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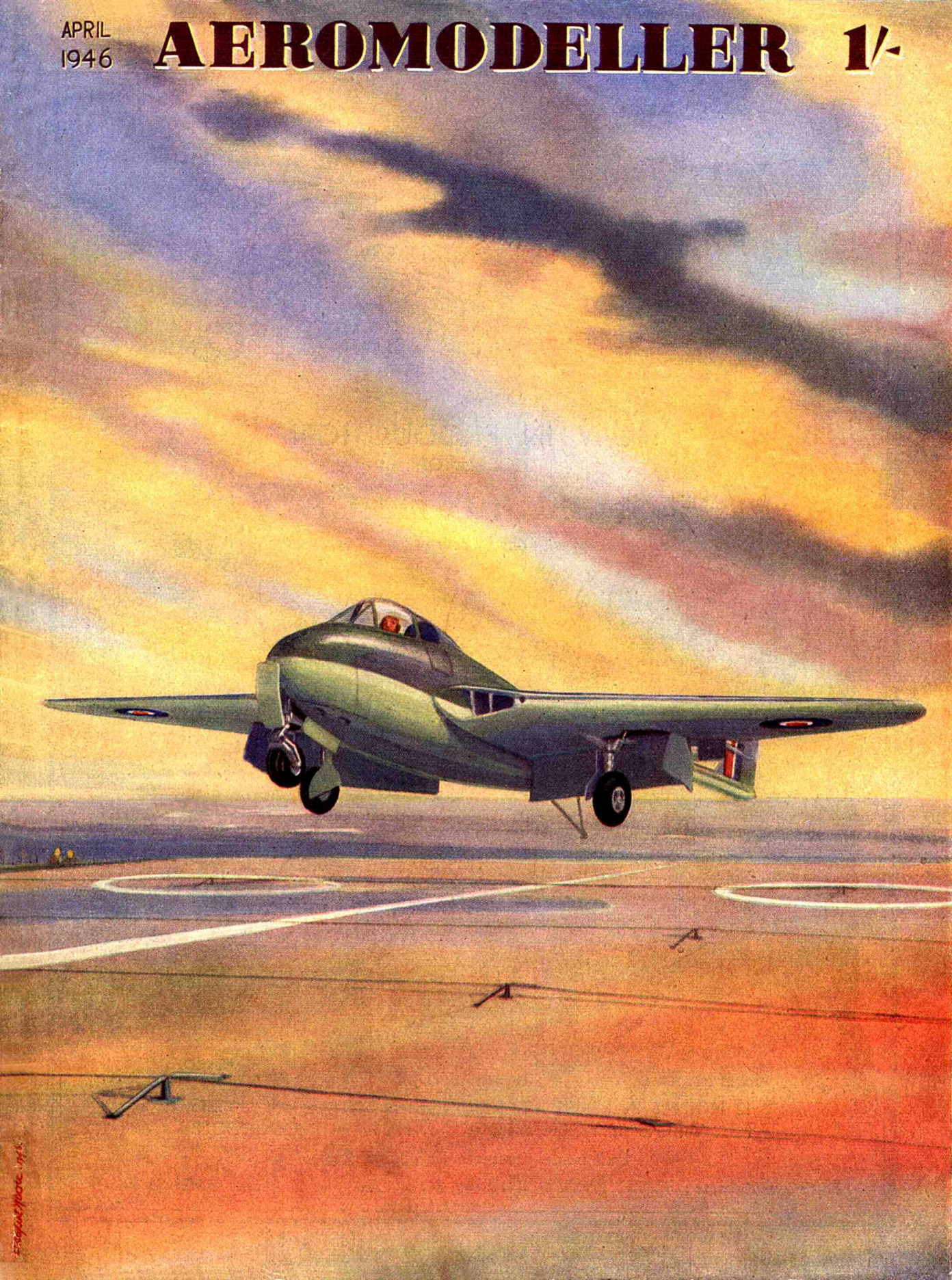

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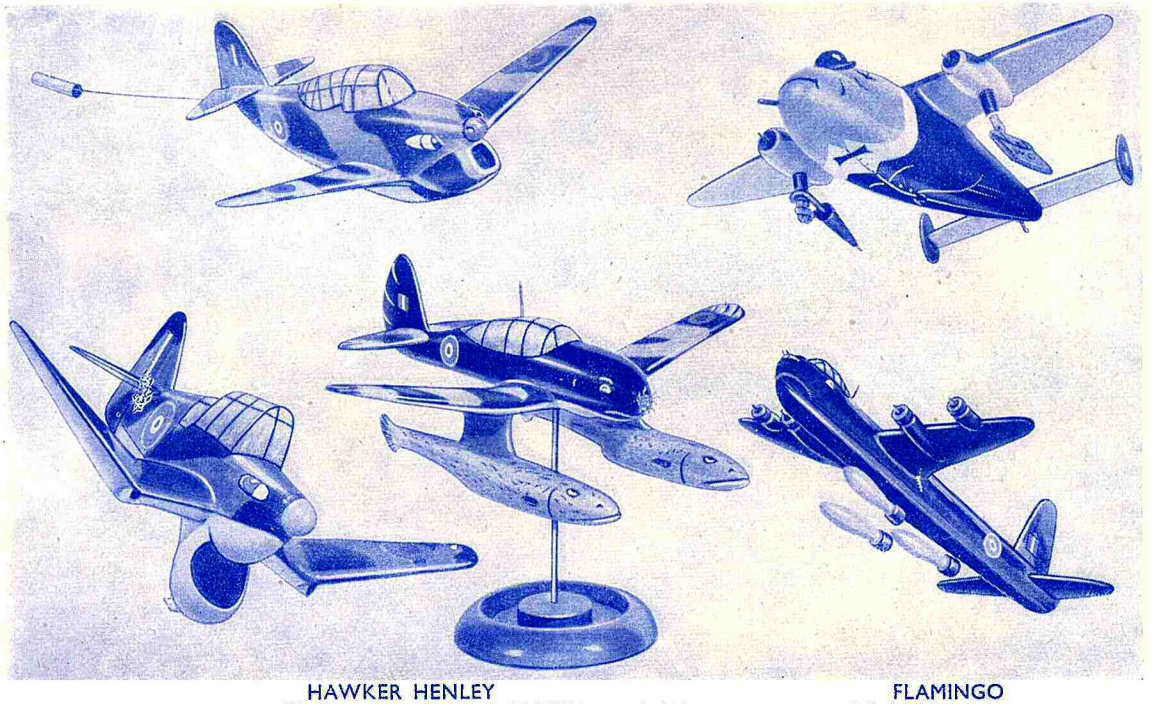

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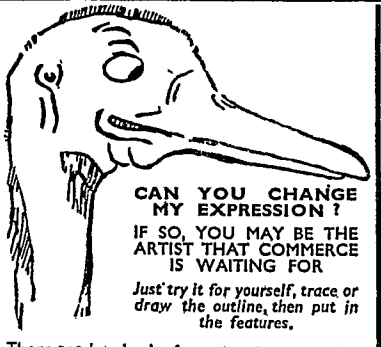

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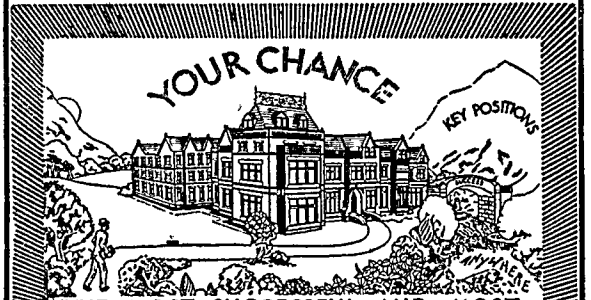

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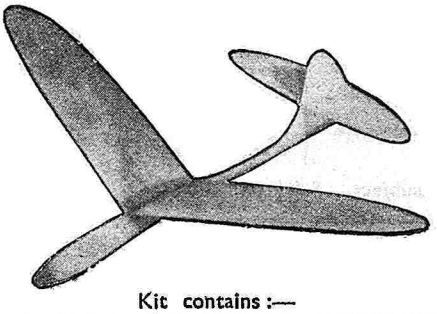

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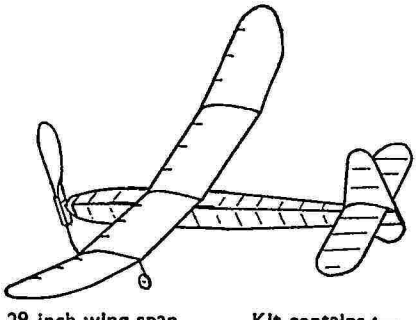

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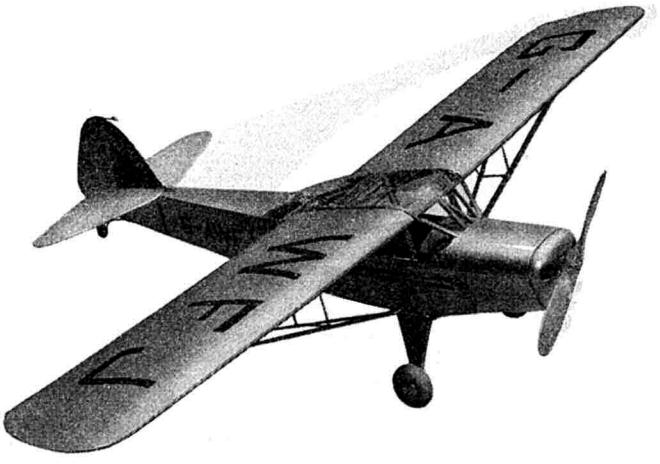

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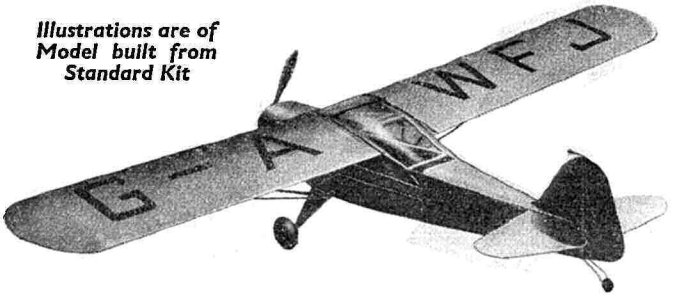

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Contents

AN OLD FRIEND WITH A NEW MODEL: Dr. Ing. Fidia Piatelli with his 9 ft. span Peros I Sailplane prior to test flying at Holon Sand Dunes near Tel Aviv, Palestine.

EDITORIAL

"See you at Eaton Bray"

AFTER the breath of fresh air in which we indulged in the March editorial, when we discoursed in lighter vein than usual on the amateur aspect of modelling—a discourse that has brought us some interesting letters, of which more anon—inevitably we have to come down to earth.

This month, we are to indulge in a breath of fresh air in another sense in that we are to refer in some detail to the imminent formal opening of Eaton Bray Model Sportsdrome by a three-day flying meeting. This is to take place at Easter, so by the time the May AEROMODELLER appears, Eaton Bray, the first aerodrome in the world to be developed exclusively for the use of modellers, will be well and truly on the map.

This is a subject on which we have already had a good deal to say, as a result of which the name should have become familiar to all except the most recent recruits to the ranks of aeromodellers. It represents an ideal that has long been cherished in the minds of many people, but it was left to Mr. D. A. Russell to give the vision practical effect. He it was, we repeat without apology, who saw the announcement of this one-time civil aerodrome being for disposal, and he it was who, with the help of two or three colleagues, found "the necessary" to acquire it.

Last autumn, after months of uphill work under conditions of considerable difficulty, Eaton Bray was sufficiently developed to be usable at week-ends by individual modellers, and a goodly number, during the winter months, have learned the Eaton Bray habit! Now the ground is ready for more extensive use, by individuals and groups, and we do not doubt, judging by the huge amount of interest shown in the relief map exhibited at Dorland Hall, that a very large number will be quick to make the acquaintance of the ground, and, before long, the slogan that sped the parting visitor at Dorland Hall, "See you at Eaton Bray," will be an everyday form of aeromodelling farewell!

Eaton Bray is ready for regular use, but, in saying that, we do not mean to imply that all the amenities promised from time to time in these columns have already materialised. The aims of the organisers have been too ambitious for that. Eaton Bray is a £25,000 project, and the work involved, not to mention supplies of the various building materials needed, must, under the most favourable circumstances, be accompanied by a fairly generous measure of that unpurchasable commodity, *time*. This scheme, moreover, has been initiated under the cramping conditions of war, and every step forward has represented a battle won against some snag or other. Much, indeed, has been achieved, thanks to the enthusiastic and tireless efforts of an intensely loyal staff, and what has been provided in time for the Easter rally, while falling far short of the ultimate intention, may, perhaps, best be described as "something of everything."

To begin with, the ground itself has been drained and levelled, one concrete take-off area has been completed, and certain of the proposed buildings have been erected. There will be a certain amount of shelter should the weather prove too characteristically British; washing facilities, supplies of water for tea-making, a reasonable degree of proper lavatory accommodation for both sexes, parking arrangements for cars and cycles, and space for tents or caravans brought by visitors with more ambitious notions than just a day's flying.

Special provision has been promised to holders of members' shares in Eaton Bray, and though the intended club-house is not yet in being, temporary premises are available, also a members' enclosure. Thus, the present stage of development should enable any individual modeller or group to enjoy a day's sport, a week's or fortnight's camping holiday, or even a longer stay. And, as labour and materials still in short supply and at present rightly devoted in the main to the imperative needs of housing, become more plentiful, the amenities will be expanded.

The Easter rally should provide fun for all. The Saturday and Sunday (April 20th and 21st) will be given over to individual flying, and thus visitors will be able to play their game in their own way, or spend the time more purposefully in tuning up their models for the Monday, when there will be several contests for prizes offered by the organisers of Eaton Bray.

We are now able to announce the charges for admission to Eaton Bray and the enjoyment of the facilities already available. Everything has been priced as moderately as is practicable under present conditions, for although this is, and must of necessity be, a business proposition, the organisers are not thinking simply in terms of money making. Long experience would suggest that to ensure the satisfactory working of an undertaking of this size, it must be tackled on sound business lines, and there has been invested in Eaton Bray a very substantial sum of money that no fair-minded person will regard otherwise than as entitling those who have provided it to a modicum of profit. Over and above that entirely reasonable requirement, the promoters wish the Sportsdrome to be of the utmost benefit to the individual modeller and the modelling movement generally.

To get down to brass tacks, the charge for admittance for the day will be 2s. for an adult and 1s. for anyone under 16 years of age. Parking charges are 1s. 6d. for a car or 6d. for a motor-cycle or combination, and camping charges for 24 hours are 6d. for a tent and 1s. 6d. for a caravan. For the benefit of those who can only get along to the ground later in the day there are special rates for admission after 4 p.m. (Monday to Friday) as follows: 1s. for an adult, 6d. for a junior, 9d. for parking a car, and 3d. for a motor-cycle or combination.

Special facilities are offered to those wishing to spend a holiday week at Eaton Bray. A "week," incidentally, is a courtesy term, for the charges allow for arrival after 6 p.m. on Friday, and departure at closing time on the second Sunday. The admission fee for adults is 7s. 6d., for juniors 3s. 9d., the car parking fee 6s., and the fee for motor-cycle or combination 2s. 6d. Camping rates are 2s. 6d. for a tent and 7s. 6d. for a caravan.

There are also special rates for a holiday "fortnight," which actually allows for 16 days at Eaton Bray (from 6 p.m. on the first Friday until closing time on the third Sunday). Admission fee is 12s. 6d. for an adult or

6s. 3d. for a junior. Parking charges are 9s. 6d. for a car and 3s. 6d. for a motor-cycle or combination. Camping rates are 3s. 6d. for a tent and 12s. 6d. for a caravan.

Exceptionally favourable terms are offered for unlimited admission throughout the flying season (April 20th to October 20th). In this instance the fee is £3 for an adult and 30s. for a junior, while parking fees are 30s. for a car and 12s. 6d. for a motor-cycle or combination.

Finally, there are special rates for all-the-year-round admission—£4 for adults and £2 for juniors, with parking fees of £2 for a car and 15s. for a motor-cycle or combination.

Push-cycles may be brought into the aerodrome free at any time, but must *not* be ridden, but pushed around the field.

Thus, it will be seen, a visitor can go along to Eaton Bray by car and spend a delightful day for an inclusive cost of 3s. 6d., or he can pack a tent in the car and make it a nine-day visit for 16s. A junior arriving by bicycle can enjoy a day's flying for a shilling, or take a tent with him and spend a nine-day visit for 6s. 3d.

For the charges mentioned, modellers can enjoy flying over a 76-acre ground in one of the most delightful parts of the country. The aerodrome is flanked by miles of flat ground, with few trees or houses in the vicinity. There is ample room for all, whether individual modellers or groups, and thanks to the retrieving arrangements which have been organised with the cordial co-operation of neighbouring landowners, the most efficient model can show its paces without fear of coming to an untimely end in the process.

A modeller need not, unless he wishes, make a solitary business of his flying at Eaton Bray; he can bring the entire family in the comfortable knowledge that there will be much of interest at the Sportsdrome itself, and, by way of diversion during a week's or fortnight's stay, delightful walks and a convenient bus service connecting with several large market towns.

Elsewhere in this issue will be found an artist's impression from the air of Eaton Bray as it will appear during a typical flying meeting. A study of the accompanying time-tables show that it is readily accessible by rail or road. Later, when present-day restrictions are relaxed and the Eaton Bray habit is well established, we envisage the L.M.S. and L.N.E.R. putting on "modellers' specials" for some of the great days of the aeromodelling year.

By that time Eaton Bray will have been developed beyond all recognition. There will be canteen facilities, workshops for running repairs, a tank for model launches and seaplanes, a concrete track and timing apparatus for model race cars, and a model accessories store where everything from balsa to ball-bearings can be purchased. These things, as we have already explained, will take time to bring into existence, but the point we wish to stress at this juncture is that Eaton Bray is available now with excellent basic facilities for the enjoyment of the modellers.

Eaton Bray is a project which the organisers are proud to have initiated, and one that will undoubtedly enhance the prestige and advance the progress of model aeronautics.

"Education Sugar Coated"

A correspondent writes anent last month's editorial, in which we dealt with the contention of a youthful enthusiast that aeromodelling should be regarded solely as a hobby: "I must heartily commend the line you have taken, and the broad sweep that eventuated in your sound plea for comprehensiveness and mutual consideration.

"What a little thing, in more sense than one, aeromodelling might so easily be were it not for your efforts and those of other broad-minded exponents to put over, in season and out of season, this matter of the need to understand and appreciate the other fellow's point of view. Perhaps the narrow conception of aeromodelling represents a hang-over from the old days of the middle and even late 'twenties when few people in this country were in the least air-minded, and still fewer were interested in flying models, with the result that the modeller was commonly regarded as a very extraordinary and unimportant individual.

"But today, modelling is rocketting in popularity, particularly in America, and even in this country we are beginning to be noticed! For this happy change we largely have to thank the assiduous efforts of yourself and your colleagues to make people modelling-minded."

We appreciate this handsome compliment, and will not be so insincere as to suggest that it is quite undeserved!

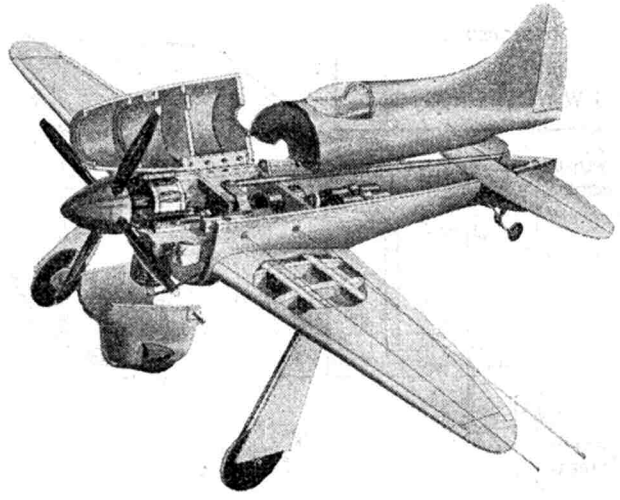
Another correspondent sends some extracts from "Planes," the official journal of the aircraft industries of America, in which the larger conception of aeromodelling that we stand for is put very neatly indeed. The article describes the remarkable place that this great scientific sport now occupies in the life of American youth, with its three million zealous followers, and a yearly turnover of $15,000,000 in the trade even before the war, a potential almost equal to the 1929 sales volume of the full-size aircraft industry.

The article goes on to speak of the technical advances in aeromodelling, of the new petrol motors of watch-like precision, the kits for jet-propelled models, the progress of radio control. As to whether so vast a crowd of keen modellers would wish, or could be persuaded to indulge in their hobby on any hole-in-corner basis, with no interest in other aspects of aviation, the reader can judge for himself from the following paragraph—"The average modeller wants to own his airplane some day . . . . Flying lessons are beginning to replace cups and prizes in model airplane contests."

It is clear that whether we have the vision to welcome it or not, aeromodelling has become a very big thing indeed, and must inevitably become even bigger. In fact, its importance could scarcely be overestimated since, as the article points out in its concluding paragraph, "Model plane building is more than a business or a hobby—it is education sugar-coated. And aviation education breeds airmindedness, from which alone can there arise the fullest appreciation of the implications of the airplane to human welfare, including military security."

Precisely! We could not have put it more clearly. But we can, and do, go on to make the point that on any group of people who can contribute so much to the common good, there rests the clear obligation to do so. In other words, aeromodelling should be much more than a pastime for self-centred people—it should be recognised as a national, indeed an international, asset, to be enjoyed, certainly, but also to be taken seriously and practised to the very best of our ability.

THE Bobcat



THE Bobcat was designed round the Ohlsson 23 with the idea of building a practical U-control model of realistic appearance. The result is one of the most beautiful control-liners ever made, that combines scale looks and high speed with sturdiness and accessibility of working parts.

The model can be taken apart completely and quickly, including removable dorsal fin, wings and lower cowlings, while the upper cowling hinges, giving access to engine and control-line system. This cowling is opened to re-fuel, and then snapped shut—the wire clip is strong enough to hold it down in flight. Cowling must NOT be left open while starting engine.

One block of balsa 3½ in. × 5½ in. × 19½ in. is required for the fuselage, or two separate blocks, one 3½ in. × 2½ in. × 19½ in. and the other 3½ in. × 3 in. × 19½ in. Such block *is* on the market, as knowledgeable aeromodellers will have already discovered.

The landing gear fits into the wing spars and is capped with pine blocks. Wing spars are made of 1/16 in. ply laminated on both sides of ⅛ in. balsa sheet. The removable wings are bolted through the wingspars to the plywood fuselage formers.

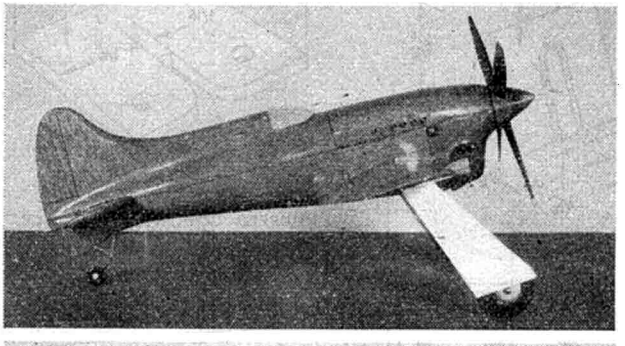
Brass or aluminium tubing is used for the U-control arm, which simplifies the work and is very rigid. The ends of the tubing are flattened and holes drilled for bolt at the control plate and for the wire actuating elevator. Before installing wire in the elevators it should be passed through the hole in the tubing—this obviates soldering. The control system is completed by fitting a small block between the engine mount and the fuselage. The block extends ⅛ in. over and above the engine mount. A hole is drilled through this block and engine mount for the bolt holding the control plate. Two nuts are used at the control arm to allow setting of free movement of controls.

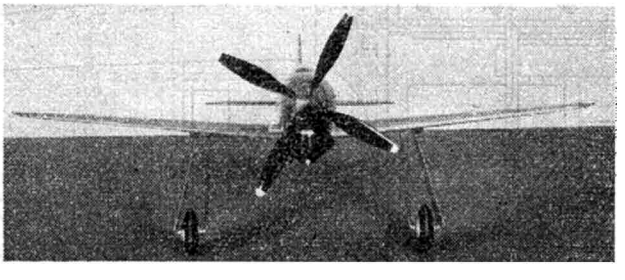
Test Flights.

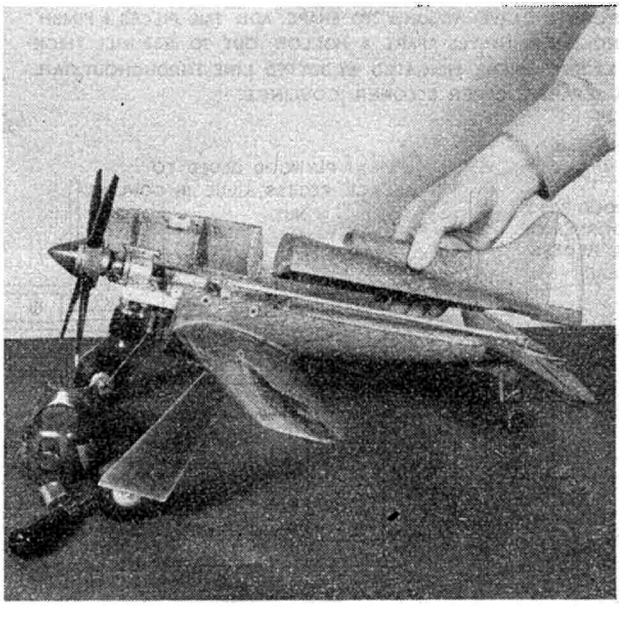
Newcomers to U-control are recommended to use 30 ft. control lines for testing. An indoor testing site such as a hangar is ideal—otherwise a windless day must be chosen. When the " feel " of the lines has been acquired flying on standard 50 ft. lines may be attempted. Set engine at ¾ speed and allow 'plane to take off by itself. Until confidence in take-off and landing has been gained diving and stunts should be avoided! Bobcat's average speed is 60 m.p.h., but speeds in excess of 70 m.p.h. can be achieved.

Alternative Engines.

While primarily designed round the Ohlsson .23, any other engine of similar capacity that is available can be used. Suitable motors include Forster 29, Brownie 29, Phantom G, Hi-Speed Torpedo or Bullet or any other of 4–5 c.c. Minor modifications of the engine mounting may be necessary if alternative engines are used.







BOBCAT

DESIGNED BY

G. W. WORTHINGTON

SCALE:- 1/2 FULL SIZE

CUT OUT BALSA AFTER CARVING, & MOULD 1/16" CELLULOID OVER BALSA BLOCK.

ADD SEPARATE PIECE 1/2" SHEET BALSA, NOTE DIRECTION OF GRAIN.

NEEDLE VALVE EXTENSION.

TIMER ARM

RECESS NUT IN 3/16" PLYWOOD

3/8"

5/32" TUBING

12 9/16"

SOFT WIRE HINGES.

ADD SEPARATE PIECE OF 3 LAMINATIONS OF 1/16" SHEET BALSA.

2" 2" 1/4" 1/8" STEEL WIRE. 84° 30' 110° LEFT WING LANDING GEAR 4 11/16"

PLANK WITH 1/16" X 3/16" TAPERED BALSA STRIPS

1/16" PLYWOOD.

WINGS HAVE A DIHEDRAL ANGLE OF 5° 30' UNDER EACH WING.

3/16" DOWEL

3/4" WHEEL

.040" STEEL WIRE.

BATTERY BOX

COIL

COWLING SNAP .030" STEEL WIRE

CUT PROP DOWN TO 13/32" & GLUE ON BALSA RINGS. ALLOW FOR PLANKING.

CUT OUT 5/8" WIDE AT SHADED AREA FOR AIR EXITS.

FULL SIZE

L.E. 5/16" X 1/2" X 10" BALSA.

1/16" PLYWOOD

1 7/8" 1 1/2" 1/8"

T.E. 3/16" SHEET.

3" PINE CAP.

.032" ALUM.

2" DIA. WHEELS.

MOTOR MOUNT

SECTION THRO' J-J WITH UPPER COWLING CLOSED

5/8" 1/4" 3/16" 3/8" 9/16" 3/8" 3/8" 1 1/16" 27/32"

CONTROL PLATE .042" ALUM.

CARVE FUSELAGE FROM TWO BLOCKS OF BALSA. ONE 2 1/2" X 3 1/2" X 19 1/2" THE OTHER 3" X 3 1/2" X 19 1/2". USE A FAIRLY HARD GRADE. GLUE TOGETHER LIGHTLY & CUT TOP & SIDE PROFILES ACCURATELY. MARK TEMPLATE LOCATIONS & CARVE ROUGHLY TO SHAPE. ADD TAIL PIECES & FINISH CARVING. BREAK HALVES APART & HOLLOW OUT TO 3/32" WALL THICKNESS EXCEPT WHERE INDICATED BY DOTTED LINE THROUGHOUT TAIL. CUT & SEPARATE UPPER & LOWER COWLINGS.

WIRE SNAP HOLDER.

SNAP PLATE

5/16" 9/16" 1/16" 1/4" 5/8" 1/32" 1/16" 5/8" 9/16"

1/4" X 7/16" X 1" PLYWOOD GLUED TO FUSELAGE RECESS. GLUE IN COWLING NUT.

SCREW HINGE TO PINE BLOCKS IN UPPER COWLING & FUSELAGE.

CLOTH HINGES

3" PINE CAP.

1/8" PLYWOOD 7/16" X 7/16" IN CORNER OF COWLING. RECESS BOLT HEAD

.042" STEEL WIRE

2 1/4"

1/4" X 1/2" X 10 1/2" SHEET BALSA

1/2"

5/8"

1 19/32"

3/8"

1/2"

CUT AWAY FOR FORMER

1/8"

11/16"

7/8"

EXHAUST EXTENSION.

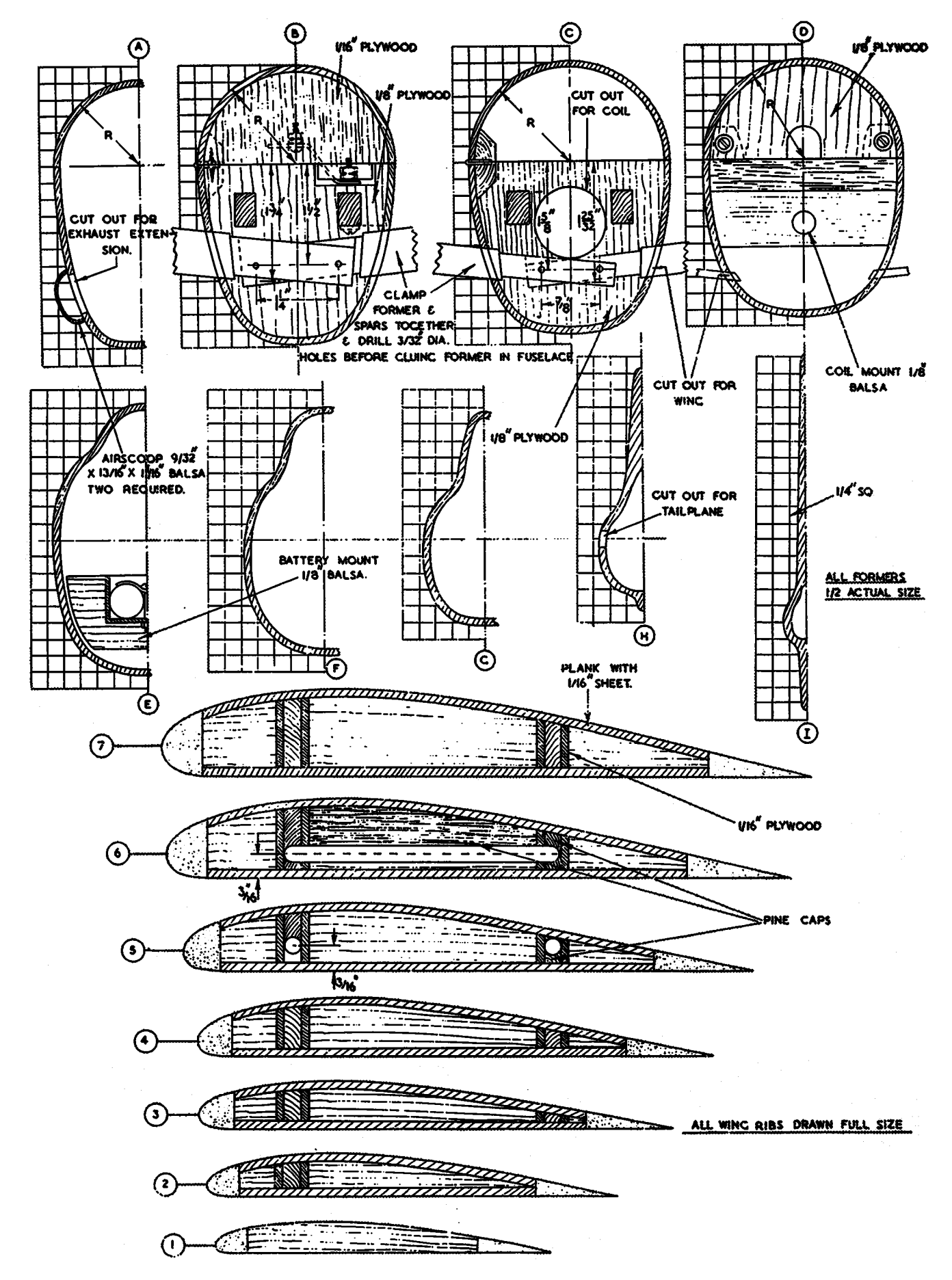
DRESS SNAP.

REMOVABLE SPINNER

LOWER COWLING

SNAP PLATE .042" ALUM.

1/8" 7/8" 2" 4 31/32"


A
B
C
D
1/16" PLYWOOD
1/8" PLYWOOD
1/8" PLYWOOD
R
R
R
R
CUT OUT FOR COIL
CUT OUT FOR EXHAUST EXTENSION.
CLAMP FORMER & SPARS TOGETHER & DRILL 3/32 DIA. HOLES BEFORE GLUING FORMER IN FUSELAGE
1/4"
1/8"
CUT OUT FOR WING
COIL MOUNT 1/8" BALSA
1/8" PLYWOOD
AIRSCOOP 9/32" X 13/16" X 1/16" BALSA TWO REQUIRED.
BATTERY MOUNT 1/8" BALSA.
CUT OUT FOR TAILPLANE
1/4" SQ
ALL FORMERS 1/2 ACTUAL SIZE
E
F
G
H
I
PLANK WITH 1/16" SHEET.
1/16" PLYWOOD
PINE CAPS
3/16"
3/16"
7
6
5
4
3
2
1
ALL WING RIBS DRAWN FULL SIZE

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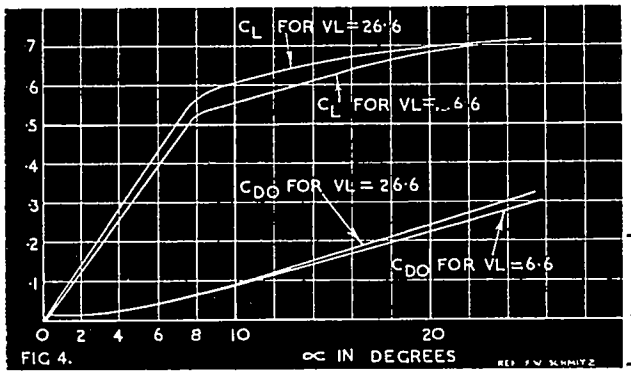


FIG 4.

SAILPLANES

PART IV

BY J. HALIFAX

Flat Plate. *Coefficients of Lift and Drag plotted against angle of attack, for two extreme values of VL. Notice that due to the turbulent airflow over a flat plate, scale effect is practically non-existent. A.R. for this and the other graph in the article is 5, but no correction is necessary.*

Longitudinal Balance.

Longitudinal balance can be obtained by two methods in a new project; building the model with variable incidence wing and tailplane fixings so that it can be trimmed in glide tests, or proper design when the machine is still only a number of sheets of foolscap paper. The great advantage of this latter method is that the surfaces can be properly streamlined into the fuselage, and made relatively crashproof.

In all work which involves fore and aft pitching of a machine (*i.e.* displacement of the longitudinal axis or centre line) we take the centre of gravity as the pivot. With this in mind look at model (A) in figure 1. The lift (L) of the wing, acting at the centre of pressure, is providing a moment about the C.G. which is tending to lift the nose of the machine. This moment is, of course, L×x.

To counterbalance this, the tailplane must exert an equal and opposite moment to maintain equilibrium. Thus we have the tailplane moment P×y equal to L×x, and we may say that for equilibrium

$$Lx = Py \quad \ldots\ldots\ldots\ldots\ldots \text{ equation 1.}$$

This rule only applies to sailplanes of the orthodox layout, however, and the reason should be fairly obvious from model (B), where it is clear that we have not only the moments of L and P about the C.G., but also another due to the high position of the centre of drag (*i.e.* the point at which the total drag of the machine may be said to act) which tends to lift the nose up. Thus, the force P on the tailplane must counteract the moments of Lift *and* Drag. It is well to bear this in mind, for although it does not arise for an ordinary sailplane, it often assumes great importance when unusual or experimental models are projected, such as the Payne-type tandem in figure 1.

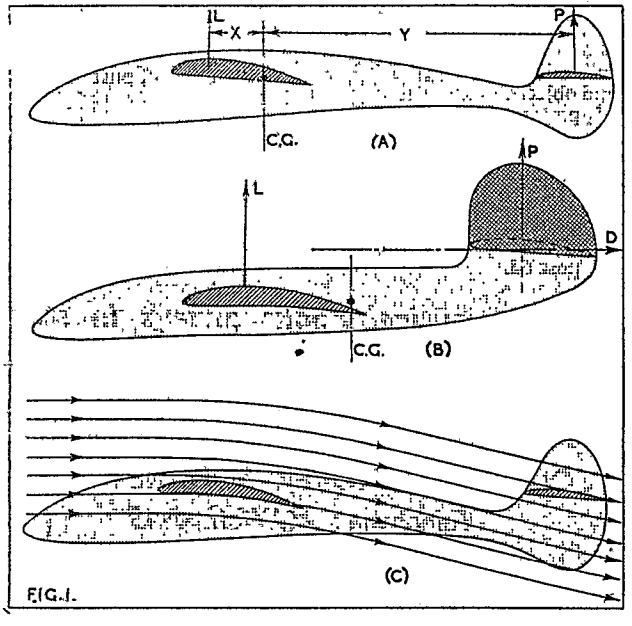


FIG. 1.

Now let us see how we can apply the expression to practical design. Expressed in terms of coefficients, it becomes

$$C_L^W S^W x = C_L^T S^T y \quad \ldots\ldots\ldots\ldots \text{ equation 2}$$

Where C_L^W = coefficient of lift of the wing
$C_L^T = C_L$ of tailplane
S^W = wing area
S^T = tailplane area
x and y are the respective distances of the forces from the C.G.

Here we have the whole subject of balance and trimming wrapped up in one very easy formula, and, if we can arrange matters such that our projected machine conforms to this before it takes the air, we can be fairly certain that no disastrous crashes will accompany those first few test flights.

Downwash.

When air is flowing over a wing that is giving lift, it is deflected downwards at an angle to its original horizontal path, as shown in part (C) of fig. 1. This downwash angle (ϵ) alters the affective angle of attack of the tailplane and it is obvious that an accurate knowledge of its magnitude is essential to obtaining longitudinal balance. The actual method of calculation is very tedious, but fortunately there are two short cuts; one short, and the other very short. The first is due to R. H. Annenburg, B.Sc., and consists of a series of charts which enable the angle at any point behind a wing to be calculated in a few minutes. It is published in report form by the L.S.A.R.A.

The very short cut is a formula;

$$\epsilon = \frac{35\ C_L}{A.R.} \quad \ldots\ldots\ldots\ldots\ldots\ldots \text{ equation 3}$$

Where C_L = coefficient of lift for the wing
A.R. = Aspect Ratio

This gives a good average value, and for the type of machine we are considering is quite accurate.

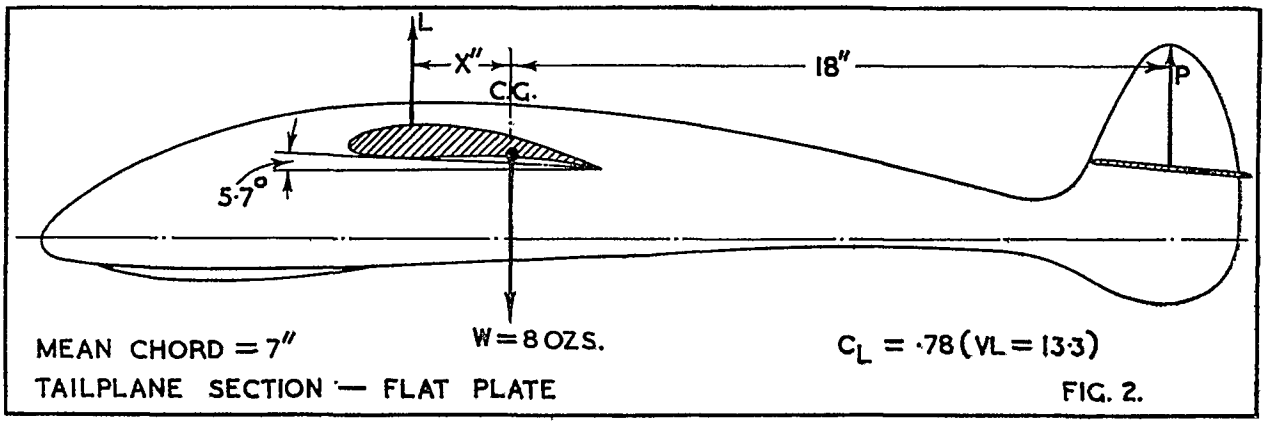


FIG. 2.

Tailplane area.

Experience reveals that for best longitudinal stability the angle of the tailplane should be some 2° to 5° less than that of the wing (this difference in the two angles is known as longitudinal dihedral). Thus, the tailplane area is the only quantity we can vary to any extent (for a given C.G. position) to obtain balance. Re-writing our equation so that this quantity is the subject, we get

$$S^T = \frac{C_L{}^W S^W x}{C_L{}^T y} \quad \ldots\ldots\ldots\ldots\ldots \text{equation 4}$$

The quantities being the same as before.

Worked example.

In order to tie up all the points we have so far covered, we will try a worked example, using the figures for the projected sailplane in Part I of this series. The relevant particulars are shown on fig. 2. Note that the wing chord we use is not the one at the root, but the Mean Chord (*i.e.* the average of the root and tip chords on a tapered wing; in general Wing Area ÷ Span).

Fig. 3 shows the position of the wing centre of pressure, measured from the leading edge, plotted against angle of attack. In our case α = 5·7° for a VL of 13·3, and thus the C.P. position is obviously 33·5% of the chord = 7" × ·335 = 2·35" from the leading edge. We have already decided that the C.G. is to be 5" from the L.E., and therefore x = 5" — 2·35" = 2·65".

We take the C.P. of the tailplane to be constant at 50% of the chord, as the error of this assumption in relation to the long moment arm is negligible. Thus we can measure y directly from the project drawing, where, in this case, it is 18".

Next the downwash. Putting our values in equation 3 we get

$$\epsilon = \frac{35 \times 0{\cdot}78}{4} = 6{\cdot}825°$$

We will set the tailplane at α = 3° less than that of the wing. Taking the downwash into account, the angle is 6·8° + 2·7° = 9·5° to the centre line of the fuselage. Remember that the angle at which the tailplane actually meets the airflow is only 2·7°, and then this does not look so formidable. Nevertheless, experienced modellers will, no doubt, notice that the angle is considerably larger than is usual for modern practice, and desire an explanation. The reason is two-fold: the large downwash angle, due to the very low Aspect Ratio of the wing; and the fact that we desire an upwardly acting correcting force on the tailplane. Many machines to-day are longitudinally balanced, in level flight, by a downward force on the tailplane, a very unsatisfactory expedient if maximum overall lift and efficiency are desired.

We now know everything we need to for our purpose, and putting these values in equation 4, we get

$$\text{Tailplane Area } S^T = \frac{0{\cdot}78 \times 200 \times 2{\cdot}65}{0{\cdot}18 \times 18}$$

= 128 square ins., or very nearly a tandem!

No! this will *not* do. Much too large! And the cure? We simply move the C.G. forward. Let us try moving it one inch, so that x is now 1·65" and y = 19".

Then we get

$$S^T = \frac{0{\cdot}78 \times 200 \times 1{\cdot}65}{0{\cdot}18 \times 19}$$

= 75 square ins. Much better, but still too large if we wish to abide by F.A.I. rules.

Moving it forward a further half an inch we get

$$S^T = \frac{0{\cdot}78 \times 200 \times 1{\cdot}15}{0{\cdot}18 \times 19{\cdot}5}$$

= 51 square ins., which is just about right.

Thus, we see that in our projected model, the C.G. must be 3·5" from the leading edge of the wing, and the tailplane area 51 square ins.

From what we have seen so far, it would appear that determination of the C.G. position is all very arbitary. This is not so, however, as we shall see next month. It is quite easy to achieve longitudinal *balance*, but we also have to assure that when the machine is displaced from its flying altitude it will quickly return to it. This requirement limits the position of the C.G., and is the nucleus of the problem of longitudinal stability.

(*Next month we shall complete this aspect by dealing with longitudinal stability.*)

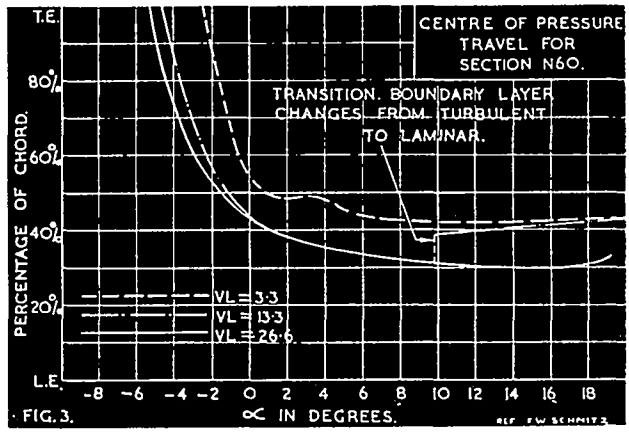
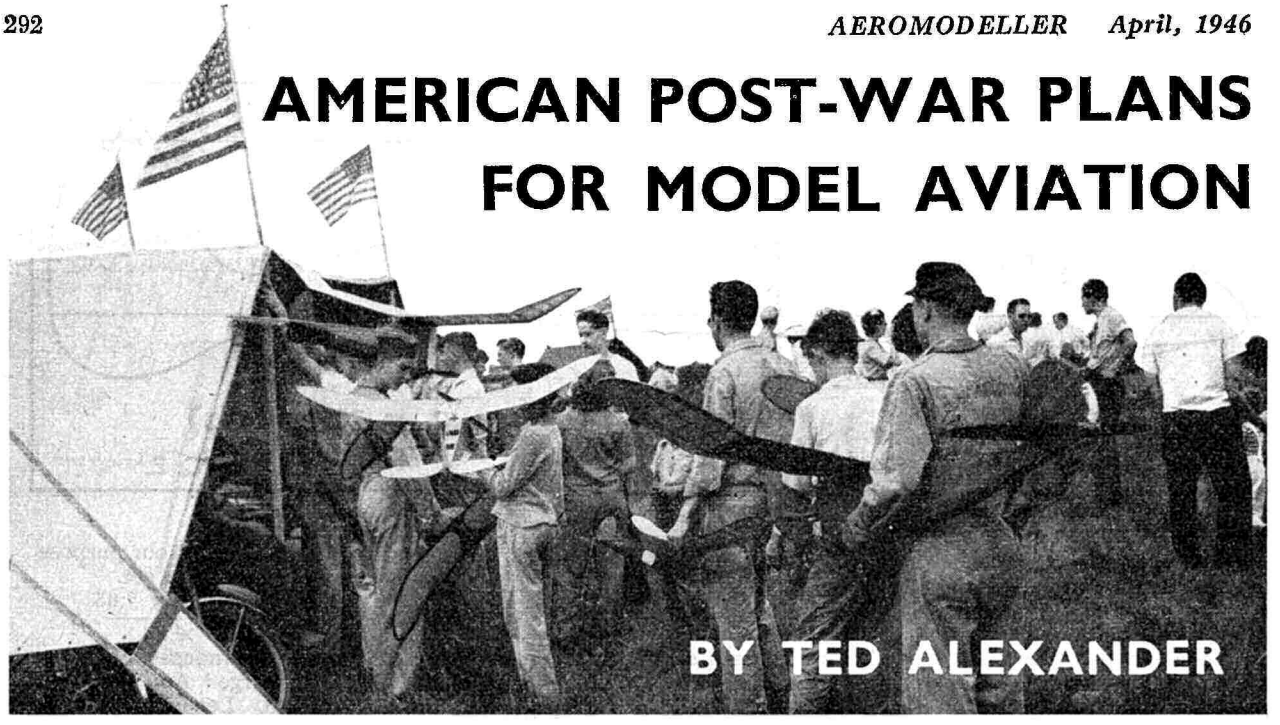


FIG. 3.

AMERICAN POST-WAR PLANS FOR MODEL AVIATION



BY TED ALEXANDER

A MORE optimistic outlook here in the United States during the past few months, due to the sudden end of the war, has hastened planning for post-war model aviation activities.

A somewhat immediate step to aid the serious aeromodeller has been made by the War Labour Board in permitting the manufacture of gas model engines in limited quantities for sale on priority rationing. These engines are available to any student of aeronautics of pre-draft age upon application. The application must be signed by an instructor or by the head of the school where the student is enrolled. Another release of a more general nature, available to all model builders, is a considerable stock of balsa. Balsa heretofore has been unavailable because of its use in the war effort.

The first definite step toward a post-war plan that will serve as a protection for the model builder, is the proposed organization of a testing laboratory by the Academy of Model Aeronautics, governing body of all aeromodelling in the U.S. Made up of a technically experienced committee, the A.M.A. laboratory will test engines, materials and kits that are for sale on the open market. It will set up standards for such goods and establish rigid grades for such materials as balsa and tissues. Manufacturers of such supplies will be permitted to use an A.M.A. stamp of approval on all goods that meet with the satisfaction of the A.M.A. examiners.

Manufacturers of engines are preparing for an immediate return to normal production just as soon as materials are released. Many of the well known firms, such as Ohlsson, Bantan, Herkimer, Rogers and Forster, have new designs available that will offer better engines of greater power, less weight, combined with better designing that will make for a more compact engine with assured starting. New metals developed for war purposes will be available to the engine manufacturers and will contribute to many improvements. Many of the class B and C engines will have twin ignition. With the conclusion of hostilities and the release of metals, a new five-cylinder engine of $\frac{3}{8}$ in. bore and $\frac{3}{8}$ in. stroke, costing about thirty dollars, has been placed on the market.

Model airplane construction will undoubtedly experience many new trends in the post-war world. The new light-weight magnesium metals will undoubtedly be used as a substitute for wood by the more ingenious aeromodeller. All-metal gas models may become fairly common, purchasable in kits. Radio engineer and modeller will jointly produce wireless-controlled craft of amazing efficiency. Jet propulsion and helicopter craft will be in evidence at every contest meet.

Any thought about post-war model aviation must begin and end around the aeromodeller himself. All plans must have, for the most part, a consideration of what is going to happen to aeromodelling and what can be done to help the hobby along, but never forgetting that the strongest link in the whole chain is J. Q. Model-builder, Esq., himself. Whatever plans are made for the Trade, for instance, are futile if they fail to consider that without the modeller, there would be no trade. He must be protected, and his best protection is in organisation. This has been the greatest reason for the increasing popularity of model clubs. With the thousands of returning airmen, and the general increased interest in aviation by the general public it is to be expected that clubs will flourish all over America.

In preparation for such activity, the Academy of Model Aeronautics has established a post-war planning committee that now has under consideration many of the problems that have been present in the past that may easily be multiplied by the conditions described above. Its first step has been a protective one. The establishment of the testing laboratory will guide the Trade. But it also has before it the problems of regional jealousies that have been bothersome in the past. The model flyer in New England, for example, is faced with problems quite unknown to the flyers in Southern California. It can be expected that with proper planning and a better understanding by everyone of the conditions of locale, a greater unification of ideas and ideals can be accomplished. One of the best ways of reaching a sort of mutual

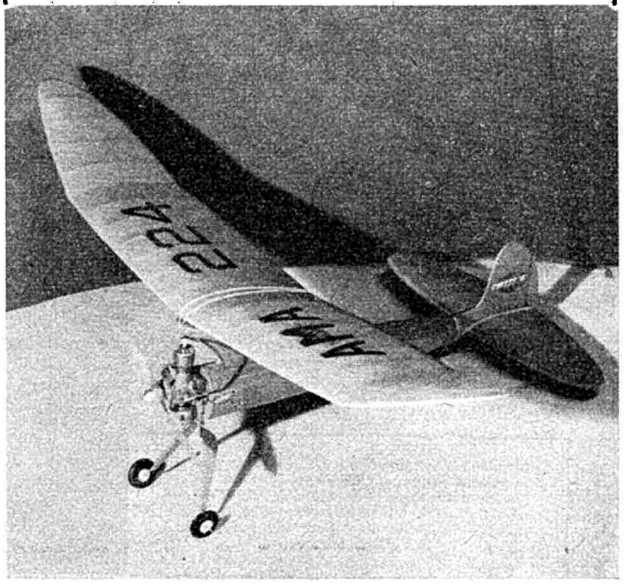
understanding of problems is for an increase in inter-regional meets with participation by modellers from all sections of the U.S. It is understood that the committee has under consideration a " high-class " membership group, for the real leaders of the sport from each region, the people who will make up the future technical committees. It will consider the methods for a truly democratic form of election of officers by the modellers themselves, and the possibility of having younger modellers granted gas model licences (now restricted to those fourteen years and over) if properly supervised.

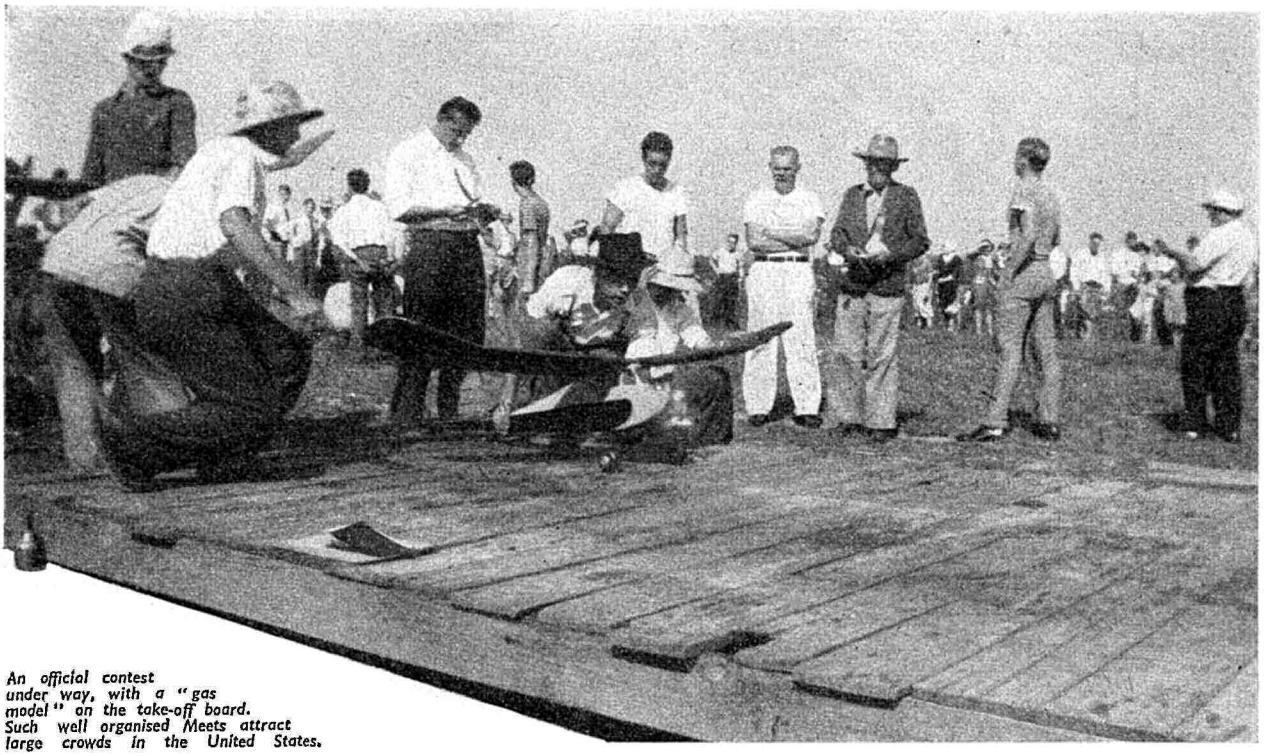
At the present time the A.M.A. Rules Committee is in constant session by mail on any point of rule that may be in question. It is hoped to make this system more fluid by a monthly bulletin to every A.M.A. member that would inform of modifications of rules, regional contests, and other important information. As a further aid to the aeromodeller, and to further aid the post-war programme, offices may be opened in strategic cities in various sections of America.

Considering the fact that in 1942 the average age of Academy members was between 17 and 18 years, the effect of the war on the Academy can be readily understood. Thousands of active leaders in model aviation joined the armed forces or devoted their full time and energy to aviation industries. For this reason, many of the clubs became inactive for the duration. In the meantime, many of the younger fellows have grown up to the point where they are capable of running clubs and organising groups, and this is occurring all over the country at the present time. Model aviation activity in the U.S. reached its minimum point of activity in the spring of 1943. Since that time it has shown a steady increase. This past season has shown many more contests conducted than last year, and the number of licences issued by the A.M.A. has sharply increased. At the present time every indication is very encouraging.

During the war the Academy has been very active in keeping model aviation alive and in directing its energies

The heading photo shows a group of modellers waiting to weigh in their models at a large scale Meet held last year at Akron. (Above.) A U.S. Army Air Corps Officer examines a fine example of the flying scale control line modeller's art. It does seem a pity, though, that the engine cylinder forms such an unæsthetic projection. (Below.) A typical and unlovely " gas model " designed and built by Everett Tasker. The model, the " Zipper A ", is powered with a Super Atom and has an extremely good performance, having placed in several contests.



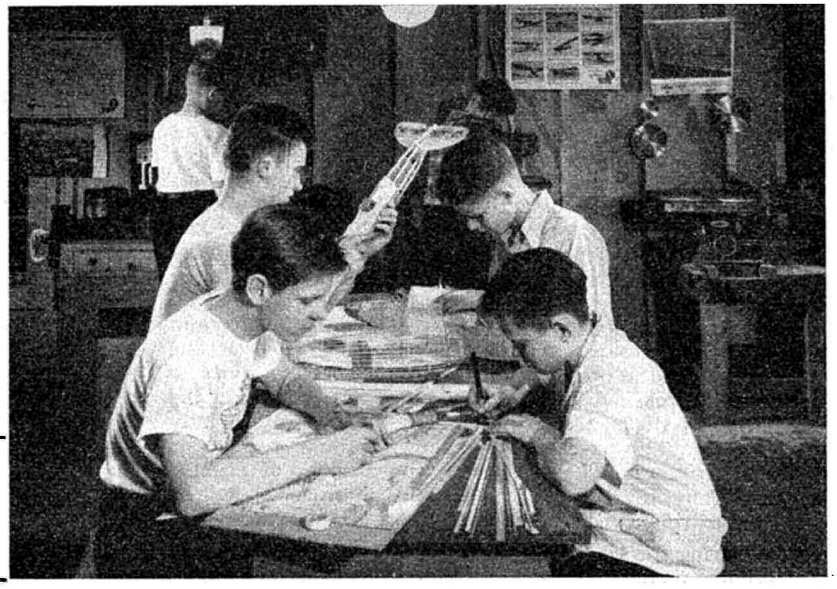


An official contest under way, with a "gas model" on the take-off board. Such well organised Meets attract large crowds in the United States.

wherever possible toward the war effort, guided by capable Russell W. Nichols, headquarters director. Nichols also edits "Model Aviation." The Academy had a leading part in setting up and administering the Navy—U.S. Office of Education Scale Model Programme for High Schools, besides encouraging and fostering local contests and meets which would not be affected by the war travel limitations, as well as assuming an active leadership in the efforts to obtain an allocation of material for model kits and model airplane engines. It has concerned itself with many other projects which, secret up to now, will probably be made public shortly.

Co-operating with the A.M.A. have been such organisations as the Air Youth of America. Air Youth, working with the Academy, has caused our public schools to awaken to the need of encouraging model plane building as part of standard school work as a means to recognize abilities in air-minded youth and to train and encourage these young people in careers in aviation. Progressive American schools have not only organised model groups, but have included in the plans of these clubs actual ground mechanic and flight courses. Air Youth of America is a national non-profit educational organisation, a sort of national council for youth. The objectives of Air Youth have been threefold. First, to encourage building and flying of model aircraft as a hobby and sport, particularly among youth of limited opportunity. Educationally, to provide junior aviation material for use in private and public schools, and to serve as a source of information to young people planning careers in aviation.

American aeromodellers planning now for the post-war world, realize that the world is shrinking in time and distance, and include in their preparations, plans to further and sponsor world-wide interest in competition in model aviation.



Members of an American model club at work in their well-equipped club room. Such organisation makes it possible to provide facilities and tools that might otherwise be beyond reach of the average model builder. Note the circular saw in the right background.

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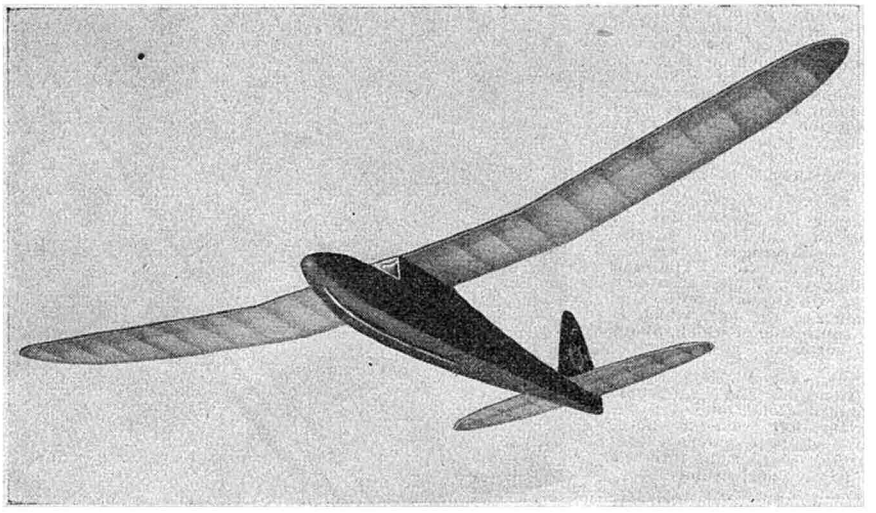

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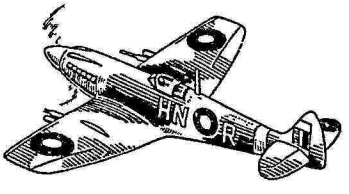
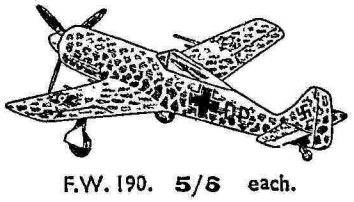


SPITFIRE XII. **5/6** each.



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THESE KITS INCORPORATE COMPLETELY FINISHED PARTS, RETRACTABLE UNDERCARRIAGES, MOULDED COCKPIT COVERS, RADIAL ENGINES WHERE REQUIRED AND ARE COMPLETE WITH FULLY DETAILED DRAWINGS, CEMENT, INSIGNIA, ETC.

We regret we are unable to supply you direct. Please contact your local dealer.

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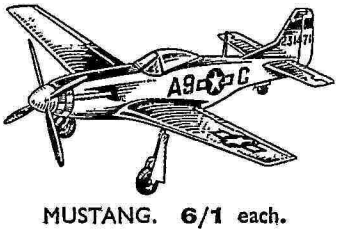

MUSTANG. **6/1** each.

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Eaton Bray 1946 Flying

ROAD TRAVEL

1. Aeromodellers approaching from the NORTH and coming down Watling Street (Route A.5) can branch off at Fenny Stratford and proceed through Stoke Hammond to Leighton Buzzard, 2¼ miles beyond which town is the village of Billington, adjacent to which is the Sportsdrome—or they may continue down Watling Street until they turn right at a point about 1¼ miles south of the village of Hockcliffe. This turning leads through Tilsworth to the village of Stanbridge, which is about 1¼ miles north-east of the Sportsdrome.

2. Aeromodellers leaving Leighton Buzzard take the Hemel Hempstead road (Route B.486). After about a mile they pass over a level crossing, and shortly after bear left at a Y fork. The road rises slightly to the village of Billington, which is on the top of a ridge. On the far (south) side of this ridge is a turning to the left, which is Billington Road, on the south side of which, about ¼ mile along, is the Sportsdrome.

3. Aeromodellers turning off Watling Street and coming through Tilsworth and Stanbridge take the Leighton Buzzard Road out of Stanbridge, but very shortly turn left, travelling south, and within a few hundred yards pass over a level crossing, afterwards turning sharp right into the Billington Road, and so to the Sportsdrome.

4. Aeromodellers approaching from the SOUTH or LONDON AREA, make their way out of London via one or other of the main roads—those from the easterly side via the Barnet Bypass or Watling Street, and so through St. Albans, Redbourne, Markyate, Dunstable, and up Watling Street until they pick up the turning to the left through to Tilsworth (see Route 3 above).

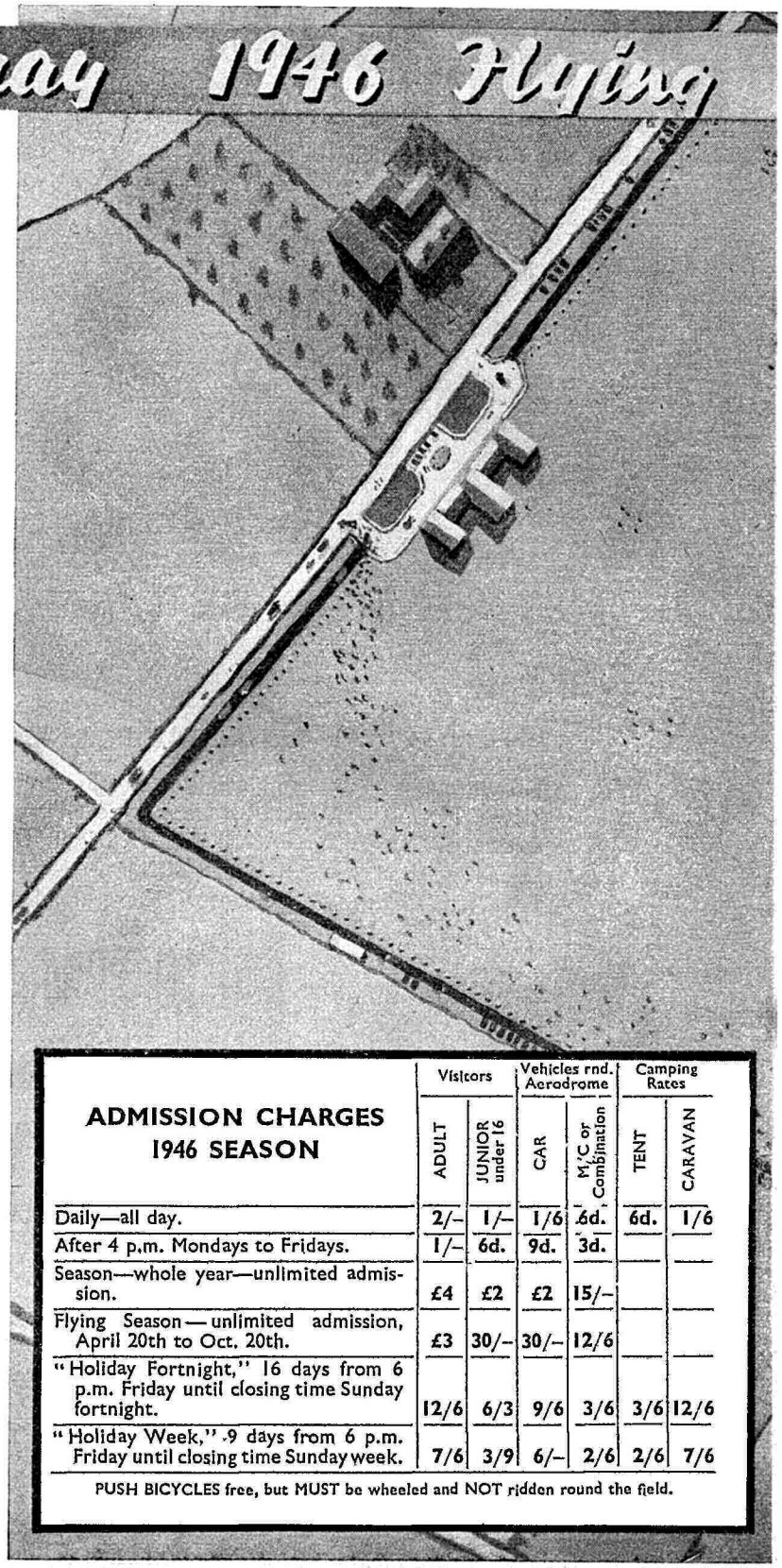
5. Aeromodellers from the more westerly side of London would come out via the Watford Bypass, taking the Tring Road through Kings Langley, but branching right in Boxmoor to Hemel Hempstead. From Hemel Hempstead they take the road straight through for Leighton Buzzard. Passing through the village of Dagnall, crossing the Tring-Dunstable road, and through Eddlesborough until reaching the village of Billington, where they turn right along the Billington Road and so to the Sportsdrome.

It is most important for aeromodellers travelling along this Hemel Hempstead-Leighton Buzzard road to bear in mind that the village of Eaton Bray lies to their right, AND THAT THEY MUST NOT TAKE EITHER OF TWO ROADS WHICH BEAR OFF TO THE RIGHT LABELLED "EATON BRAY." THESE WILL TAKE THEM TO THE VILLAGE AND NOT TO THE SPORTSDROME. Aeromodellers should keep on the main Hemel Hempstead road until they come to the village of Billington, and then turn right along the Billington Road to the Sportsdrome.

Suitable arrangements with the local authorities in regard to the erection of signposts have been made, and once aeromodellers are within a couple of miles or so of the Sportsdrome, no matter from which direction they approach, they will find clear notices guiding them to the Sportsdrome.

6. Aeromodellers approaching from a WESTERLY direction, and making their way through Aylesbury, are best advised to make straight for Leighton Buzzard, and then come out on the Leighton Buzzard-Hemel Hempstead road (see Route 2 above).

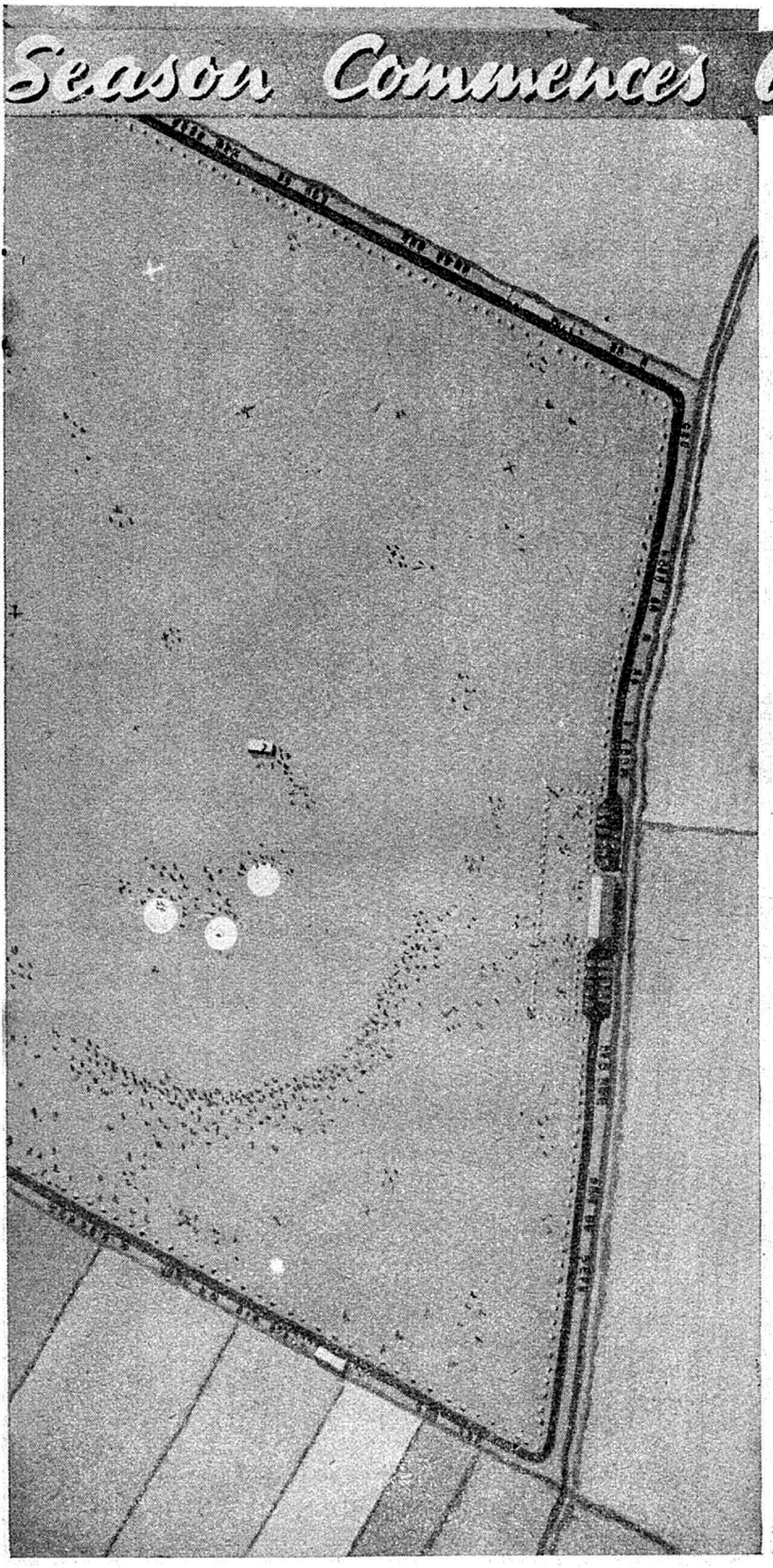
7. Aeromodellers approaching from the EAST, coming through Baldock and Hitchin, would take Route B.655 through Hexton, then through to Harlington, and so to Toddington, then through Tebworth, where they join Watling Street about ¾ mile on the London side of Hockcliffe. Thus they turn left, travel down Watling



ADMISSION CHARGES 1946 SEASON

	Visitors		Vehicles rnd. Aerodrome		Camping Rates	
	ADULT	JUNIOR under 16	CAR	M/C or Combination	TENT	CARAVAN
Daily—all day.	2/-	1/-	1/6	6d.	6d.	1/6
After 4 p.m. Mondays to Fridays.	1/-	6d.	9d.	3d.		
Season—whole year—unlimited admission.	£4	£2	£2	15/-		
Flying Season—unlimited admission, April 20th to Oct. 20th.	£3	30/-	30/-	12/6		
"Holiday Fortnight," 16 days from 6 p.m. Friday until closing time Sunday fortnight.	12/6	6/3	9/6	3/6	3/6	12/6
"Holiday Week," 9 days from 6 p.m. Friday until closing time Sunday week.	7/6	3/9	6/-	2/6	2/6	7/6

PUSH BICYCLES free, but MUST be wheeled and NOT ridden round the field.



Street (towards London) a further ¾ mile, then turn right through Tilsworth and Stanbridge and so to the Sportsdrome.

8. Aeromodellers approaching from the SOUTH-EAST, coming through Luton, would make straight for Dunstable, and then up Watling Street until they meet the Tilsworth turning (see Route 7 above).

9. Eastern National bus service 18B runs between Leighton Buzzard and Dunstable. Aeromodellers should alight at the Billington road.

RAILWAY TRAVEL

Under the still continuing "war-time conditions," it is not possible to arrange a full train service, less still special trains to Eaton Bray, although, no doubt, when normal conditions are re-established, we shall be able to do this.

Stanbridgeford Station is about 1¼ miles—a reasonable walking distance—from the Model Sportsdrome, but those aeromodellers who travel by train to Leighton Buzzard or Dunstable are advised to bring bicycles with them.

Meanwhile, the following train services from London are given:—

L.M.S., EUSTON TO LEIGHTON BUZZARD.			
SATURDAY.		SUNDAY.	
Depart	*Arrive*	*Depart*	*Arrive*
7.35 a.m.	*9.1 a.m.	8.5 a.m.	9.35 a.m.
8.45 a.m.	*10.15 a.m.	9.10 a.m.	10.26 a.m.
11.35 a.m.	*1.3 p.m.	11.35 a.m.	12.50 p.m.
LEIGHTON BUZZARD TO EUSTON, L.M.S.			
5.10 p.m.	6.20 p.m.	5.7 p.m.	6.15 p.m.
5.24 p.m.	7.2 p.m.	6.31 p.m.	7.54 p.m.
7.12 p.m.	8.45 p.m.	7.34 p.m.	9.2 p.m.
10.28 p.m.	11.30 p.m.	—	—
L.N.E.R., KING'S X TO DUNSTABLE TOWN.			
SATURDAY.		SUNDAY.	
Depart	*Arrive*	*Depart*	*Arrive*
7.28 a.m.	*9.27 a.m.	8.35 a.m.	10.24 a.m.
12.10 p.m.	*1.55 p.m.	—	—
DUNSTABLE TOWN TO KING'S X, L.N.E.R.			
5.33 p.m.	7.31 p.m.	6.16 p.m.	8.17 p.m.
6.30 p.m.	8.35 p.m.	—	—

* Denotes that there is a connection with Eastern National Bus Route 18B, to Stanbridge.

L.M.S., DUNSTABLE TO LEIGHTON BUZZARD (*SATURDAYS ONLY*).		
LEIGHTON BUZZARD	STANBR'GE-FORD	DUNSTABLE (L.M.S.)
12.54 p.m.	1.3 p.m.	1.10 p.m.
5.30 p.m.	5.38 p.m.	5.46 p.m.
7.40 p.m.	7.48 p.m.	7.56 p.m.
DUNSTABLE (L.M.S.)	STANBR'GE-FORD	LEIGHTON BUZZARD
1.16 p.m.	1.22 p.m.	1.31 p.m.
6.10 p.m.	6.18 p.m.	6.27 p.m.
8.15 p.m.	8.21 p.m.	8.30 p.m.

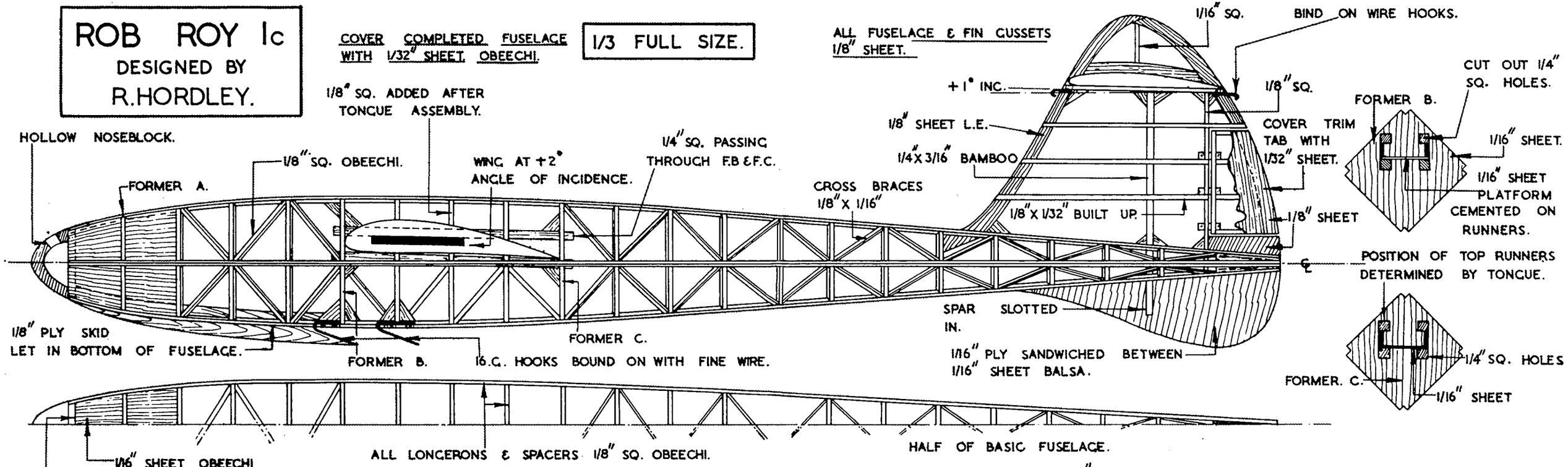
ROB ROY Ic

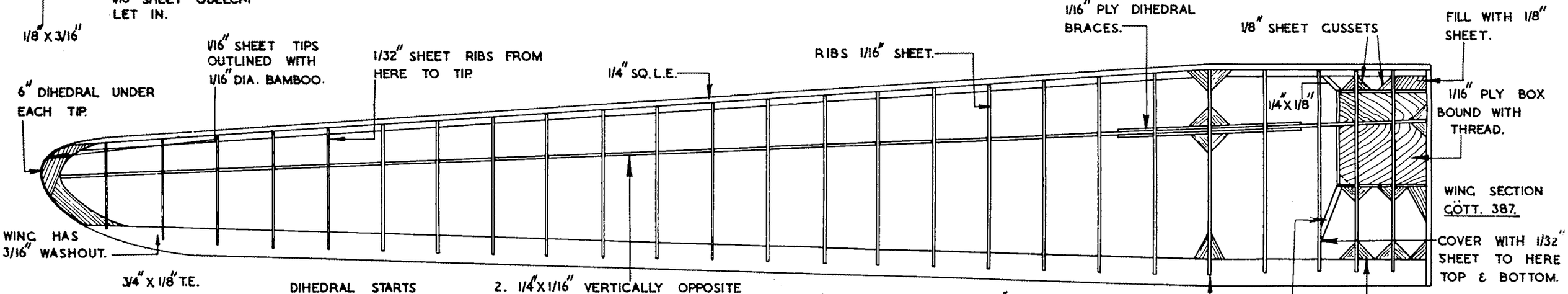
DESIGNED BY

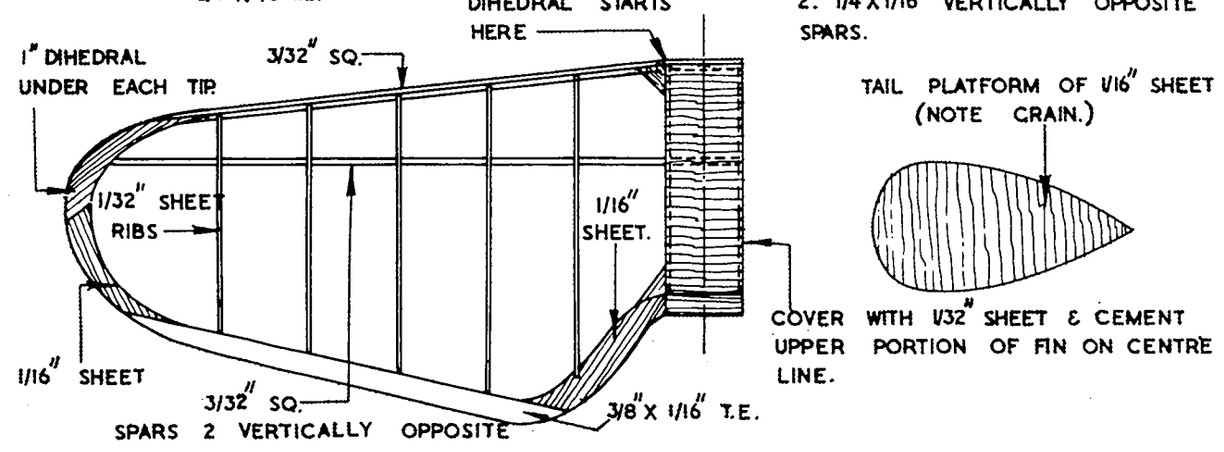
R.HORDLEY.

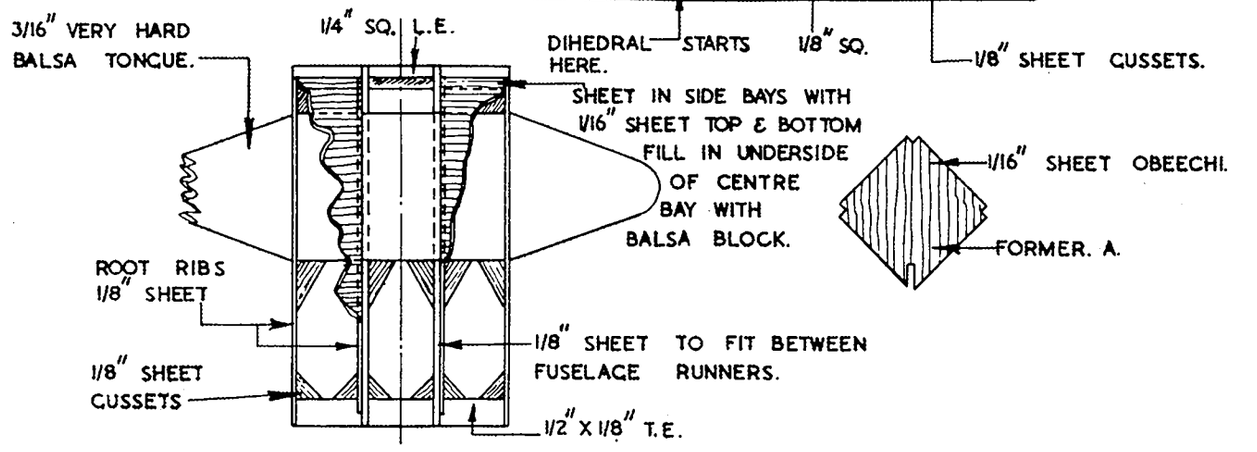
COVER COMPLETED FUSELAGE WITH 1/32" SHEET OBEECHI.

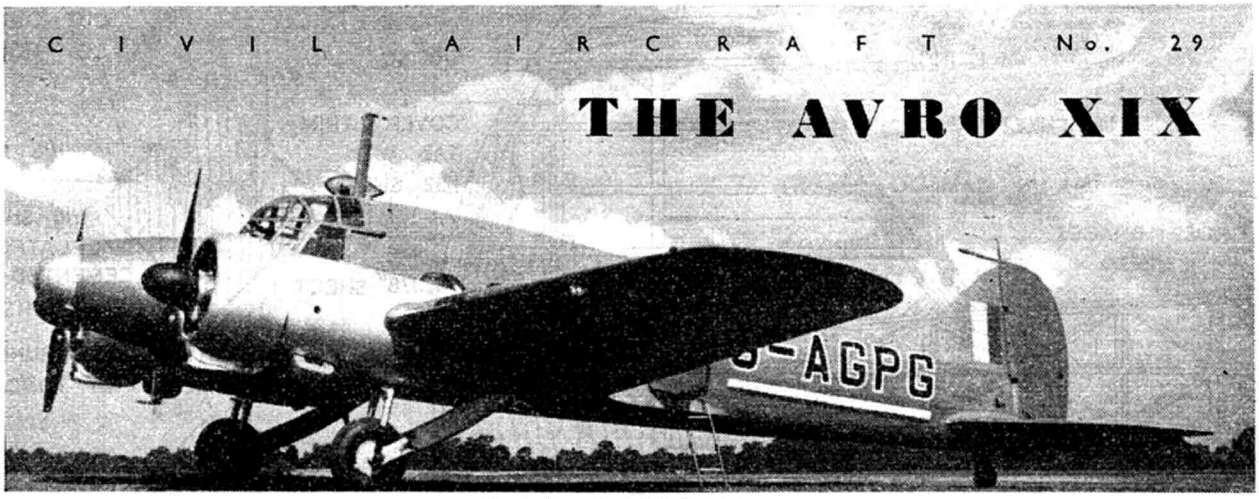
1/3 FULL SIZE.











CIVIL AIRCRAFT No. 29

THE AVRO XIX

By E·J·RIDING

Avro Photo.

A. V. ROE & Co. Ltd., of Newton Heath, Manchester, supplied the first two Avro 652 eight-seater commercial monoplanes to Imperial Airways Ltd. in the latter part of 1934. These aircraft, G-ACRM "Avalon" and G-ACRN "Avatar" (later changed to "Ava"), were fitted with two 290 h.p. Armstrong-Siddeley "Cheetah VI" radial engines.

The possibilities of the 652 as a service machine were soon realised, and following the successful trials of the prototype 652A or Anson, an initial contract was placed for 180 machines to be used on general reconnaissance duties. Incidentally, they were the first monoplanes with retractable undercarriages to go into squadron service.

The war service of the Anson, both as trainer, communications aircraft and A.T.A. taxi hack, is well known to all, and in recent months the wheel has turned full cycle, and we find the Anson back again in the civil market as the Type 652A Mk. XIX.

The Mk. XIX is no wartime make-shift job, but is a real commercial proposition based on a sound and well-tried design. It is supplied in two different forms—accommodation being provided for six or nine passengers and two crew. The six-seater is designed for charter or long distance air line work, provision being made for a toilet room at the rear of the cabin. Both are fitted with 420 h.p. 7 cylinder air cooled radial Armstrong-Siddeley "Cheetah XV" engines driving two-bladed constant speed Rotol airscrews.

In the event of one engine failing just after take-off, the Anson XIX is able to climb on one engine; thus, with maximum load, the angle of climb on one engine is approximately 1 : 45. The passenger cabin, in addition to having comfortably upholstered individual seats, is provided with modern heating, ventilating, sound-proofing and lighting fixtures.

Two Anson XIX's are shown in the accompanying photographs, G-AGPG is owned by "Aeropia Ltd." and is royal blue all over with black registration letters outlined in aluminium and underlined by the now obsolete red, white and blue flashes. G-AGVA is one of the new fleet of XIX's now being delivered to Railway Air Services Ltd., and is aluminium all over.

Construction.

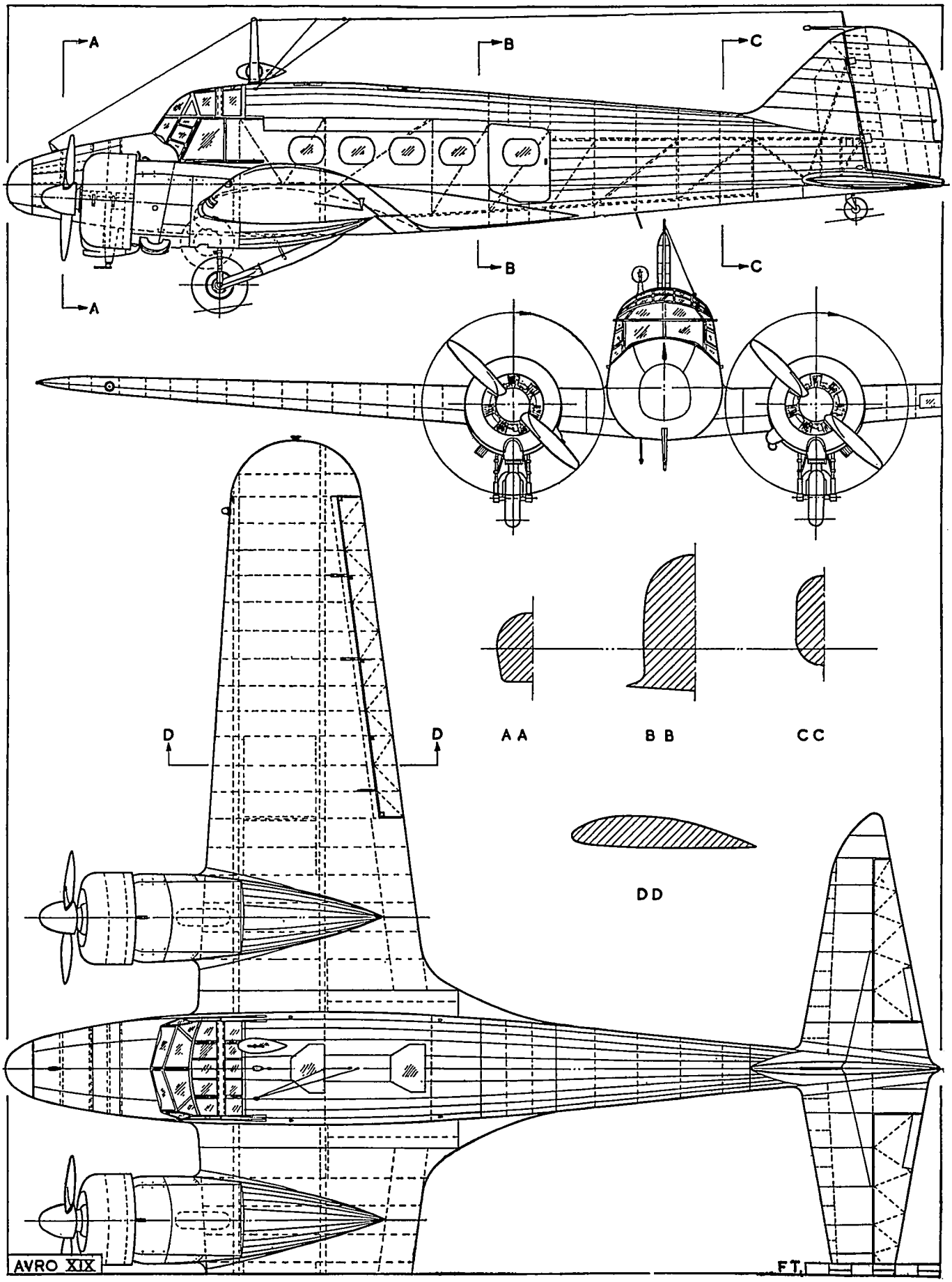
Fuselage: Primary structure of welded steel tubing; streamlined form obtained by fabric covering laid over wooden stringers attached to plywood formers clipped to the metal framework.

Wings: Two main spars consisting of laminated spruce top and bottom booms with plywood webs, together with the usual ribs and stringers. Wings, tailplane and rudder are plywood covered.

Hydraulically operated split type trailing edge flaps are fitted to the underside of the wing. The undercarriage is of new design, incorporating hydraulically retractable Turner pneumatic shock legs—a boon to those who preferred to leave the undercarriage down rather than wind the 130 turns on the older types.

Photo by E. J. Riding.

Specification: Span, 56 ft. 6 in.; length, 42 ft. 3 in.; height, 13 ft. 6 in.; wing area, 463 sq. ft.; weight empty, 7,419 lbs.; max. loaded weight, 10,400 lbs.; max. speed, 186 m.p.h.; cruising speed, 155 m.p.h.; landing speed, 60 m.p.h.; range with 9 passengers, 356 miles; range with 6 passengers, 570 miles; fuel, 140 gallons in four wing tanks.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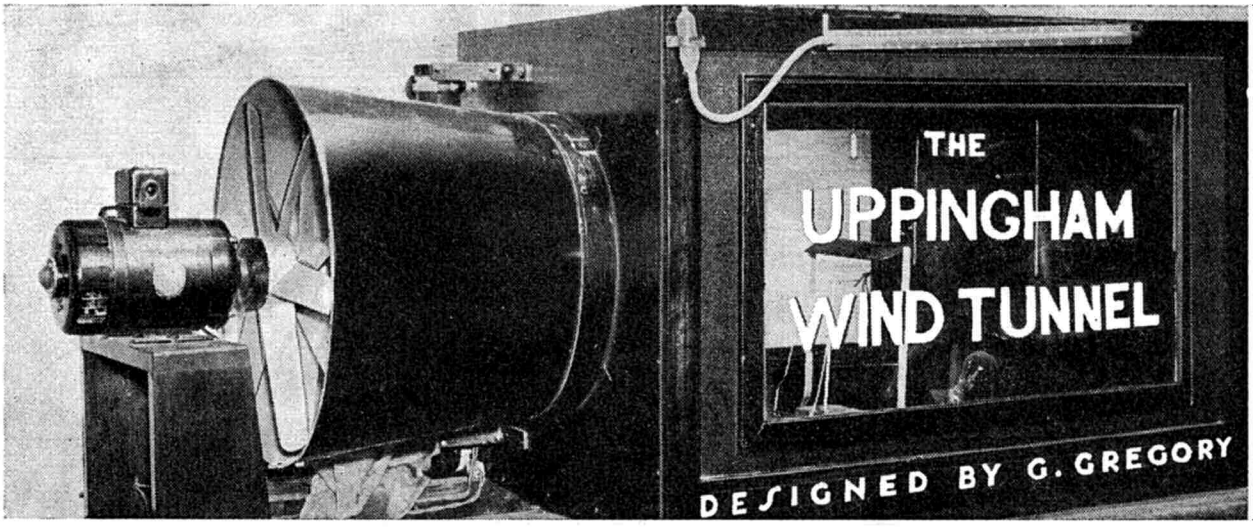
AVRO XIX
F.T.

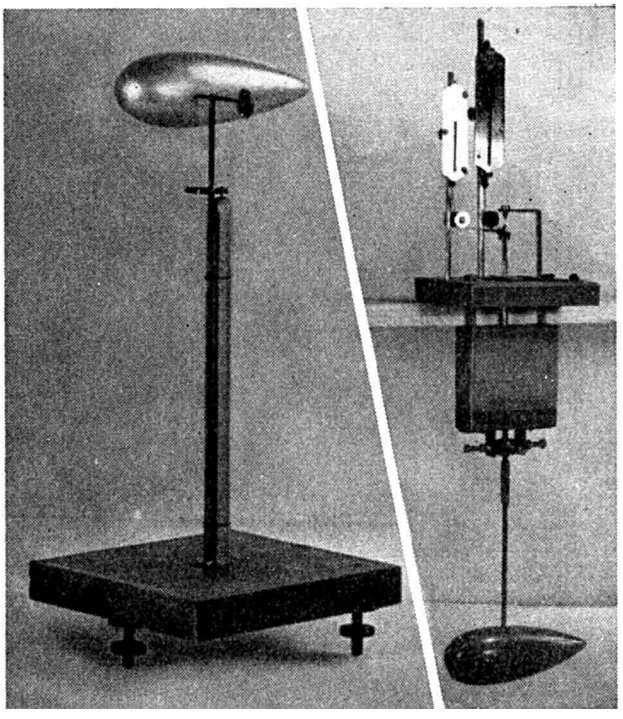


DESCRIBED BY J. HALIFAX

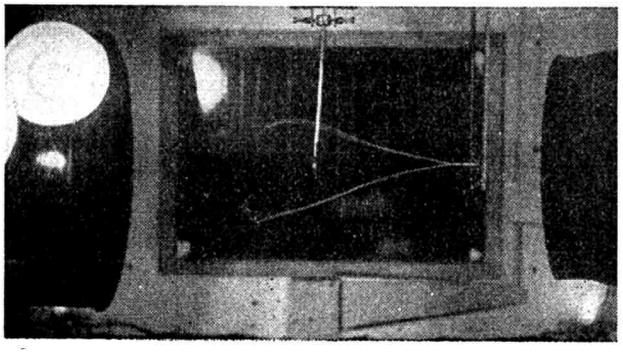
A VERY well-known aeromodeller unconsciously summed up the opinions of very many visitors to Dorland Hall when he said of the Uppingham Wind Tunnel, "I think that is the best show in the Exhibition." Certainly it attracted interest; so much so, in fact, that operation had to be suspended during the busier periods because it stopped the flow of people through the hall.

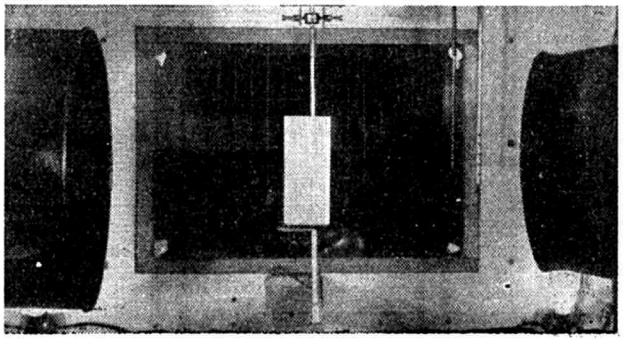
"But what," the Casual Reader is sure to ask, "what in the world could people see in a wind tunnel to be so interested in?" To him, no doubt, the word is synonymous with formulae, theory and advanced research—certainly of no interest to the vast majority of the Dorland Hall visitors. The answer is that the Uppingham Wind Tunnel is no ordinary one. Its constructor, G. W. Gregory (a member of the staff of Uppingham School), designed it with the intention of providing graphic illustrations of the basic principles of aerodynamics, and achieved unsurpassed success, despite the fact that the construction had, of necessity, to be kept as simple as possible.

But this is perhaps rather too general for our Casual Reader. Look, then, at the model in the tunnel at the top of the opposite page. It consists of a test aerofoil pivoted span-wise, and with a crank attachment so that its angle of attack can be controlled by a rod outside the tunnel. In its upper and lower surfaces a line of holes has been drilled from the leading to the trailing edge, and



(Above) **Two ways to an end.** *The low drag of a streamline body can be shown by balancing it against a small flat plate (left) or by measuring the force on the aerodynamic balance (right).*





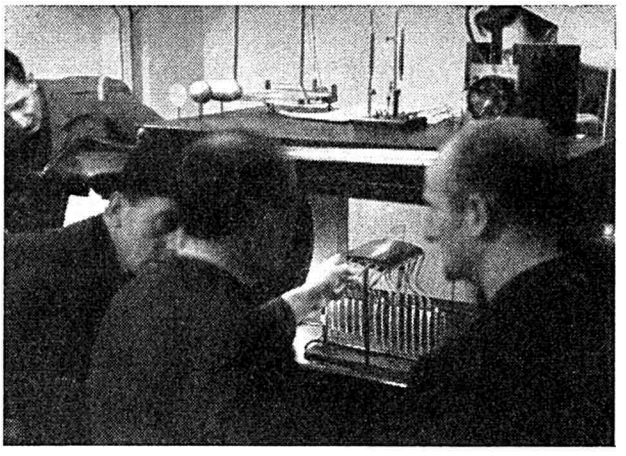
(Below) **Research and Instruction.** *Woollen streamers are being used to show air flow round a flat plate, on the left. Below, a model wing is being tested.*

each hole is connected to one of the glass tubes which protrude from the wing tip. Below the model is a Manometer—not so formidable as it sounds, being a very simple instrument which measures variations in air pressure. Under ordinary conditions, the level of the alcohol in each tube is the same, but if a pressure greater than atmospheric is applied to one of the tubes, the level of the liquid sinks; the converse is the case for a low pressure, of course. Each of the tubes is connected to one of the holes in the model, and thus the pressure distribution over both surfaces of a wing can be very easily seen. It is particularly interesting to see the effect of stalling the wing on this pressure distribution, especially if woollen streamers are used to show the path taken by the air over the wing just before and during the stall.

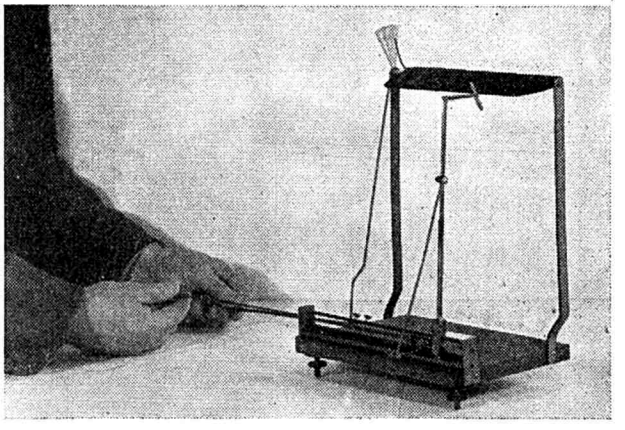
This is just one example. Another can be seen on the right (middle), where a small pivoted plate, placed parallel to the airflow, can be made to spin rapidly round when moved into a wing tip vortex. As Induced Drag is related to wing tip vortices, it is very interesting to see how their strength decreases with diminishing angle of attack, until they vanish completely at the angle for zero lift. As in the example above, this model is remotely controlled from outside the tunnel with the aid of two rods—a very valuable asset.

Have I satisfied you, Casual Reader? I hope so, because every club and organization interested in aeronautics should own a wind tunnel. My reasons for saying this are obvious and much publicized, so I will not labour the point except to say that my own club is well on the way to completing one. I believe that the Uppingham Tunnel is ideal for the job. I have operated it for hours on end for my own interest; I have even given a series of lectures with it, and I can very heartily recommend it as being supreme in its class.

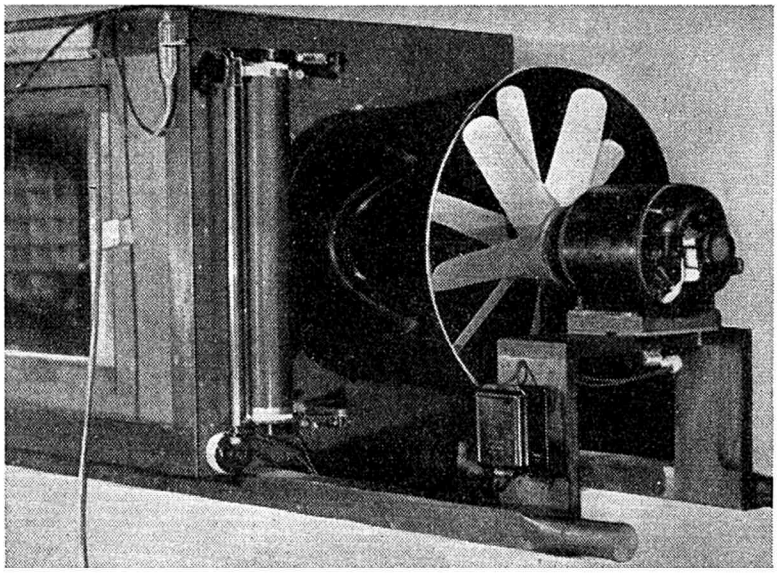
The Uppingham Wind Tunnel *is the subject of a new book by G. W. Gregory, published by Harborough at 7s. 6d. This fully illustrated thirty-six page book (size 13 in. by 8½ in.) deals with every aspect of the construction and operation of the tunnel and its attendant models. A set of working drawings (two sheets 60 in. by 30 in.) showing every part half full-size may also be obtained at 17s. 6d. post free, or 25s. complete with the book, from Allen House, Newarke Street, Leicester.*

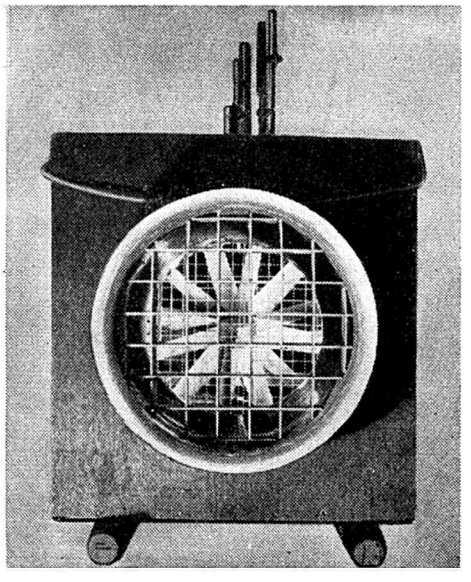


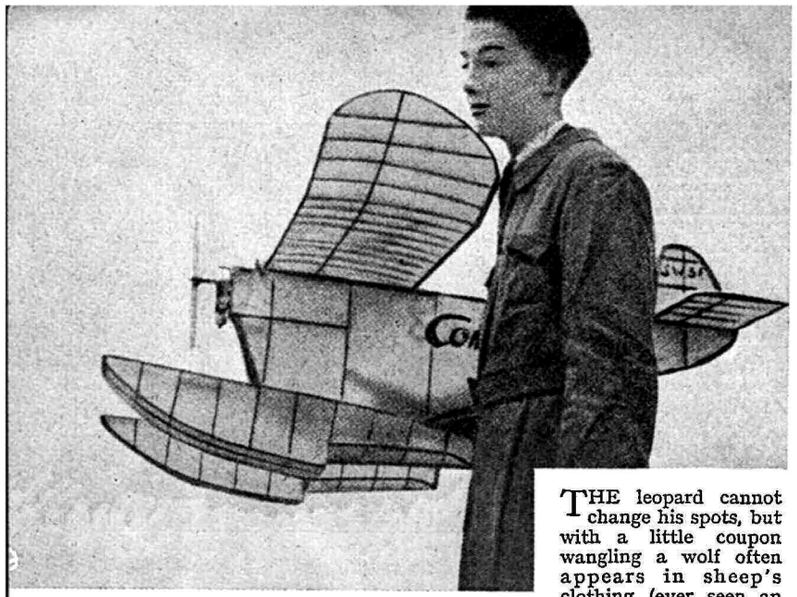
(Above) A group of enthusiasts round the tunnel at the Dorland Hall Exhibition. Mr. G. W. Gregory is standing on the right, while the writer operates the apparatus from behind. (Below) The model for illustrating wing tip vortices.

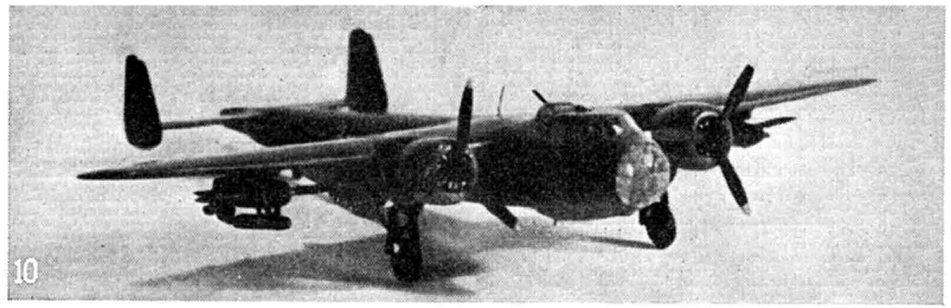


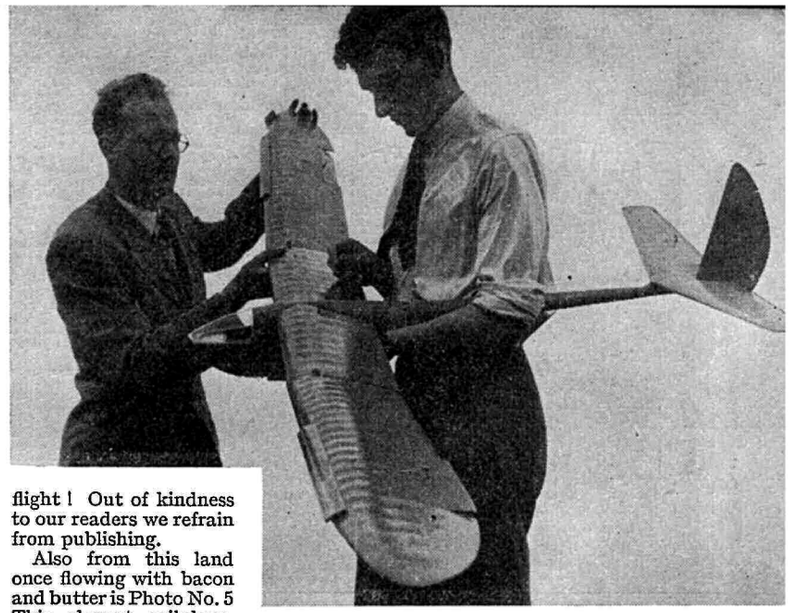
(Below, *left*) **The Business end.** *The "office" of the tunnel contains a switch and fuse box for the motor, a speed regulator (rheostat) and the interior lighting switch. Above the window can be seen the air speed indicator.*
(Below, *right*) **What the fly saw.** *This view down the tunnel from the intake end clearly shows the honeycombs.*











THE leopard cannot change his spots, but with a little coupon wangling a wolf often appears in sheep's clothing (ever seen an airman in a flying jacket?) Which is all to point out that Model News is henceforth appearing in this somewhat altered form, as we hope to give you a fuller account of the models pictured here each month. To do this, however, you, the reader, must help. This feature is Model *News*, remember, and we wish to give you news photographs, but can only do so if you co-operate. New models, old models, unorthodox models are required. If you have a flying model let's see it in the air, it's far more interesting than one stuck on a table-top. We are also very interested in photos of old-timers, even if they're only magazine cuttings. We are relying on you, so send as much information as you can muster.

Before we take a look at our photos, please note an error in the January Model News. Mr. Orchard of Norbury points out that his initials are P. H., not as stated, and that the model was actually built by the designer, Mick Smith. Belated congratulations Mr. Smith, and apologies Mr. Orchard!

We'll begin in England, as usual, with our Model of the Month. A true delight to the eye, the sailplane shown in Photo No. 1 won a worthy first prize in the Sailplane Section of the competitions at Dorland Hall. Built by Geoff Dunmore of Leicester (holding the model), it is finished in a brilliant red, and the 2,800 hours spent in its construction ranks it high amongst Dunmore's collection of models, which are all well-known for their superb finish and ingenious detail.

From "Sunny Italy" (Eighth Army men, please note!) comes Photo No. 2. This model is a typical Italian job, with a tremendously high pylon-mounted wing and a diesel engine. In the National competitions in Italy in 1945 it took third prize, and was quite a well-known model during the season. The span is just over 47 in., the weight 19½ ozs., and the wing area 481 sq. in.

Heading north, we have recently been receiving quite a selection of photos from Scandinavia, and Photo No. 3 shows a very interesting petrol-engined seaplane originating from Finland. Note the interesting arrangement of the floats. The span is about 5 ft., and it is powered with a petrol engine of around 6 c.c.

We get bacon from Denmark, but we managed to get Photo No. 4 as well. Built by Per Weishaupt of Copenhagen, one of our correspondents and a well-known figure in Danish model aviation, it is described by its owner as "a racer-model, but not much luck!" This doleful statement is accounted for by another photo in our possession showing the remains after its last flight! Out of kindness to our readers we refrain from publishing.

Also from this land once flowing with bacon and butter is Photo No. 5 This elegant sailplane, named "Holger Danske," is the design of Hans Klove-Lassen of Copenhagen, and has been officially taken up and issued as a standard plan by Danske Modelflyver Union. The wing incorporates one of a new series of Swedish airfoils SI 63010. This series of airfoils developed at low Reynolds' Numbers is very popular over there. The model also features a lifting tailplane.

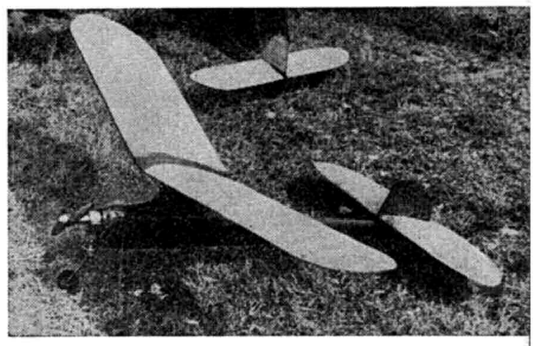
Photo No. 6 takes us back to a flying atmosphere, with an interesting duration model built by R. Rolson, of Stockton-on-Tees. There appears to be room for improvement in the design of the wing mounting—as it stands at the moment it bears a strong resemblance to builder's scaffolding!

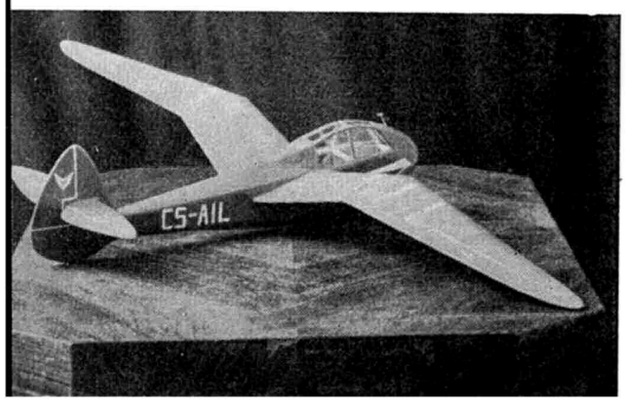
South-west, the next port of call being Lisbon in Portugal. Here we drop in on Ruy Grancha, one of our many Portuguese readers, who has been a modeller for twenty out of his twenty-seven years. His 1 in. to 1 ft. flying scale model of the "Moswey," the famous Swiss record-breaking sailplane, is a very fin effort, and is shown in Photo No. 7. The finish is excellent, and the design lends itself to efficient flying and a most attractive model.

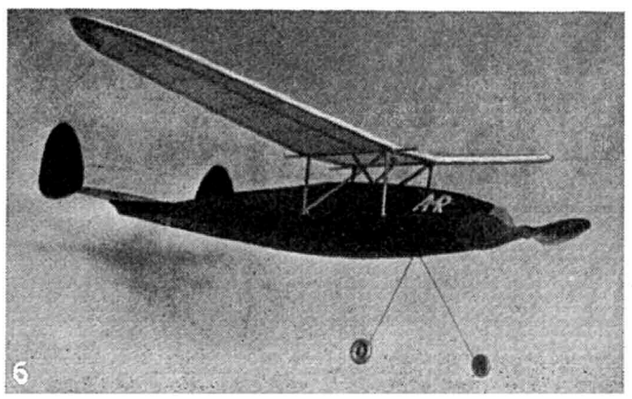
A flashback from the "good old days of flying," Photo No. 8 was taken at Alexandra Palace in 1907 during the first Aero Club Trials. The original caption to the photograph reads: "Model Aeroplanes in 1907 were not children's toys but scientific experiments. Mr. W. Cochran is seen above *starting* his model . . . " (the italics are ours!) The model is apparently one of the early types with which much experiment was done, being half airship and half aeroplane. The large fat fuselage was gas-filled, the only actual supporting surfaces being the horizontal stub-wings which can be seen at the sides of the fuselage. It is a pity we have no data regarding the end of the flight whose "start" is portrayed above! Can any reader help?

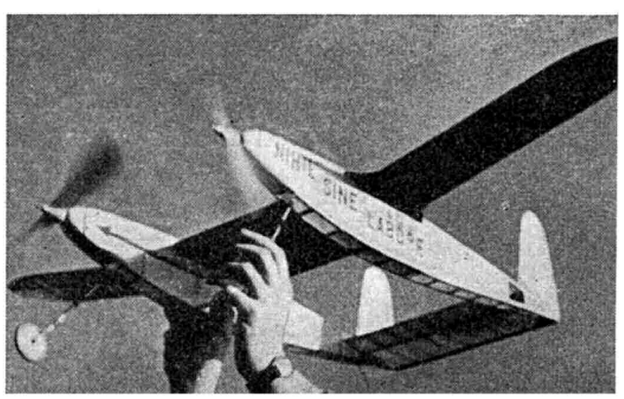
Venturing south-east a little, we make use of our universal passport and pause once more to take a look at a peculiar diesel-engined Swiss model seaplane, Photo No. 9. Shown here with its proud owner, the model leads one to think that something has slipped. The solution perhaps is—corsets? The weird shape of the fuselage seems to have no aerodynamic or structural consideration to recommend it.

Back once again to England and another first prize winner at Dorland Hall. As a contrast to Geoff Dunmore's glider, the delightful little model in Photo No. 10 has a span of only a few inches. It is a solid model of a Dornier Do 217 of only 1/144th scale, and was built by A. B. Wyborn of Whetstone.

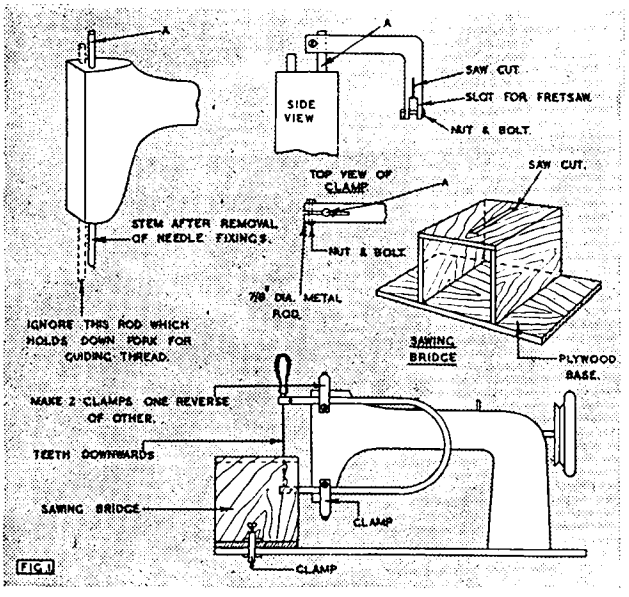


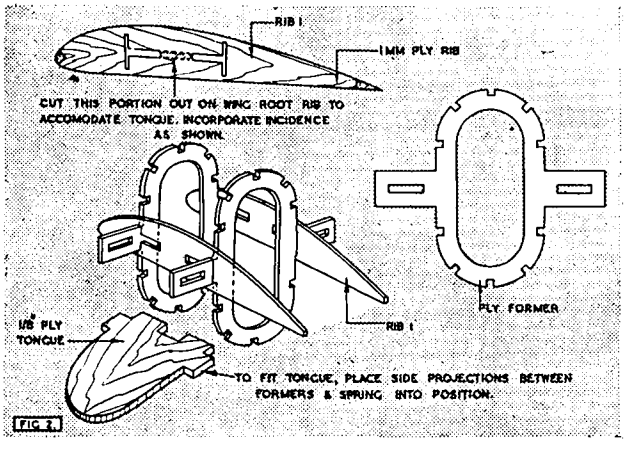


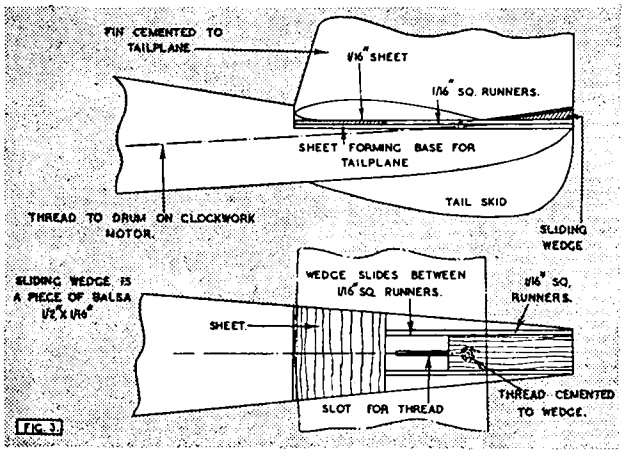




GADGET REVIEW By "Bonsus"







IF April lives up to its tradition, there will be plenty of time to spare this month for modelling activities—and that means gadgets. Its always a good scheme to take advantage of the poorer weather to get a good line-up of models for the fine weather (we hope !) of the flying season, so while the rain beats holes in the ground outside, see what good use you can make of this collection of " readers' wiles."

At the risk of breaking up my readers' happy homes, we first turn to a gadget from D. C. JONES of Colwyn Bay which I fear is liable to cause much antagonism from female members of the family. It is an ingenious conversion of an ordinary sewing machine to a mechanical fretsaw. When the needle attachments are removed from the oscillating shaft A, we are left with a bare rod having the exact movement desired for a fretsaw blade. By attaching a simple clamp to each end of the rod the fretsaw can be held firmly in the desired position. It is necessary to build a sawing bridge from 3-ply or any suitable wood as shown in the diagram. When in use, make sure that the teeth of the saw are pointing in a downwards direction, otherwise the blade will try to cut on the upward stroke and the wood will probably be torn out of your hand and split. A last word of warning comes from the originator of the idea who states " it is not necessary to break up a sewing machine as the needle attachments on A may be easily replaced when needed." However, I advise readers to ascertain that the sewing machine will not be much used in the future before making sure it *can't* !

For a long time it has been the considered opinion of many modellers that the mid-wing position has more to commend it than any other location. Similarly, a tongue fixing has many advantages over other methods. Combining the two on an orthodox rubber-powered machine, a difficulty immediately presents itself. The wings must be firmly yet cleanly fixed at the roots to ensure that there will be as little drag as possible. To achieve this it would seem necessary for the tongue to go right through the fuselage, but if this is done it will almost inevitably interfere with the rubber. J. A. HAMEY of Cheltenham has thought of a method of attachment which obviates the tongue protruding through the fuselage, yet achieves the sound fixture required. From Fig. 2, it will be seen that the system is efficiently worked out and all the difficulties are neatly overcome.

The present price of materials means that the loss of a model is no pleasant proposition, and recently dethermalizers have come into their own. A. M. VALE of Bromsgrove, spotted some disadvantages in G. W. W. Harris's system, published in a previous issue of the " AEROMODELLER " and set about designing a practical method of overcoming these. The result, simple yet efficient is shown in Fig. 3. The model is brought down gently by means of the wedge under the tailplane, which is pulled forward by a thread winding on to a drum attached to a clock-work motor in the fuselage. This causes a series of mild stalls, and brings the model down gently and safely. The other advantages

of the system are that the apparatus creates practically no extra drag and all the weights are kept central.

If you can get No. 8's, you may be interested in an idea from J. D. CLARKE, of Eardisland, Leominster, (Fig. 4) for making 1/72nd scale cowls from old batteries. The drawing is completely self-explanatory.

As lazy as the rest of us (!) P. SHEPHERD, of Dartford, writes to tell us he has found "an easier way" to make a solid fuselage than the method described by P. O'Keefe in his article on a 1/72nd Beaufighter, which appeared in the AEROMODELLER, June, 1944. His method Fig. 7 is to shape the fuselage from solid, then cut it *horizontally* into two unequal pieces, the under-surface piece being the larger. Next hollow out, leaving the flooring, and all required interior details, and then complete by rejoining the pieces, filling where necessary with plastic wood.

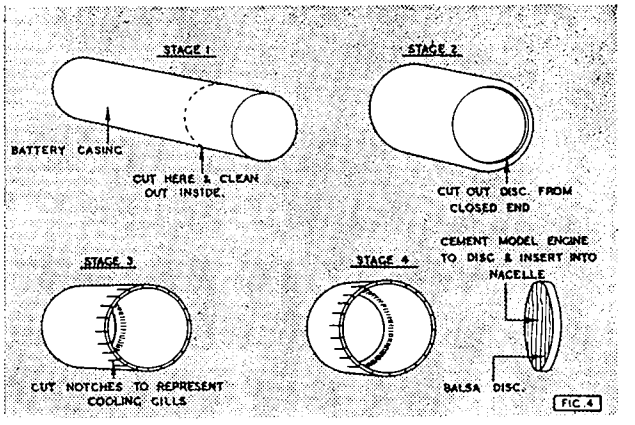
The almost inevitable damage resulting from contact with the ground following a steep glide has led many of us to consider the question of lowering the landing speed of the model and inducing it to sink gently instead of doing its best to burrow. Much thought has been used up by D. S. FAGG of Willesden, and the flap lowering system shown in Fig. 5 is the result; it is a very simple and foolproof, and would be ideal for a scale model. On a normal duration model with a movable wing, some kind of adjustment will have to be incorporated.

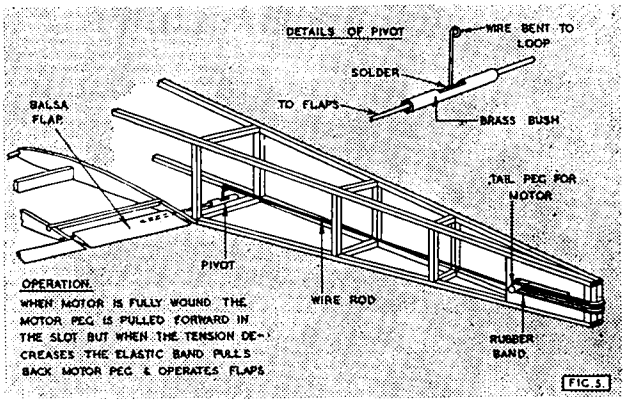
The advent of auto-rudder control solved a big difficulty in the way of the winch launch, enabling a sailplane to go thermal-hunting without trouble on the line before release. For a hand launched sailplane, however, nothing seemed to have been thought out until R. W. DALE of Leek worked out the following wheeze. A hand launch with the rudder pre-set at an angle is always liable to be dangerous. The idea sketched in Fig. 6 effectively keeps the rudder straight for the thirty seconds or so necessary for the model to gain a safe height, when the retaining thread burns through and the elastic tensioner takes over. All the details are shown in the drawing.

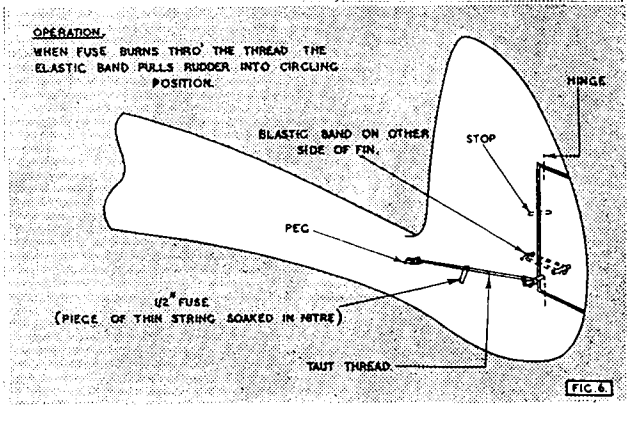
The power incorporated in a rubber-motored flying scale model can never be enough to get it right up to the height achieved by a duration model. This unfortunately results in the characteristic of nearly all flying scale models being a slow climb followed by a fairly steep glide, the duration being on an average round 30 to 40 seconds. If, however, it can be arranged that the model is already high in the air when the first operation of power from the rubber motor occurs, spectacular results can be achieved. R. BARNARD, at present of Catterick Camp, Yorks, has been making experiments, and the result of his mental activity is drawn for you in Fig. 7. It is very simple and efficient, and there is little to go wrong. The only point to watch is that the pin is a loose fit in its socket. It will be prevented from falling out by the pressure exerted by the prop. blade, and if too tight will be held so firmly that it will not disengage. With the aid of this device the scale model can be towed up to a considerable height and then has room to carry out manœuvres which might be very expensive if carried out nearer the ground!

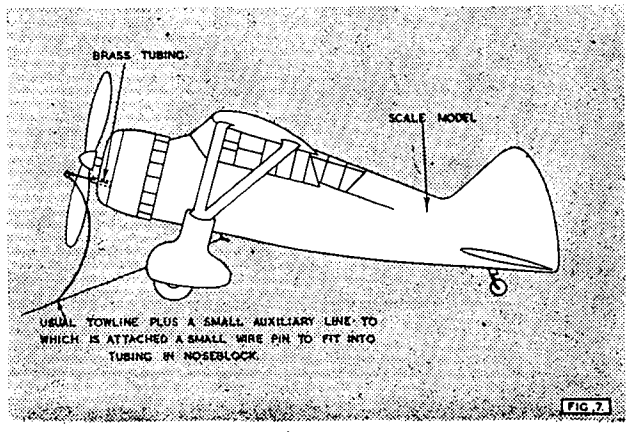
That is the selection for this month, and I hope there will have been one or two ideas of use to everybody.

The next instalment of "Gadget Review" will catch up with you in June, right in the middle of the flying season. Until then—happy landings, and good flying in the summer.









Readers' . . . . . Letters

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

DEAR SIR,

I most heartily agree with Mr. Robin Bank's letter in your January issue. The rules by which last year's petrol competitions were run encouraged the development of a model with a poor glide. Admittedly there must be a fixed engine run, but why limit the glide? If it is argued that some models would be able, because of their size and power, to use the engine run more effectively, then divide them into separate classes. This system has worked well in America, so why not here?

Ruislip. JOHN G. PARTINGTON.

DEAR SIR,

There have been in the AEROMODELLER, letters and parts of articles devoted to the question of improving the conditions under which contests for petrol-engined model aircraft are held. Appended are some suggestions.

(1) Flights of—	
(*a*) 30 secs. Maximum marks 30.	Any power run may be used.
(*b*) 45 secs. Maximum marks 45.	
(2) Flights under power—	
(*a*) Complete left-hand circuit of any radius. Maximum marks 10.	Any method may be used.
(*b*) Complete right-hand circuit of any radius. Maximum marks 10.	
(3) Take-offs (from flat, hard surface —maximum marks for each take-off 5). Maximum marks for contest, 20.	No artificial aids allowed (*e.g.*, ramps to take-off boards).
(4) Landings. (Maximum marks for each landing, 5.) Maximum marks for contest, 20.	Landings to be in contest area to qualify for marks.
(5) Judges to award marks for design, construction and finish of models. Maximum marks, 5.	To promote models which are truly "model aircraft."

(6) Models will not qualify for a place unless entered in all tests.

(7) Any size, type and number of models of any power may be entered by competitors.

In (1) one mark would be deducted for each second of duration under or over the stipulated time. In (6) we have a condition which would eliminate an anomoly which I noticed in one of the "petrol events" of last year. This was that a competitor who did not enter all the duration flights (upon which the contest was based) was awarded a higher place than a competitor who had "tried his all" and had lost some marks. Bad principle! (7) would give scope for originality.

These suggestions are designed to give competitors freedom of choice in tackling the contests. As I am at the moment only an "aeromod by instinct and imagination" there may be some suggestions which are not, in practice, possible or fair. Some authorised body would need to give a guide for judges to follow when they award marks on controversial items such as (2), (3), (4) and (5).

London. P. C. YOUNG.

The above letters are good examples of the general trend of letters received. Constructive suggestions now having been received, it rests with the organising bodies to provide really practical rules that will give ample encouragement to all the intending petrol model flyers of 1946. [ED.]

DEAR SIRS,

A disciple of Dr. Forster was in the habit of wearing his watch underneath instead of above his wrist. On being asked the reason for this he replied: "It runs better inverted."

Leeds. KENNETH HAYES.

DEAR SIR,

I have never had the opportunity of seeing Mick Farthing in action, but, from the December AEROMODELLER, I learn that in his method of launching rubber-driven models "the machine is placed vertically on its tail for the take-off, and when released climbs straight up, helicopter fashion." This seems to me to be an indication of the future line of development for duration models—and very welcome, too, at a time when many people are thinking that the stagnation point has been reached.

The orthodox slow-climbing model is pulled along by an airscrew which is, perhaps, 60 per cent. efficient. Of this 60 per cent., about half is used to overcome the drag of the non-lifting parts (fuselage, fin, etc.), so that only about 30 per cent. of the energy delivered by the motor is used to lift the model. If, however, the wings were the only parts which moved in the horizontal plane, and if the power were directly applied to moving them (as in a helicopter ascending vertically) an efficiency of something like 90 per cent. is feasible. In other words, a helicopter might be expected to climb about three times as high as a comparable orthodox model.

This may be a little optimistic, but the few experimental helicopters I have built definitely do climb on less power than is required by orthodox models of the same weight.

Now, it is fairly easy to make a helicopter which will climb vertically (although pendulum instability is a nuisance), but the real difficulty lies in the fact that it must automatically change into a gyroplane for the descent. Further, I am inclined to think that the sinking speed of a gyroplane would be higher than that of a glider.

It would seem, therefore, that the ideal, or at least an improved type of, duration model would take the form of a helicopter under power, changing into an orthodox glider when the power runs out. Such a model need not differ very much from the usual tractor monoplane. The airscrew would be replaced by one or two rotors with folding blades, and the tailplane incidence would probably be so controlled by the tension of the motor that the wing would operate at its no-lift angle during the climb.

Bristol. J. H. MAXWELL.

We shall be very interested to hear of any models built on these lines. The figure of 90% for rotor efficiency appears rather too high, but nevertheless a very great improvement should result, as Mr. Maxwell states. It is also a very debatable point as to whether a variable incidence tail plane would be needed: the forward speed of the machine when climbing would be lower than that for the glide, and thus it should be possible to strike the compromise of a climb some 10 degrees from the vertical, when no "gadgets" would be needed. [ED.]

DEAR SIRS,

A few rocket-propulsion units for model aeroplanes will soon be available for about ten experimenters. These units will be made by Brocks, and it is their desire that the units shall be sold through model aeroplane clubs so that the small supplies will be used to the best advantage.

Will club secretaries please send me particulars of any members who have seriously carried out experiments with rocket models, giving rough dimensions, weight and type of model used. These first few rocket units may be a bit expensive, and the persons using them should be prepared to send me a report on the results of their experiments so that we can see what improvements, if any, can be made.

Rugby. HOWARD BOYS.

PLAN NO 0233 WING SPAN 38½"

"DUSTY MK. VIII"

DESIGNED BY
J R MILLER

216

COPYRIGHT OF
THE AEROMODELLER PLANS SERVICE LTD
ALLEN HOUSE NEWARKE STREET LEICESTER

COLOUR SCHEME – WINGS & TAILPLANE – YELLOW
FUSELAGE & FIN – RED

MATERIALS REQUIRED

STRIP	
10 STRIPS	1/16" x 1/16" x 3FT BALSA
1 "	1/2" x 1/16" x 3FT "
1 "	3/16" x 7/16" x 3FT "
1 "	1/4" x 1/16" x 18" BIRCH
4 "	3/4" x 3/16" x 3FT BALSA

SHEET	
4 SHEETS	1/16" x 3" x 3FT BALSA
1 "	1/32" x 3" x 6" "
1 "	1/16" x 3" x 6" "

1 SHEET OF 1mm x 6" x 4" PLY

MISC
3 FT OF 16 SWG PIANO WIRE
6" " 18 " "
6" " 16 " BRASS BUSH
1 BLOCK OF BALSA 1"W x 2"D x 3"H
4" OF 3/16" DIA BIRCH DOWEL
3FT = 1/16" DIA BAMBOO
9" " 1/8" I.D PAPER TUBING

ALL WOODS USED ARE BALSA UNLESS OTHERWISE STATED

WINGS	1½ OZS.
FUSELAGE & UNDERCART	2¾ "
AIRSCREW & NOSEBLOCK	1½ "
TAILPLANE & FIN	½ "
RUBBER	3½ "
TOTAL WEIGHT	9¾ OZS

1/16" DIA BAMBOO PEGS PLUGGING INTO PAPER TUBES FORE & AFT, SET ½" AT 7° RIGHT THRUST

1mm PLY FACING
HINGE
BALL RACE
1/16" SHEET LET IN
16 G SPRING
16 G PROP SHAFT
COUNTER BALANCE WEIGHT
THREAD BINDING
1/16" SQ LONGERONS & SPACERS
WING MOUNT RUBBERS 1/16" x 1/8" BIRCH
BAND WITH THREAD
ADDITIONAL STRUTS OF 1/16" SQ.
BAND WING MOUNTS TO SPACERS
TWO 18 G TUBES
18 G WIRE
3/16" DIA HOLE FOR MOTOR PEG
1/16" SHEET
CAPPING STRIPS 1/16" x 1/2" SHEET
1/16" SQ L.E.
3/16" x 1/16" SPAR
1/2" x 1/8"
SPACE FOR TAILPLANE
1mm PLY
1/16" GUSSETS
BASIC FUSELAGE SIDE (MAKE 2 OFF)

1/16" SHEET BALSA
PAPER TUBES TO TAKE 1/16" DIA DOWELS
1mm PLY DIHEDRAL KEEPER
L.E. 3/8" x 7/16"
1/16" DIA BAMBOO
TWO ENDS 16 G WIRE TO FIT TUBES
UNDERCARRIAGE LEG 16 G WIRE.
T.E. 3/16" x 3/16" BALSA
1mm PLY DIHEDRAL KEEPER.
WINGS MAKE 1½° DIHEDRAL AT DOTTED LINE 2 4¾" AT WING TIPS.

WHEELS 1¾" DIA 1mm PLY BETWEEN TWO PIECES OF 1/16" SHEET BALSA.
SOLDER TO RETAIN WHEEL

L.E. 3/8" x ¼"
SPAR 3/16" x 1/16" BALSA
1/16" DIA BAMBOO
T.E. ¼" x 1/16"
1/16" SHEET BALSA RIBS.
1/16" SHEET BALSA

ON FIRST RIB IN EACH WING ONLY
ON SECOND RIB IN EACH WING
WING SECTION RAF 32 MODIFIED CUT 24 RIBS FROM 1/16" SHEET BALSA. 4 ONLY WITH HOLES.

TAILPLANE SECTION CUT 11 RIBS FROM 1/16" SHEET.

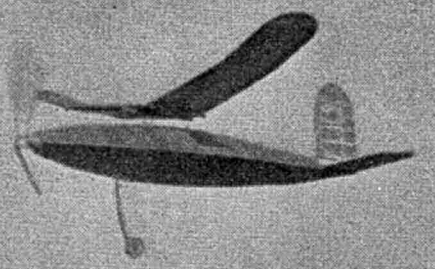
PROP BLANK 11"W x 2½"D x 1"D
DIAMETER 18"
PITCH 25"
POWER – 16 STRANDS 1/4" x 1/32" RUBBER 48" LONG

3 LAM 1/16" BALSA
FACING 8mm PLY.
HOOD SCREW
BRASS BUSH
BALSA
U SHAPED PIECE OF WIRE WITH TWO SMALL HOOKS BENT AT END TO HOOK ONTO THE TRIANGULAR END OF PROP SHAFT.
SPRING IN NOSE PULLS STOP AGAINST SCREW, WHICH STOPS PROP IN REQUIRED POSITION

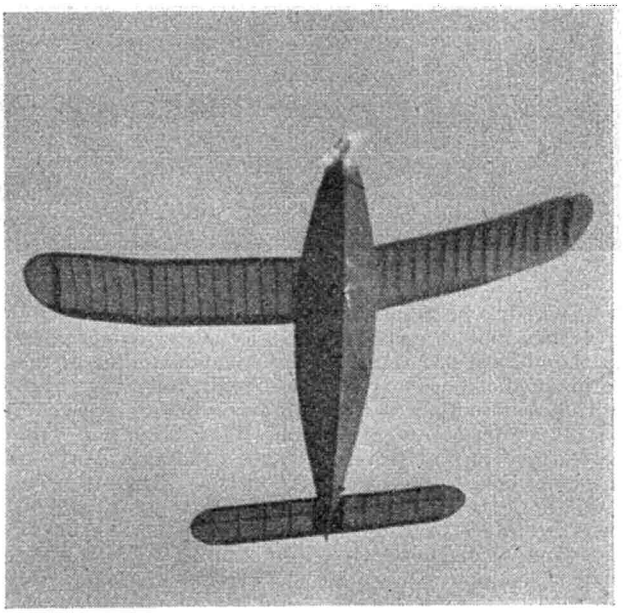
WING MOUNTS 16 G WIRE (H.T.S.)
FRONT MOUNT
REAR MOUNT

"DUSTY VIII"

BY J. R. MILLER

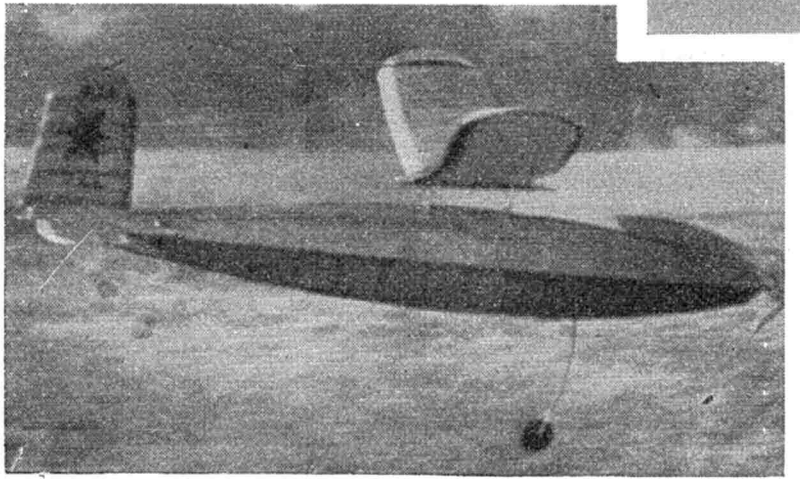


DUSTY VIII came with a big reputation—26 : 35 hand-launched on its maiden flight and second in 1945 Gutteridge Trophy with an aggregate of 683·4 seconds! Tests by the AEROMODELLER Research Staff soon showed that these flights were no mere flash in the pan. Short trimming trials proved nearly long enough to lose the model, which has a remarkably flat glide. Once adjusted satisfactorily—a matter of about ten minutes only—tests on half turns produced still air flights around the ninety second mark. Unfortunately these took place before our recent move to Eaton Bray and the horrid proximity of trees and bushes prevented an all-out effort. However, its competition successes add emphasis to these preliminary findings, and we have every confidence in recommending Dusty to those many Wakefield fans who will doubtless be in their element once more now that rubber can, with a little patient research, be obtained once again.



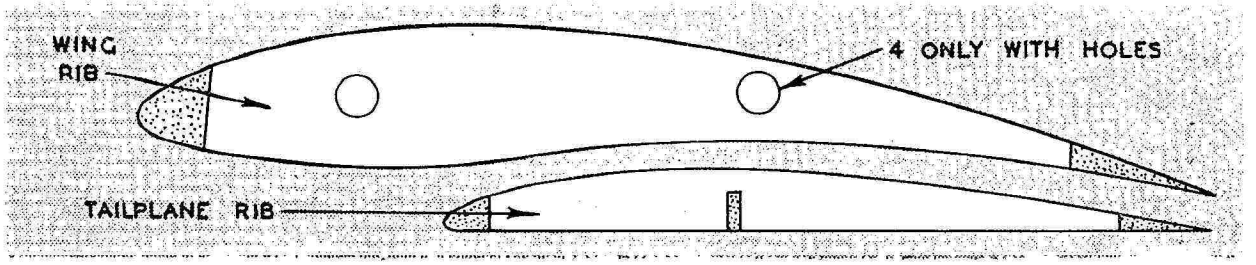
Building.

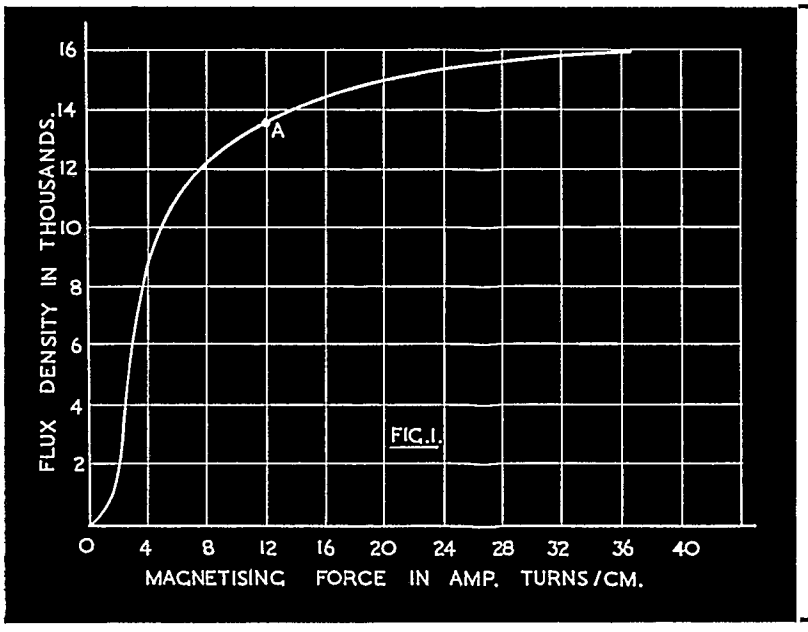
Developed through a series of duration models the structural problems have already been solved by the designer and building should present no difficulty.



Trimming.

Adjust the model to climb in fairly tight spirals against the torque, and glide in circles of about one hundred feet diameter. No difficulty should be found in obtaining a trouble-free take-off with the pegleg undercarriage as the model has ample power.





THE MODEL AERO-ENGINE

IGNITION SYSTEM

BY

L · A · WALKER

MUCH has been said and written about the necessity for a reliable ignition system for model aero engines. In the hope of promoting a better understanding of the action of the ignition system, I offer the following notes.

The construction of the coil is familiar to everyone, but its action is not so well known. Briefly, it is this. An electric current passing along a conductor causes a magnetic field to be set up around the conductor. The strength of the magnetic field is directly proportional to the magnitude of the current. The field is said to consist of "lines of magnetic force," or "flux." The number of lines of force per square cm of cross-sectional area is called the "flux density." The flux density is considerably increased if a core of soft iron is introduced into a coil, but the flux density is no longer directly proportional to the current but follows the curve shown in Fig. 1.

By virtue of the soft iron core, a powerful magnetic field is set up by the primary winding of an induction coil. Now, when the primary current is broken the flux collapses towards the centre of the coil and, in so doing, the flux "cuts" the secondary winding, inducing, or generating, a voltage proportional to the primary flux density in each turn of the secondary winding. Since some 12,000 to 15,000 volts are necessary to give a good spark across a plug gap, the secondary winding must consist of several thousand turns in order to produce this voltage. Now, to go a step farther. When the primary current is switched on the primary flux "grows out" from the primary winding, and so the primary winding is itself cut by the primary flux, thereby inducing a voltage in each turn of the primary winding. The direction of this voltage is such as to oppose the voltage which is causing the primary current to flow. This phenomenon is called "self-induction" and is measured in "henries." Due to this self-induction the primary current does not reach its maximum value immediately it is switched on. In fact, the growth of current in the primary circuit is of the order $y = 1 - \varepsilon^{-x}$ and the instantaneous value of the current is given by:— $i = I\left(1 - \varepsilon^{-\frac{Rt}{L}}\right)$ where I is the maximum primary current, R is the resistance of the primary winding, "t" is the time in seconds after switching on, and L is the inductance of the coil in henries.

Now, if $t=\frac{L}{R}$, $i=I\left(1-\varepsilon^{-\frac{R}{L}\times\frac{L}{R}}\right)=I\left(1-\varepsilon^{-1}\right)$

Plotting the curve of $i=I\left(I-\varepsilon^{-\frac{Rt}{L}}\right)$ using a unit of time of $\frac{L}{R}$ secs, it is found that when $t=\frac{L}{R}$ secs., $i=\cdot632$ I and when $t=\frac{5L}{R}$, $i=\cdot994$ I, *i.e.* the primary current is, to all practical purposes, at its max. value.

The fraction $\frac{L}{R}$ is known as the "time constant" of the coil. From this an important conclusion can be drawn, For maximum efficiency of the coil, the contact breaker points must be closed for at least 5 time constants and must make really good contact. Any resistance due to bad contact will decrease the value of the time constant, a good point, but will decrease the maximum value of I, definitely a bad point.

Let us see how all this is bound up with the ignition problem as applied to model aero engines.

After a number of experiments on coils and dry cells, I came to the following conclusions:—

1. A 4·5 v. dry battery will give no more than about 2 amps. on *short circuit*, this rapidly decreasing due to polarisation. (I may have been unlucky with my cells. This does seem rather low.)

2. The primary winding resistance of a typical model aero engine coil is of the nature of ·5 to ·75 ohm.

3. The time constant of such a coil is of the nature of ·002 secs.

I then made a miniature accumulator for myself, trying my own engine on 4 v., and then on 2 v. I found that starting and running were just as good on 2 v. as on 4 v. I might add that I also found that an accumulator is far superior to any dry cell.

The point now arises, why did I find that a 2 v.

secondary coil was just as good as a 4 v. ?

With a primary winding resistance of ·5 ohm, 2 v. will give 4 amps. and 4 v. will give 8 amps., this being found by applying Ohm's law. Let us apply Ohm's law to the case where a dry cell is used. If the dry cell is a very good one, its internal resistance is about 1 to 1·5 ohms. This will make a total resistance in the circuit of 1·5 to 2 ohms. The voltage of the cell is 4·5.

Then, by Ohm's law, $I=\frac{E}{R}=\frac{4\cdot5}{2}=2\cdot25$ amps. *max.* Whereas, with a 2 v. accumulator the current would be 4 amps.! This leads me to the subject of boosters. With all due respect to Dr. Forster, as an electrical engineer (?) I strongly deprecate the wholesale overloading of these small coils by using 6 v. car batteries. These coils are, after all, designed for use with dry cells of very limited output. A coil such as is supplied with a " Gwin Aero " engine actually boiled when connected to a 6 v. battery! If you will heed my advice, go easy with your boosters. (Dr. Forster does *not* advocate 6 volts!! only 2 or 4 at the most.—Ed.)

Now where does the time constant come in ? When cranking the prop. the breaker points will be closed for a longer period than 5 time constants. What is the position when running at, say, 4,000 r.p.m. ?

Let us assume that the contacts are closed for 90° per rev. Then the time during which the points are closed will be $\frac{90}{360}\times\frac{1}{\frac{4000}{60}}=\frac{15}{4000}$ or ·00375 secs. in 1 rev.

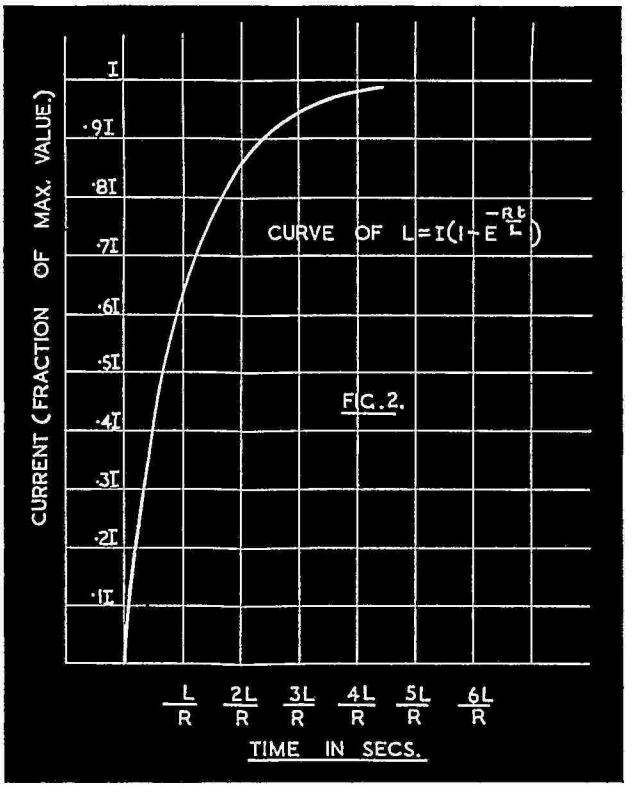
If the time constant is ·002 secs., the contacts will be closed for $\frac{\cdot00375}{\cdot002}=1\cdot875$ time constants.

From the curve (Fig. 2) it can be seen that the current will be ·840 (approx.) of its max. value. If a secondary cell is used, this will be ample for faultless running.

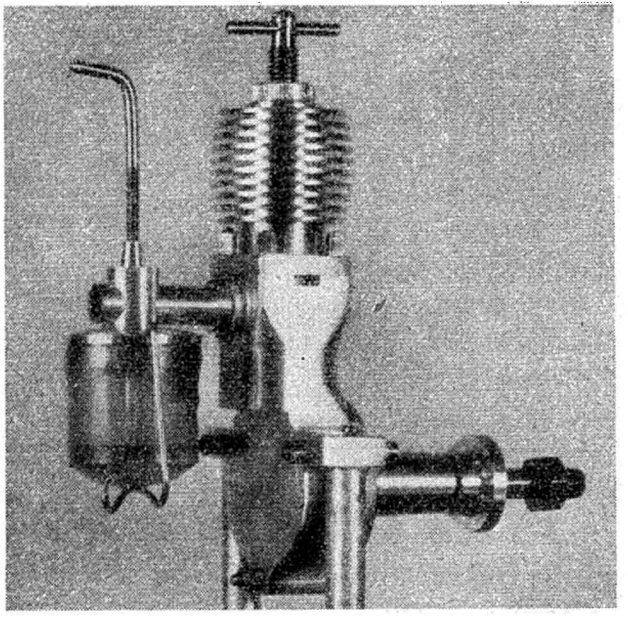
Now to consider the condenser. When the breaker contacts open, as already stated, the flux collapses, giving rise to the induced H.T. in the secondary winding. It will be obvious that, since the primary is on the same core, a voltage will be induced in the primary. The direction of this voltage is such as to tend to maintain the flow of the primary current, causing sparking at the breaker points. This also tends to slow down the speed of collapse of the primary flux, thus reducing the magnitude of the H.T. A condenser is therefore connected across the points. Since a condenser will allow a current to flow until it is charged, the induced primary voltage will be absorbed in sending a charging current into the condenser. When the condenser is fully charged its voltage will be equal to the voltage which is causing it to be charged—*i.e.*, the induced primary voltage. As the latter dies away, the condenser now discharges through the primary of the coil in the reverse direction to the normal primary current, thus hastening the final collapse of the flux.

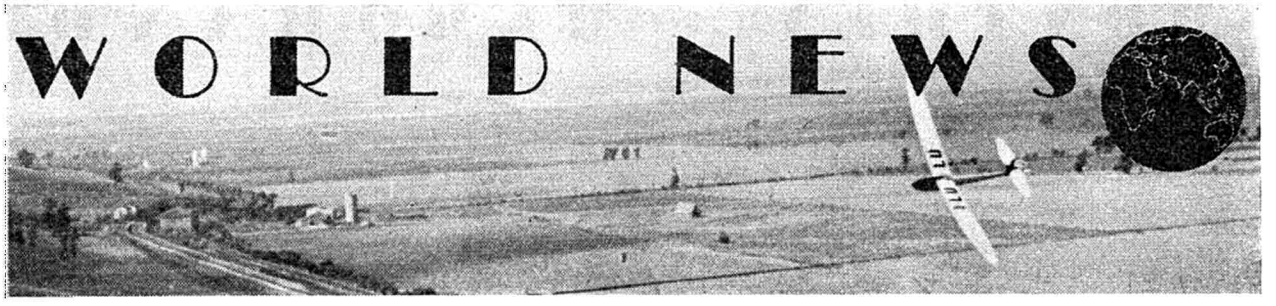
This dual action of the condenser causes the H.T. to be anything up to 25 times its value when a condenser is not fitted!! It will therefore be obvious that the condenser *must* be matched with the coil. To ensure this, always use a condenser of a capacity recommended by the makers of the coil.

To revert to the question of boosting. Is the extra current really worth while ? Referring to Fig 1, it will be seen that from the point " A " the curve flattens out. Beyond this point, any increase in current does not produce any appreciable increase in flux, and it is said that " saturation " has been reached. I have found from rather crude experiments that this point is reached at about 6 amps. This would vary, of course, for different makes of coil, but I do not think that a general figure of 6 to 8 amps, would be far wrong. So—is your booster *really* necessary ?



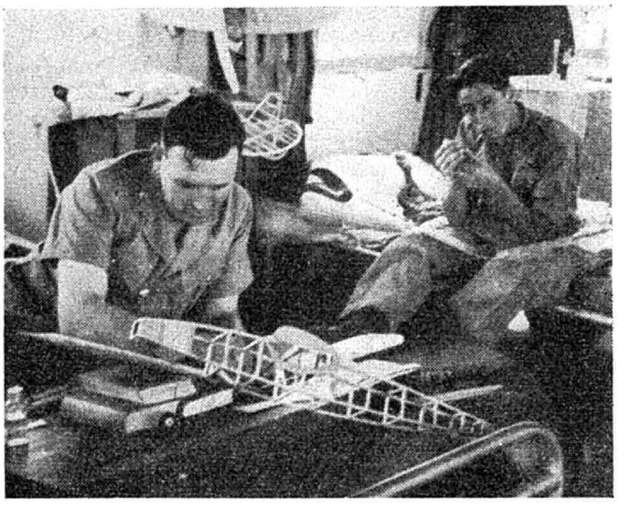
But why worry? *Let the " Diesel " save you from all the anxieties of a troublesome ignition system. The appearance of these models on the British market is eagerly awaited by enthusiasts as stories of their excellence gain circulation —meanwhile we illustrate yet another continental design, this time of Czech manufacture—the Moucka 1·25 c.c.*





Great Britain—Girl Pioneers.

Although everyone has heard of Girl Guides and Rangers, it is probably news to most that there are quite a number of "Air Ranger" flights over the country—about 30 to be precise. It has been a fact in the past that the "weaker sex" has played a very small part in aviation, and the mention of this group will probably call forth indulgent smiles from some readers. Nothing could be more inappropriate. Although we have met members of only one flight (1st Walthamstow) we have been impressed by their enthusiasm and knowledge. The rigorous curriculum includes a complete course in gliding, from all the basic theory that could possibly be needed to the obtaining of a Class "B" flying certificate. Aeromodelling plays a very important part, and we trust that we shall soon encounter a greater percentage of women aeromodellers on the competition fields through the work of this organisation.—(*Good show!*—Ed.)



Africa—Miwunga M.A.C.

Disciples of aeromodelling have been scattered far and wide over the face of the earth in the past few years, but whatever the difficulties, most of them have kept the banner unfurled. Just one more example is, or rather was, the Miwunga M.A.C. in Africa. In the middle photo, G. S. Tynain-Blunden, the secretary, is shown working with another member under typical conditions, in their barracks.

France—Diesel Triumph.

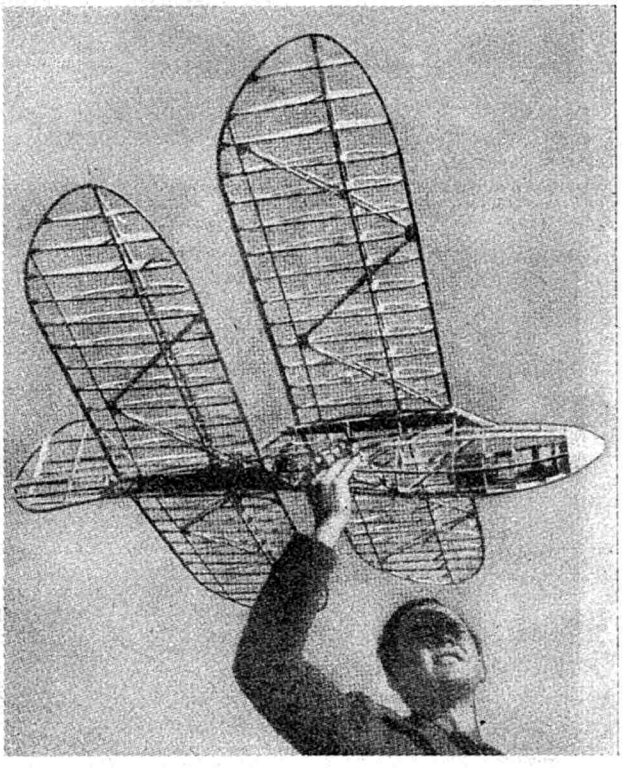
The French free flight speed record was recently broken by Max Plan of the Asnieres Aeromodel Club when his model "Griffen" achieved a speed of 38 m.p.h. with a 5 c.c. Micron compression ignition engine.

Italy—Olympic Contests?

Should aeromodelling be included in the Olympic Sports? Adriano Castellani, Managing Director of the Italian magazine, "L'Aviazione per tutti," holds the view that it should. According to him, aeromodelling has all the necessary qualifications—it requires skill (quite as much as the Olympic Gliding Contests); it is popular; and, above all, it is International. What about it, A.B.A. and S.M.A.E.?

Switzerland.

Experimental aircraft layouts seem to be attracting more interest to-day than ever before, and the accompanying photograph shows a good example of this trend in Switzerland. Designed by G. Cerster of Laufen, it has a span of 58 ins., and an all up weight of 42·3 ozs., complete with compass-actuated automatic steering gear. This, the designer claims, is very efficient, although it still needs some development work.

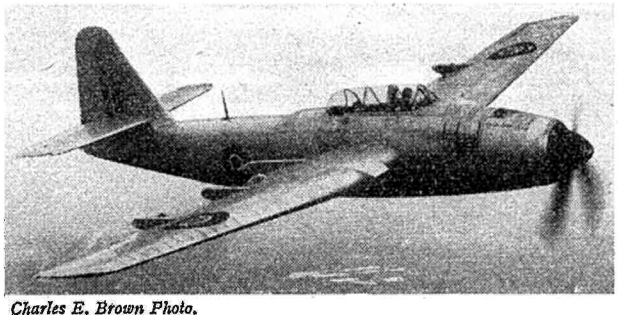


MONTHLY MEMORANDA

BY O · G · THETFORD

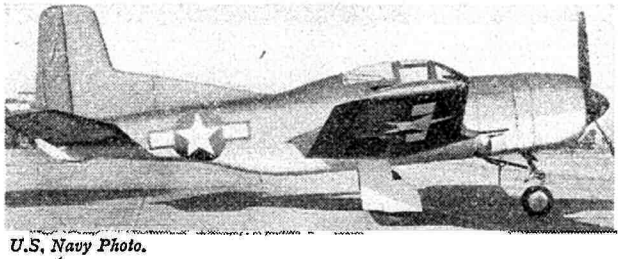
"Miles" Photo.

Sixth Miles Twin : *The Miles M. 65 Gemini is the sixth twin-motor aircraft produced by the Miles concern.*



Charles E. Brown Photo.

Metal Monster : *First prototype Fairy Spearfish on a test flight. The Spearfish is going into full production for the Royal Navy.*



U.S. Navy Photo.

Nipped in the Bud : *Production of Douglas Destroyer single-seat strike aircraft for the U.S. Navy was cancelled when the Pacific War terminated abruptly. Note tricycle undercarriage.*

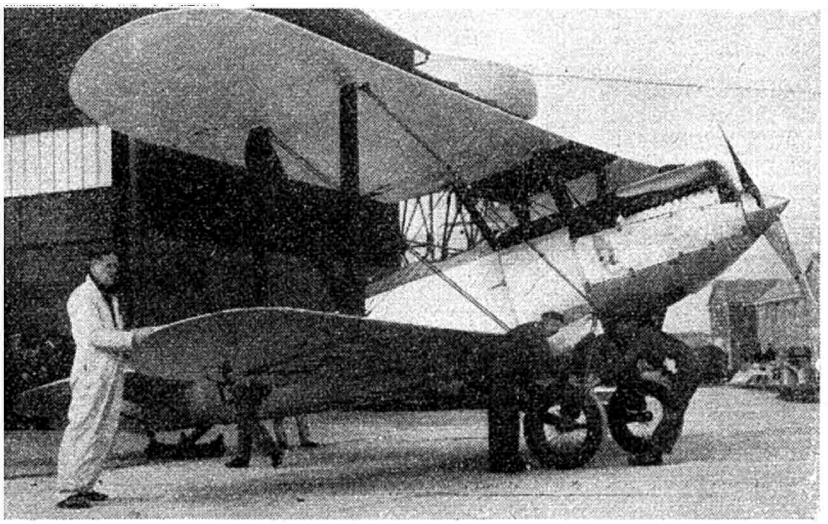
A "Twin Messenger"

Latest addition to the long line of successful Miles aeroplanes for the private owner, is the M. 65 Gemini four-seat cabin monoplane, fitted with two 100 h.p. Cirrus Minor II air-cooled inverted in-line motors. Essentially a twin-motor development of the famous M. 38 Messenger, the Gemini was first shown in public in February last, and it is announced by Miles Aircraft, Ltd., that the prototype will be followed by about 50 production aircraft during 1946.

The Gemini features the well-known Miles wooden construction and, with a maximum disposable load of 1,090 lb., is available as a light taxi aircraft or ambulance, for economic operation over distances up to 820 miles. Span is 36 ft. 2 ins., length 22 ft. 3 ins., and wing area 191 sq. ft. Loaded weight is 3,000 lb., and the Miles low drag auxiliary aerofoil flaps enable it to unstick in 120 yards and to land in 125 yards (both with a 5 m.p.h. wind). A retractable undercarriage contributes to the creditable top speed of 150 m.p.h. and the 130 m.p.h. cruising speed. Rate of climb at sea level is 870 ft. min., the stalling speed 35 m.p.h., and the duration with 60 gallons of petrol just over nine hours.

The first Gemini is registered G-AGUS and is doped cream all over, with a red trim line on the fuselage. An interesting feature of the Gemini's letters is that the entire registration is grouped above the port wing and below the starboard wing, there being no markings above the starboard wing

Fox Photo.

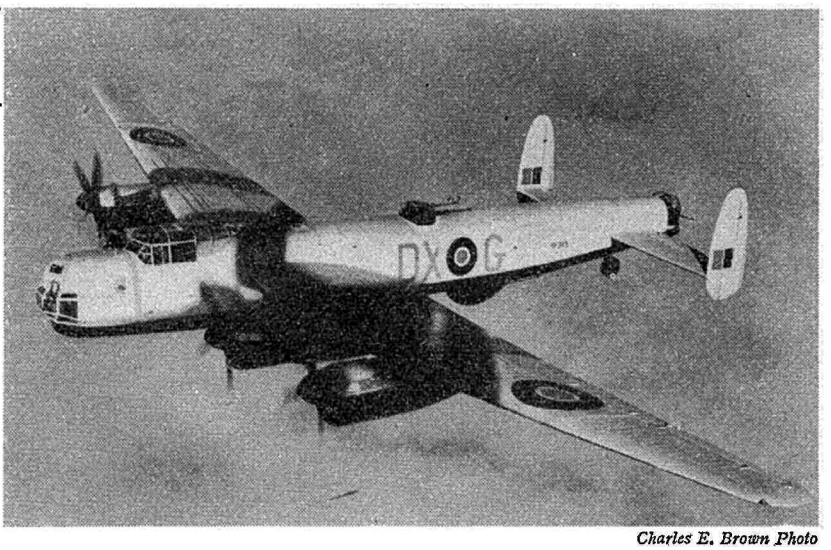


Irish Magisters.

A batch of twelve reconditioned R.A.F. Miles Magister trainers has been sold to the Eire Army Air Corps, and deliveries by air took place during February. The Irish Magisters have a black fuselage and all-silver wings and tail surfaces. The Eire national insignia appeared on the wings and fuselage, the wing marking consisting of chordwise green, white and orange stripes and the fuselage marking a disc bisected into green and orange sections. Large white numbers (*e.g.*, "127," "128," etc.) appeared on the rear fuselage.

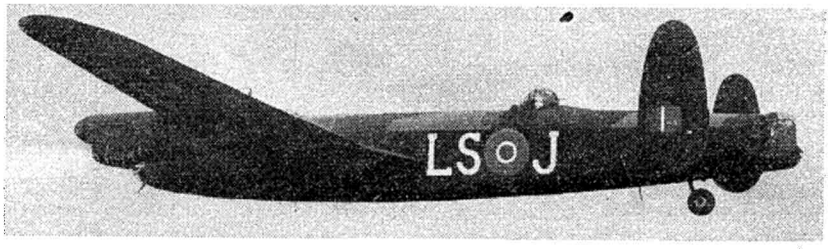
McRobertson Fox : *The Fairey Fox G-ACXO which was entered in the 1934 McRobertson Air Race to Australia and withdrew at Le Bourget due to engine trouble. The R.A.F. Fox day bomber is described in "R.A.F. Flashbacks—17", on the opposite page.*

Study in Black and White: *An Avro Lincoln heavy bomber of No. 57 (B) Squadron, R.A.F. Bearing Pacific camouflage, this Lincoln has the Service number, RF 385.*



Charles E. Brown Photo

J for Jig: *Photographed near Mildenhall, this Lancaster III (LL 806) bears its number in white beneath the wings.*



A.T.P. Photo

Interim Fighter: *The Martin-Baker M.B. 3 prototype fighter (R 2492) was notable for its temporary six-cannon installation. It was designed to Spec. F 4/34 and fitted with a 2,020 h.p. Napier Sabre II.*

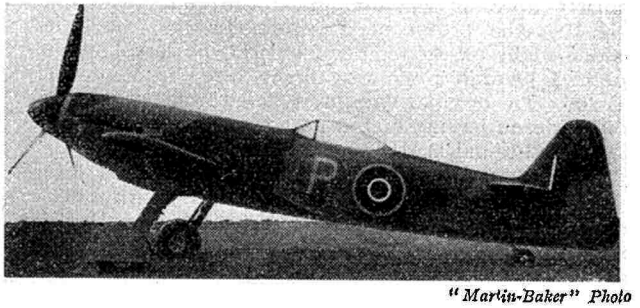
Airliner Recognition.

The following registration batches for British airliners have been authorised: *Avro Lancastrian* (B.O.A.C.), G-AGLS, G-AGLT, G-AGLU, G-AGLV, G-AGLW, G-AGLX, G-AGLY, G-AGLZ, G-AGMA, G-AGMB, G-AGMC, G-AGMD, G-AGME, G-AGMF, G-AGMG, G-AGMH, G-AGMJ, G-AGMK, G-AGML, G-AGMM, G-AGMN, G-AGMO, G-AGMP, G-AGMR, G-AGMS, G-AGMT, G-AGMU, G-AGMV, G-AGMW, G-AGMX and G-AGMY; (B.S.A.A.): G-AGWG, G-AGWH, G-AGWI, G-AGWJ, G-AGWK and G-AGWL. *Vickers Viking* (B.O.A.C. European and internal routes): G-AGRM, G-AGRN, G-AGRO, G-AGRP, G-AGRR, G-AGRS, G-AGRT, G-AGRU, G-AGRV and G-AGRW.

R.A.F Flashbacks—17.

The Fairey Fox two-seat day bomber was something of a sensation when it first went into service with No. 12 (B) Squadron of the R.A.F. in 1928. The Fox was the first of the "clean" high-performance biplanes, later to be typified in the Hart and Fury series, and astonished everyone at the 1929 Air Exercises in evading all defending fighters by sheer speed. Hitherto no bomber had ever been faster than its contemporary fighters in the R.A.F.

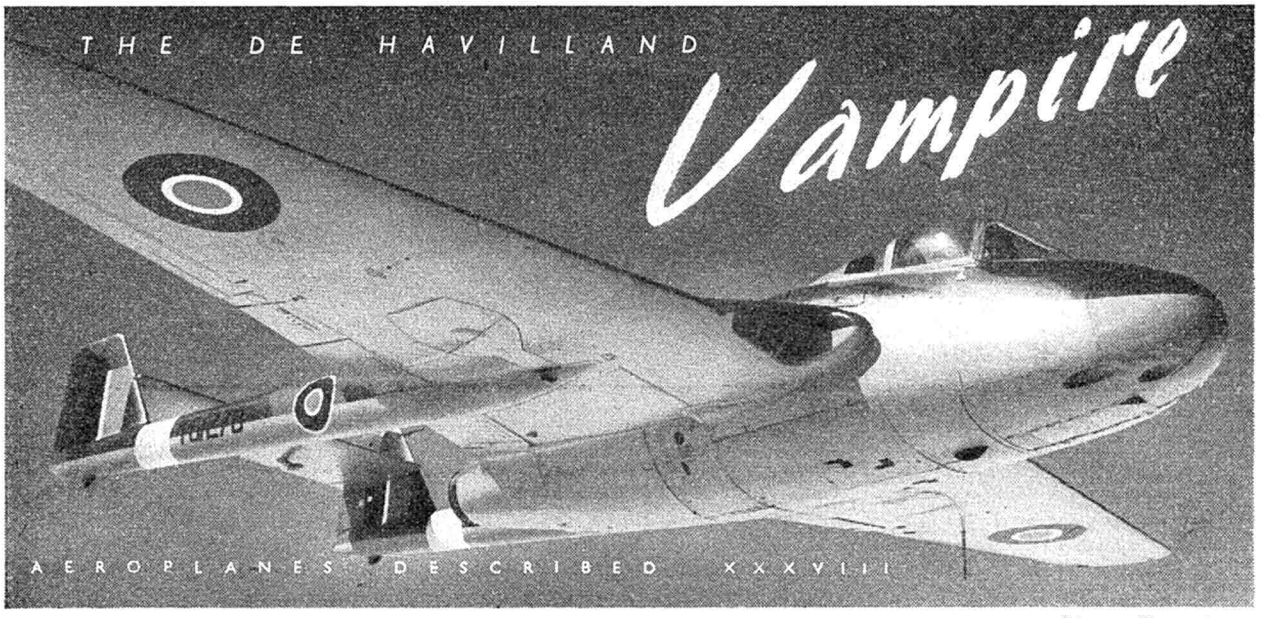
The Fox was fitted with a 450 h.p. Curtiss D-12 (or Rolls Royce F.12) motor which gave it a top speed of about 170 m.p.h., and it carried a 500 lb. bomb load. Span was 38 ft. and length 31 ft. 2 ins. No. 12 Squadron Foxes carried their squadron number in the Flight colour on the fuselage and three machines were numbered J 7949, J 7950 and J 7951.



"Martin-Baker" Photo

Heston Inhabitant: *One of the two Fairey Firefly IV prototype fighters. The prototypes mount the Griffon 72 motor which will be superseded by the Griffon 74 on production aircraft.*

"Fairey" Photo



Photos: Chas. E. Brown

NOBODY who saw the Air Displays at White Waltham, Farnborough and Radlett during the last few months is ever likely to forget the breathtaking spectacle of the Vampire flown by Mr. Geoffrey de Havilland, Jnr.—an aerial virtuoso if ever there was one! The Vampire combines astonishing manœuvrability with fantastic speed in a way that no other R.A.F. fighter has ever done.

The Vampire is the second jet-propelled fighter to equip R.A.F. squadrons and also the first twin-boom fighter produced in this country. Designed to Air Ministry Spec. E 6/41 and given the factory number D.H. 100, the prototype Vampire, LZ 548, made its maiden flight on September 20, 1943, powered by the Goblin I jet unit previously flight-tested in Meteor II DG 206. The original Vampire differed from the production model in having high-aspect ratio fins and rudders of the traditional D.H. shape.

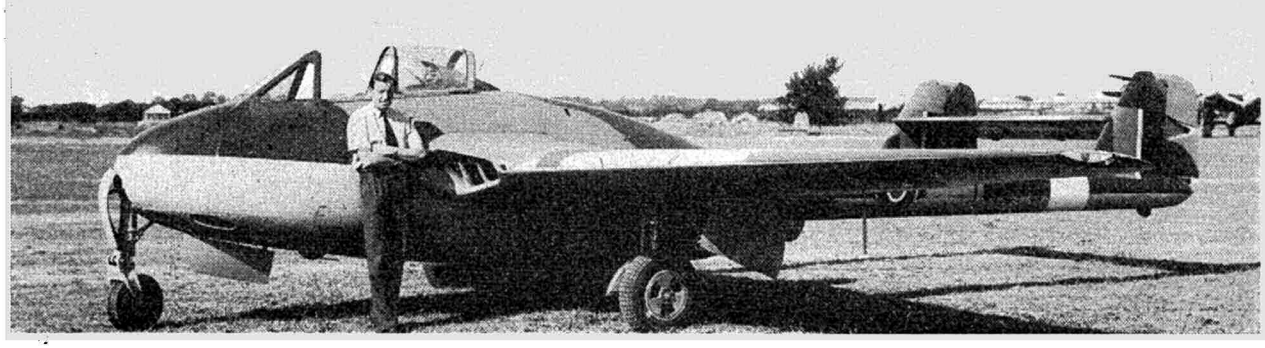
The second prototype Vampire, LZ 551, was later converted as the first Sea Vampire. Fitted with a deck arrester hook, this aeroplane became the first British jet type to land on a carrier. The first landing took place on H.M.S. *Ocean* off the Isle of Wight on December 4, 1945, and this incident is depicted by Mr. Rupert Moore in his cover painting this month.

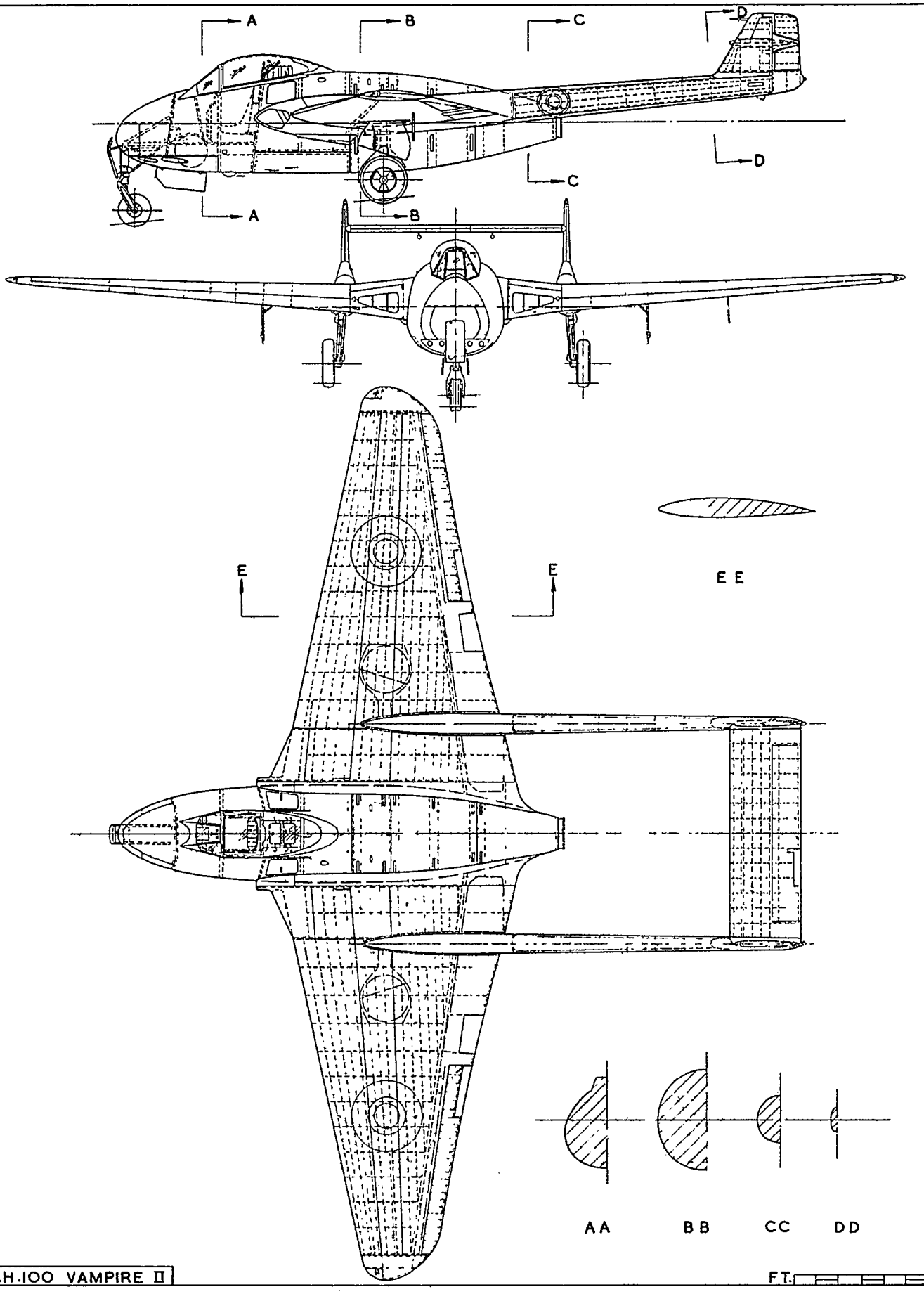
The Vampire has been in full production at the Preston factory of the English Electric Company since the summer of 1945 and the Mk. I is now being followed by the Vampire II, which has the more powerful Goblin II jet unit and increased range.

Another "first" claimed by the Vampire is that of being the first British fighter in service with a tricycle undercarriage. The twin boom arrangement was chosen to enable the tailplane to be mounted clear of the jet without vitiating aerodynamic efficiency. All-metal stressed-skin construction is used, with the exception of certain wooden sections of the central nacelle which houses four cannon, I.F.F., glycol tank, fuel tank and cine-camera, in addition to the pilot. The main air intakes are situated either side of the nacelle at the wing roots.

Production Vampires have standard day fighter camouflage and serial numbers TG 285, TG 286, TG 287, etc.

Specification: Single-seat jet-propelled fighter. One De Havilland Goblin II turbo-jet unit (normal thrust: 3,000 lb.). Empty weight: 6,377 lb. Loaded weight: 8,578 lb. Span: 40 ft. Length: 30 ft. 6 ins. Height: 9 ft. 9 ins. Wing area: 258 sq. ft. Wing loading: 31 lb./sq. ft. Maximum level speed: 540 m.p.h. (Sea Vampire 503 m.p.h.). Range: 500 miles at sea level (cruising at 400 m.p.h.). 1,050 miles at 30,000 ft. (cruising at 450 m.p.h.). Mk. II has range increased to 1,400 miles at 30,000 ft. Service ceiling: 45,000 to 50,000 ft. Take-off to 50 ft.: 850 yards. Landing run over 50 ft. obstacle: 1,150 yards. Normal internal fuel capacity: 202 gallons. Two 100 gallon external drop-tanks. Mk. II has provision for 554 gallons of fuel. Loaded weight with drop-tanks fitted is 10,298 lb. Armament: Four fixed 20 mm. Hispano cannon.





D.H.100 VAMPIRE II

FT.

CLUB NEWS

BY CLUBMAN

The Harrow M.A.C. photograped by Mr. L. Pass. Note the Club mascot (sitting and stripped) Wot! No rain?

MUCH of my news this month is of S.M.A.E. variety, in view of the Annual General Meeting, and the Dinner and Prizegiving, which this year reached almost pre-war standards. Over two hundred enthusiasts attended the Dinner held on the 16th February, and a very jolly affair it was, too. Many well-known personalities were to be seen, and the "old gang" were there in full force together with many new faces.

Sir Frederick Handley Page was the guest of the evening, and when replying to Mr. Knight's speech of welcome to the guests, expressed the opinion that in model aircraft there were great possibilities for the future, and the adventurous spirit prevailing was the same as that which encouraged the early pioneers to surmount the difficulties which beset them.

He recalled how models were flown successfully by a number of people before the first man-carrying aircraft flew, and told how models were playing their part in the aviation industry by tests carried out in wind-tunnels, thus enabling information to be obtained on their spinning characteristics, etc.

Sir Frederick expressed the hope that a similar contest to the 1946 Tail-less Contest would be staged this year, and also said that he would like to see at some future date a Speed Trophy for models on the lines of the famous Schneider Trophy.

Other speeches were followed by the prize giving—a most imposing array of trophies being disposed of. The evening closed with dancing, and the presentation of Certificates to the Fellows of the Society.

The postal ballot for officials had proven a success, but it is surprising to note that only some 50 clubs had availed themselves of the facilities offered. However, a total of 15,727 votes was cast, the Council for this year being as follows:

Chairman ..	A. F. Houlberg	(Oxford)
Vice-Chairman	R. F. L. Gosling	(Liverpool)
Hon. Sec. ..	A. G. Bell	(London)
Hon. Treas..	L. J. Hawkins	(London)
Comp. Sec. ..	J. C. Smith	(London)
Press Sec. ..	F. E. Wilson	(London)
Tech. Sec. ..	R. Copland	(London)
Records Sec.	V. Bentley	(Blackpool)
Members ..	C. S. Rushbrooke	(Leicester)
	R. Lawton	(Manchester)
	G. E. Dunmore	(Leicester)
	T. London	(Bradford)

The three main (working) areas, i.e. London, Midland and Northern, are thus well represented, but I should like to see some more enthusiasm from such areas as the West country, East Anglia, etc.

The NORTHERN AREA have proposed a farming out of certain routine work among the areas, and at a recent Council meeting it was proposed that "twelve club secretaries be appointed by the Council as S.M.A.E. Area Secretaries. These gentlemen to be provided with stocks of the Society's stationery, etc., and be empowered to act on behalf of the Society in their Areas. Each Area to elect its own Area Competition Secretary, who shall be responsible for collecting and collating all S.M.A.E. contest results in his Area. The Area Secretary and Area Competition Secretary to become *ex-officio* members of the Council, and attend any Council meeting on affairs affecting their Areas."

In view of the gradual easing of travel restrictions, a suggestion has been made by the LONDON AREA that the Council should investigate the possibility of arranging a London *v.* Paris contest. More news of this anon.

An interesting letter is to hand from 1870934 L.A.C. H. Leggat, of Hut 59, 160 M.U., R.A.F., M.E.F., which I produce in full, and trust some one of my readers will be able to do the necessary.

"Can you put me onto someone who has an engine, etc., suitable for a 'Vulcan' petrol model? (10 c.c.). We had some castings sent out, but owing to the lack of the right machines they were spoilt, and now we are stuck with a kite which cannot be taken home, or flown here, so it means a whole lot of work for nothing!

"Also we wanted to show the local lads here in Palestine a British Gas Job in the air. Some of the chaps in the club have been to Tel Aviv, and have been told they are welcome any time, but as you know by the newspapers, things are not too pleasant here, to put it mildly, with the fanatics running round with guns.

"We have concentrated on gliders owing to lack of motive power, the best flight so far being 25 minutes o.o.s. at a terrific height. The thermals in this hot climate seem to start very high up, and are not very strong. Big gliders don't seem to be affected much by them. I suppose it is because the whole area is so dry and everything so hot. We build our models out of spruce and plywood salvaged from the big kites!!"

The first Annual Gala of the BATHGATE & D.M.F.C. will take place at the Muir, Armadale, on Sunday, June 2nd. The flying field is one of the best in Scotland, free from trees, hedges, overhead wires and other obstructions, and has the advantage of being near the main bus routes. Four contests will be held, Open

Rubber R.O.G., Open Glider, Junior Glider and Nomination, while cups and cash prizes await the picking up. Full particulars can be obtained from Mr. C. Byron, 52, Easton Road, Bathgate, West Lothian.

The HULL & D.M.A.C. claims to be in possession of the finest clubroom facilities in the North of England, complete with 21 work benches, gas, light and heat, plus cleaning—and all for the princely sum of 1s. 6d. per annum!! Shades of an aeromodeller's dream! Membership is now well past the hundred mark, so we should be hearing something from this quarter of the country.

Four members of the COVENTRY M.A.C. attended the Birmingham Inter Club Indoor Rally, L. Watts collecting third place in the speed event with a speed of 20·16 m.p.h., and A. J. Barr placing third in the r.t.p. class with a time of 3 : 34·8 for two flights.

The Burscough M.A.C. has changed its title to the ORMSKIRK & D.M.A.C., meetings being held at the Council Offices, Mill Lane, Burscough Bridge.

The READING & D.M.A.C. activities are rapidly increasing, and about forty members attended an r.t.p. and discussion meeting in February, six new members joining on the spot. Times were disappointing owing to poor rubber motors, best times being put up by Messrs. Thorne and Shuffle. Current trend in the club is towards gas jobs.

The OXFORD CIVIL DEFENCE M.A.C. will hold its second Annual Exhibition in the first week of April. A complete list of club records furnished shows that gliders have it over the rubber-driven jobs, the best powered flight going to D. Bennet with 1 : 14, while B. Hewitt's glider flew for 3 : 40.

The YEOVIL & D.M.A.S. was formed in November, 1945, and now numbers some 12 members. One feature

A.B.A. Competition Programme. April - July 1946.

April 21st. — **Decentralisd Competition.**

(a) Open duration event for any type of rubber driven model excluding stick models.
Two classes for entrants over and under 16 years old.

(b) Open glider event for any type of model, winch launch will be used.
Maximum length of line 150 ft.
Two classes for entrants over and under 16 years old.

Three flights for each contest.
Highest aggregate to win.

May 5th & 12th. — **Club Competition Day. Decentralised.**

For A.B.A. Clubs and Affiliated Clubs, also A.T.C.
Each club to arrange its own meeting. Meeting to be flown on either or both dates, best days flying to count.

Two events as for April 21st. competition, with the same rules.

June 2nd. — **Centralised Petrol and Wakefield Competition.**

Place. Eaton Bray. — Eliminating trials for team to be sent to IRELAND.

Rules to be announced by Irish Council later. First three from each event will be asked to make up the team.

July 7th. — **A.B.A. Gala Day.**

Place. Eaton Bray. — Duration. (2 classes) Glider. Nearest to 45 sec. and sealed time. Petrol duration event.
Flying scale models (flying). Concour d'elegance. Experimental flying. Flying-boats and seaplanes.

Full rules of the events to be issued later.

of the club, other than normal features, is the design and construction of a twin engined, radio controlled aireraft, at present in the design stage, by all members.

Flying has continued throughout the winter with the KINGSBURY M.F.C., two records actually having been broken! On January 6th, Roy Monk raised the club F.A.I. record to 2 : 18 with his 1½ scale "Thermic 50," while a fortnight later Ray Miles put up the rubber record to 2 : 10 with his "Northern Arrow."

The MEXBORO & D.M.A.C., headquarters 6, Regents Terrace, off Dolcliffe Road, Mexborough, Yorks, are now affiliated to the S.M.A.E.

Great news this month from the DONCASTER & D.M.F.C. A member, F/Lt. Long, has had a two minute flight with a jet-propelled model of his own design—possibly the first successful flight by a model of this type. (More news of this when we are able to get fuller details.) The club's Championship Cup for the 1946 season was won by C. D. Hellewell.

The BLACKPOOL & FYLDE M.A.S.—which now numbers over 70 members—introduce a very worthwhile scheme this season, and one that I heartily recommend to all clubs. During the coming season, there are likely to be many occasions on which motor coaches will be commissioned to make trips to model flying meetings in various parts of the country, and in order to assist those members who want to participate, a "trip club" is in operation, to which members may make weekly contributions towards their costs, thus eliminating the necessity of having to find all the money in one lump. Congratulations, Blackpool, on a good idea.

The CHINGFORD M.F.C. have now obtained the use (through the auspices of the local youth movement) of a hall in the Wellington Avenue Senior School, which has proved eminently suitable for indoor flying. Intending new members should attend at the School on Friday evenings after 7 p.m.

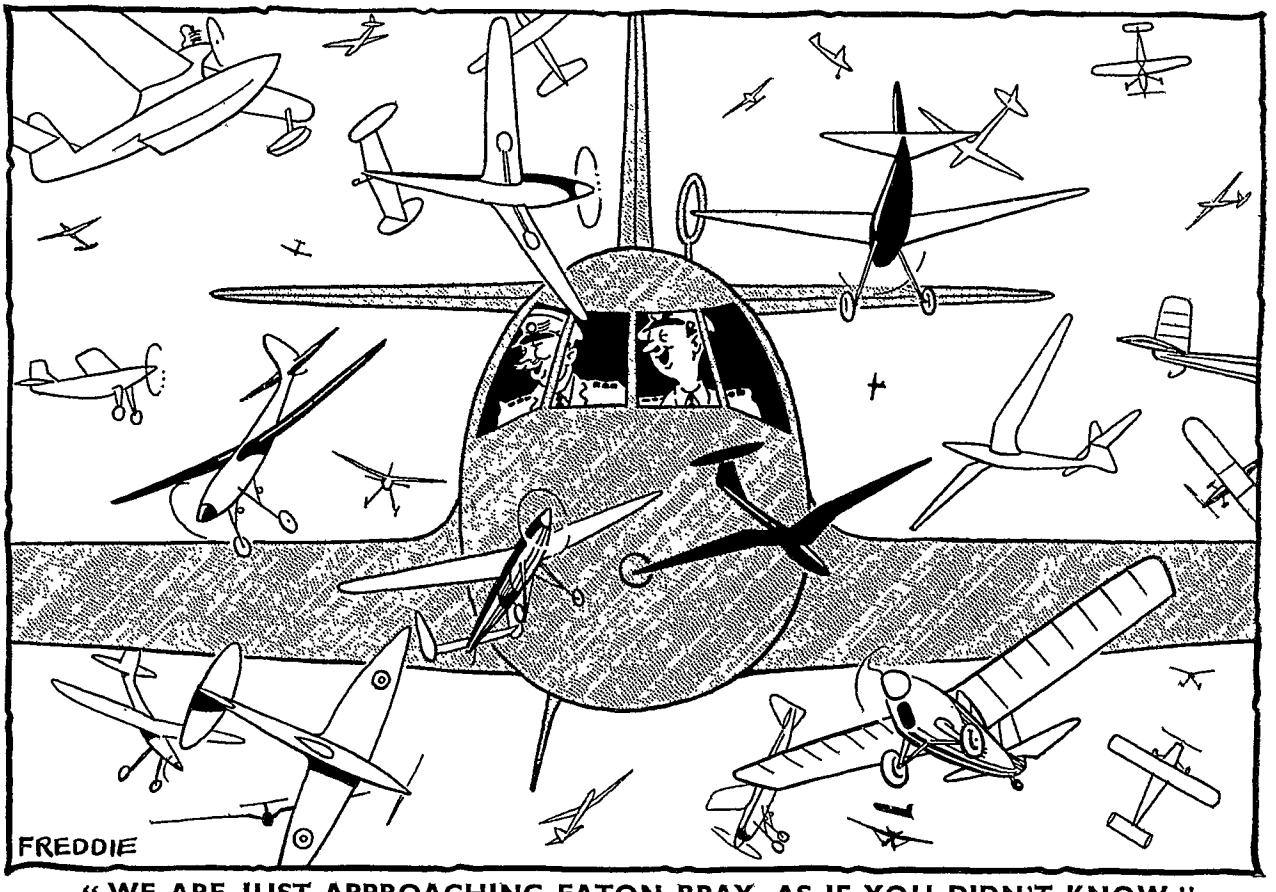
The CHEADLE & D.M.A.S. are an enthusiastic bunch of youngsters, tackling indoor flying with gusto. B. Faulkner gave the r.t.p. class a start by accomplishing 1 : 20 with a 20 inch span "horror" weighing no more than ⅛ oz. This fragile "puff of air" was capable of clocking a regular 65 seconds. A. S. Bailey has since succeeded in breaking this record with a time of 1 : 58, using an ultra-long, well lubricated-motor, sheer determination, iron nerves and good trim! He also achieved the best flight of the 1946 season with a time of 28 minutes o.o.s. with a modified "Mick Farthing Glider."

Two indoor meetings held by the MERSEYSIDE M.A.S. saw some more good times set up, best being:

T. Comber	2 : 15·5	2 : 13·5
A. O. Sutcliffe	1 : 38·5	1 : 33
W. A. Jackson	1 : 25	1 : 18
D. R. Hughes	1 : 10·2	1 : 06·8

T. Comber won the Edwards Cup for r.t.p. flying last season, R. F. L. Gosling the Senior Championship Cup, and P. Wright the Junior Championship Cup.

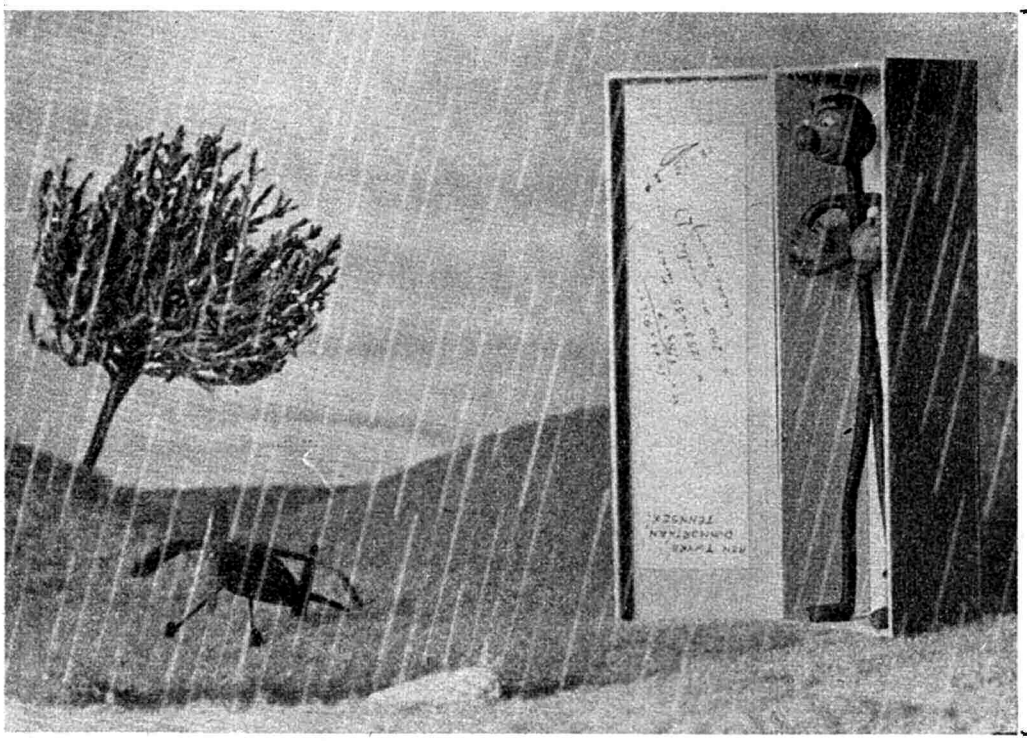
At their recent Annual General Meeting, the BARNES & D.M.A.S. definitely decided to reform the club, and a full programme is being arranged for the coming season. In order to encourage members to begin building models, a trophy has been presented by Mr. H.



"WE ARE JUST APPROACHING EATON BRAY, AS IF YOU DIDN'T KNOW"

BEN TWYRE

By J. H. MAXWELL



A model box of ample size, Is an investment sound and wise, Though not so good in bus or train, It comes in handy in the rain.

Martin for an r.t.p. contest to be competed on a points basis every fortnight until the end of May, competitor with the most points winning the trophy outright.

Another old club to get cracking again is the GOSPORT & D.M.F.C., who are again in operation with some 38 members. Intending members should contact the secretary at 21, Albemarle Avenue, Gosport.

Yet another is the COLWYN BAY & D.M.A.C. which is going very strong again, and is anxious to hear from old and new prospective members. The secretary is D. C. Jones, 81, Abergele Road, Colwyn Bay, N. Wales.

The SOUTHERN CROSS SPOTTERS' CLUB No. 338, having now turned its attention to aeromodelling, enquiries are invited from enthusiasts in the Brighton and Hove area. Those interested please contact Mr. K. Donald, 17, Benfield Crescent, Portslade, Sussex.

A Model Control Group of the RADIO SOCIETY OF GREAT BRITAIN wish to co-operate with Aeromodellers who have either built or are in the process of building models suitable for Radio Control.

All interested should write to F/Lt. J. Oswold-Dykes, Sunnybank, Llanthany, Nr. Abergavenny, Mon.

P. Lawson, of 15, Levinia Street, Leeds, 7, is interested in forming a club for the study and practice of jet propulsion. R. Dunn, of 12, Infirmary Road, Workington, Comb., also wants to get an aeromodelling club going in his district.

And so, once more we reach the end of another month's reports, and look forward to hearing of outdoor activities next time. The weather has certainly been all against outdoor work so far—I think we have had more gales this winter than ever before! Let's hope it's all blown out for the summer months.

THE CLUBMAN.

NEW CLUBS

NEWHAVEN BOYS' CLUB M.F. SECTION.
A. C. Marshall, 60, First Avenue, Newhaven, Sussex.
MORDEN & D.M.F.C.
R. W. Townsend, 156a, Epsom Road, Sutton, Surrey.
POLYTECHNIC M.A.C.
R. Clayton, 64, Fitzjohn's Avenue, Hampstead, N.W.3.
SUDBURY & D.M.A.C.
J. C. Burrell, 14, North Street, Sudbury, Suffolk.
GOSPORT & D.M.F.C.
21, Albemarle Avenue, Gosport, Hants.
ORMSKIRK & D.M.A.C.
H. A. Licky, Liverpool Road South, Burscough Town, Nr. Ormskirk, Lancs.

SECRETARIAL CHANGES

LUTON M.A.C.
E. C. W. Clark, 194, North Street, Luton, Beds.
BLACKPOOL & FYLDE M.A.S.
E. D. Evans, 6, Winton Avenue, South Shore, Blackpool, Lancs.
SHEFFIELD S.A.M.
A. S. Whitham, 41, Concord Road, Sheffield, 5.
DONCASTER & D.M.F.C.
M. Hetherington, 19, Imperial Crescent, Off Town Moor Avenue, Doncaster.
MERSEYSIDE M.A.S.
W. Edwards, 9, Oldfield Road, Liverpool, 19.
BECKENHAM & D.M.A.C.
C. Andrews, 20, Church Avenue, Beckenham, Kent.
HULL & D.M.A.C.
G. Greaves, 146, Hessle Road, Hull, Yorks.
BUSHEY PARK M.F.C.
L. M. Walker, 16, Conifers Close, Kingston Road, Teddington, Middlesex.
PORTSMOUTH GRAMMAR SCHOOL M.A.C.
D. Way, 36, Chelmsford Road, North End, Portsmouth.
OXFORD CIVIL DEFENCE M.A.C.
J. White, 28, Essex Street, Oxford.
ARBROATH M.A.C.
D. D. Edwards, 12, Dalhousie Place, Arbroath, Angus.
AYLESTONE M.F.C.
D. Chapman, 72, Rancliffe Crescent, Braunstone, Leicester.
HAY M.A.C.
J. Golesworthy, 45, Lion Street, Hay, Hereford.
WYTHENSHAWE M.A.C.
A. Timms, c/o 31, Overdale Road, Wythenshawe, Manchester.
SPELDHURST (Kent) M.A.C.
D. S. Saunders, 44, Maidstone Road, Rochester, Kent.
WORTHING & D.M.A.C. (formerly West Worthing M.A.C.).
G. Caddick, 40, Adur Drive, Shoreham by Sea, Sussex.

CLASSIFIED ADVERTISEMENTS

PRESS DATE for June issue—May 1st.
ADVERTISEMENT RATES ;
Private **Minimum 18 words 3s. and 2d. per word for each subsequent word.**
Trade **Minimum 18 words 6s. and 4d. per word for each subsequent word.**
Box numbers are permissible—to count as 6 words when costing the advertisement.
COPY should be sent to the Classified Advertisement Dept. the "Aeromodeller", The Aerodrome, Billington Road, Stanbridge, Beds.

REQUIRED

B.A.O.R. and C.M.F.! Good price given for "Modellflugs," "L'Aquilone" (1939-45); any European model books.—Box No. 15.

Wanted. Ohlsson 19 or 23 engine or aircraft complete with above.—F/Lt. Johnson, R.A.F. Officers' Mess, Abingdon, Berkshire.

Wanted AEROMODELLER January, 1943.—A. Woolnough, Yoredale, Sollershott, Letchworth, Herts.

Wanted. AEROMODELLER January, February, 1945. Also volumes 1941 and 1942.—S/Lt. Harper, R.N.A.S., Rattray, Aberdeenshire.

Silk and/or bamboo paper wanted urgently, any grade, by builder of the Celestial Horseman. *Very* good price given.—D. E. Porter, 13, Merton Road, Southsea, Hants.

2·5 c.c engine, complete, good condition, for builder of "Natsneez."—Write to J. F. Williams, Red House, Underskiddaw, Keswick, Cumberland.

FOR DISPOSAL

For sale, 10 c.c. petrol engine. Bench tested. Complete, coil and condenser, £6 10s. 0d. Wanted. Pair 3½-in. air wheels.—Upton's, 312, Tyburn Road, Erdington, Birmingham.

"Aeroplane Spotters" 4-153 (3 vols. home bound), 50s.; "Royal Air Force," "Aircraft of the Air," "Westland Aircraft," "Miles Aircraft," 6s. each; "Flight without Formulæ," "Aeroplane Structure," 2s. 6d. each; "A.F.P." vols. 1 to 4 12s. 6d. each, vol. 5 22s. 6d.—Stride, Park Road, Shirehampton, Bristol.

Baby Spitfire 2·5 c.c. petrol engine, with coil, condenser, plug, airscrew, new and unused. Bench tested only. 2½-in. Caton's super airwheels, bamboo paper, plans, etc. Offers.—527, Foundry Lane, Leeds, 9.

Forster 29—4·95 c.c engine, complete all accessories and Austin pneumatic timer. First class condition. May be seen running. Makers rating 1/5 B.H.P. £10.—Write J. A. Brooks, 61, St. Luke's Road, Winton, Bournemouth.

"A.F.P." vol. V., good cond., 25s.; also twelve 1944 "A.T.C. Gazettes," 3s.—Knocker, 46, East Lane, Wembley, Middx.

For sale. 8·5 c.c G.H.Q. petrol engine, £3 15s. 0d.; also a brand new 5 c.c. Ken Kestral engine, £3 15s. 0d. Both engines in running order but without coils.—Write D. J. Dudley, 58, Pinewood Avenue, Sidcup, Kent.

Hallam Nipper castings complete, coil, condenser, plug, tank, points, detailed blue print; "Petrol Engines," Forster. £3.—M. Lev, 36, Bristol Road, Birmingham, 5.

5 c.c engine with plug and prop., and plan of "Gypsy Moth." £7 10s. 0d.—Box No. 13.

Silk-covered petrol plane, 54-in. span, complete with 3·5 c.c. Hornet engine. All in perfect condition, ready to fly. Best offer over £10.—Hodges, 3, Epping Way, Chingford.

AEROMODELLER 1939, 1940, 1942, 1943, 1944, complete; 1938 with Dec. missing; 1941 Jan., April missing; 1945 March, July missing. "Model Aeroplane Constructor," 22 copies. "Popular Flying," 1936, 1937, 1938, complete; 1939 seven copies. "Flying," 1938 40 copies; 1939 38 copies. "Model Aircraft Book," F. J. Camm. "Aeroplanes," Barnard Way. What offers?—Bryan, 16, Hardwick Street, Derby.

F 6·8 quarter plate camera, tripod and accessories. £7 10s. 0d. or exchange complete 2·8 c.c. engine and timer.—Write P. Hawkes, 26, South Roundhay, Birmingham, 25.

Hallam 10 c.c. Roughcast, set of castings and plans. 40s.—Bland, 26, Essex Park, Finchley, N.3. Phone Finchley 1708.

14 c.c. Atom Minor petrol engine, complete with 18-in. propeller. Test-run only. £10.—Smith, 5, Inglewhite Crescent, Wigan, Lancs.

One Baby Cyclone, complete with coil and condenser, etc. Excellent condition. £8 or nearest offer.—Parfitt, 18, Great Arler Road, Knighton, Leicester.

AEROMODELLERS Dec. 1938 to Dec. 1945; what offers?—Sgt. Fallon, c/o Sgts. Mess, Crosby-on-Eden, Cumberland.

"The Aeroplane," 1943 and 1944, complete. 26 miscellaneous 1945. "Flight," 26 copies, April, 1944-March, 1945. 32" Spotters" 1943-1945. £4 the lot.—R. Lawrence, 25, St. Oswald's Road, Norbury, S.W.16.

Petrol engines reconditioned. New sleeves, pistons. Crankshafts, etc., fitted. Workmanship guaranteed.—Enquiries to 6, Preston Avenue, Newport, Mon.

Damaged, but repairable, Baby Cyclone, all accessories, £3. Silk-covered 7-ft. span Super Buccaneer, £9. "A.F.P." I.-IV., as new, 17s. 6d. each. First offer secures.—Box No. 14.

EXCHANGE

New crystal set, head phones, set small stocks and dies, pair boxing gloves, for 2·5—6 c.c. petrol engine. Small cash adjustment if necessary.—Didlick, Council Houses, Corley Ludlow, Shropshire.

Have large box of wireless parts; will exchange for any c.c. complete engine.—Mountview 8864; 106, Raleigh Road, Hornsey, London.

Exchange Duration Model Keelplane M.K.1 solid plans, 10s. value; balsa; 2½-in. airwheels. For Premier Lion complete except engine. Cash adjustments.—J. Nimmo, Caldside, Greenlaw, Berwicks.

Belgian technician wishes exchange Belgian and French books, plans, etc., for AEROMODELLER and "Model Airplane News."—Write Guy Ramaekers, 31, Av. Felix Marchal, Bruxelles, Belgium.

Urgent, AEROMODELLERS October-November, 1943, or cash, for AEROMODELLERS March-May, 1944.—Rumsey, 20, Beacon Down Avenue, Plymouth.

"Jane's" (1944), "A.F.P." (1-4), "Westland," for engine with accessories, or gas-model kit, or £5.—Moulson, 33, Halstead Grove, Gatley, Cheshire.

Will exchange 35 copies of AEROMODELLER from 1943-46 and Astral Kit containing flying Barracuda, 28-in. wingspan, for a pair of ball-bearing roller skates, suitable for rink.—Whitfield, 1, Barran Street, Bingley, Yorks.

Exchange "A.F.P." V. for Drysdale plans of Auto Union and Model Race Cars, as new.—Apply Allen, 80, Lee High Road S.E.13.

SECRETARIAL CHANGES—*continued.*

ASHTON & D.M.A.C.
W. Titterington, 17, Brownlea Avenue, Dukinfield, Ches.
MERSEYSIDE M.A.S.
A. O. Sutcliffe, 15, Brook Lane, Chester.
TUNBRIDGE WELLS M.A.C.
C. Churcher, 103, St. James' Road, Tunbridge Wells, Kent.
LEEDS M.F.C.
E. P. Anderton, 656, Scott Hall Road, Chapel Allerton, Leeds.
KING'S HEATH M.A.C.
G. F. Clarke, 67, Beechwood Road, King's Heath, Birmingham, 14.

THE *Caton* TROPHY

The winner of this Trophy for the season of 1945 is Mr. Patterson of Blackheath Model Flying Club, with a time of 16 mins. 29 secs.

We have congratulated Mr. Patterson on his success and presented him with our cheque for £5 5s., which sum is annually awarded to the winner. His name will be suitably inscribed on the Barometer.

CATON SUPER POWER AERO STRIP

is not in production as the Rubber Control are not yet able to release suitable rubber for its manufacture, but we hope all Aeromodellers will compete for our Trophy during 1946 using the best rubber procurable

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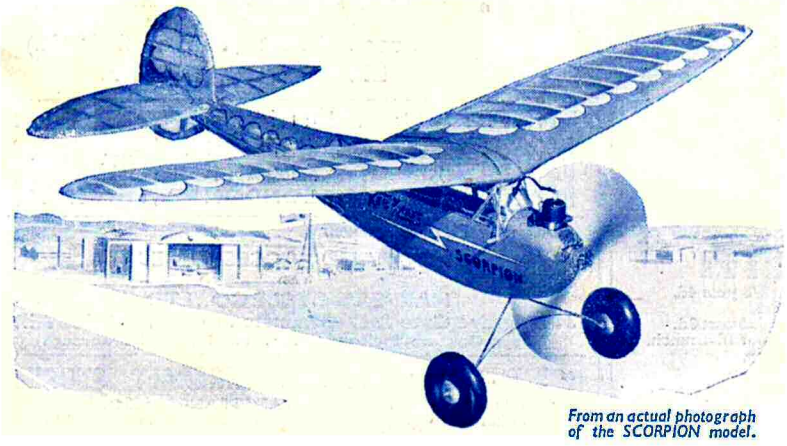

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