AERO MODELLER

JANUARY - - 1940
Vol. V No. 50
PRICE - - SIXPENCE

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THE AERO-MODELLER

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VOL. V. JANUARY, 1940 No. 50.

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H.M. THE KING

Marshal of the Royal Air Force;
Air Commodore-in-Chief Auxiliary Air Force.

JANUARY - 1940
Vol. V. - No. 50

Tel. Leicester 65322

The AERO MODELLER

INCORPORATING THE "MODEL AEROPLANE CONSTRUCTOR"

EDITORIAL

TO all our readers throughout the country, and in all parts of the world, we send our sincere wishes that they will have a happy Christmas, and that the New Year will bring an improvement in world affairs, leading eventually to that peace we so ardently desire but seem to have so much difficulty in finding.

* * * * * *

This issue is our fiftieth, and so we are in our fifth year of publication. One innovation is a coloured cover (we shall have a fresh one each month, so if this one does not please *every* reader there is the next issue's cover to look forward to!) Another innovation is the first of a series of articles by our staff draughtsman, Mr. C. A. H. Pollitt, reviewing readers' " gadgets." We invite readers to send in short descriptions and rough sketches of *original* gadgets for mention in this review. Those published will, of course, be paid for.

* * *

Another new feature is the Air Defence Cadet Corps Notes, the first of which appear on page 87. There are close on 200 squadrons of these air cadets throughout the country, all of whom are now forming model aeroplane clubs within their organisations. In many cases the local model aircraft clubs are being approached with requests for assistance in getting the younger members started " on the right lines," and we are pleased to hear that this assistance is being readily given. A general " note " to squadron members by the Corps secretary, Mr. Leonard Taylor, is given in this issue, and in later issues we hope to publish notes of interest to all aero-modellers of the activities of the squadrons. Readers of THE AERO-MODELLER who may become interested and wish to join up may obtain full particulars from Mr. Taylor at the address given on page 87, or from the offices of THE AERO-MODELLER, where a full list of names and addresses of the squadrons is also kept.

* * * * * *

We are pleased to publish two reports from the S.M.A.E. this month, the second of which is rendered in brief form, and has been rushed through for inclusion in this issue so that readers may be brought right up to date as to what is going to happen next year. The Emergency Committee appears to have got a deal of work already planned out.

There will be eight decentralised competitions, and in addition, the "Wakefield Cup," held, with rules the same as last year, but of course as a national and *not* international competition.

* * *

We are very pleased to know that our Christmas issue, with the Buyers' Guide has proved so popular. All available copies were sold out, but there may be a few odd returns shortly, which can be posted on to those readers who sent us orders direct, but to whom, at the time, we had

Wakefield House.
Cheapside.
London.E.C.2.

Message from
The Rt. Hon. Viscount Wakefield of Hythe, G.C.V.O., C.B.E., T.D.

I send my warmest greetings to all members of the Society of Model Aeronautical Engineers, many of whom no doubt are playing their part in the great struggle in which our beloved country is engaged. In addition to its potential importance in its effect upon aeronautical design, the Model Aeronautical Movement, in promoting friendly competition amongst the nations, has made a valuable contribution towards goodwill between the peoples. That aspect of its work is for the moment set aside, but I am confident in happier days yet to come it will bear fruit. In the meantime, the model aeronautical enthusiasts will never forget the science and sport to which they have in the past so wholeheartedly devoted themselves and I hope they may all safely return to these peaceful pursuits in the near future.

Wakefield of Hythe

29th November, 1939.

MESSAGE FROM THE VISCOUNTESS WAKEFIELD.

West Ridge, Knotty Green,
Beaconsfield, Bucks.

I AM pleased to respond to the kind invitation that I have received from Mrs. Thurston, and to send a message to aero-modellers, and in particular to women members of the clubs affiliated to the Society of Model Aeronautical Engineers. In these difficult times women are called upon to play their part in many activities of national importance. I do not think it is inappropriate that the model aeronautical movement, which is so well established in England, should be helped through this war period by the enthusiasm of its women members. Your President, Dr. Thurston, and my husband, Lord Wakefield, have for very many years taken the deepest interest in this movement, and even now we are proud to recall what it has attempted to do in the sphere of international friendship. I am confident that, when victory has crowned our present efforts, the Society of Model Aeronautical Engineers will again take up its splendid work at home and abroad.

S. F. Wakefield.

November 30th, 1939.

MESSAGE FROM LADY KINGSLEY WOOD.

Air Ministry,
Whitehall, S.W.1.

IT has been said that the child is father of the man. Certainly the pastime of model aeroplane building and flying has proved a splendid introduction into the art of aviation. Many of our pilots, on whom so much depends to-day, learned the first principles of aeronautics from the models they made as boys, or flew as members of aero-modeller clubs. Even mature designers and constructors, whose names are famous in the world of flying, have found both pleasure and profit in the study of these miniature craft. Members of the Royal Air Force have been keen aero-modellers in the days of peace and, as at Cranwell, have formed their own clubs affiliated to the Society of Model Aeronautical Engineers.

I am glad to feel that in these trying days, when so many members of the clubs are on National Service of one kind or another, a brave effort is being made to keep the clubs running, and many women are helping in the absence of their men-folk. They have the satisfaction of knowing that they are helping to keep alive the spirit of air adventure, which has already become a British tradition.

Agnes Wood.

FROM DR. A. P. THURSTON, F.R.Ae.S., M.I.M.E., M.I.A.E., President S.M.A.E.

I AM happy to be able to send my greetings to aero-modellers, and to wish them success in the tasks for which their country needs them.

The aero-modelling movement is of such vigorous growth that its continuity seems assured even in times of national stress. Memories of days of sport and comradeship, as well as hopes of speedy resumption of reunions, will help to bind together those who are able to carry on their craft, and those who have to forego it for a time.

In sending good wishes to aero-modellers I should like to include not only members of affiliated clubs, but also members of unaffiliated clubs, enthusiasts unable to belong to any club, members of our fraternity in our Empire overseas, and aero-modellers under all other flags. All these form a body of sportsmen, craftsmen and scientists who may well be called a potential army of peace.

A. P. Thurston.

Editorial.—*Continued from page* 71.

to reply "sold out." We would again impress on readers the absolute necessity of placing an order for regular delivery of their copies each month. We would also ask the indulgence of readers in outlying districts when they receive their copies a few days late. *We* didn't start this war, and it's somewhat unreasonable for a reader who lives in the Isle of Man to write and "strongly protest" about the late delivery of his copy, as actually did happen! It is inevitable that rail, and water transport more so, shall be liable to a certain amount of disorganisation on account of Government requirements.

* * * * * *

It is our privilege to publish several "Messages" this month. They have all been written for publication in The Aero-Modeller, and will, we know, be appreciated far and wide. That these well-known ladies and gentlemen are concerned for the aero-modelling movement in this country, and in fact throughout the world, is common knowledge; but the amount of work they do on behalf of the movement, particularly "*behind* the scenes," is not so well known as it might, or should, be known. We feel sure we are voicing the thoughts of all aero-modellers when we express the hope that the patrons of the sport will long enjoy health and prosperity.

* * * * * *

With the turn of the year it is perhaps a good opportunity to remind readers that we are always pleased to consider articles and photographs for publication in The Aero-Modeller. Most aero-modellers of some years' experience will have developed ideas or methods of building that will contain some original feature which should be of interest to other aero-modellers.

As much as these more experienced aero-modellers can help each other, even more so can they help beginners; and we invite them to do so through our pages.

All articles published are paid for, and special consideration will be given to good-class photos or sketches submitted.

The Editor.

JOB PROVIDES SOME ENTERTAINMENT

By ARTHUR MOUNTSTEPHENS

WHEN the ladies of Much Rainwater banded themselves into their own section of aero-modellers, we knew there was going to be fun. They each wore a badge on which a bird-like aeroplane flew towards the sun, and they called themselves the *Sunbirds*.

There were a few little rays of sunshine among them, including my girl and a few more I could mention. But there were also Mrs. Porters Norter and Mrs. Hogsnit.

Job Wood, our prize member, doesn't like these two. Unlike Job, who keeps a wife and two or three kiddies on two pounds a week, Mrs. Porters Norter and Mrs. Hogsnit live in large houses. Not that he's anything against that. But the two women are noted for pushing their noses into other people's affairs.

One of their first black deeds after the inception of the Sunbirds was to introduce the practice at our monthly meetings of reading a list of subscription arrears. Unfortunately, Job Wood's name figured prominently in the list, he being further behind than anyone else. That had been well enough known before, but everybody, knowing Job's pecuniary embarrassments, and fully appreciative of his capacity for providing the club with a little laughter, had winked at it. But Mrs. Hogsnit, who had somehow or other obtained the office of assistant treasurer, rubbed in this question of arrears a lot more than necessary.

" Sunbirds ! " exclaimed Job disgustedly after one of our meetings, " Spotted flycatchers, both of 'em."

He had, I suppose, reason to feel annoyed. Under that pregnant item, " Any other business," Job had stood up. With an aplomb of which only a Job Wood could be capable, he had ignored completely the distinct sound of a raspberry somewhere at the back of our hall.

" Yes," said our good president, a trifle testily, as Job had continued to stand, saying nothing.

Job cleared his throat. " Regarding our Christmas party next week. I have a few films of the year's model meetings. I also have a projector, and should like to show the films for the club's entertainment, that is, if the club, er . . ." He sat down, stood up again, blushed, tried to speak but merely sneezed, then sat down again amid deafening applause.

The president smiled his, and the club's, acceptance of Job's offer.

At which Job stood again, bowed, and seated himself. His beaming face, as he sat with crossed knees, clearly showed that he considered the little matter of a year's subscription arrears to have been completely wiped out.

But it was then that Mrs. Hogsnit, fixing Job with a gleaming eye, offered a film depicting herself presenting the Gala Day prizes, to be included in Job's show. Job found himself obliged to call at Mrs. Hogsnit's house the next evening to collect the films, which, she explained, might need a little repairing.

It was a long way to Mrs. Hogsnit's house. Hence Job's designation, " Spotted Flycatchers," as we made our way home together.

" Never mind. I'll come with you," I soothed.

We pushed our way through a " black-out " rendered still more depressing by rain, the three miles to Hogsnit's house, the following evening.

She kept us waiting for ten minutes in her draughty porch while she hunted for the film.

" Sunbirds! Spotted fly-catchers, both of 'em."

" I'm afraid I've lost the title strip," she said, when she came down at last. " Do you think you could fix one? Something like, ' Mrs. Hogsnit presents the Prizes.' I think that would be very nice, don't you? "

Job looked at her. " Certainly ! " he said warmly. " I'll fix one."

I couldn't help wondering, after all that Job had said on the way to Hogsnit's, at the obvious pleasure he had displayed when he agreed to fit the title to the film. So I mentioned it tactfully as we made our way homewards.

" Well, I'm rather pleased she asked me," he said. " I want to try out a moving caption stunt I've been reading about."

" Moving caption? " I asked curiously.

" Yes, I've a bit of spare film. The idea is this." Job took some pieces of paper from his pocket and placed them on a book he carried. " Imagine they are letters cut from white paper," he said. " Well, I place them out to spell the desired title. Then I focus my movie camera on them and shoot. Somebody stands out of sight and fans with a newspaper until the letters blow away, while I work the camera."

I nodded interestedly.

" Then," said Job, " I put the film in the reverse way in the projector, and the title comes on the screen as if by magic."

" Is that how they do it? " I asked. I had often wondered.

Job seemed a little thoughtful after that. He seemed to have forgotten the misdeeds of Mrs. Hogsnit, except to mention once or twice that she was the cattiest of cats.

Just before we parted, he said, "I'll get young Amos on repairing the film straight away."

I know a lot about young Amos, Job's young son, including his buying his dad a maroon for a rocket-launched glider, with disastrous results. I laid a restraining hand on Job's arm.

" Amos," I said, " Do you think it will be all right to let Amos mend the film? "

But Job did not answer. The coming show which he intended to stage had sent him deep in thought. He laughed a rather absent laugh, as though the memory of something gave him extreme pleasure.

" I've got one or two comic films I borrowed," he said. You won't half laugh when you see 'em. They're going to be included in my show next Wednesday."

I couldn't help feeling uneasy after I left Job. Comic films, Mrs. Hogsnit presenting prizes, Amos and rocket gliders, served me up a brilliant nightmare.

I didn't see Job again until the night of our Christmas " do." Unfortunately, I was allotted a place at the table far from him, and I was unable to take place in the fun which centred round his part of the table. After the meal Job disappeared, and a little later I saw him fixing his cinema at the back of the hall, assisted by his small son, Amos.

The hon. sec. hovered about me anxiously, and mentioned Job and Amos beneath his breath. " Do you think it'll be all right? " he asked.

" Oh, quite," I replied, with an assurance I did not feel.

The hon. sec. looked towards Mrs. Hogsnit, who was chattering excitedly in the ear of Mrs. Porters Norter. Now and then she nodded towards the large white sheet, and no doubt was relating to her crony just what fun she was going to see when her own film came on.

" But Amos is helping him," the secretary whispered to me.

" The things are quite fool proof," I assured him.

" They need to be," he replied, with conviction.

Job came over to me just after. He was rubbing his hands. His immaculate evening dress had become ruffled and covered with dust from film cases. Some of the dust had found its way to his nose. He perspired freely, but little details like that don't count with Job, especially when he has a job in hand.

" Goina be a darn good show," he grinned triumphantly. " I've got it all fixed."

" Do you think it's safe leaving Amos with all that apparatus? " I asked.

Job looked at me with a reproving look. " Oh! He's all right. Don't know how I should have got it ready without him. He mended the film and cemented the caption to it."

" When does Mrs. Hogsnit's film come on? " I asked. I felt anxious to see Job's moving caption.

" Oh, that cat! " sniffed Job. " I'm putting her on just before the comic ones." He hurried away. Amos had just succeeded in knocking the projector over.

Then the lights went out, and we watched Job's first film. It was quite good, although in the middle things happened, and we had an impression of our club doing the Lambeth Walk. The lights came on again.

" Tear in the film," announced Job, and fixed it. The lights went out, and we were restored to normal.

Then Mrs. Hogsnit's film was announced, and we felt tense again.

Job had evidently intended to make the moving caption a feature of the show. We saw the magic words blow on to the screen.

MRS. HOGSNIT PRESENTS THE PRIZES.

Then they blew off and came on again, this time in red. Then they turned to green. Somebody shouted " Go! "

With a suddenness that left us breathless, the picture appeared, but it wasn't Mrs. Hogsnit. It was a Disney washerwoman of ample proportions with Felix the Cat across her knee. She was dealing out prizes in the pants.

On the juvenile side of our hall it brought the house down. The lights came up. I looked at Mrs. Hogsnit's chair. She was missing.

She didn't come back, even for the dance.

The light dawned as I made my way home with Job and his son, Amos. Between poking his son in the back and causing the youngster to hiccup with every poke, Job let himself go.

" The cat," he said, " she walked up to me as soon as the picture came on and wiped up a whole box of films. Said something about resigning, and lending her film to a lot of hooligans."

He gave his son an extra hard punch.

" But, dad! " hiccupped Amos.

" Shut up," roared Job.

" I gave him the caption to fix," said Job, punctuating each word with another stab in the back of his offspring, " and he fixed it to the wrong film."

" But, dad," said Amos, as we entered Job's house.

Amos dodged another blow, and looked at his father from behind a chair.

" 'Twas your fault, dad."

I've never seen Job look so mad. He made towards his son, but Amos dodged him again.

Amos took his courage into his hand. " It was your fault, dad, I fixed the title to Felix the Cat film."

" Why? " roared Job.

" Because when you gave it to me you said, " That's that cat's caption."

A TWIN WINDER FOR DOUBLE-SKEIN MOTORS

By H. E. WHITE, B.Sc., N.H.M.F.C.

NOWADAYS there is a growing tendency to use multi-skein motors to obtain longer durations, and with the return to fashion of this type of motor has arisen the entirely new difficulty of stretch-winding this type of motor. This is usually overcome by winding each skein separately, and is liable to become rather tedious. I was interested in one or two attempts I have seen to wind both skeins together, and the following is a description of a very simply constructed twin winder, with which it is possible to stretch-wind both skeins at once.

The construction outlined was suggested by the fact that Woolworth's sell a small hand-drill *in separate parts*. You will need, therefore, to purchase the components sketched in Fig. 1. These hand-drills are sold in two patterns, one having a longer stem than the other. If you can, then, you should buy

One " breast " type drill stem ... ... 6d.
One " hand " type drill stem ... ... 6d.
One driving wheel with handle ... ... 6d.

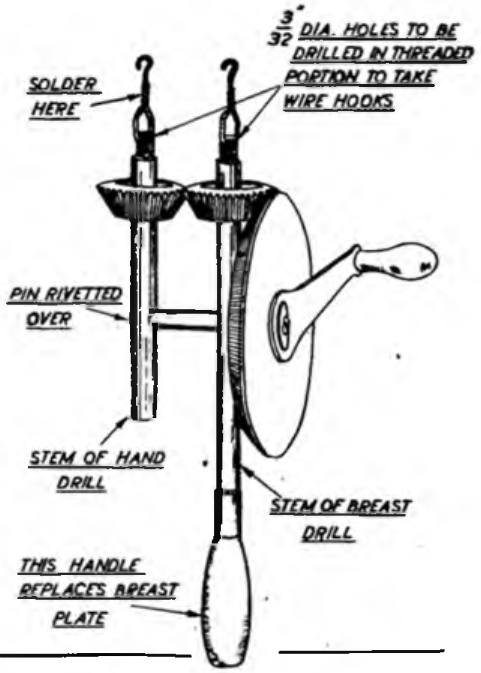
It will be unnecessary to buy the chucks. If

yon cannot obtain the " breast " type stem the " hand " type will suffice.

Remove the handle from the stem very carefully—you will need it—and also the breast-plate from the other stem. In a vice, press out the $\frac{5}{16}$ in. pin from the hand-drill stem which forms the journal for the driving wheel, so that you are left with a component which looks like Fig. 2.

Next, take the other stem, and carefully press the protruding $\frac{5}{16}$ in. pin—which normally accommodates the small steadying knob—into the vacant hole in the stem upon which you have just been working. Do not press the bevel cogs into too close engagement or they will bind. I find that some of the hand-drills which this store supplies have no steadying knob, and the $\frac{5}{16}$ in. pin is cut off short close to the stem, instead of protruding as shown at A in Fig. 1. In that case you will have to replace the short pin in the second stem with a suitable length of $\frac{5}{16}$ in. round mild steel or silver steel rod, which can be purchased at any ironmonger's for a few pence. You can secure the driving wheel in this case by lightly riveting.

All that remains to be done now is to press the wooden handle on the longer shaft. If you have only been able to buy " hand " type stems you won't even have to do this; and the last job of all is to drill a couple of $\frac{3}{32}$ in. holes in the threaded ends of the stems—where the chucks would normally be fitted—and two pieces of piano wire and some solder will complete the job (Fig. 4). My own winder was completed in about fifteen minutes, and everybody who has seen it has been surprised at its ease of assembly, and at its absurd cheapness, apart from the fact that it works very well indeed.



A SIDEWAYS RETRACTING UNDERCARRIAGE FOR SOLID SCALE MODELS

By TONY LAKE

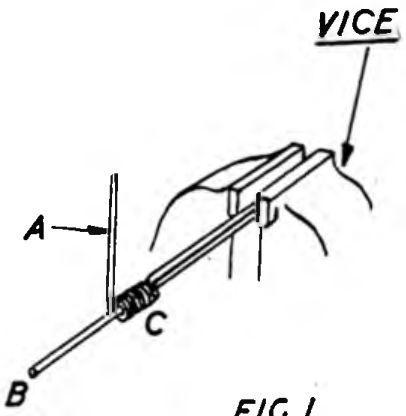


FIG 1

WITH the introduction of a sideways retracting undercarriage there came into the realm of the " solid scale " modeller yet another problem. When I commenced a model of a Vickers-Supermarine Spitfire I that problem immediately presented itself.

A pencil and some paper, together with some hard thinking, soon resulted in the invention of several systems of retraction.

For the customary one-seventy-second scale model a simple mechanism is necessary, and I was able to select an ideal one for small scale production.

Firstly one must clamp tightly in a vice two pieces of wire, one lying along the top of the other. The lower wire should be stiff and about 2 in. in length. The upper wire should be softer and 9 in. long. Bend the top wire (*a*) sideways at right-angles about $\frac{1}{4}$ in. from the jaws of the vice. Next begin to bind it round the hard wire (*b*) and continue until the winding (*c*) extends for about $\frac{1}{4}$ in. along wire (*b*). See Fig. 1.

FIG 2

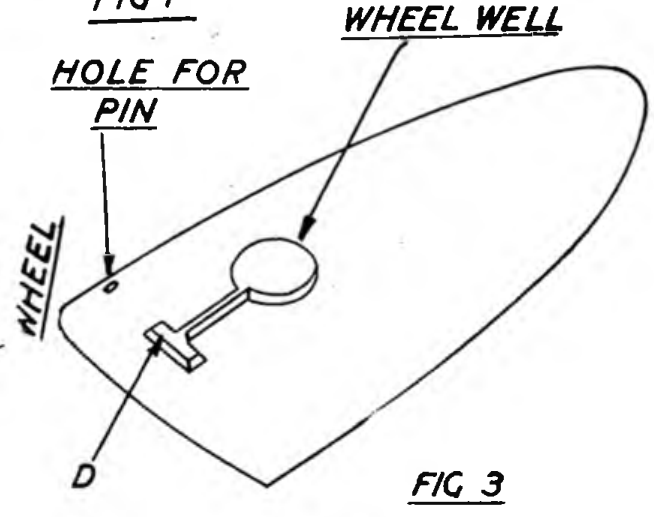


FIG 3

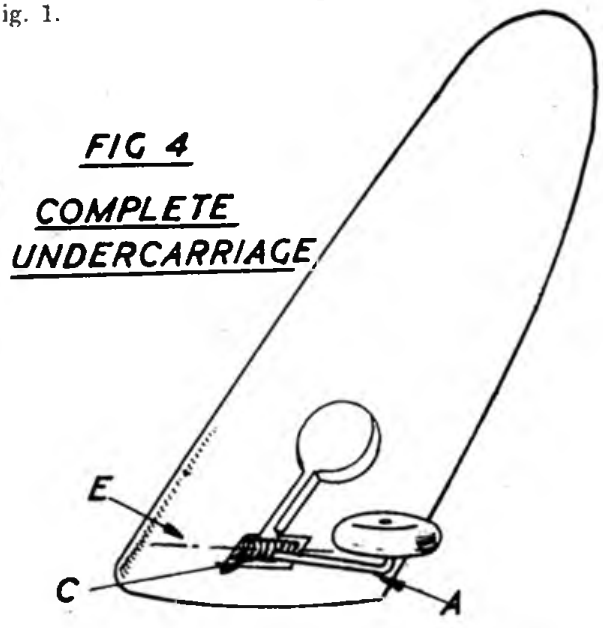


FIG 4
COMPLETE UNDERCARRIAGE

Now bend wire (*a*) backwards, flush, half-way along the winding (*c*) bend up at right-angles. Measure up this leg the length of the undercarriage leg and then bend the rest sideways at right-angles. Thread on the wheel, cut off the surplus wire and burr the end to prevent the wheel from coming off. Cut off the wire (*a*) at the vice end close to winding (*c*) and slide the whole thing from wire (*b*). Fig. 2 shows the complete leg.

The shape of the wheel bed in the underside of the wing is shown in Fig. 3. The section (*d*) should be deep enough to contain the winding (*c*). Lower winding (*c*) into section (*d*) until it rests on the bottom of the hole, now insert a pin (*e*) through the leading edge of the wing, through winding (*c*) and into the rear half of the wing. The whole leg is now firmly fixed and folds well. Repeat this for the other leg.

Having the two legs separate enables one leg to be up and the other down, as is often the case with Spitfires. For a stiff movement use a thicker pin (*e*) as the shaft through winding (*c*).

The ingenuity of this method is that there is no glueing and thus no breaking.

PLOTTING AIRFOIL SECTIONS

By H. MARTIN

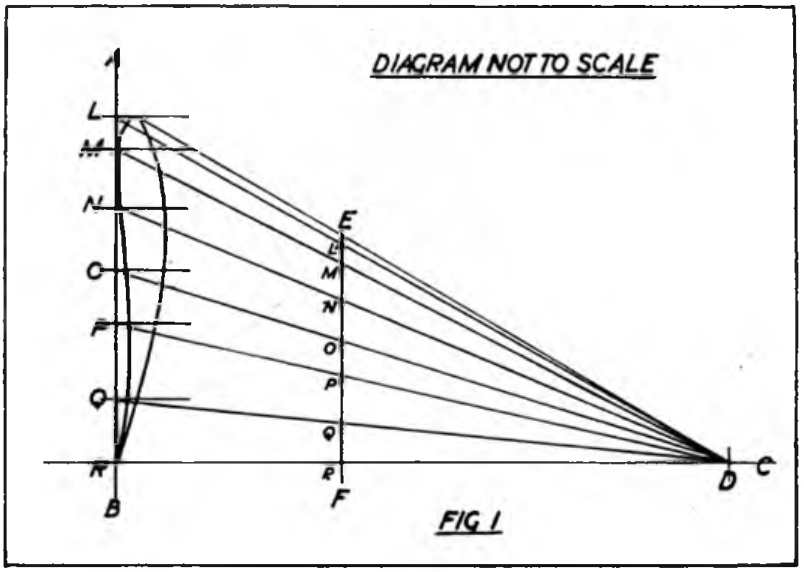


FIG 1

WITH datum line AB arranged vertically at the left side of drawing board, draw the required airfoil section to a conveniently large size (for accuracy), say, 10 in. chord, as in Fig. 1. LT (L leading edge and T trailing edge). Through T draw TC at right-angles to the datum line. Along TC mark a point D 8 in. from point T. Join L to D.

Suppose largest chord of required wing is 6 in., we can draw an airfoil with that chord by drawing a line parallel to and 6 in. from TC, cutting LD at E. Then through E draw a line parallel to the datum line AB, cutting TC at F. Then EF is the datum line for the required section.

Join the points where the curve ordinates cut the datum line AB (points L, M, N, O, P, Q) to D, cutting EF at l, m, n, o, p, q.

These points l, m, n, o, p, q will be the ordinate points for plotting the 6 in. airfoil.

Similarly at 4 in., 5 in., $4\frac{1}{2}$ in., $3\frac{3}{4}$ in., or any size chord can be represented, and its corresponding ordinate points accurately drawn.

When there are too many ribs to enable them to be drawn out from the 8 in. base line TC, as required for a slightly tapered wing, the largest and smallest rib airfoils can be plotted, and then replotted at a sufficient distance apart to enable the necessary number of airfoils to be set out between them.

airfoil to the corresponding points of the smallest airfoil, and the data lines for each rib spaced between, the ordinate points for each rib are then available. See Fig. 2.

To reproduce the airfoil section at its correct size on each datum line, use an adjustable setsquare or a stiff-jointed joiner's rule, and a straight-edge set parallel to the trailing edge line. Set adjustable square diagonally from one of the ordinate points to the intersection of the next ordinate and the curve, as at RV or OV, then sliding the adjustable square along the straight-edge to r, r^1, r^2, etc., mark corresponding points to u, u^1, u^2, etc., without altering the angle of the adjustable square.

Then, resetting the adjustable square for OV, draw points v, v, v, etc. Similarly, all other points in the curve can be repeated *ad. lib.*, and will be true to scale.

All that remains to do is to draw a smooth curve through the points for each airfoil.

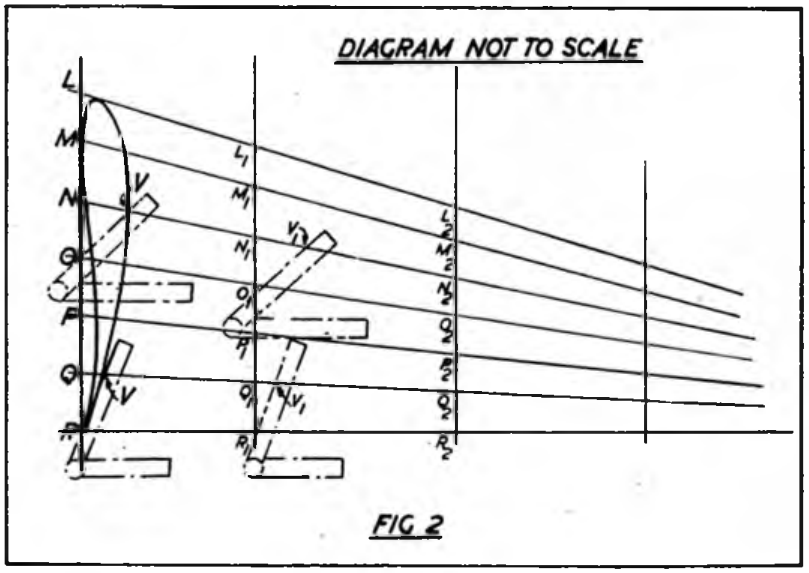


FIG 2

DO NOT CONCENTRATE ON WAR

Do not concentrate your thoughts upon war subjects. You will find it very worrying and very bad for the nerves.

Read, write, sketch, paint, study your vocation ; anything that will occupy your mind and your time. Make use of the long dark nights by concentrating upon something useful.

During the last war many people learned how to write short stories, etc. To-day a number of them are world-famed authors.

By becoming efficient in your vocation you can give the best service to your country and to yourself. The more you increase your earning power the better it is for the country and for yourself personally.

War or no war, earning power always brings its possessor to the front. It is no use waiting for better times. The ideal opportunity never arrives. We have to make the best of existing conditions. Therefore, delay is useless ; it is worse, it is harmful.

YOU CANNOT MAKE MONEY BY SAVING. If your save 10s. per week for 10 years you have only got £260, but if you spend 2s. 6d. per week for 12 or 18 months on a correspondence course, you give your brains a chance to earn thousands of pounds, then there is no need to save. Savings are likely to vanish, but earning capacity is a permanent investment.



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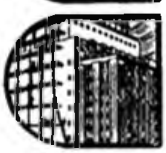

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"ON TEST"——————THE HAWKER "FURY"

Report by OUR TEST PILOT

THIS month our " On Test " model is by way of a change a biplane, and a very famous one at that. Studiette Handcrafts, Kent Street, Birmingham 5, having provided us with an attractive kit of the famous Hawker " Fury " interceptor fighter, we decided to test its capabilities as a model.

" The Fury," which forms the design of the model, was in its day one of the most beautiful fighters in the world, and was also the forerunner of the super streamlined fighters of to-day. It is still used as an advanced trainer.

I had but little time to spend on embellishing the model, but as the photographs show, it would, with plenty of time spent on finishing, details in covering, and painting, make a very realistic replica of this famous Royal Air Force machine.

Everything required to construct the model is included in the kit, which is packed in a strong box with an illustration of the completed model on the front.

The plan provided is an excellent one, and full instructions for assembling are printed on this. The entire construction is designed to give the minimum of difficulty in the final assembly stage.

The fuselage employs a novel method of construction, the two sides being printed out on $\frac{1}{32}$ in. sheet balsa These are cut out and sanded until they agree in size, after which they are joined together by cementing at the rear, with a strip of $\frac{1}{16}$ in. square balsa between to form the sternpost. Next the top semi-circular formers are cemented in place and also the bottom $\frac{1}{16}$ in. square compression members opposite these formers. When these are dry the usual stringers are cemented to the formers to give the model its streamlined shape.

When complete the body is very strong and extremely light. The rubber motor is anchored at the rear with a piece of $\frac{1}{16}$ in. diameter dowel, which is passed through two reinforced holes in the sides of the fuselage.

The cockpit is cut out of the paper provided to the shape shown on the plan and fixed in place with cement.

An excellent feature is the leaflet showing how to finish off the balsa propeller provided with the kit. Personally I found that this needed very little carving and sanding. Of course, the addition of a spinner cut to the shape shown makes all the different in the appearance of the finished model.

As the instructions say, it is better to cover the propeller with white Japanese tissue, as this not only greatly strengthens it, but also provides a surface for paint, dope or varnish.

The wings are built on the plan and their construction is quite straightforward.

There is little or no dihedral on the top wing, but as will be noticed I put a little on the model I built to stabilise the flight, and would advise anyone building this kit as a " flying " model to do the same.

The inner and outer 'plane struts are all of $\frac{1}{8}$ by $\frac{1}{16}$ in. balsa sanded to streamlined shape. Be careful to see that they are the correct length before cementing in position. Also that the wings have a slight angle of incidence, and that the dihedral of the lower wings is maintained during the assembly.

A final warning, which should be unnecessary to experienced aero-modellists—cover all parts separately, and spray and dope before assembling.

When the model was finally assembled I gave it a coat of silver dope, and added the insignias included in the kit, bracing wire, for which cotton was provided, and also painted in the exhausts, footrests, radiator and other details. The completed model is really very attractive.

The rubber provided is made up into a loop, and is passed over the dowel at the rear and the propeller shaft at the front, when the model is ready for testing

My model definitely glided tail-heavy at first, but I easily corrected this, and soon had the model gliding very well, running along on its wheels on landing in a most realistic manner.

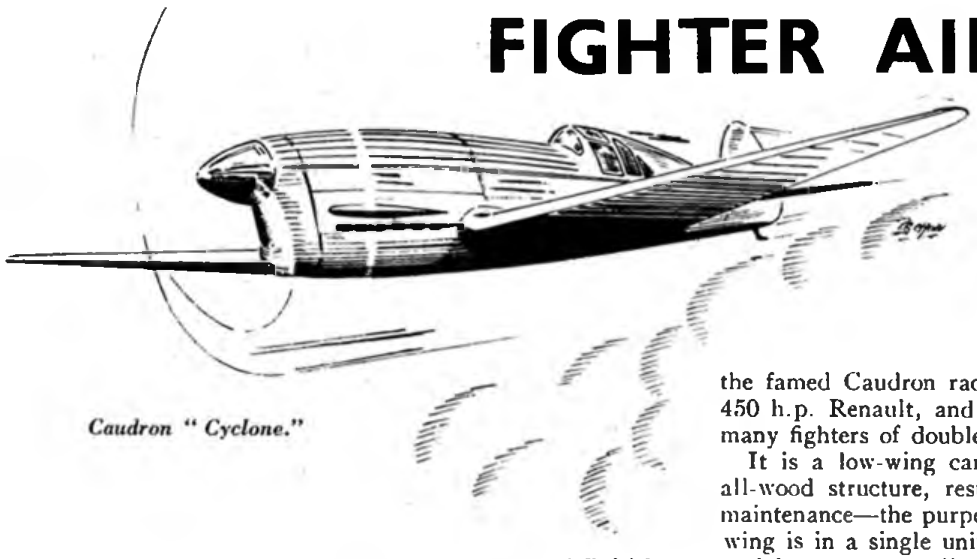
With a drop of oil on the propeller shaft and some lubricant rubbed well into the motor I was ready for a power test.

With one hundred hand-wound turns the model seemed underpowered, and as more turns did not rectify this I added two extra strands of rubber, making four strands in all of $\frac{1}{8}$ in. strip, and an immediate improvement in flying was noted.

(*Continued on page* 87).

FIGHTER AIRCRAFT IN

By
PETER GARROD CHINN



Caudron " Cyclone."

MOST people are familiar with the names of British and German military aircraft, but few appear to have much knowledge of French types. Perhaps this is because much has been done to " boost " public interest in the R.A.F. during the past year or so, and of course the Nazis, in their efforts to convince the world of the " superiority " of the German Air Force, have gained quite a lot of publicity for their machines. In consequence, most people's minds have been so full of " Hurricane," " Spitfire," " Blenheim," " Messerschmitt " and " Heinkel " that French types have hardly been given a thought. That France has aircraft worthy of some attention, however, is evident in the fact that the French Air Force machines have proved more than a match for Germany's vaunted fighting craft.

By the way, I should like to say, here and now, that I do not wish in any way to detract from the abilities of German designers to produce fine aeroplanes. We know them as engineers deserving the highest praise, but we also know that Nazi Germany's economic position does not allow her to acquire the quality of fighting 'plane in quantity that her aircraft builders are capable of turning out.

Another reason for the apparent lack of interest in French machines is, perhaps, in the fact that although France had, in the years immediately following the Great War, probably the greatest air arm in the world, production of new types had slowed down considerably just when other countries had begun to bring out military 'planes with startling performances. France's air force, therefore, had until recently been rather left in the shade.

France is one of the few countries to attempt fighters of comparatively low power. An example of this is the recent Payen Pa.112, a remarkable machine having two Salmson engines set in tandem and delivering a total of only 220 h.p.

More orthodox and better known, however, is the Caudron " Cyclone." Developed from the famed Caudron racers, this aircraft is powered by a 450 h.p. Renault, and has a performance comparable to many fighters of double that power.

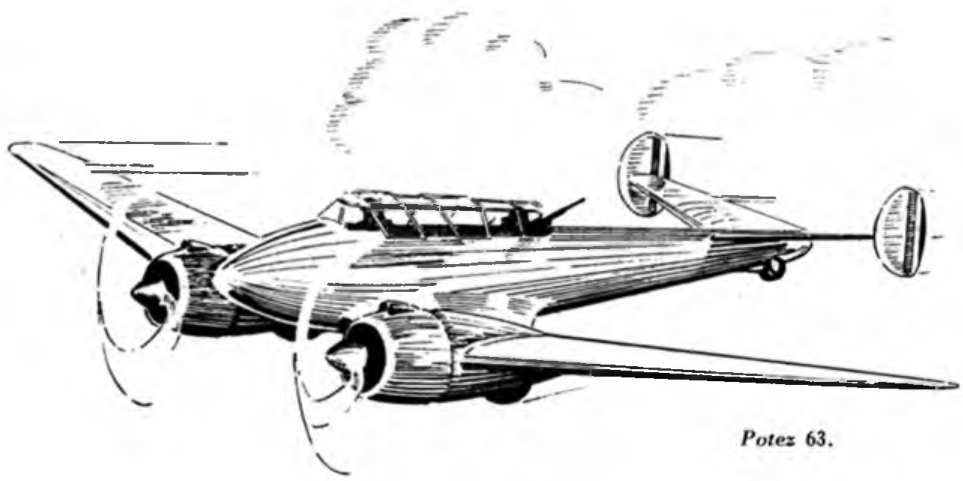
It is a low-wing cantilever monoplane, employing an all-wood structure, resulting in low-cost production and maintenance—the purpose for which it was designed. The wing is in a single unit, has a stressed plywood covering and incorporates split type trailing edge flaps.

Tail surfaces are also internally braced, the stabiliser of wood construction, whilst the elevators are metal covered with fabric. Trimming tabs are installed which are adjustable whilst the machine is in flight. The fuselage is composed of a wood frame, fabric covered, and has sheet magnesium fairings on the top and bottom.

The cockpit is enclosed, yet affords goods visibility. Its equipment includes the standard instruments, and a two-way short-wave radio. The undercart is retractable and operates inwards into the centre-section, panels being fitted to each leg to close the wells. The Renault engine is a twelve-cylinder inverted air-cooled unit and drives a triple-blade electrically controlled variable-pitch metal airscrew.

Armament consists of either two automatic cannon or four machine-guns. These are carried in the wing panels and fire outside the propeller arc.

Maximum speed of the " Cyclone " is 303 m.p.h. at the best altitude (13,000 ft. approximately), which is exceptionally good considering its power and equipment carried. Speed has been gained by careful streamlining, although wing loading has been made necessarily high by cutting down wing area in order to decrease drag. This is in accordance with racing 'plane design practice, where engines of comparatively low power are used, and



Potez 63.

THE FRENCH AIR FORCE

as a result landing speed has, unfortunately, to be high, although in the case of the Caudron this is not too great, the actual rate being approximately 73 m.p.h.

The wing is tapered both in plan form and thickness, the maximum chord being 9.2 ft., whilst the total area is 134·5 sq. ft. The span is only 29 ft., and the length of the machine is 28 ft. Overall height is given as 8·5 ft., the gross weight 3,828 lb., with a ceiling of over 30,000 ft.

Solid scale model builders should have no difficulty in constructing a model of this 'plane. Its simple lines make it a type very suitable for a newcomer to the hobby to tackle. As a flying model its qualities are also good. The absence of external detail will do a lot to help in decreasing drag, even the exhaust ports are cut off flush with the engine cowling. As far as general lay-out goes, the design appears to have quite good characteristics for a machine of this type. The tail surfaces would probably have to be increased in area, but the thrust-line position would enable a propeller of reasonably large diameter to be used. The wing-span being small in relation to the fuselage length, would not, unfortunately, be a very effective counteracting moment to the torque of a powerful rubber motor. Therefore it would be advisable to build the model as light as possible in order that a motor of less power might be used. However, this should not be difficult if the right scale is used. One inch to the foot would be a convenient size, and it should be possible to keep the weight of a model built to this scale below three ounces.

Now we come to a fighter in an entirely different class —the Potez 63, a well-streamlined craft of high performance. Actually, this machine can be used for miscellaneous duties, including bombing, combat and reconnaissance. In this respect it is comparable with the Royal Air Force's Bristol " Blenheim."

It is an all-metal twin-engined three-seater monoplane, with cantilever wing and tail surfaces, and flush-riveting throughout. Split type flaps are fitted to the centre-section (which is built integrally with the fuselage) and to the outer panels as far as the ailerons. Dihedral angle begins outboard of the engine nacelles, and the wing tapers also from here, both in chord and thickness. Twin fins and rudders are used, and these are fitted to the extreme tips of the stabiliser, which has the unusual feature of being " dihedralled." Models having stabilisers incorporating a dihedral angle are not uncommon, but in full-size practice this is unique.

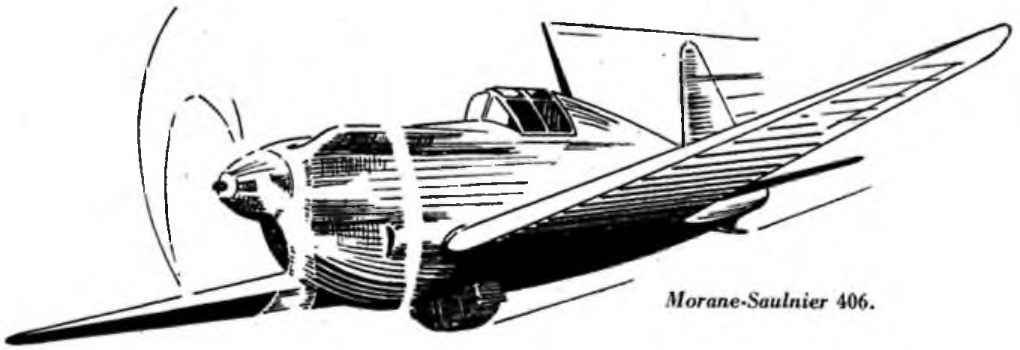
The fuselage, which is very sleek, has an enclosed cockpit, set high and well forward, offering a good field of vision for the crew, especially out along the wings, where the view is not obstructed by the engine nacelles such as is found on many machines of this type.

Hispano-Suiza twin-row fourteen-cylinder radials drive the metal tri-blade controllable-pitch propellers and deliver 670 h.p. each at an approximate altitude of 11,500 ft. They are neatly enclosed in metal cowlings and are mounted in nacelles on the wings, which also carry the retractable landing gear.

Armament includes two 20 mm. cannon mounted in the fuselage, and a flexibly mounted machine-gun in the rear of the cockpit enclosure, the latter being operated by the gunner. The navigator is accommodated between the gunner and pilot.

The Potez 63 is much lighter than the Bristol " Blenheim," but it also has considerably less power, so with its top speed of 285 m.p.h. (as a fighter) it may be regarded as a very efficient aeroplane. As a bomber its maximum speed is given as 279 m.p.h.—exactly the same figure as that credited to the " Blenheim," but its range is less—807 miles as against the 1,000 miles of the British machine.

Other figures released relating to the performance of the Potez are as follows: As a fighter its ceiling is 32,000 ft., range 620 miles and cruising speed approximately 250 m.p.h. As a bomber the ceiling is 29,520 ft. and cruising speed 236 m.p.h. As a reconnaissance aircraft its top speed is 267 m.p.h. and its range and ceiling the same as that of the fighter version. The machine has a wing-span of 52·5 ft., a length of 36·25 ft. and a height of 9·83 ft. The wing area is 355 sq. ft.

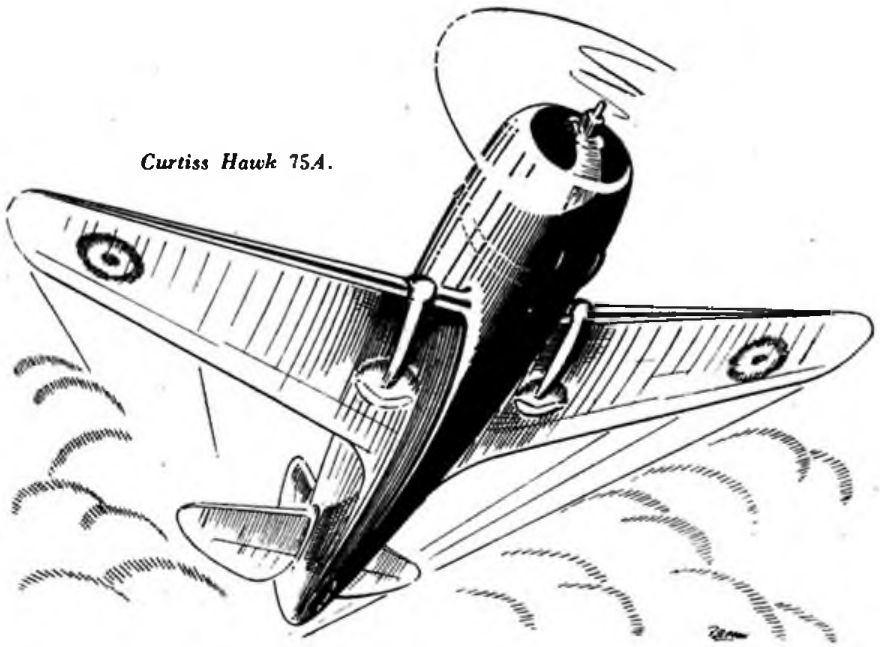


Morane-Saulnier 406.

Its symmetry of line and lack of ugly external projections would make this a very attractive model. Its chances of making a good flying model are, of course, somewhat limited because of the twin engine arrangement, but as an exhibition scale or solid model it would be hard to beat. The real ship is left its natural metal colour, and the model should, therefore, be finished in an aluminium shade.

Next comes the Morane-Saulnier 406, a single-seat fighter in keeping with more conventional modern standards. It is a single-engine low-wing monoplane, and uses the now famous Hispano-Suiza " Moteur-Canon." It is of metal construction, the wing being full cantilever, whilst the stabiliser, placed low on the fuselage, is braced on each side by a single strut. The landing-gear has a wide tread and is mounted near to the leading edge of the wing. It is retractable and operates inward.

Perhaps the most interesting feature of this machine is the engine. The Hispano-Suiza " Moteur Canon " is an upright vee-type motor of approximately 860 h.p.,



Curtiss Hawk 75A.

and has a 20 mm. quick-firing cannon mounted between the cylinders. The muzzle of the gun extends through the propeller boss and fires explosive, incendiary, tracer or armour-piercing shells. The weight of the weapon complete with its ammunition is approximately equal to that of two machine-guns and ammunition, whilst the rate of fire is said to be about the same as that of a standard synchronised machine-gun.

Other armament of the Morane consists of a machine-gun in each wing panel mounted just above the position of either main landing strut.

Reports issued so far regarding the performance of this machine have been varied, but its top speed is in the region of 310 m.p.h., which is good for a machine of its power. An apparently earlier model, the 405-C.1, is credited with a speed of 298 m.p.h. at 16,000 ft.

The dimensions are as follows: Wing-span 35 ft. 10 in., length 26 ft. 3 in., and height 8 ft. 10 in. Wing area is given as 184 sq. ft. Gross weight is just under 5,000 lb.

The Morane-Saulnier 406 is typical of the type of military aircraft now being used by France, and so it should prove popular with those modellers who collect representative types of war-'planes. As a flying model the usual caution necessary when designing, building and flying models of fighting 'planes will need to be exercised, although the general design should lend itself fairly easily to model requirements. The only part that is likely to cause any constructional difficulties is the engine cowling, as this is rather an odd shape. Probably the best method would be to carve the complete nose from a balsa block. The wheels are placed well forward and should thus protect the propeller to a certain extent, and the area behind the centre of gravity position would seem sufficient to preserve directional stability without an increase in fin area.

A machine of which France has taken large deliveries is the American Curtiss " Hawk 75A," an all-metal 'plane of which mention was made in last month's article. It received a lot of attention when during tests it dived " off the dial " at 575 m.p.h., and was said to have exceeded 600 m.p.h., although, according to American aeronautical opinion this was " nothing great," since, months before, Seversky and Brewster fighters, it was claimed, had been dived at even greater speeds.

Basically, the Hawk Model 75A is the same as the United States Army Air Corps' Curtiss P.36A, of which several hundred have been built. It is a cantilever low-wing monoplane featuring a " double-action " retracting undercart. This gear, which is also used on other well-known Curtiss pursuit 'planes, such as the YP.37 and P.40, operates in two directions; that is, each unit swings backward, whilst the strut is also swivelled to enable the wheel to fit flat into the recesses provided. A glance at the sketch will elucidate this.

Very few details have been released so far about the French Curtiss, but it is safe to assume that it is fitted with either a Pratt & Whitney " Twin Wasp " motor or a Wright " Cyclone " driving a triple-blade variable-pitch airscrew (most likely a Curtiss electrically controlled), and rated round about one thousand horse-power. No figures relating to the performance of this machine have been released, but at present the " Hawk 75A " must be about the fastest military 'plane in service with French squadrons.

At the time of writing there has not been a great deal of activity by which we can estimate the value of aircraft engaged in this war, and even in the action that has taken place the authorities have been reluctant to disclose particulars regarding the types of 'planes used. Thus we have little information by which we can judge the effectiveness of the fighters being used by the Allies as opposed to those used in the Deutsches Luftwaffe. A recently issued report, however, revealed that the " Hawk 75A " has already proved itself superior to the Nazi fighters. It appears that the pilot of a Curtiss attacked three Messerschmitt Bf.109's, shooting down the first before out-manœuvring and shooting down the second, and finally chasing the third retreating German machine about thirty miles into enemy territory.

This feat has not come as a surprise to those who followed the progress of the German Condor Legion in the Spanish Civil War. There the Heinkel He.51 was found to be definitely inferior to the Russian fighters being used by the Reds, and when the new Messerschmitts were rushed out to replace the He.51's the Loyalist machines proved more than a match for these also. Considering that the Russian machines were, in general, older types (in many cases developments of old type American pursuit 'planes) it is a small wonder that the Messerschmitts, even if improved, have proved no match for the Curtiss machine. It will be interesting to note the sort of show the Messerschmitt Bf.109 and Heinkel He.112 fighters can put up against our Hawker " Hurricanes " and Vickers-Supermarine " Spitfires."

However, I am digressing. To return to the subject, the " Hawk 75A " would not make such a good flying model as the similar P.40 described last month, mainly because of the radial engine type nose, which, of course, creates slightly more drag than the pointed type nose of

the in-line liquid-cooled motor, but otherwise, being very similar in general design to the P.40, it should make a model well worth building. Solid model builders should have no difficulty in duplicating this machine in miniature. The model should be finished with natural dural dope, and the French insignia painted on, not forgetting the blue, white and red stripes on the rudder.

One of the older types in service is the Loire-Nieuport 46, a high-winged monoplane fighter featuring gull type externally-braced wings.

This machine, like most modern military 'planes, is of all-metal construction, the fuselage being of steel and duralumin and having a stressed metal covering of dural. The wings also are covered with duralumin, as are the tail surfaces. The wings curve downward neatly, tapering, to meet a fairing on top of the fuselage just between the cockpit and engine cowling. They are braced with struts of steel tubing, which are attached to the bottom of the fuselage and meet each wing a short distance out from the curve of the " gull." A Messier shock-absorbing undercarriage strut is connected to the front member of each pair of main wing struts, which, in turn, have N-struts between them and the wing. Two more struts sprout from either side of the fuselage just below the position of the main struts, and extend down to each wheel. Rather a maze of struts, but necessary, and resulting in a very strong assembly.

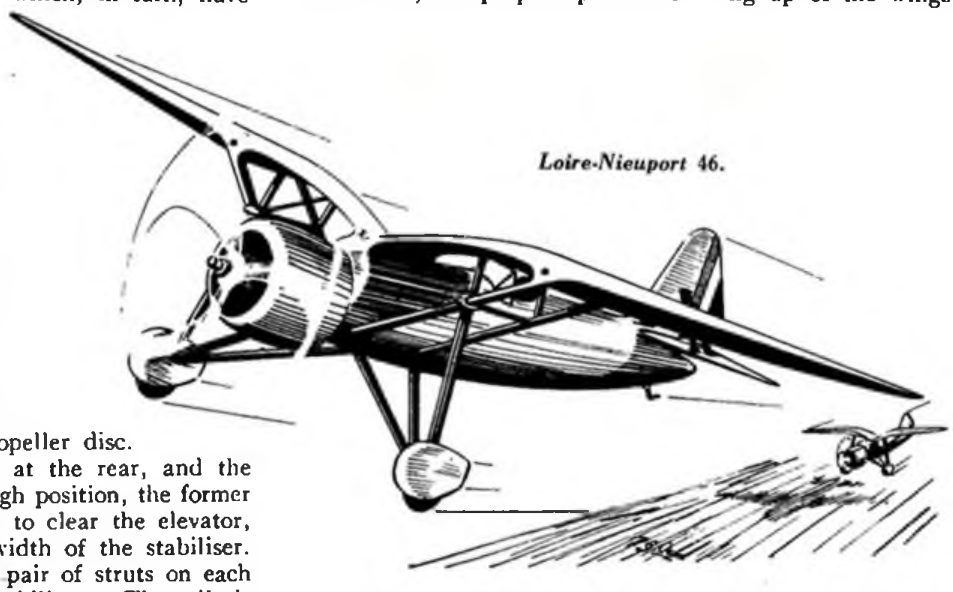
Where the wing has its greatest cross-sectional area, at the juncture of the twin bracing struts and each wing panel, is a long fillet in which is housed a 20 mm. Oerlikon cannon, although as an alternative, twin Chatellerault machine-guns may be mounted in each wing, to fire clear of the propeller disc.

The fuselage tapers to a point at the rear, and the rudder and fin are mounted in a high position, the former being cut away at an angle so as to clear the elevator, which extends almost the whole width of the stabiliser. The tail surfaces are braced by a pair of struts on each side of the fin connecting the stabiliser. The pilot's cockpit is of the open type, and because of the tapered gull type wing roots, commands good vision in all directions. The landing wheels are enclosed in streamlined spats and are fitted with brakes.

A Gnôme-Rhône super-charged radial supplies the power, driving a triple-blade metal airscrew. This engine is a twin-row type of fourteen cylinders, and is rated at 945 h.p. at approximately 14,000 ft. Maximum speed of the Loire is 250 m.p.h., whilst the climb is 3,000 f.p.m., and range 465 miles. Ceiling is exceptionally good, being over 38,000 ft. This is probably due to the fairly light weight of the craft, which is given as approximately 4,000 lb. when machine-guns are carried, or about 300 lb. more with Oerlikon cannon.

The Loire-Nieuport 46 has a wing-span of 38 ft. 8 in., a wing area of 209·8 sq. ft., an overall length of 24 ft. 7 in. and a height of 12 ft. 6 in., thus it should be possible to build a flying model with a fairly low wing loading. If there were a few less struts and an in-line motor in place of the radial, this would be an almost perfect flying scale model fighter. High-wing fighters are rare nowadays, and with its generous wing area this design should in any case make a good flyer. Possibly some of the struts could be made detachable for flying purposes. For example, the front landing gear struts could be made to take all the shocks, and the Messier and rear members discarded when real durations were wanted. Wing struts, too, could be made detachable, only one should be necessary to preserve rigidity, and, of course, the four tail unit struts would not be needed. The general design of the machine appears to promise good results in a flying model, although an increase in the size of the fin would be necessary when a large flying propeller was fitted. Notice that the nose moment is short whilst the fuselage is still " hefty " toward the rear, so look out for " tail-heaviness."

I think that this design would make a better flying model than any other mentioned in this article, since it should be possible to get a low wing loading and yet use reasonably high power. The model is bound to be fairly stable, being a high-wing and having such a relatively large span. Solid modellers should have no difficulty, of course, except perhaps in the lining up of the wings and struts, but this can be overcome by blocking up the various parts temporarily whilst the glue sets. Finish the model in aluminium dope after preparing with a wood filler. Thinned water glue is quite good for this operation.

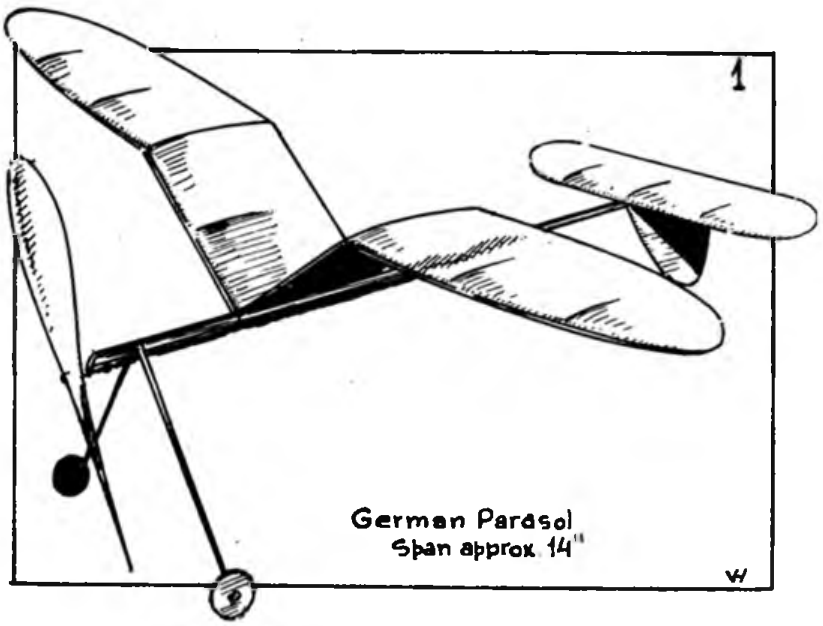


Loire-Nieuport 46.

A model of the graceful-looking Loire-Nieuport 46, whether flying or solid, should be well worth constructing.

STOP PRESS. — Latest reports indicate marked superiority of Morane and Curtiss over Messerschmitt Bf.109. The Messerschmitt is credited with a speed of 354 m.p.h., but a captured Bf.109 was definitely outclassed when flown by French pilots in competition with Curtiss and Morane fighters recently.

The machine had no cannon with which (it is claimed) this type is equipped, and was probably fitted with a smaller motor in place of the 1,150 h.p Daimler-Benz DB 601, which is said to power the latest German fighters. This is an earlier version, but it seems to be in the majority, which lends weight to the theory that Germany cannot at present purchase the best fighters in large numbers. The captured machine was also said to be subject to wing-flutter under certain conditions.



SOME NOTES ON AN

By J. VAN HATTUM

AS I had always been keen to see real indoor models fly, but had to go abroad to do so, I readily took the opportunity to visit the scene when it happened to be as conveniently, and cheaply, near my home as Brussels.

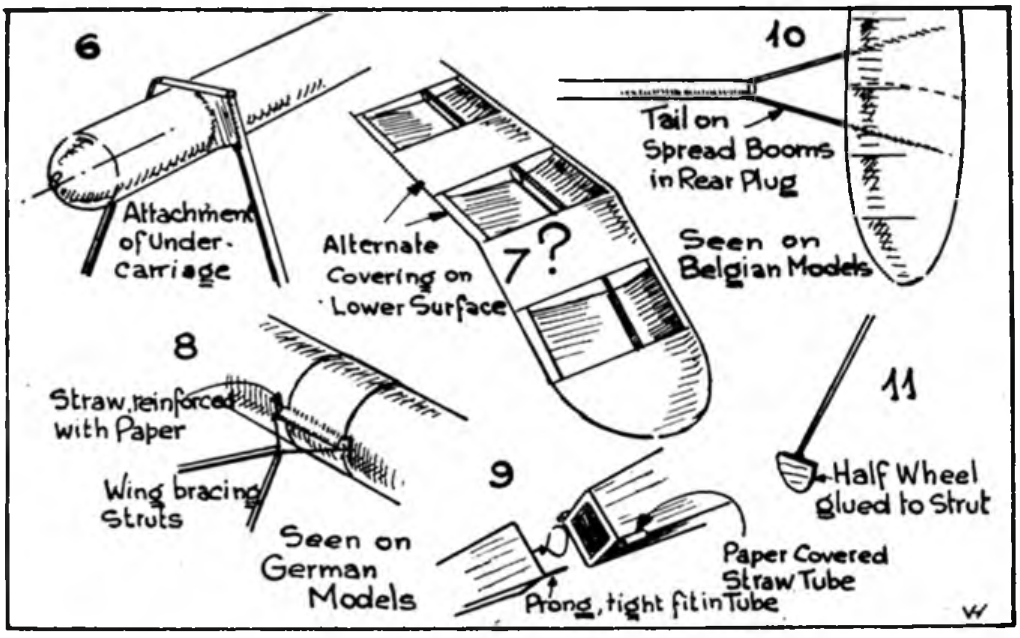
To begin with, I must confess that I had never seen any indoor microfilm models at all in real life, and this in itself proved very interesting. The models which were flown at Brussels by the Belgian, French and German teams, were of very high quality, and capable of excellent performances. I was sorry not to see any British flyers with their models to show the progress made in England. In fact, their absence was rather puzzling. One would have thought that this was a grand opportunity.

The Centenary Hall in Brussels is a terrific affair, having a height of 100 feet, with a width and length of 130 ft. and 330 ft. respectively. This would seem adequate for normal flying, although the flights of the Americans suggest even larger spaces. The advantage of the great length was that it made the flying of two or three batches possible. That the height was sufficient is borne out by the durations, which exceeded ten minutes. Even so, there were one or two models that touched the ceiling, or rather the enormous concrete arches that form the roof.

The contest included the following categories and classes: Cat. 1: Microfilm models. Class A: Span not more than 80 cm. (32 inches). Spar or tube taking the motor. Launched by hand.—Class B (Baby): Span not more than 35 cm. (18 inches). Spar or tube taking the motor. R.O.G.—Class C: Fuselage enclosing motor, span not more than 80 cm. R.O.G.—Cat. 2: Light models, not microfilm covered. Wing must be covered with tissue paper. Spar, tube or fuselage. Span not more than 80 cm.; weight not less than 20 grammes (0·715 oz.), loading not more than 20 gr./dm.² (i.e. not more than 6·4 oz./sq. ft.). No take-off specified. In addition there was a "5 grammes (0·18 oz.) Class" for models having a span of not more than 35 cm., and weighing less than 5 grammes. These models were hand-launched, but had to be fitted with landing gear.

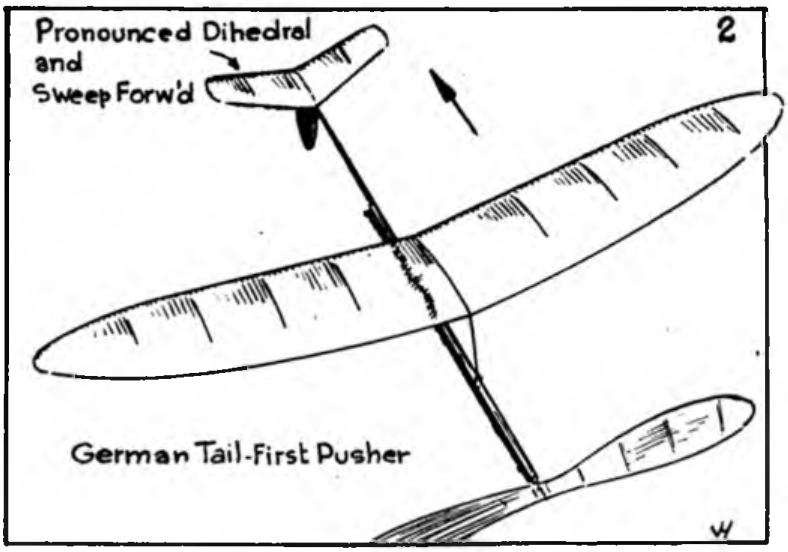
Category 1, with Classes A and B, predominated, and the best flights were made here. Most flights seemed to vary between five and ten minutes. Nearly every team broke its "home" record many times, and there is nothing so stimulating than improving on one's own previous performance in an international contest.

Those who read these impressions are reminded of the fact that the author is not an expert on the subject, and has no desire to become one, at any rate not as long as we can still fly out of doors. Although one must admire much that is clever, and certainly one has great respect for the patience required in making these models—it must be exasperating work at times!—it seems a great pity that there is little in them that can be applied to outdoor

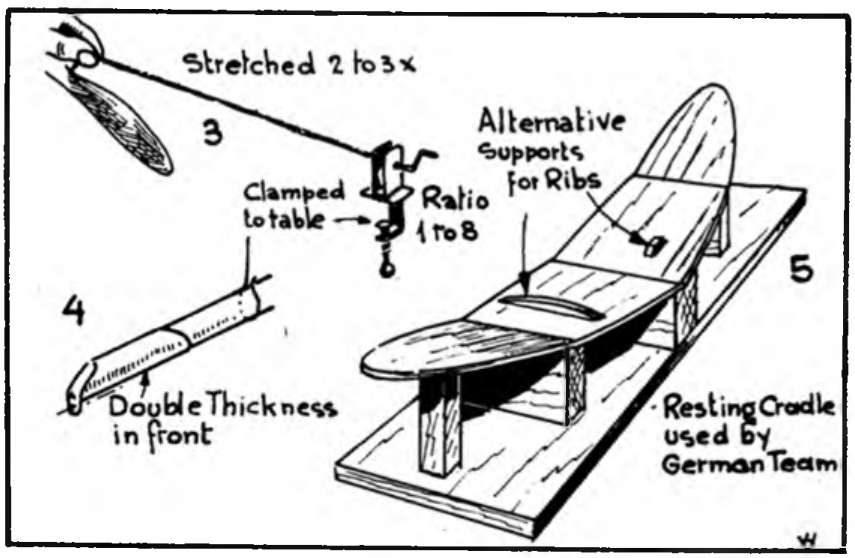


INDOOR MEETING FOR MICROFILM MODELS

Held during 1939 at Brussels



model practice. Not only does one have to develop quite new forms of construction that are so specialised that they cannot be transferred to any other branch, but the flying characteristics also seem in a class entirely by themselves. What strikes one first is the astonishing sluggishness of the models. It takes at least ten seconds to see whether a model is " off for a long flight " or going to stall. The stall is really entertaining; the model sliding backwards for about ten feet, then starting a " dive," and finally settling on the ground. This back-slide is really interesting, as it seems quite stable for a long time. Meanwhile the airscrew is pulling in the reverse direction. The mass of the models being so small and the drag-producing surfaces relatively large, the terminal velocity is very low, and probably their greatest speed occurs in the initial climb. I was told that the glide is generally poor, and it is best to make the model descend with some turns on the motor, so that it is just unwound when it reached the ground (according to Van Wymersch). This also does away with the difficulty of having the motor



hanging below the stick. Most models circled with the torque in a left-hand turn; the rudder set hard over. The slowness of the models makes the " 5 seconds wash-out rule " useless, as it takes the model more than 5 sec. to float to the ground when hand-launched at elbow-level. R.O.G. is easily carried out by placing the model on a smooth table and opening the throttle!

I have made a few sketches of some of the interesting details. A very useful winder was employed by the German team. This was a small home-made winder, ratio 1 to 8 or 1 to 10, held to a table by means of fret-blade clamp. They also used a winder looking very much like a converted pencil sharpener. The method of winding is shown in a sketch. They also had very useful cradles on which the wings were resting when the model was not being used. Different cradles were used for transporting the models in their cases. The former are shown in a sketch. Two German pushers performed very carriages varied from conventional wheels—fie! how common!—half-wheels glued on to the legs and just straight well. The tail-planes were swept forward and had a large dihedral. They were quite small in relation to the wing-area. They had fins in front of the c.g. underneath the tail-plane. Incidentally, not all models had the fins disposed in this way, although it seems to be an almost universal practice in the States and England. The German models were covered with red and green microfilm, which facilitated following the models against the light background. These and the French models were very well-covered.

Wooden and microfilm-covered frame-airscrews were in evidence, and there does not seem to be a great deal to choose between them. There were the usual interesting uses of unconventional materials that must have been delightful to the real indoor-enthusiast. The undercarriages varied from conventional wheels—fie! how common!—half-wheels glued on to the legs and just straight stumps. The trouble about these indoor models is that simplicity is the keynote, to such an extent that nothing is better than a thing that does the job well; for nothing will always weigh less! There seemed good reason for introducing the light class 9 (Category 2), for these models made long flights and still could be said to fly. The most extraordinary was one that had a wing whose lower surfac was covered only between alternate ribs. (See sketch). Needless to say, the more " learned " sneered, but it flew beautifully none the less. Sometimes the models are a bit severe on our well-considered criticism.

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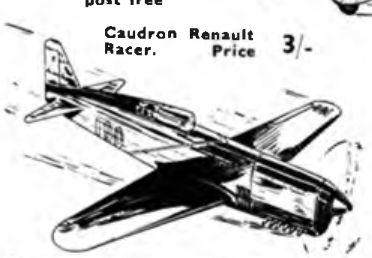

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BY the courtesy of the Editor of THE AERO-MODELLER, this page has been placed at the disposal of the Air Defence Cadet Corps for news of the Corps' model-making activities. Most of our cadets are enthusiastic aero-modellers already and probably read THE AERO-MODELLER, so it may be asked " Why the necessity for a page of news about cadet activities? " The answer is that model-making to-day is largely team work, and it is thought that the Air Defence Cadet Corps teams should be represented in these pages.

Aviation has always been team work. The pioneers usually worked in pairs—often pairs of brothers. The aeroplane of to-day has passed beyond the creative faculties of two men, and is the product of many brains.

Model aeroplane making has followed the same trend. It is still possible for the modeller to make a primitive machine of stick, paper and elastic from raw materials, and the novice can learn much by so doing. But modelling has developed during recent years, and the most interesting and most instructive model-making to-day is the construction of elaborate and carefully finished machines bearing a close resemblance to the full-size modern aeroplane. Though this can be done solo (though seldom without the assistance of suppliers of parts), it is best done by team work. Hence the tendency for aero-modellers to form clubs.

It was this club-forming tendency that led to the formation of the Air Defence Cadet Corps. The Air League had for years enrolled individual boys as Junior Leaguers. Noticing how Leaguers tended to get together and form squadrons or flights in order to pursue their hobby of model-making and to study aviation, Air-Commodore Chamier thought it would be a good thing to make a national movement of it, securing official recognition and public support. He put his idea into effect, and the Cadet Corps, now 20,000 strong, is the result.

Although the cadets have other work and training to do, model-making is still regarded as an important item in their curriculum. The construction of complicated petrol-driven models beyond the technical and financial resources of an individual member, can be undertaken by a flight or squadron with great benefit to all concerned. It encourages the team work which is such a marked feature of aviation of to-day, and it teaches not only the elementary, but also the advanced principles of aircraft design. It encourages delicacy of touch in the use of tools, and accuracy and finish in workmanship.

Some cadets, now that they are getting in touch with full-scale aviation, may be inclined to look on model-making as a childish pastime that can be discontinued. They should be warned against that idea. Experienced designers still value models. Inexperienced workers can learn a lot from modelling. It can be a childish pastime if you are content with primitive or slip-shod work, but if you do it properly, if, for instance, you study the articles by J. W. M. Cruickshank or S. H. Rutherford in THE AERO-MODELLER, you will realise that it is almost a profession in itself.

Other features of THE AERO-MODELLER are equally valuable as those named above, and the technicalities are interspersed with humour, which reaches its crest in the delightful cartoons of " Freddie." It is a journal produced by an enthusiastic team of experts, and I have watched its progress during the last four years with interest and, as the editor of another journal myself, with some envy.

The Corps is fortunate then in having the opportunity of communicating with other teams of model-makers through its pages, and we are asking squadron-leaders to send to headquarters not later than the 25th of each month a report of their squadron's *model-making* activities, in order that we can make the reports up into a page of news. The Corps is 176 squadrons strong, and we know that many of them are busy with model-making —the Sunderland squadron, for instance, is constructing models for the Air Ministry—so we should have some interesting news.

Do not forget that the model-maker of to-day is the aircraft designer and constructor of to-morrow. Continue your modelling with all the energy, enthusiasm and pride in workmanship for which the Air Defence Cadet Corps is famous.

" ON TEST."—*Continued from page 78.*

With one hundred turns the model flew quite a long way, climbing steeply and gliding quite well when the power had run out. I estimated the length of flight to be about 10 seconds or so. After I had packed the nose-piece down slightly to give some " downthrust " I tried more turns with a winder, and on 300 turns the model rose off the ground after an amazingly short run and flew for about 20 seconds. I consider this is excellent for a small flying-scale model of a biplane.

Summed up, this kit shows much experience and forethought in every detail. The " true-line-up " fuselage is an excellent feature, making the construction easy but robust; and, in fact, the whole model is very light and extremely strong. One does not expect a duration performance from a small flying-scale model, but this particular type does seem to perform better than most, and flights of over 30 seconds should easily be obtained on full power, the model having a most realistic appearance " in flight."

A 2-MINUTE O.O.S. ALL-BALSA GLIDER

By T. R. CARROLL

THIS small glider costs practically nothing to build, as most of your scrap balsa will be suitable. In spite of its small size, don't think that this small glider is not worth building.

The one I built has been flown in any weather, and properly launched, is capable of an average duration of 20 to 30 seconds.

The drawing is full size, and so there will be no difficulty in obtaining the various sizes.

The wings A are made from $\frac{1}{32}$ in. sheet balsa, and sanded to a streamline section. Cement the wings together, using the cement liberally, and make sure they have the right dihedral. The tail-plane C, and rudder B, are made from $\frac{1}{32}$ in. sheet balsa, and sanded to a streamline aerofoil. The rudder is then cemented to the tail-plane on the line XX. The fuselage is made from $\frac{1}{8}$ in. hard sheet balsa, and sanded to the sections shown. The greatest care *must* be taken in the cutting at positions 1 (wing) and 2 (tail unit), as the slightest difference in angle between these two may cause the model to be a total failure. Cement the wing and tail unit to the fuselage, using a liberal amount of cement, so as to form the fillets, as shown in E.

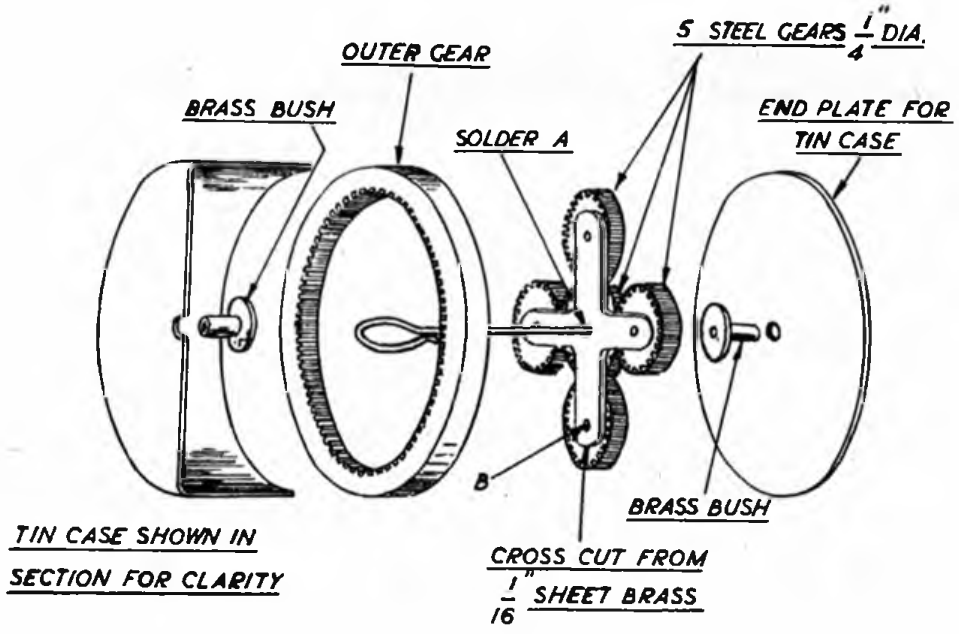
Do not be frightened to launch this model hard, as it is strong enough to hold together in a very strong wind.

To launch, hold the model at the shaded portion shown, and tilt it at a 45 deg. angle to the horizontal, the rudder being outermost. Launch it with an under and upward movement of the arm, and use some pep, as the greater the initial velocity the higher the climb, and the longer the glide. This glider is not suitable for tow-line or catapult launching.

So here's wishing you good flights when others are grounded.

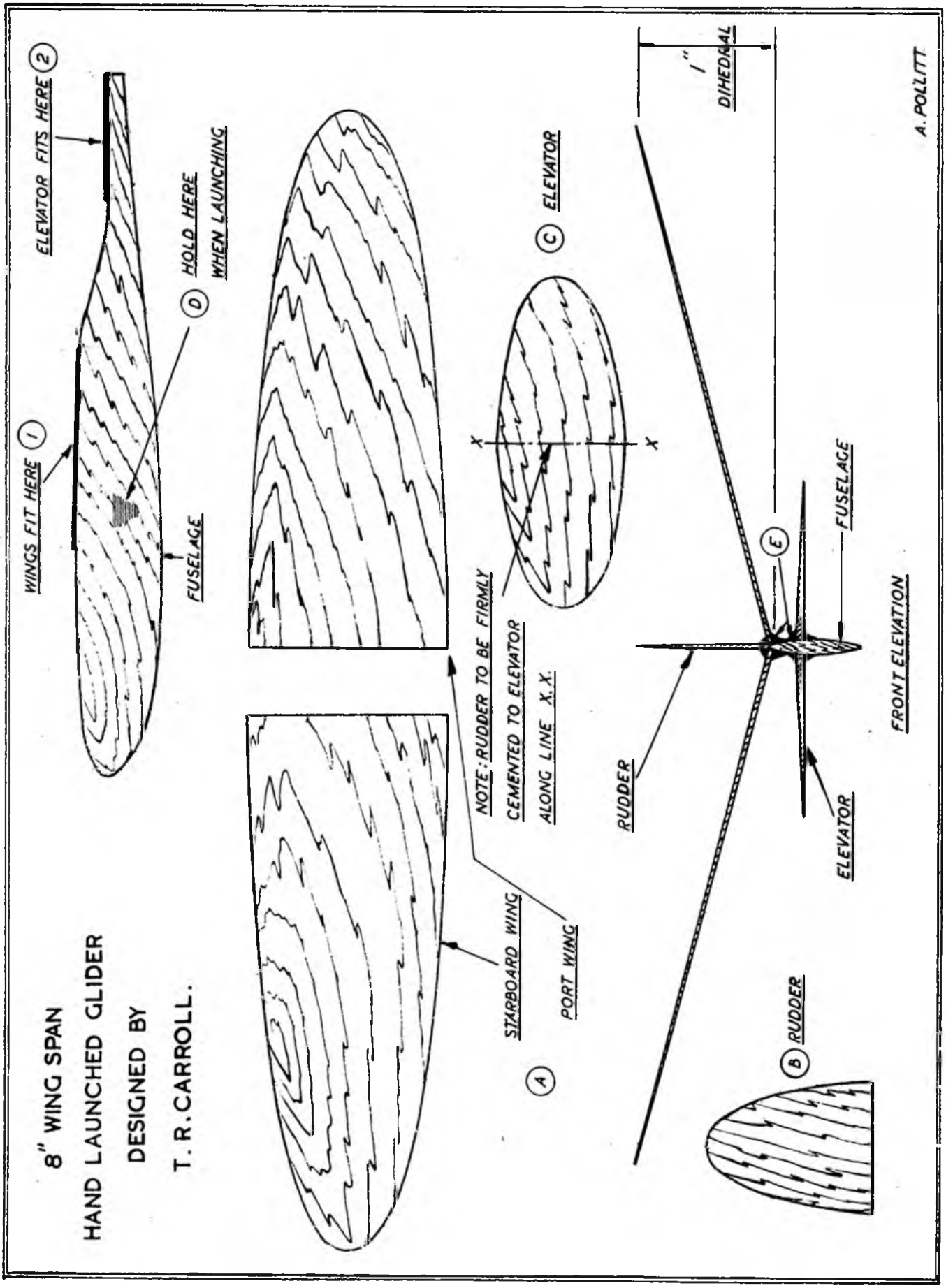
A NOVEL GEARBOX

By A. G. NEWTON



HERE is a system of gears suitable for machines of the Wakefield class. It is fairly easy to construct with a knowledge of soldering. The unit made by the writer weighed about $\frac{1}{2}$ oz., and stepped up at $3\frac{1}{2}$ to 1. The gears being set round a centre gear eliminates all tendency to spread apart and strip. The two axes of rotation are in one line, making it more mechanically perfect and smooth running. Also, it permits stretch winding. The whole unit can be easily built into a balsa nose block. A shorter and thicker rubber is, therefore, used, which means that the fuselage could be about 24 in. long, giving only about one-third the cross section of a normal fuselage of a Wakefield machine, so cutting down drag tremendously. The 'plane also assumes more the proportions of a sailplane, and becomes suitable for " catching " thermals.

First acquire five $\frac{1}{4}$ in. steel gears, and one outer gear with the teeth inside. This can be made or got made at a fairly low cost. From a piece of $\frac{1}{16}$ in. or 1 mm. brass cut out the cross on to which is soldered the rubber hook A. Small pieces of wire are also soldered into holes B at the correct distance along the arms of the cross, on which the $4\frac{1}{4}$ in. gears can revolve freely. The propeller shaft is soldered on to the fifth $\frac{1}{4}$ in. gear, which goes in the middle. The casing is built of just the right diameter to be able to sweat in the outer ring gear. The ends of the cylinder must be well soldered on, and the tin thick enough in order to take the pulling strain of the rubber. The bushes for the shafts are soldered on to the front and back plates of the casing. Small cup washers are used between the small gears and the brass cross, between the centre of the brass cross and the rear plate of the casing, also between the centre gear wheel and the front plate. I found it advisable to make small holes for oiling. If carefully made, this gear system will be found to give very good results; and the usual " loss due to friction in the gears " is largely diminished. The writer favours this to the single skein, although he finds the single skein favourable to the normal gear system.



A 13½ in. SPAN FLYING SCALE MODEL OF THE AVRO "COMMODORE"

By H. McDOUGALL

THE Avro "Commodore" is a four or five-seat machine designed primarily for the private owner desiring something a little larger than a two-seater 'plane.

Power is supplied by a 215 h.p. Siddeley Lynx engine giving the machine a cruising speed of 110 m.p.h. It is luxuriously furnished, and the inside of the cabin has been likened to that of an expensive car.

Construction.

The entire model is built directly on the plans, which should be covered with grease-paper to prevent the wood sticking to the drawings. Construction is, of course, of balsa.

Fuselage.

One-sixteenth in. square balsa strips are used for the fuselage sides. They are held in place on the plan by means of straight pins knocked into the board at each side.

Two triangles are cut from $\frac{1}{16}$ in. sheet, and the completed sides are glued together at the rear with the triangles sandwiched between the top and bottom longerons and the spacers are then added, working along to the nose. Note that a slot is left at the rear for the accommodation of the tail-plane.

A circular nose former is cut from $\frac{1}{16}$ in. sheet and glued to the nose. A rim of $\frac{3}{32}$ in. balsa is also cut and glued to the circular piece mentioned above, after which the cowling may be cut to the shape shown, from a postcard, and wrapped round the formers and glued in place. A hole is cut in the centre for the accommodation of the nose-plug.

Tail Surfaces.

The leading and trailing edges of the tailplane are of $\frac{3}{32}$ in. by $\frac{1}{16}$ in., cross pieces are of $\frac{1}{16}$ in. square, and the tips are of $\frac{1}{16}$ in. sheet.

The outline of the rudder is of $\frac{1}{16}$ in. sheet, and the cross pieces are of $\frac{1}{16}$ in. square.

Both rudder and tail-plane are built directly on the plan, and hinged by means of thin pieces of aluminium. The tail-plane is pushed into the slot first, and then the rudder may be glued to the fuselage, and the bottom hinge glued in place.

Wings.

These are made in the usual manner, and the lower wings are glued to the fuselage. Two short lengths of $\frac{3}{16}$ in. square balsa are fashioned into streamlined "shoulders," and glued at the top of the cabin, and the top wings may then be added. The $\frac{1}{8}$ in. wing struts are added last, together with the anti-lift strut, which runs from the base of the leading strut to the front of the cabin.

Both upper and lower wings are identical.

Undercarriage.

This is of the monostrut type, the legs being cut from $\frac{1}{16}$ in. sheet.

Spats are made from $\frac{1}{16}$ in. sideplates, and centre pieces of $\frac{3}{32}$ in. sheet, which are cut out to accommodate a $\frac{1}{2}$ in. wheel.

The spacer bars are of $\frac{1}{16}$ in. square.

Accessories.

Owing to the restricted diameter of the propeller it is necessary to use a very wide blade in order to obtain sufficient thrust to fly the model. It is, of course, practically invisible when the model is in flight, and an ordinary propeller may be substituted for exhibition purposes.

The rubber hooks are twisted from 22 s. gauge wire. 2/4 strands of $\frac{1}{8}$ in. flat rubber supply the power.

Finishing and Flying.

Covering is of coloured Jap tissue, and is shrunk by spraying with water. The windows may be of cellophane, if desired, but an easier method is simply to cut out pieces of white paper to the desired size and paste into place.

The whole model may be given one coat of very thin dope, except the tail-plane and rudder. Lettering, etc., may be added by cutting out pieces of tissue of a different colour to that in which the model is covered and pasting them in place.

As is usual with scale models it may be a little tail heavy, but a small amount of clay inside the cowling should be sufficient to balance it. The longer the rubber skein the better the results are likely to be. The rubber should be well lubricated and stretched while winding by the removal of the nose-plug. Flights of 20/30 seconds should be obtainable in a reasonably large hall.

A FULL-SIZE BLUE PRINT OF THIS MODEL IS BOUND IN THE CENTRE PAGES OF THIS ISSUE

WITH OUR NEXT ISSUE WILL BE GIVEN AWAY FREE—FULL SIZE SCALE PLANS FOR A FLYING SCALE MODEL OF THE

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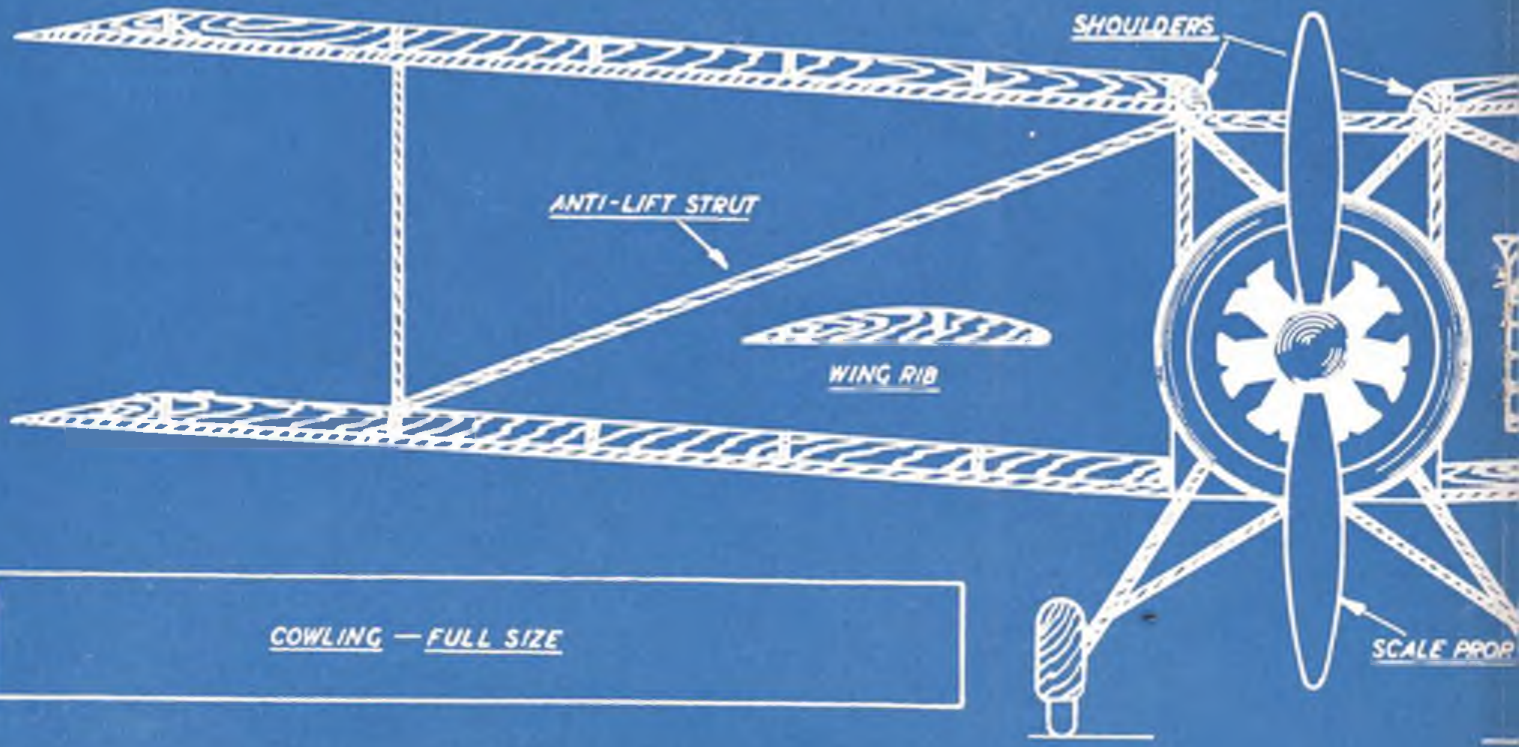
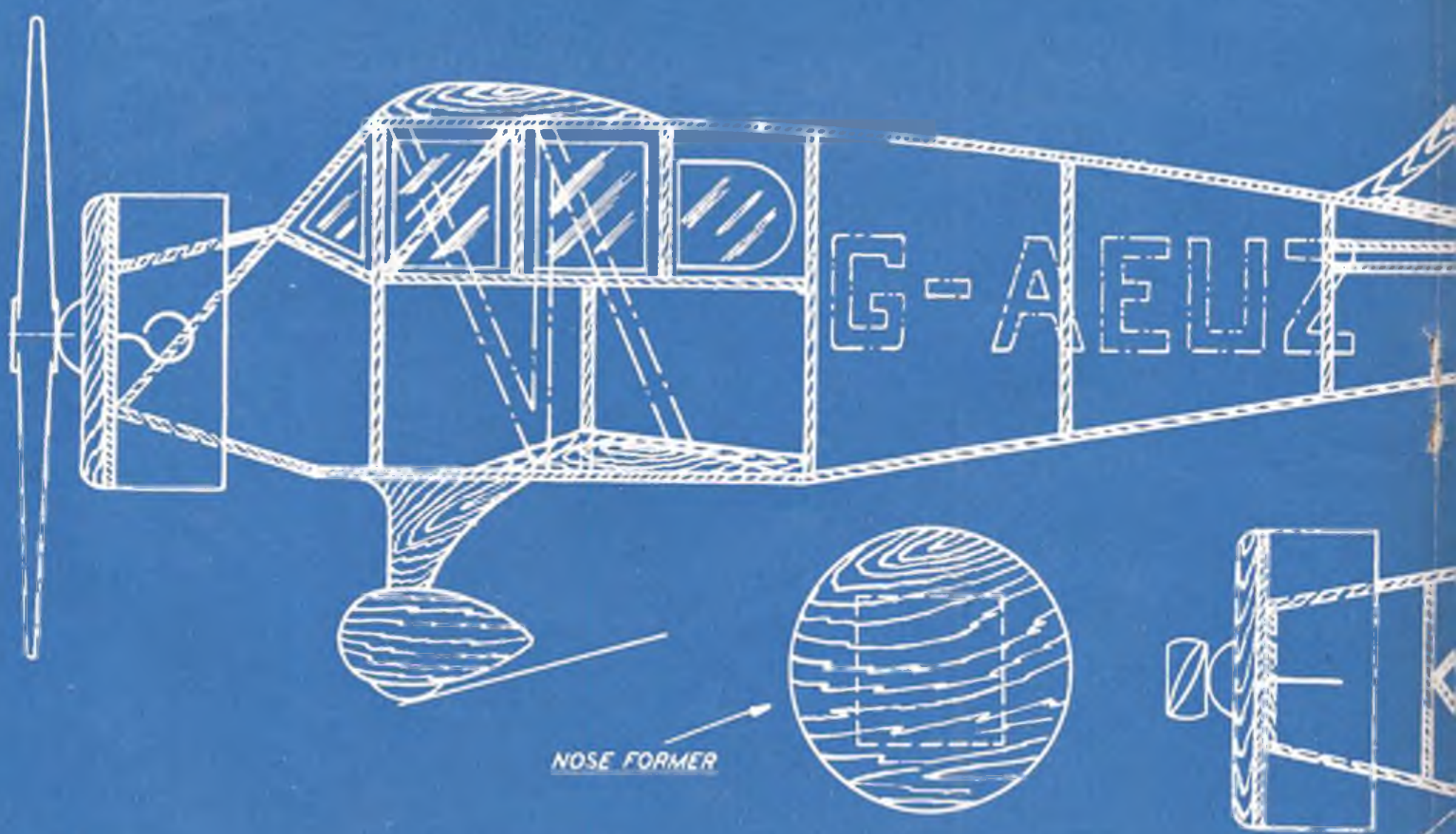


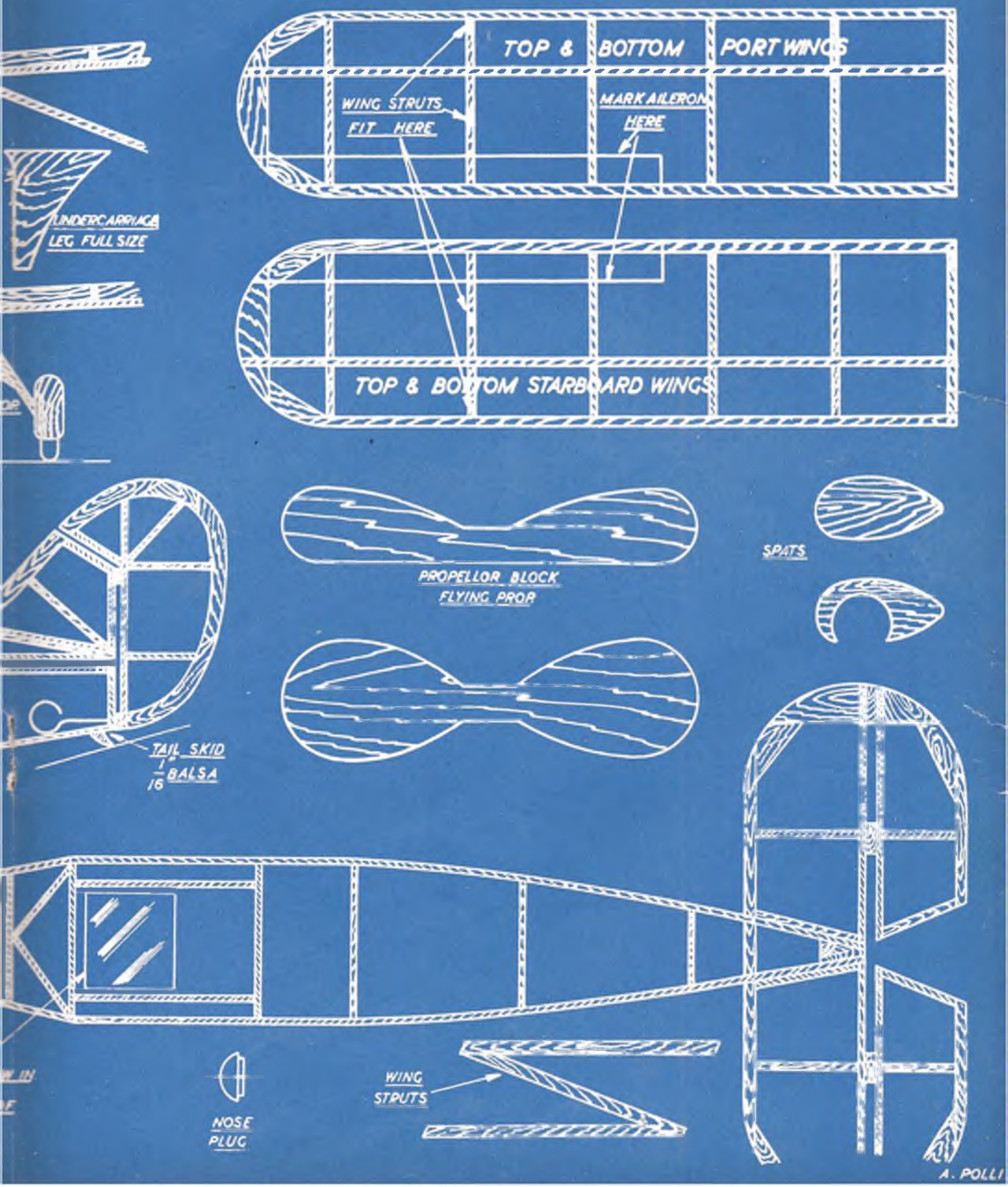
COWLING — FULL SIZE



13½" WING SPAN FLYING SCALE MODEL OF THE AVRO "COMMODORE"

DESIGNED BY H. McDOUGALL.

GHT DESIGN FULL SIZE PLAN



NOTES FROM ITALY

By DR. IG. FIDIA PIATELLI

THE illustrations shown herewith are some shots taken during the trials in Rome, Littorio Aerodrome, at the first Italian competition for gas-powered models entered by journalists. As this competition was included in the programme of The Aeronautical Press Meeting in Rome, a large number of competent onlookers attended. The actual flights, in very windy weather, ended in many a crash, but some good performances were registered with satisfaction.

Many new and interesting models were presented. A model with a tricycle undercarriage, believed to be the first in Italy, had been built in Rome, and

Above, an interesting biplane which has flown well; and on left a large model powered with a baby "Cyclone." At top right is an unusual model. The coil and battery are housed in the egg-shaped container, at the front of which is mounted a wheel.

behaved very well. One well-known model firm of Milan had special model kits prepared for this competition, and several of these had been constructed and were successfully flown. A novel feature of this type was the special cardboard box leading edge in the one-piece cantilever wing, and well-thought-out mounting technique, allowing easy and correct construction of the main-plane.

The most unorthodox and interesting model had been built by a Bologna aero-modeller. The fuselage was a long boom of circular cross-section and

had the motor at its forward end and a vertical streamlined neck bearing the wing root fittings. Under the wing an egg-like container enclosed the batteries and supported the tricycle undercarriage. Another model had twin tail booms and fins. In general the workmanship was good, but many aero-modellers had trouble with their engines, and all models showed signs of somewhat hurried preparation.

Italian sailplanes are still our *piece de resistance*, and I have just completed a new design for a competition glider. I shall let you have details and plans for this model when I have completed testing it, and I hope it will prove of interest to English glider enthusiasts, as it embodies several new features, including "backbone" construction of the fuselage, the "bayonet" wing mounting and the optional "automatic" rudder (an American idea).

I was surprised to hear, whilst reading a report of the King Peter Cup Trials, that British aero-modellists had not been very happy with their sailplanes. I think that they have not yet had sufficient experience as to how to handle them.

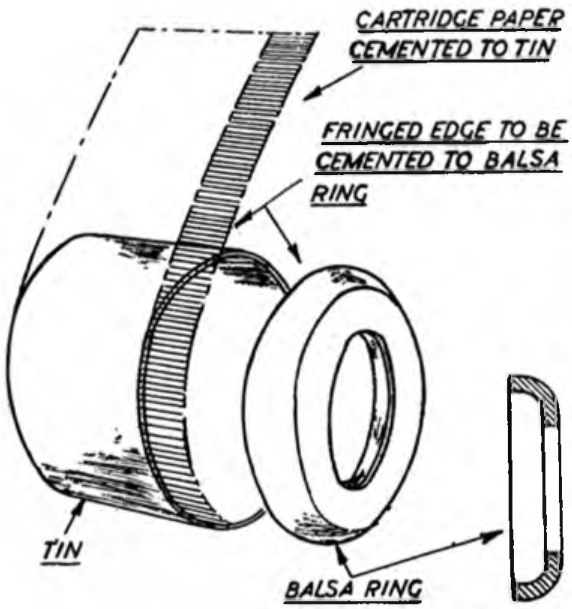
In Italy sailplanes are so popular that we have to insist and teach a large number of the boys to build gas and rubber jobs.

SOME HINTS FOR THE BEGINNER ON SCALE MODELS

By F. A. WHEELER

TO give the effect of metal leading edges, I have found that stiff cartridge paper can be easily bent to fit snugly around the leading edge. This also simplifies the covering of the wing, as creases will form on the edge.

COWLINGS. To make a cowling from solid is a difficult and tedious job, as are those built up of rings of balsa and cut to shape. A neat cowl can be made thus :—

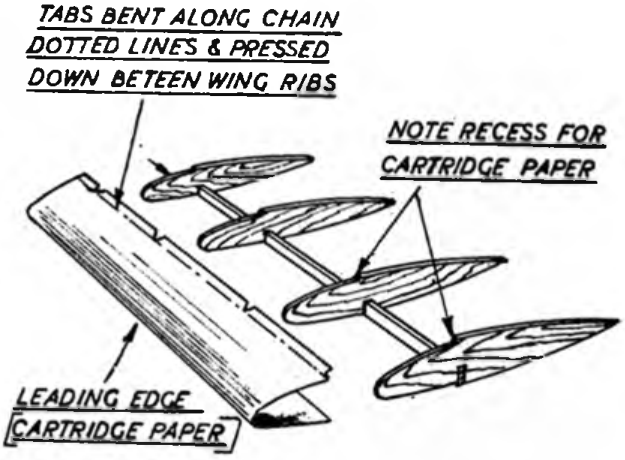


Obtain a tin or other cylindrical object with the same dimensions as the cowl. Take a piece of cartridge paper of the width of cowl and length of circumference of cowl (obtained by wrapping around tin).

Cut along as diameter with a razor blade. Cut out one balsa ring and chamfer the edge. This can be placed on one end of the tin, the cowl wrapped around, and a liberal coating of cement applied as the serations are bent to shape. When dry, fine sand-paper will remove any uneven surfaces.

Blisters are made with plasticine, glued and shaped in place, with a broken razor blade or penknife.

Bracing wires are made of bamboo split with razor blade, and silvered. When glued in place, they look very realistic, and do actually brace the machine.

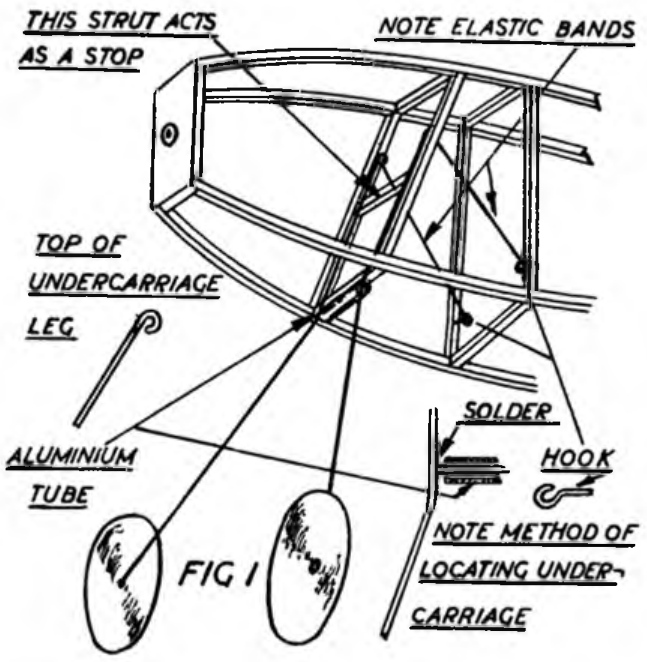


GADGET REVIEW

Conducted and illustrated by **C. A. H. POLLITT**

WE are constantly receiving useful ideas and suggestions from our readers Many of these ideas —which are mostly in the form of gadgets—are as ingenious as they are practical There can be no doubt as to the popularity of these gadgets, and it has accordingly been decided to introduce a regular bi-monthly feature devoted exclusively to current ideas

In compiling this, the first of the series of Gadget Reviews, I have in particular noticed the number of suggestions we have received appertaining to undercarriages There would appear, for instance, to be an infinite variety of methods whereby a satisfactory shock-absorbing undercarriage can be evolved, and for this, if for no other purpose, I propose to make a start by first dealing with an undercarriage gadget



The one in question has been submitted by Mr George Thomas, of Kidderminster, and has much to commend it to our attention Quite rightly, it is pointed out that in the designing of a shock-absorbing undercarriage, certain limitations are imposed, due to the elastic motor taking up so much of the space within the fuselage

Fig 1 is a sketch of the arrangement, and it will be seen that rather than it causing any unnecessary complication, a minimum of interference is ensured

The principle involves the use of two elastic bands each geared at one end to the bottom of a conveniently placed bracing member, by means of a small wire hook The other ends of the elastic bands are attached to the top of each leg of the undercarriage for which purpose the undercarriage legs can be bent to form suitable hooks as shown

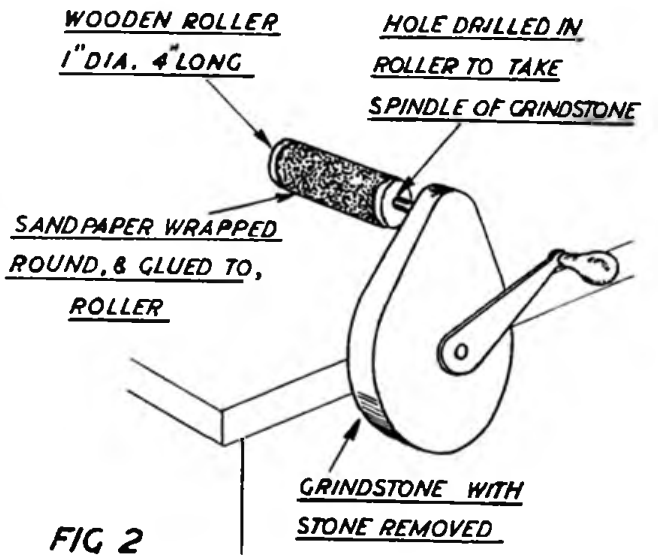
Immediately below the fuselage, the undercarriage struts are braced together by a wire stay soldered to each strut, the stay itself passing through a piece of aluminium tube, which is in turn bound and glued to a cross member in the bottom of the fuselage For convenience I have chosen to show the tube carried outside the fuselage, though for streamline purposes it can alternatively be attached to the forward side of the bracing strut, and so concealed within the fuselage

Very much to be noted are the sloping fuselage members, which give the undercarriage the desired rake

From Mr P A Adams, of Perth, comes a suggestion for transforming a grindstone into a very effective sandpapering machine Most of us have experienced the job of patiently sandpapering what have appeared to be endless numbers of wing ribs and fuselage formers Here we have a device capable of carrying out these jobs speedily, yet accurately

The grindstone should preferably be of a very cheap pattern and minus the stone, which I admit sounds Irish, but is nevertheless quite correct! The stone itself is replaced by a wooden roller to the dimensions shown in Fig 2 One end of the roller should be drilled to receive the spindle of the grindstone, and a piece of sandpaper wrapped round, and glued to, the roller In view of the high speeds at which these grindstones can be operated I would not advise the use of coarse sandpaper for this gadget

Mr C Gilbert, of Manchester, has designed a small fixture for cutting thin strips from sheet balsa This should be really useful for cutting $\frac{1}{8}$ in square stock, or even $\frac{1}{16}$ in square stringers, and is in itself very simple, and I would say, inexpensive to make It comprises four pieces of timber, a base, two guide pieces, and a slide, to the dimensioned sketch Fig 3



The slide is either glued or nailed between the two guide pieces and all are then attached to the base $\frac{1}{8}$ in above the top of the slide, a slot is cut with a fine saw, and into the slot a razor blade fitted and secured by two pieces of 16 s w g steel wire

In Fig 3 the fixture is shown arranged to cut $\frac{1}{8}$ in strips, though other slots can be added at any required distance above the top of the slide, to suit individual requirements The distance between the guide pieces is $\frac{1}{8}$ in , so that when cutting strips from $\frac{1}{16}$ in sheet balsa two sheets can be fed through simultaneously

Mr R Skinner, of Beverley, Yorks has conceived

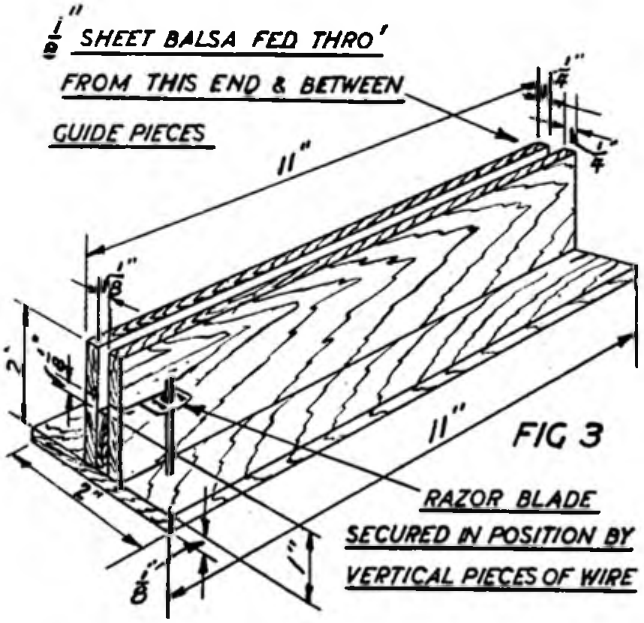


FIG 3

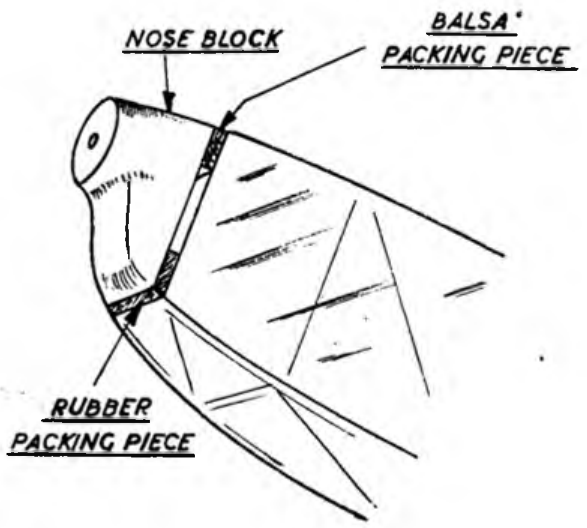


FIG 4

the idea of putting a small block of rubber at the base of the nose block, and between the nose block and the front fuselage former, with the object of eliminating the stall, so readily apparent in many models when being hand-launched. I consider this to be quite a bright idea and one typical of the many instances in which quite a simple device will remedy an annoying peculiarity. During the process of winding the motor, this rubber block is, of course, compressed, and as the model is launched, the propeller has sufficient down-thrust to correct the stall. As the power of the motor is expended the rubber block gradually assumes its original proportions, and the line of thrust becomes normal. A wooden packing piece is required behind the nose block, as shown in Fig. 4.

Personally, I would say, care should be taken in choosing not too tough a block of rubber, but preferably one that is easily compressed.

Fig. 5 is a self-explanatory sketch of another idea of Mr. Skinner's, in the form of a claw for taking hold of a model during winding operations.

And now to round off Gadget Review No. 1.

A recent article in THE AERO-MODELLER on the design of streamline fuselages has prompted Mr. B. K. Hersey, of Walton-on-Thames, to forward us a diagram and explanation of how to drawn an ellipse, a problem likely to present itself in most cases concerning the design of streamline fuselages. For simplicity, I have chosen to illustrate in Fig. 6 how this method would be applied in the development of a quarter portion of an ellipse.

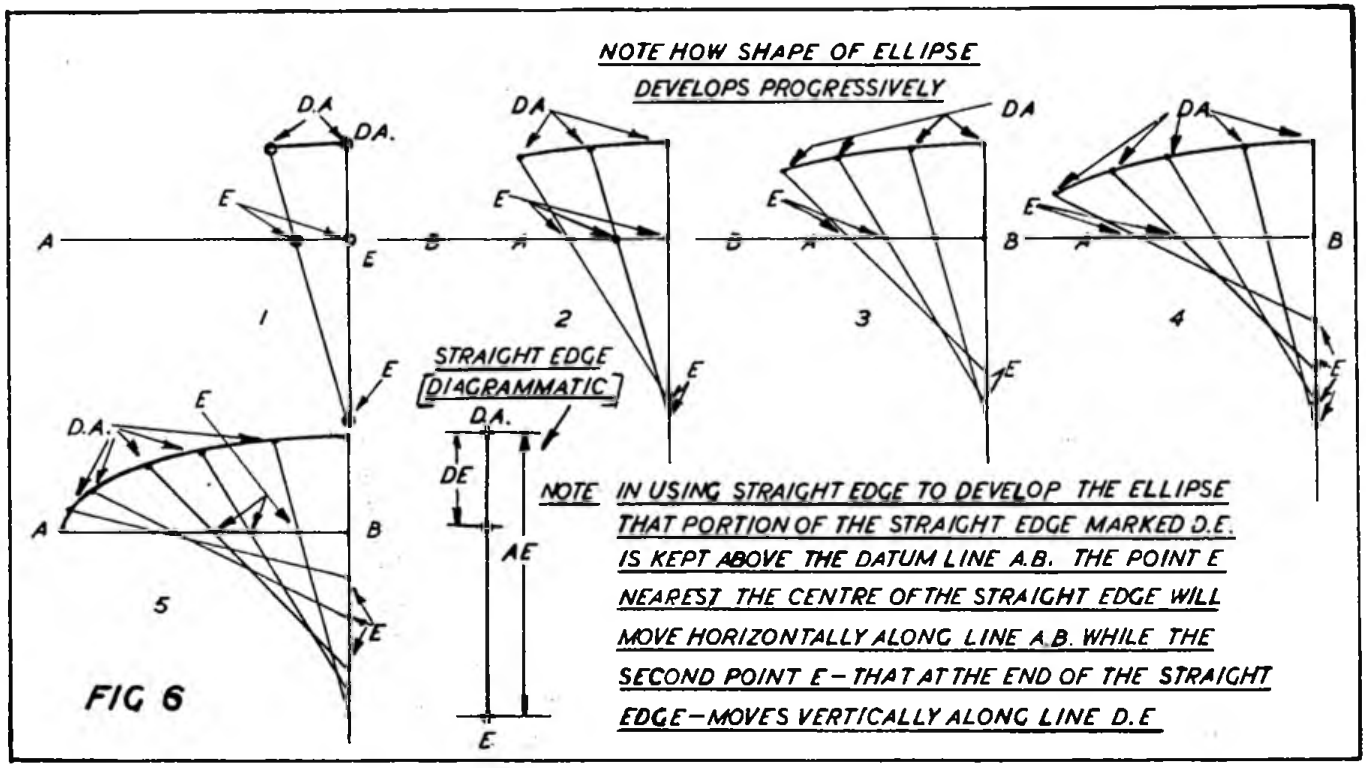


FIG 6

An ellipse is possessed of two axes, a longitudinal and a vertical, as represented by A B and D E, which are respectively the length and depth of the ellipse. A straight edge is required, and on it should be marked off the lengths A B and D E, both being marked from the same end. In Fig. 6 I have explained how, by manœuvring the straight edge, the ellipse is developed.

At some time in the near future, and with the Editor's permission, I hope to have an opportunity of explaining in detail the methods adopted in laying out full size aircraft fuselages, using waterlines and buttocks, and to illustrate the application of these methods to " Wakefield " and other models. But that is " in the future."

Readers are invited to send in short descriptions of gadgets which they have actually made for description and illustration in this monthly feature. Payment from 3s. 6d. to 7s. 6d. is made for each gadget described. Photographs should be sent if possible.

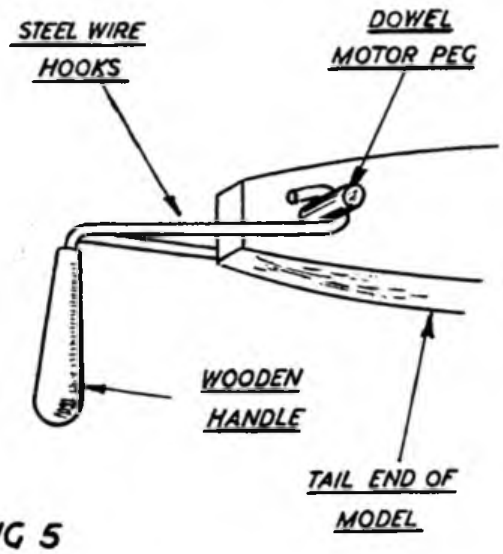


FIG 5

HAS IT EVER STRUCK YOU?

By J. E. BEARD

HAS it ever struck you that there are several dozen model 'plane builders in this country whose activities are never heard of? Well, let me tell you now that there are, and they are of a very enthusiastic order. I know, because I am one of them. The reason we are never seen at competitions and club meetings is because we are not club members. My own particular excuse is rambling on Sundays. And my job takes me away for several months each year, and one can't take a lot of tools and tackle and clutter up one's digs, can one? Imagine what the landlady would say!

However, I have been building and flying model 'planes for about three years. I have no doubt that some of your readers will tear this page out and stamp on it when I say that I have never built a duration model, because I don't like their appearance. Don't tear the page out yet —there may be some good plans on the other side! As a matter of fact, the only 'planes I've ever built from bought plans have been twelve-inch and twenty-inch span kits, but they don't interest me much, apart from the fact that they teach one to handle delicate pieces of balsa. I prefer large scale models.

The 'plane in picture No. 1 is of my own design, having a wing-span of four feet and a weight of 10 oz. This model was built about two years ago, and has made 48 flights, each of which has been logged, and the best being 71 seconds.

The construction follows modern practice, there being twelve millimetre plywood formers, twelve eighth-inch square hard balsa longerons. The wings are built up on tapered balsa box-spars, and the tube and dowel method holds the two together. The cockpit cover is constructed from very small section hard balsa, covered with Cellophane from a Players cigarette packet, and the weight being one-sixteenth oz.

The undercart is quite a normal wire spring affair, and a tail-wheel is fitted, as I find that this gives a quicker take-off. The propeller is 16-inch diameter, 24-inch pitch, and I have never given more than 450 turns, although it will take 700.

When building a model, the thought of a serious crack-up is always very far away from one's mind. You club members will know that when anyone mentions such a thing near a new model they are pooh-poohed out of the workshop and treated with scorn. The forty-eighth flight of J.B.3 was a snorter, around 60 seconds, making a very nice three-pointer into wind, and rolling to a standstill with the breeze " idling " the propeller. And, quite naturally, I wound on another 350 turns and gave the model a hand launch—but, sink me, the thing dived into the ground 12 feet away. You can imagine how 10 oz. hits the ground! I think that the tail wing was disturbed during the launch, thus bringing about the first serious accident I had had with a model. Well, I lit a cigarette to keep me from swearing out loud, although there was nobody about, and surveyed the wreckage. You all know what the feeling is! One mutters darkly: " That's the last model I'll ever build. I'm going in for bee-keeping." This utterly miserable feeling wears off in about twenty minutes, and one examines the damage and becomes an enthusiast once again.

That's how I felt about it. The damage to J.B.3 was serious, and included a broken propeller (4s. 9d. each, hang it !), first three formers smashed, several longerons broken off, undercart mounting ditto, wing-tip splintered, rudder pulped, and several sundry rips and tears on the wings and fuselage.

I have found time to repair the damage, and, as you see in picture No. 1, the nose requires covering, and the small gap in front of the rudder needs the same treatment, and then she will be ready for the fiftieth flight. There will be the usual period of test glides and 100-turn low hand launches. The new propeller only cost 3s. 6d., bless it, but, as it is lighter, duration may be improved.

My interest lately has been in another larger model of my own design. It is a seaplane of 6 feet span, and the fuselage and empennage are shown in picture No. 2. The floats are detachable, and an undercart with three-inch wheels can be attached without disturbing the C.G. I must admit that the size of it almost frightens me ! Why, hang it all, the floats are 24 inches long, with over 250 cubic inches capacity each. Have you ever tried covering a pair of large floats? When I tell you that they are a scale copy of Short Bros.' Schneider 'plane floats you will imagine what a job it is !

The fuselage is 46 in. long by 7 in. by 5 in. Maximum wing chord is 10 inches, and the propeller will have to be about 21 in. or 22 in. The weight is in the balance (no pun intended), but I think it will be between 16½ oz. and 18 oz. You can imagine what my workroom looks like ! Reams of full-size drawings all over the place. Sketches drawn on bits of paper, backs of photographs, the wall, scraps of balsa sheet, and on anything that will take pen and pencil !

It's great fun building the thing, and it looks like

being months before it's finished, but during that time I'll have had several more copies of THE AERO-MODELLER, and nearly all my problems will be thus simplified.

I hope you competition blokes won't be too angry with me when I say that I would never think of building one of those sleek 3 oz. duration crates. They fly, and they win, and their construction shows a super knowledge of stress and strain, coupled with aerodynamics, but for sheer pleasure, what looks better than a large scale model making a perfect three-pointer and rolling to a standstill? Anyway, real model flying hasn't started yet. It will only start when we have radio-controlled petrol models, and then you will see competitions for speed, climb, weight-lifting, aerobatics, formation flying, miniature bombing, height, and several other competitive branches of flying.

And now you'll turn the page over and say " this fellow's nuts." However. . . .

THE AERO-MODELLER PHOTOGRAPHIC COMPETITION

JUDGING of the entries in THE AERO-MODELLER photographic competition has proved, as always, an interesting and pleasurable occupation. In some cases where there was very little to choose between first and second and second and third, two of us did not quite agree, and here the Editor exercised his casting vote.

The general standard of entries was high, but many competitors sent in prints which were too small to show up details of the model, and this had to be held against them, as we were judging the photographs *as a whole* and not the models only.

Amongst the large number of entries there were a number of really beautiful pictures, the only disappointing feature being the lack of entries in the glider section compared with the others.

In Section 1 (Semi-Scale Flying Models) some beautiful pieces of craftsmanship had been photographed, and we had difficulty in placing the winner. Mr. York and Mr. Blunt did not quite agree, and the Editor's vote gave the first prize to P. Magnus for his fine photograph of a Fairy " Facula." The background to this picture was exceptionally well chosen, and the composition was good. Second prize in this section went to Dr. H Charles for a really nice action shot of a biplane in full flight. F. Caigie was third with

a stationary photograph of his semi-scale low-wing model.

Section 2 (Petrol 'Planes) provided a fairly large entry, and we had little difficulty in placing A. Galeota first with his superb photograph. The composition of this photograph was excellent and the sharpness also pronounced.

Second prize went to I. C. Lucas. Here the composition was again good, but the photograph was not so sharp as that of the first prize-winner. Third prize was awarded to J. Coxall for an extremely nice picture of his gas job in flight.

In Section 3 (Duration Type Flying Models) it was again agreed that A. Galeota's beautiful photograph deserved the first prize. Mr. Galeota was the winner of Section 2, and this time his shot showed a Wakefield streamlined model in flight against a perfect background of fleecy white clouds. E. Langston's snap of a duration model in flight was second, and R. Coleman won the third award with a nice shot of a model rising off the ground. The background in this last photograph was exceptionally good.

As we remarked before, Section 4 (Gliders) received only a small entry compared with other sections, and we had not much difficulty in deciding on D. H. Elmes's angle shot of a sailplane in flight as the first prize-winner. J. Rudrum's photograph of a glider also in flight was the second best. The third prize-winner, B. Whitby, showed a stationary shot of a glider constructed from plans in THE AERO-MODELLER, and very nice too.

Section 5 (Flying Scale Models) was rather a "teaser," in the words of Mr. Blunt, and we had to do a bit of hard thinking before we finally decided to award the first prize to W. A. Magee's charming picture of a Davis D.1W in flight, the background being attractive and the composition good. J. Chambers's photograph of a Supermarine "Spitfire" was novel and deserved second prize, although it could have been sharper. M. A. Greenwood's picture of a nice-looking Miles Magister coming in to land was placed third. On the whole the photographs in this section were not so good as in the other sections.

The photograph on the previous page shows the semi-scale model built by P. Magnus. At top of this page is A. Galeota's duration model; at centre is the same entrant's petrol 'plane, winner of Class 2; whilst at the bottom is the entry of W. A. Magee in Class 5.

Section 6 (Solid Scale Models) proved the best section for general standard, bearing out the claims of those who *will* say that "solids" are more realistic! However, as

we said before, a good many of the photographs were decidedly too small to show up all the wealth of detail that had evidently been put into the models, and many promising entries were spoilt on account of this.

Mr. York and Mr. Blunt again disagreed about the first award, but the Editor's casting vote gave it to R. Gundry for his superb shot of a Handley Page " Heyford " against a realistic background of trees and hedges. Close behind him came D. H. Elmes with a very attractive photograph of a nice-looking D.H. Dragonfly, whilst D. McNaughton's attractively poised Westland " Lysander " took third prize.

It gave us real pleasure to scrutinise the entries, and we also realise what a lot of pleasure it must have given the entrants in obtaining these realistic and sometimes strikingly beautiful photographs. To all who were unlucky—better luck next time.

Above is R. Gundry's solid scale model, and on left the prize-winner in Class 4 for gliders.

List of Prize-Winners in " The Aero-Modeller " Photographic Competition.

Class 1 (Semi-Scale Flying Models).

*First prize of £1. P. Magnus, Old Mill House, Roxwell, near Chelmsford.

Second prize of 10s. Dr. H. Charles, 68 Park Avenue, Sydney Parade, Merrion, Dublin.

Third prize of 5s. F. Craigie, c/o Miller, 133 Trongate, Glasgow, C.1.

Class 2 (Petrol Models).

First prize of £1. A. Galeota, " The Lodge," New House Farm, near Great Missenden.

Second prize of 10s. I. C. Lucas, 1 Radinden Drive, Hove 4.

Third prize of 5s. J. Coxall, 57A Park Road, Hampton Hill, Middlesex.

Class 3 (Duration Type Flying Models).

First prize of £1. A. Galeota, " The Lodge," New House Farm, near Great Missenden.

Second prize of 10s. E. Langston, 6 Blunts Avenue, Sipson, West Drayton, Middlesex.

*Third prize of 5s. R. Coleman, 29 Cambria Road, Evesham, Worcester.

Class 4 (Gliders).

First prize of £1. D. H. Elmes, 19 Bramley Crescent, Ilford, Essex.

Second prize of 10s. J. Rudrum, 52 Clandon Close, Stoneleigh, Surrey.

Third prize of 5s. B. Whitby, Godshill, Fordingbridge, Hants.

Class 5 (Flying Scale Models).

First prize of £1. W. A. Magee, 65 Brown Street, Macclesfield, Cheshire.

Second prize of 10s. J. Chambers, 7 Hyett Road, Cashes Green, Stroud, Gloucester.

Third prize of 5s. M. A. Greenwood, 41 Vicarage Road, Swindon, Wilts.

Class 6 (Solid Scale Models).

First prize of £1 to R. Gundry, Feebarrow, Camp, West Coker, Yeovil.

Second prize of 10s. D. H. Elmes, 19 Bramley Crescent, Ilford, Essex.

Third prize of 5s. D. McNaughton, 47 Wright House, Quarry Hill Flats, Leeds 9.

All entrants marked thus * have their prize money increased by 50 per cent for being members of the N.G.A. and also for having their N.G.A. transfers showing on the models in the photographs entered in the competition.

SOME NOTES ON MONOCOQUE CONSTRUCTION

By M. R. CHANTRILL

A MONOCOQUE fuselage has certain inherent advantages which a tissue-covered structure cannot offer Among the more obvious advantages are its ability to stand the hefty whack of a burst motor, the comparative ease with which it can be " de-treed," owing to the fact that little twigs and things don't push their way through the fuselage, and its longer life, due to much the same reason

Some modellers are wont to condemn monocoques on account of their supposed weight, although these are usually the chaps who go home and plaster several dozen stringers round a fuselage, and argue that because it is so flimsy it *must* be light This is not the case, as we shall see

Let us take a typical Wakefield model having a fuselage circumference of 16 inches, and, say, 32 stringers of eighth-inch square (A lesser number of stringers could not compare from the drag standpoint with a monocoque) Imagine these stringers to be placed side by side, which would give us a block as long as the fuselage of $\frac{1}{8}$ in × 4 in or 16 in × $\frac{1}{32}$ in Taking the same fuselage again, skinned entirely in $\frac{1}{32}$ in sheet, we still make only 16 in × $\frac{1}{32}$ in (16 in being the circumference of the fuselage) Having seen it is no heavier, let us compare it with a stringered fuselage, from the point of view of strength

A model's fuselage does not have to contend with any very great bending loads, but it does have to withstand enormous torsional and compressive stresses Let us analyse the stringered fuselage In the majority of cases it is composed of many little square sectioned (a poor structural section, anyway) beams, supported at points amount three inches apart Between these points it is only prevented from moving under the torque of the rubber by the paper covering pulling at one face of the square section only, which tends to twist the stringer in its notch Again, a stringer works more or less on its own, as a highly stressed little beam and only receives " individual " support from its neighbours

Now the monocoque, instead of having the compressive load of the rubber split up into 32, has it split up into an infinite number, and is distributed evenly over the whole outside skin of the fuselage In torsion the monocoque structure is acting as a tube which will resist twisting except by buckling, which rarely occurs in a soft wood such as balsa

As a matter of interest, the Short " Mercury " and a Blackburn effort, as well as several German aeroplanes, employ elliptical or circular wing *mainspars*—merely to take bending loads

Perhaps the greatest deterrent against building a monocoque fuselage is the time and infinite patience required in its fabrication Therefore a few hints, based on painful experience, might not be out of place

I prefer to use formers about $\frac{3}{8}$ in wide and built up of two laminations of $\frac{1}{16}$ in sheet These can be placed quite wide apart, and are usefully strong for pinning on planks During the early stages of construction the formers are made in halves and cemented to top and bottom backbones pinned on to the plans Several parallel planks about $\frac{1}{4}$ in wide can now be cemented on at random The process then is repeated for the other side, the two halves cemented down the centre and the whole skeleton lined up Rubber bands are now placed over each former and a plank, rather wider than the gap between the fixed planks, pushed through and placed over the gap With a chisel pointed soft pencil, mark the shape of the required plank from the inside by poking the pencil through a gap opposite Remove the plank and cut slightly wide of the line which you marked Do not cement this plank in place at this stage or you will not be able to mark off the plank on the opposite side of the fuselage If the loose planks are sanded down to the marked line on the *inside*, whilst leaving the outside slightly large in width, they will be a snug fit with their neighbours and show no unsightly cracks If the rear part of the fuselage is designed with a straight taper, it is often easier and quicker to apply the sheet in large panels In this case the wood should be of that variety of balsa which bends easily across its width, and should be slightly warmed and bent before applying Better results are obtained by using $\frac{1}{16}$ in sheet for covering, which is easier to handle and can afterwards be sanded down to the required thickness—about 1/25 in at the nose and 1/40 in at the tail

In conclusion, I suggest that the little extra time required in building a monocoque fuselage is repaid with interest in the form of a structurally and aerodynamically efficient component of the model

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NOTES ON A COUNCIL MEETING OF THE S.M.A.E.

Held at the Grafton Hotel, on Sunday, November 12th, 1939

Dr. Thurston took the chair at a very full meeting, thirty-five persons being present.

The minutes of the previous Council meeting were read and confirmed.

Arising from the minutes, Mr. Cosh stated that he had written to the holders of the S.M.A.E. cups asking for the return of these. He had received them all back, with the exception of the Frog Junior Trophy, and a letter to Mr. Field, the holder, had been returned marked " Gone away."

Some discussion was held on the fact that one of the cups had been returned wrapped in corrugated and brown paper and had been damaged in transit. The Council felt that some censure should be passed on the individual concerned. Mr. Cosh explained to the Council that the cup was being repaired, and would be placed with the others in safe keeping. The Council decided that, in future, some form of protection, such as a box, should be made for each cup prior to their being next issued.

The question of the Wakefield International Cup Competition was discussed. This competition can only be organised by the S.M.A.E., and Mr. Cosh informed the Council that a letter had been sent to the National Aeronautics Association of America requesting that they safeguard the Wakefield Cup during hostilities. He had received a reply which stated that the cup was already in the hands of the N.A.A., and that they would be only too pleased to take charge of it until the next international competition.

Warrant-Officer Gutteridge stated that he considered England would be at a disadvantage in the next Wakefield Cup Competition if the practice of building and flying Wakefield type models was discontinued during hostilities. and in order to foster this competition he offered a cup to the S.M.A.E. for competition next year. The Council had very great pleasure in accepting this offer from Warrant-Officer Gutteridge, and thanked him most heartily.

Some discussion took place on international competitions, and the Press Secretary was asked to stress the fact in his next report that all foreign competitors would be made most welcome at the next international competition.

The Council then proceeded with the general business, which was mainly concerned with the future activities of the S.M.A.E. Messrs. Bell, Gordon, Gutteridge, Rippon and Rushbrooke all spoke on the subject, and it was unanimously decided that the S.M.A.E. should carry on and be as active as possible.

Mr. Cosh stated that he had sent out one hundred and thirty-three questionnaire postcards asking the clubs whether they were carrying on during the war. He had only received seventy-two replies; sixty were continuing, seven discontinuing, and five indefinite. He had received no reply from sixty-one clubs.

In order to eliminate the secretary's work involved in writing to clubs which were defunct, the Council passed a ruling that those clubs that had not replied to the questionnaire should be given one month's grace from the date of the meeting, and if no reply to the questionnaire was received during that time they should not have sent to them any communications from the S.M.A.E. until such times as they got into touch with Mr. Cosh.

The Council then decided to elect an Emergency Committee of twelve members, which should include active officers of the society, and one Fellow, and four others.

Mr. C. A. Rippon was elected as the representative of the Fellows.

The following were nominated for election to the committee: Mrs. A. P. Thurston, Mrs. C. A. Rippon, Miss Greene, Messrs. Bell, Faulkner, Gordon, Gutteridge, Orchard, Rushbrooke, Wickens and Knight. A ballot was held, and the following gentlemen were elected: Messrs. Bell, Knight, Gutteridge and Rushbrooke. These four gentlemen and Mr. Rippon, together with the officers of the society, namely, Dr. A. P. Thurston, Messrs. Houlberg, Bullock, Cosh, Hawkins, Smith, and York, form the Emergency Committee. In the event of any of these gentlemen being compelled to relinquish their duties on the committee, it was decided that their places should be filled by those nominees who were not elected, i.e. Mrs. Thurston, Mrs. Rippon, Miss Greene, Messrs. Faulkner, Orchard, Gordon, and Wickens. The committee were instructed to hold meetings once per quarter, but as it was pointed out by Mr. Cosh, it might be necessary to hold them more frequently than ordinary Council meetings had been held in the past. The Council passed a ruling that a quorum of this committee should be seven. It was felt that in the case of any committee member having to travel a considerable distance to attend meetings, some financial assistance should be given. It was left to the committee to work out a scheme with this end in view. The committee were empowered to call a general Council meeting if they considered it necessary.

Dr. Thurston then asked for guidance from the Council as to what future activities the committee should consider. Several Council members gave suggestions on this subject, and these were left to the Emergency Committee to deal with, the chief item of interest being that the Council decided that a bulletin be printed and circulated to all affiliated clubs that are carrying on, so that they might receive greater details than it was possible to give them in the ordinary Press report. This was considered necessary, as all clubs have not members on the Emergency Committee. It was also suggested that the committee should consider the possibility of reducing the affiliation fee.

Mr. O'Neil offered his club's ground for petrol model enthusiasts. He stated that it would not be necessary for anyone wishing to fly to become a club member. All he asked them to do was to let him know when they wished to fly, so that he could make the necessary arrangements.

The Council very much appreciated this offer, and thanked Mr. O'Neil, at the same time requesting other clubs to throw open their grounds, so that members of clubs whose flying fields had been taken over for war purposes could have somewhere to fly.

There was one affiliation, and one or two reaffiliations. This business was left to the Emergency Committee to deal with.

Mr. J. C. Smith, the Competition Secretary, stated that there had been two decentralised competition dates since war was declared, the Biplane on September 3rd, for which the Bristol Club had sent in an entry, and the Farrow Shield, for which the Bournemouth Club had sent in an entry. Mr. Smith asked for guidance whether these two entries were to be accepted. The Council informed Mr. Smith that, as under the Defence of the Realm regulations, all meetings were stopped at the commencement of war, these entries could not be accepted.

The meeting closed at 7.30 p.m. with a vote of thanks to the Chair.

H. YORK, *Hon. Press Secretary.*

Brief Resume of the first meeting of the Emergency Committee, held at the Grafton Hotel, London, on Sunday, December 10th, 1939.

The meeting opened with a reading of that portion of the minutes of the council meeting held on November 12th, which authorised the formation of the Emergency Committee.

After the minutes had been read it was decided to elect a Chairman, Vice-Chairman and Secretary of the Emergency Committee. A ballot was taken, and this resulted in Mr. A. F. Houlberg being elected chairman; Dr. A. P. Thurston, vice-chairman; Mr. E. F. H. Cosh, secretary. The standing rules of the committee were then discussed, and it was agreed that the length of time the Emergency Committee should sit should be entirely at the discretion of the chair. It was also decided that the agenda of the Emergency Committee meetings should be circulated to members of the committee prior to their meeting.

Considerable discussion took place as to the advisability of allowing visitors to be present while the committee was in session. It was finally decided that visitors would only be allowed by invitation of the majority of committee members.

The Emergency Committee then dealt with general business and correspondence.

Arising from the latter, the Victoria (Australia) Club desired the S.M.A.E. to issue them F.A.I. licences. Mr. Cosh was instructed to make one or two further enquiries which were necessary before these licences could be issued.

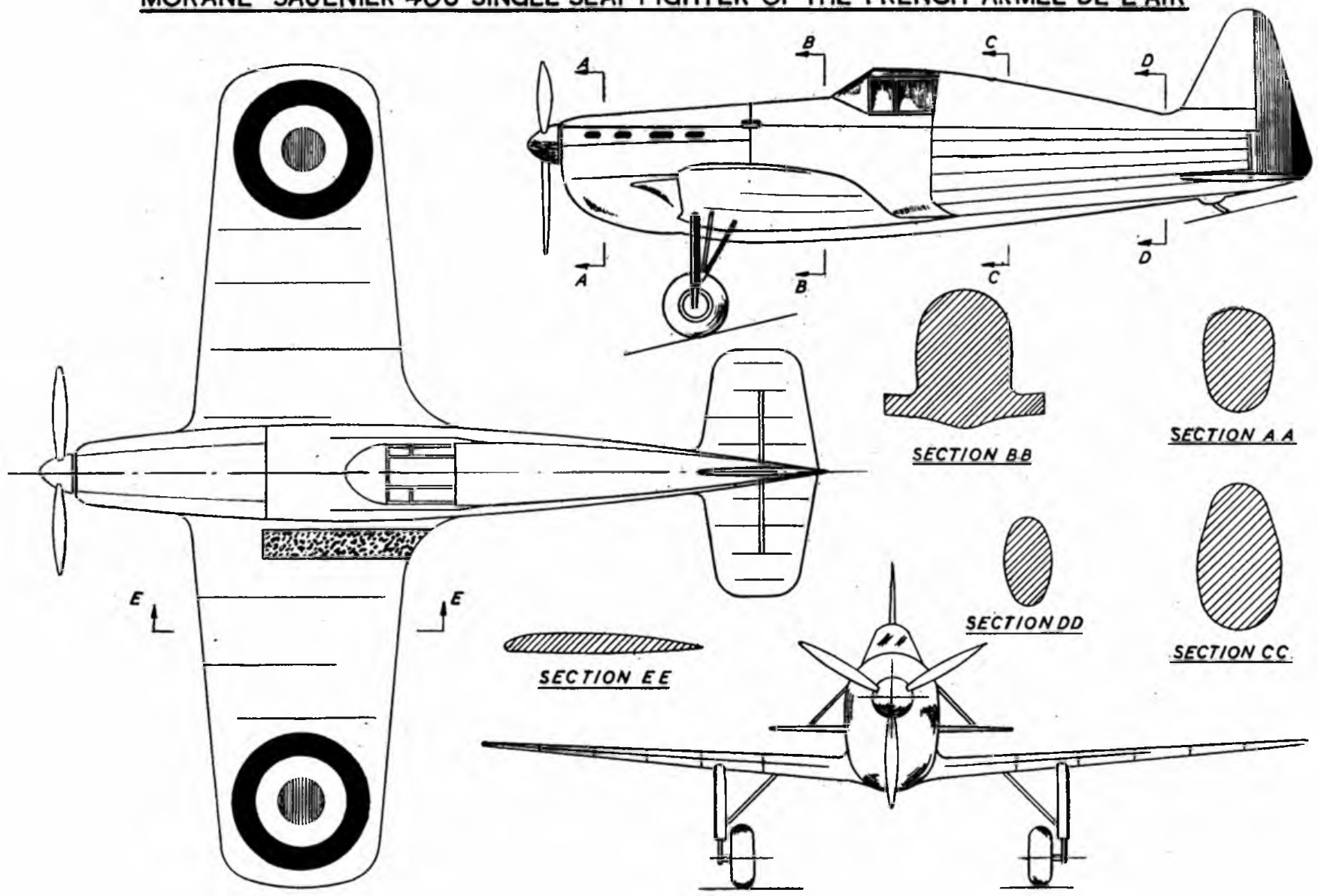
A letter from Mr. Gordon, of the Hornchurch Club, was read, his chief point being S.M.A.E. lectures. The committee discussed this matter at some length, and decided to review it at their next meeting.

Mr. E. T. Vincent was elected a patron member of the S.M.A.E.

The question of the S.M.A.E. diaries was next considered, and as the general interest in these lay in the competition programme it was decided not to issue diaries for 1940.

(*Continued on page* 119).

MORANE-SAULNIER 406 SINGLE SEAT FIGHTER OF THE FRENCH ARMEE DE L'AIR



A . POLLITT

AT THE SIGN OF THE WINDSOCK

MODEL AERO SUPPLIES, Halifax, have reported good sales of their super streamlined Wakefield model " Flying Minutes," and in view of the report that there is likely to be a series of competitions next year for this type of model, this seems to be a kit which merits the attention of all Wakefield fans. " Flying Minutes " is the design of those two well-known aero-modellers, Len Stott and Norman Lees, members of the successful Halifax Club. We have seen " Flying Minutes " perform, and were privileged to see its terrific flight of 17½ minutes at the last Northern Rally held at Woodford Aerodrome. It was also officially timed on October 31st last for over 15 minutes. If performance is wanted this model must surely have it!

One thousand words of instruction make the construction simple, and fuller particulars of a super all-in kit to build this model may be found in Model Aero Supplies' advertisement on page 86 of this issue.

* * * * * *

The Model Aerodrome, 144 Stratford Road, Birmingham, whose full-page advertisement appears this month on page 91, have just issued a new super catalogue; in fact, it might almost be called a booklet of hints and tips. We have no hesitation in saying that this is one of the finest catalogues we have seen.

The first fourteen pages are taken up by hints and tips on the construction and flying of model aircraft—How to fly a duration model; How to look after your rubber and avoid broken motors; Table of turns; Hints for designers; Notes on aerofoils, with drawings of fifteen of the most popular sections in use to-day; How to build a rectangular fuselage on a plan; How to build a wing on a plan; How to join the two halves of a wing; and finally How to construct round or pear-shaped fuselages.

The remainder of this 44-page booklet is, of course, filled with a variety of models and materials, the well-known range of " Club " super duration models, and flying-scale and petrol models.

A new line just put on the market is " Drome " camouflage tissue. This is first quality Japanese tissue, with a correct shadow shading pattern printed on it in dark brown and olive green. This should be helpful to flying-scale enthusiasts who prefer not to dope their models with shadow shading dope in order to minimise the weight.

A new 31 in. wing span glider is guaranteed to be simple to build and to have a very good performance. The kit costs 3s. complete, with all materials of very finest quality.

A week or so ago we had the pleasure of paying a visit to this firm's showroom, and whilst there saw a model of the Sir Cunliffe Owen " Flying Wing " constructed from a plan and instructions supplied by The Model Aerodrome. We were very impressed with the workmanship, the model being built by one of the staff.

This plan should enable any rubber-driven " fan " to construct a super twin-engined machine, as the long tail booms allow a long motor to be used for each engine.

Two new 15 in. wing span scale flying models are the Hurricane and the Spitfire; both kits make up into excellent miniatures of the prototype and cost 3s. 6d. each. They contain ample balsa and cement, super detail plan and detailed instructions.

We advise our readers to obtain a copy of this most excellent catalogue before The Model Aerodrome run out of supplies, as the demand has already exceeded all their expectations.

* * * * * *

This month we have received a kit from Northern Model Aircraft Co., 25 Lower Mosley Street, Manchester, of a Westland " Lysander " Army co-operation monoplane.

The scale of this flying model is half-an-inch to the foot, and the kit contains best quality ready-cut strip balsa, all wing ribs, formers, etc., ready printed on fine quality sheet, all turned parts ready finished, including a super cowling of balsa, rubber, finished flying propeller, tissue, glue, cement, silver dope, transparent acetate sheeting, and a fine plan and instructions.

The photograph on the lid of the box shows that if correctly constructed this model would make into one of the finest flying-scale models one could possibly wish to possess. Close stringers and ribs make it very realistic, and the plan gives plenty of detail for the super detail fan. This model has been designed, tested and manufactured in Great Britain.

Fuller details of this firm's products, which are well known for their quality, will be found on page 119.

The Seventh Annual Rally of the Skybird League will be held during the next Easter vacation. Many of our readers will no doubt be pleased to hear this news, as a great number of entries are received for this yearly competition.

Now is the time to construct your prize-winning model. The Skybird League possesses many valuable trophies and prizes, and full details of the types of model eligible can be obtained from the Secretary of the Skybird League.

Full particulars of Skybird's latest additions will be found in their advertisement on page 86.

* * * * * *

Studiette Handcrafts, of Kent Street, Birmingham 5, have sent us details of a new kit they are producing at present. It is a scale flying model of the Westland " Lysander." The kit contains everything necessary to build a super detail model 25 in. wing span. This type of aircraft is now doing excellent service with the Royal Air Force and British Expeditionary Force, and no doubt many modellers will wish to build a replica of it. The kit is retailed at 12s. 6d., and although quite simple to construct, has flown for 27 sec. r.o.g. in full " war paint." Under ideal conditions the model should average easily 30 to 45 sec., not an exaggerated claim, but one which will take some beating.

The illustration gives some idea of the details incorporated in the excellent plan supplied with the kit.

* * * * * *

Messrs. F. P. Sweeten Ltd., 38 Bank Hey Street, Blackpool, Lancs, have sent us details of another addition to their already comprehensive range of modern military flying scale types.

The model is illustrated here, and most readers will recognise it as a striking replica of the much vaunted Messerschmitt ME 109 fighter of the German Air Force.

We have examined the plans and printed balsa provided

Here is the Messerschmitt 109 built from a kit by Sweetens.

with this new kit, and these seem to bear out Messrs. Sweeten's claim for " value." The plan is a most excellent one and gives many details so dear to the heart of the scale modellist, such as gun troughs, machine guns, balanced ailerons, exhaust louvres, coolers and wireless mast, etc. Another good feature is the neat insignias printed in one corner of the plan ready to cut out and glue in place on the completed model. As the illustration shows, the kit makes a strikingly realistic model.

All formers, bulkheads, wings, ribs, etc., are printed out on good quality sheet. Many builders will welcome this up-to-date addition to Messrs. Sweeten's range. Full particulars are on the inside front cover page of this issue.

* * * * * *

Already, due to the difficulty of getting supplies from abroad, many firms are producing British kits of their own design to replace those previously obtained from America.

Messrs. Aer-O-Kits, of Sheffield, have just marketed

A " Lysander " built from one of Studiette's kits.

a new line in 15 in. wing span flying-scale kits. Full particulars of the entire range in this series is given in their advertisement on page 66 of this issue.

The kits retail at 1s. 6d., and we have examined a kit for the Fairey " Battle," and it contained ample supplies of balsa strip, printed ribs, etc., block balsa, cement, tissue, etc., and super plan with full instructions.

Dealers are invited to obtain particulars of this range which should find a very ready market at present.

* * * * * *

In our last issue we wrongly named Radett Electric Co., of 21 Arkwright Street, Nottingham, as " Cadett " Electric Co. Aero-modellers in this district please note.

* * * * * *

In the " On Test " article in our last issue, which dealt with " The Terrier " kit, sold by Premier Aero-model Supplies, of 2A Hornsey Rise, London, N.19, the longerons and spacers with which the fuselage was constructed were, due to a printing error, referred to as $\frac{1}{32}$ in. square balsa. Of course, this should have read $\frac{3}{32}$ in. square.

* * * * * *

On page 107 Messrs. Harborough Publishing Co. Ltd. announce the third book in the series they are publishing on model aircraft, " Scale Model Aircraft that Fly," written by two well-known contributors to THE AERO-MODELLER, Messrs. H. J. Towner and Howard Boys, will have an instant appeal to thousands of our readers. The book contains over 100 pages of entirely original work, and is illustrated with many photographs and sketches. The price is 3s. post free from the publishers, The Harborough Publishing Co. Ltd., Allen House, Newarke Street, Leicester, or copies may be obtained from any model shop, Smith's or Wyman's Bookstalls, or from any bookseller. The cover of the book is in attractive colours and depicts the authors with two of the models for the design and construction of which they are well known.

HAPPY NEW YEAR, fellows and fillies, and may this new era bring about a speedy return to normal. Seems ages since we could sit back and just look forward to the next flying meeting, but all bad things come to an end, just the same as good ones, so—here's hoping.

Besides the amount of water that is always passing under the well-known bridge, much has happened since our *last tête-à-tête*. The most important to us, of course, is the long-awaited declaration of policy by the S.M.A.E., which, if the reports received are anything to go by, has been eagerly—and impatiently—awaited by you all. (At least one club has withheld its application for affiliation until such time as news was released from headquarters).

Unfortunately, at the time this is written, no official report has been received for print, so I must confine myself to such matters as I know, and trust that the report will be in time for inclusion in the current issue.

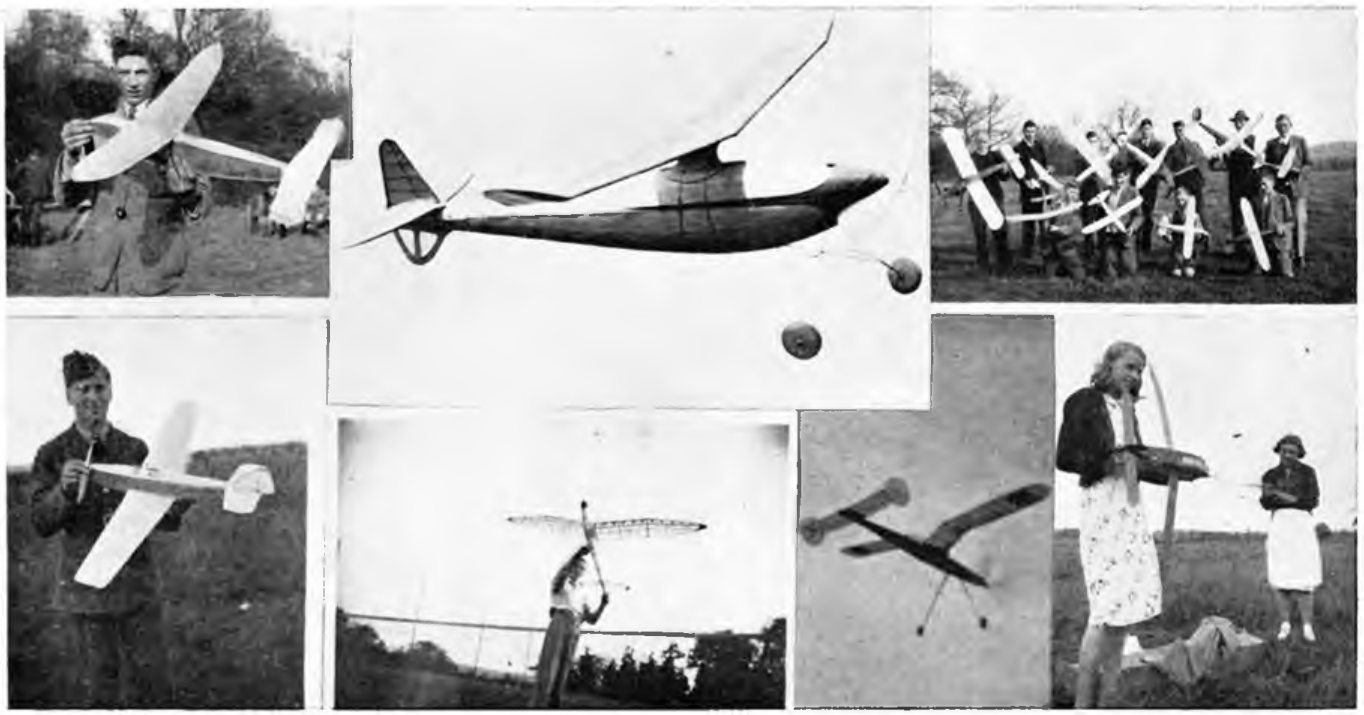
The formation of an Emergency Committee was the logical step to take under the circumstances, and I am convinced that, with a committee of this size business can be conducted with greater dispatch than hitherto—a point that has been stressed on numerous occasions by at least one of the present committee. A large meeting always develops into a long discourse, and this was very evident at the special meeting called for November 12th. Trouble is that the point of discussion is so often side-tracked when thirty or more people wish to pass their opinions on it!

The committee selected will undoubtedly meet with universal approval, but they have no sinecure of a job. The usual officers have been supplemented by another five members, bringing the total to twelve. Mr. Rippon represents the Fellows of the S.M.A.E., while Messrs. M. R. Knight, G. Bell, W/O. Gutteridge and C. S. Rushbrooke are all well known in the aero-modelling sphere, and need no introduction from me. This body has an unenviable task to perform, and much readjustment, etc., will require to be made. Obviously, transport difficulties will have an effect on centralised competitions, and this, and many other matters, will have to be thoroughly investigated with a view to introducing some equitable and reasonable programme for the near future.

Apropos my remarks on the Wakefield contest for 1940, I understand that the N.A.A. of America has been approached with the suggestion that further competition for this important international trophy is suspended until the end of the present hostilities. Obviously this will be the best solution all round, as, even if it were possible for England to compete, the same cannot be said for many other countries whose aero-modelling interest is just as great as ours, and it is not our wish to compete on anything but an equal basis. I await further news on this matter with interest.

Our old friend, the Rev. Father Amiard—or, as many of us prefer to call him, the " Amiable and Diplomatic " —has written asking that those enthusiastic aero-modellers who may be with the Forces in France will get in touch with him. He is now acting as an *agent de liaison*, or, as he so aptly puts it, " trying to carry on the job I did with all the modellists," and can be contacted by writing to: R. Amiard, G.H.Q. 1st Echelon, S.P.91, c/o British Army Post Office. Knowing him intimately, I know he is very anxious to help any of his fellow enthusiasts, and trust those of you who have the chance will grab the opportunity of a chat with this best of fellows.

On going through this month's club reports, I am struck by the lack of news from the London clubs. By far the greater activity seems to be among the northern clubs, and, while appreciating that evacuation, etc., must have had an unfortunate effect on many of the club attendances, I hardly think it accounts for a lack of news so drastic. What is wrong, London?



(Top, left and right) Members of the Halstead Baptist M.A.C., the gentleman on the left being the 1939 Cup winner.
(Top centre) A "Tse-Tse Fly," built by A. Daventry, of New Barking. Model is actually in flight.
(Bottom left) N. Fowler, of the Northampton M.A.C., with his record holding "B.A. Swallow."
(Right centre) An unusual-looking model, built by F. Shawyer, of Winchester.
(Left centre) A good-looking glider, designed and built by A. S. Harris, of Cowden, Kent.
(Bottom right) The ladies invade the Northampton Club—and pinch the Secretary's model to demonstrate with.

An interesting letter from Scotland raises a very pertinent point, and I pass it on verbatim: "I was very surprised indeed to find from your list of clubs that 122 out of 270-odd were not affiliated to the S.M.A.E. Isn't there scope for a gentleman of highly persuasive personality, or possibly gentlemen of ditto, to cover the areas and bring these sinners of omission within the fold? I grant you that only three out of twelve Scottish clubs are affiliated, but then, a Scot is loath to part with a bawbee—or, as was pointed out to me, before you part with cash you at least expect something for it."

Well, I think that's a matter for the new committee to make a start with, especially as the letter goes on to say: "Now that international relations, apart from mere hostilities, are impossible, is this not the time for home relations to be improved? If these were put on a better basis you would get better support and less grumbling, and grumbles and grouses get around, you know!"

Certainly the nail seems to have got a wallop somewhere near the head there—though may I ask whether the S.M.A.E. has ever been approached with any complaints, suggestions or otherwise from these near cousins? Unfortunately I find that many people who are very willing to criticise are the last to come forward with any constructive suggestions for improvements, and, after all, if you don't ask for what you want—well, what would you?

Personally I feel that a section as far removed from the general centre as Scotland would require special treatment, but until sufficient support is forthcoming it seems hardly possible to do much more than hope that you Heilanders will forward your views to the S.M.A.E. and find out their views in return.

The microfilmies seem to be enjoying themselves these days, and from personal experience I can assure you that a great deal of fun is to be had with this class of aero-modelling. Pole flying is also attracting more and more attention, and our thanks are extended to Mr. Bullock for introducing this phase of model flying, that has done so much to enliven the winter months. (Trouble with me is that I'm always getting tied up in the darn cotton—and you should just hear what the lads call me when I knock the pylon over! 'Sawful, reely!)

Many correspondents send a kindly word in praise of the way Club News is now presented. I am grateful for this encouragement. Occasionally I receive a note of another kind—but that does not unduly afflict us. It shows that what I have written has been read, which is the main thing. That it should be approved is very agreeable, but I have an almost equal affection for those who read and disagree as for those who agree. On the whole I have no reason to complain! My thanks to the kind Press secretary who sent me a bundle of blue pencils as a Christmas present (contrariwise, his own reports are seldom in need of such colouring). I half expected a bunch of razor blades, with the kind invitation to "cut myself a piece of throat."

There is one wielder of the pen I would commune with, and that is the chap who rushes into print with a criticism of a person or body before he has given said person or body a chance of giving a satisfactory answer to his charge. I say this with feeling, as I have had complaints of dirty linen being washed in public, when a prior communication with the party or parties concerned would have cleared the air. So remember, don't air your criticisms through the Press unless recognition has been refused by the other side. (Talks like a Dutch uncle, don't I?)

News is to hand this month from far afield—New Zealand. Mr. N. B. Randle, of Tawhana St. TeKuhiti, N.Z., tells us that even in that land of sunshine they have their spells of rain and wind, but that does not detract from the enthusiam of our fellow enthusiasts "down under." As here, competitions are indulged in, and I hope to give you some flying times from this part of the world at some future date. Randle says that one of the first things he found in this game is that "a thing of beauty is not always a joy for ever"—but haven't we all! It's a treat to hear from you chaps in the Dominions, and I hope that others will follow suit.

Through the kindness of the club librarian, the CHESTER M.F.C. now have a new club-room, complete with "props., swords and pictures." I hope these chaps do not settle their technical arguments at the point of the pig-sticker! The last competition of the season—a "nearest to 30 sec." event, was won by Mr. Dodd, who hit the mark dead on, the runners-up being Messrs. Wilde and Modern. (A senior member, now in the Forces, has a job for life—filling Whitley's from two-gallon tins!)

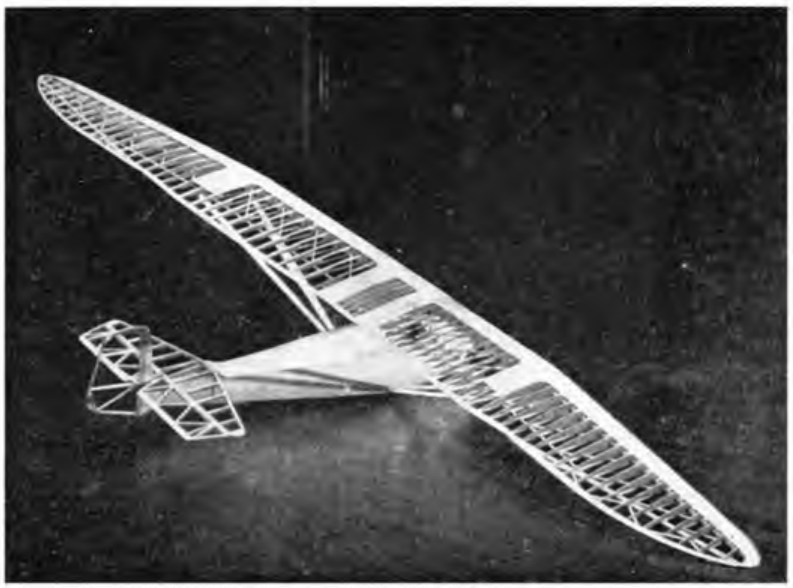
A most interesting constructional example, built by S. V. Hayes, of Wolverhampton. The geodetic type fuselage is worthy of note.

The BARNES AND D.M.A.S. are now running two meetings per week, pole-flying contests taking place each Wednesday, and general social activities on Fridays. Mr. Cumber has completed a special speed model of his own design—and it flies! Weather permitting, meetings are held every Sunday afternoon in Richmond Park.

A bi-weekly bulletin is being issued by the ASHTON AND D.M.A.C., who are now once again proceeding after a temporary suspension. A new type of competition to ginger up the non-flying members is announced, but no details forwarded. What about giving us the dope, Ashton—it might be interesting to others!

It being impossible at present to run the annual exhibition of the ABERDEEN M.A.C., with a consequent loss of revenue, successful negotiations for a reduction in rent had just been completed when the A.F.S. took over the room "until further notice." What is generally called B.H.L.—for those of you who know th meaning of said cryptogram!

Well waterproofed gliders seem ideal for winter flying,



(Left) A fine example of detailed construction, by Mr. P. L. Smith, of the Lancashire M.A.S.

(Right) J. Fraser, of the Stockton-on-Tees M.A.C., with his championship model, winner of two classes at the Newcastle Rally.

according to the NEWCASTLE (Staffs) AND D.M.A.C. After temporary disorganisation, this club is now meeting regularly at the flying field, many varied means being employed to cart the models to the spot. (Anyone know any good ways of transporting a nice large model box without rubbing holes in one's back?) Ridicule of R.T.P. fliers is turning to inquisitiveness since the Oates cousins clocked 75 sec. recently. An exhibition is to be staged at the Grammar School for the benefit of the local Air Cadets, while night flying has been tried, though without much success—models that circle nicely in the daylight seeming to collect a straight-line tendency after black-out.

Each Sunday, weather permitting, the members of the STOCKTON-ON-TEES M.A.C. are meeting at Seamer and holding a series of competitions. Three events are held, entry fee of 3d. a time, the winners of each competition collecting the kitty. A photo sent along shows Mr. J. Fraser, and his winning model that won two events at the Newcastle Rally held last August.

Another photo shows an unusual-looking model built by F. Shawyer, of the WINCHESTER M.A.C. Built with a view to getting away from the orthodox, the fuselage is made from papier mâche, while the wing, using the N.A.C.A. 6412 section, is set upon a mount, " to enable the model to conform to Wakefield specifications." I may be wrong, but it doesn't look up to fuselage formula, and the tail-plane certainly seems on the large side. However, it is hard to judge from a photo taken at this angle, and I stand to be corrected.

We are always pleased to hear of any activities in connection with our hobby. I understand that a model aero class has been formed at the Green Lane Evening Institute, Leicester. It speaks well for the interest shown that upwards of thirty models were built during last session. Owing to the war the classes have only recommenced recently, and will be held on Mondays and Wednesdays, from 7 till 9 p.m. The boys enjoy the advantages of a large well-lit room, equipped with benches, individual tables, tools and such helpful necessaries as paste, glue, paints and varnishes. Soldering materials, etc., always on hand. While the beginners are given actual instruction in the method of construction of simple models, the class consists mainly of those engaged on their own " jobs," or working, if they prefer, in twos or threes. Choice of the work and its execution are purely the private affair of each boy, so that although termed a class, this interesting gathering of enthusiasts is more in the nature of an informal " club-room gathering." If any of our readers desire to take advantage of this opportunity, an enquiry at the school, day or evening, for Mr. Johnson, Art Master, will provide further particulars.

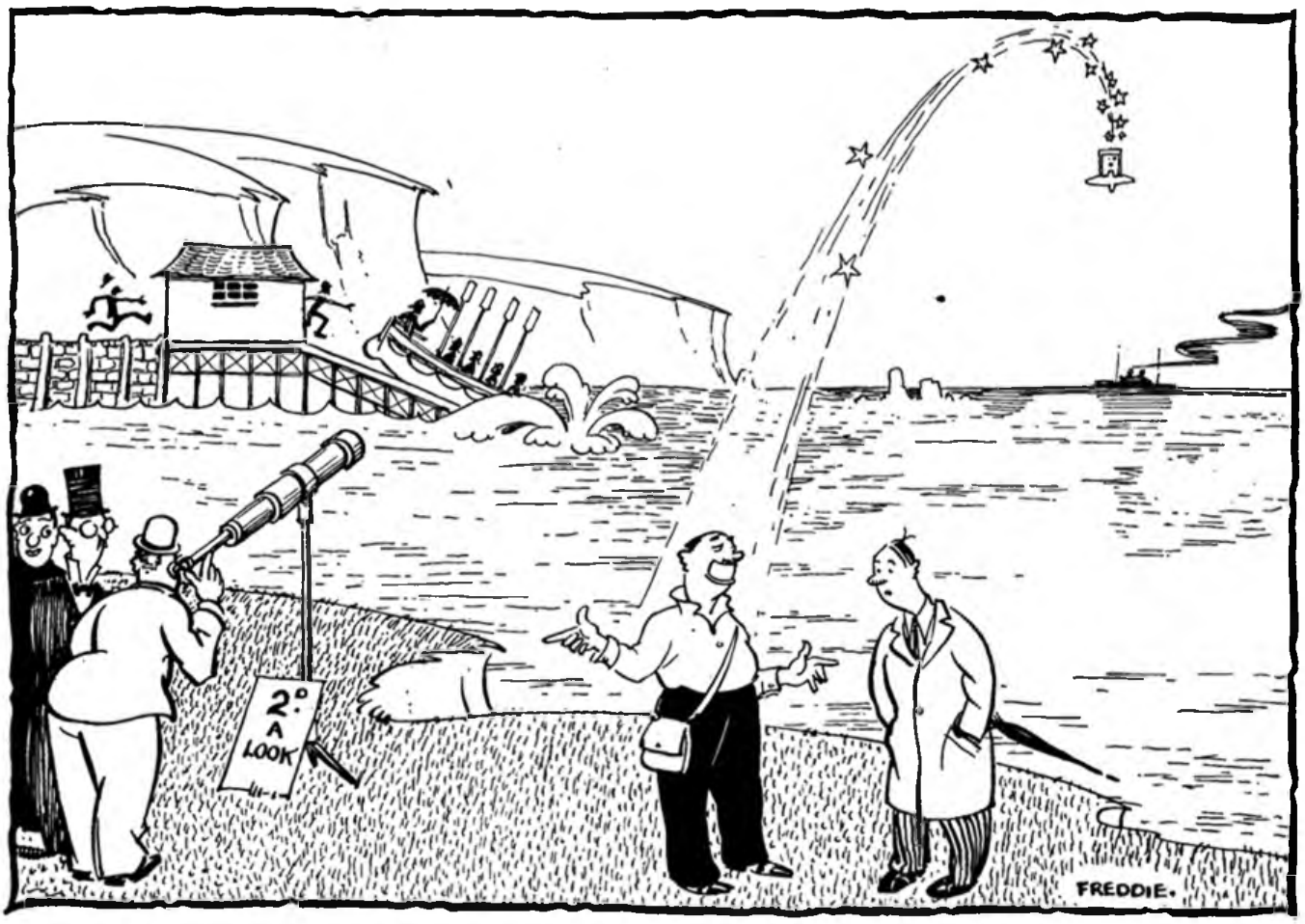
The outstanding news from the HORNCHURCH M.A.C. is the acquisition of an excellent club-room, capable of accommodating over fifty people. Thanks are due to a member, Mr. Edinburgh, whose generosity has made this possible. Messrs. Jenson, Shadforth and Pratt recently gave an interesting lecture on rotor 'planes, while a dance is scheduled for December 9th, proceeds to be devoted to the purchase of gifts for local R.A.F. ratings. My good wishes to this venture.

The HALSTEAD BAPTIST M.A.C. send in two photographs, one showing a group of members with their models, the other being of the 1939 cup-winner. Club record in this club is 61 sec., held by Mr. C. Tatus.

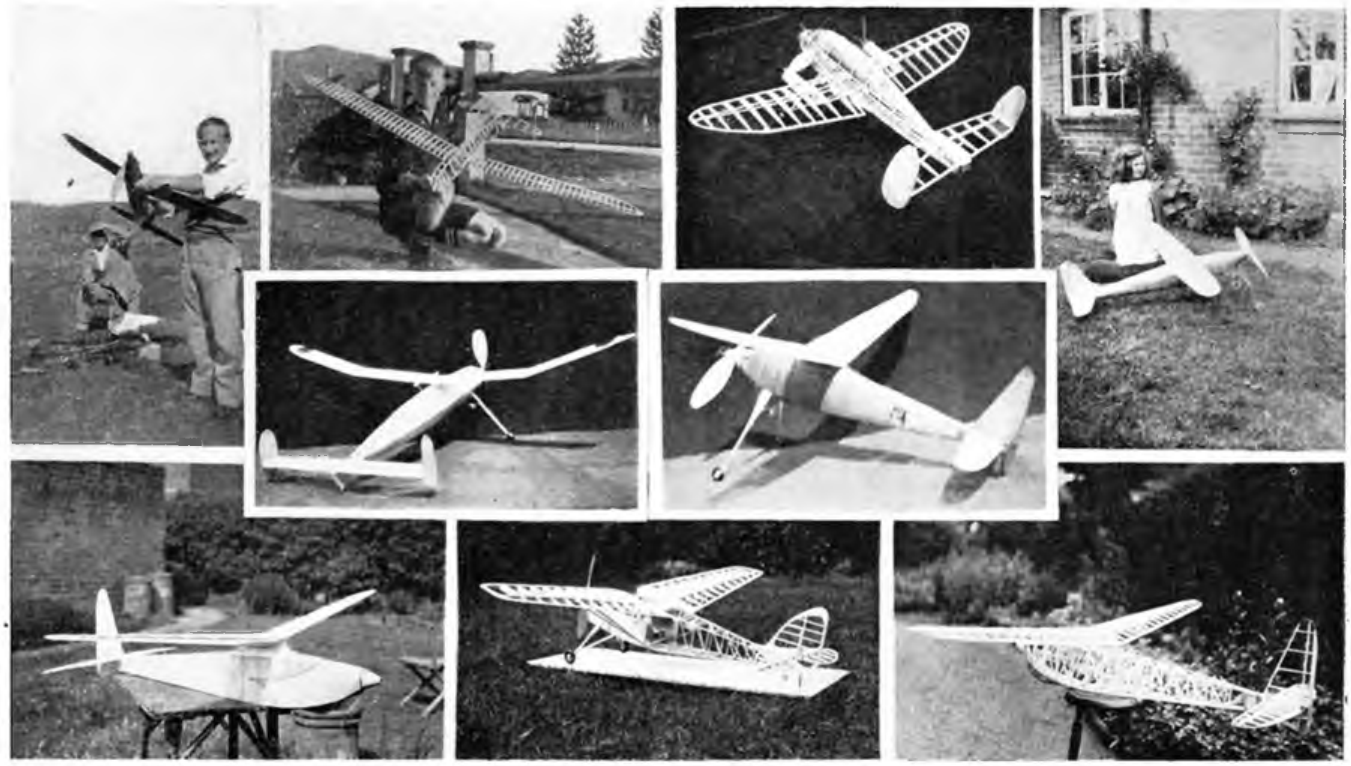
Another photo sent in is of a fine-looking model, held presumably by the builder, S. V. Hayes, of Wolverhampton. This shows some exceedingly interesting construction principles, the fuselage evidently being of the geodetic class. (Note the spiral members traversing the full length. I would be glad of more details of this machine.)

Two interesting photos are sent in by H. and D. Hockenhall, of Sandbach. These show (*a*) a diamond type fuselage model of 5 ft. span and aspect ratio of 18—1. Aerofoil is the special section described in THE AERO-MODELLER, and known as Dr. Shukowsky's. The second machine is a modified "Fillon Wakefield," the fuselage being rounded off, fixed undercarriage, a 2 to 1 gear fitted to the nose, and an 18-in. propeller used. Tests have proved quite successful, the latter machine being very stable, with a high angle of climb.

L/Sergt. R. M. Clough, of Lulworth Camp, writes: "I have one great sorrow, however, viz. modellists seem to consider that, provided their "ship" flies well and does a good duration, there is nothing else to worry over. However, I maintain that even a model must *look* like the real thing. To me, flying a duration type model is sheer waste of my leisure time, and certainly gives me no pleasure at all. I demand the real thing, and build my models on prototype lines, and actual scale jobs. I have just completed my own scaling-down of a Leopard Moth, which has a span of 46 in. The chord is 9 in., tapering to 4 in., the section of the root rib being 1⅛ in. at its greatest. I enclose a picture of the finished framework. Tail-span is 17 in. Model is fitted with ailerons and elevators, and fin with rudder, and door. Total weight, with rubber, 9½ oz." The other photo shows a glider based on the Fillon Wakefield machine. Both models show a high degree of craftsmanship, and I shall look forward to receiving details of performance. I make one note regarding the Leopard Moth, and that is in regard to the undercarriage. On the full-size machine this is a three-strut affair, and the photo only shows two. Has this been corrected since the photo was taken?



"Every time I launch my rocket 'plane the lifeboat goes out."



(Top left and left centre) A Copland Wakefield and a Stothers Glider, built by N. B. Rundle, of New Zealand.
(Top right centre) Good detail work in a model built by L. Dallimore, of Trowbridge.
(Top right) A finely built and finished "Chasteneuf Wakefield," by E. Warrender, of Streetly.
(Centre) An original design, and a modified Fillon Wakefield, built by D. and H. Hockenhall.
(Bottom) A "Fillon" model adapted as a glider, and a promising looking scale "Leopard Moth," built by L./Sergt. R. M. Clough, of Wareham.

The results of the BATLEY AND D.M.A.C. Gala Day were as follows:

OPEN DURATION.
(Average of three flights).

1. T. Horsfall	... ...	86·6 sec.
2. D. Hinchcliffe	... ...	67·5 ,,
3. J. Todd	... ...	45·7 ,,

NEAREST TO 45 SEC.

1. R. F. Dubery	... ...	42·3 sec.
2. D. Hinchcliffe	... ...	39·0 ,,
3. K. Lees (Junior)	... ...	38·9 ,,

MAXIMUM ON 200 WINDS.
(Run in conjunction with Open Duration. No alteration of rubber permitted.)

1. D. Hinchcliffe	... ...	21·1 sec.
2. R. F. Dubery	... ...	16·8 ,,
3. J. Todd	... ...	16·0 ,,

A winter programme is being drawn up, the only snag being lack of a suitable hall for indoor flying.

Messrs. (Jammy) Hartley and Shaw, of the ALDERSBROOK M.A.A., have been combining their efforts on a special scale model, and with the plans getting mixed, have produced a hybrid known as a "Furicane." These chaps find they can't keep away from the flying field after all.

In order to clear the listed schedule of competitions, the LANCASHIRE M.A.S. held the final outdoor meeting on November 12th. Fine weather coaxed a large number of enthusiasts on to the new ground, and some exceptionally good flying was experienced. Two events were run—Biplane and a Limited Power item. In the latter class the weight of rubber is limited to 25 per cent of the total weight of the machine, thereby eliminating the over-powered rocketing that is unfortunately seen too often to-day. That durations do not suffer is evident from the times given hereunder. Results were:

	BIPLANE.			Av.
A. Tindall ...	143	140	166	149·66 sec.
F. Bailey ...	110	107	93	103·66 ,,
B. Coulthurst ...	79	110	108	99·00 ,,
H. Gilbert ...	87	91	89	89·00 ,,
A. A. Mills ...	131	93	42	88·66 ,,
P. L. Smith ...	49	90	90	76·33 ,,
	LIMITED POWER.			
P. L. Smith ...	149	140	126	138·30 ,,
A. Tindall ...	96	102	122	106·60 ,,
B. Coulthurst ...	103	96	88	95·60 ,,
H. Gilbert ...	92	93	96	93·60 ,,
F. Bailey ...	99	83	92	91·30 ,,
N. Hyde ...	77	94	—	57·00 ,,

The indoor meetings noted in last month's report are creating a great deal of interest, and the gesture of throwing the meetings open to members of other clubs has been much appreciated. Details of the scheduled competitions are promised for next month.

Owing to a mistake, a photo mentioned in the last issue did not appear, and is reproduced herewith. This shows a well-constructed sailplane built by P. L. Smith, of the Lancs Club, who is also the builder of the Spitfire shown in the heading at the beginning of this article. With a span of 32 in., the wing area is 208 sq. in., and it weighs 7½ oz. The fuselage is hollowed and carved from a solid block of balsa, with the wings and tail tissue covered. Test flights have yet to be made.

Mr. G. Sowter, of the GLASGOW M.A.C., is pleased to state that, Blitzkrieg or no Blitzkrieg, the club will carry on. Estimated expenses were met by a whip-round, and a winter programme agreed upon. This will take the form of indoor flying and lectures, meetings commencing at 3.30 p.m. on Saturday afternoons. The big room is 13 ft. by 12 ft. by 11 ft. high, so indoor adjustments must be very critical. The best time to date is 108·6 sec. by Mr. J. Maxwell, the model being of 10 in. span. It is expected to better this time when more experience is gained and the draughts excluded! Appreciation is expressed of Mr. A. H. Wilson, who was resident near this club for a time, who exploded the cherished thought that their poor times were accounted for by the weather conditions obtaining in the far north. His activities have done much to stimulate interest among these chaps.

Three good photos are sent in from the NOTTINGHAM AND D.M.A.C. This club held a scale biplane contest recently, the winner being Mr. Stanley, whose "Bucker Jungmeister" clocked 35 sec. Mr. Chapman came second with a "Hawker Fury." A get-together with the Mansfield and Ilkeston Clubs was appreciated, and contests for spot landing, parachute dropping and timed flights were held.

A well-timed plea comes from the VICTORIA M.A.C., who say that, though carrying on, some of the members seem to have lost heart, and "all model builders should rally to their clubs and help them to carry on." Which sentiment I heartily endorse. An inter-club meeting unfortunately had to be postponed owing to weather, but it is hoped to complete the fixture shortly.

The PETERBOROUGH M.A.C. discussed affiliation to the S.M.A.E. at their annual general meeting, and the matter has been deferred to a later date. Subscriptions have been fixed at 2s. 6d. juniors and 3s. 6d. seniors, while meetings are held fortnightly on Tuesdays. Mr. D. Stock was presented with the "Carley" Cup, while Messrs. Stanley and Riley received prizes.

Secretaryship of the SWINTON and D.M.A.C. has changed hands, the new chap being Mr. D. Wilde, of 1 Sefton Drive, Houghton Lane, Swinton. While many of the junior members have been given the order to "stay in during the black-out," the club is in no way depleted, and six new members have been enrolled. Mr. Pettican gave an interesting lecture; also Mr. Wilde, and it is hoped to again carry off some of the honours at the indoor meetings of the Lancashire M.A.S.

The Committee of the BRADFORD M.A.C. wish to thank all those who kindly helped towards the West Riding Rally, which should have been held on September 10th, and express their regret to those clubs who had intended visiting this meeting, which unfortunately had to be cancelled. The club is continuing, and it is hoped to hold this popular event at a later date.

The LETCHWORTH M.A.S. suffered a serious set-back recently when their club-room was destroyed by fire, many members losing their machines. Efforts are being made to procure new premises. Mr. H. Lambert was presented with the President's Trophy at the annual general meeting, Mr. V. Miles being the runner-up. A cup has been presented by the vice-president for competition during the coming season.

A photo from the NORTHAMPTON M.A.C. shows Mr. N. Fowler (now in the R.A.F.) with his B.A. Swallow with which he broke the British H.L. record with a time of 97·66 sec. The other photo shows two of the lady members doing their stuff. Mr. Peach being called up, the secretaryship is now being handled by Mr. R. Barker, of 40 Wheatfield Road, Northampton.

Speaking of photos, a fine-looking job is forwarded by Mr. Charlton, of the NEWCASTLE M.A.C. The model is 10 ft. span and weighs 7½ lb., and incorporates a retractable undercarriage. Unfortunately the electron legs were not up to the job, and experiments are being made with a tricycle type of undercart.

The WIRRAL M.A.S. held a meeting recently at Upton, Wirral, on a 75-acre field they have been fortunate in obtaining. Best time of the day was made by Mr. Roberts at 115 sec. A photo shows a group of the members at this meeting. The misunderstanding regarding the cessation of this club has been cleared up, and most of the snags encountered earlier on have been eliminated. Under present conditions sub-committee meetings are to be held in Bebington and Greasley respectively, and a general commitee meeting will be held once a month.

The TORQUAY AND D.M.A.C. are holding indoor R.T.P. meetings, the best time to date being 75 sec., while the figure for free flying is 123·5 sec. Twelve members are in the Forces, and evacuees, etc., are welcomed to the activities of the club.

Indoor activities are also going strong in the KETTERING AND D.M.A.S., where scale models are finding a large number of adherents.

Another change of secretaryship is announced from the DEVON AND EXETER M.A.C., the new "mug" being Mr. E. C. Houlford, of 44 Cowick Hill, Exeter. Please note.

The WOKING AND D.M.A.C. are sorry to announce

(Top left and centre) Members of the Nottingham and D.M.A.C. at a gliding meeting.
(Top right) Mr. F. Lowe, of Nottingham, with his "gas-buggy."
(Bottom left) A group of Wirral M.A.S. members ready for the fray.
(Bottom centre) A. E. Fordham, of West Wickham, with the beginner's model, built from plans contained in the June "Aero-Modeller."
(Bottom right) An ambitious petrol model, built by F. Charlton, of Newcastle. Undercarriage is retractible.

the death of their president, Mr. W. S. Patterson, whose loss will be very keenly felt.

A good action shot is sent in by Alan Daventry, of New Barking, the model being a "Grant Tse-Tse Fly." This model, in its first competition, only failed to bag first place by one second. Owing to Army restrictions on Wanstead Flats, full tests have been impossible.

Mr. E. Warrender, of Streetly, near Birmingham, would be interested to hear what the Midland clubs are doing. He has been in the habit of cycling ten miles every Sunday to Dunton Hall Farm, which certainly shows some enthusiasm. A fine-looking Wakefield model is seen in the photo sent in by this chap.

Mrs. Thurston, whose interest is well-known throughout our hobby, has presented the SPELDHURST (Kent) M.A.C. with a fine trophy. This is for competition among the Ladies' Section, and is the first cup among many that this lady has presented which bears her name. As a further honour, both Mrs. and Dr. Thurston have become members of the club. It has been decided that all members must insure their models before participation in club competitions.

The FURNESS M.A.S. held a Hot-Pot Supper that was well attended by the members, followed by indoor flying. The fortnightly social evenings are being reintroduced, while it is hoped to run an exhibition in the New Year.

The NUNEATON M.A.C. are carrying on, and doing well for a new club. Many members are handicapped owing to various national duties, but indoor activities are getting their share of attention, and things are going along nicely.

The BRIGHTON D.M.A.C. held a speed contest on November 12th, Mr. Lucas putting up the best speed with 33·23 m.p.h., followed by Mr. J. S. Thomson at 29 m.p.h. Mr. Lances has built an all-balsa speed model weighing only 3½ oz., from which great things—and speeds—are expected.

An indoor competition was held by the GRIMSBY AND D.M.A.C.—and had an air-raid warning in the middle of it! Flying was resumed after the members had been outside to see what it was all about. The winner was Mr. R. Monument, with an average for three flights of 101·4 sec., followed by R. Fuller with 80·4 sec. and H. Perry, 65·4 sec. The club record was broken twice during the contest, with times of 100·2 sec. and 104 sec. Specifications required models to be between 20 and 100 square inches in wing area, and the winning model was of hollow stick type, with a weight of 1⅓ oz., covered with microfilm.

In spite of decreased activities owing to balloon barrage, anti-aircraft and evacuation, etc., the LIVERPOOL M.F.C. are carrying on between bouts of l——y weather. A welcome to the club is extended to all those who have found this best of all hobbies during the black-out.

Well, fellows, that's the lot for this month, and it is heartening to see the increasing confidence among the clubs generally. Most of us are getting back to normal working, and, after all, it is silly to sit around and mope while waiting for things to happen.

Headquarters have made the necessary move at last, and from now on we can really get down to full preparations for next season. Don't forget what I said about standing on your own feet for a change—obviously we cannot run in the same manner as formerly, but it will do some clubs good to think a few competitions, etc., out for themselves, instead of relying so much on the governing body.

And so, with the very best of good wishes for the New Year, and the hope that it won't be long before we get back to our normal programmes, etc., I leave you to get on with all those super-super models you have been planning for years. As a certain news-reel commentator winds up, I say: "And so for the present, good-bye everybody, good-bye."

THE CLUBMAN.

S.M.A.E. REPORT.—*Continued from page* 105.

The committee then considered the Wakefield and King Peter Cup balance sheets, and these were passed, subject to audit by the S.M.A.E. auditors.

The committee next learned of the contents, and was shown a cover of the S.M.A.E. journal. It was decided that a Publication Committee should be elected. A ballot was taken, and this resulted in the following gentlemen being responsible for publication: Messrs. Knight, Rippon, Smith and York, with Mr. Cosh acting ex-officio.

The committee decided that the Annual General Meeting of the S.M.A.E. should be held on January 14th, 1940.

The competition programme for 1940 was then considered, and it was decided that no alteration to the Wakefield Cup rules should be made. This, of course, will not be an international competition.

Mr. Smith was asked to prepare the rules for eight decentralised competitions next year.

On the authority of the council the committee considered assisting its members to meet expenses entailed in attending various meetings, and it was decided that the main line railway fares should be paid for those having to travel considerable distances, i.e. Mr. Rushbrooke from Manchester, Warrant Officer Gutteridge from Cranwell; and Mr. L. J. Hawkins from Torquay.

The committee then dealt with affiliation and reaffiliation fees, and it was decided after due consideration that it be recommended at the Annual General Meeting that a nominal fee of one guinea should be paid, this, of course, until the cessation of hostilities.

Application for affiliation was received from West Sussex M.A.C., and for reffiliation from Huddersfield M.A.C., and these were both accepted.

Appointments and alterations to timekeepers to the Cranwell M.A.C. were granted.

The meeting closed at 7.45 p.m. with a vote of thanks to the chair.

H. YORK,
Hon. Press Secretary.

SMALL TRADERS' ANNOUNCEMENTS

The charge for these insertions is 5/- each prepaid for a minimum of 30 words, extra words charged at rate of 2d. per word.

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Appendix - Links to the plans

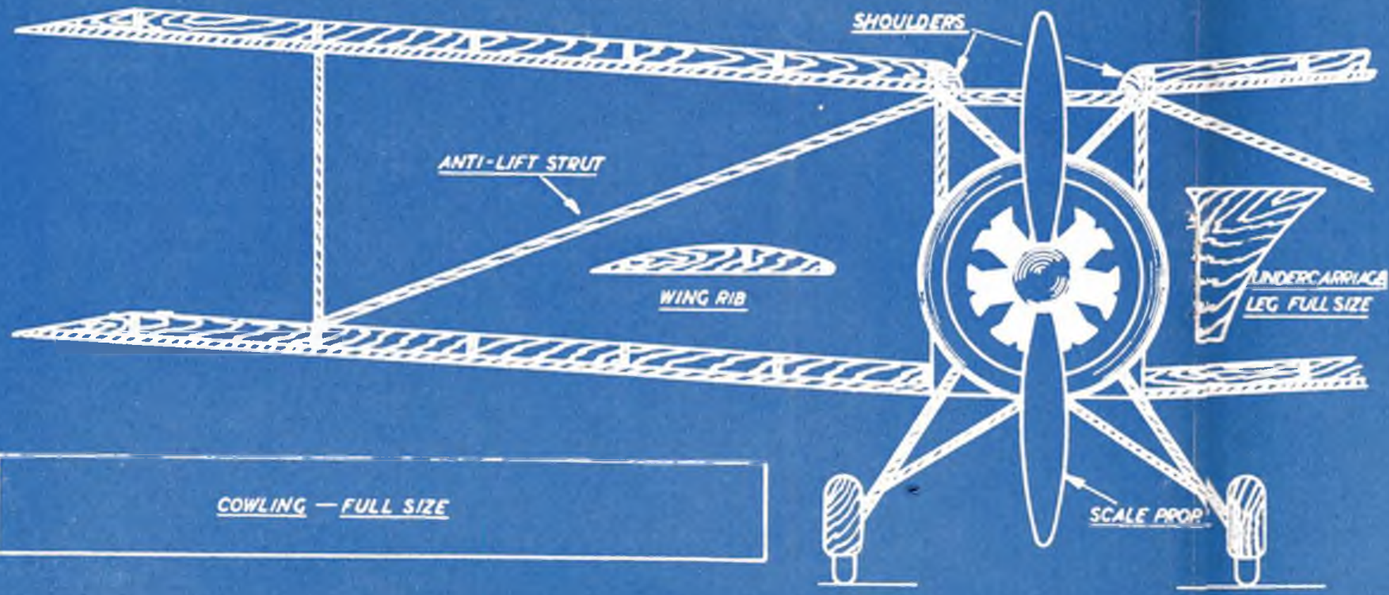
A two minute OOS all balsa glider by T.R. Carroll
8" Wingspan Hand Launched Glider
Document Page: 27

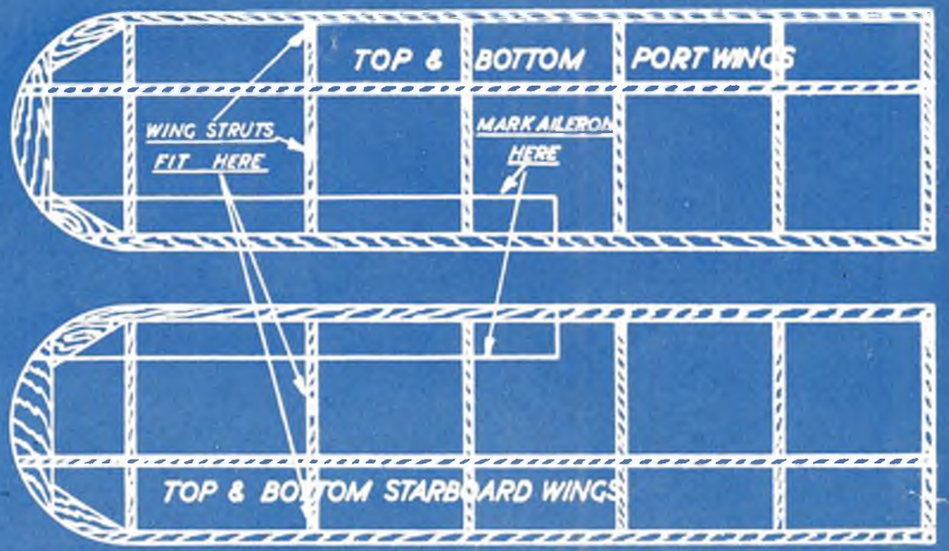
The Avro "Commodore" (Full size blueprint) by H. McDougall
13 1/2" Wingspan Rubber Flying Scale Model Blue Print
Document Page: 28

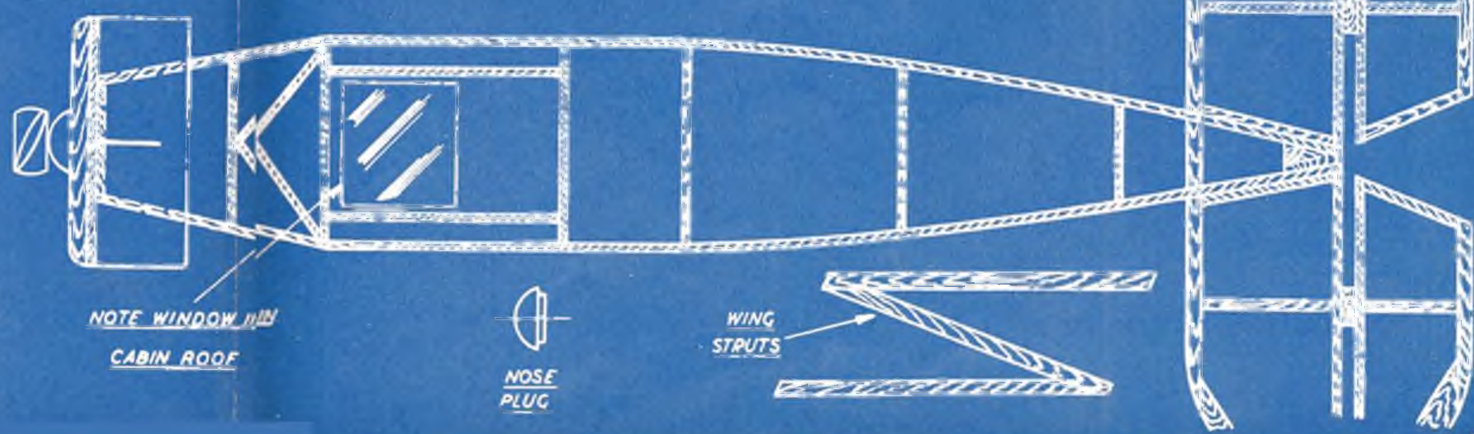
MORANE SAULNIER 406 FIGHTER by C.A. Pollitt
3 View Drawing of Morane Saulnier 406 Single Sear Fighter
Document Page: 44

Avro Commodore Union Page
Document Page: 62

"AERO MODELLER" COPYRIGHT DESIGN FULL SIZE PLAN







13½" WING SPAN FLYING SCALE MODEL OF THE AVRO "COMMODORE"

DESIGNED BY H. Mc DOUGALL.

A. POLLIT