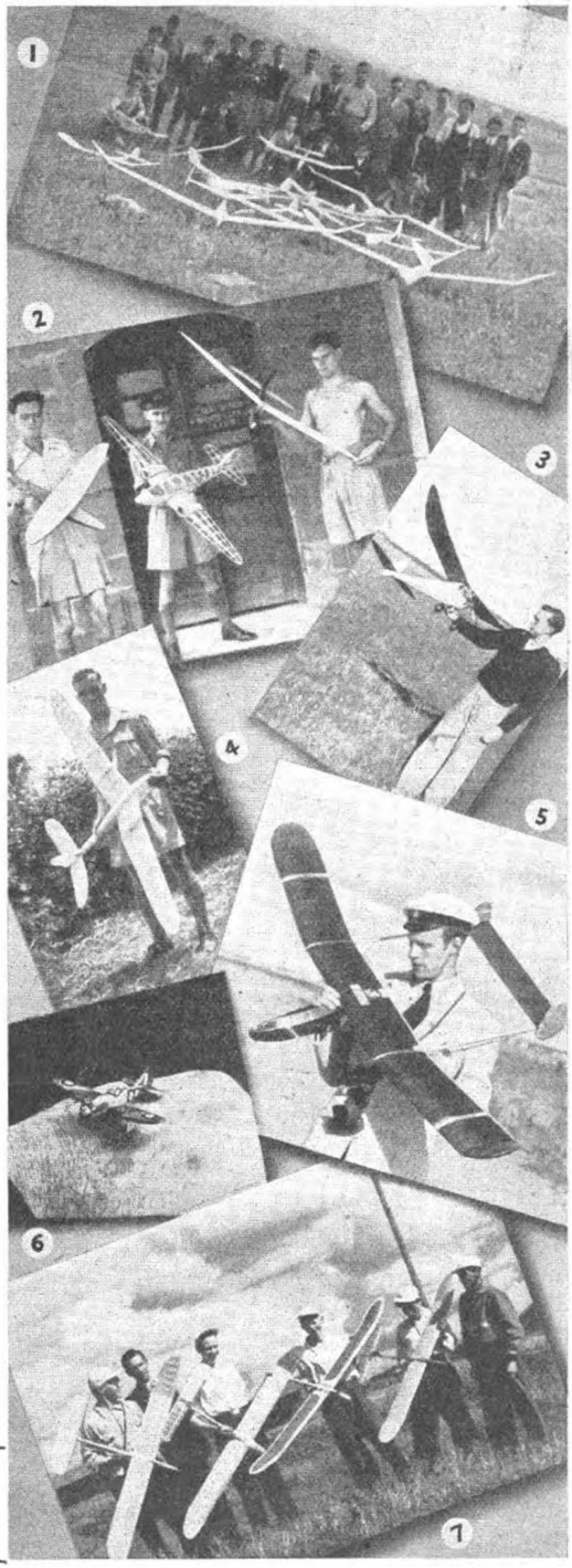
Russian model activity always makes news, and the Boffin is indebted to G. Ralston, of Bournemouth, for the story of a typical record-breaking Aviation Week, when an All-Union Rally took place recently on an airfield just outside Moscow. Organised on a lavish scale, the entrants were brought by air, at the government's expense, from the most distant parts of the country. Judges and timekeepers were selected from well-known Russian aces and designers, including such men as fighter-plane designer Lovochkin and their number-one pilot, Androsinki. Red Air Force planes controlled the meeting from above and recorded altitudes attained by the models. Under ideal conditions, three world records were claimed during the rally: petrol-driven altitude at over five thousand feet, petrol-driven duration at one hour forty minutes, and rubber duration at forty-three minutes. This last, incidentally, has already been beaten, and NOT by the Soviet Union.

Squatters out at Mauripur.

Further news of our friends at Mauripur, in the India Command, reveals that the original club, made up from a lodger unit, has now been replaced by a more permanent group formed from the regular personnel, who will not suffer further from constant changes of quarters. An excellent clubroom is now available, and weekly meetings are very popular. Sixteen gliders have been completed and a number of flying scale jobs, such as Fokker D VIII, a 78 in. span Vickers Vimy, and Fairey Albacore, not to mention numerous free-lance duration models and many solids.

Activity in the Antipodes.

Our postbag is quite often swollen these days with gen from friends down under, and space alone prevents making more of their activities. If the many Australians and New Zealanders who have written would like a special " Over to You " all to themselves, rally round and let us have some more good pictures—then the Boffin will go swagsman and do his best. This month we have pictures of the large and the small. A miniature Tempest reposing on the brawny knuckle of John Robertson from Kellyville, N.S.W., and a Morden powered model with builder A. Gregory. For this latter we have to thank Norm Bell of Canterbury, Victoria. The Morden is another Aussie motor that rivals the Whirlwind in popularity. A/C's Rose and Legg of H.Q. Air Command, South-East Asia, qualify for the hard way medal as builders of splendid jobs from tea-chest ply, local bamboo and seccotine in the peace and quiet (sic) of a large billet.



1. The Aeromodelling Club of Palmas do Majorca. 2. Members of the Mauripur Club outside their headquarters. 3 Victorian modeller A. Gregory with his latest effort. 4. A/C Legg with his 50-in. " Bambi " from S.E. Asia Command 5. Sigurd Isaacson Swedish aerofoil expert, with his " Scout ". 6. Miniature from Kellyville—J. Robertson's " Tempest ". 7. Finnish team at their Scandinavian invitation meeting.

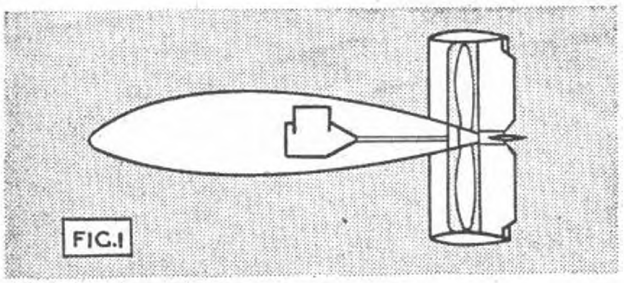


FIG.1

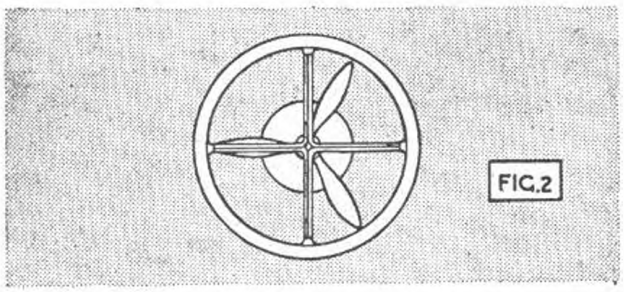


FIG.2

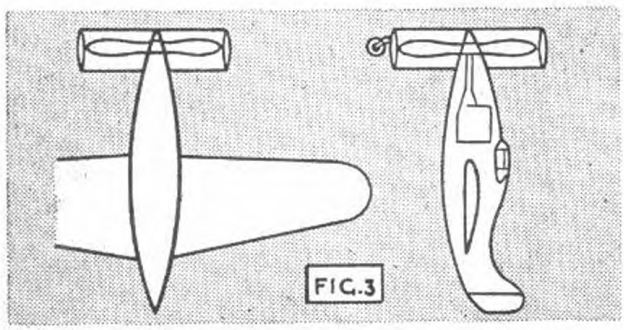


FIG.3

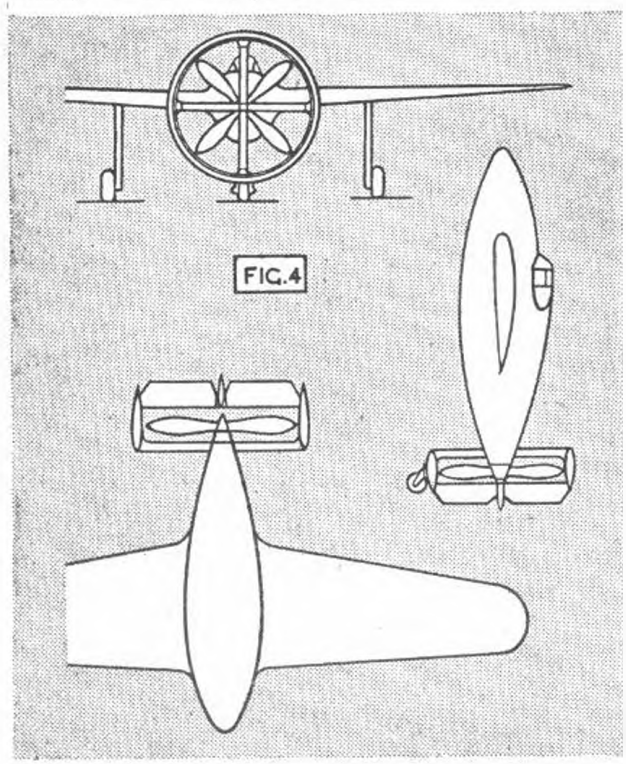


FIG.4

NEW AIRSCREW INSTALLATIONS

SUITABLE FOR MODEL AIRCRAFT

BY Dr. Ing. F. PIATTELLI

THE advantages of enclosing a propeller in a ring or venturi tube of suitable shape and proportions have long been known to aircraft and naval designers. Definite positive results have been obtained in practice in marine applications, and the whole theory of an airscrew operating inside a tunnel is already well developed. The main advantages to be obtained through a uniform distribution of the lift (or thrust) forces along the blade span, elimination of some centrifugal effects, regularity of flow, etc., are no longer the matter of discussion. Practical applications in full-scale aircraft are, however, very scarce. The main difficulties preventing the introduction to aircraft design of a ring or tube around the airscrew are connected with the drawbacks arising from the installation of a bulky and heavy item having no other purpose than in increase of airscrew efficiency, which is already very high, especially with modern variable pitch versions. Thus the added complication can only be admitted if some additional purpose is found in the general design layout for the ring or tube.

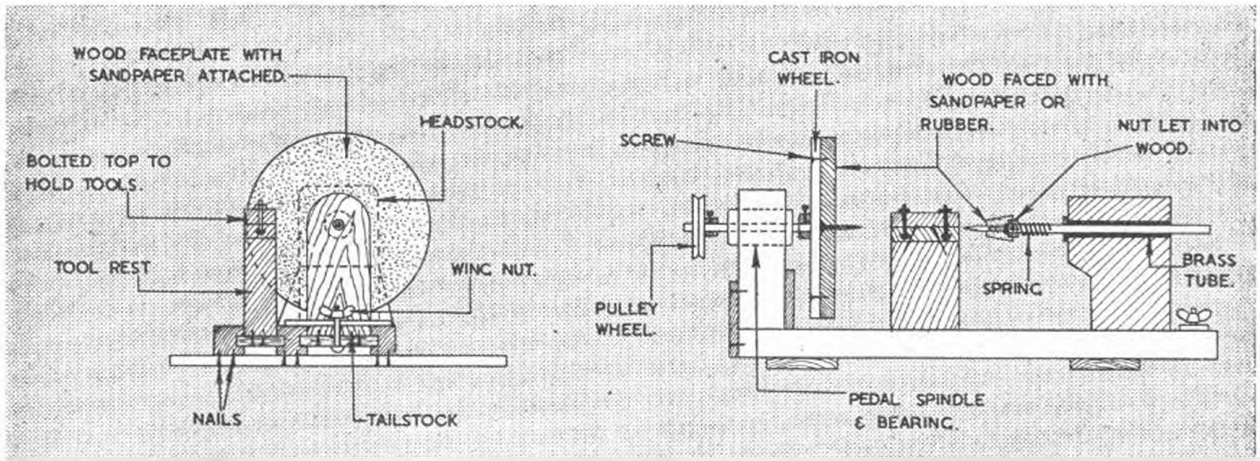
The writer is now proposing to adopt a new form of enclosed airscrew design, in which the ring is limited in length longitudinally, being no longer than its maximum diameter. The ring is built into the general design of the aeroplane to take the place of stabilising and control surfaces, thus combining its effect on the airscrew performance with the function of the more conventional tail surfaces.

The accompanying sketches (from the patent specifications) give some idea of the way in which the new idea may be embodied in design. It should be borne in mind that no attempt has been made in such sketches to reproduce true proportions, and the dimensions of ring and airscrew have been exaggerated on purpose for the sake of clarity.

The side area of the tube is obviously suitable as a stabilizer, and a ready comparison can be made with the corresponding tail surfaces used in bombs. Control may be achieved through vertical and horizontal movable surfaces, to be arranged inside the ring in the slipstream, as in Figs. 1 and 2, or by means of trailing edge hinged sections, similar to the movable gills of modern cowlings.

The effect of the new device on the general performance is also influenced by a pronounced effect of the slipstream on fuselage drag and tail-plane action. Forcing a steady and well limited cylinder of moving air against a conventional-type fuselage in a tail-first design, as in Fig. 3, may result in concentrating the slipstream effects to a small portion of the aircraft and improving the fuselage drag, the air fillets being kept well close to the shape of the body. The suction effect from the ring, in a more conventional layout, as in Fig. 4, should also notably improve the flow pattern along the fuselage and on the central portion of the wing and its fillets.

We will be very interested to hear from readers who have conducted experiments with the airscrew installations outlined in this article.— (ED.)



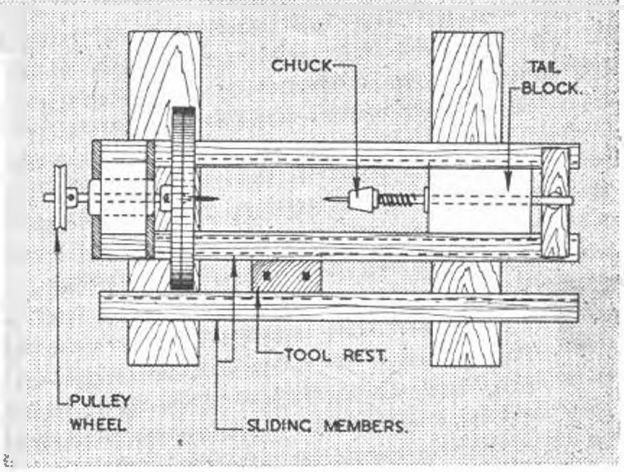
WOT! NO LATHE?

A SIMPLE DESIGN BY B · WINTERBURN

AN almost impossible business, making wheels without a lathe. Not only wheels, but many other things in aeromodelling cry out for help from this very useful piece of machinery. Is there anyone who would damage his fingers and temper with razor blades and sandpaper rather than get his work done in a tenth of the time sitting peacefully treadling? Or better still, having half his work done for him by a small electric motor? "Yes," says the enthusiast, gloomily, "it all sounds very nice. Only, what the—— do you think I am? The Bank of England? Do you know the price of a lathe?"

Yes, we *do* know, but for model work a huge and intricate machine is unnecessary. All that is needed are the bare components, headstock, tailstock, bed and tool rest; Mr. B. Winterburn of Guiseley, Leeds, supplied us with the solution. You don't have to possess a fully-equipped workshop to make this little lathe, nor do you need to lay out a fabulous sum for its construction. The components are mainly made from odds and ends such as are found in every tool-shed.

Originally, the lathe was designed for turning wheels, but it may easily be adapted for shaping any other items, such as spinners, etc. There are no measurements on the drawing, as the design allows for building to any size, according to the materials available. The original model comfortably took a six-inch wheel, which covers practically all modellers' requirements. It was fastened by means of G-cramps to the top of a small, treadle, circular saw bench. The drive was by a belt from the flywheel to the small pulley wheel, but an old sewing-machine and a cord drive would be equally effective. In use, this little lathe has proved very successful and has more than paid for the few materials that had to be obtained for its construction. Therefore, duly convinced fellow-enthusiast, when a friend, with heavy sarcasm, says: "Do you know the price of a lathe?" do not crawl away but bring this page before his jaundiced eyes, and, with the aid of a piece of chalk and an editorial Goon, inscribe his work-bench for posterity—Wot! No Lathe?



Headstock.

The bearing for this was the pedal bracket cut from an old bicycle frame. It was cleaned and fitted with new ball bearings, and was then let into a block of wood and the pulley and face-plate wheels fastened on. The large iron wheel was obtained from an old mowing machine. The spokes were bored and the wood face-plate screwed to it. This is squared from the bed when fastened to it.

Tailstock.

This is bored to take the brass bearing and trued up by squaring off the spindle. The spindle is screwed at one end and fitted with a spring which will slide on easily. The chuck is of hardwood with a screw through for the centre and a nut embedded in it so that the whole screws onto the spindle. The tailstock body should be a good fit between the two bed-pieces, with no sideways play. The tailstock is clamped in position with a wing-nut and bolt.

Lathe Bed.

This was made from red deal, ploughed out to take the sliding members, which must be a good fit in the ploughs with no up and down play. A little candle grease rubbed on these will make them slide easily.

Tool Rest.

The tip of this must be level with the centres, and fitted with a bolted top to hold the tools. Tools can be made from old files. Cut the object roughly to shape (a centre hole being made with a pricker) and place it on the face-plate. Bring up the tailstock until the spring is compressed, fasten the wing nut—and get cracking.

(*Central Press Photo.*)

GLOBETROTTER : *The famous Empire Navigation School Lancaster, "Aries", bears a record of each flight on the fuselage, alongside the station Crest.*

(*Peter M. Bowers Photo.*)

THOMPSON WINNER : *Special racing P-80 used by Major Gustav Lundguist to win the U.S. Thompson Trophy (Jet Division) at an average speed of 515 m.p.h. Aircraft is grey with red decoration.*

KEY TO EUROPE : *First Viking in service with B.E.A. is "Valerie", G-AHOP. All lettering is in red.*

(*Air Review Photo.*)

MONTHLY MEMORANDA

BY O · G · THETFORD

VIIIth Air Force B-17 Coding.

Following our list of B-24 Liberator tactical and group recognition markings in the previous issue, we now present a table of similar information on the B-17 Fortresses of the VIIIth Air Force in England, 1943-45. Liberators formed the Second Air Division, and Fortresses comprised the First and Third Air Divisions of the VIIIth Air Force.

FIRST AIR DIVISION.

Bombardment Group.	*Station.*	*Group Letter.*	*Markings.*
91 Bomb Group	Bassingbourne	"A"	Vertical red stripe on fin, all-red tailplane. Red wing-tips.
381 Bomb Group	Ridgewell	"L"	Vertical red stripe on fin, all-red tailplane.
398 Bomb Group	Nuthampstead	"W"	Vertical red stripe on fin, all-red tailplane.
303 Bomb Group	Molesworth	"C"	Red triangle on fin.
379 Bomb Group	Kimbolton	"K"	Yellow triangle on fin.
384 Bomb Group	Grafton Underwood	"P"	Black triangle on fin.
92 Bomb Group	Poddington	"B"	Red horizontal stripe on fin and rudder.
305 Bomb Group	Chelveston	"G"	Green horizontal stripe on fin and rudder.
306 Bomb Group	Thurleigh	"H"	Yellow horizontal stripe on fin and rudder.
351 Bomb Group	Polebrook	"J"	Red diagonal stripe on fin and rudder.
401 Bomb Group	Deenethorpe	"S"	Yellow diagonal stripe (edged in black) across fin and rudder.
457 Bomb Group	Glatton	"U"	Blue diagonal stripe across fin and rudder.

All aircraft of the 1st A.D. had their Group letter in white against a black triangle which appeared on the fin and rudder and above the starboard wing. Aircraft of 41 Wing (303, 379 and 384 Bomb Groups) carried this marking below the port wing as well as above the starboard wing, but this was exceptional.

THIRD AIR DIVISION.

94 Bomb Group Bury St. Edmunds "A" All-yellow fin, rudder and tailplane. Yellow wing-tip. One red band encircling rear fuselage and red "Vee" above starboard wing.

447 Bomb Group Rattlesden "K" All-yellow fin, rudder and tailplane. Two green bands encircling rear fuselage. Yellow wing-tip. Black "Vee" above starboard wing.

486 Bomb Group Sudbury "W" All-yellow fin, rudder and tailplane. Yellow wing-tip. Three yellow bands encircling rear fuselage. Black and red "Vee" above starboard wing, the "arm" nearest the wing-tip being black and the inner "arm" red.

487 Bomb Group Lavenham "P" All-yellow fin, rudder and tailplane. Yellow wing-tip. Yellow and red "Vee" above starboard wing, the outer "arm" being red and the inner "arm" yellow.

95 Bomb Group Horsham "B" Red rudder. Red diagonal stripe above starboard wing.

100 Bomb Group Thorpe Abbotts "D" Black rudder. Black diagonal stripe above starboard wing.

390 Bomb Group Framlingham "J" Yellow rudder. Yellow diagonal stripe above starboard wing.

96 Bomb Group Snetterton Heath "C" Two red horizontal stripes across fin and rudder. Two red chordwise stripes across starboard wing.

388 Bomb Group Knettishall "H" Two black horizontal stripes across fin and rudder. Two black chordwise stripes across starboard wing.

452 Bomb Group Deopham Green "L" Two yellow horizontal stripes across fin and rudder. Two yellow chordwise stripes across starboard wing.

34 Bomb Group Mendlesham "S" All-red fin. Red chordwise stripe across tailplane and wing.

385 Bomb Group Great Ashfield "G" Red and white dicing on fin and rudder. Red chordwise stripes on wing and tailplane.

(*Air Review Photo.*)

Swiss Visitor : *A Swiss Comte A.C. 12 Moskito cabin monoplane seen at White Waltham recently.*

(*Air Review Photo.*)

Weird : *The Weir W-9 Helicopter, PX 203, demonstrating at a recent air display.*

Reversion : *Republic P-47N, showing the rudder stripes recently restored on U.S.A.A.F. aircraft.*

(*Peter M. Bowers Photo.*)

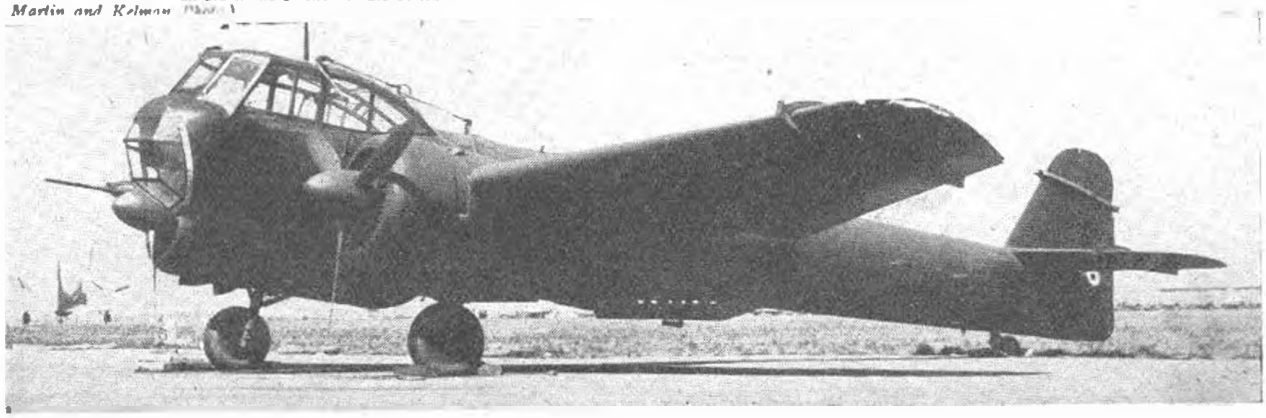
490 Bomb Group Eye "T" Red horizontal stripe across top of fin and rudder. Red chordwise stripe across wing and tailplane.

493 Bomb Group Debach "V" Red horizontal stripe across base of fin and rudder. Red chordwise stripe across wing and tailplane.

All aircraft of the 3rd A.D. carried their Group recognition letter against a black square, on the fin and rudder and above the starboard wing.

Shadower : *Hitherto unrevealed is this Japanese "Lorna" fleet spotter, painted all-black and on show in the U.S.A.*

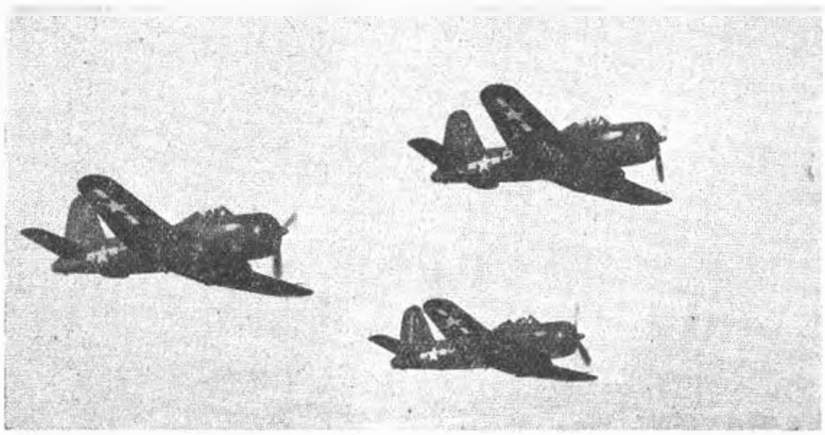
Martin and Kelman Photo.



AEROPLANES DESCRIBED

NO. XLV

THE RYAN FR-2 FIREBALL



AS the first aircraft to combine a normal reciprocating motor/airscrew unit and gas turbine jet unit in the same airframe, the Ryan Fireball could claim to be an innovation in design on its first public appearance at Naval Air Station, Anacostia, Washington, D.C., on 26th September, 1945. The Fireball was the first jet-propelled fighter to go into service with the U.S. Navy and also the first tricycle Navy fighter and the first American jet aircraft to land successfully on an aircraft-carrier, which feat was accomplished aboard escort-carrier *Wake Island* on 6th November, 1945.

The Fireball first flew in July, 1944, with Al Conover, Flight Research Manager and Chief Test Pilot of Ryans, at the controls. The prototype, three of which were built, was designated XFR-1. Later, one of the prototypes was converted to be the XFR-2. Production Fireballs worked through FR-1D, day fighter, and FR-1N, night fighter, models to the FR-2, which mounts the 1,425 h.p. Cyclone in place of the 1,350 h.p. Cyclone of Dash Ones.

The first U.S. Navy squadron to be equipped with the Fireball was Fighting Sixty-Six (VF-66), commanded by Lieut.-Cdr. John F. Gray, U.S.N., and when operating from the U.S.S. *Ranger* off the Californian coast in the autumn of 1945, the new fighter made a tremendous impression with its rocket-like 5,000 ft. per minute climb and its extraordinary manœuvrability and tight turning radius. Though slower than latest U.S. Navy fighters, the Fireball proved unsurpassed in manœuvrability, and the use of both airscrew and jet-propulsion reduces motor failure hazard while preserving low frontal area. Normal take-off, landing and cruising is done on the tractor airscrew, though either airscrew or jet can be used for all operations. The jet is normally used for short bursts of power under combat conditions, and develops highest efficiency at high altitudes where the normal radial loses power. The jet unit is easily accessible and can be changed in four hours. Intakes are in the wing leading-edge, and the ejector nozzle is in the extreme tail. With tractor airscrew fully feathered and using jet alone, the Fireball presents an amazing appearance in flight.

Purpose : Single-seat carrier-borne fighter, U.S. Navy.

Power Plant : One Wright Cyclone R-1820-72 nine-cylinder air-cooled radial motor in the nose and one General Electric J-31 (I-16) gas turbine jet unit in the rear fuselage. The Cyclone radial motor has a maximum take-off power of 1,425 h.p. at sea level.

Undercarriage : Tricycle type, the main wheels retracting outwards into the outer wing panels and the nose wheel backwards into the forward fuselage. Hydraulic actuation. Three-blade Curtiss-Electric constant-speed airscrew.

Dimensions : Span : 40 ft. 0 ins. Length : 32 ft. 1 in. Height : 13 ft. 7–5/16 ins.

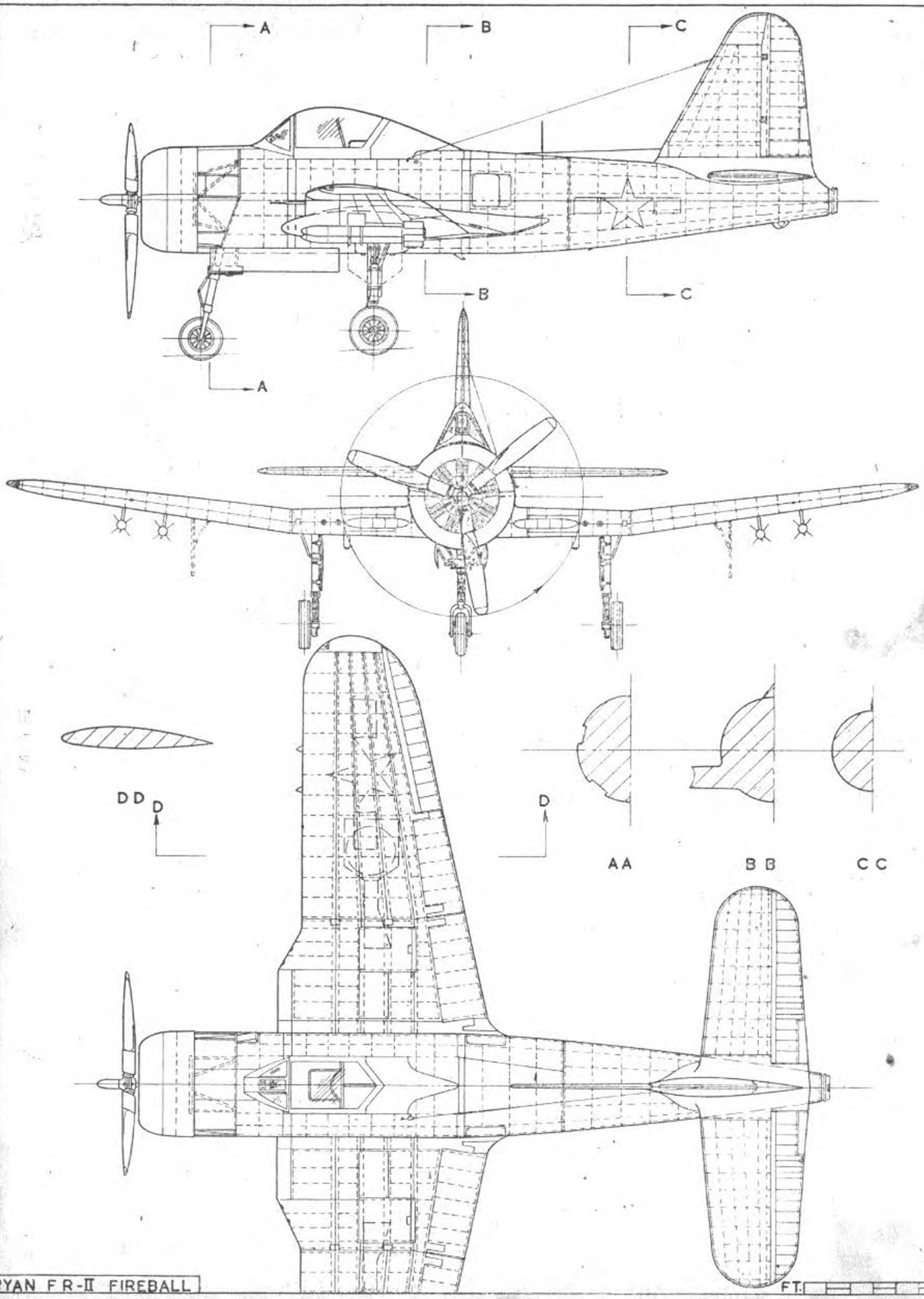
Weights : Empty : 7,475 lb. Loaded : 9,862 lb.

Tankage : Fuel (including 100-gallon drop tank) : 276 gallons.

Performance : Maximum level speed (using both airscrew and jet propulsion) : 420 m.p.h. at operating height. Initial rate of climb : 5,000 ft./min. Maximum level speed (using airscrew propulsion only) : 320 m.p.h. at operating height (jet propulsion only) : 300 m.p.h. Range (using airscrew propulsion only) : 1,500 miles.

Armament : Four fixed ·50 in. calibre Browning machine-guns mounted in the wings, firing forward, and provision for four rocket-projectiles beneath the wings, or two 1,000 lb. bombs.

A flight of Fighting Sixty-Six Fireballs is seen in the heading illustration. The Fireball below has the drop-tank fitted beneath the centre-section.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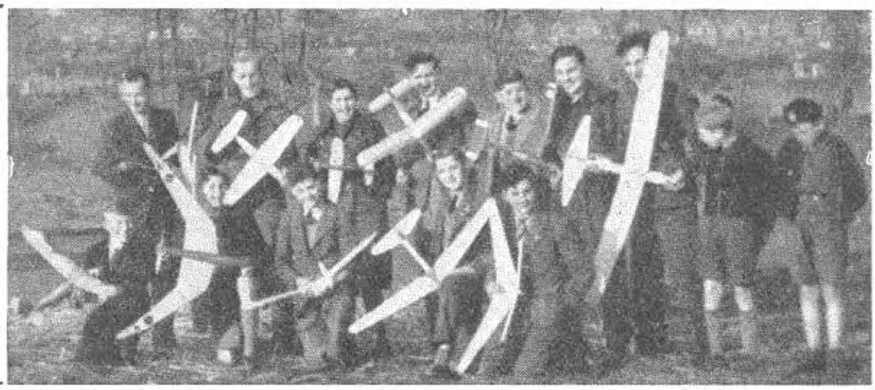
RYAN FR-II FIREBALL
FT.

CLUB NEWS

BY CLUBMAN

Our "pin-ups" this month are members of the Yeovil and District Model Aeroplane Society.



THE results to hand for the remaining S.M.A.E. contests of the 1946 calendar (with the exception of the S.M.A.E. Cup) show a sad falling-off in entries as compared with the events staged at the beginning of the season. One is inclined to ask why, and one or two explanations occur to me. Firstly, it would seem that everyone is ready and rarin' to go in all and every type of comp. after the winter months, spent, most likely, in getting a set of models ready for just such a purpose.

Then what happens? Models get lost, damaged and otherwise unfit for contest flying, and enthusiasm gradually tails off as the fliers get a bit wearied of chasing over miles of country.

Or is it—it definitely is, in my opinion—the result of a surfeit of contests? Look at the programme for this season!! A total of twenty-two official National events were scheduled, ranging through de-, semi- and centralised competitions, and calling for specialised models in a number of cases. To have entered the full programme entailed a hefty stable of models and the constitution of a paratrooper.

But, on top of this came the contestant's own club fixtures, PLUS a multiplicity of area, inter-club and other events. And all this crammed into some thirty Sundays!! No, as one very keen competition wallah told me, "It's got beyond a joke, and I'm thoroughly cheesed off. I've lost three models this year, and just haven't the time to build more in time for the remaining contests, so I'm giving it up." And how many more have expressed the same opinions?

I suggest that it is high time that the authorities planned a reasonable programme, cutting out the less important (as proved by returns over the years) events, and spacing the popular contests over the season, thus giving opportunity for a fair smack at the events by all and sundry. This programme wants deciding well before the end of the year, so that clubs can arrange their own particular events to advantage, with a combined schedule. On top of this, it should be agreed that the various areas (and clubs) who desire to stage Rallies shall convey their wish to the Council (or Contest Committee), giving preferred dates. The Committee should then agree to a reasonable number of such fixtures, and sort things out so that the clashing of dates so evident this year should not occur. An "officially approved" list could then be published, and other on-the-side events staged would have to take pot-luck.

I shall be pleased to have the views of my readers on this subject, fully realising how controversial the subject is, but none the less concerned over the future of contest flying if the current confusion is not eliminated at the earliest opportunity.

One bright spark entered a duration model in the Frog contest (the rules for which require a "near-scale" model suitable for scaling up as a full-size aircraft), explaining that he "didn't want any (scale) bonus points as he could win the comp. with a flyaway!" Said keen type did not appreciate it when he was not allowed to fly. Ah, well, hope springs eternal!!

A recent invitation from Mr. Van Hattum of Holland resulted in a team of four visiting the Hague on Sunday, 6th October for an F.A.I. glider competition which was won by the British team with a high wind prevailing.

Under a reciprocal arrangement a return meeting will be held in this country when the Dutch lads will be guests of the British team.

NATIONAL CONTEST RESULTS

K. & M.A.A. CUP.

Lanham, B. E.	(Walthamstow)	698·3
Parker, A. R.	(North Kent)	524·0
Aylward, E. H.	(Walthamstow)	520·3
Mulley, B. A.	(Croydon)	427·6
North, J.	(Blackheath)	397·4
Pitcher, J. L.	(Croydon)	352·85

(41 entries.)

CIVIL SERVICE CUP.

Lewis, B.	(Zombies)	463·0
Pitcher, J. L.	(Croydon)	342·9
Hall, A. D.	(North Kent)	198·9
Brockman, D. A.	(Zombies)	178·5
Salt, C. E.	(Birmingham)	142·5
Morgan, Mrs. M.	(Cardiff)	137·0

(10 entries.)

FROG SENIOR CUP.

Parker, A. R.	(North Kent)	110·6
Marcus, N. G.	(Croydon)	101·0
Norman, J.	(North Kent)	45·0

(3 entries.)

GUTTERIDGE TROPHY.

Capon, P. T.	(Country Member)	661·2
Pitcher, J. L.	(Croydon)	614·0
Warring, R. H.	(Zombies)	514·7
Wilson, A. H.	(Hayes)	495·0
Eckersley, S.	(Bradford)	491·25
Hardman, J. M.	(Rhyl)	491·1

(52 entries.)

LADY SHELLEY CUP.

Pitcher, J. L.	(Croydon)	299·7
Lee, A. H.	(Bristol)	217·55
Piggott, D. (Proxy)	(Blackheath)	204·2
Buxton, E. J.	(St. Albans)	185·0
Brown, A. C.	(Croydon)	140·1
Moon, K.	(Bristol)	140·6

(19 entries.)

SHORT CUP.

Buxton, E. J.	(St. Albans)	336·3
Pitcher, J. L.	(Croydon)	245·0
Neate, P.	(St. Albans)	190·6
Phillips, J.	(Cardiff)	163·0
Creed, D.	(North Kent)	92·65
Wickens, T.	(North Kent)	92·0

(9 entries.)

WHITE CUP.

Chiffey, F. N.	(North Kent)	27·275
Creed, D.	(North Kent)	22·708
Hall, A. D.	(North Kent)	22·25

(3 entries.)

PETROL DURATION CONTEST.

Monks, R.	(Birmingham)	258·45
Taylor, A. H.	(Bushy Park)	162·8
Gunter, Mrs.	(Bushy Park)	147·5
London, T.	(Bradford)	142·1
Guest, M.	(Bushy Park)	134·4
Copland, R.	(N thn. Heights)	112·95

(28 entries.)

Results were as follows :—

L. M. Walker	354·7	P. Vriend	295·3
G. W. W. Harris	148·3	H. Hekking	204·2
A. H. Taylor	139·4	Hamersteen	145
A. G. Butler	197·9	F. van de Kreek	63·8
	745·3		708·3

The National Model Aircraft Rally, organised by the Manchester *Daily Dispatch* in conjunction with the Northern Area and Manchester group of clubs, was blessed with fine weather, and an excellent day's flying was the result. Thirty-eight clubs were represented at the Rally, with a total of over 480 entries. The main event was the Glider Championship of the North, for which senior and junior trophies were awarded, the Mayor of Blackpool doing the honours at prizegiving time. Longest flight of the day by a senior was by J. Baguley, of Wallasey, who clocked 8 : 15, while E. Tomkinson, of Wythenshawe, made a time of 4 : 18, both flights being made in the glider contest. Full results :—

GLIDERS.

Seniors :	B. Haisman	(Merseyside)	9 : 45
	J. Baguley	(Wallasey)	8 : 15
	A. Molyneux	(Wallasey)	7 : 52
Juniors :	E. Tomkinson	(Wythenshawe)	5 : 14
	P. Oliver	(Wallasey)	4 : 16·5
	P. Phillips	(Wallasey)	4 : 05·8

RUBBER.

Senior :	S. Eckersley	(Bradford)	6 :'31
	J. Owen	(Blackpool)	5 : 30
	W. Heginbotham	(Ashton)	5 : 16
Junior :	J. Harrison	(Cheadle)	4 : 22
	W. Hetherington	(Doncaster)	4 : 15·4
	C. Fitzpatrick	(Southport)	1 : 37

FLYING SCALE.

M. A. Hetherington	(Doncaster)	102 points	
W. B. Heginbotham	(Ashton)	80·7	"
D. Lowry	(Ashton)	80·5	"

OPEN PETROL.

R. V. Bentley	(Blackpool)	100 points	
M. Cowburn	(Blackpool)	83	"
S. Lanfranchi	(Bradford)	61	"

OPEN GLIDER.

Senior :	J. G. Elfflander	(Macclesfield)	3' : 08·4
	G. Sharples	(Preston)	2 : 56·5
	P. Rawlinson	(Burnley)	2 : 35·2
Junior :	N. Warburton	(Warrington)	1 : 50·2
	K. S. Avery	(Warrington)	1 : 34
	P. Phillips	(Wallasey)	1 : 19

C. Fisher, of the BASINGSTOKE & D.M.A.C., is having a successful season, and won the Turner Cup in pouring rain with a time of 3 : 08·8, with L. Andrews second, time 2 : 39·5. Not bad times for wet weather flying, I reckon. E. Fullbrook, the club's youngest member at nine years of age, placed seventh in this contest, and is regularly seen flying a " King Falcon "—but someone has to hold the winch (and boy ?) down.

14039077 Fus. R. Webb, of M.T., H.Q. Coy., 1st Battn. Royal Northumberland Fusiliers, C.M.F., writes from Italy. He states that they are able to get down to some fair modelling, in spite of " other attractions." He asks any readers who have finished with their AEROMODELLERS to send them to him, as the lads there would very much appreciate such generosity.

Mr. Geesing, of the PARK M.A.L., raised the club lightweight duration record to 6 : 35 on the 18th August. H. R. Jeffs, who again wins the contest for the season's best flier, won the biplane event with a fine average of 1 : 12, second and third placers also averaging over the minute.

The WOLVERHAMPTON M.A.C. held their first meeting on Perton Aerodrome on the 25th August, three runways being available for take-off ! A number of models of all types were flown, and four members qualified for " A " certificates, H. Dotan setting up a club Wakefield record of 2 : 03. The glider contest was won by J. Ried, with a time of 6 : 06, followed by S. Ward, 4 : 10, and A. R. Guy, 2 : 43·5.

D. Reece, of the PHŒNIX M.F.C., pushed the tailless glider record up to 4 : 20 recently, while " Tubby " Foreman set a new open glider record with 8 : 42, his model being a " Mick Farthing." I'm told Tubby weighs 17 stone, so I'm wondering what his wing loading is !

K. Wilson, of 29, Moorhead Street, East Camberwell, Melbourne, Victoria, Australia, would like to correspond with a fellow enthusiast about eighteen years of age, with main interest in scale modelling.

N. Marcus, of the CROYDON & D.M.A.C. (winner of the Plugge Cup for 1946), did some remarkable flying with a scale " Fokker D. VIII " when flying off for the club Franconi Cup. His aggregate of 9 : 56·5 included one flight of 5 : 30, which is being claimed as a new British record for the class. B. Mulley was second with an aggregate of 2 : 40·5, flying a " Fairchild." Mr. J. L. Pitcher has been doing some remarkably fine flying, as will be seen from the S.M.A.E. contest results.

Despite unfavourable weather, the DARLINGTON M.A.C. had a good turn-out for its first post-war Rally on Croft Aerodrome. Over 100 entries were received from clubs covering a wide area, but a heavy thunderstorm interfered with the programme, and cancelled three of the events. Results :—

OPEN GLIDER.

G. Parker	(Stockton)	5 : 19
H. Worsnop	(Newcastle)	4 : 56·5
T. Tempest	(Easington)	4 : 08

UNDER 30" RUBBER.

J. H. Bell	(Newcastle)	4 : 28
H. Worsnop	(Newcastle)	3 : 59·5
J. Martin	(Eston)	2 : 28·5

OVER 30" RUBBER.

J. A. Teasdale	(Newcastle)	3 : 51
A. Graham	(Newcastle)	3 : 32
J. F. Hurst	(Darlington)	3 : 13

The CARDIFF M.A.C. scored an outstanding triumph when they took six firsts at the Llangwern Horticultural and Model Aircraft Show. The exceptionally bad weather prevented the Liverpool and Swansea clubs from turning up, but Newport, Rogerstone and Bromley (Kent) were represented. The Cardiff team of four carried off both the Horace Palmer Cup, with a total of 108·4, and the Glider Cup. Bud Morgan took the honours in the petrol class, also the best r.o.g. flight.

The BRIGHTON DISTRICT M.A.C. (recently formed) held their first big meeting on the Patcham Downs on September 8th. It was good to see many of the old members back again after their war absence. They included H. J. Towner, I. C. Lucas, R. Brigden, T. Lance, H. J. Tugwell and R. Richards. Clubs from Worthing, Portslade, Eastbourne and Brighton took part in events, at times in pouring rain. E. W. Gravett, of the Southern Cross club, took first place in the Sailplane event with his tailless model, time 2 : 25·6, best flight of 2 : 3·4. J. Billiness took second place with a fine flight of 1 : 06 in a downpour.

The annual Gala Day of the DONCASTER & D.M.F.C. was cursed by bad weather, but this did not stop nine clubs from supporting the organisers, and a good time was had by all. A very close finish in the senior rubber event was a highlight of the meeting, the full results of which were :—

GLIDER.

Seniors :	S. Lanfranchi	(Bradford)	9 : 58
	G. L. Beal	(Mexborough)	9 : 41
Junior :	W. B. Hetherington	(Doncaster)	4 : 03·5
	M. Ager	(Doncaster)	2 : 33·5

RUBBER.

Senior :	D. Hellewell	(Doncaster)	3 : 56·5
	M. A. Hetherington	(Doncaster)	3 : 56
Junior :	A. Davy	(Sheffield)	2 : 06·2
	F. Warren	(Goole)	1 : 46

PETROL.

N. Lees	(Bradford)	1 : 51·5
S. Lanfranchi	(Bradford)	1 : 13

The MERSEYSIDE M.A.S. has been successful in obtaining two new flying grounds, one in Irby, Wirral, and the other at Speke, Liverpool. Next season it is proposed to hold the decentralised contests on each ground alternately, and members will fly on their nearest ground on " free " days. A club magazine has made its appearance.

The contest for the Clyde Model Dockyard Trophy took place on September 8th, with weather dull but dry, and not too windy. The event was keenly contested and the results were :—

R. Young	(Fife)	5 : 06
W. Robertson	(Fife)	4 : 26·4
J. Bell	(Unattached)	4 : 25·4

The Scottish Aeromodellers' Association competition for the AEROMODELLER Trophy for flying scale models was held on the same day, and was won by P. Montgomery, of Fife, with a total of 203 points, with other Fife members placing second and third. Quite a day out for Fife !

A very successful Rally, staged by the READING & D.M.A.C., was well supported from many clubs and the honours went round very nicely. Bags of thermals were laid on, and the operation of a " walkie-talkie " made control very easy. Results were :—

GLIDER.

Moody	(Eastleigh)	8 : 07
Johnstone	(Henley)	3 : 57
Mountain	(Southampton)	3 : 40

RUBBER.

Harris, G. W. W.	(Farnborough)	4 : 03·5
Lee, P.	(Pharos)	3 : 48
Houlberg, A. F.	(Oxford)	3 : 26·5

PETROL.

Harris, G. G.	(Farnborough)	226 points
Harris, G. W. W.	(Farnborough)	128·5 "
Mountain, P.	(Southampton)	93 "

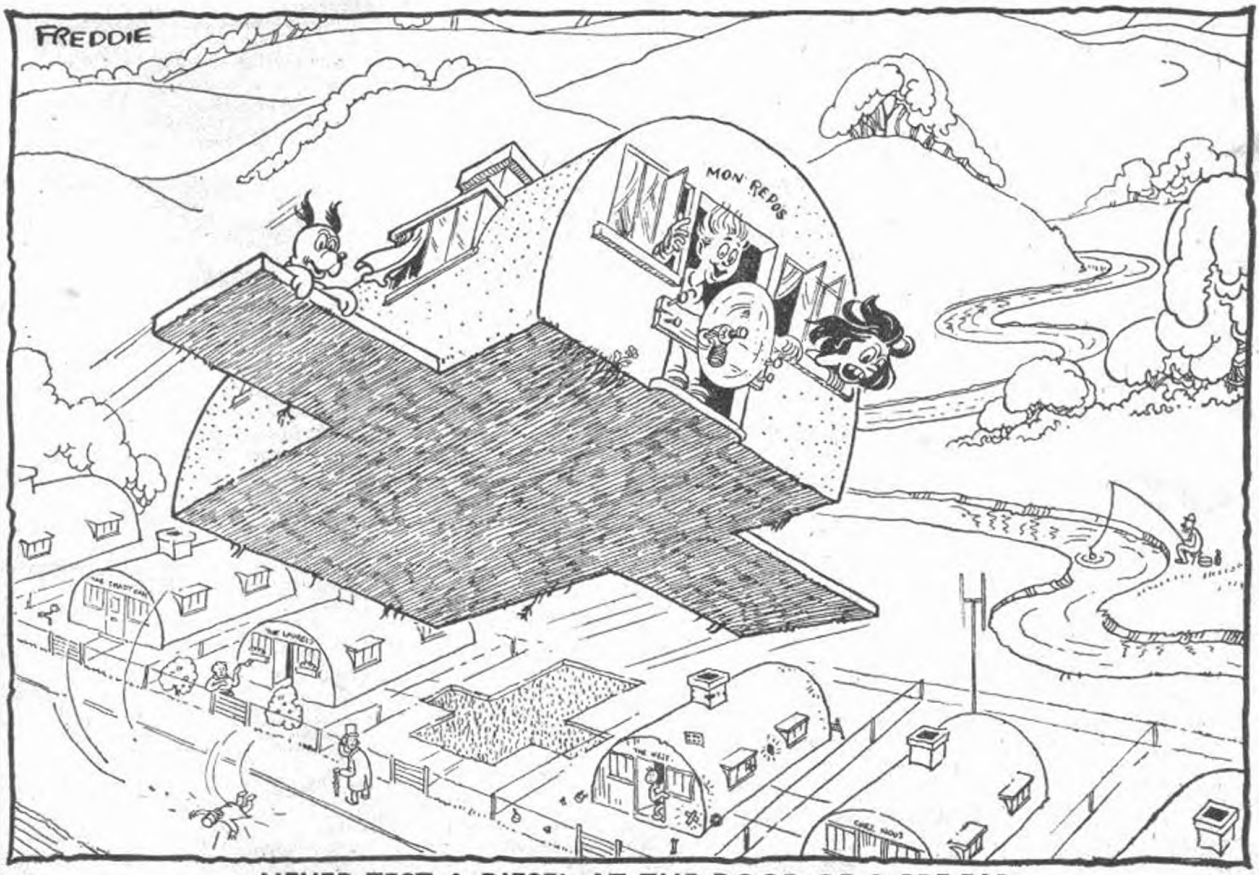
Taking advantage of the fine weather on September 15th, the teams from Walthamstow and the CHINGFORD M.A.C. battled for the lead with both sailplanes and rubber-driven jobs. Chingford won comfortably, best time being set up by junior F. Glibbery, who lost his fine streamlined sailplane with an o.o.s. flight of 4 : 19. Chingford totalled 981·5 to the Walthamstow aggregate of 573·3.

August 18th saw some good flying in the WEST COVENTRY M.A.C., best times being :—

GLIDER :	F. Robertson	1 : 34
	C. Weston	1 : 26
	F. Wintle	1 : 23
RUBBER	A. Barr	1 : 47
	P. Berthelsen	1 : 41
	M. Harris	1 : 05

A stiff breeze took most of the models o.o.s. far too soon, otherwise recorded times would have been much higher.

W. Tansley, of the WILLESDEN & D.M.A.C., has raised the club petrol record to 1 : 23 with a 20 sec. motor run. Other club records to get a bashing are the senior tailless glider, 5 : 10 by K. Sacker, and junior ditto



NEVER TEST A DIESEL AT THE DOOR OF A PRE-FAB

by J. Cunningham, 1 : 19, both models of the same design.

In good weather, the EXMOUTH & D.M.A.C. held two contests, for the " Harris Cup " (glider), and open rubber. J. Thorn won the cup with aggregate 1 : 46 ; second, A. Ellis, 1 : 43 ; and third, Miss J. Tothill, 1 : 13. L. Evans won the glider event with a total of 1 : 16.

There was a very strong wind blowing at the SCOTTISH NATIONALS, but the rain, which threatened all day, did not come to anything. However, out of over a hundred models, only about a dozen completed the course—so fierce was the wind. Results :—

SENIOR GLIDER.		
H. Gilson	(Irvine)	4 : 34
W. Kennedy	(Garnock)	3 : 07
J. Grant	(Stirling)	2 : 29
JUNIOR GLIDER.		
H. Gibson	(Irvine)	4 : 34
W. Watson	(Paisley)	2 : 27
SENIOR RUBBER.		
R. Burt	(Glasgow)	2 : 59
W. Carruthers	(Bathgate)	2 : 19
W. Watson	(Paisley)	1 : 58
JUNIOR RUBBER.		
W. Watson	(Paisley)	1 : 58
W. McConnachie	(Glasgow)	1 : 21

Garnock M.A.C. won the team event, also the Shield, best flight of the day going to H. Gibson with a flight of 3 : 01·5.

BRISTOL & WEST M.A.C. again report atrocious weather for flying meetings. C. W. Needham (welcome back to the fold, " Needy "—a bit better than a P.O.W. camp, I guess !) contacted one of the very few thermals in the biplane event and lost his model after 4 : 37 o.o.s., thanks to the high wind. The last contest of the year was held in conjunction with the S.M.A.E. Cup, and the weather really excelled itself with a 30-m.p.h. wind and steady rain. M. Garnett's Wakefield won the Harris Cup with two flights to aggregate 2 : 57, followed by A. H. Lee, who made 2 : 15 with his lightweight. Best time in the S.M.A.E. Cup was 3 : 12 by J. Bones, flying a modified " Firefly " glider.

The NORTH WALSHAM & D.M.A.C. are changing their flying meetings from Saturday to Sunday afternoons from now on.

Modellers in the Hawick district are asked to rally round and support the reforming of the HAWICK M.F.C. Please contact Mr. Telfer at 13, Teviot Crescent, Hawick.

J. McVey, of 15, Kirkland St., Motherwell, would like to get a club going in that town, so all those interested—here's your chance.

And so, once again I leave you to sweat and strain over the season's crop of repairs and new jobs. I must really get down to that long-promised gas-job of mine, even though I am threatened with divorce action should I get oil on the three-piece, or stink the place out whilst " testing." Ah me, I should have taken Punch's advice ! ! Till next month, this is the old scribe signing off as

THE CLUBMAN.

SECRETARIAL CHANGES

BRIDGEWATER & D.M.A.C.
G. J. Rees, 53, Provident Place, Bridgewater, Somerset.

BLACKPOOL & FYLDE M.A.S.
R. Ellis, " Loretta," Moss House Road, Marton, Blackpool.

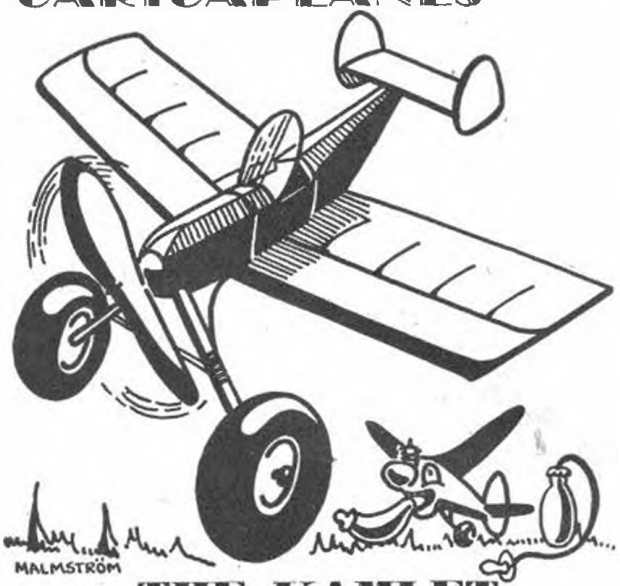
FLEET VALE M.A.C.
L. R. Kent, 80, Malden Road, Kentish Town, N.W.5.

HORNCHURCH M.E.C.
E. S. Watts, 7, Station Lane, Hornchurch, Essex.

SOUTHAMPTON M.A.C.
M. Coxon, 27, Bond Road, Bitterne Park, Southampton.

OXFORD CIVIL DEFENCE M.A.C.
P. Cruse, 287, Cowley Road, Oxford.

CARICAPLANES No. 13



THE KAMLET

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HORDEN COLLIERY M.A.C.
N. Bell, 27, Rothbury Avenue, Horden Colliery, Co. Durham.

SLOUGH & D.S.M.E.
W. F. Hunt, 259, Stoke Road, Slough.

ILFORD M.A.C.
R. W. Goudge, 45, Dunspringe Lane, Barkingside, Essex.

POTTERS BAR M.A.C.
J. Bond, 16, Cranborne Crescent, Potters Bar, Middlesex.

FARNHAM M.A.C.
B. Main-Smith, " South View Lodge," Upper South View, Farnham, Surrey.

continued on page 799

BRITAIN'S THIRD NATIONAL MODEL AIRCRAFT EXHIBITION

Organised by the DAILY EXPRESS in association with the AEROMODELLER

To Contest Entrants!

This year £500 in cash prizes and silver trophies must be won by senior and junior competitors. Send at once for your entry form for any of the 12 competitions and at the same time be sure and get the special "Dorland" entry form with its separate prize list of £150.

COLLECTION OF MODELS AFTER THE EXHIBITION

Entrants may prefer to collect their entries personally after the Exhibition—and this course is recommended where possible.

Models will be available for collection at the Aeromodeller Collection Centre, Dorland Hall, Lower Regent Street, London, S.W.1, from 12th to 18th January, 1947, any time between 10 a.m. and 6 p.m.

Models not then collected will be despatched to entrants in the usual way.

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1946 COMPETITION RULES

1. Entry Form **A** must be sent to "Aeromodeller," c/o Aircraft (Technical) Publications, Ltd., 7, Hanover Court, London, W.1, on or before 20th November, 1946.
2. Models must be received at Aeromodeller Receiving Centre, Dorland Hall, Lower Regent Street, S.W.1, between 2nd and 7th December, 1946, with Entry Form **B** prominently displayed on outside of box.
3. Entry Forms not filled in, mutilated or not completed in ink will be disqualified.
4. The Panel of Judges will take the following points into consideration when forming their decision :—
   A. Style and workmanship.
   B. Soundness of general design and special features.
   C. Accuracy of outline and detail in the case of scale models.
   D. Finish.
5. No correspondence can be entered into with regard to the Competition and the act of submitting an entry form will be interpreted as unqualified acceptance of the above rules and conditions.
6. All entries automatically become eligible for the Championship Competition, according to age group.

Entrants are strongly advised to deliver their model(s) by hand where practical : failing this they should be despatched by registered post securely crated in strong boxes of either wood or reinforced cardboard. Do not attach your model directly to either the sides or bottom of your box. Insulate each part with newspaper, straw, etc., or better still suspend away from sides with strip rubber. Shake box when packed —if there is any movement RE-PACK IT. Model(s) will be insured whilst on display and during transit to and from the Exhibition.

BE SURE AND SEND YOUR ENTRY FORM "A" BY NOVEMBER 20TH.

COMPETITION NO. 1

Class A—NATIONAL CHAMPIONSHIP.
Open to Competitors above the age of 16 years for the finest entry irrespective of type.
Prize—£25 and Solid Silver Trophy, to the value of £30, to be held for one year.
Class B—JUNIOR CHAMPIONSHIP.
Open to Competitors of 16 years and under for the finest entry irrespective of type.
Prize—£15 and Solid Silver Trophy, to the value of £20, to be held for one year.

COMPETITION NO. 2—NON-FLYING MODELS.

Class A—FOR MODELS OF 1/72nd SCALE AND UNDER (built by Competitors above the age of 16 years).
First Prize, £5; Second Prize, £3; Third Prize, £2.
Class B—FOR MODELS OF 1/72nd SCALE AND UNDER (built by Competitors 16 years of age and under).
First Prize, £5; Second Prize, £3; Third Prize, £2.
Class C—FOR MODELS ABOVE 1/72nd SCALE (built by Competitors above the age of 16 years).
First Prize, £5; Second Prize, £3; Third Prize, £2.
Class D—FOR MODELS ABOVE 1/72nd SCALE (built by Competitors of 16 years and under).
First Prize, £5; Second Prize, £3; Third Prize, £2.

COMPETITION NO. 3—DURATION MODELS.

Class A—DURATION MODELS OF ANY TYPE (built by Competitors above the age of 16 years).
First Prize, £5; Second Prize, £3; Third Prize, £2.
Class B—DURATION MODELS OF ANY TYPE (built by Competitors 16 years of age and under).
First Prize, £5; Second Prize, £3; Third Prize, £2.
Class C—"WAKEFIELD" FORMULA DURATION MODELS (built by Competitors above the age of 16 years).
First Prize, £5; Second Prize, £3; Third Prize, £2.
Class D—"WAKEFIELD" FORMULA DURATION MODELS (built by Competitors 16 years of age and under).
First Prize, £5; Second Prize, £3; Third Prize, £2.

COMPETITION NO. 4—FLYING SCALE MODELS.

Class A—TO ANY SCALE (for Competitors above the age of 16 years).
First Prize, £5; Second Prize, £3; Third Prize, £2.
Class B—TO ANY SCALE (for Competitors of 16 years of age and under).
First Prize, £5; Second Prize, £3; Third Prize, £2.

COMPETITION NO. 5.
MODEL WATER PLANES.
(Seaplanes and Flying Boats.)

Class A—(For Competitors above the age of 16 years).
First Prize, £5; Second Prize, £3; Third Prize, £2.
Class B—(For Competitors of 16 years of age and under).
First Prize, £5; Second Prize, £3; Third Prize, £2.

COMPETITION NO. 6—MODEL SAILPLANES.

Class A—FOR MODELS UP TO AND INCLUDING 48-IN. SPAN (built by Competitors above the age of 16 years).
First Prize, £5; Second Prize, £3; Third Prize, £2.
Class B—FOR MODELS UP TO AND INCLUDING 48-IN. SPAN (built by Competitors of 16 years of age and under).
First Prize, £5; Second Prize, £3; Third Prize, £2.
Class C—FOR MODELS EXCEEDING 48-IN. SPAN.
First Prize, £5; Second Prize, £3; Third Prize, £2.

COMPETITION NO. 7.
FREE LANCE PETROL MODELS.

First Prize, £5; Second Prize, £3; Third Prize, £2.

COMPETITION NO. 8—FLYING SCALE OR SEMI-SCALE PETROL MODELS.

First Prize, £5; Second Prize, £3; Third Prize, £2.

COMPETITION NO. 9.
TAILLESS MODEL AIRCRAFT.
(Powered or Glider.)

First Prize, £5; Second Prize, £3; Third Prize, £2.

COMPETITION NO. 10.
EXPERIMENTAL MODEL AIRCRAFT.

First Prize, £5; Second Prize, £3; Third Prize, £2.

COMPETITION NO. 11.
FREE LANCE MODEL AIRCRAFT ENGINES.

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COMPETITION NO. 12.
MODEL AIRCRAFT RESEARCH EQUIPMENT.

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"A.F.P.," Volumes II, IV, 16 - each. AEROMODELLERS, April, December, 1943; 1944: all except March; 1945: Jan., Feb., March, July, August, October; 1946: Jan., March, April—6d. each.—23, Clydesdale Avenue, Crewe, Cheshire.

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