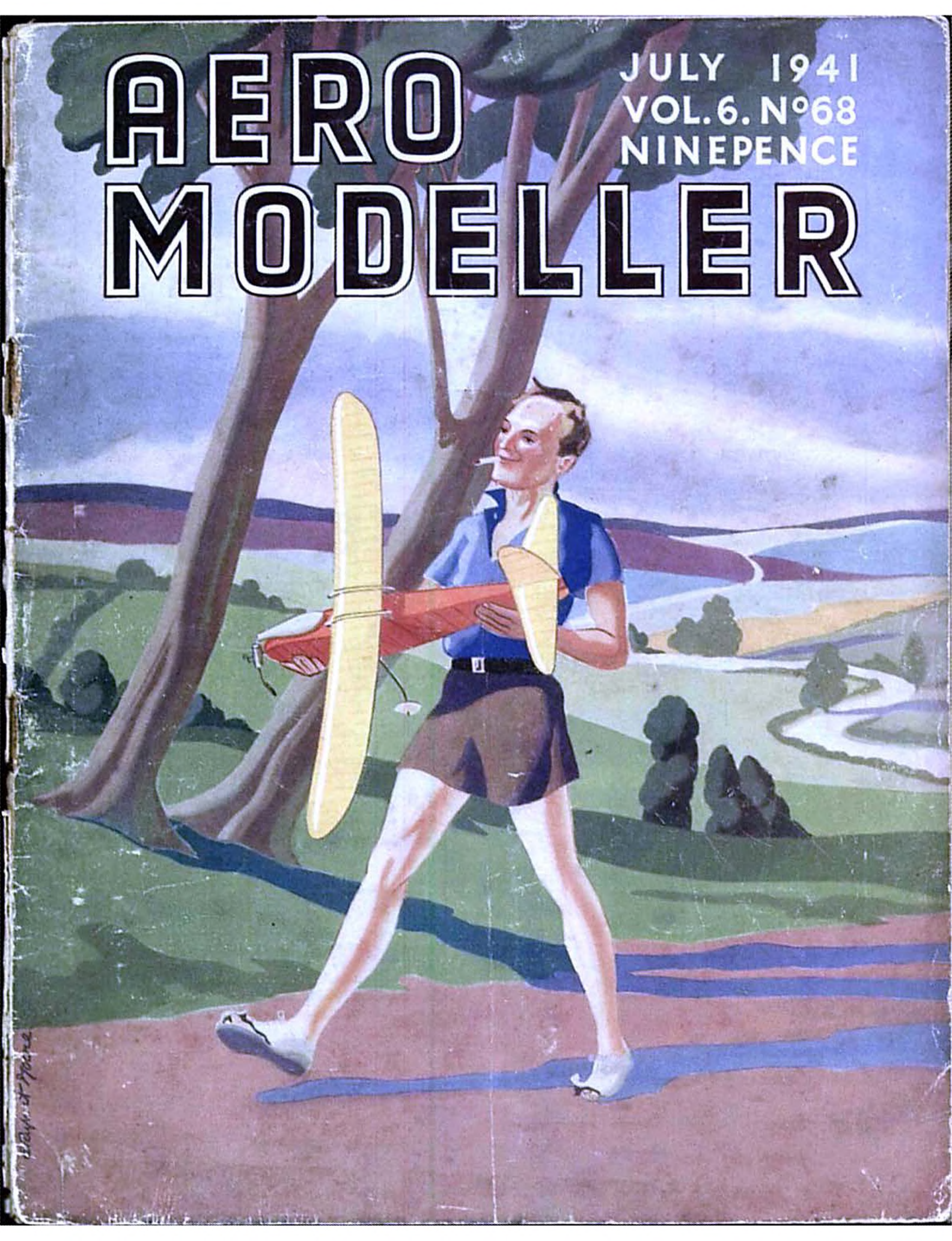
AERO MODELLER

JULY 1941
VOL. 6. Nº68
NINEPENCE



Digital Edition Magazines.

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

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

All Plans and Articles can be found here:

Hlsat Blog Free Plans and Articles.

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

AeroFred Gallery Free Plans.

http://aerofred.com/index.php

Hip Pocket Aeronautics Gallery Free Plans.

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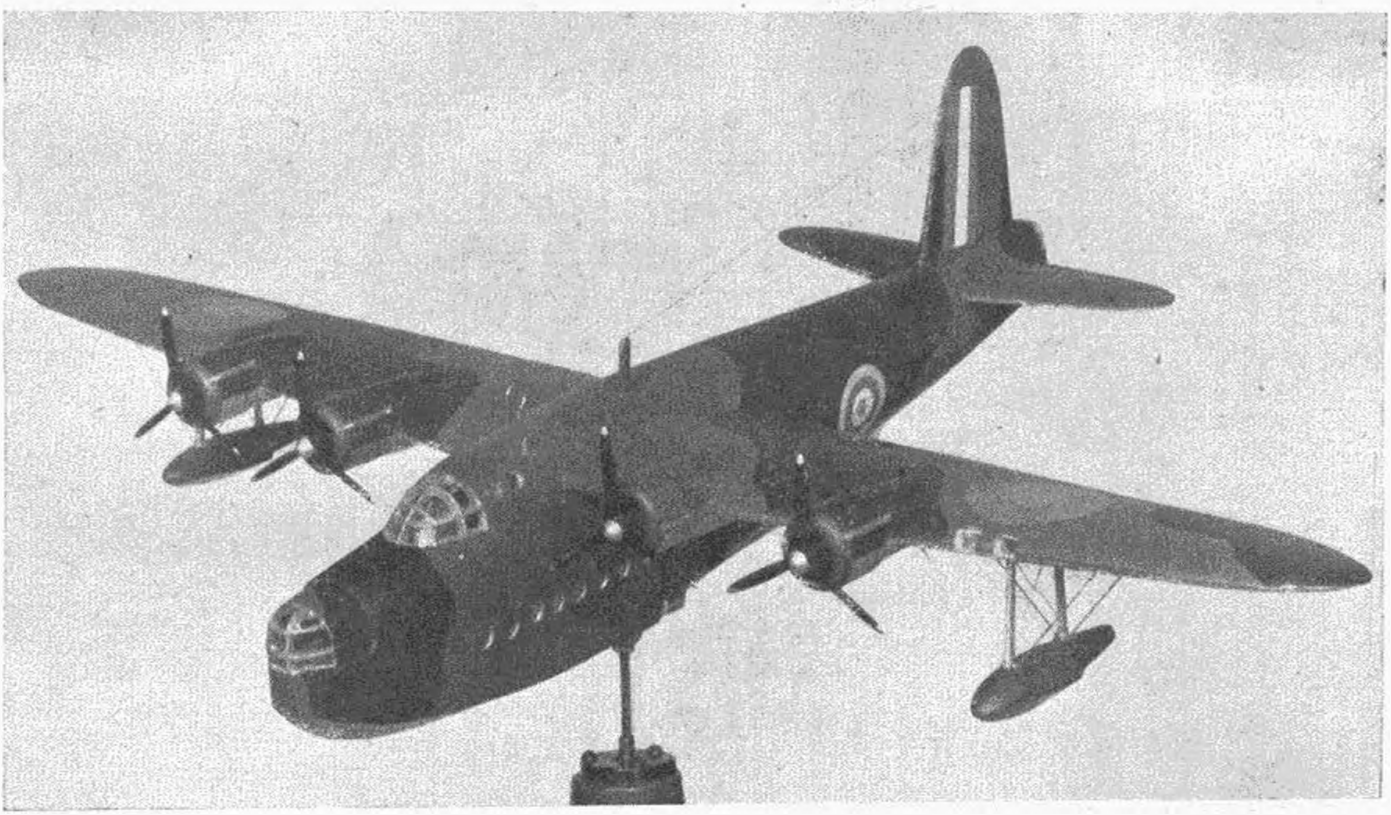
Diligence Work by Hlsat.

1st Prize-Winner in the "Solid" Competition



Photographs of other prize-winning models in both the "Members" and "Non-members" Sections are on pages 397-8-9 of this issue.

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The AERO MODELLER

INCORPORATING "THE MODEL AEROPLANE CONSTRUCTOR"

JULY - 1941
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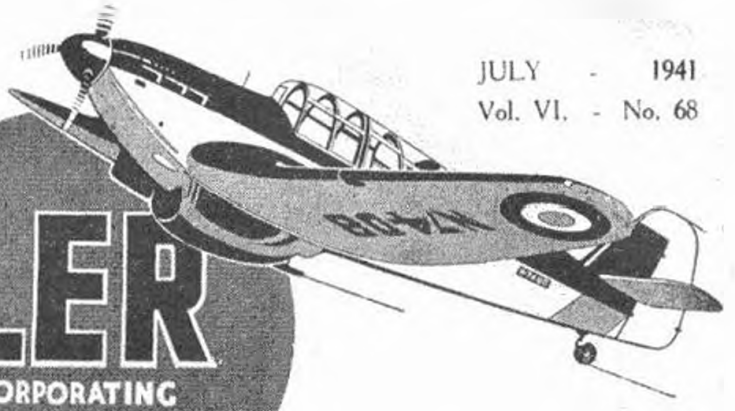

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Editorial

WELL, well, well. That was the "Aircraft Identification Competition," that was! There was considerable speculation in our offices as to the number (if any) of readers who would identify correctly the 120 aircraft, portions of photographs of which comprised the competition, and after publication of the first of the three groups some of our friends said that we ought to be locked up for organising such a hard competition, *others* just laughed and hoped we would not die of exhaustion in sorting out the thousands of winners!

However, we *thought* we had something up our sleeves and that, whilst the first two sets of photographs might have been pretty hard, the last one would catch out a considerable number of readers—and the result? Well, here it is—113 "all correct."

In accordance with Rule No. 8, which states that, if more than five entrants identified correctly all the aircraft, the whole of the prize money of £75 would be equally divided amongst the prize-winners, we have to announce that each of them is due to receive the sum of approximately 13s. 2d. However, to make each share of the prize money a round sum, the organisers, the Harborough Publishing Co. Ltd., have increased the prize money to £84 15s., thus giving each prize-winner the sum of 15s.

We trust that the prize-winners will not be *too* disappointed that there are so many of them, and that they will feel that they have not laboured in vain when each in turn finds he has *not* won the first prize of £50.

There were several thousands of entries for the Competition, and "a-good-time-was-had-by-all" our staff in judging them. Undoubtedly, the Competition created an enormous amount of interest, and we feel that it was well worth while organising in view of its stimulating interest in the identification of aircraft.

The Gamage Cup.

We are pleased to see that the Gamage Cup has *again* been won by Mr. Courtney (Oxford), *again* with an "Isis," designed by Mr. A. F. Houlberg.

Last year the winner's total time was 717·4 sec. This year conditions were somewhat more favourable, and the total time of 1,149·7 sec. was recorded, followed pretty closely with 1,091·2 sec. by Mr. M. Jennings (Bath) and 887 sec. by Mr. B. Morgan (Cardiff).

We might remind readers that a set of full-size plans of the "Isis," span 44 in., was recently made available through THE AERO-MODELLER "Plans Service," price 3s. 6d., post free.

This is the first time, we think, that the *same* design of plane has won the *same* cup, in the hands of the *same* entrant, in *successive years*, and we congratulate Mr. Courtney on his performance and Mr. Houlberg on the design.

Naturally, our thoughts turn to the winner of the next year's Cup. We wonder if these *three* will pull off the hat trick again?

Continuing our policy of endeavouring to meet the wishes of all types of aero-modellers in regard to the plans which we publish, we include this month reduced scale plans of Mr. N. Blacklock's "Gutteridge Trophy Winner" and, at the same time, draw attention to the fact that a set of full-size plans of this excellent 42 in. span 'plane are available through THE AERO-MODELLER "Plans Service," price 3s. 6d., post free.

We would remind readers that full size plans of Warring's Wakefield model (British record holder), as described in last month's AERO-MODELLER, are also available at the same price.

Gadget Review.

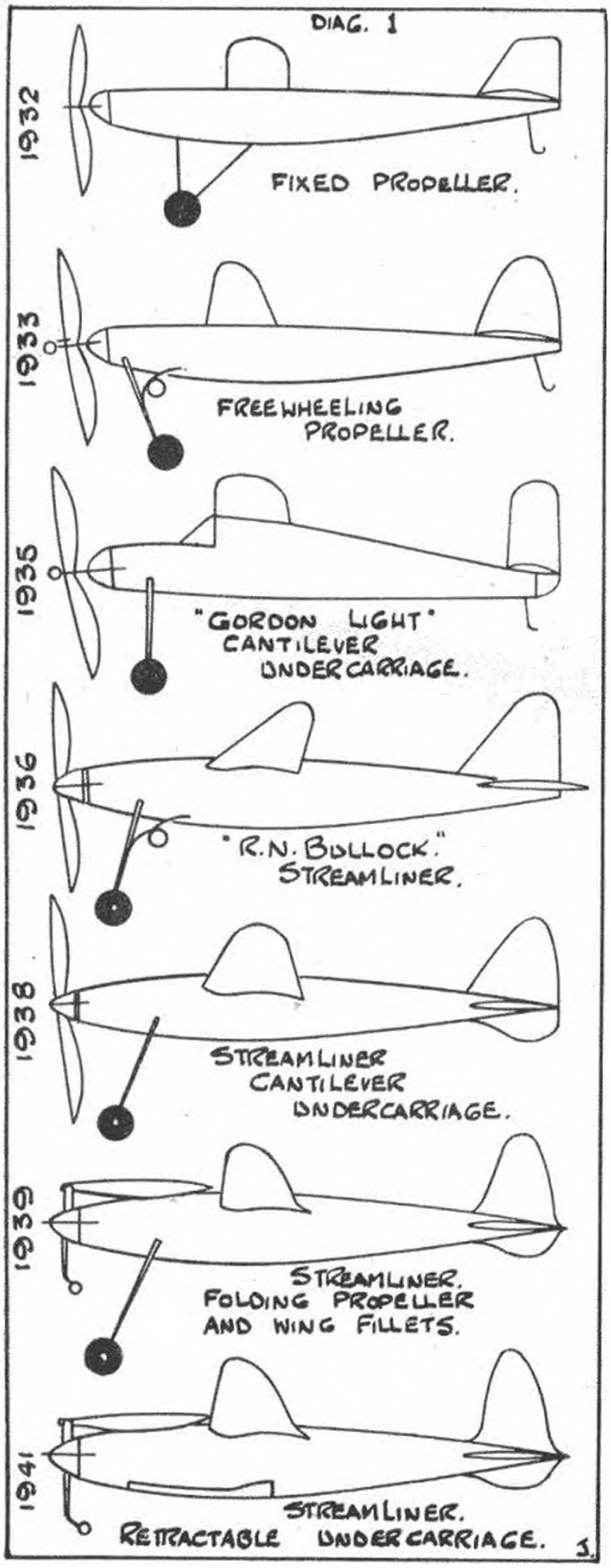
As announced in our last issue, a new series of "Gadget Reviews" was contemplated, and we are pleased to announce that Mr. M. R. Knight has taken on the job of conducting this feature, and it is hoped to publish the first review in the new series next month.

When we approached Mr. Knight with the suggestion that he should conduct this review, he said: "I am the *last* person to do this job. You know very well that I am not in favour of a lot of 'gadgetty' gadgets on model aircraft."

"Exactly," we replied, "You are thus fully qualified to eliminate the sheep from the goats!"

In regard to the "Gadget Review" which appeared in our June issue, we would be obliged if those readers whose gadgets were described would kindly let us know their addresses so that we can post on our cheques. Unfortunately, the list of their addresses has been destroyed.

D. A. R.



RETRACTABLE

Following the interesting description of his 1940 Wakefield Model, published last month, Mr. Warring now deals with the development of retractable undercarriages during the past few years

REFRAINING from scaring some readers at the very beginning of this article, I will leave out the mathematical theory of "to retract or not to retract," and try to treat the subject in a purely practical way. Obviously, we must save drag, and thus increase the L/D ratio of our model by tucking the undercarriage away. The relative values have been discussed in past issues of THE AERO-MODELLER, and those interested in this aspect should refer back to them.

Most theorists, however, have completely forgotten—or avoided—the likely increase in weight incurred, and this would seem at first sight to somewhat nullify any advantage of increased flying speed. Not so many years ago, when America first introduced retractable undercarriages on full size machines, various technical experts conclusively proved, on paper, that the increased weight and complication of the retracting gear would *decrease* instead of increase the performance. How subsequent events have proved them wrong is obvious to everyone. The liability to failure was also frequently quoted as an additional drawback, but this is very remote on the full size aircraft.

Unfortunately, our models are not quite so well served, as up to the present I have not found any retracting gear that has given me enough confidence in its ability to use it in the Wakefield Trials. The best to date—in my opinion—is that of W. L. Henery, T.M.A.C., and used on his '39 Wakefield. This is one of the least "chancy" I know, but unfortunately suffers from several disadvantages. The majority are liable to failure just at the critical moment. To rely merely on the weight of the model to keep the gear in the down position is a mistake. We need a far more positive arrangement, which does not "let go" until the take-off period has safely elapsed. Another fallacy is the undue worry about change in trim, but this is not serious on a well-designed model, as allowance can easily be made for it.

This brings us to the one advantage a model possesses over its full-size brother, and that is, the undercarriage does not have to come down at the end of the flight for landing and thus is relieved of landing shocks. This means it can be made far lighter than the fixed type; the necessary retracting mechanism more than nullifies this, and it is often necessary to add more weight in strengthening the front underpart of the fuselage.

A folding propeller is essential as, if landings are to be made on this member, you will have quite a lot of practice at propeller carving. Besides, we might as well clean the model up as much as possible while we are at it. Diagram 1 shows how streamlining has advanced in the past few years—or rather drag reduction. Incidentally, this diagram does not go as far as "Freddie's" cartoon in the June, 1940, AERO MODELLER.

UNDERCARRIAGES — *By R. H. WARRING*

Now let us see just what we require for the perfect retractable undercarriage, and then discuss contemporary methods and their various drawbacks. We shall have to pay for our gear in some way, but we want to make this payment as small as possible!

1. A positive method of release independent of wind pressure or weight of model before air-borne.
2. Lightness of the whole gear. The average streamliner scales 8—9 oz. properly constructed, and we do not want to increase this beyond 9½ oz.
3. No great change in trim involved.
4. It is to be preferred that the undercarriage should tuck away completely, but a surprising reduction in drag is effected if it only folds up under the fuselage.
5. *Reliability.*
6. No structural weakness of fuselage through cutting away to house undercarriage.
7. *Simplicity.*

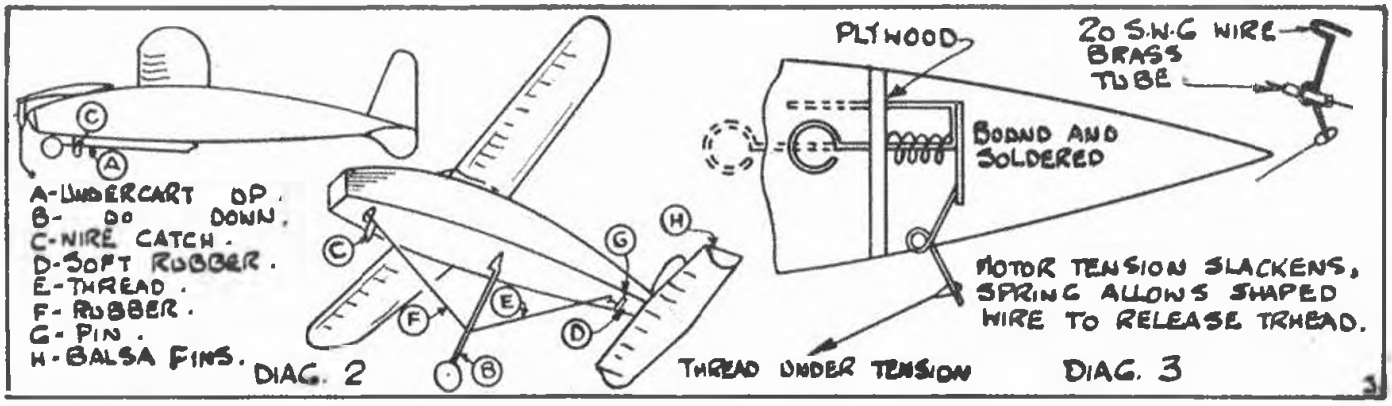
The first method to be discussed is one of the best I have used. It was first of all employed on an indoor model of mine, and subsequently on a 5 oz. outdoor slabsider.

It has two disadvantages; it is not *absolutely* reliable, and is only really suitable for a "peg-leg" undercarriage. This means that the model has in effect a tricycle undercarriage, one wheel forward and two skids on the tail-plane. Frankly, I do not like this set up, even under the best take-off conditions.

That the apparatus worked well and was extremely light cannot be denied, but unfortunately no photographs are available, as the model flew away on one of its test flights. Two flights of 2½ minutes on half turns were followed by an 8-minute flight, the 'plane disappearing into the blue above us—well over 2,500 feet up.

The peg-leg was tensioned forwards, and the "release" was a pin pressed into a small piece of soft rubber cemented at the rear underpart of the fuselage. A thread attached to the pin was also fixed to the leg, and held that member in the down position. The rubber, pulling forward, caused the pin to "escape" after a few seconds, and the leg snapped upwards, to be held by a small wire catch. A moderate amount of power was used to ensure a snappy take-off.

Perhaps a reversal of the leg would be beneficial—i.e. retracting backwards; so if anyone is contemplating adopting this arrangement they could try that way. The main trouble will be with the rubber, and considerable patience will be required to get the correct set up. Should anybody find exceptional difficulty in this method I shall be only too pleased to help them if I can by correspodence (perhaps the Editor will be kind enough to arrange this). Unfortunately, space does not permit a complete report of my experiments.



Next, let us see if it is possible to utilise rubber tension (i.e. that of the motor), as we do in some cases to prevent the motor completely unwinding and flopping about the fuselage. Such a method will have a "delayed" action, and thus lose a good deal of its advantage. However, it would improve the glide.

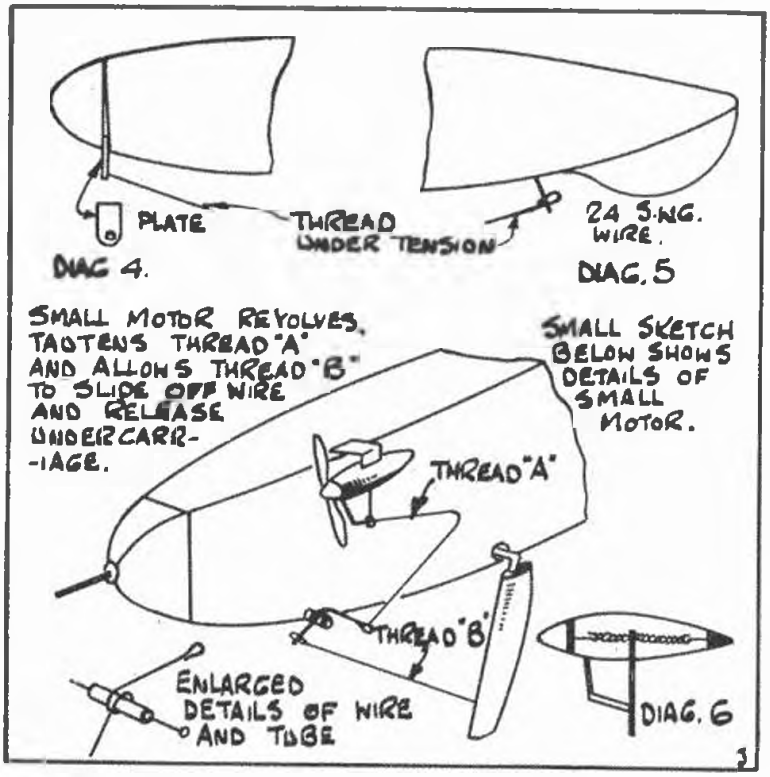
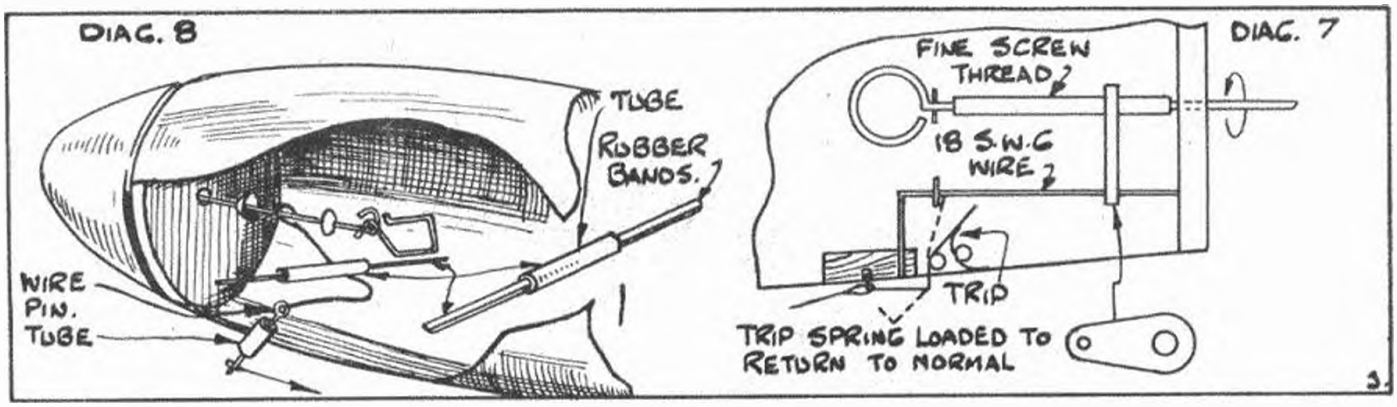


Diagram 3 shows how we can work a release from the rear end of the fuselage. It is proposed to deal only with the actual release gear for a moment or two—the actual stowing away will be considered later. In any case, most experimenters have their own pet ideas, which can amplify the following. I think the diagram is self-explanatory.

A quicker method, again relying on the tension of the motor, is shown in diagram 4, but is less reliable. The principle is that with the motor fully wound the nose-block is held in tightly, and a small, thin metal plate slipped in the position shown is held there, even though the tension on the thread is trying to pull it out. As the power slackens the pressure of nose-block on nose decreases, until a point is reached when the plate is pulled out. This alters the position of the thrust line slightly, which can be used to advantage. When the undercarriage retracts the centre of resistance is slightly higher, and the little additional down thrust might prove beneficial.

ment can effectively be used to trip the mechanism holding the undercarriage down. This method is positive, reliable, and quite light, but is far from ideal. The construction of the screwed propeller shaft may present difficulties to some, but the main disadvantage is the length of shaft necessary. This either means moving the C.G. of the 'plane backwards (very bad!) or using a long hollow nose-block. This increases the length of the fuselage, meaning increase in cross-section and increased drag. If we keep the fuselage the same length we must decrease the length of motor, and thus the number of turns, whichever way we turn, we can't get out of it!

Owing to my present circumstances, unwilling resident of a military hospital, the apparatus illustrated in diagram 8, which was to form the basis for my experiments this winter, has been temporarily shelved. However, I pass on the details, hoping someone might get the germ of an idea from it. The propeller shaft is drilled completely through



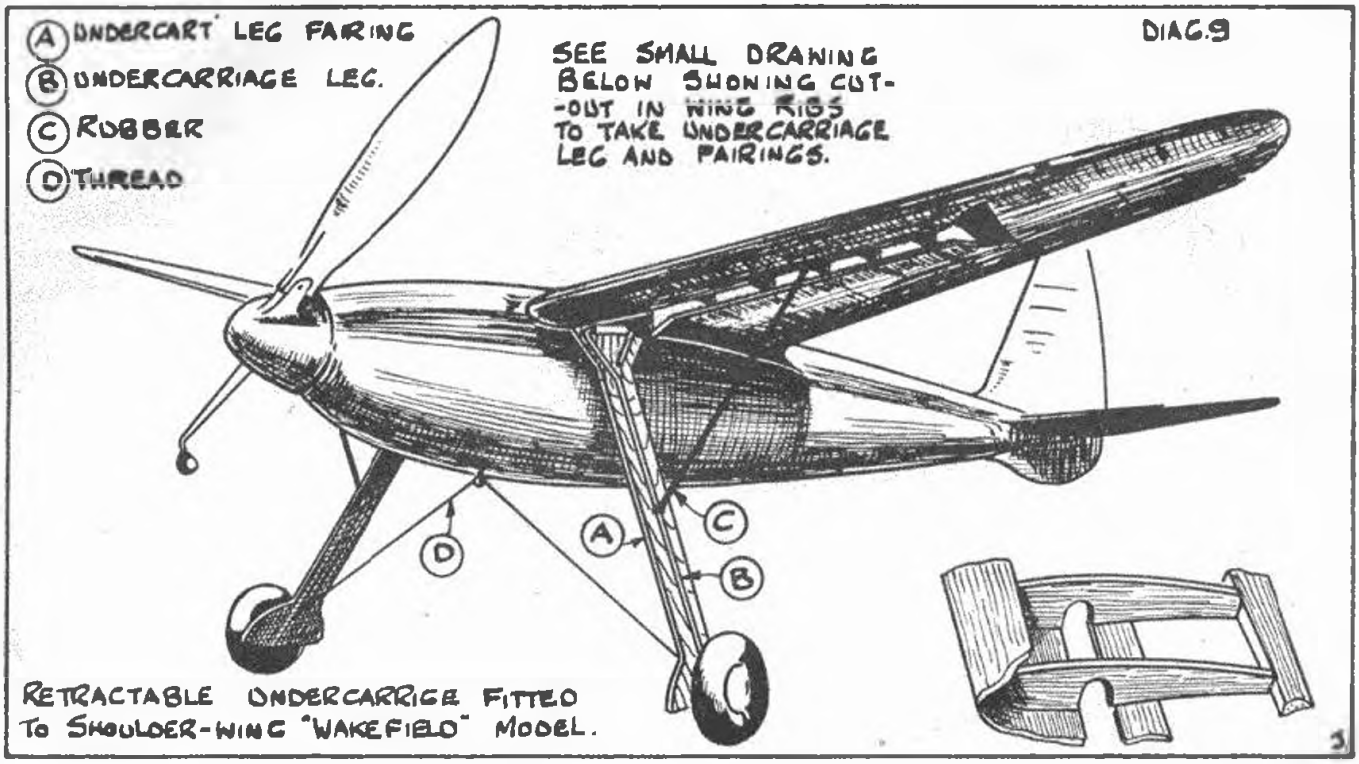
I do not place a great deal of reliance on the latter method, however, nor on the next, which has as its main advantage extreme simplicity. The undercarriage is tensioned forwards or backwards, and held "down" by a length of thread looped over a small piece of 24 s.w.g. wire. The wire bends slowly under the pull, and eventually allows the loop to slip off. Well, try it and see, if you don't think it will work; believe me, it does. But will it work in the same interval of time ten times out of ten? It will not!

The next suggestion has caused not a little merriment amongst my friends. Someone cruelly suggested I had been looking at some of Heath Robinson's creations before I worked it out. It was intended for large models, but was never built—the drawings served merely as a cartoon! (Another kind friend!) Diagram 6 shows it in all its glory—a small "windmill," which winds in a length of thread. The thread when taut breaks the catch holding the undercarriage in the down position. No, even I do not think it should be taken too seriously, but it just shows how desperate I became at times chasing after this mythical "perfect release."

The next two methods are likely to prove our saviours, however. Diagram 7 is Mr. Henery's, and it works. The propeller shaft is longer than usual, and is tapped with a fine screw thread for about an inch and a half of its length. A cam-shaped nut is screwed on to this, and is held upright by a horizontal rod passing through a hole in the top of the "cam." The thread is cut right-handed so that if the nut is near the nose-block when the motor is wound it will move backwards as the propeller shaft revolves, and eventually run off the thread and idle on the shaft. This move-

just inside the nose-block, and two large cup washers, one half-inch apart, are soldered on either side of it. Inside the fuselage, on one side and below the level of the shaft, a small piece of aluminium tube, bent to conform to the fuselage shape, is held against the side by a small length of $\frac{1}{32}$ in. rubber passed through it, and fastened at each end. A small length of aluminium tube is *firmly* cemented in position in the bottom of the fuselage. A small length of wire projects through this tube and engages a wire loop attached to thread holding the undercarriage forward. Thus, when the wire is pulled into the tube the undercarriage releases and folds back. The wire is moved in this manner. To its inner end is attached a length of thread, which passes behind the tube tensioned to the side of the fuselage and to the propeller shaft, threading through the hole and tying. Thus as the shaft revolves the thread is wound on it and, drawing taut, pulls the pin out of the tube and allows the undercarriage to retract. The time lag is adjustable by varying the length of thread employed; it must not be excessive, however, as the slack may then be liable to catch up in the motor. It is kept taut on to the shaft itself by the tube pressing against the fuselage side, and which also allows the wire to be drawn past it. This is liable to be the snag, as although almost fully wound in, a short length of thread and the wire pin itself will be whirling round as long as the propeller shaft is turning. Its advantages are lightness, reliability (unless the thread breaks!), positive action, and reasonable simplicity.

So much for the release mechanism. The subject is by no means exhausted, and there may be many other workable methods I have not mentioned. Those above are merely



ones with which I have been experimenting. Let us pass on to the next phase, and see just how we propose to tuck the undercarriage away. The methods available are as follow :—

Single leg—retracting backwards—(i) into fuselage.
(ii) under fuselage.
retracting forwards
(i) into fuselage.
(ii) under fuselage.

Two legs (*standard*)—retracting backwards
(i) into fuselage.
(ii) under fuselage.
retracting forwards
(i) into fuselage.
(ii) under fuselage.
retracting outwards—into wings.

The recurrent difficulty with forward retracting undercarriages is that in the down position the wheels are only just in front of the C.G. Obviously they must be in front of C.G., otherwise the model will tip on to its nose, and, although this makes for a quick take-off, it is not too stable an arrangement (especially noticeable in the peg leg case). Retracting backwards, on the other hand, is more stable, but means a shifting of weight in the opposite direction to which we want it. This can be balanced by a weight moving forward with the retraction, but that means increasing the all-in weight of the model unduly.

The only other method is to retract into the wings. Now this is going to involve real mechanical difficulties and demand extremely careful and accurate work if the airfoil shape is not to be spoilt. It is, however, the best place to put it. There is no fear of weakening the fuselage structure by having to cut away formers to accommodate the legs and wheels, and it can be tucked away flush. It suffers from the disadvantage that a knock may displace the leg and put it out of alignment, but it shouldn't normally be subjected to such shocks, and the same remark might equally well apply to all the gears.

Diagram 9 gives a rough idea of its adaptation to a shoulder wing streamliner. It will be seen that the gear is contained completely in the wing, and the release mechanism only need be attached to the fuselage. The trailing cotton is a nuisance, but I don't see how it can be avoided. Note that the hinge is askew in order to bring the wheels forward of the leading edge when down.

For streamliners, the undercarriage should be completely enclosed by fairings when retracted. In the case of the slab-sider it is hardly worth while to retract it at all. (I wonder how much disagreement that will cause?) If it is desired, however, it is usually sufficient to tuck it under fuselage. For those enthusiasts preferring a "box" body and wishing to "go the whole hog," a triangular underpart is extremely adaptable for enclosing the whole, however.

There is still a lot of work to be done before finality is reached; systems which work well indoors may not be so successful on the flying field. Above all, we must have simplicity, as competition nerves and delicate adjustment do not go hand in hand. How about it, you inventors?

NOTE.—The airscrew for the 'plane described in plans on pages 408-13 should be 9 inches diameter by 14 inches pitch. The rubber motor should be eight or ten lengths, each 22 inches long, of $\frac{3}{16}$ in. rubber.

KEIL KRAFT PRICE ERROR.

In our June issue the wrong prices were inserted in the whole-page advertisement of Keil Kraft Flying Scale Kits, which are now 4s. 6d., plus 1s. tax.

If this mistake has caused any Keil Kraft stockists inconvenience it is very much regretted.

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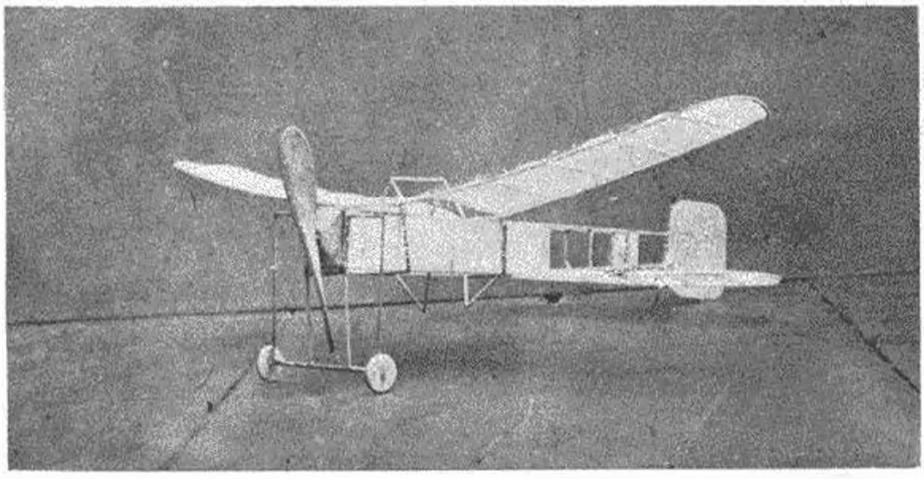
By H. McDOUGALL



Fuselage.

THE fuselage is built along the usual lines, two sides being made first from $\frac{1}{16}$ in. square balsa, with an extra wide piece at the tail and another to take the rubber anchorage pin. The sides are glued together at the tail, with the $\frac{1}{16}$ in. sheet tail triangles between the top and bottom longerons, so that the sides branch outwards. They may then be brought together so that the fuselage sides are parallel, $1\frac{1}{2}$ in. apart from the point marked with an arrow to the nose.

The pylon for the top of the fuselage is constructed from $\frac{1}{16}$ in. square balsa as shown. The inverted pylon beneath the fuselage is made in exactly the same manner, except that the ends lean inwards at the angles shown in the side view. These pylons are only for the sake of realism and serve no useful purpose. On the original Bleriot they served to anchor the wing guy wires, but if the utmost performance is desired from the model they may be omitted.

Undercarriage.

This is bent from bamboo a little less than $\frac{1}{16}$ in. diameter, except for the strips shown shaded, which are of $\frac{1}{16}$ in. square balsa. When the bamboo has been bent approximately to shape, the framework may be pinned to a board and the balsa strips can then be securely glued. The 1 in. diameter balsa wheels having been added on short lengths of 22 gauge wire, the completed undercarriage may be cemented in place at the nose of the fuselage.

Wing.

This is the one component not given full-size. The dotted line represents the centre of the wing, which must be drawn out full size. The leading and trailing edges may be pinned in place in the usual manner, meeting each other at the tips. The curves can be formed by making a series of small cracks and using a large number of pins to hold the wood to the exact shape required. The wing ribs are cut from $\frac{1}{32}$ in. sheet and placed in position between the leading and trailing edges. Finally, the whole assembly may be removed from the plan and the dihedral angle can then be formed. This may be done by holding the leading and trailing edges each in turn in a jet of steam from a kettle and bending a little at a time until they assume such an angle that each tip is raised to a height of $2\frac{1}{2}$ in.

The top spar of $\frac{1}{16}$ in. square balsa can then be added, but it must not run across the centre-section. A wire bracket bent to the shape shown must be lightly bound with cotton to the leading edge of the centre-section and one to the trailing edge also.

A short length of $\frac{1}{16}$ in. square balsa should be cemented underneath the leading edge for incidence, and the bracket may then be bound in place underneath this. Finally, the corners of the centre-section must be strengthened by the addition of corner blocks cut from $\frac{1}{32}$ in. sheet.

Accessories.

The shape of the nose former is shown, and it should be cut from $\frac{1}{32}$ in. sheet and cemented to the nose of the fuselage. Three laminations of the softest $\frac{1}{8}$ in. sheet balsa form the nose-block, which is made as shown in the sketches. Note the extra piece at the rear of the block, which should be made to fit the cut-away portion of the nose former.

A small washer may be cemented to the front of the nose-block and one at the rear to take the 20 gauge wire propeller shaft. The propeller is a 5 in. machine-cut one purchased ready-made. The rear of the hub should be removed to lighten it.

Assembly.

For general flying purposes the tail-plane can, if desired, be placed on top the fuselage, but to be correct it should be underneath. The best way to accomplish this is to cement a length of $\frac{1}{16}$ in. by $\frac{1}{16}$ in. balsa in a vertical position beneath the tail and a short length of $\frac{1}{16}$ in. square balsa further along the fuselage, so that the tail-plane may be cemented in position with the leading edge lying along the front piece and the trailing edge at the bottom of the rear piece.

A slot made with a razor blade between the longerons at the rear serves to take the fin, which may simply be cemented in place.

Superfine tissue is used for covering the wing and tail-plane. The fuselage should only be covered on the two sides and underneath, for four bays back from the nose and on top immediately beneath the pylon.

Four strands of $\frac{1}{8}$ in. flat rubber form the motive power, and the skein is held in place at the rear by a matchstalk pushed through the wide upright to form a rubber anchorage pin.

The wing should be placed in position over the pylon on the top of the fuselage and secured with rubber bands, and the exact position for flying can then be found in the usual manner by hand gliding and then power flying, further incidence being added if required.

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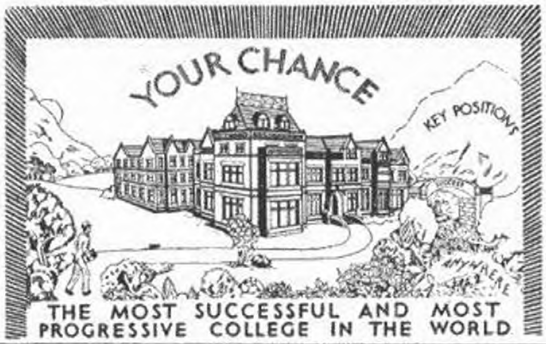

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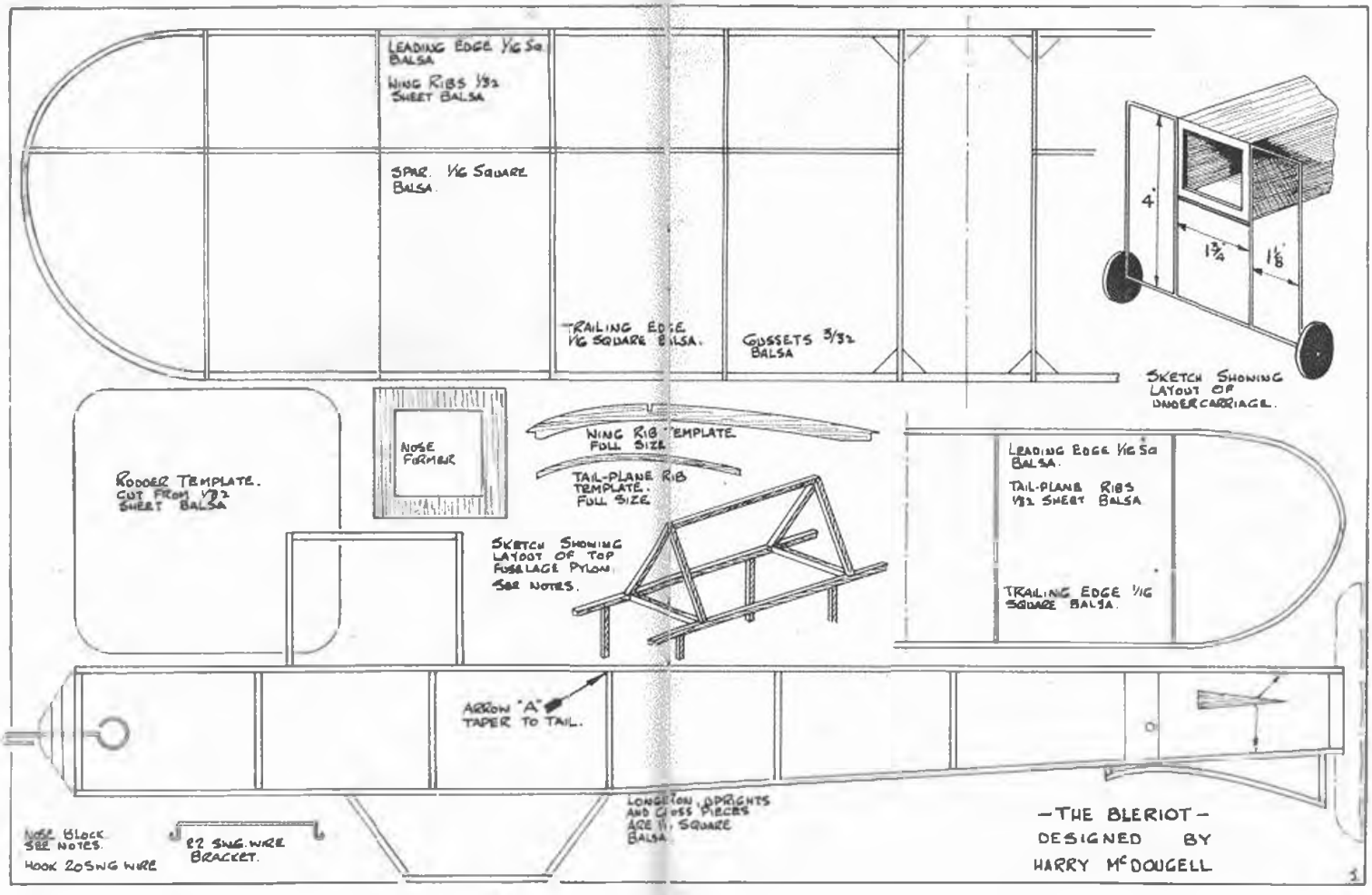


—THE BLERIOT—

DESIGNED BY HARRY McDOUGELL

DEAR SIR,

At the risk of bringing forth screams of anguish from aero modelling fans, we would like to tell you how two more were added to their number.

It all started some time before Christmas. Some models in a store window, and a nephew who needed a Christmas present, combined to make us purchase a kit for a Cloud Lysander. About three weeks after Christmas we found the kit under a table, and as it was too late to send it we decided to try building it ourselves.

It took us about five hours work (of course, speed is essential), until it was ready for covering. Of course, the kit was all wrong. No Lysander ever looked that drunken. We decided that it was no use covering it at all. What we needed was something larger, where small mistakes would not make so much difference, so a Cloud Leopard Moth was purchased. This took us about a week, working about two hours per day. Glide tests were made inside a room about twenty feet square, and appeared good, so a power flight was decided on. After all no more harm could come from five hundred turns than from fifty, especially when the model was to be launched from the window. It had to be launched from the window because there was too much wind to launch it from the ground. The result was a little disappointing. The Moth tore out of the window, went into a screaming power dive, and flying was suspended for that day. Obviously, the tail was at the wrong angle, and anyway it was too flimsily attached. The angle was altered by a couple of beams of balsa. For some reason the nose was then a trifle too light. A bit of cement would fix that. After using the whole of a large tube of cement and three drawing pins the trim appeared correct. Five hundred turns were again wound on, and the Moth was again launched out of the window in the teeth of a howling gale. It was a splendid effort, but the wind won. After a display of acrobatics, which would have turned our best pilots green with envy, the wings and fuselage parted company at about sixty feet. The subsequent descent was nothing if not speedy and flying was further postponed until a new nose could be built on. By now we had also completed our first Cloud Zenith. We call it Mark I. On the first suitable day (we had by now given up flying during gales) both 'planes were put through their paces.

"No Lysander ever looked that drunken."

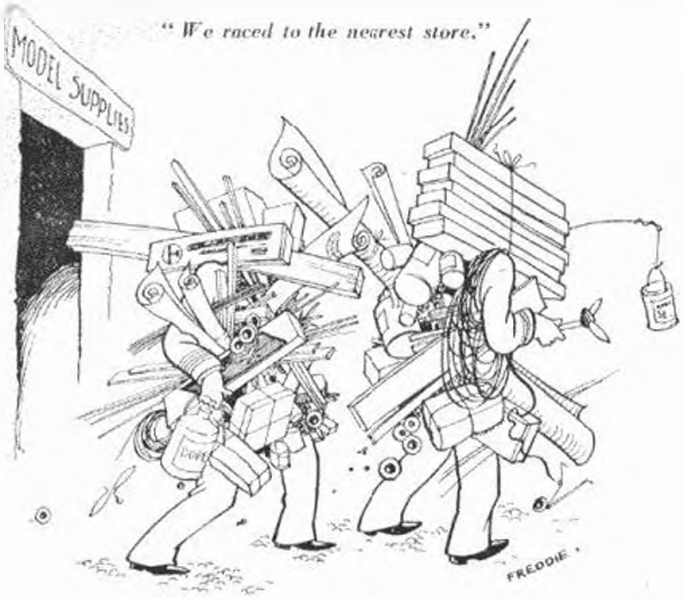
Both 'planes flew fairly well, the Moth averaging 45 seconds to a minute, and finally ending up with one minute and 32 seconds some fifty feet up in a tall tree. The Zenith average around two minutes, and ended up with three minutes 29 seconds, also in a tall tree. However, more power and bigger propellers were obviously needed to get really good performance.

Filled with great enthusiasm and zeal we raced to the nearest store and purchased about five hundred yards of the best rubber, several chords of balsa, two gallons of cement, an acre of the best tissue, enough wire to build a fence and many propellers, in two sizes, large and enormous; not to mention the latest thing in ball races, streamlined wheels, two consecutive numbers of THE AERO MODELLER, and Stubbs's "Design of Wakefield Models." That was our undoing.

Immediately we were faced with angles of incidence, free wheeling devices, wing tip dihedral and gears, and all sorts of information on exactly how it should be done.

Greatly impeded by these volumes we went into mass production, and in about two-and-a-half weeks produced a Mark II Zenith, a Cloud Pixie, a Keil Kraft Ajax, a Veron Eagle, and an AERO-MODELLER Miles Magister.

These, together with Mark I and the Moth, were lined up beside the tarmac one fine Sunday morning for a mass



"We raced to the nearest store."

flight. The tarmac—a barrack room table laid out by two batmen—sloped downhill and faced across wind into an iron fence about twenty feet away. The first flight was Mark II, carrying a 14 inch propeller and 14 strands of $\frac{3}{16}$ in. rubber forty inches long, and wound to eight hundred turns. The performance was amazing. Mark II roared down the runway, cleared the fence by half-an-inch, banked sharply into wind, and headed for the house a scant ten feet from the ground. About eight feet from the house and by now travelling at great speed, she lifted her nose and, clearing the eaves by a thin coat of dope, vanished from sight. Timed out of sight, 14 sec. Truly a great performance. Why the Moth with twice her original power and an outsize propeller decided not to clear the fence we cannot say. Pixie was the next performer. Her take off was faultless, but as soon as she had attained a suitable height she took to Stuka tactics and had us flat on our faces trying to avoid her terrifying dives. Having grounded us she made off in the direction of the house at high speed, and had the Adjutant's window been open we feel that we might still have Pixie. Eagle showed great promise until she was deliberately hit by a tree; so help us. Ajax should have been called Mole: if the power had not given out she would be burrowing yet. The Magister, being the only 'plane which was built strictly to specifications, could hardly be expected to fly. It didn't. Mark I then took off.

From all these extensive operations *none* of our 'planes returned safely.

A streamlined fuselage was then designed for Eagle's wing and tail assembly. Weight was carefully considered, and in order to be on the right side a Pixie type undercarriage was attached made from 18 s.w.g. wire. This was a great success as far as lightness was concerned, but retracted whenever the 'plane was put down. The fuselage also was really light. We decided to try making a low-wing job out of the wings and tail assembly.

The job is just about completed. We have used the retractable, detractable undercarriage for which you gave the plans in your March issue. This idea might possibly work for a small machine, but for a machine of this size it has to be altered considerably. We have put in a geared motor with the propeller turning five times motor speed and with a nine inch propeller driven by 18 strands of $\frac{3}{16}$ in. rubber forty inches long; this gives a good power run of two minutes and about 45 seconds idle. Whether it will work or not remains to be seen.

We have also rebuilt the Moth. She has a geared motor carrying four motors, each of four strands of $\frac{3}{16}$ in. rubber 25 inches long, and driving a ten-inch propeller at one-and-a-half times motor speed. At 800 turns this gives a minute and ten seconds power run and about twenty seconds idling. Although the weight is now 4½ oz. instead of the specified 3¼ oz. the glide seems very good. We have not been able to fly her yet, owing to the lovely weather we have been having. Mark I is still with us.

We also have built two stick models of no design at all, which took about half-an-hour each, and consistently average 25 seconds. That leads us to the belief that Mr. Furneaux may have been right in condemning your plans for a model which only gave 15 seconds duration.

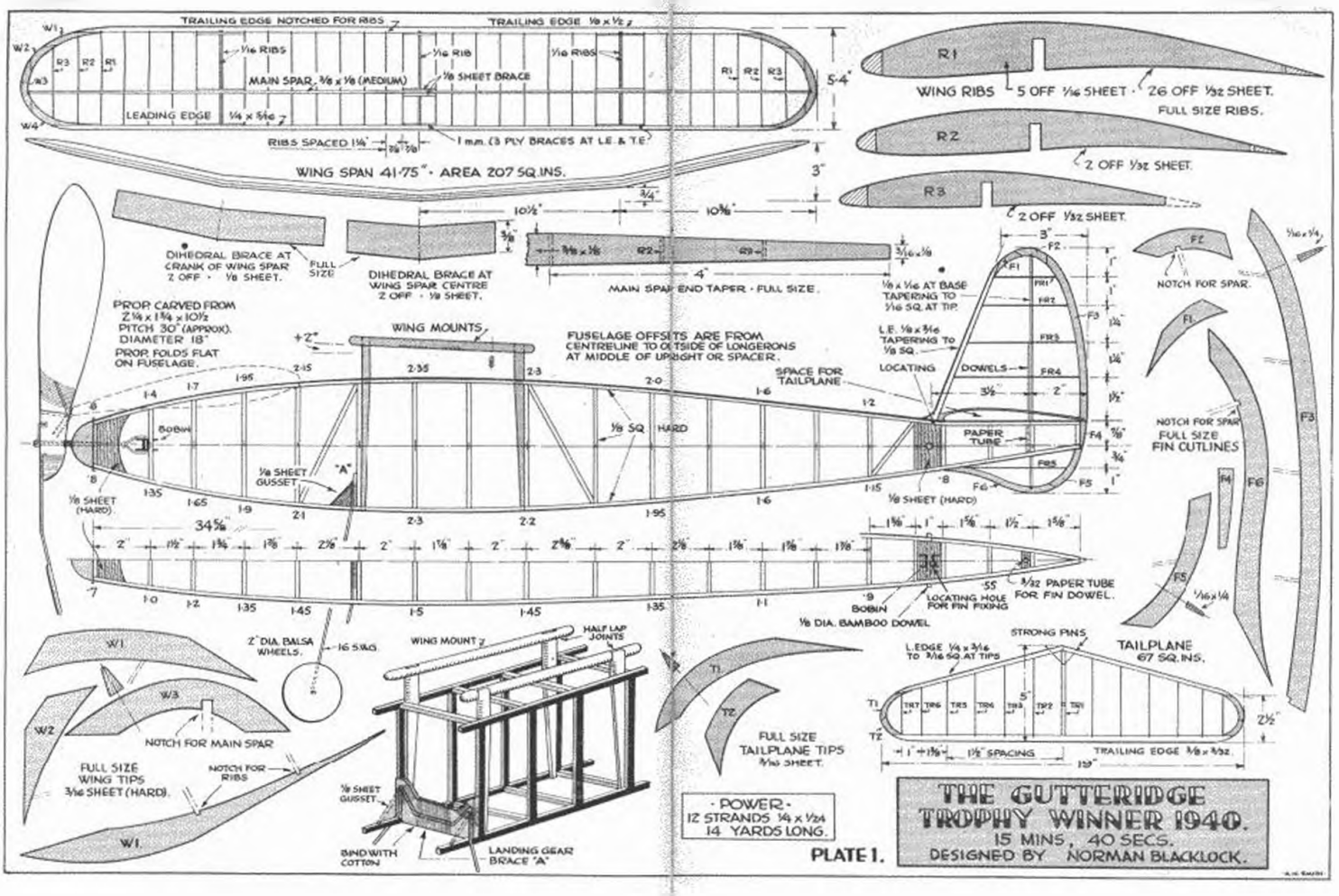
All in all we have come to the following conclusions:—

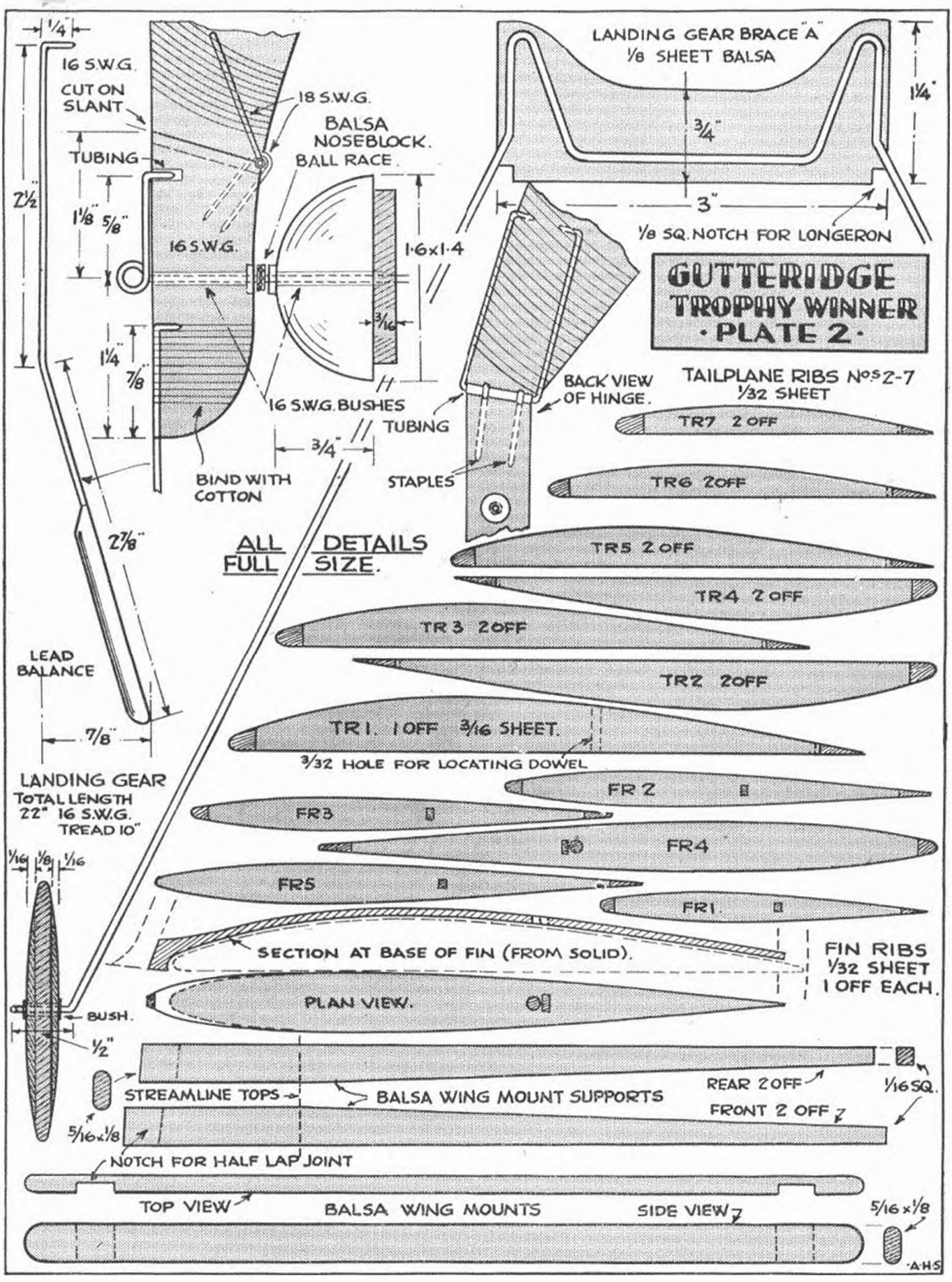
(1) Wing tip dihedral is baloney. Look at Mole, we mean Ajax.
(2) Theory is all right, but far too complicated
(3) Gales do not produce long life in models.
(4) All kits are short of at least a quarter of what is needed to build the model, especially in regard to cement.
(5) All plans can be improved upon.
(6) The Adjutant should keep his window open.

Yours very truly,

LYMAN CRAWFORD-BROWN (CAPT.)
GEORGE R. CORKETT (LIEUT.)

"... she would be burrowing yet."


TRAILING EDGE NOTCHED FOR RIBS
TRAILING EDGE 1/8 x 1/2
1/16 RIBS
MAIN SPAR, 3/8 x 1/8 (MEDIUM)
1/16 SHEET BRACE
LEADING EDGE 1/4 x 5/16
RIBS SPACED 1 1/4"
1 m.m. (3 PLY BRACES AT L.E. & T.E.
WING SPAN 41·75" · AREA 207 SQ.INS.
5·4"
3"
WING RIBS 5 OFF 1/16 SHEET · 26 OFF 1/32 SHEET.
FULL SIZE RIBS.
R1
R2
R3
2 OFF 1/32 SHEET.
2 OFF 1/32 SHEET.
10 1/2"
10 3/8"
3/4"
3/8"
3/16 x 1/8
4"
MAIN SPAR END TAPER · FULL SIZE.
DIHEDRAL BRACE AT CRANK OF WING SPAR 2 OFF · 1/8 SHEET.
FULL SIZE
DIHEDRAL BRACE AT WING SPAR CENTRE 2 OFF · 1/8 SHEET.
1/8 x 1/16 AT BASE TAPERING TO 1/16 SQ. AT TIP.
L.E. 1/8 x 3/16 TAPERING TO 1/8 SQ.
PROP CARVED FROM 2 1/8 x 1 3/4 x 10 1/2
PITCH 30° (APPROX).
DIAMETER 18"
PROP FOLDS FLAT ON FUSELAGE.
WING MOUNTS
+2"
FUSELAGE OFFSETS ARE FROM CENTRELINE TO OUTSIDE OF LONGERONS AT MIDDLE OF UPRIGHT OR SPACER.
SPACE FOR TAILPLANE
LOCATING DOWELS
PAPER TUBE
1/8 SQ. HARD
1/8 SHEET GUSSET
"A"
1/8 SHEET (HARD)
1/8 SHEET (HARD)
BOBBIN
34 5/8"
F1
F2
F3
F4
F5
F6
NOTCH FOR SPAR.
NOTCH FOR SPAR
FULL SIZE FIN OUTLINES
1/16 x 1/4
3/32 PAPER TUBE FOR FIN DOWEL.
LOCATING HOLE FOR FIN FIXING
1/8 DIA. BAMBOO DOWEL
2" DIA. BALSA WHEELS. 16 S.W.G.
WING MOUNT
HALF LAP JOINTS
W1
W2
W3
W4
NOTCH FOR MAIN SPAR
FULL SIZE WING TIPS 3/16 SHEET (HARD).
NOTCH FOR RIBS
1/8 SHEET GUSSET
BIND WITH COTTON
LANDING GEAR BRACE "A"
T1
T2
FULL SIZE TAILPLANE TIPS 3/16 SHEET.
L.EDGE 1/8 x 3/16 TO 3/16 SQ. AT TIPS
STRONG PINS
TAILPLANE 67 SQ.INS.
TRAILING EDGE 3/8 x 3/32.
1 1/8" SPACINGS
· POWER ·
12 STRANDS 1/4 x 1/24
14 YARDS LONG.
PLATE 1.
THE GUTTERIDGE TROPHY WINNER 1940.
15 MINS, 40 SECS.
DESIGNED BY NORMAN BLACKLOCK.

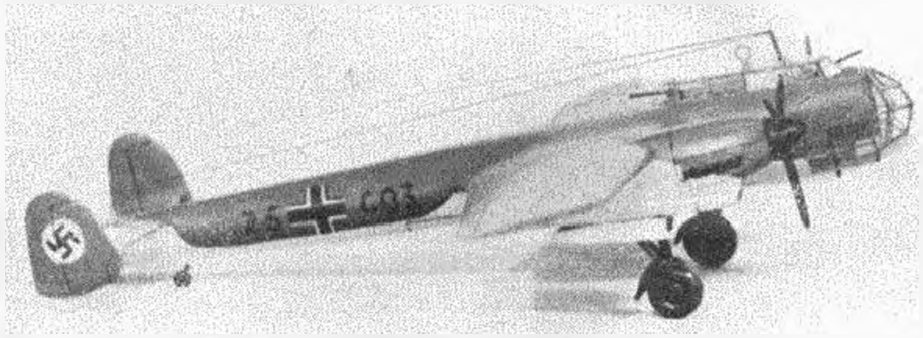

GUTTERIDGE
TROPHY WINNER
· PLATE 2 ·
LANDING GEAR BRACE "A"
1/8 SHEET BALSA
1¼"
3/4"
3"
1/8 SQ. NOTCH FOR LONGERON
1/4"
16 S.W.G.
CUT ON SLANT
18 S.W.G.
BALSA NOSEBLOCK.
BALL RACE.
TUBING
2½"
1⅛" 5/8"
16 S.W.G.
1·6x1·4
3/16
1¼"
7/8"
16 S.W.G. BUSHES
TUBING
3/4"
BIND WITH COTTON
STAPLES
BACK VIEW OF HINGE.
TAILPLANE RIBS Nos 2-7
1/32 SHEET
TR7 2 OFF
TR6 2OFF
TR5 2 OFF
TR4 2 OFF
TR3 2OFF
TR2 2OFF
TR1. 1 OFF 3/16 SHEET.
3/32 HOLE FOR LOCATING DOWEL
2⅞"
ALL DETAILS FULL SIZE.
LEAD BALANCE
7/8"
LANDING GEAR
TOTAL LENGTH 22" 16 S.W.G.
TREAD 10"
FR 2
FR3
FR4
FR5
FR1
1/16 1/8 1/16
SECTION AT BASE OF FIN (FROM SOLID).
FIN RIBS
1/32 SHEET
1 OFF EACH.
PLAN VIEW.
BUSH.
1/2"
STREAMLINE TOPS
BALSA WING MOUNT SUPPORTS
REAR 2 OFF
FRONT 2 OFF
1/16 SQ.
5/16x1/8
NOTCH FOR HALF LAP JOINT
TOP VIEW
BALSA WING MOUNTS
SIDE VIEW
5/16 x 1/8
·A·H·S

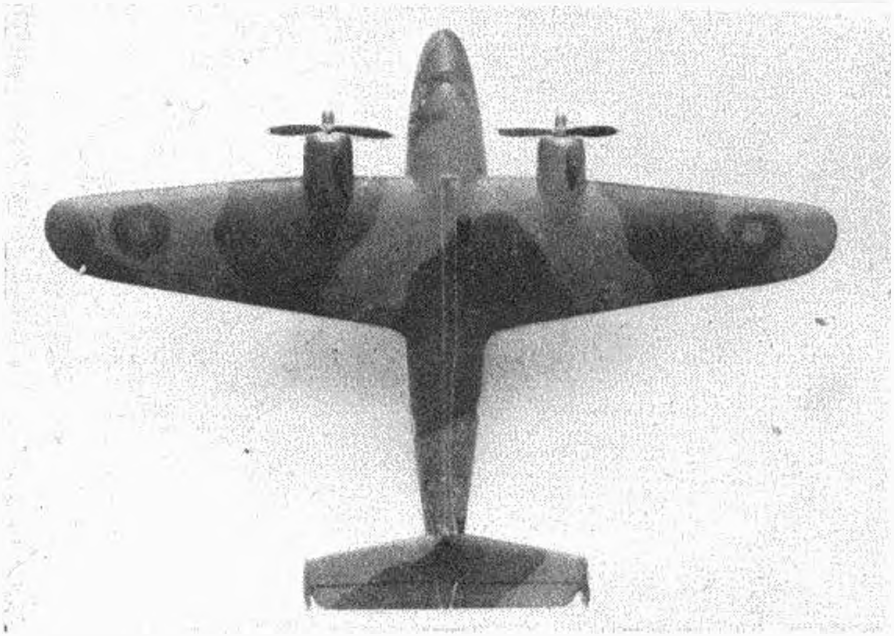
SOME NOTES ON THE 'SOLID' MODEL ENTRIES

for the recent competition

By
H. J. COOPER

1st Prize-winner in Members Section is facing Editorial, 2nd, 3rd and 4th winners on this page, from top to bottom.





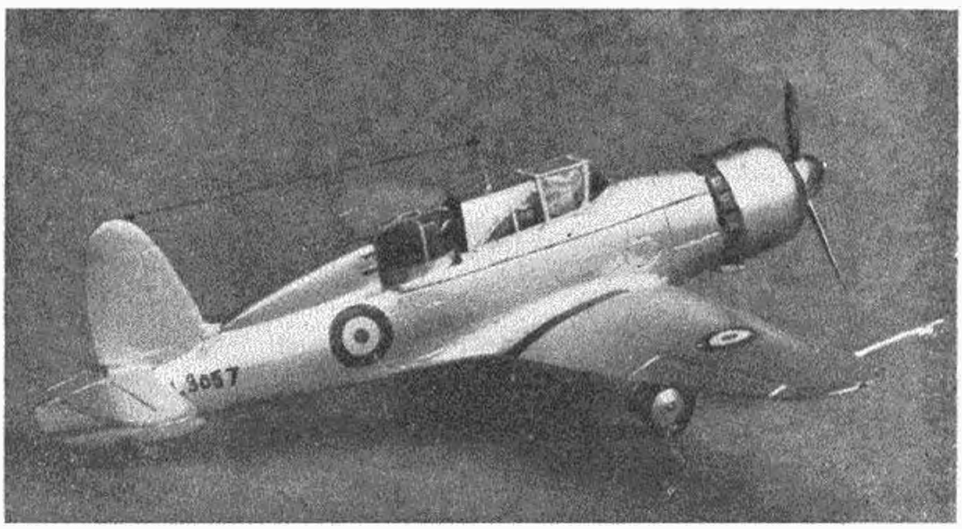
In this competition we have received as varied a collection of photographs as possible: from the prize-winning entries published herewith to miniature camera snaps about an inch square, showing in one corner an insect like phenomenon, which, after extensive experiments and close observation with magnifying lenses, and although opinion has been divided, we have finally decided is the *model!*

In order to assist entrants in future competitions of this nature in selecting and obtaining suitable photographs by which models can be fairly judged, there follow some remarks on the prize-winning pictures, and on some of the others which failed to gain front places.

The photograph of the Sunderland entered by R. Rose in the Members Section, is a good example of workmanship both in modelling and in photography. The model is well shown off by excellently diffused lighting, and the angle at which the shot is

MODEL competitions decided by photographs are, perhaps more than any other kind, very difficult to judge.

The entrant may have a poor idea of what a good photograph really is, or, knowing it, may be incapable of producing one which will show his model effectively. He may have the impression that a pleasing picture will meet the eyes of the judges favourably, irrespective of the accuracy or otherwise of his subject; or, thinking more about showing his model to advantage, will overlook the fact that he is getting too close with the camera, with the appalling result that his picture resembles an under-water study of ichthyological development or a snowstorm in the Himalayas.



1st and 2nd prize-winners in Non-members Section are on this page.

taken. A little investigation reveals that this view—a three-quarter front from above—is the best possible from which the average model can be appreciated. In some cases, of course, this would not apply, but we recommend this view to all who wish their models to be fairly considered. This Sunderland is nicely made, and has an obviously smooth finish. The neat fairing of the motor nacelles to the wings, and the general close attention to detail should be noted. The model is accurately painted and the camouflaged design conforms to actual practice. Other photographs submitted reveal that the hull is hollowed out. Mounted as it is, the model has an air of beauty and professional skill.

The Dornier Do. 215, awarded second prize, is a fine piece of work, with neat painting and detail fittings, and is certainly a good "second" to the Sunderland. The cabin framework and glazing is particularly worthy of congratulation. The photographs could have been slightly better, but they showed the model reasonably well.

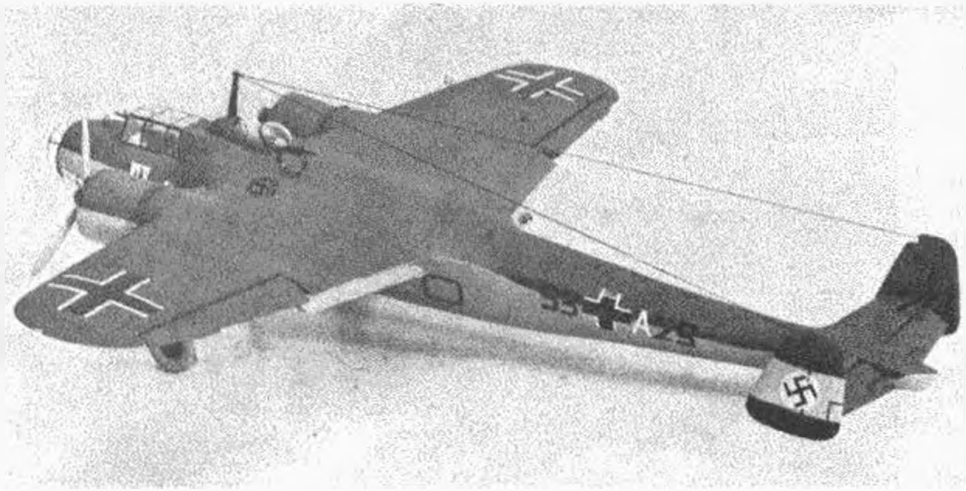
The third prize to the entrant of the D.H. Hertfordshire would probably have been, metaphorically, a "First" had better photographs been submitted. Those received showed the model in plan, "worm's eye," and directly head-on views, from which the general appearance could not be easily appreciated. The plan view reproduced herewith is sufficiently good for the accuracy of form and smoothness of finish to be apparent, but a view similar to that of the Sunderland would have been of much more use to the judges in arriving at a decision. But the model is clearly a good one, and the prize is justly awarded.

The Roc gaining fourth prize is a good model, but has been rather spoilt by a poor finish. Had a better surface been obtained the prize would definitely have been higher.

In the Non-Members Section, the Hampden entered by D. Collier was easily "First." The model was nicely constructed and painted, though the squadron letters on the fuselage might have been a little more professional. The transparent nose-piece is one of the best we have seen on a solid model, and the modeller is warmly congratulated. The other gun positions, complete with guns, are also very realistic, and the detail incorporated in the motors and undercarriage readily carried the entry to the first place.

The Dornier Do. 17, awarded second prize, is another fine model, with good cabin work and neat lettering, but the painting looks slightly coarse in places, and if smoother would have improved the model. The control surfaces are well incorporated, and are made to operate.

The Junkers Ju 87B *Stuka* gaining third prize is nicely made, but this also would have benefited if a little more care had been used in applying the colouring. The background of the photograph is simple but effective, and looks much more pleasing than a plain background.



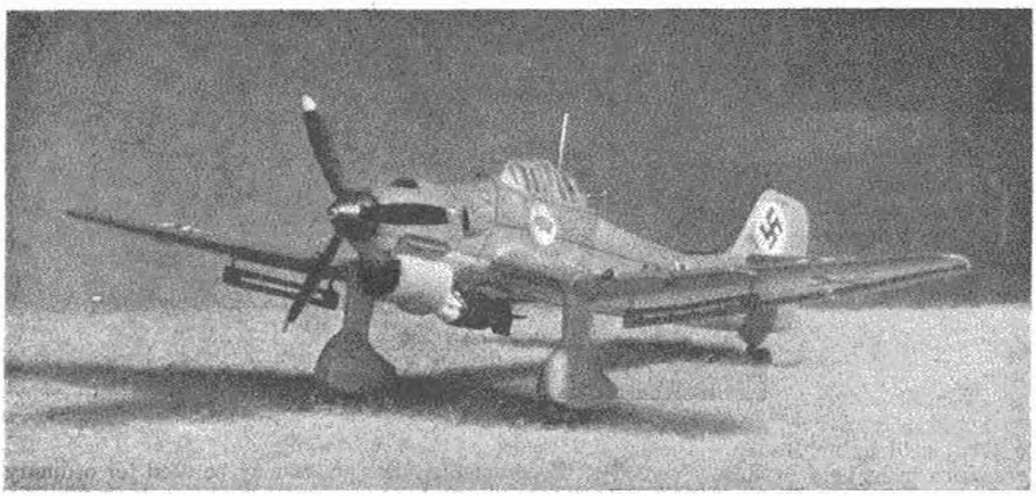
The fourth prize-winning Heinkel is obviously a good piece of work, but a clearer photograph would have allowed the judges to appreciate it more. The finish looks very good.

There were a number of very good entries which were awarded consolation prizes because of, in some cases, a single major error in con-

struction, which ruined the whole effect of the model. One in particular was a Blenheim IV with an excessive dihedral angle. The model was well painted, and, apart from this constructional error, excellently made and finished; but the photograph submitted gave the impression that the wings were about to fold upwards. Points such as this should be watched, as they are important to the appearance of a model. Other models well constructed were eliminated because of bad and often careless painting. Some of them looked as if they had been tarred (substantially, like the little huts one sees on allotments beside the railway) which we are sure has added considerably to the original dimensions of the model! Others have been accurately built and generally well painted, but weak lettering has caused the model to be relegated to receiving a consolation prize.

taken. The light coming from one side confused the nose glazing, and made fair judging out of the question. Another Whitley failed mainly because the undercarriage legs were made of very fine wire and looked about to collapse.

A Fairey Battle, in a set of snaps, looked good, and a higher prize would have been awarded if the photographs had shown the model off better. All of the snaps were hazy, and printed on matt paper, which is not advocated for model shots. A glossy paper brings out the details much better. As before, we would emphasise the expediency of obtaining professional pictures, but care should be taken to see that they really *are* professional, because some photographs received at our offices bear the name of a studio on the back, and are hopelessly out of focus.



This "Stuka" was 3rd prize-winner in the Non-members Section.

Other entries showed 'planes so small that they may or may not have been well finished, it was impossible to tell; but those with accurate outlines were closely considered. There were snaps of Wellingtons, Beauforts, Walruses, etc., "in the air," but so "high up" that they appeared only as silhouettes.

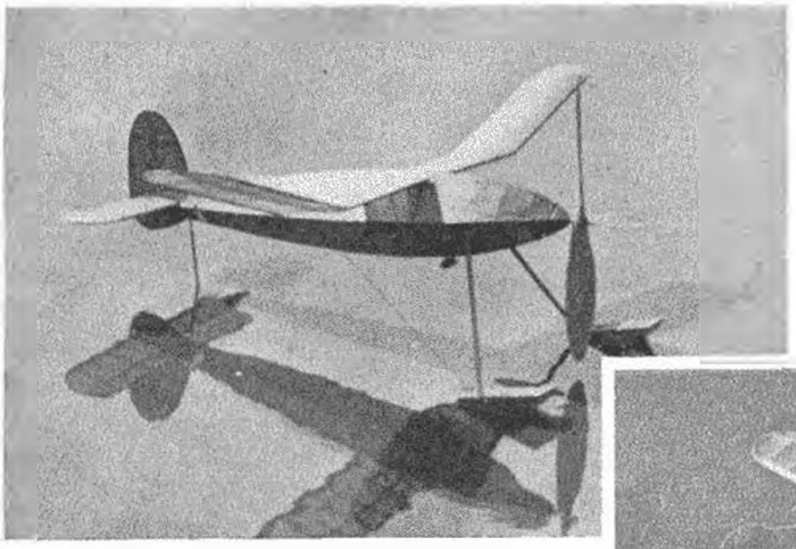
One model, a Hind-Trainer, looked good, was painted smoothly, and had neat lettering, but the interplane struts looked somewhat "powerful" (which we are informed by an associate, is what the Yanks would say, and which certainly seems appropriate), and the model suffered thereby. The photographs entered of this model were also slightly out of focus.

Another entrant sent in a couple of snaps of a Lysander flying over an excellently painted "ground," but unfortunately the model looked so small that it was not possible to judge it fairly. It looked quite realistic, but would have been more so had the suspending wires not been visible.

One photograph of a Whitley failed to reach a front place because of the bad lighting of the model when the photograph was

Most entrants choose the more common types of 'planes as their subject. There was not much originality; the most unusual model being of a Savoia Marchetti S.M.79, but the majority of entrants clung to the "over-modelled" Whitleys, Wellingtons, Hurricanes, and Spitfires. There were no Cant Z.501s, Ju 52s, Fokker T 8 Ws, or Lockheed Hudsons. The reason for this is not clear, as models such as these would obviously be attractive. In future, perhaps, we can have a little more variety.

This 'plane took 4th prize in Non-members Section.

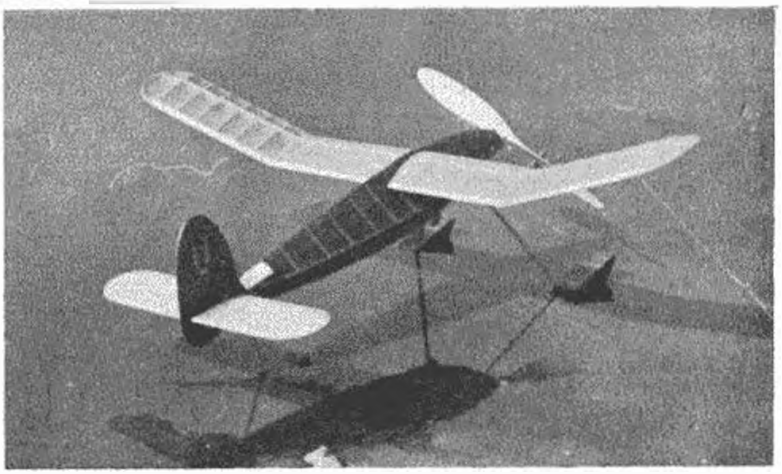


THE "DIASPHERE"

Designed by

I. C. LUCAS

Of simple, straightforward yet ingenious design, this model should appeal to those who have been looking for a high-performance, dual-purpose machine capable of really worth while duration. Full-size working drawings are available at 2s. 6d. per set through our Plans Service.

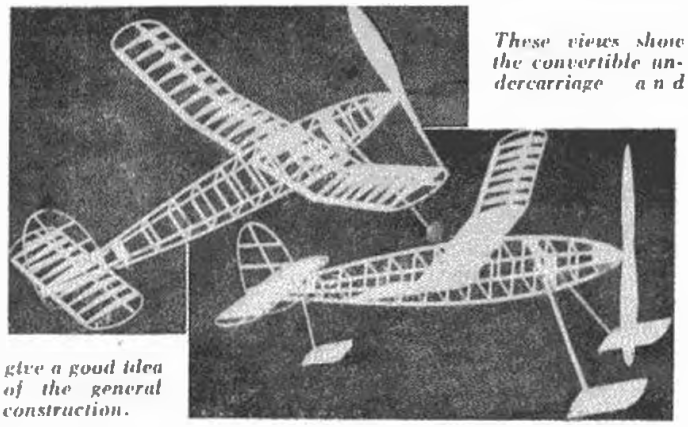


THE "Diasphere" is one of the really few composite aircraft models yet published, and is certain to appeal to a large number of our readers. Designed by a well-known member of the Brighton District M.A.C., this model is the result of much experimentation, and embodies a number of interesting constructional features.

Rigged as a seaplane, this model set up a new world's record (subject to F.A.I. confirmation after the war) of 2 min. 23 sec., and is a consistent performer from water. The record figure is nearly 43 sec. better than the previous record, held by an Italian, and is one of the first such world records to be held by this country.

Built to "Flight" Cup specifications, viz. wing area of approximately one square foot, this model may be used both as a seaplane and landplane by the substitution of a normal type undercarriage for the floats—the design making this an easy matter. Flown as a landplane in the 1940 "Flight" Cup event, the original model placed sixth with an aggregate time of 290·2 sec. for three flights, so you will see that the machine has all the attributes of a tip-top model.

To bring up to the required weight specifications for both F.A.I. purposes and the "Flight" Cup formulæ, a detachable lead weight is slung underneath the fuselage, this also being used for trimming purposes. As a seaplane, trimmed for record flying, the all-up weight was 5·1 oz., and the model was powered with eight strands of ¼ in. rubber, though slightly less power may be used for ordinary purposes.



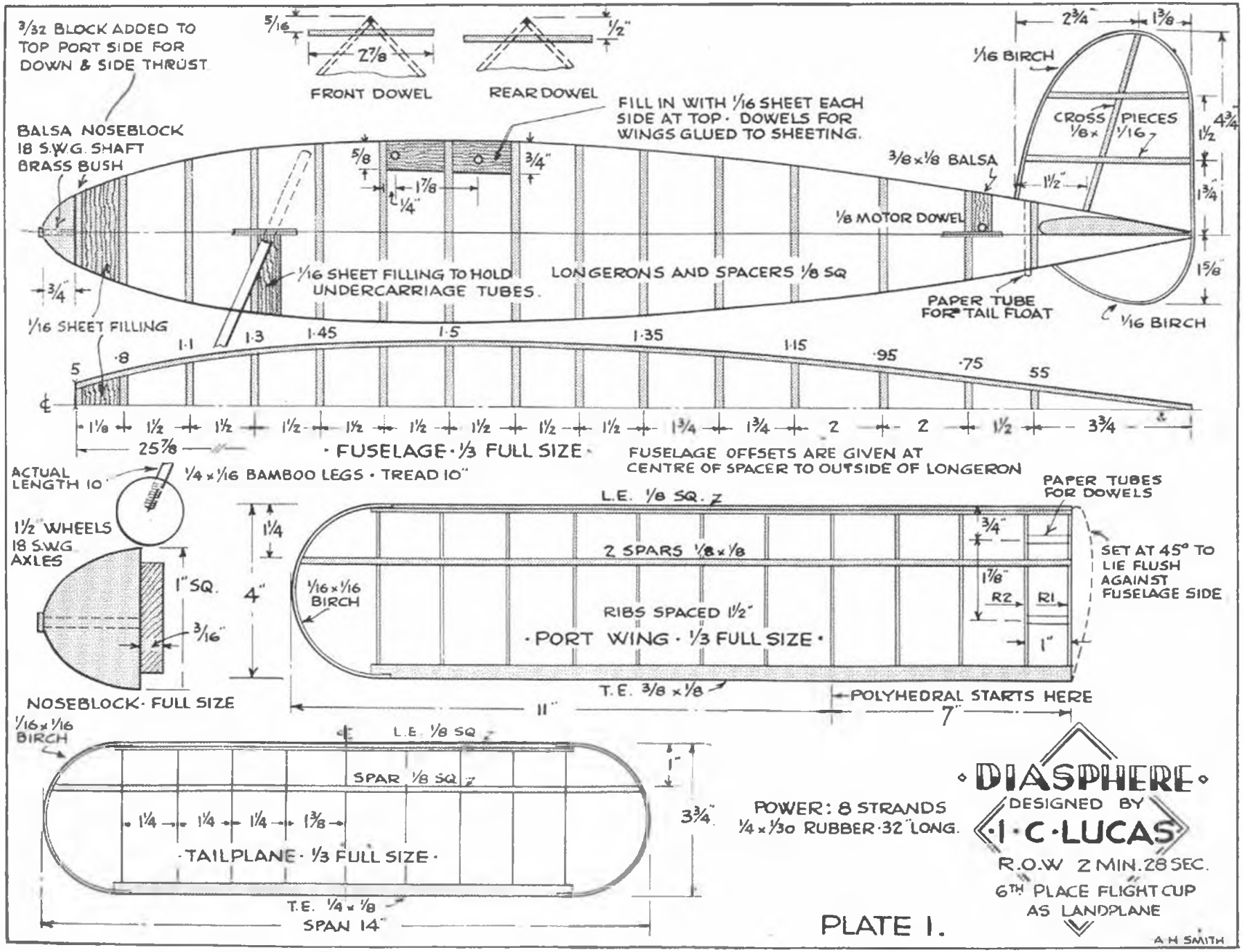
These views show the convertible undercarriage and give a good idea of the general construction.

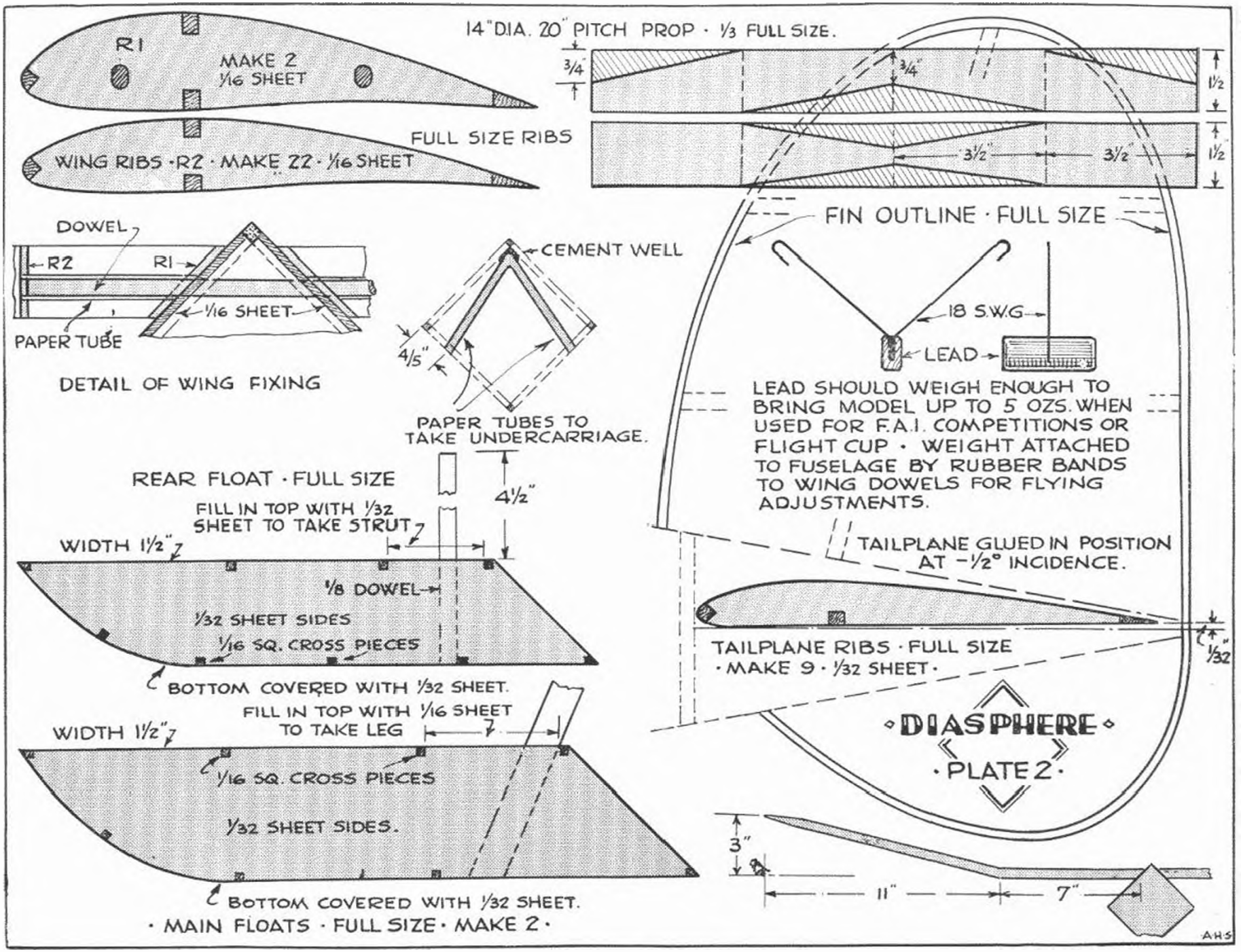
The construction of the model follows general practice, and does not require a lot of explanation, the drawings showing every point in detail. Full-size drawings are prepared, after which two identical sides are built, these being connected up with the usual cross-braces. The shoulder wing fixing is one of the simplest yet designed and should present no difficulties to any builder with experience. Make certain that the root ribs are set at the correct angle, to ensure a good tight fit against the fuselage sides, and see that all tube fittings, etc., are a firm, sliding fit. (A good dodge I have found when such components as undercarriage legs, wing dowels, etc., start to loosen, is to apply a thin coat of cement, or two or three coats of dope, to the affected parts.)

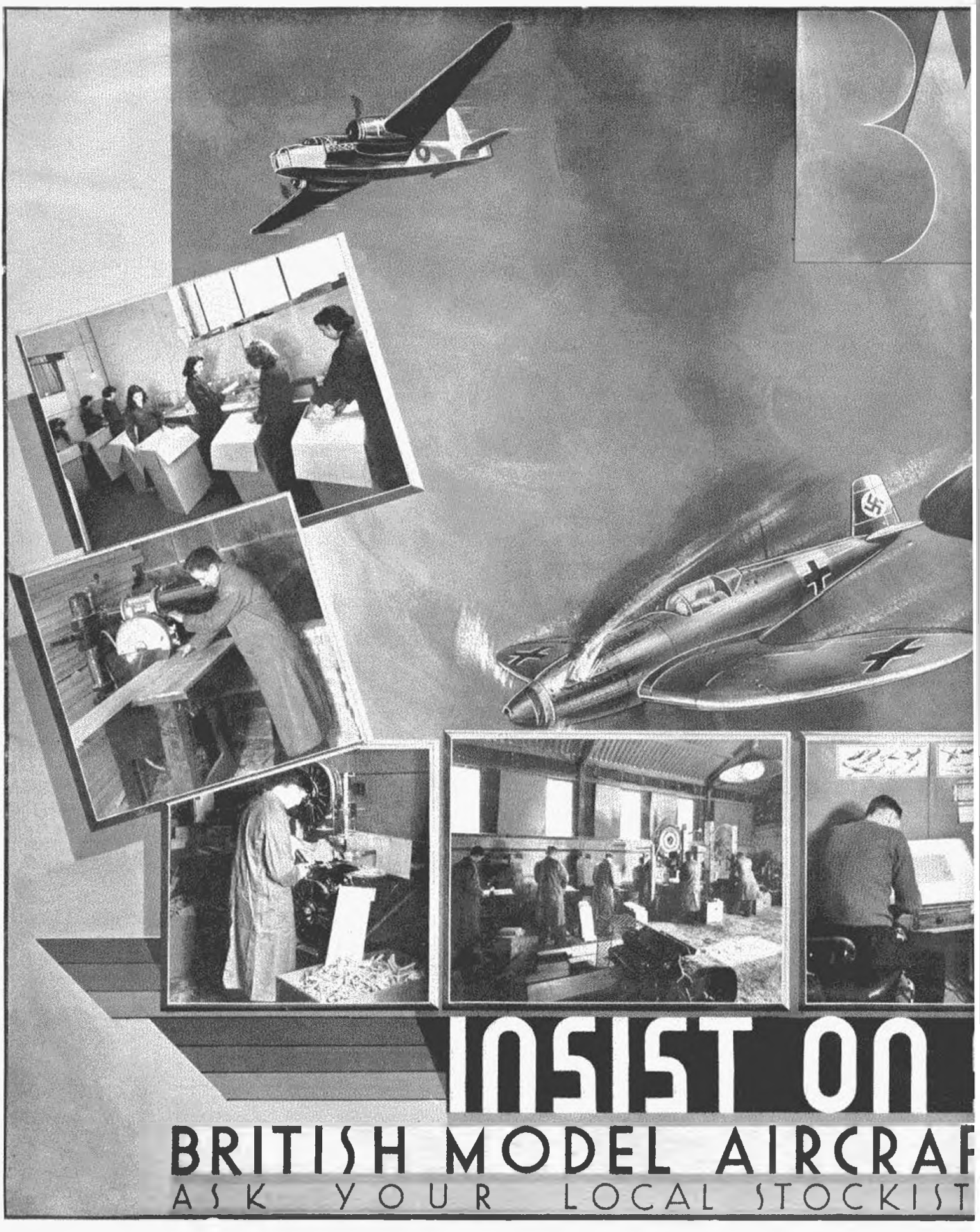
The floats require thoroughly waterproofing, and this is best accomplished by varnishing after the ordinary doping has been carried out. There is no need to apply this thickly, a better effect—and a surer water-tight job being obtained by one or two thin coats well applied.

The photos shown here give a good idea of the constructional and finished aspects of the model, and should help in forming an idea of the various component arrangements. (The line seen running from the float is not a bracing wire but is the line attached to the model during flotation tests.)

As noted above, full-size plans can be obtained from THE AERO-MODELLER offices, and a prize of 10s. 6d. will be awarded to the sender of the best photo of a "Diasphere" received not later than July 31st.


3/32 BLOCK ADDED TO TOP PORT SIDE FOR DOWN & SIDE THRUST
BALSA NOSEBLOCK
18 S.W.G. SHAFT
BRASS BUSH
5/16
2 7/8
FRONT DOWEL
REAR DOWEL
1/2"
FILL IN WITH 1/16 SHEET EACH SIDE AT TOP · DOWELS FOR WINGS GLUED TO SHEETING.
5/8
3/4"
1 7/8
1/4"
3/8 x 1/8 BALSA
1/8 MOTOR DOWEL
1/16 SHEET FILLING TO HOLD UNDERCARRIAGE TUBES.
LONGERONS AND SPACERS 1/8 SQ
3/4"
1/16 SHEET FILLING
PAPER TUBE FOR TAIL FLOAT
1/16 BIRCH
2 3/4"
1 3/8"
1/16 BIRCH
CROSS PIECES 1/8 x 1/16
4 3/4"
1 1/2"
1 3/4"
1 5/8"
1·1
1·3
1·45
1·5
1·35
1·15
·95
·75
·55
·8
5
1 1/8 — 1 1/2 — 1 1/2 — 1 1/2 — 1 1/2 — 1 1/2 — 1 1/2 — 1 1/2 — 1 1/2 — 1 1/2 — 1 3/4 — 1 3/4 — 2 — 2 — 1 1/2 — 3 3/4
25 7/8
· FUSELAGE · 1/3 FULL SIZE ·
FUSELAGE OFFSETS ARE GIVEN AT CENTRE OF SPACER TO OUTSIDE OF LONGERON
ACTUAL LENGTH 10"
1/4 x 1/16 BAMBOO LEGS · TREAD 10"
1 1/2" WHEELS
18 S.W.G. AXLES
1" SQ.
3/16"
1 1/4
4"
NOSEBLOCK · FULL SIZE
L.E. 1/8 SQ.
2 SPARS 1/8 x 1/8
1/16 x 1/16 BIRCH
RIBS SPACED 1 1/2"
· PORT WING · 1/3 FULL SIZE ·
T.E. 3/8 x 1/8
11"
PAPER TUBES FOR DOWELS
3/4"
1 7/8"
R2
R1
1"
SET AT 45° TO LIE FLUSH AGAINST FUSELAGE SIDE
POLYHEDRAL STARTS HERE
7"
1/16 x 1/16 BIRCH
L.E. 1/8 SQ.
SPAR 1/8 SQ.
1"
3 3/4"
1 1/4 — 1 1/4 — 1 1/4 — 1 3/8
· TAILPLANE · 1/3 FULL SIZE ·
T.E. 1/4 x 1/8
SPAN 14"
POWER: 8 STRANDS 1/4 x 1/30 RUBBER · 32" LONG.
· DIASPHERE ·
DESIGNED BY
· I · C · LUCAS
R.O.W 2 MIN. 28 SEC.
6TH PLACE FLIGHT CUP AS LANDPLANE
PLATE I.
A. H. SMITH


14"DIA. 20" PITCH PROP · ⅓ FULL SIZE.
R1
MAKE 2
1/16 SHEET
FULL SIZE RIBS
WING RIBS · R2 · MAKE 22 · 1/16 SHEET
3/4"
3/4"
1½
1½
3½"
3½"
DOWEL
R2
R1
1/16 SHEET
PAPER TUBE
DETAIL OF WING FIXING
CEMENT WELL
4/5"
PAPER TUBES TO TAKE UNDERCARRIAGE.
FIN OUTLINE · FULL SIZE
18 S.W.G
LEAD
LEAD SHOULD WEIGH ENOUGH TO BRING MODEL UP TO 5 OZS. WHEN USED FOR F.A.I. COMPETITIONS OR FLIGHT CUP · WEIGHT ATTACHED TO FUSELAGE BY RUBBER BANDS TO WING DOWELS FOR FLYING ADJUSTMENTS.
REAR FLOAT · FULL SIZE
4½"
FILL IN TOP WITH 1/32 SHEET TO TAKE STRUT
WIDTH 1½"
1/8 DOWEL
1/32 SHEET SIDES
1/16 SQ. CROSS PIECES
BOTTOM COVERED WITH 1/32 SHEET.
TAILPLANE GLUED IN POSITION AT −½° INCIDENCE.
TAILPLANE RIBS · FULL SIZE
· MAKE 9 · 1/32 SHEET ·
1/32"
FILL IN TOP WITH 1/16 SHEET TO TAKE LEG
WIDTH 1½"
1/16 SQ. CROSS PIECES
1/32 SHEET SIDES.
BOTTOM COVERED WITH 1/32 SHEET.
· MAIN FLOATS · FULL SIZE · MAKE 2 ·
DIASPHERE
· PLATE 2 ·
3"
11"
7"
AHS


INSIST ON
BRITISH MODEL AIRCRAF
ASK YOUR LOCAL STOCKIST

AN AERO-MODELLER'S BALANCE

By C. FINLAYSON

Accurate to 1/1000 of an ounce

For the really serious aero-modeller, and particularly the indoor microfilm enthusiast, an accurate balance is an absolute necessity. Here is one that, despite its extreme accuracy, is made from nothing more than the odds and ends that lie around on the workbench! Hard balsa could be used for the wood parts, but canary or hardwood is preferable.

The sketch should explain the finished article and its parts, but the following notes may help. The main support "A" is a piece of wood 12½ in. by ⅜ in. by ⅜ in. A small piece "C," 1½ in. by ⅜ in. by ⅛ in., is let in and cemented as shown. The beam "B" is wood 15 in. by ⅛ in. by 1/16 in. Note that the distance between the fulcrum and the pan support must be *exactly* 1 in. These are small pieces of razor blade let into saw cuts and well cemented. The fulcrum has the sharp edge down, the pan support has sharp edge up. The wire parts are 18 s.w.g. piano wire, formed as shown and pushed tight into holes in the wood. A good blob of cement will give added security. The three weights must be accurate, and this means you must have access to a science room chemical balance. They are made by rolling the correct amount of thin lead strip (or heavy fuse wire) round a wire hook. The sliding balance weight is found by experiment when the complete instrument has been assembled and mounted, by means of screws through the mounting holes, to the edge of a shelf or table. The weight must be such that when in the middle of its wire carrier it will balance the weight of the beam and make the indicator wire at the end of the beam hover over the centre-line on piece "C."

The calibration scales should be carefully printed on white paper and pasted on to the beam, seeing that the zero line registers with the fulcrum. The divisions of the scales must, of course, be exact inches and tenths of an inch. In use, first see that the beam is balanced by the sliding weight, then with the object to be weighed, either on the pan or the hook, one of the three weights will be found to balance the object somewhere on the beam (provided the object does not weigh more than 5 oz.). The weight is then simply read off at this point on the scale appropriate to the weight used, i.e. on either the ·01 oz., the ·1 oz., or the ·5 oz. scale.

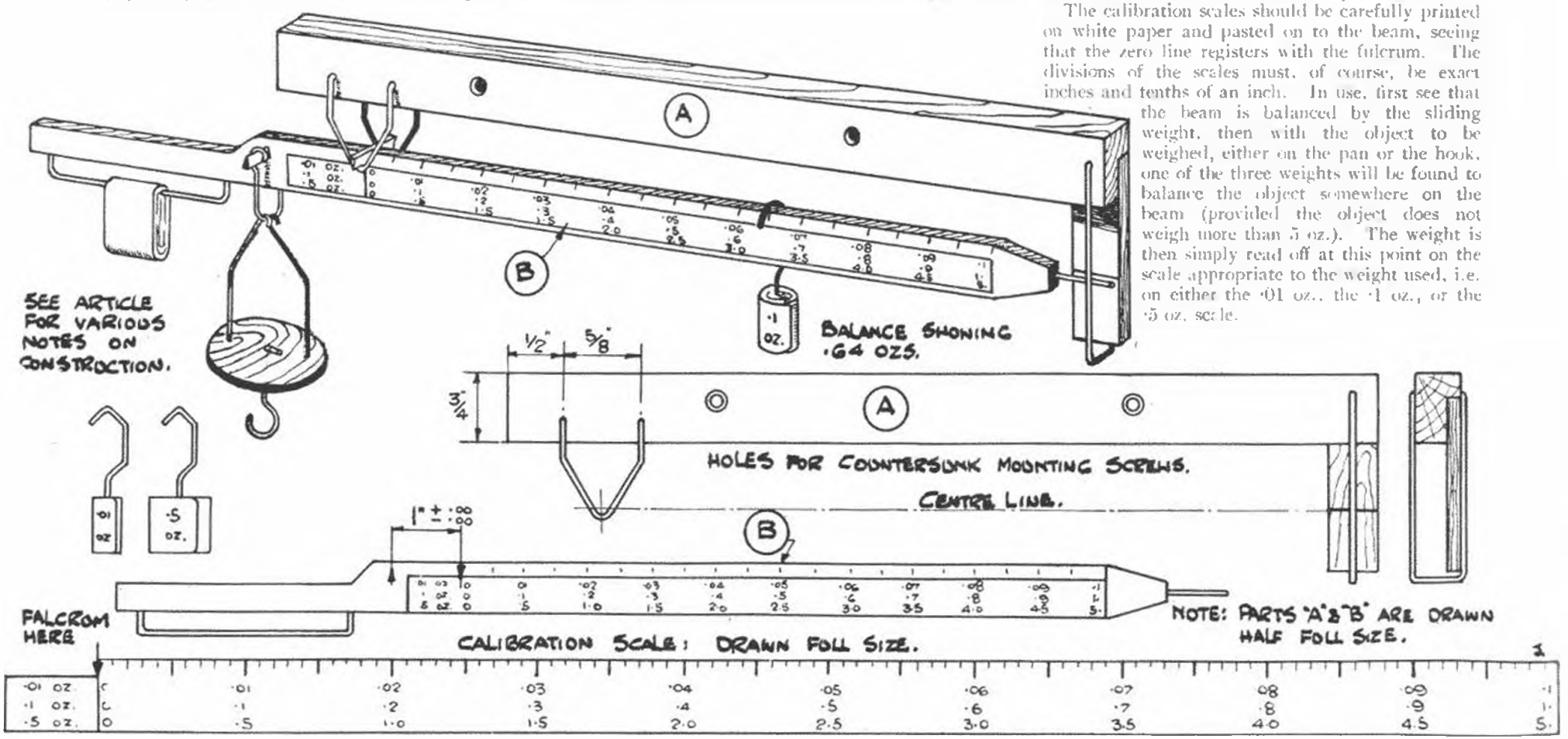
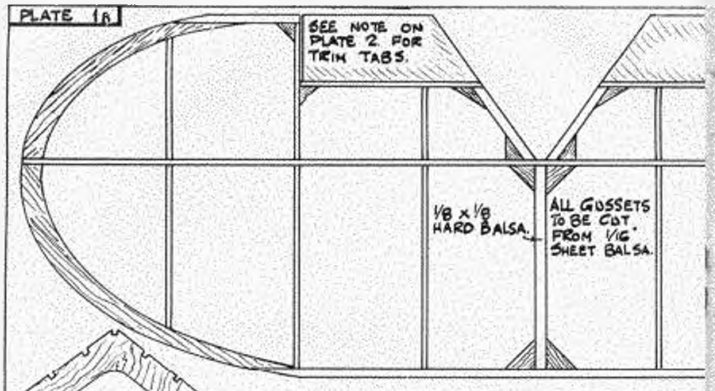
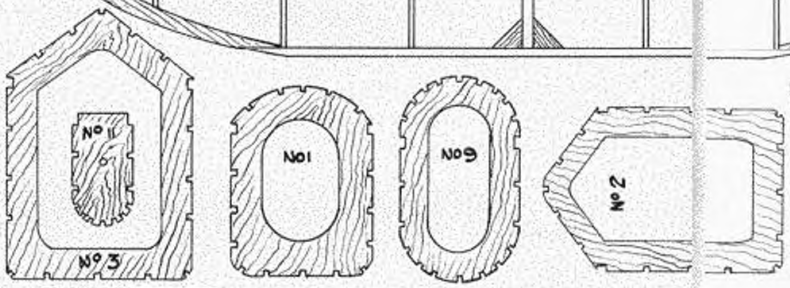
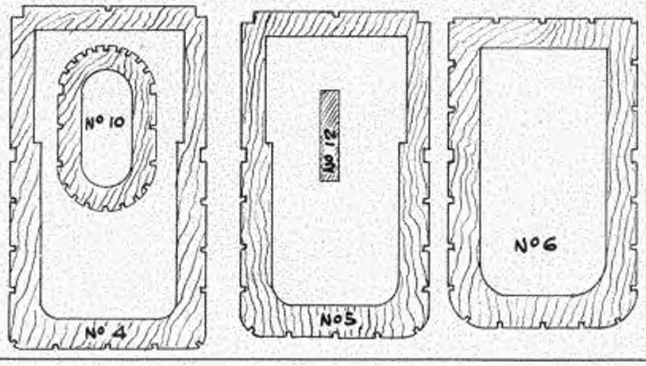


PLATE 1A







ALL FORMERS ARE CUT FROM 1/16 SHEET BALSA.

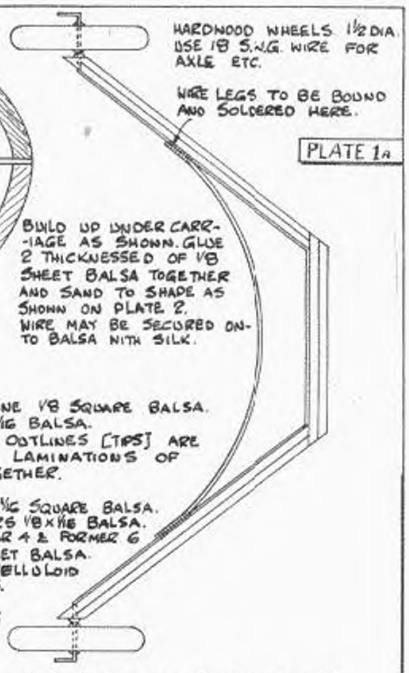


PLATE 1A

BUILD UP UNDER CARRIAGE AS SHOWN. GLUE 2 THICKNESSED OF 1/8 SHEET BALSA TOGETHER AND SAND TO SHAPE AS SHOWN ON PLATE 2. WIRE MAY BE SECURED ONTO BALSA WITH SILK.

LEADING EDGE OF TAILPLANE 1/8 SQUARE BALSA. MAIN SPAR & RIBS 1/8 x 1/16 BALSA. TAILPLANE AND RUDDER OUTLINES [TIPS] ARE TO BE MADE FROM 2 LAMINATIONS OF 1/16 BALSA GLUED TOGETHER.

FUSELAGE STRINGERS 1/16 SQUARE BALSA. MAIN FUSELAGE STRINGERS 1/8 x 1/16 BALSA. FUSELAGE BETWEEN FORMER 4 & FORMER 6 IS COVERED WITH 1/32 SHEET BALSA. CUT OUT AND INSERT CELLOLOID ON INSIDE FOR WINDOWS.

CUP WASHERS

DETAILS OF WINGS ON PLATE 3.

SHADED PORTION AT ℄ SHOWS 1/32 BALSA PLANKING. CRACK LEADING AND TRAILING EDGES AT DOTTED LINES TO OBTAIN DIHEDRAL ANGLE. ALL WING RIBS ARE CUT FROM 1/16 SHEET BALSA. WING TIPS ARE MADE FROM 2 LAMINATIONS OF 1/16 SHEET BALSA GLUED TOGETHER.

30" H.W. MONOPLANE
— DESIGNED BY —
P. HICKSON

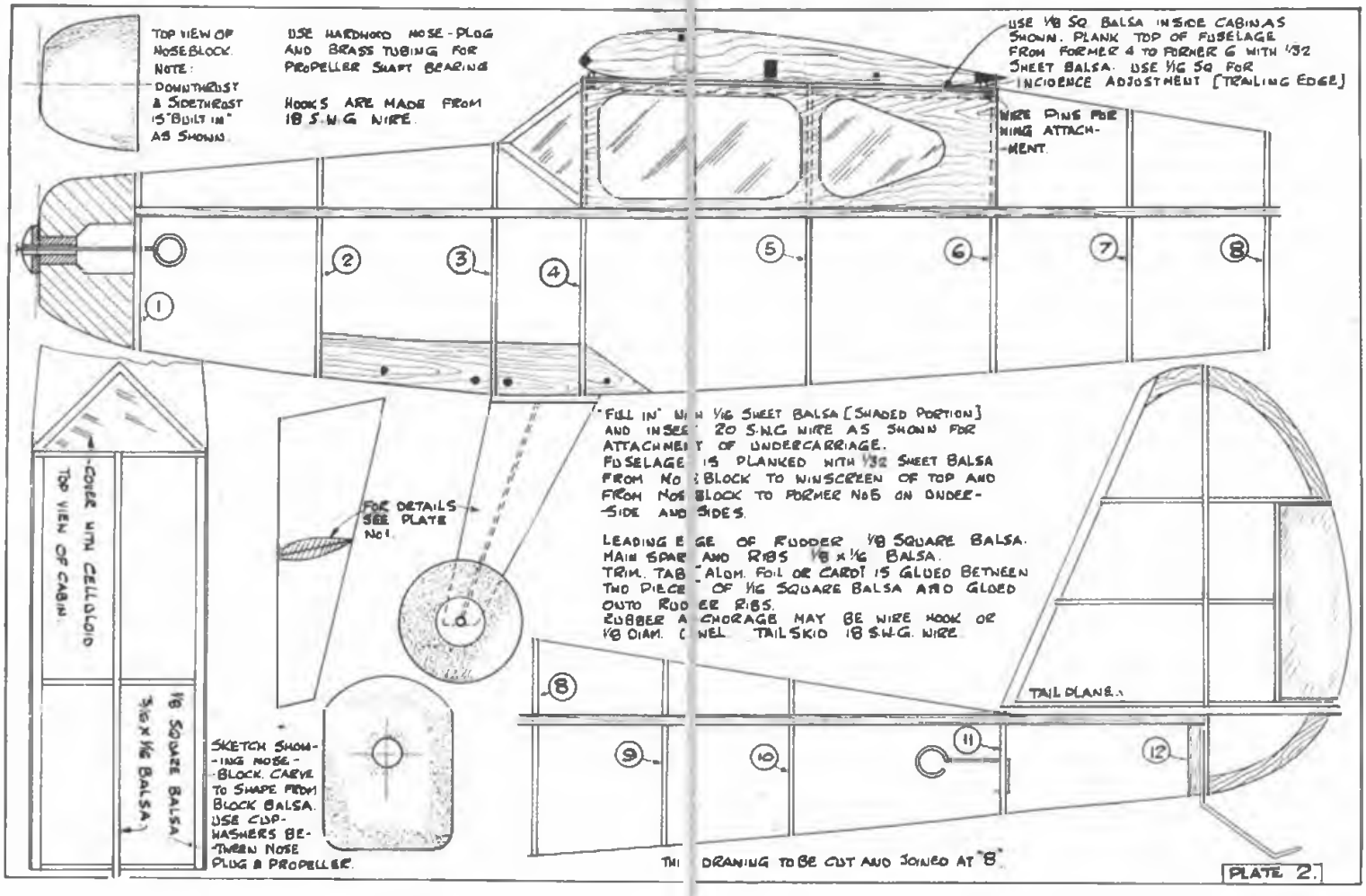
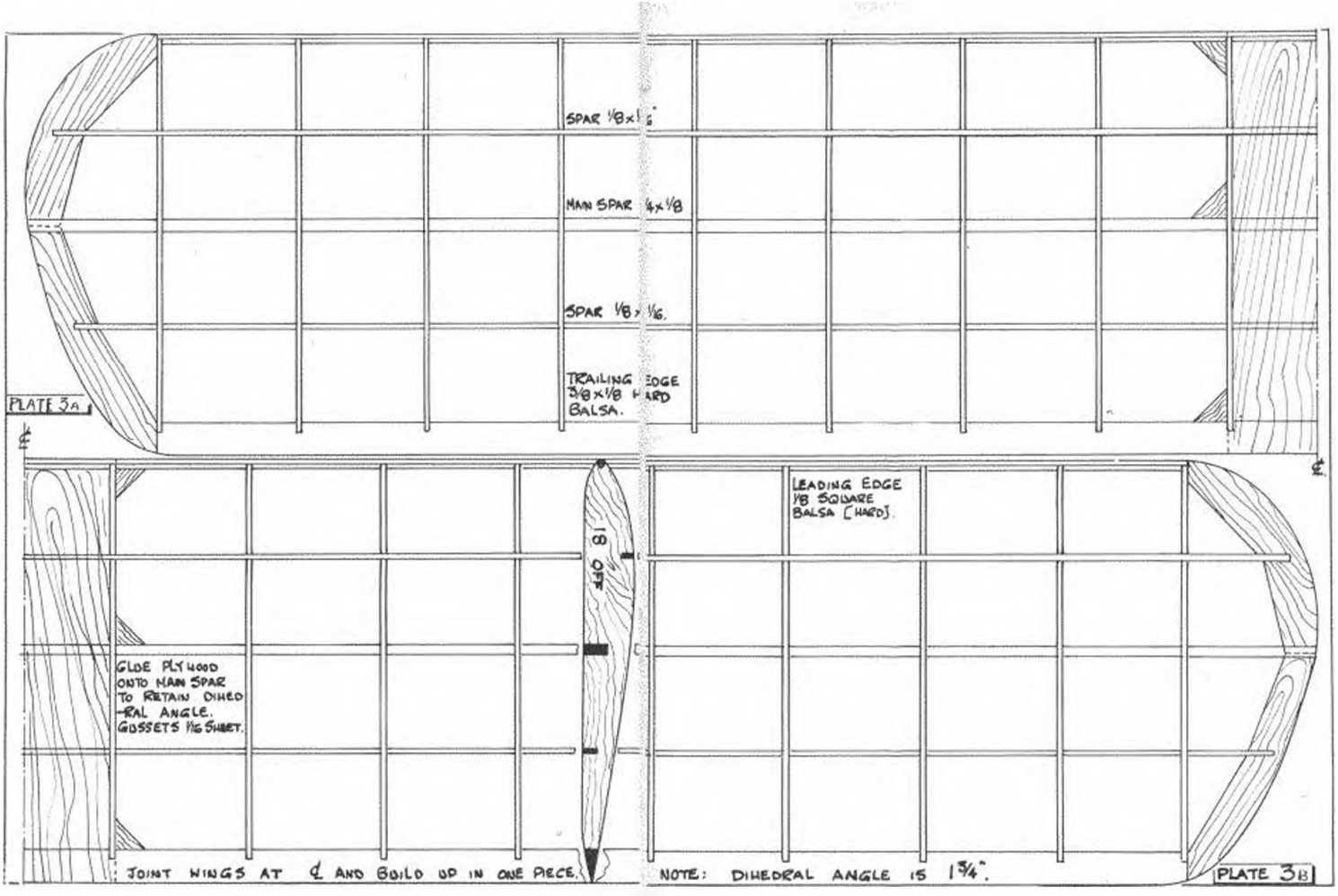

TOP VIEW OF NOSE BLOCK. NOTE: DOWNTHRUST & SIDETHRUST IS "BUILT IN" AS SHOWN.
USE HARDWOOD NOSE-PLUG AND BRASS TUBING FOR PROPELLER SHAFT BEARING
HOOKS ARE MADE FROM 18 S.W.G WIRE.
USE 1/8 SQ BALSA INSIDE CABIN AS SHOWN. PLANK TOP OF FUSELAGE FROM FORMER 4 TO FORMER 6 WITH 1/32 SHEET BALSA. USE 1/16 SQ FOR INCIDENCE ADJUSTMENT (TRAILING EDGE)
WIRE PINS FOR WING ATTACHMENT.
1
2
3
4
5
6
7
8
FILL IN WITH 1/16 SHEET BALSA (SHADED PORTION) AND INSERT 20 S.W.G WIRE AS SHOWN FOR ATTACHMENT OF UNDERCARRIAGE.
FUSELAGE IS PLANKED WITH 1/32 SHEET BALSA FROM NO 2 BLOCK TO WINSCREEN OF TOP AND FROM NOSE BLOCK TO FORMER NO 5 ON UNDERSIDE AND SIDES.
LEADING EDGE OF RUDDER 1/8 SQUARE BALSA. MAIN SPAR AND RIBS 1/8 x 1/16 BALSA. TRIM. TAB ALUM. FOIL OR CARD IS GLUED BETWEEN TWO PIECES OF 1/16 SQUARE BALSA AND GLUED ONTO RUDDER RIBS.
RUBBER ANCHORAGE MAY BE WIRE HOOK OR 1/8 DIAM. DOWEL. TAILSKID 18 S.W.G. WIRE.
FOR DETAILS SEE PLATE No 1.
COVER WITH CELLOLOID
TOP VIEW OF CABIN.
1/8 SQUARE BALSA
3/16 x 1/16 BALSA.
SKETCH SHOWING NOSE-BLOCK. CARVE TO SHAPE FROM BLOCK BALSA. USE CUP-WASHERS BETWEEN NOSE PLUG & PROPELLER.
TAIL PLANE.
8
9
10
11
12
THIS DRAWING TO BE CUT AND JOINED AT "8"

PLATE 2.


SPAR 1/8x1/2"
MAIN SPAR 4x1/8
SPAR 1/8 x 1/16.
TRAILING EDGE 3/8x1/8 HARD BALSA.
PLATE 3A
LEADING EDGE 1/8 SQUARE BALSA [HARD].
18° OFF
GLUE PLYWOOD ONTO MAIN SPAR TO RETAIN DIHEDRAL ANGLE. GUSSETS 1/16 SHEET.
JOINT WINGS AT ℄ AND BUILD UP IN ONE PIECE.
NOTE: DIHEDRAL ANGLE IS 1 3/4".
PLATE 3B

RESULTS OF "AIRCRAFT IDENTIFICATION" COMPETITION

PRIZE-WINNERS :—

C. D. ALLEN, Saffron Walden.
R. H. APPLETON, Broadstairs.
H. M. BAILEY, Ripon.
S. BARKER, Chippenham.
D. C. BEATTIE, Shortstown.
J. BEECH, Worcester.
H. BIRKETT, Woodley.
P. M. BOOTH, Sheffield.
R. W. BRANDON, Dagenham.
H. J. BRAZIER, Evesham.
C. BRITLAND, Southport.
P. W. BROOKS, Langdon Hills.
A. BROWN, Liverpool.
J. M. BRUCE, Scone.
R. L. CARSTAIRS, Brighton.
K. CHAPPELL, Hampstead.
J. CLARK, Bournemouth.
P. E. CLARK, Muswell Hill.
E. G. COOMBS, Mitcham.
R. COLLINS, Forest Gate.
R. J. COMPAGNONI, Hove.
A. W. CRICHTON, Hatfield,
M. F. CROWE, Belfast.
D. S. J. CUMBERLAND, Luton.
J. B. DAVIES, Wallington.
P. R. DOUDNEY, Huntingdon.
J. A. DUNSTER, Hampstead.
W. S. ELLIOT, Ripon.
C. F. ELLIOTT, Ripon.
B. ELMER, Reading.
A. S. EMCK, Enfield.
T. W. F. FAIRBAIRN, Gillingham.
A. F. FARQUHARSON, Kingston Hill.
W. T. FERGUSON, Cowley.
H. FILLINGHAM, Blackpool.
J. FLETCHER, Heston.
R. J. FORRESTER, Walton-on-Thames.
H. M. GARNETT, Rugby.
P. H. GEE, Hemel Hempstead.
D. GILBY, Botley.
N. N. GOODHEAD, St. Albans.
A. GRANGER, Wembley.
C. H. R. GRIGGE, Rochester.
D. HAMMONDS, Ripon.
D. L. HANICK, Hitchin.
B. C. HAWKE, Reading.
T. HEYWOOD, Bristol.
G. E. HICKS, London.
D. HOLDER, Reading.
D. HUNT, Ilminster.
J. O. ISAACS, Southampton.
A. KEITH-THOMAS, Ealing.
D. M. JARMAN, Sydenham.
W. JARVIS, Wimbledon.
F. JENNINGS, Luton.
M. W. JEROME, Wokingham.
A. R. H. LEWIN, Hatfield.
ALAN LEWIS, Selby.
IVOR J. LEWTON, Cheltenham
V. S. LODGE, Bournemouth.
E. A. LONSDALE, Ripon.
L. K. LORD, Coventry.
E. J. McNEILL, Bromley.
G. S. McCLURE, Nottingham.
R. J. MANSFIELD Coventry.
C. A. MAY, Slough.
D. H. MIDDLETON, St. Albans.
P. B. MORICE, Farnham.
I. MORRIS, Ripon.
G. C. R. MORRIS, Winchester.
I. D. F. MOSS, Sanderstead.
G. W. NAPPEY, Bexleyheath.
D. F. NEWHAM, Stanmore.
A. G. NICKLEN, Cobham.
R. G. NOAKES, Duffield.
L. D. OSBORNE, London.
H. PARRISH, Manchester.
C. R. C. PEDLER, Maidenhead.
E. S. C. PEDLEY, Mickleover
N. J. PRUE, Birmingham.
P. QUANSTROM, Hitchin.
R. G. QUELCH, Hillingdon.
F. H. RAVENHILL, Gloucester.
V. REEVES, Hatfield.
M. REYNOLDS, Reading.
F. F. G. ROBERTS, Maidenhead.
R. SELS, Paddington.
J. W. S. SCOTT, Carluke.
D. S. SHEARMAN, Rochester.
F. J. SIMMONS, Forest Gate.
P. D. SMALLMAN, Stafford.
R. W. SMITH, Worcester.
R. STARR, Oxford.
E. P. SUTTON, Sheffield.
P. H. TANGYE, Bristol.
A. J. TROUGHTON, Coventry.
J. THOMPSON, Ripon.
G. THOMSON, London Colney.
K. J. TURNER, Guildford.
D. A. TURNNIDGE, Brentwood.
C. J. WALDER, Oxford.
J. H. WALMSLEY, Woodley.
R. H. M. WATSON, Bath.
J. WASILEWSKI, Blackpool.
G. F. WEBB, Rochester.
D. WHITE, Hitchin.
E. L. WICKES, Harrow-on-the-Hill.
P. A. WIGGINS, Kilburn.
L. R. WILSON, Coventry.
T. R. WILSON, Edinburgh.
D. O. WOOD, York.
R. V. YOUNG, Widnes.
W. S. YOUNG, Stockport.

SOLUTION :—

SECTION 1

1. Blackburn Roc.
2. Supermarine Spitfire.
3. Consolidated 28-5.
4. Curtiss P.40 Tomahawk.
5. Fiat G.50.
6. Morane-Saulnier M.S.406C.
7. Fairey Battle.
8. Fiat B.R.20.
9. P.Z.L. Sum.
10. Potez 63.
11. Koolhoven F.K.52.
12. Bristol Beaufort.
13. Hawker Henley.
14. Fairey Fox VI.
15. Brewster Buffalo.
16. P.Z.L. Mewa.
17. Fokker G-1.
18. Bloch 151.
19. Bristol Blenheim IV.
20. Armstrong-Whitworth Whitley IV.
21. Vickers Wellesley.
22. Saro London.
23. Heinkel He 111K Mk. IIa.
24. North-American Harvard
25. Focke Wulf F.W.200 Condor.
26. Douglas (Northrop) 8a.
27. Breda 65.
28. Vickers Wellington
29. Cant Z.506b.
30. Focke Wulf F.W.58 Weihe.
31. Dewoitine D.520.
32. Short Singapore III.
33. Messerschmitt Me 110.
34. Fokker T-8 W.
35. Savoia-Marchetti S.M.79b.
36. Handley Page Hereford.
37. Koolhoven F.K.58.

SECTION 2

38. Westland Lysander.
39. Gloster Gladiator.
40. Saro Lerwick.
41. Heinkel He 113
42. Handley Page Hampden.
43. Miles Magister.
44. Supermarine Walrus.
45. D.H. Tiger Moth.
46. Grumman Skyrocket.
47. Fairey Swordfish.
48. Fairey Albacore.
49. Junkers Ju 52/3m.
50. Miles Master.
51. Arado Ar 96b.
52. Blohm-Voss Ha.139.
53. Hawker Hurricane.
54. Fairey Fulmar.
55. Hawker Hind.
56. Martin 167-W.
57. Breda 88.
58. Blackburn Skua.
59. Fiat C.R.42.
60. Dornier Do 24.
61. Henschel Hs 126.
62. Junkers Ju 86K.
63. Boulton-Paul Defiant.
64. Lockheed P.38.
65. Fairey Seafox.
66. Heinkel He 115.
67. Bucker Jungmann.
68. Savoia-Marchetti S.M.79.
69. Douglas D.B.7 Boston.
70. Dornier Do 18K.
71. P.Z.L. Los.
72. Lockheed Hudson.
73. Grumman G.36.
74. Dornier Do 215.
75. Blackburn Botha.

SECTION 3

76. Macchi C.200.
77. Airspeed Oxford.
78. Bristol Blenheim I.
79. Messerschmitt Jaguar.
80. Short Sunderland.
81. General Aircraft Owlet.
82. Curtiss SBC-4.
83. Bristol Bombay.
84. Bell Airacobra.
85. Avro Anson.
86. Fairey Firefly.
87. Messerschmitt Me 109.
88. D.H. Hertfordshire.
89. Cant Z.501.
90. Breguet 690.
91. Douglas B.18a.
92. Vought-Sikorsky V-156.
93. Supermarine Stranraer.
94. Heinkel He 111K Mk. Va.
95. P.Z.L. P.24.
96. Curtiss Hawk 75a.
97. Parnall 382
98. Westland Wallace.
99. Percival Proctor.
100. Handley Page Harrow.
101. Junkers Ju 87B.
102. Caproni 310 Libeccio.
103. Fairey Gordon.
104. Junkers Ju 88K.
105. Loire-et-Olivier 45.
106. Dornier Do 17.
107. Blohm-Voss Ha 140.
108. Saro Shrimp.
109. Savoia-Marchetti S.M 81.
110. Boeing B.17b.
111. Heinkel He 59.
112. Vultee Vanguard.
113. Arado Ar 196.
114. Focke Wulf F.W.187 Zerstorer.
115. Consolidated B.24 Liberator
116. Republic Guardsman.
117. Fokker D-21.
118. Arado Ar 95-See.
119. Hawker Hart.
120. Junkers Ju 90.

WING ATTACHMENTS

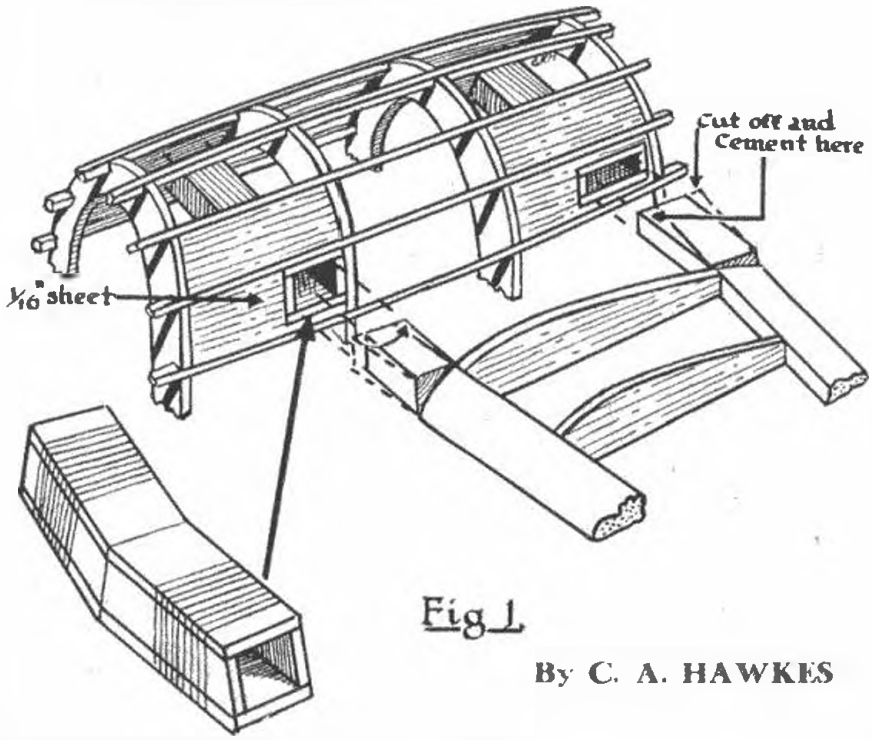


Fig 1.

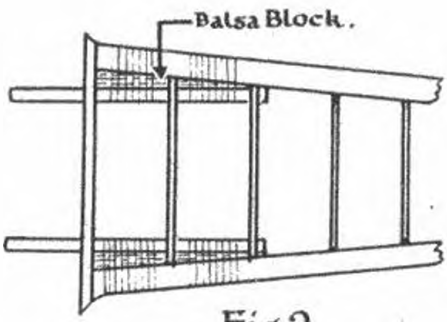


Fig 2.

By C. A. HAWKES

IN many cases model builders designing their first streamliner will realise, with some surprise, the difficulty of providing a suitable wing attachment. Compared with the sheer crash-proof simplicity of the ordinary slab-sider, the streamliner provides something of a problem in this direction.

To be ideal the wing fixing must fulfil several conditions. It must be rigid enough to withstand strong gusts when flying, yet it should possess some resiliency to minimise the strain in a crash. It should be light and not too complicated, and all "bits and pieces" should preferably be where they cannot mar the lines of a sleek fuselage—in other words, out of sight. Above all, the fixing should be strong and absolutely reliable.

All these good points are not always incorporated: in many cases some concession is made for the sake of performance.

The wing position of streamliners is generally fixed, a movable trimming weight being used to obtain precise adjustment.

The plug-in wing (Fig. 1) is probably the most popular fixing in this country. The wing is made with hefty leading and trailing-edge spars, the ends of which project beyond the root of the wing and are left square section. Balsa boxes made to fit the ends of the spars are cemented across the fuselage, and into these the wing spars plug. Obviously the stub spars must be parallel, and this necessitates, in the case of a tapered wing, that small wedge-shaped pieces be cut off and, in order to retain the original square section, they must be cemented to the opposite side of the spar. To allow for the dihedral angle similar adjustments can be made, or the wing boxes can be constructed in two pieces and cemented in the fuselage in the form of a shallow V. This latter method is probably the better, as it avoids undue weakening of the stub spar, where strength is most important.

The only failing of this otherwise very satisfactory plug-in method is that the wing is allowed no movement, and in a heavy wing-tip crash something obviously must break. To minimise this danger the wings are made as strong as possible. For a Wakefield model suitable sizes are: Leading edge, $\frac{1}{2}$ in. by $\frac{1}{2}$ in. or $\frac{5}{8}$ in. by $\frac{5}{8}$ in.; trailing edge cut from $\frac{1}{4}$ in. sheet; wing boxes made from $\frac{1}{8}$ in. sheet and bound with cotton.

Fig 3.

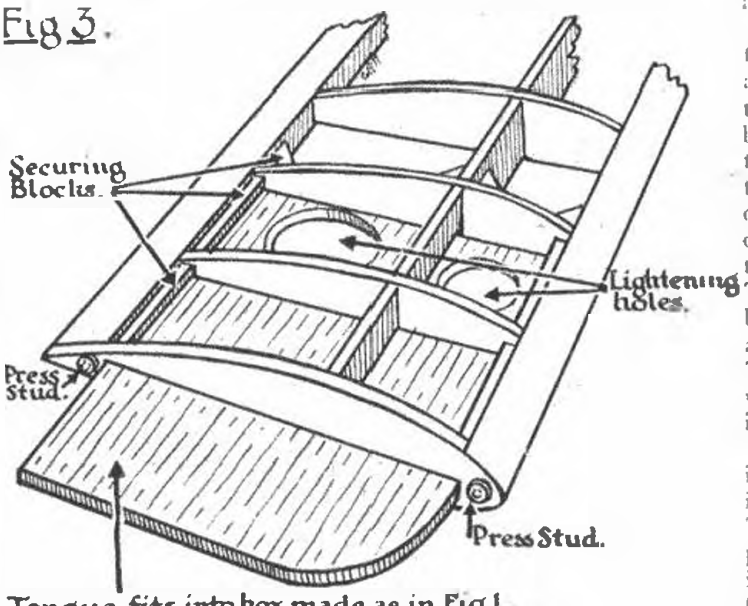


Fig. 2 shows another method, similar to the first, but utilising birch dowels and paper or aluminium tubes. This idea is very simple and needs little description. In order to distribute all stresses evenly over the wing the dowels should be bound and cemented to the wing spars, not fixed through holes in the ribs away from the spars—this throws undue strain on the ribs and is asking for trouble. In tapered wings the dowels at the leading- and trailing-edge spars can be made parallel by fixing wedge-shaped blocks of balsa between each dowel and the spar. The paper tubes should be set at the correct dihedral angle inside the fuselage. For a Wakefield job two ¼ in. diameter dowels to each wing should be sufficient.

This method suffers from the same disadvantage as the previous one, and therefore the wing should be made fairly strong. If this is done a crash will snap the dowels (if you're lucky), leaving the wing undamaged. In order to facilitate replacing broken dowel rods, tubes are sometimes fitted to both wing and fuselage, the joining dowel being

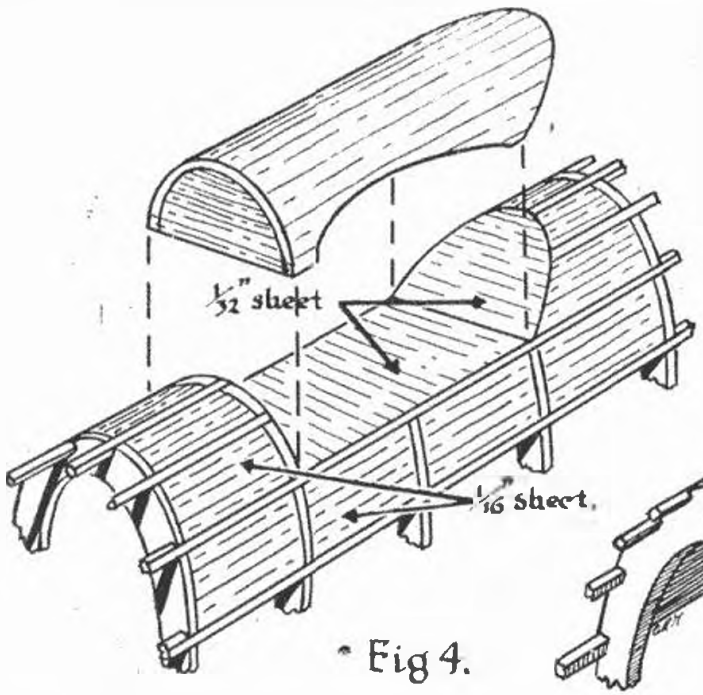


Fig 4.

pushed into first one tube and then the other. Broken dowels are generally easily withdrawn from the tubes. (Using a corkscrew for this purpose is, however, not recommended).

There are many variations of this dowel and tube idea. In some cases the wings plug into a separate wing carrier, which sometimes is made movable along a slot in the fuselage in order to give lateral adjustment.

Fig. 3 illustrates a system which basically is the same as the previous two. Its advantage is that it is rather more crash-proof, although perhaps slightly heavier. A "tongue," generally of hard balsa fitting through slots in the wing ribs, fits into a flat balsa box in the fuselage. The most important point is to see that the tongue is mounted really firmly to the wing spars; cementing it to one or two of the wing ribs is definitely not good enough unless these ribs are cut from very thick hard sheet and braced solidly, by means of balsa blocks, to the spars. Dihedral should be obtained by setting the wing boxes at the necessary angle; to make the box flat and to set the tongue into the wing at an angle is usually unsatisfactory. The front edge of the projecting tongue is usually rounded off so that the wing, on striking an obstacle, can pull out. Unless the tongue is a very tight fit in the box some system of dress fasteners or elastic bands and hooks would probably be necessary to keep the wing secure.

In the foregoing methods the wing is necessarily in two separate sections, but Fig. 4 shows a fitting in which the wing is normally made in one piece. This form of attachment is simple and virtually crash-proof, and is very popular, particularly in America, where the widespread use of the planked fuselage makes its construction particularly straightforward. With the normal "stringer" type fuselage it is necessary to fill in with sheet balsa the spaces between the formers and stringers along a section of the top of the fuselage. Part of this filled-in area is cut out, as shown in the drawing, and into this the wing is fixed, generally with elastic bands. It is usual to make one or both ends of the cut-out at an angle so that, in a crash, the wing can slide out. If a very powerful motor is to be used it would perhaps be advisable to fill in with sheet balsa the bottom and ends of the cut-out in order to maintain the tube strength of the fuselage. A curved cover of balsa or aluminium sheet is fitted on top of the wing in order to maintain the streamlines of the fuselage.

Taking everything into consideration this system of wing fixing is hard to beat. It is particularly suitable for first designs, as not only can adjustments of incidence easily

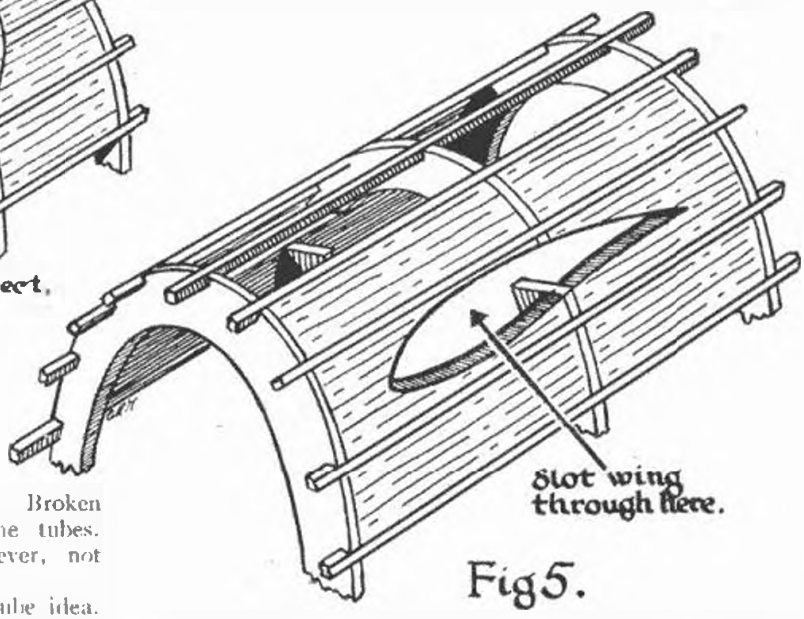


Fig 5.

be made but, if the cut-out is made longer than is actually necessary, the wing position can be slightly altered as well. The wing cover need only be shaped and fitted when perfect trim is obtained, and for this reason the wing and cover should be made to fit independently to the fuselage.

Fig. 5 depicts a method which I came across in an American magazine. A hole, the shape of the airfoil at the wing centre section, is cut in either side of the fuselage and the one-piece wing is pushed through the opening, tip first, from the side. The wing should be a snug fit in the fuselage, so that no other securing should be necessary.

This system is obviously far from crash-proof, but it may be of interest to those brave spirits who are prepared to risk things for the sake of duration; it is certainly very light and simple, and should therefore be suitable for small

machines. Except in the case of planked jobs a certain amount of "filling-in" of the fuselage sides would have to be done. The position and incidence of the wing must necessarily, of course, be fixed right from the start.

Figs. 6 and 7 show two of the several ways of parasol wing attachment. No description is necessary, for both these devices have been much used on slab-siders. For streamliners the parasol idea is probably as efficient as any, the extra drag of the wing support being negligible.

Lastly, the one method that must be familiar to all model builders. The ordinary elastic band fixing of the slab-sider

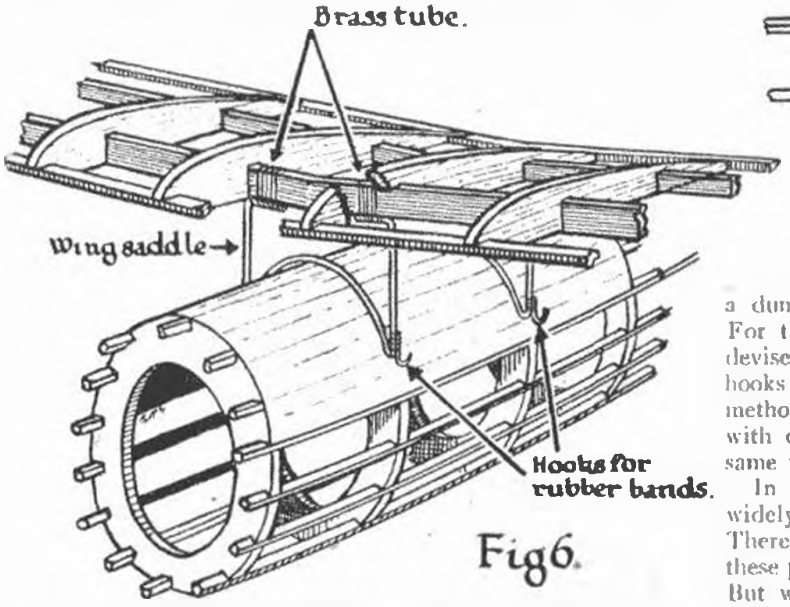


Fig 6.

can be employed on the streamliner, although naturally this entails that the fuselage be shaped so that part of the top is flat. In most cases this idea is used in conjunction with

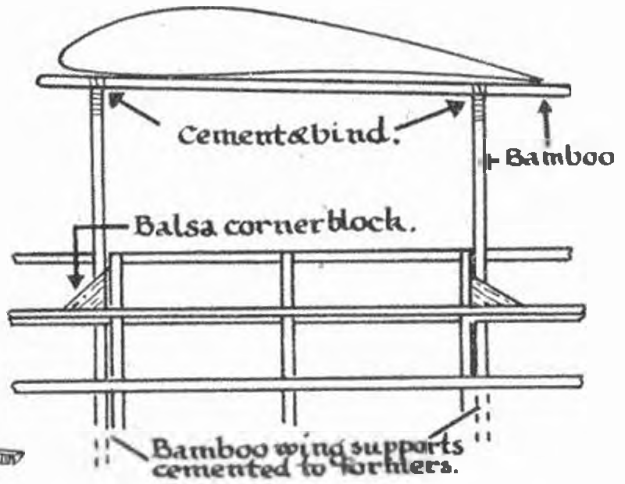


Fig 7.

a dummy cabin, the wing being mounted on the flat top. For the sake of neatness it is best if some means can be devised whereby the securing bands can be fastened to hooks inside the fuselage. No drawing is given for this method of wing attachment, as all readers must be familiar with cabin-type slab-siders, and the lay-out is exactly the same with the streamlined fuselage.

In this short article I have dealt with only the more widely used of the systems of wing fixing for streamliners. There are, of course, many adaptations and modifications of these popular ideas, as well as other devices less well known. But whichever method you employ it is as well to realise that making a good Wakefield streamliner to weigh only 8 oz. is like roller-skating. It is one of those jobs that, to the spectator, seems easy.

FINAL LIST OF SUBSCRIPTIONS TO THE S.M.A.E. FIGHTER FUND

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Less Woking collection	60	10	0
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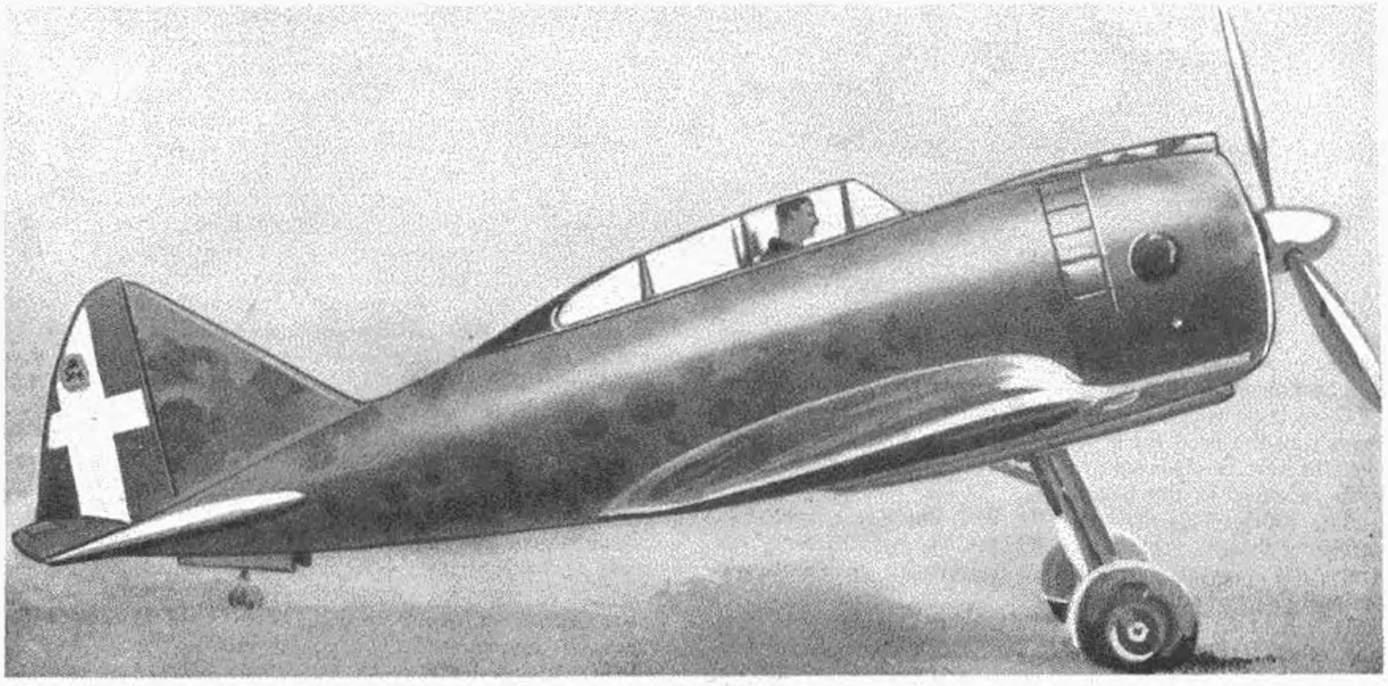
FIGHTING AIRCRAFT OF THE PRESENT WAR —— VI

THE CAPRONI REGGIANE RE.2000



THE *Aeronautica Regia*, as the Italian Air Force is named, must be the most disappointing of that country's fighting services. Its aeroplanes are mostly of mixed construction, containing a high percentage of wood, and recent activities have shown that not one of them can compare favourably with similar types of the Royal Air Force and the *Luftwaffe* in general performance. In addition to this structural inferiority no Italian aeroplane carries armament equal to that of a Hurricane or Spitfire. Most of the single-seat fighters have maximum speeds about equal to our medium bombers of last year, and their armament is not usually more than two fixed machine-guns. Our old Bulldogs and Siskins of around 1930 carried two guns.

Standard armament of the Fiat G-50 and the Macchi C.200 fighters is two machine-guns each, with the option of two extra guns in the wings.

The Macchi was Italy's fastest fighter with a speed of 313 m.p.h., while the Breda 88 Lynx twin-engined fighter-bomber had the greatest speed with 321 m.p.h.

The monoplane about to be described, the Reggiane RE 2000, is at present the fastest aeroplane in service with the *Regia Aeronautica*, and has a maximum speed, in its standard form, of 329 m.p.h. Two years ago this figure would have been low.

When one considers that Italy held the world's speed record for a number of years with 440 m.p.h., attained by the Macchi Castoldi 72 low-winged seaplane, this inferiority in performance is rather surprising, but some of it is explained by the fact that there are not many types of in-line aero engines in Italy, most of her aircraft being powered by radials.

The Reggiane RE.2000 is built by the Reggiane Officine Meccaniche Italiane S.A., a subsidiary company of the Caproni concern, at Turin.

Recently nearly all Italian aeroplanes now in service have been allotted official names. The RE.2000 is called the "Falcho" I, which means "Falcon." This designation may cause confusion with the Fiat G-50 fighter, which has been named the "Falcho." The RE.2000, fitted with a German Daimler-Benz motor, is called the "Falcho" II.

The Reggiane is obviously of American Seversky influence and has been developed from the Republic (formerly Seversky) EP-2 fighter, and is somewhat better looking than either the Fiat or the Macchi.

It is of all metal construction with stressed-metal covering. The fuselage is rather bulky, of circular construction, tapering sharply, terminating in a rather large fin and rudder.

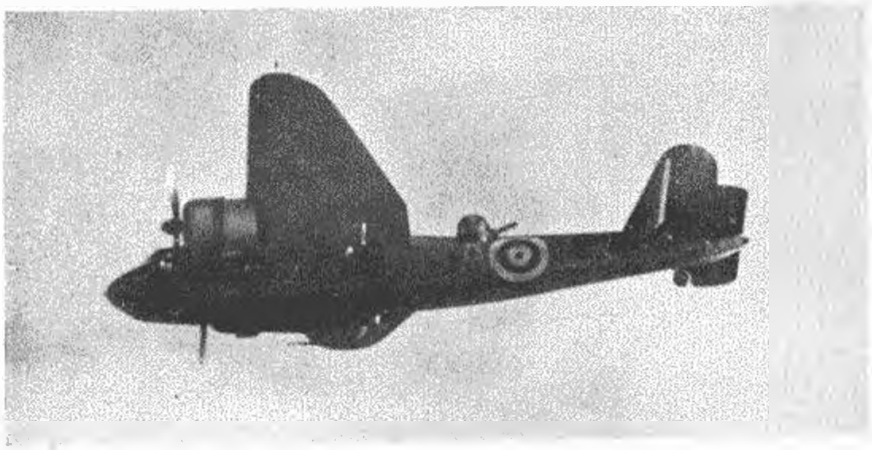
The wings are of elliptical plan form, very similar to the Spitfire's, and are built in three sections. High-aspect ratio ailerons are fitted to the outer sections, and split trailing-edge flaps are below the inner sections, but not under the fuselage.

The tail unit is of similar construction to the wings. Trimming tabs are fitted to the elevators, but not to the rudder or ailerons.

The undercarriage is of typical American design, consisting of two legs which retract backwards into the wings, the wheels turning through 90 degrees and lying flat within them. This form of undercarriage is used on most of the Curtiss Hawk monoplanes, and the Falcho I does, in fact, closely resemble the Hawk 75a, or Mohawk, in certain views. The tail-wheel retracts backwards, and is enclosed by doors.

The pilot's cockpit has a rather long glass cover, and is reached via a walkway on the port wing centre-section. The rear windows afford a reasonable view backwards.

A Piaggio P.XI R.C 40 fourteen-cylinder air cooled radial motor in a long-chord cowling with leading-edge exhaust collector ring and controllable gills, supplies the power for



the Reggiane. This motor develops 1,000 h.p. at 2,200 r.p.m. at 13,000 ft. A three-bladed metal airscrew is fitted.

The armament of the Reggiane is only two machine-guns, of large bore, which are installed in the wings almost at the tips; thus the need for synchronising gear for firing through the airscrew is obviated. Most Italian fighters have their guns mounted in the fuselage.

The Falcho I is definitely the best single-seat fighter in service with the *Aeronautica Regia*, but, unfortunately for Italy, not many squadrons are equipped with them owing to seriously disturbed production.

It is light on the controls, and is more manœuvrable than any other Italian fighter, and in a mock dog-fight with a Messerschmitt Me 109 proved itself to be superior, though the maximum speed is less. Even when flown by a German pilot with an Italian in the Messerschmitt this was the case.

The few Reggianes which are in service are used only for Home Defence, so identification of them in England will not arise. The aeroplane most like it which the Royal Air Force will probably get is the Republic Lancer fighter. The wing of the Falcho I is much like that of a Spitfire, but is of slightly lower aspect ratio.

Italian aeroplanes are now coloured light green with small irregular brown and terra cotta stains on sides and upper surfaces, which suggest that a number of inebriated spiders soaked in dope have been allowed to crawl as far as their legs would let them and have then been stamped on. Under-surfaces are usually coloured a dull non-shining silver.

The Italian national marking is a grey disc outlined in black or silver, on which are painted three *fasces*, the sign of the old Roman magistrates, carried before them by a lictor as an emblem of their authority to scourge and decapitate—a good theoretical insignia for an Air Force, but one which has proved shamefully inappropriate.

A *fasces* represents a bundle of faggots (brown) tied to the handle of an axe with yellow binding. The head of the axe projects through the faggots towards the wing tips and is painted silver.

This marking is painted above and below each wing tip. Incidentally, I hope readers were not confused by the newspaper reporter's description of the "curious markings" on the Italian aeroplanes which made their abortive raid on England in November last. He described them as being "like an 'H' with three down strokes," but he was a correspondent of the "special" variety, so there is some excuse for him.

The fuselage marking (in this case it is painted on the cowling) is similar to the wing marking, except that there is only one *fasces*, the head of the axe projecting forward.

The rudder marking is three vertical stripes of dark green, white and red, with the former colour nearest the fin. At the top of the white stripe the Italian arms are painted. These consist of a red shield, with a plain white cross across it, surmounted by a golden crown, the whole being edged with gold.

Most Italian aeroplanes now have a horizontal white band painted across the middle of the vertical stripes, forming a white cross with the central stripe. There is a certain amount of controversy concerning the purpose of this alteration. It is commonly believed that this indicates that aeroplanes so marked are operating under German control, but, in fact, this marking first appeared some time prior to September, 1939.

Not many particulars are available concerning the Falcho I, but the following information is forthcoming:—

Dimensions: Span, 36 ft. 9 in.; length, 26 ft. 0 in.; height, 12 ft. 0 in.; wing area, 235 sq. ft.

Weights (approx.): Tare, 4,400 lb.; loaded, 5,700 lb.

Loadings (approx.): Wing, 24·25 lb./sq. ft.; power, 5·7 lb./h.p.

Performance: Maximum speed, 329 m.p.h. at 13,120 ft.; climb, 2,750 ft./min.; range (at 300 m.p.h.), 620 miles; service ceiling, 31,000 ft.

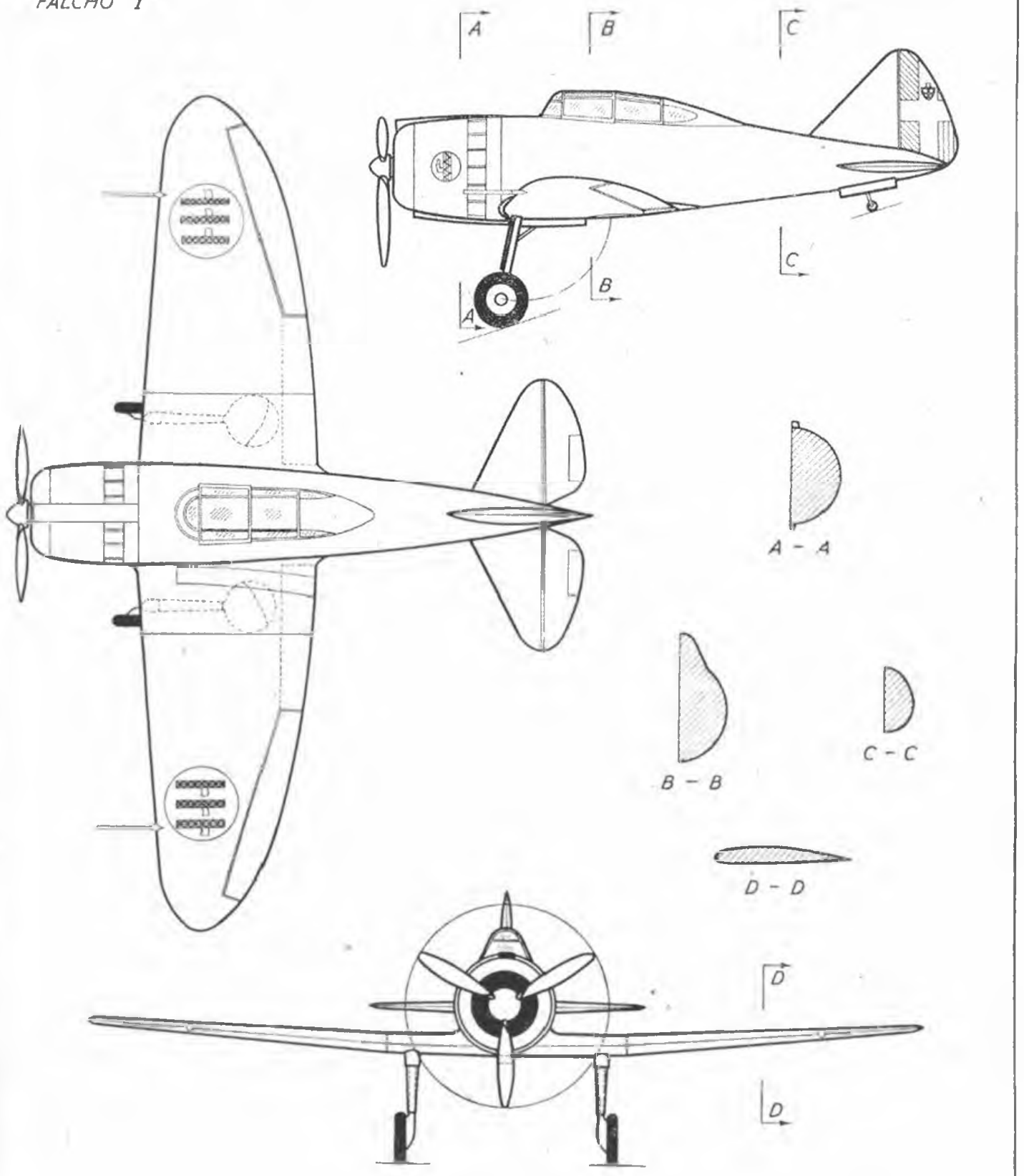
Next Month:

THE "BOTHA"

Follows a list of Italian aeroplanes with their new names and meanings:—

Fiat C.R. 42	...	Freccia	... Arrow
Fiat G-50	...	Falcho	... Falcon
Reggiane RE 2000	...	Falcho I	... Falcon
Reggiane RE 2000 (D.B. motor)	...	Falcho II	... Falcon
Macchi C.200	...	Saetta	... Lightning
Breda 88	...	Lince	... Lynx
Breda 201 (Junkers Ju. 87b built under licence)	...	Picchiatelli	... Little Woodpecker
Cant Z.1007 bis.	...	Alcione	... Kingfisher
Cant Z.506b	...	Airone	... Heron
Fiat B.R.20	...	Cicogna	... Stork
Savoia-Marchetti S.M.75	...	Mursupiale	... Marsupial
Savoia-Marchetti S.M.79	...	Sparviero	... Hawk
Savoia-Marchetti S.M.81	...	Pipistrello	... Bat
Savoia-Marchetti S.M.82	...	Canguru	... Kangaroo

"FALCHO I"



THE CAPRONI REGGIANE RE 2000

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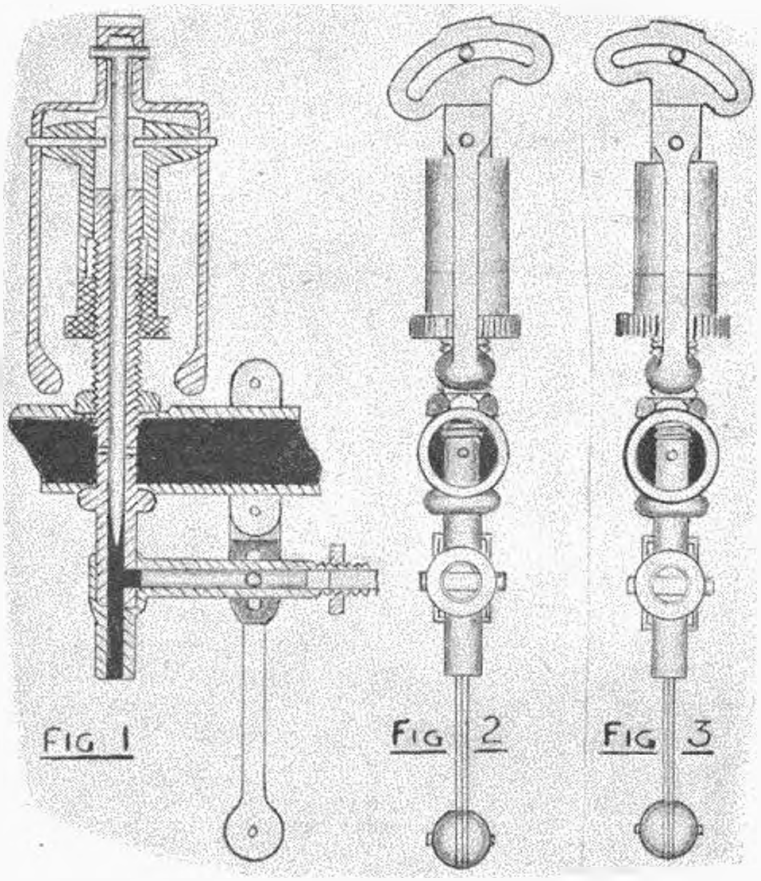
FT.

A SCHEME FOR

In our Christmas, 1940, issue we published a photograph of a large twin-engined flying-boat constructed by Mr. Anderson. We have just received a further photograph which shows that the model is nearly complete.

We trust that Mr. Anderson will try out the ideas described in this article, and let us have results in due course.



MAY I pay tribute to THE AERO MODELLER as being a very fine stimulant to activity in all spheres of model aeroplane engineering, and remark that during my five years' association with this fascinating hobby I have culled much invaluable information from its pages. Interest is made more potent by the provocative articles which find expression therein, and I am in particular indebted to Dr. Forster for his description and comments of the flying-boat which I am now building. His remarks are mainly responsible for my desire to tackle some of the thorny problems which he suggests are beset with latent disappointments. Be that as it may, "something attempted, something done."

Perhaps it is because of the probable obstacles (I say this with due respect) that data relating to twin-powered petrol craft have not been given much space. To me at least its absence is conspicuous. Or maybe certain bogey men delight in seeing the possible modellers of twin-engined craft moving round in very small circles!

In my essay to ventilate this topic I must take the precaution of remarking that my efforts to date in surmounting some of the obstacles are limited to theory. At some later date, and with the Editor's permission, I hope to substantiate in practice that which at this stage might be challenged as mere hypothesis. In the meantime this lead may serve to cultivate further ideas and improvements of which I may be the recipient of some valuable data, and by joining hands with other progressive readers we might provide an eternal resting place for the bogeys.

Dr. Forster asks, since I have eschewed sponson floats, how am I to induce a sticking float to leave the water without very skilful use of radio control? I would be glad to know what he thinks of my theory, but trust that he will mete out his criticism with compassion until the results of my cravings have been tried in practice.

Hurdle No. 1 seems to be the prevalent idea that twin engines must be synchronised. After giving careful thought to this opinion I must, *in theory*, disagree. I believe that two power units can be used to good account and in such a way that they can be used to achieve greater stability for the craft than a single unit. If practice proves this to be true, the single-powered craft may well suffer the same ostracism as its present twin counterpart.

I propose to use two Ohlsson 10 cc. engines.

Figs. 2 and 3 show throttle controls in their relative positions on the 'plane. They are identical in construction, but their needle-lifting cams are opposed in action. These cams are pivoted on fulcrums near the top and are an integral part of the pendulums which straddle the throttles. Gravity should maintain these pendulums plumb while the relative motion of the 'plane automatically controls the throttle needles. Thus, although the two engines may be synchronised by adjusting knurled nuts before the craft is launched, any irregularity of motion in flight should be countered by the oscillation of the throttle controls and commutation of engine speeds. No doubt some experiment would be necessary to obtain smooth results, but that should not be a difficult job.

Hurdle No. 2.—Several ingenious schemes have been published in THE AERO-MODELLER for the prevention of crashes due to one engine failing to function. (And such accidents are tragic indeed!)

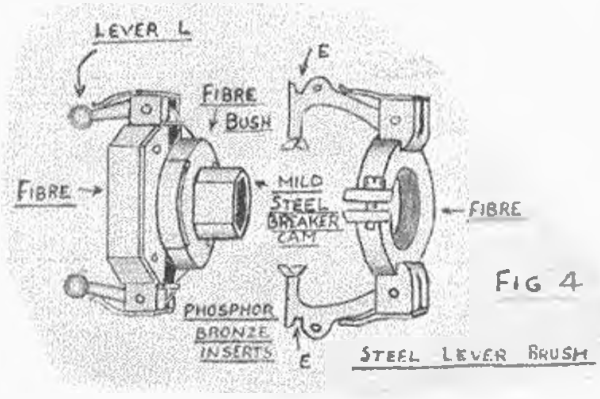


FIG 4

AUTOMATIC STABILITY——SIMULTANEOUS CUT-OUT—and—ANTI-'CRASH-DIVE' CONTROL

Designed by W. ANDERSON for a Petrol 'Plane

I think the scheme must be one that will cut the ignition of both engines simultaneously. Any time lag would be risky.

Fig. 1 shows my proposed device. A fibre bush is mounted on each of the propeller shafts. Each bush has two phosphor-bronze inserts and a pair of spring lever brushes which carry the ignition current are arranged so that the whole is very like the commutator of an electric motor, excepting that the inserts are extended so that two gaps are formed, diametrically, opposite which are bridged electrically by the centrifugal action of two weighted and sprung levers L. In effect an automatic switch is applied to each engine, which controls the ignition from a common source. If either engine fails, its governor like switch opens and *both* engines become electrically dead simultaneously.

Upon examination of the sketches it will be noted that the scheme has been further to conserve electric current consumption. It will be seen that the parts of the inserts on which the brushes contact are reduced so that they provide electrical continuity for that period of the revolution which is required for actual ignition. The intervening parts of the track are insulated. This, I hope, will overcome to some degree our trouble of " tired " batteries.

Modellers of single-engined craft might also note this and devise a means to partially insulate the " dwell " on the breaker cam.

The spring clip (Fig. 6) is for bridging the brushes temporarily to get the engines started. It is fitted about the notches E (Fig. 4). When the speed of the engines is sufficient to close the switch by its centrifugal action this clip must be removed.

Fig. 7 shows a section of the switch, and Fig. 8 a view from the direction of the arrows H.

Hurdle No. 3—Crash-diving under power. (A formidable spectacle!)

My preventative measure is shown by part of the sectional view (Fig. 1). It is fitted to the induction pipe of the engine with a clip without materially altering the existing construction. This again is a pendulum-operated plunger which regulates the petrol intake by closing the port when the angle of the 'plane becomes acute. The nut F which appears in the sketch is merely to reinforce the split tube and to prevent the weighted arm from swinging back too far.

In case someone is tempted to accuse me of cruelty due to overloading my horses, the following estimated weights may be of interest: ¾ oz. for each throttle control (including power-crash attachment), and 1½ oz. for each engine ignition cut-out. These weights will be more than cancelled out, as only one battery, coil and condenser need be used to serve the two engines fitted with the devices described.

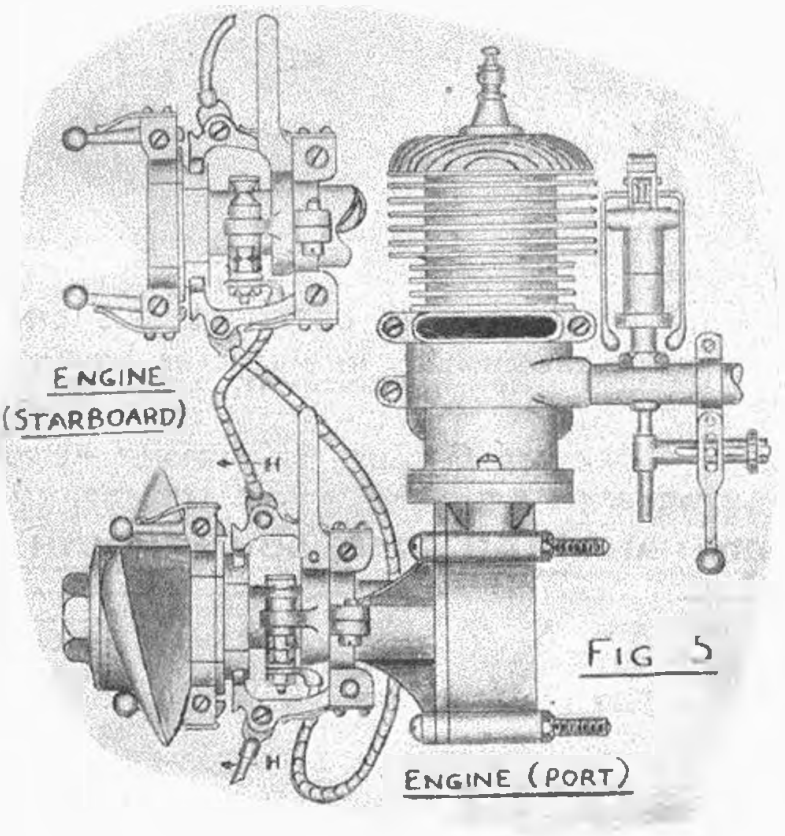
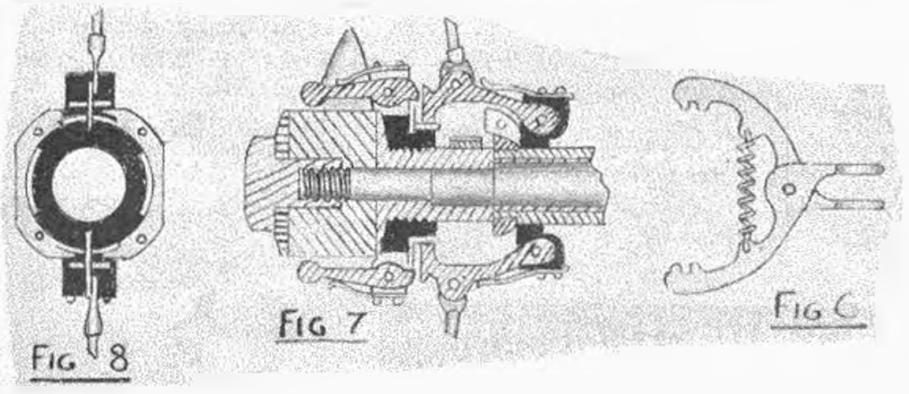


FIG 5



WELL, our first big competition of the year has been won and lost, and it is my pleasant duty to once again congratulate Mr. A. A. Courtney, of the Oxford M.F.C., on his success in pulling off the "Gamage Cup" event for the second year in succession. You will remember that last year he won with a total time of 717·4 seconds, but this year he has nearly doubled this time, finishing up with a total of 1149·7 seconds. This is a remarkable performance, and says much for his abilities in the duration line. There were a total of 161 competitors for this year's event, as against 212 in 1940; though I still think this a remarkable figure in view of the increasing difficulties most clubs are coming up against, and a more general calling up of our keenest aero-modellers.

Mr. Jennings, of Bath, ran Courtney a very close second, as you will see from the list of the first six given herewith.

Unfortunately, I write this without the full results to hand: the list of the first six places has been rushed through to enable us to get them into this issue. It is, therefore, impossible to tell how the various clubs fared, but one thing I am pleased to note is the way the honours have gone round the country. You will notice that we swing from South Midlands right across to the West to Bath and Cardiff, then back south to Walton, back to the West again to Bristol, and then right up north to Lancashire. This, I think, is all to the good, as it certainly gives encouragement to the new clubs to find that they are able to compete on an equitable basis with the well known crack clubs, and even to beat them.

1941 "GAMAGE CUP" RESULTS.

	Aggregate.
1. A. A. Courtney, Oxford	1149·7 sec.
2. M. Jennings, Bath	1091·2 ,,
3. B. Morgan, Cardiff	887·0 ,,
4. — Field, Walton	676·0 ,,
5. S. Carter, Bristol	643·85 ,,
6. M. Hayes, Ashton-under-Lyne	642·0 ,,

You will notice through the various reports in this month's columns that some details are given of conditions and times put up on this competition day, and it would appear that for once we can actually class this event as the "Gamage Cup" and not the "Damage Cup"—a title that has been well-merited in the past years!

Before leaving this event, I must air a plea by Mr. J. C. Smith, Competition Secretary of the S.M.A.E., who asks that all club officials make sure that they enter in the full particulars of each and every competitor on their entry forms. One case in point is the Walton Club, who did not put the initials to their competitors' names, and owing to the fact that there are two Mr. Fields in this club, Mr. Smith is unable to say just which of these two gentlemen has been placed fourth. This is not an isolated case, and has happened on quite a number of occasions, and you will appreciate that it complicates the official's work to a large extent, so please from now onwards make certain that all the necessary details are entered up.

As will be noted elsewhere, the "S.M.A.E. Fighter Fund" has now been closed, the final total reaching the sum of £200. Personally, I think the aero-modellers could have done better than this, but as the Editor himself says, a possible explanation is the large number of similar efforts held locally, which detracted from this particular collection. However, £200 will go a short way to providing a "Spitfire," even if it's only a couple of rivets, and it is some satisfaction to know that large sums of money have been raised through the efforts of aero-modellers all over the country in various local affairs.

I have been privileged to read a report of the S.M.A.E. Delegate Meeting held on May 11th, and it is pleasing to note the more organised state of affairs that now exists. There have been a lot of ups and downs one way and another, and obviously we shall still come across quite a number of snags, but I am sure that everybody is doing his best to get things in the right order. I am not saying this in view of any criticisms of earlier remarks of mine, as I know—and I am sure the officials themselves agree—there is still quite a lot to be done before we reach an ideal organisation, but I feel I must give credit where credit is due. One thing that does get my back up is to hear certain people complaining and criticising, and when you go into the matter you will find that these are the very people who will not and do not try to help.

I have seen an interesting news item from America, in which Prof. de Bobrovsky, a well-known figure in the model aeronautical world in America, gives a comprehensive review of THE AERO-MODELLER. Remarking on the fact that there is no more petrol flying in England until the war is finished, he says: "It is sad news, but the English gas-engine owners should use—and I wish they would—some of the time in testing and research for gas-propeller units, for which the U.S.A. model builders cannot find enough time, due to their eagerness to reach altitude with their gas bugs." This is rather interesting, coming from the States, but there is quite a lot to be said for this view. The imposition of the ban should not, and does not, prevent experiments being carried on, and quite a number of ideas can be worked on that do not require actual flying to substantiate.

Another interesting point is in regard to a query through

our " Questions and Answers " page, where a reader asked whether a model could be flown by an electric motor, and the answer was that we have no record of a model having been successfully flown. The Professor gives the information that in 1910 he saw a flying scale " Bleriot XI " of about 40 in. span, equipped with an electric engine and a special propeller for flying. This model flew r.t.p., using electric wires as a tethering means, and a large battery was substituted for a pole. During the last war Prof. Karman used an electric engine for a captive helicopter, and full sized craft, with success. Well, I thank the Professor for his information, which I am sure will be of interest to all you chaps, and it is certainly news to me that successful flights have been made with this motive power.

The ASHTON AND D.M.A.C. have been busy during the " close season," and have many new and promising models ready for the competition season. You will notice that one of their chaps was placed sixth in the Gamage Cup event, so their optimism seems well placed. A club bulletin is in course of preparation, and I am told there are a number for outside distribution, so anyone interested send a request to the secretary.

Speaking of club magazines, I received a copy of the MOSELEY M.A.C. paper, which is a very sound effort for an amateur production. After three months' working this club is on the increase and making good progress. Mr. Pilch was the winner of each of two contests recently held for scale models.

The ST. LUKE'S M.A.C. wish it to be known that they are definitely carrying on, in spite of certain persons' " sabotage " efforts. It seems someone is spreading the word that this club has folded up, so I am asked to refute the statement, and ask anyone interested in aero-modelling to join up with the other chaps in this Cheltenham club.

More news from Ireland this month, the DUBLIN M.F.C. reporting as follows:—

" Since May last year, model flying in Dublin has been sadly neglected. During that month our official flying ground, the ' Fifteen Acres ' in the Phœnix Park, along with all other large fields, aerodromes, etc., were ' staked,' with the result that competitions were cancelled. Members dropped off, and model flying in general got one hefty kick in the pants. However, there are one or two items that should be mentioned, despite the lack of flying, model building still continues to flourish, and, as all our members are covered by third-party insurance, they are not encouraged to fly other than on approved flying grounds.

This sad state of affairs continued until last October, when the Annual Inventions and Models Competition sponsored by the National Agricultural and Industrial Development Association was announced. At last, aero-modellists had a chance to develop their latent abilities. Owing to lack of proper organisation, very few modellers heard the details of the competition in time to start work on their entries. As it was, six entries were received, of which three came from our club.

It is gratifying to the club to know that three of the members secured the first three awards in the Model Aircraft section. Mr. J. Archbold was awarded a silver medal for his entry, a 47 in. ' Leopard Moth.' This entry, apart from the neat construction and high standard of finish, was designed by the entrant; obvious advantages to the model were shock-absorbing and detachable undercarriage mainplanes, rudder and tail-plane were also detachable: the all up weight is 11 oz. Mr. R. Dobbyn entered a 26 in. ' Fairey Battle,' and received a bronze medal, as also did Mr. A. Beford, for his 34 in. ' Vickers Vildebeest.'

After the above competition, which was held in January, 1941, our club was reorganised, and rumour had it that model flying was being carried on despite the ' stakes.' Upon being confirmed, it appeared that something could be done re competitions. With every good intention D.M.F.C. started the ball rolling, and our secretary was invited to write the proper authorities. After much hard work had been done by our committee, the result was that on the fifth day after the entry forms went out no less than 67 entries were received, an increase of 8 over last year's entry. Our competition was fixed for March 16th: timers, marshals, stewards, competitors, models, stop watchers, every conceivable thing necessary to ensure the success of the competition was done—and then it happened! On March 15th our secretary received from the Board of Works a telegram at noon, stating that Phœnix Park was taboo for model flying or any other sport. In truth, an outbreak of foot-and-mouth disease amongst cattle had been discovered, so we were back where we started. No flying, and, to add insult to injury, the clerk of the weather did the dirty on us, Saturday, Sunday, Monday, three glorious days with the sun splitting the ' stakes.' Ah, well! "

18 in. Spitfire built by A. Edwards, of the South Birmingham M.A.C.

There are a number of youngsters in Guildford who would be delighted if a senior aero-modeller would form a club in that district. The average age of these lads is fifteen, and one chap has written in, asking for help through this section. Now, then, anyone in Guildford interested in getting a good club going? If so, please write to me at THE

AERO-MODELLER offices, and I will put a suitable notice in a future Club News.

A new club to start operations is the EALING AERO MODELLERS, the secretary being Mr. A. W. Smallwood, of 14 Cleveland Road, Ealing, W.13, who wishes prospective members to contact him at once. A large room is available for indoor meetings, and a small park for outdoor flying is only five minutes from the club-room. Best indoor time to date is 87 seconds.

The ROWDITCH (Derby) M.A.C. welcome the co-operation of the Derby Short Wave Club, and things augur well for the coming gala day. Mr. I. C. Lucas, a new member, formerly of Brighton, put up the best time of the day with a flight of 76 seconds recently.

The EAST BIRMINGHAM M.A.C. has got "crackin'" again, and the members are now meeting every Wednesday at the "Ring-o-Bells," Church Road, Yardley, at 7 p.m. (The old club-room was flattened out by enemy action).

Our Indian friend, H. Khan, of Tank, N.W.F.P., India, would like to correspond with English enthusiasts, so what about it some of you wallahs? This chap is a very keen aero-modeller, and carries on the hobby in spite of many difficulties—not the least being the rather uncompromising attitude of his fellows—their attitude being the same as some of the "highbrows" over here—you know the thing, "Fancy you big boys playing with toys!" Gercher!

The NORTH CRAWLEY M.A.C. held an exhibition recently, the main idea being to raise funds for their flying ground. The required amount was soon forthcoming, so the balance of £5 went to the local "Air Raid Distress Fund." At a meeting on May 4th, G. W. Rose made a flight of 6 min. 55 sec., while the following week Mr. Harris, of the Warwickshire Club, put up 4 min. 30 sec. The Warwickshire club ground having come under the plough, many of their members are taking advantage of an invitation to use the Coventry ground—and are getting a little practice in the art of climbing trees.

Another new club notified is the MOUNTAIN ASH (Glamorgan) M.A.C., the secretary being Mr. D. Fidler, "Bryn Myfyr," Cadwaladr Street, Mountain Ash, Glam. A few of the members have been interested in the hobby for some years, and a goodly number of models are built and in course of construction. These chaps fly on top of a mountain, and in spite of down draughts, some good times have been put up, club records being 2 min. 15 sec. h.l. and 96 sec. r.o.g.

A change of secretaryship has taken place in the ALDERSHOT M.A.C., Mr. Farrel having resigned owing to pressure of other duties. All correspondence should in future be addressed to Mr. J. Rossiter, 54 Grosvenor Road, Aldershot. The club's first competition of the season was won by Mr. Standing, with an average time of 60 seconds. This event was run on the "average of the two lesser of three flights," this tending to cut out a lucky thermal flight.

News is given of Bud Morgan's flight in the Gamage Cup event, when his model caught a thermal over the paper mills, and carried on for a flight of 14 min. 47 sec. o.o.s. The 'plane was not found in time for him to take his other two flights, but the time was sufficient to bag third place for him. This flight also collars the club record, and was estimated to have lasted for about 1 hour 40 minutes altogether!

New club records are going well in the RIPON M.F.C., the latest list being:—

Under 75 sq. in., A. H. Morris ..... 85 sec.
75—150 sq. in., E. Lonsdale ..... 12 min. 50 sec.
Over 150 sq. in., C. F. Elliott ..... 74 sec.

P. J. Farr, of the ALDENHAM SCHOOL M.A.C., recently got his 78 in. glider well up on the line, and proceeded to trot along underneath for 13 min. 56 sec.—quite a nice little flip! On the same day, L. C. Minns put up the scale model record with a flight of 56 seconds, with a "Focke Wulfe" parasol fighter. Some good flying was seen on Gamage Cup day, flights of 4½ and 3½ minutes being obtained.

The main news from the HALSTEAD (Essex) M.A.C. this month states that P. N. Griffiths has set up a new club r.o.g. record with a time of 72·7 seconds, this again being set up in the Gamage event. This club are going well on the social side of affairs, and a club band now officiates at dances, etc. Aero-modellers who are now serving in the Forces are invited to attend the club meetings held every Monday at 7 p.m. over Harvey's Radio Store, Hedingham Road.

The CHESTER M.F.C. are now minus a decent flying field (who isn't these days?) so were unable to do themselves justice on Gamage Cup day. However, F. Dodd took a chance in the small field available and piled up an aggregate of 334·6 seconds, each flight finishing up within 100 yards of the take-off. That's the sort of flying I like now my poor old legs are getting so atrophied! The secretary, Mr. F. Wilde, put up a nice flight of 41·6 seconds, with a scale "Cabin Fairchild," and I am told this model makes a great scale flying job.

Sabotage in a lousy form took place recently, when the club-room of the HAWICK A.M.C. was broken into, and many models smashed up and others damaged. Doesn't

say much for the mentality of some people, does it—for what on earth the perpetrators had in mind is beyond me. And balsa so scarce, too!

Indoor flying was rather a flop with the PETERBOROUGH M.A.C. last winter, mainly owing to the many other duties of the members. However, the outdoor season

Mr. N. Lees, of the Halifax M.A.C., with his new Wakefield model that is already piling up an impressive record.

promises better things, many flights being made o.o.s., the best being 24 minutes 27 seconds by S. Venn's model.

The DERBY SHORT WAVE M.F.C. is now getting into its stride, 20 members now being busily engaged in building models, and many promising flights having been made, the best to date being 81·8 seconds by Mr. K. Hardy.

"A.B. and B.C." of 5 Pembroke Street, Cambridge, would be pleased to see aero-modelling put on a club basis in that town, and would welcome letters on the subject from any interested modellers in Cambridge.

Interesting news from the CHINGFORD M.F.C. reads: We had a real field day on Sunday, May 11th, opening our competition season with an inter-club contest, with a view to keeping clubs in contact.

Splendid flying was enjoyed by almost everyone, competitors and non-competitors alike, and some remarkable times were recorded in the Team Competition. Some prospective team members unfortunately had to be replaced through losing their models on test flights, one of these being followed for 27 minutes and then being "given up."

In the Team Competition these times were officially recorded:—Massey (N.H.), 13 min. 42 sec.; Collins (N.H.), 10 min. 20 sec.; Miller (Ilford), 10 min. 14⅜ sec.; Dupée (Chingford) 9 min. 4 sec.; and several others only slightly less.

Complete results, with teams of 3, 3 flights each, average of the 9 flights:—

Northern Heights No. 1 ...	202⅜ sec.
Chingford No. 1	184⅗ "
Northern Heights No. 2 ...	167⅛ "
Ilford	142¼ "
Chingford No. 3	83⅜ "
Chingford No. 2	69¼ "
Godalming (Surrey) ...	66⅛ "
Hornchurch	63⅜ "
Eastern Enfield No. 2 ...	57⅛ "
Eastern Enfield No. 1 ...	40⅛ "

A competition for models constructed and flown to "Wakefield" rules, was not quite so successful, several models coming to grief through broken "motors" and other "unforeseen circumstances." Result:—

1. Ryde (N.H.), average of 3 flights ... ... 69⅜ sec.
2. Boughtwood (Chingford), average of 3 flights 56⅛ "

I must congratulate the DUNDEE M.A.C. on sending details of one of the finest model exhibitions staged for some time past. Photos* will show some of the effort put into the affair, and there must have been a great deal of work put into both the modelling and arranging. A special feature was the way the small "solids" were arranged, these being set into boxes lit by fairy lamps, a most attractive set-up. A steady stream of visitors swelled the club funds by £16, and many new members were enrolled. Messrs. M. Low, J. McCulloch, W. Hannah, and D. Miller were prizewinners.

Times are looking up with the TORQUAY AND D.M.A.C., J. W. Jackson now holding the r.t.p. record with a time of 161·5 seconds, while R. Perrett holds the club duration record with 367 seconds, his 'plane catching one of the rare thermals found at this seaside resort. This latter fellow won the "Peterhead" competition when setting up the record flight, while E. H. Davies won a "best flight" event with a time of 115 seconds. Miss P. Ward has made a fine flight of 144 seconds o.o.s.

The GENERAL AIRCRAFT M.A.C. has been reformed with 50 members, and a very interesting competition programme drawn up for the season. A club magazine, well produced, should go well towards keeping this club in the top flight.

* Held over to next issue owing to lack of space.

IGRANIC SOCIAL AND SPORTS CLUB
(Model Aero Section).

1941 CONTEST FOR THE
"BEDFORDSHIRE MODEL AERO SILVER CHALLENGE CUP"
will be a De-centralised Event held on
AUGUST 3RD.

RULES.

1. Open to teams of four from *any* club in Great Britain; any number of teams per club. *Entry fee* 4s. *per team.*
2. Only rubber-powered models to be used, but no restrictions on wing area, loading, etc. Models must, however, comply with S.M.A.E. fuselage formulæ.
3. Each member of team is allowed 3 flights. Flights of 5 seconds or under do not count, but only 3 such allowed in each round.
4. General S.M.A.E. Competition Rules apply to this contest, excepting Rule 17.

Will all secretaries whose clubs will be competing notify the number of teams entering, together with Postal Order for the requisite amount, to reach—

MR. R. B. HILL,
Igranic Sports and Social Club,
Igranic Works,
BEDFORD,

not later than JULY 25th.

Easter Sunday saw a good turnout for the CROYDON D.M.A.C. for their "Blitz Rally," and some flying was seen in spite of a young gale. Copland made the only thermal flight of the day when competing for the "nearest to 45 seconds" event!—and I'm told that many models are now being used for down-thrust! On May 4th "Sky-hooks" Buxton got his model away for a flight of 6 minutes, while another member actually got his model to stay up for 5·3127 seconds on full turns! On Gamage Cup day Mr. Farthing got his "wafter" away on a 17-mile flight—and no timekeepers were available. Just too cussed, ain't it. Buxton put up best time for the club with a total of 480·8 seconds.

As stated earlier, Mr. Courtney won the Gamage Cup for the second year in succession for the OXFORD M.F.C., his first flight of 11 minutes 37 seconds setting up a new record for the club. Messrs. Houlberg and Parker also put in some good times, while members of the Witney M.A.C. visited and flew their own entries.

A club is to be formed in King's Lynn, and Mr. W. Wilson, of Knight's Hill, S. Wootton, King's Lynn, would be obliged if those interested will get in touch with him immediately.

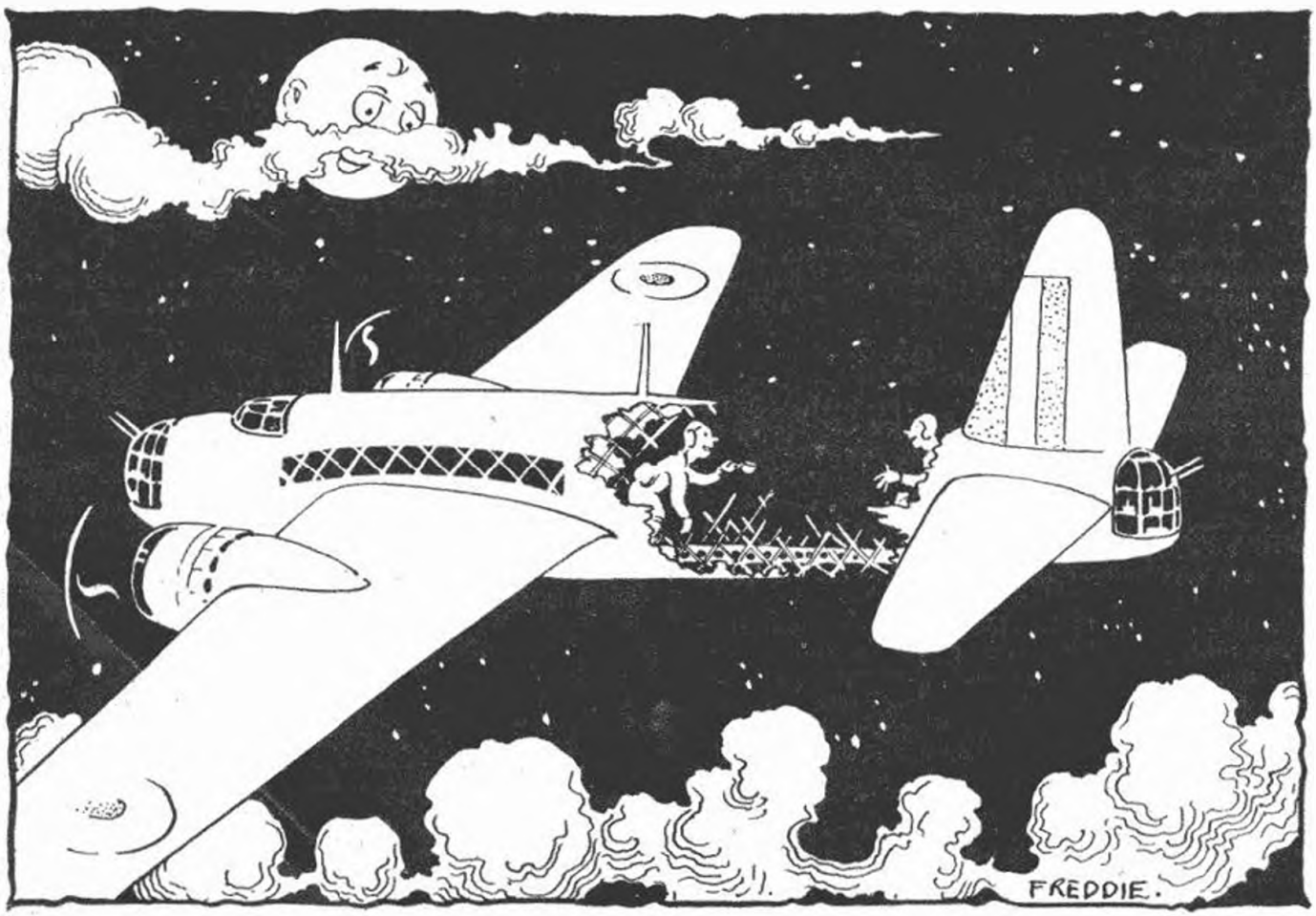
Came across an interesting little quotation in the Halstead Club's magazine, *Wings*, and I give it here for your interest. It certainly brings up an interesting train of thought, and opinions will be welcomed for sending to the right quarters.

"Aero-modelling in England was just getting on its feet when this war came along. That clubs in this country did not get Government subsidies shows lack of foresight on someone's part. In America and Germany, also Italy to a smaller extent, modelling is a recognised national hobby, and is encouraged by various institutions, if not by the Government itself. If clubs had been given financial support there may have been no immediate need for the Air Training Corps. Most aviation fans have hailed this with delight, which just goes to show how many are interested in this hobby of all hobbies. As it is, many clubs have now gone out of existence owing to lack of financial support.

"There is quite a lot of talk about New Orders in Britain after the war. If the Government really wants a permanent reserve of keen young men they had better include this important question of subsidies in our post-war build-up."

Another extract, this time on the humorous side, is the following:—

When you get in the old machine, to start on a darned O.T.
You cover yourself with tons of clothes, and they're all of them N.B.G.
The pilot sits near the engine's warmth, his body with heat aglow,
Whilst you must sit in the back and cuss,



"Only another thousand miles, Charlie, and we'll be home."

Chingford M.A.C. members out for a fling with their models. (Who's that suffering from spots?)

Till the ice on your whiskers stalls the 'bus,
You're only a P.B.O.—yes, only a P.B.O.

CHORUS.

At seventeen he's shooting rather badly at a Pfalz of tender blue,
At fifteen though you see him point out sadly some Huns of a different hue,
At ten or twelve he's shooting rather sadly at six or eight or more,
When he fancies he is past hope,
He fires a long burst as a last hope,
And a Hun spins down on fire to the floor
(This was sung by observers in the R.F.C. to the tune of "A Bachelor Gay," from the show, "Maid of the Mountains.")

The weather was poor for the first competition of the TROWBRIDGE AND D.M.A.C., but fairly good times were set up in spite of the difficulties. V. D. Wilkins won with an aggregate of 259·5 seconds, followed by W. T. Morris 174·25 seconds, and C. F. Selby 69 seconds. All these flights were h.l. The second competition, a r.o.g. affair, was collared by T. Pearce, who totalled 191·75 seconds, Messrs. Dallimore and Fearn being the runners up with times of 190·87 and 170·25 seconds respectively.

£5 was raised by a dance staged by the SPELDHURST (Kent) M.A.C., and this helps the club finances out very well indeed. At the opening meeting A. Turley put up a flight of 149 seconds to win the Thurston Open Duration Cup, D. Saunders clocking 2 minutes for second place.

The BRADFORD M.A.C. has been taking advantage of the fine weather. Winch launch gliding has been in progress, using a 600 ft. line, and many good flights have been achieved. Hand launch gliding has shown some consistent flights of round 2 minutes. Not forgetting the "rubber fans," good flights have been obtained with new Wakefield models built during the winter. A Junior Wakefield competition has been arranged.

The BLACKHEATH M.F.C. report this month reads: "The lads now have their own Comforts Fund for members injured by enemy action—that don't mean eggs for they varmits wots wallopped by farmer for scaring cows with them paper bags tied with string.

May 18th saw the commencement of flying on Epsom Downs in glorious weather. The Club Shield Competition was hotly fought out between R. Galbreath flying a boat seaplane r.o.g., and D. Piggott a light-weight. Mr. Piggott won the contest. His best time was a fly-away of 7 minutes, the model being returned later, after covering 8 miles. Mr. Galbreath countered this move with his second flight, an o.o.s. time of 6 minutes 20 seconds. The job was unfortunately not found. Mr. R. Mackenzie tried his luck with a feather weight stick model, and managed 2 minutes 21 seconds.

Fred Gray improved on his glider time of last month with a nice flight of over 4 minutes. Local enthusiasm increased when later in the evening Fred's glider was tow-launched from 3,000 feet of line.

Can any beat that one?

Over 270 models were on view at the READING AND D.M.A.C. exhibition, covering every section of the hobby. Separate sections were run for the club and A.T.C., also school groups, and an open section for unattached entries. The high-lights of the show were three scale models—Blenheim, Hampden, and Spitfire—all with working controls, and "finished like a watch." A constant stream of visitors saw a well-balanced show, but unfortunately a number of small models were "lifted." Shame on the culprits, and sorrow for the owners!

Len Stott, of the HALIFAX M.A.C., writes:—

"Things are certainly humming, and the club got off the mark well in the Gamage Cup. The trouble was that on the second flight Messrs. N. and D. G. Lees lost their models. Fortunately these have been found, 12 and 14 miles respectively from the starting point.

The new "Wakefield" bus with folding propeller and retracting undercarriage, built by Norman Lees, has had a remarkable career already. Some weeks ago it was lost after doing 15 minutes out of sight. The following week it was lost again after clocking 8½ minutes, and lost in the Gamage Cup after 4½ minutes, and travelling 12 miles.

A needle match has been arranged with a team of the Northern Heights Club. They propose coming to fly on our ground on Whit Sunday, and the return on their ground at a later date. In next month's report we hope to be able to publish details of the clash. The contest is for Wakefield type 'planes. More of these inter-club contests should be arranged, where possible, as it will tend to keep British aero-modellists on their toes, and in good practice in readiness for our "attack" on the Yanks in 194?

The precise date of our next visit to America is at the moment very obscure, but it may come earlier than we expect, and our motto must be, "Be prepared."

Mr. F. Gates, of 3 Lloyd Street, Todmorden, wishes to get in touch with his friend, T. G. Lance, now serving in the Forces, but only knows his number, 911,211. If this

Ipswich M.A.C. and their models.