

AERO

NOV. 1941
VOL.6. Nº.72
NINEPENCE

MODELLER





SKYLEADA

REGD.

STILL OFFERS THE FINEST VALUE IN KITS FOR POPULAR
FLYING AND NON-FLYING MODELS

FLYING SCALE MODELS 15 in. WING SPAN

Hurricane
Spitfire
Messerschmitt
Fairey Battle
Taylor Cub
Miles Magister
Rearwin Speedster
B.A. Eagle
Hornet Moth
Curtiss Fighter
Morane Fighter

1/3 Post 3d.

20 in. WING SPAN

3/6 Post 4d.

Kits contain all necessary balsa strip,
printed balsa sheets, wheels, tissue,
cement, propeller, etc., fully detailed

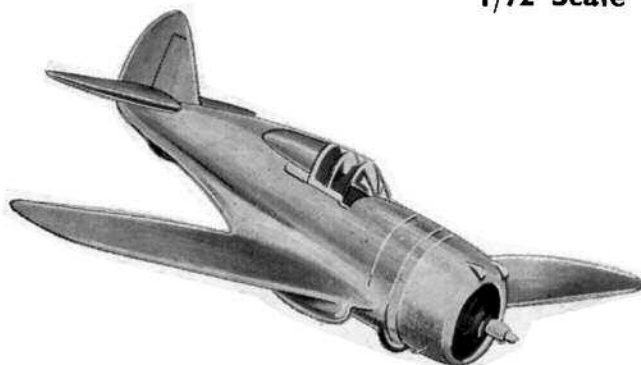
Plans and instructions.



Hurricane, Fairey Battle, Spitfire,
Heinkel, Messerschmitt, Curtiss
Fighter, and a Cabin Duration Model.

1/72 Scale SOLID CONSTRUCTIONAL KITS

These non-flying kits make up into super little models.
Fuselage and wings, etc., are partly shaped, and each kit
includes all other necessary materials with detailed plans
and instructions for building.



Hawker Fury
Fairey Battle
Gladiator
Defiant
Heinkel
Grumman Fighter
Westland Lysander

Blackburn Skua
Curtiss Helldiver
Henschel 126

1/9

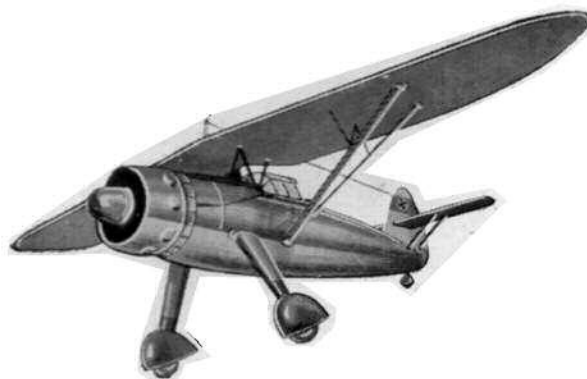
Post 3d.

Hurricane
Spitfire
Morane Fighter
Bloch 151
Curtiss Wright
Curtiss Hawke

Seversky P35
Messerschmitt 109

1/6

Post 3d.



PLANS: Wallets containing eighteen detailed
plans of all the 1/72 scale
models, together with instructions for
building.

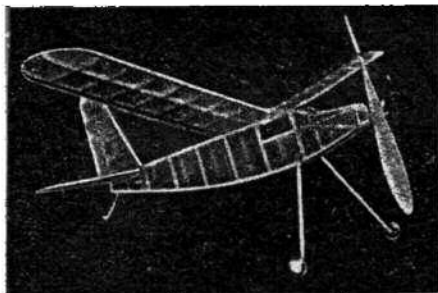
1/6

Post 2d.

If you are unable to obtain SKYLEADA kits locally, you can send direct with correct amount and post/packing charge,
but please state one or two alternative types of model, as we can no longer guarantee that every model is always in stock.
(Use a crossed postal order for remitting and do not send loose coins.)

SKYLEADA MODELS, 5 South End, Croydon

Kindly mention THE AERO-MODELLER when replying to advertisers.



The Model of Outstanding Performance

C.M.A. I

PRICE 7/11

POSTAGE EXTRA

26½" Wing span. Weight 1½ ounces. Average duration 90 seconds, best flight to date 2½ hours.

SUPER ENDURANCE MODEL

KIT CONTAINS all ribs ready cut, propeller, tissue, cement, dope, rubber lubricant, best quality balsa, fully detailed blue print, etc., etc.

INSIGNIA Water slide transfers of British and foreign aircraft markings in wide range of sizes

CAMOUFLAGE DOPES All correct colours in matt finish for British and foreign planes

BELL AIRACOBRA (CARIBOU) The Solid Model of the Month.

This 'plane of American design is one of the types that are being used by the R.A.F. Unusual in design it incorporates many new features, among these being the position of the engine, which is situated behind the pilot. A feature worthy of note is that this machine uses the tri-cycle undercarriage, an old idea that is being revived in many machines to-day. The kit to build this model is very complete, and includes all the parts cut to outline shape, two colour matt dopes, cement, wheels, sandpaper, correct transfer insignia and everything needed to complete a perfect model and, of course a fully detailed blue print and complete instructions.

SUPER MODEL KITS, SCALE 1 in. 1 ft.

S.E.S.	4/11	WESTLAND LYSANDER	6/-
PFALZ D.12	4/11	CURTISS P.37	6/3
MESSERSCHMITT B.F. 109	4/11	BELL AIRACOBRA	6/3
MORANE SAULNIER 406	5/3	BOULTON PAUL DEFANT	6/9
SUPERMARINE SPITFIRE	5/3	BLACKBURN SKUA	6/9
HAWKER HURRICANE	5/3	BREWSTER BUFFALO	6/9
BRISTOL FIGHTER	5/3	BRISTOL BLENHEIM	6/11
FAIREY BATTLE	5/6	MESSERSCHMITT M.E.110	6/11
D.H. DRAGONFLY	5/6	LOCKHEED P.38	8/9

POSTAGE EXTRA

PRICE 6/3. POSTAGE EXTRA



BELL AIRACOBRA (CARIBOU)

CHINGFORD MODEL AERODROME

155 STATION ROAD,
CHINGFORD, LONDON E.4

TELEPHONE:
SILVERTHORNE 1052



MODEL AIRCRAFT
TRADE ASSOCIATION

Wholesale
Distributors of the
following

DOPES, CEMENT,
WIRE, WHEELS,
PROPELLERS
BLANKS, BLUE
PRINTS AND ALL
MODELLERS'
SUPPLIES.

ASTRAL KITS,
CADETS &
ACE SERIES
Leyden Ship Kits

WHOLESALE
ONLY

HOW JOY-PLANE BALSA CEMENT IS USED

joy-plane products

Do not be put off with substitutes—insist on "JOY" Products

JOY BALSA CEMENT	3½d., 7d., 1/2	Joy Silver Dope	4d., 7½d., 1/2
Joy Luminous Paint, "New Discovery"		Banana Oil (1) Thick	3½d., 7d., 1/-
Brand Bottles 7½d. Outfits containing		" (2) Thin	3½d., 7d., 1/-
Base Coat and Top Coat 1/8 and 2/10		Balsa Wood Grain Filler	Jars 7½d.
Rubber Lubricant	4d., 8d.	Joy Model Dopes (Opaque Colours)	
Wing Dope (clear)	3½d., 7d., 1/-	Including camouflage Glossy or Matt,	
Silk Wing Dope (approx ½ pt.)	3/6	black white brown, green, grey, pale	
Joy Waterproof Dope	4½d., 8d.	blue	4d., 7½d., 1/2
Fiel Cement	7d.	Tissue Paste	4d., 8d.
Wholesale Enquiries for Special Kit Packs, Midget Tubes, Bottles, Vials, etc.,		Special Brush Cleaner	3½d.
of the above lines to Dept. "K"			

THE TURNBRIDGE MFG. & SUPPLY CO. LTD., 52a/62a Langley Road, London, S.W.17

Kindly mention THE AERO-MODELLER when replying to advertisers.

Command of the Air...



5/6

Postage 7d. extra.

IS HELD BY

KEIL KRAFT KITS

FLYING SCALE MODELS

Just as the Hurricanes and Spitfires of the R.A.F. have proved their superiority over everything else that flies, so have the Keil Kraft Scale Models of these famous aircraft demonstrated their amazing abilities. Designed by long-experienced acro-modellers, Keil Kraft 'planes incorporate all those advance features of construction which give maximum performance. Always build with Keil Kraft Kits and be sure of better models and longer flights.

A FULL RANGE OF SUPERB FLYING SCALE KITS

★ SPITFIRE ★ HURRICANE
★ MILES MASTER ★ FAIRY BATTLE ★ LYSANDER
★ BLACKBURN SKUA ★ CURTISS X.P. 40 (TOMAHAWK)
★ HEINKEL H.E. 112 ★ MESSERSCHMITT B.F. 109 ★
BOULTON PAUL DEFANT

**DURATION FLIGHT
MODELS**

30 in. Span
AJAX
5/6

24 in. Span
ACHILLES
3/8

Postage of either 7d. extra.

Manufactured by E. KEIL & CO. LTD., LONDON, E.2. Also distributors for: Skyleads, Cloudcraft, Drome, Studlette, Truscale, Veron, etc.

SEE THEM AT YOUR DEALERS TODAY

Kindly mention THE AERO-MODELLER when replying to advertisers.

KEIL KRAFT KITS

SCORE

SUCCESS IN GAMAGE CUP

**"AJAX" DURATION MODEL
SECURES SECOND PLACE WITH
FLIGHT OF 17 MIN. 48 SEC. O.O.S.**



THE ENTHUSIASTIC BUILDER OF THIS MODEL WRITES:

"I entered an Ajax in the Gamage Cup and gained second place. Flight was timed o.o.s. directly above take-off for 17 min. 48 sec. It was the very sound design of your model which decided me to build and enter it. My only regret is that I have not heard anything of it since it flew away into the clouds."—(Signed) Michael Jennings.

You, too, can build successful Keil Kraft models which will give you the same satisfaction as expressed by this Gamage Cup competitor. Whether you specialise in Duration or Flying Scale Models, depend on Keil Kraft Kits for the simplest instructions, finest materials and best results.

AJAX 30 in. HIGH WING, CABIN, DURATION MODEL **5/6**
Fuselage complying to S.M.A.E. formula.

ACHILLES 24 in. HIGH WING CABIN, DURATION MODEL. Fuselage complying to S.M.A.E. formula. **3/8**

Both Kits comprise: READY CUT RIBS, instructions, easy-to-read plan, cement, tissue, paste, rubber and all materials for the complete construction.

Postage on either 7d. extra.

FLYING SCALE SERIES (Including all ACE types)

Spitfire, Miles Master, Curtiss X.P.40 (Tomahawk), Lysander, Hawker Hurricane, Fairy Battle, Skua, Heinkel He 112, Messerschmitt B.F.109, B.P. Delfant.

5/6
EACH

Postage 7d. extra.

Manufactured by E. KEIL & CO. LTD., LONDON, E.2. Also distributors for: Skylands, Cloudcraft, Drome, Studlette, Truscale, Veron, etc.

SEE THEM AT YOUR DEALERS TODAY

Kindly mention **THE AERO-MODELLER** when replying to advertisers.

Solid Kits 1/72 scale

SPITFIRE	...	2/-
HURRICANE	...	2/-
LYSANDER	...	2/6
BRISTOL BLENHEIM (Longnose)	...	3/-
ARMSTRONG WHITWORTH
"WHITLEY" Mk IV	...	4/6
WELLINGTON BOMBER	...	4/6
DORNIER Do. 17	...	4/6

4d. postage

(Celluloid Cockpit Covers included)
Other to follow.**SPINNERS**

Drilled for 2 or 3 Blades

$\frac{3}{8}$ in., 2d. each; $\frac{1}{2}$ in., 2d. each; $\frac{5}{8}$ in., 3d. each; $\frac{3}{4}$ in., 4d. each; 1 in., 5d. each; $1\frac{1}{8}$ in., 6d. each.

(Min. postage 2½d.)

WATERSLIDE TRANSFERS

Red, White, Blue, and Yellow Rings,
 $\frac{1}{2}$ in., 1½d. pair; $\frac{3}{4}$ in., 2d. pair; 1 in., 3d. pair

RED, WHITE AND BLUE STRIPES $\frac{1}{2}$ in. and $\frac{3}{4}$ in., 3d. each**Camouflage Dopes**

Red, Blue, Green, Brown, Black,
Yellow, White, Orange, Silver, Battle-
ship Grey, and German Light Grey

Plastic Balsa	...	7½d. per tube
Balsa Cement	...	7½d. per tube
Banana Oil	...	4½d. per bottle
Hi-Shine Gloss Finish	...	4½d. per bottle

3-Blade PROPELLERS $1\frac{1}{2}$ in., 6d. each**RED AND BLUE RINGS**

$\frac{1}{2}$ in., $\frac{3}{8}$ in. and $\frac{3}{4}$ in., 1½d. pair
1 in., 2d. pair

SWASTIKAS $\frac{1}{2}$ in. and $\frac{3}{4}$ in., 1d. pair**GERMAN CROSSES**

$\frac{1}{2}$ in. and $\frac{3}{8}$ in., 1d. pair
 $\frac{3}{4}$ in., 1½d. pair; 1 in., 2d. pair

LETTERS

$\frac{1}{2}$ in.	3d. set
$\frac{3}{8}$ in.	3½
$\frac{3}{4}$ in.	6d. "

NUMBERS

2d. set
3d. "
4d. "

Celluloid Cockpit Covers 1/72 Scale

BRISTOL BLENHEIM (Long-nose)	...	6d. set
ARMSTRONG WHITWORTH WHITLEY	...	8d. "
WELLINGTON BOMBER	...	8d. "
DORNIER Do. 17	...	8d. "
BOULTON & PAUL (Defiant)	...	4d. "
BELL AEROCOBRA	...	3d. "
SPITFIRE and HURRICANE	...	2d. each
WESTLAND LYSANDER	...	3d. "
GUN TURRETS	...	1½d. "

Others to follow

PERFECT WHEELS for 1/72 Scale Models

$\frac{1}{8}$ in., 1½d. pair,
 $\frac{1}{4}$ in. and $\frac{1}{2}$ in., 2d. pair
 $\frac{3}{4}$ in. and 1 in., 2½d. pair

TURNED ENGINES WITH COWLS

2d. each

RED, WHITE AND BLUE RINGS

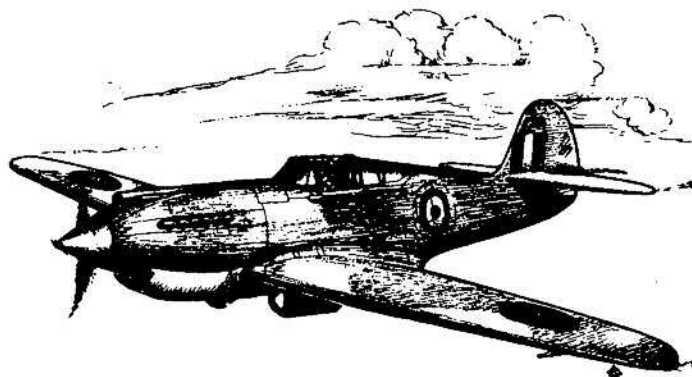
$\frac{1}{2}$ in., 1d. pair; $\frac{3}{4}$ in., 1½ pair
 $\frac{1}{4}$ in. dia., 2d. pair; $\frac{3}{8}$ in. dia., 1½ pair
1 in., 2½ pair

POSTAGE MUST

BE ADDED

THE MODEL SHOP

2 COLLEGE RD., BARRAS BRIDGE, NEWCASTLE-ON-TYNE

UNBEATABLE FOR REALISM

CURTISS "TOMAHAWK" X.P.40

SPITFIRE, HURRICANE, TOMAHAWK X.P.40,
AIRACOBRA, DEFIANT, MESSERSCHMITT Me 109

Kit absolutely complete, includes all parts cut to shape, turned spinner and wheels, full scale detail plan and instruction sheet, three bottles coloured dope, transfer insignias, etc.

Build and fly the famous "Halifax Lancer" 37 in. span duration 'plane. 12/6. Carriage 9d.

Plan and instruction sheet of Britain's No. 1 48 in. span super streamliner "Flying Minutes." 3/6.

Cements, clear and coloured dopes, banana oil, wire, bamboo, lubricant, rubber, celluloid sheet, balsa cutting tools, tissues, brass and aluminium tube, etc., etc.

We apologise to all our customers who are waiting for delivery of orders, and assure them we are doing our utmost to keep up our reputation for quick delivery.

CONGRATULATIONS

Since introducing our new range of
 $\frac{1}{4}$ in. to 1 ft. **SOLID SCALE FIGHTERS**

we have received many appreciative letters,
two of which we reprint.

"It gives me great pleasure to inform you I have won the First Prize in a competition held at the Rio Cinema. The winning model was made from your Curtiss 'Tomahawk' Kit, which I think is wonderful value."—J. F., Kircaldy.

"I have just received your Supermarine 'Spitfire,' which I find very satisfactory. The model is accurate in every detail. Please forward at your earliest a Bell 'Airacobra.'"—P. A., Cleethorpes.

These kits are of great instructional value to members of H.M. Forces, the A.T.C. and "spotters," etc.

COMPLETE **4/6** 6d. Postage

A visit to our retail shop is well worth while.
Hundreds of Kits and every accessory in stock.

THE MODEL SHOP
WESTGATE, HALIFAX



MODEL AERO
SUPPLIES

146 Spring Hall Lane
HALIFAX, Yorks.

TELEPHONE: 61201

"SLICK"**MODEL AIRCRAFT PRODUCTS****A FIRST-CLASS MATERIAL—FOR A FIRST-CLASS JOB**

Approved by all the Leading Model Constructors.

NEW SELLING PRICES**Manufacturers to
the Trade only.****CLEAR FABRIC DOPE** for wings
(has extraordinary tightening prop-
erties) in 7½d. and 1/2 size tins**COLOURED DOPE** for wings
and fuselage in 7½d. and 1/2 size tins**SILVER DOPE**, in 7½d. and 1/2 size
tins**CAMOUFLAGE DOPE**, brown
and green, in 7½d. size tins**BALSA PLASTIC WOOD**, in 7½d.
and 1/2 size tubes**Thoroughly
Tested****Highly
Recommended**

Manufactured by:—

**HIGH-GLOSS WATERPROOF FINISHING DOPE**
in 7½d. and 1/2 size bottles.**LUMINOUS PAINT** in 1/6, 2/9 and 5/- sizes.
SPECIAL QUOTATIONS TO BULK BUYERSalso
**MANUFACTURERS OF SMALL SIZES FOR
USE IN KIT PACKS**

Write and ask for full particulars and best Export terms

SLICK BRANDS LTD., Waddon, Croydon, SURREY**Liberal discount
to the Trade.****BANANA OIL** No. 1, thick, in
7½d. and 1/2 size bottles**BANANA OIL** No. 2, thin, in
7½d. and 1/2 size bottles**BALSA WOOD CEMENT** (both
ordinary and field drying), in
4d. and 7½d. size tubes**RUBBER LUBRICANT**, in 4d.
and 7½d. size tubes**SPECIAL ADHESIVE PASTE**, in
large 4d. tubes

MODEL AIRCRAFT
TRADE ASSOCIATION
BUSINESS AND EDITORIAL ANNOUNCEMENTS

ADVERTISEMENTS.—THE AERO-MODELLER is recog-
nised as the official journal of the Model Aircraft
Trade Association, and reports are published from
time to time for the benefit of the members. The
policy of the journal is to support the M.A.T.A.
in every possible way.

All instructions, matter and blocks for all kinds
of advertisements must reach Allen House,
Newarke Street, Leicester, not later than the 3rd
of the month, otherwise we cannot guarantee to
provide proofs in time for checking. Passed proofs
should be sent direct to our printers, The Sidney
Press, Sidney Road, Bedford, to arrive not later
than the 6th of the month. We reserve the
right to hold over until the following issue, if
necessary, advertisements or passed proofs thereof
received at our printers later than the 6th of
the month.

Copy must be supplied without application from
the publishers, and current copy and blocks will
be repeated if new copy is not received at the
time of closing for Press. Advertisement copy is
subject to the approval of the publishers. All
advertisements and contracts are accepted and
made upon the express condition that the publishers
have the absolute right to refuse to insert copy
to which they may object for legal, public, or trade
reasons, which includes the right of rejection of
advertisements, whole or part, containing cut
prices of goods coming under any price main-
tenance scheme as approved by the Model Aircraft
Trade Association, and such refusal shall not
be good ground for advertisers to stop a current
contract or to refuse to pay for the same, or for
taking action for breach of contract.

REMITTANCES.—Postal orders, cheques, etc., should
be made payable to Model Aeronautical Press

Ltd., and remittances from abroad should be
made by international money order in sterling.

TERMS.—Monthly accounts strictly net.

EDITORIAL.—All communications should be ad-
dressed to the Editor, THE AERO-MODELLER, Allen
House, Newarke Street, Leicester, and contribu-
tions must be accompanied by a stamped addressed
envelope for their return in the event of being
unsuitable. Whilst every care will be taken of
MSS. submitted for consideration, the Editor does
not hold himself responsible for safe keeping or
safe return of anything submitted for his con-
sideration.

ARTICLES should (preferably) be typed or written on
one side of the paper only, and should normally
not exceed 1,200-1,400 words.

DRAWINGS should be in Indian ink on white card
or linen tracing cloth. Actual size is not impor-
tant, but the length/width ratio should be 10:7
(for full-page reproduction) and 4½:7 (for half-page
reproduction).

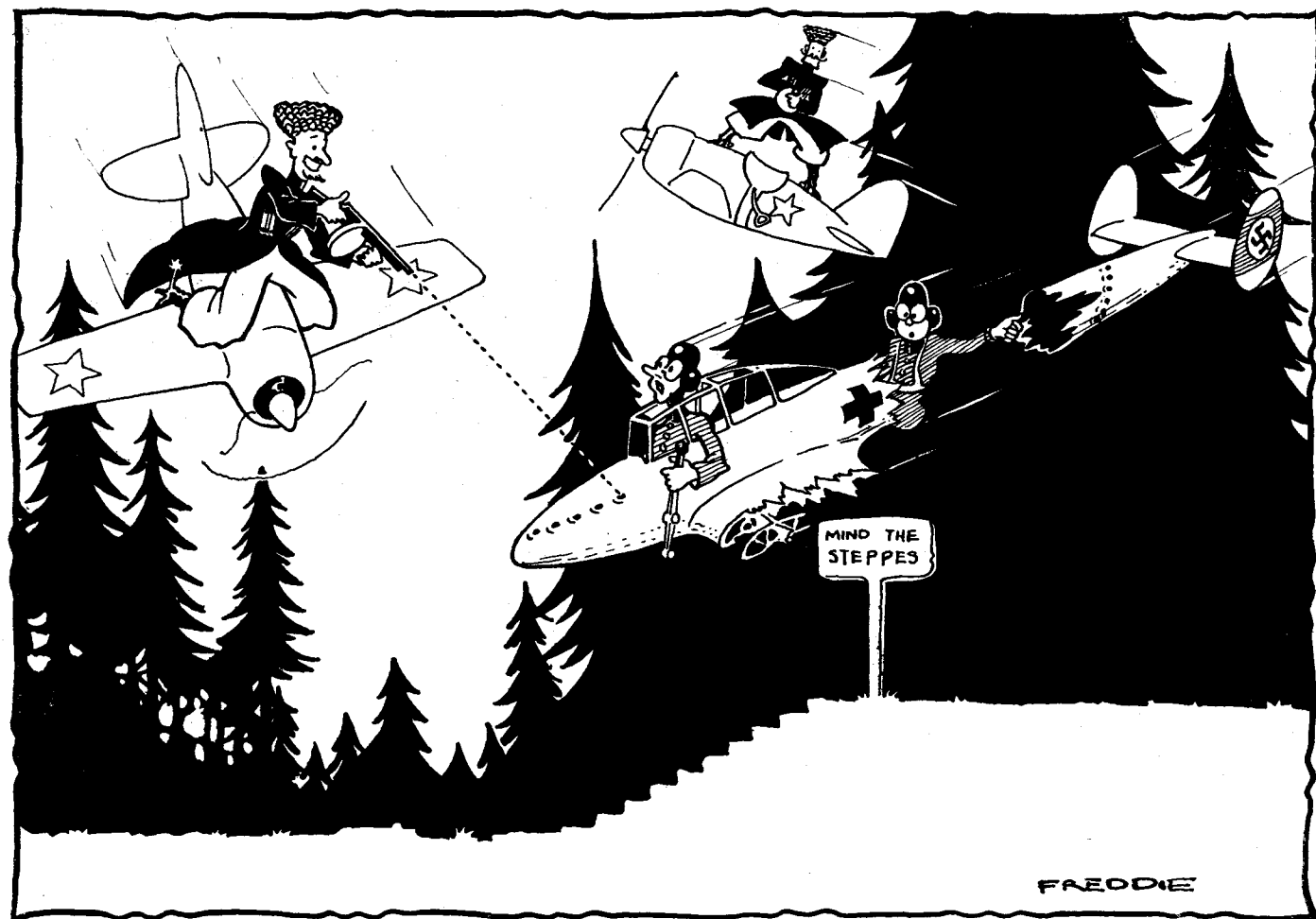
PHOTOGRAPHS must have sender's name and
address and full description written on the back.

PAYMENT will be made for all articles printed, with
an allowance for photographs and drawings (pro-
vided the latter are suitable for direct reproduc-
tion and do not require redrawing). All articles,
drawings and other contributions paid for and
published in this journal are the copyright of the
publishers, from whom alone authority to re-
publish or reproduce can be obtained.

CHEQUES are posted on or before 15th of the month
following publication.

SUBSCRIPTION RATES.—THE AERO-MODELLER will
be mailed, post free, to any address in the world
for an annual subscription of 9/6.

MODEL AIRCRAFT
TRADE ASSOCIATION
Kindly mention **THE AERO-MODELLER** when replying to advertisers.



“—ACHTUNG! MECHANISED COSSACKS”

CONTENTS OF THIS ISSUE

	PAGE		PAGE
Editorial	591	Aero-Modelling in America. By A. L. Lewis	615
The "Miles Master II." By W. R. Jones	593	A Simple Episcopo. By G. R. M. Whitlaw	617
The "Macclesfield Marvel." By K. W. S. Turner	599	Built-up Folding Propellers. By R. C. F. Day	619
Practical Drawing Hints. By M. B. Sadler	600	Fighting Aircraft of the Present War. By H. J. Cooper	621
Gadget Review. By M. R. Knight	602	Club News. By "The Clubman"	625
"Skyrocket." By J. W. Jackson	606	S.M.A.E. Report	631
The "Kamlet." By M. R. Knight	611		

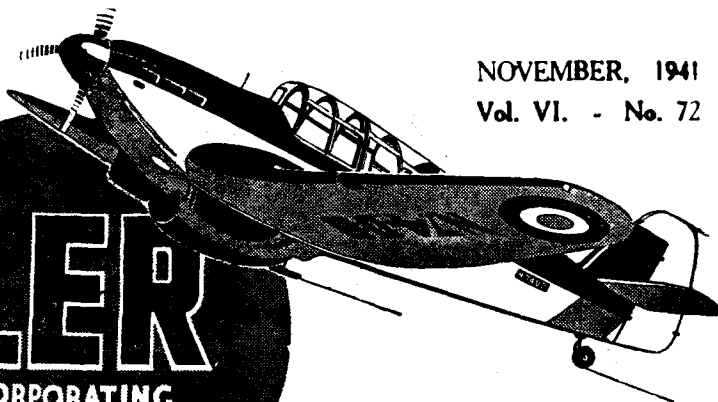
The AERO MODELLER

ALLEN HOUSE
NEWARKE STREET
LEICESTER, ENGLAND

INCORPORATING
"THE MODEL AEROPLANE
CONSTRUCTOR"

Editorial

NOVEMBER, 1941
Vol. VI. - No. 72



Managing Editor:
D. A. Russell, A.M.I.Mech.E.
Editor: C. S. Rushbrooke
Tel. Leicester 65322



FOR FREDDIE has been popularised recently by that magnificent film, "Target for To-night." "F" in this case was an aircraft. In our case "Freddie" is a person . . . the artist whose half-page sketches are eagerly awaited each month by many thousands of our readers. Freddie does not always do his sketches regularly month by month, and sometimes he does two or three together. Such an event occurred recently, and results in our publishing two of his sketches this month, on account of their being so topical. We would add that Freddie's sketch for the next (Christmas) issue is also drawn and will most certainly enhance that number.

Mention of the next issue reminds us to draw attention to the fact that it will be our usual Double Number, Hitler and the war notwithstanding! Following the practice of last year, when also under war-time conditions, we were not able, literally, to double the number of pages, we shall present with each issue two coupons with a total cash value of 1s. 6d., which may be used any time between the date of publication and December 31st, 1941, when purchasing one or more of the many plans available under THE AERO-MODELLER Plans Service scheme. In addition, each issue will contain a display sheet most attractively printed, describing the "Harborough" range of books on model aircraft, and every one of the plans available in the Plans Service.

The contents list appears at the foot of the next page.

Gliners

It is generally agreed, unfortunate as it may be, that there has not been the degree of development in model gliders in this country that has occurred in other countries in Europe during the past few years.

Many glider enthusiasts will therefore be encouraged to hear that we have secured the services of Mr. George Temple to write a series of articles on gliders and provide, via the Plans Service, some up-to-date designs. Mr. Temple has had a number of years' experience of designing and constructing full-size sailplanes and has a wide knowledge of the more highly developed type of model glider. His idea of a good glider is one that has made several thousand flights! . . . In one of his recent letters to us he apologised for one glider, "as this had only made 500 to 600 flights

(all of them satisfactory). it cannot yet be considered as completely tested out!

We hope to publish the first of Mr. Temple's articles in the January issue of THE AERO-MODELLER, on sale just before Christmas.

Petrol 'Planes

We feel it is necessary to impress on petrol plane enthusiasts that the Government ban announced some time ago was only on their being *flown*. We know that building of petrol 'planes has not stopped, but it would seem that either their constructors are too busy or modest, as during recent months we have received very few letters from readers interested in this type of model aircraft. Our Christmas issue will contain three petrol 'plane articles and will, we trust, encourage petrol plane builders, so that they will send in descriptions, particularly photographs, of recently-built models.

1941 Competitions

Taking matters all round, competitions in both national and club circles were well supported and successful. Many clubs have now found their feet under war-time conditions, and are doing a fine job of work in providing relaxation and healthy sport for those engaged in exacting war work. After all, it's an old and true statement that "all work and no play" pays poor dividends, and, in our opinion, aero-modelling in all its branches provides the ideal method of letting off steam once in a while.

In spite of difficulties, many clubs have stabilised and consolidated their activities, and the fairly helpful weather conditions experienced this year have produced results that can be quite satisfying in retrospect. "Clubman" gives some stop-press news overpage, and it only remains for us to add our congratulations to the winners of the season's championships and wish all an even happier season next year.

You have been Warned!

We close this editorial with a final reminder in regard to our next issue, pointing out that it is essential that readers confirm their orders, so as to make sure of securing their copies. Last year, owing to the popularity of the Double Number, some hundreds of readers failed to secure their copies. This year supplies are even more controlled. . . . We hope to have the issue on sale Saturday, November 22nd.

D. A. R.

HOT NEWS from the COMPETITION FRONT

By THE CLUBMAN

IMMEDIATELY following the writing of my usual monthly blurb, found at the end of the good old mag., I was pleased to receive hot news from the S.M.A.E., containing the results of the Thurston Glider Cup competition, the final placings in both the Plugge Cup championship and the Individual Championship for 1941.

Well, the competition season finished with a bang, and while at the moment I can give no indication of the general conditions met with over the country, some very good times were made in the gliding event. N. Hayes is to be congratulated in winning the event and leading sixty-one other enthusiasts to top place. This Ashton member has done good work this season, and richly deserves his successes, capping all by running out the 1941 Individual Champion.

THURSTON GLIDER CUP.

N. Hayes (Ashton) ...	458.1 agg.
R. Spratley (Hayes) ...	361.0 "
R. J. Boxall (Brighton) ...	323.3 "
J. Marshall (Hayes) ...	303.0 "
J. Ardern (Ashton) ...	292.2 "
S. A. Taylor (Bushey) ...	272.7 "

PLUGGE CUP.

Ashton and D.M.A.C. ...	880 pts.
Bushey Park M.A.C. ...	730 "
Bristol M.A.S. ...	716 "
Blackheath M.F.C. ...	691 "

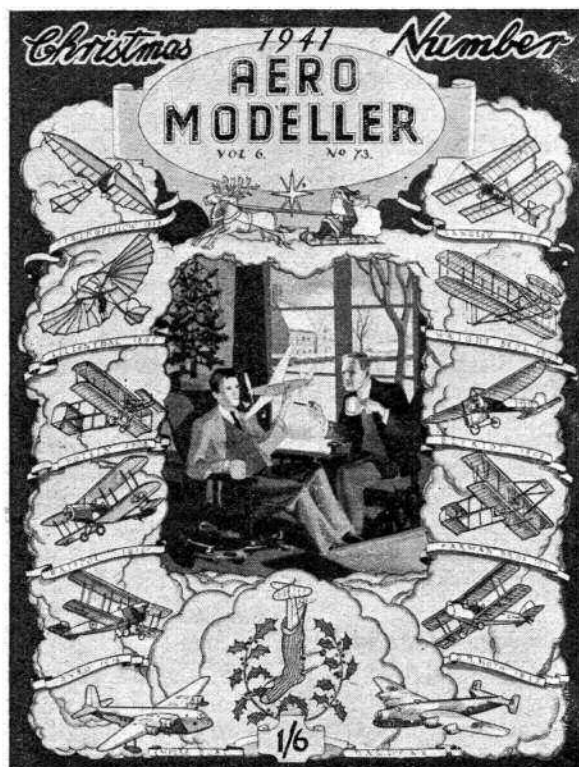
INDIVIDUAL CHAMPIONSHIP.

N. Hayes (Ashton) ...	289 pts.
A. T. Taylor (Bushey Park) ...	282 "
R. Calvert (Huddersfield) ...	264 "
D. Piggott (Blackheath) ...	262 "
A. A. Courtney (Oxford) ...	243 "
S. Carter (Bristol) ...	240 "

(Complete lists will appear in the S.M.A.E. Journal.)



CONTENTS—



THE FAIREY "ALBACORE"—a 50 in. span Flying Scale Model. Fully illustrated and with specially drawn sketch.

By H. J. Towner

THE TREND OF FOREIGN PETROL 'PLANE DESIGN.

By D. A. Russell

"BIG STUFF"—a large "petrol 'plane type," rubber-driven monocoque model. Full building instructions and reduced scale plans By Lt.-Col. C. E. Bowden

THE MILES "MAGISTER"—a 1 in. Flying Scale Model. Building instructions and full-size scale plans By R. W. Denny

THE GRUMMAN F5F-1 "SKYROCKET."—Fully described and with 1/72 scale plans By H. J. Cooper

THE G.B.2—a 46½ in. span Flying Boat. Fully illustrated and with reduced scale plans By H. S. Sayers

"PETROL TOPICS"—a welcome return. By Dr. J. F. P. Forster

* * * * *

A petrol engine driven racing car—solid scale building—an indoor model—sketches by Freddie—

* * * * *

CLUB NEWS By "The Clubman"

"INTERIM REPORT"—latest news about the 10 ft. span petrol engine driven Flying Scale Model of the Westland "Lysander" being built by D. A. Russell

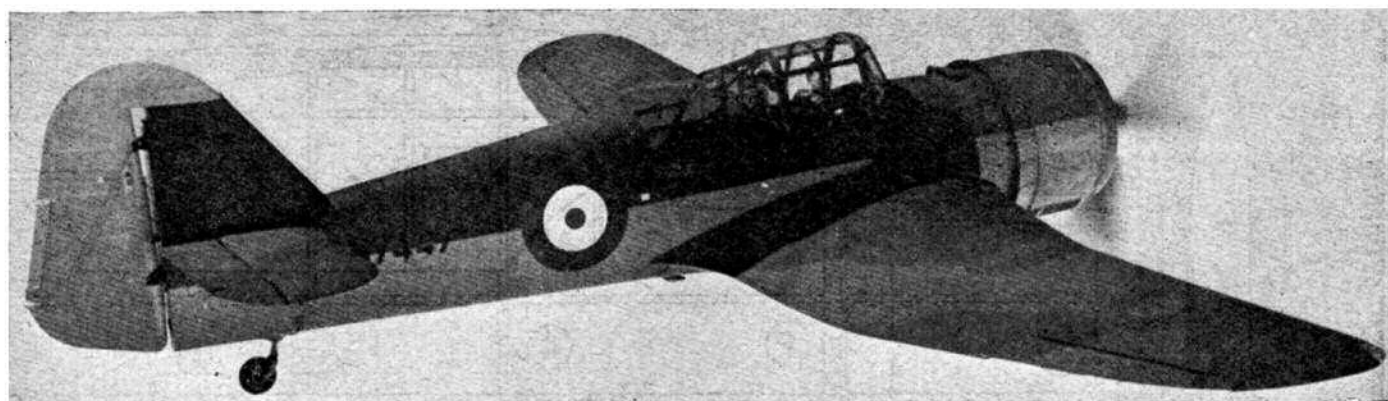
"RUSHY REMINISCES"—the good old times By The Editor

GIVEN AWAY FREE!

Coupons value one and sixpence towards purchase of any kind of plan on sale through "Plans Service."

Confirm Your Order Now! Issue On Sale Saturday, Nov. 22nd

The "MILES MASTER II" By W. R. JONES



HERE are the plans of the latest R.A.F. training machine, the "Master," fitted with a Mercury engine which gives it a top speed of 275 m.p.h. at 14,000 ft. The plans are drawn to the scale of $\frac{1}{4}$ in. to 1 ft., and the completed model gives quite a good performance. 30 sec. r.t.p. is an average flight, which is not at all bad for a low-wing scale model. The construction is kept very simple, yet when built it is capable of standing a good deal of rough handling.

Fuselage.

Cut out the various parts from the wood stated and glue the formers 1 and 8 on to keels, and when dry glue in the remaining formers, making sure that each one is vertical. The top and side stringers may now be added, and when the centre section has been glued in place the under stringers may be glued in place. The centre section spar has to be cut to allow for fitting of these stringers.

Centre Section and Wings.

Build these up as shown on the plans. The centre section spar is cut away at ribs "D," and the shape here gives correct dihedral angle at wing tips. Note that wing ribs "E" must be fitted *upright* when building the wings. Trailing edges of centre section must be steamed and curved to get the correct fit. Glue the $\frac{1}{8}$ in. sheet balsa on to top and bottom surfaces of wings and centre section ribs, and add the capping strip. **NOTE:** Glue centre section into fuselage before putting the $\frac{1}{8}$ in. covering in place. This ensures a much better fit. The $\frac{1}{8}$ in. sheet covering of the nose of the fuselage is now glued in place.

Tail-plane and Rudder.

Build these components up as shown on the plans and glue in place on fuselage.

Cowling.

Build up as shown and use hard balsa for the exhaust ring and for the actual cowling.

Undercarriage.

Build up this component as shown on the plans and plug in blocks on underside of centre section. Blocks may also be glued into the centre section if extra strength is required.

Carve the propeller from hardwood $\frac{3}{8}$ in. thick or purchase a "Paulownia" three-blade propeller. Make the propeller shaft and bend the forward end and push back into airscrew. Glue a $\frac{3}{8}$ in. dia. hardwood spinner in place to complete the job.

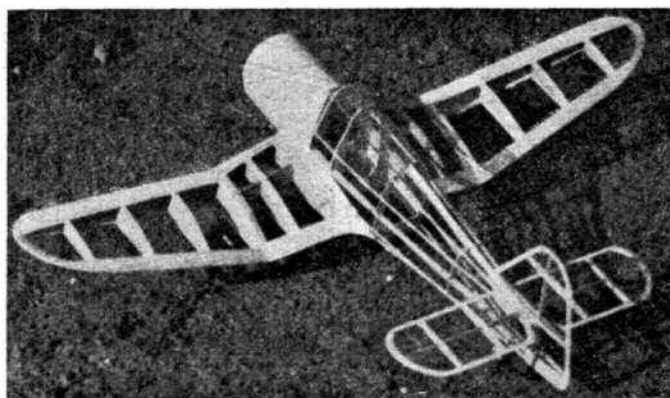
Covering.

The model is covered with "superfine" yellow tissue, and after "water" shrinking one coat of clear dope and one coat of banana oil applied. If a "super" job is required the upper surfaces of fuselage, wings, tail-plane and the fin may be "shadow shaded" green and brown. This extends down to the dotted lines on the fuselage. Add the "rounders" on fuselage and wings, and put the vertical strips on the fin (red foremost).

Flying.

Power is three loops of $\frac{1}{16}$ in. by 1/30 in. brown rubber, 12 in. long, well lubricated. The usual test glides should be made, although the original model flew without extra weight on the nose. Give about 200 turns for the first flights and increase this number (if the trim is found to be O.K.) until the maximum has been reached.

NOTE: The original has not yet been tried with maximum turns. The 30 sec. flights referred to have been obtained on 300 turns. If you have difficulty in building any of these scale models I shall be pleased to answer any letters. Write c/o the Editor, and please enclose a stamped and addressed envelope.



Showing the simple yet strong construction.

CUT 3 BLADES FROM HARDWOOD TO ABOVE SHAPE AND GLUE TOGETHER TO FORM PROPELLER. DRILL FOR SHAFT

SKETCH SHOWING WINDSCREEN.

COVER FUSELAGE FROM F1 TO F4 WITH 1/8" AFTER GLUING CENTRE-SECTION IN POSITION. SEE INSTRUCTIONS.

SKETCH OF AIR INTAKE. CARVE FROM BLOCK BALSA.

1" DIA. HARDWOOD WHEELS.

RIBS 'D' & 'E' PAPER.

FRONT VIEW OF UNDER-CARRIAGE LEG. USE 20 S.W.G. WIRE. BIND & SOLDER AS SHOWN.

CUP WASHERS.

SKETCH SHOWING NOSE PLUG. BUILD UP FROM "CUT OUT" OF "C2" AND 3 PIECES OF 1/8" BALSA. USE BRASS TUBE FOR BEARING.

CUT LOWER STRINGER ON EACH SIDE OF FUSELAGE TO FIT ONTO RIBS 'A' OF CENTRE SECTION. [SEE 'CHAIN-DOT' LINES ABOVE.]

GLUE 1/64 SHEET BALSA UNDER TAILPLANE TO FORM BASE & GLUE ONTO STRINGER.

TOP STRINGER 1/8x1/8 BALSA. SIDE & BOTTOM STRINGERS 1/8 SQ. BALSA.

GLUE 1/64 BALSA ONTO BOTTOM OF RUDDER AS SHOWN HERE.

1/2" DIA. TAIL-WHEEL. BIND WIRE ONTO LOWER STRINGER.

CUT ALL WING RIBS FROM 1/8" HARD SHEET BALSA.

USE 1/8" SHEET & 1/8x1/8 BALSA FOR OUTLINES. RIBS ARE CUT FROM 1/8x1/32 BALSA.

SKETCH SHOWING TAILPLANE AND RUDDER CONSTRUCTION.

CUT OUTLINES FROM 1/8" SHEET & 1/8x1/8 SQ. BALSA. CUT RIBS FROM 1/8x1/32 BALSA.

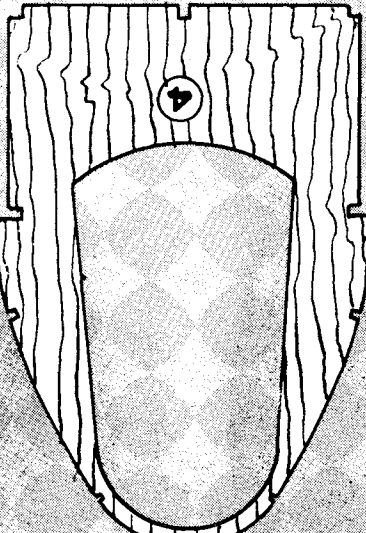
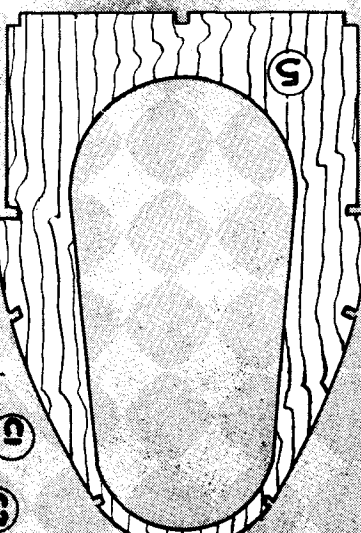
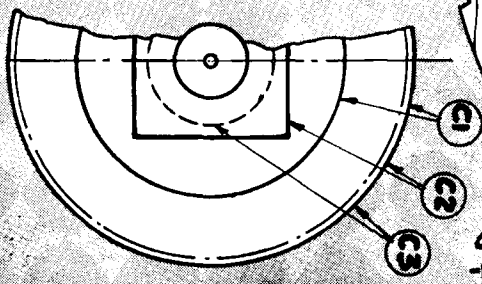
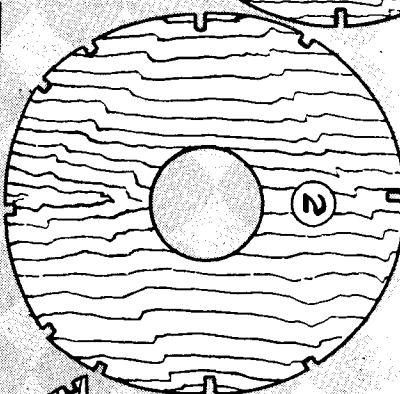
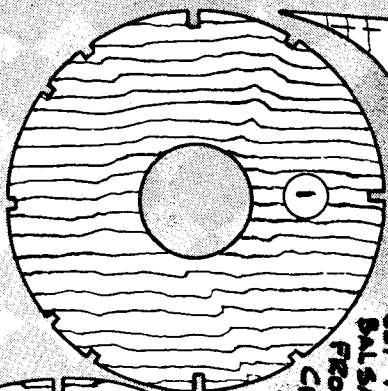
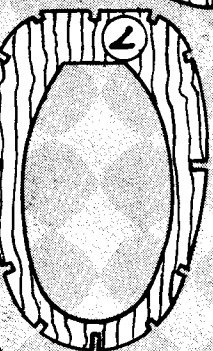
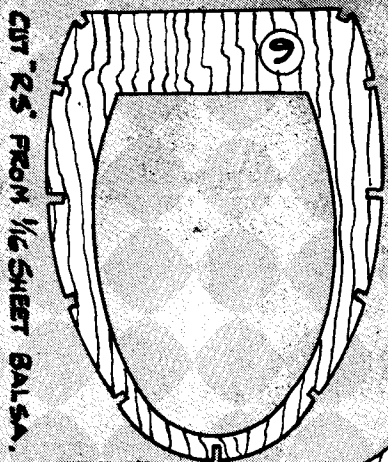
MILES "MASTER II" FLYING SCALE MODEL.

LEADING EDGES OF WING & CENTRE SECTION ARE CUT FROM $\frac{1}{8}$ SQ. BALSA. CUT TRAILING EDGES FROM $\frac{1}{32}$ SHEET BALSA & GLUE ABOVE & BELOW WING RIBS. GLUE $\frac{1}{32}$ SHEET BALSA ON TOP & BOTTOM SURFACES ON LEADING EDGES.

CAPPING STRIPS OF $\frac{1}{32}$ SHEET BALSA ARE GLUED ONTO UPPER & LOWER SURFACES OF WING & CENTRE SECTION RIBS. BUILD UP COILING AS SHOWN ON PLATE 1. USE $\frac{1}{16}$ SHEET BALSA FOR ACTUAL COIL. GLUE ONTO $\frac{1}{32}$ DISC & ONTO $\frac{1}{32}$ SHEET COVERING ON FUSELAGE.

OF UNDER-CARRIAGE BLOCK

CUT DISC AS SHOWN BY "CHAIN-DOT" LINE & GLUE TO REAR OF "C3". [USE $\frac{1}{32}$ SHEET]



YES! BE PREPARED

Times are difficult, but that is no reason why you should not be looking confidently forward to the future. Your future will be what you make it. Use your spare time to increase your earning power, then war or no war your future will be secure.

W. Bennett

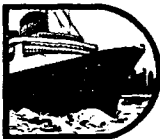


EARNING POWER IS A SOUND INVESTMENT

DO ANY OF THESE SUBJECTS INTEREST YOU?

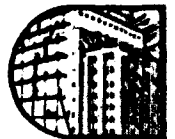


Accountancy Examinations
Advertising and Sales Management
Agriculture
A.M.I. Fire E. Examinations
Applied Mechanics
Army Certificate
Auctioneers and Estate Agents
Aviation Engineering
Aviation Wireless
Banking
Blue Prints
Bellers
Book-keeping, Accountancy and Modern Business Methods
B.Sc. (Eng.)
Building, Architecture and Clerk of Works
Builders' Quantities
Cambridge Senior School Certificate
Civil Engineering
Civil Service
All Commercial Subjects
Commercial Art
Common Prelim., E.J.E.B.
Concrete and Structural Engineering
Draughtsmanship. All branches



Engineering. All branches, subjects and Examinations
General Education
G.P.O. Engineering Dept.
Heating and Ventilating
Industrial Chemistry
Institute of Housing
Insurance
Journalism
Languages
Mathematics
Matriculation
Metallurgy
Mining. All subjects
Mining. Electrical Engineering
Motor Engineering
Motor Trade
Municipal and County Engineers
Naval Architecture
Naval Writing
Pattern Making
Play Writing
Police, Special Course
Preceptors, College of
Press Tool Work
Production Engineering

Pumps and Pumping Machinery
Radio Communication
Radio Service Engineering
R.A.F. Special Courses
Road Making and Maintenance
Salesmanship, I.S.M.A.
Sanitation
School Attendance Officer
Secretarial Exams.
Sheet Metal Work
Shipbuilding
Shorthand (Pitman's)
Short Story Writing
Speaking in Public
Structural Engineering
Surveying
Teachers of Handicraft
Telephony and Telegraphy
Television
Transport Inst. Exams.
Viewers, Gaugers, Inspectors
Weights and Measures Inspector
Welding
Wireless Telegraphy and
Telephony
Works Managers



If you do not see your own requirements above, write to us on any subject. Full particulars free.



CAN YOU CHANGE MY EXPRESSION?

IF SO, YOU MAY BE THE ARTIST THAT COMMERCE IS WAITING FOR

Just try it for yourself, trace or draw the outline, then put in the features.

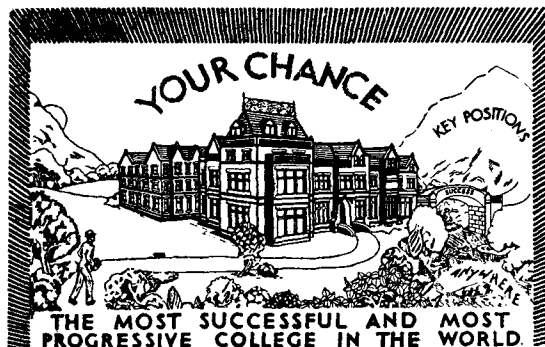
There are hundreds of openings in connection with Humorous Papers, Advertisement Drawing, Posters, Calendars, Catalogues, Textile Designs, Book Illustrations, etc., etc. 60% of Commercial Art Work is done by "Free Lance" Artists who do their work at home and sell it to the highest bidder. Many Commercial Artists draw retaining fees from various sources; others prefer to work full-time employment or partnership arrangement. We teach you not only how to draw what is wanted, but how to make buyers want what you draw. Many of our students who originally took up Commercial Art as a hobby have since turned it into a full-time paying profession with studio and staff of assistant artists—there is no limit to the possibilities.

Let us send full particulars for a FREE TRIAL and details of our course for your inspection. You will be under no obligation whatever.



ART DEPT. 119

EVERY DEPARTMENT IS A COMPLETE COLLEGE EVERY STUDENT IS A CLASS TO HIMSELF



IF YOU ATTEND TO THIS NOW, IT MAY MAKE A WONDERFUL DIFFERENCE TO YOUR FUTURE COUPON—CUT THIS OUT

TO Dept. 119, THE BENNETT COLLEGE LTD., SHEPFIELD

Please send me (free of charge) Particulars of.....

Your private advice about.....
(Cross out line which does not apply)

PLEASE WRITE IN BLOCK LETTERS

Name
Address

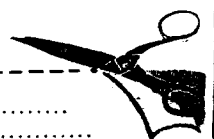
STUDY AT HOME IN YOUR SPARE TIME

JOURNALISM

Short Story, Novel and Play Writing

There is money and pleasure in Journalism and in Story Writing. No apprenticeship, no pupilage, no examinations, no outfit necessary. Writing for newspapers, novels or pictures is not a gift; it is a science that can be acquired by diligent application and proper guidance. It is the most fascinating way of making pastime profitable. Trained ability only is required, we do the training by post. Let us tell you all about it.

DEPARTMENT of LITERATURE 119





THE "MACCLESFIELD MARVEL"

By K. W. S. TURNER

Winner of many competitions, this model created a reputation for itself in numerous events in the North of England. Light-weight construction is linked up with sound design, and the builder is assured of a first-class "thermal grabber."

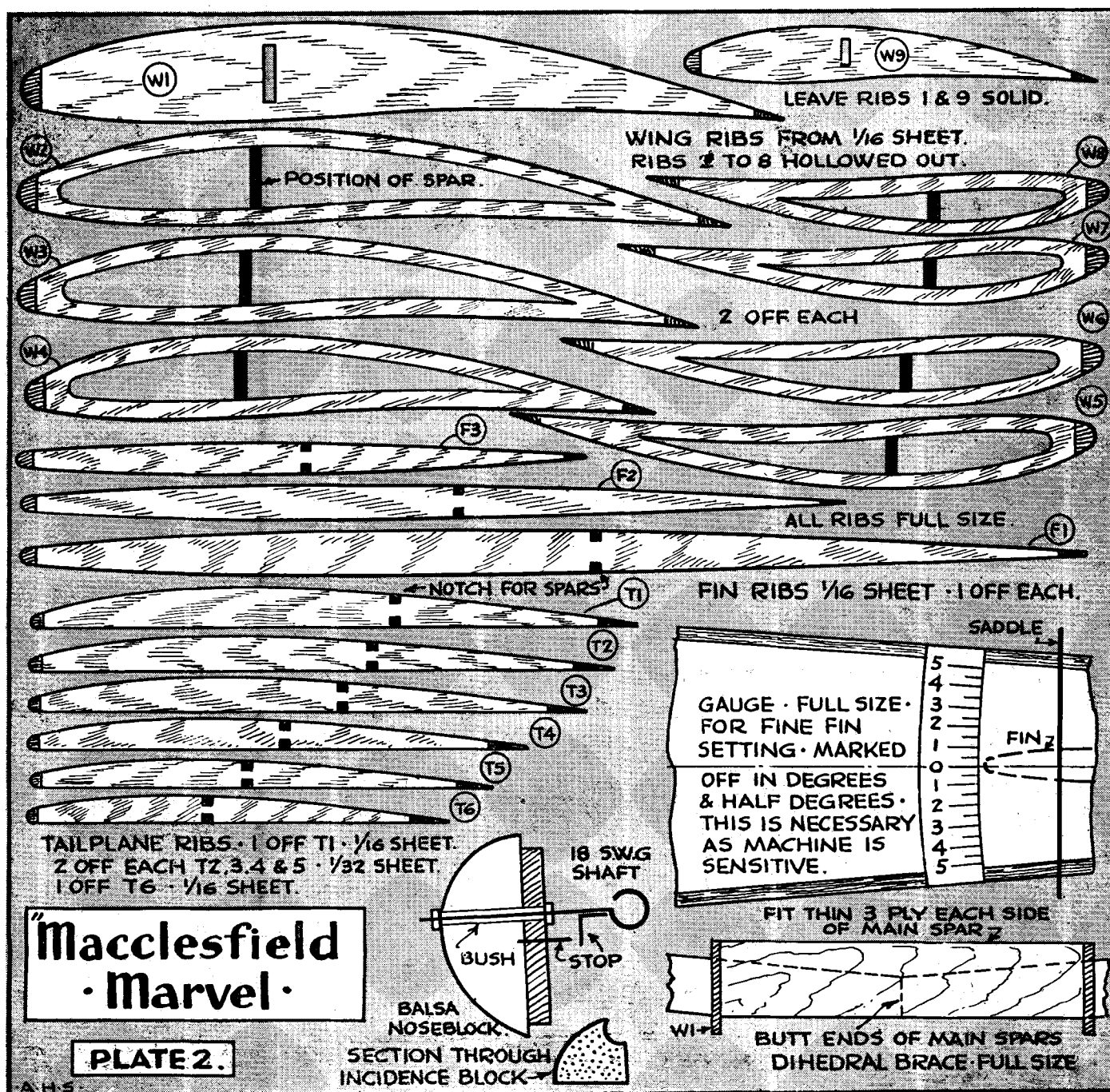
ALTHOUGH this particular machine is my own design, it is, strictly speaking, the product of the combined efforts of the Macclesfield Club. Five or six members of this club early in its second year of existence (1938) decided to enter for all the Northern rallies they could get to, and also that it would be to everyone's advantage to pool their resources.

After much experiment and broken balsa the type of machine shown in the design of the "Macclesfield Marvel"

was evolved. Several of these machines were built, and each varied slightly according to the owner's individual ideas.

This policy proved so successful that the club did not attend a single meeting without gaining a number of first, second, etc. At some rallies first, second and third places were obtained, and nearly all with this type of 'plane.

The machine proved just as good r.o.g. as hand-launched, and some astonishing flights were made in high winds.



Notable was R. W. Higson's 3 min. flight in a full gale at Halifax, which no doubt some will remember. This machine was lost again in a high wind at Southport.

I personally obtained sixth place at the Northern rally at Woodford, losing the "Marvel" on its first flight after 8 min. 80 sec. This machine was specially built for this meeting and only finished the night before.

All this is of some interest to anyone who is going to build the machine, as three points emerge:

1. The stability of the machine under all conditions.
2. The excellent gliding and soaring quality.
3. The terrific rate of climb.

The machine is very easy to construct if the following points are borne in mind:

1. Always think of minimum weight and maximum strength. The fuselage bracing shown will take care of all stresses.
2. Do not use too much dope or too much cement.
3. Be sure the finally finished covered weight of the machine does not exceed $2\frac{3}{4}$ oz. without the motor.

This can be done; in fact, $2\frac{3}{4}$ oz. is possible by shaving down the standard Paulownia wood 14 in. propeller to $\frac{1}{4}$ oz. complete with shaft and block. (Sounds impossible, but it is not).

4. Concentrate on keeping undercarriages light. No great strength is needed here, as the total weight with motor is only 4 oz. Use 20 gauge wire and 18 gauge for axle and attachment to fuselage.

5. Build fuselage on a jig. This pays every time, as it is then bound to be square. If the fuselage is not square the various adjustments will be all wrong.

6. The fin is comparatively large and therefore exerts considerable force and control on the machine under power. The model is sensitive to the setting of the fin and the numbered scale shown should be carefully checked before each flight.

The increased incidence at the outer edge of the right-hand wing is the main point of the adjustments (all of which are given on the plan). This has the effect of allowing sufficient right rudder to be given to turn the machine in tight circles without causing it to dive out of the bank.

After the power is out the increased incidence will merely cause more drag on the right-hand wing than the left, thus continuing to turn the machine to the right. The fin, in my experience, has but little effect once the blast from the propeller dies away.

The actual construction of the machine is very simple and just the same as any other, with the possible exception of the totally cut away centres for the ribs.

These *must* be cut accurately as must the main spars, otherwise difficulty will be found in getting them lined up evenly with the trailing edge and leading edge.

Do not cut out last rib at tips or the root rib.

One coat of dope (and that not too thick) will suffice after water spraying. Remember this is a super light-weight and should be handled as such.

PRACTICAL DRAWING HINTS

The Answer to Queries on Drawing Enlarging ————— By M. B. Sadler

MOST of us possess small three-view drawings of aircraft on a scale of about 1/290, and wish to know how to draw them to 1/72, or some other scale, for solid modelling.

I have more than sixty different kinds of aeroplanes drawn in this way, and for a time I was wondering how I could scale them up. Drawing "squares" is not accurate enough for this purpose, and I only knew of scales which took a long time to work out, and which were, even so, extremely inaccurate.

I thought of making some kind of dividers which would work on the principle of these scales. My first idea was to make a wooden pair as in Fig. 1.

In the figure, A is a Meccano screw, B is free to slip up and down in the slots provided, while C is a pin driven into the two arms.

The idea was that if the length of the aeroplane to be redrawn was thirty feet, then on 1/72 scale—six feet to one inch—it would be five inches long. The size of sliding pins B—B would be as shown in my small plans.

The pins C—C would be five inches apart, and all other measurements would be to the same proportion.

The only disadvantage was that the two pins B—B would not have been close enough together for my liking, and they could easily have moved without my knowing it.

Then someone told me about some proportional dividers, which were, as usual, too expensive! However, the principle on which they work is shown in Fig. 2.

The points A—A are set to the length of the small plans, and C—C are set to the length of the desired scale.

The screw B is put in the right place, where the sides cross. On the proper instrument, the screw slides into position.

This is the instrument that I chose. Not being able to

afford a proper pair, I made one out of cardboard. The grub (B) was an ordinary Meccano nut and bolt.

The instrument is very accurate for scaling down, but for scaling up it multiplies the error. It is easy to make, but make sure that the points are correct, i.e. together at each end when they are meant to be together. Also see that they are as sharp as possible.

They could easily be made in wood or metal, ensuring always that the screw cannot slip.

Items needed for this work are a sharp pencil, a ruler, rubber, compasses and dividers.

Also useful, though not essential, are a ruling pen and compasses, with attachments for pen and pencil (in which case the compasses previously mentioned will not be required).

The compasses might also dispense with the dividers if a divider attachment is obtainable.

The drawing of a 1/72 scale plan from a 1/290 plan is quite simple. It would be simpler still if the 1/290 scale were 1/288 scale instead, as all it would need would be stepping out four times with the dividers.

In this case, however, it has to be done with the proportional dividers.

The datum lines are drawn; these are lines through the small scale plans, and on the paper where the 1/72 plans are to be drawn.

The measurements are taken along the datum line of the small plans with the points A—A.

They are transferred by C—C to the datum line on the plans to be drawn.

Then measurements are taken at right-angles to the datum line, from it to the outline, and transferred as before..

Points are drawn where these measurements come, and

care must be taken both in placing the points and making the measurements, as the dividers multiply any error quite considerably. If the small plans are to a scale of $1/290$ and you are bringing them to $1/72$, i.e. approximately four times as large, and you are $1/64$ in. out at the small end, the error at the other end will be four times as great, i.e. $1/16$ in., quite a big error in some parts of a plan of this size.

Having put down the points, they should be joined up. These, with the first lines, should be made in pencil. When you are certain that everything is correct, you can ink them in if desired. For inking in, Indian ink may be used. Or, if (like me) you do not want to spend so much on your ink, Waterman's jet black ink does very well.

When inking in, I usually adjust my pen to give a fine line. This gives a very accurate drawing if properly done, but some people seem to prefer a thicker line.

For drawing the curved lines, several methods may be used. I draw all mine freehand, but that takes some practice. There are several kinds of rulers that can easily be made for doing this; one consists of a piece of wood shaped to curves of varying radii, as in Fig. 8. A development of this is shown in Fig. 4. The ends give curves of smaller radius than the ruler in Fig. 8.

When drawing a line in ink with the aid of these rulers, never go over a portion of the line twice when changing the radius of the curve; it is sure to show up afterwards.

Now that we have finished the plans of our model, we will get on to the making of it.

I prefer to make my solids in two halves, as the centre line never disappears.

Having found the measurements of the fuselage, we will shape it up. The following measurements are for the Fairey Fulmar.

The fuselage measurements are $\frac{1}{2}$ in. \times $6\frac{1}{2}$ in. \times 1 in.

As we are making it in two pieces, we need two pieces of $\frac{1}{2}$ in. sheet. As, in my district at least, this cannot easily be obtained, four pieces of $\frac{1}{8}$ in. sheet may have to be used instead. When they are cemented together and have set, the outline of the fuselage must be traced on to the block. I usually trace on to some tracing paper, cut out the tracing and paste it on to the block. Cut this out with a fretsaw, keeping the sides straight. Then do the same with the top view.

If your plans have any fuselage sections, templates of cardboard can be made for the rounding-off.

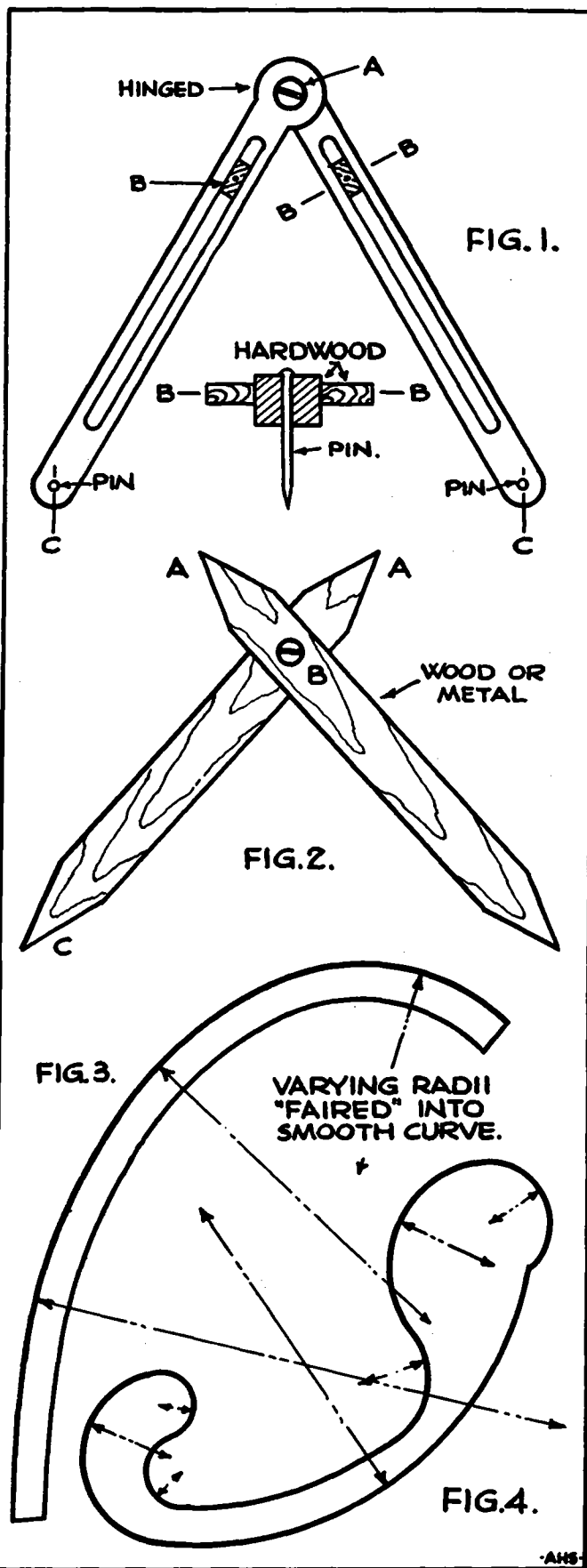
The wings can next be given some attention. These should be made of $\frac{1}{2}$ in. sheet and shaped up in the same way as the fuselage. Again $\frac{1}{2}$ in. sheet (two pieces) may be used instead.

When finished, some dihedral should be put into them by scoring deeply in the middle, bending the requisite amount and filling the score with cement.

A slot should be cut in the fuselage for the wings. They should be cemented into position and held by a couple of ordinary pins, which make a very firm fixing.

The tail will be made in the same way, viz. from $\frac{1}{2}$ in. sheet, cemented on and held with pins.

The model should have plastic balsa wood fillets on the wing roots, and should be sandpapered smooth. It should then be given a few coats of banana oil, sandpapering between each coat. Then, when a perfect finish has been obtained, the undercarriage should be put into place. Finally, the model should be finished with coloured dope. This should be smoothed with acetone, and, when dry, the cockpit may be coloured with silver dope. Black hoops, R.A.F. targets, etc., can also be added.



GADGET REVIEW

CONDUCTED BY M. R. KNIGHT • ILLUSTRATED BY C. RUPERT MOORE.

FROM L.A.C. Taplin, R.A.F., formerly secretary of the Southampton M.A.C., has come an interesting description of a "near-scale" cabin high-wing monoplane which he has built for all-weather flying. It has a stout balsa-planked fuselage, "knock-off" tail secured by press studs, "knock-off" undercarriage, a crash-proof nose-piece of the type described in *THE AERO-MODELLER* for October, 1939, and built-in wing tip slots. It weighs 10 oz., has a span of 39 in., and a loading of $7\frac{1}{2}$ oz. per square foot. Two eight-strand skeins of $\frac{1}{4}$ in. by $1/20$ in. rubber, turning an airscrew 18 in. in diameter and 18 in. pitch, have secured flights of 70 seconds duration.

The nose-piece is described by our correspondent as a veritable "propeller preserver," and in connection therewith he has devised a free-wheel device which dispenses with any need for soldering. It is depicted in Fig. 1, and consists of a coiled collar of wire, which is made a tight fit on the airscrew shaft by the simple process of winding it on a piece of wire two gauges smaller than the shaft. The direction of this winding causes it to tighten as the shaft rotates, and results in the lower end of a cranked wire around which an extension of the collar is coiled, to bear against the shaft. The other end of this crank bears against a peg projecting from the front face of the airscrew, thus transmitting to the latter the rotary motion of the rubber motor. When the motor is unwound, the airscrew turns freely on the shaft by deflecting the upper arm of the crank.

Replacement of the airscrew can be effected by slipping a razor blade between the spinner and the airscrew and screwing the collar off the shaft. A touch of quick-drying cement reseals the spinner in position.

Fig. 2 shows a method of building a fuselage of circular cross-section combined with a motor tube, in which use is made of that useful domestic item, the common or garden broomstick. The sender of the idea is Mr. K. H. Rossiter, of Sidcup. A sheet of balsa 8 in. in width is cut to the required length, soaked in very hot water, wrapped around a broomstick about 1 in. in diameter, and secured by pieces of soft rag. When dry, the seam is cemented, the stick having previously been waxed to prevent adhesion. Circular formers are slipped over the tube-cum-broomstick, spaced according to plan, and sundry stringers cemented along their outer rims. Thus is evolved a structure of exceptional strength and torsional rigidity, and which suffers only slight local damage from a bursting motor.

The former at each end should be stout enough to accommodate nose-piece and tail-plug, and the front one should be carefully checked with a set-square to ensure that it makes a right-angle with the stick. Intermediate formers, in view of the fact that a circle only 1 in. in diameter is cut from the centre, should be of thin sheet, say, $\frac{1}{16}$ in. It would be helpful to rest the ends of the broomstick in two supports, thus enabling it to be rotated while positioning the stringers.

A simple and effective means of producing a hubless wheel, suited to a streamlined model, is submitted by Mr. C. Shack-

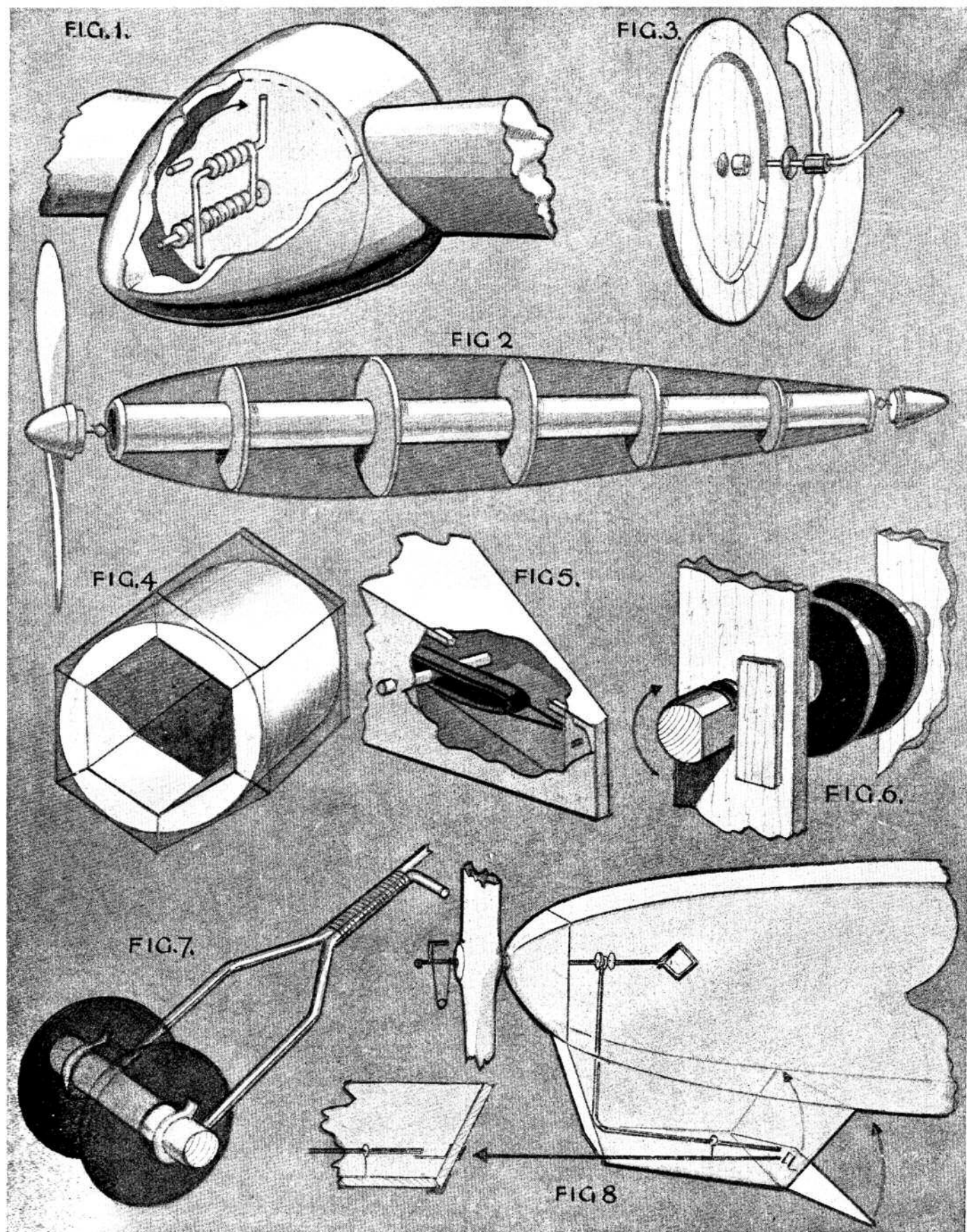
lock, of Sneinton, Nottinghamshire, and is shown in Fig. 3. The stub axle is of 18-gauge wire and has a small tin washer soldered about $\frac{1}{8}$ in. from the end. Alternate layers of balsa sheet and thin plywood can be used for the wheel, which should be sanded to the shape shown, split down the centre and hollowed out. A bearing of 18-gauge brass tube is then taken through the centre of one half and partly through the centre of the other. The first half is then slipped on to the stub axle, a washer soldered to the axle to retain it, and the other half of the wheel cemented to its companion. A spot of oil on the bearing before joining the halves ensures smooth running. The reduction in drag which such a wheel affords should be assisted by curving the end of the stub axle, as shown.

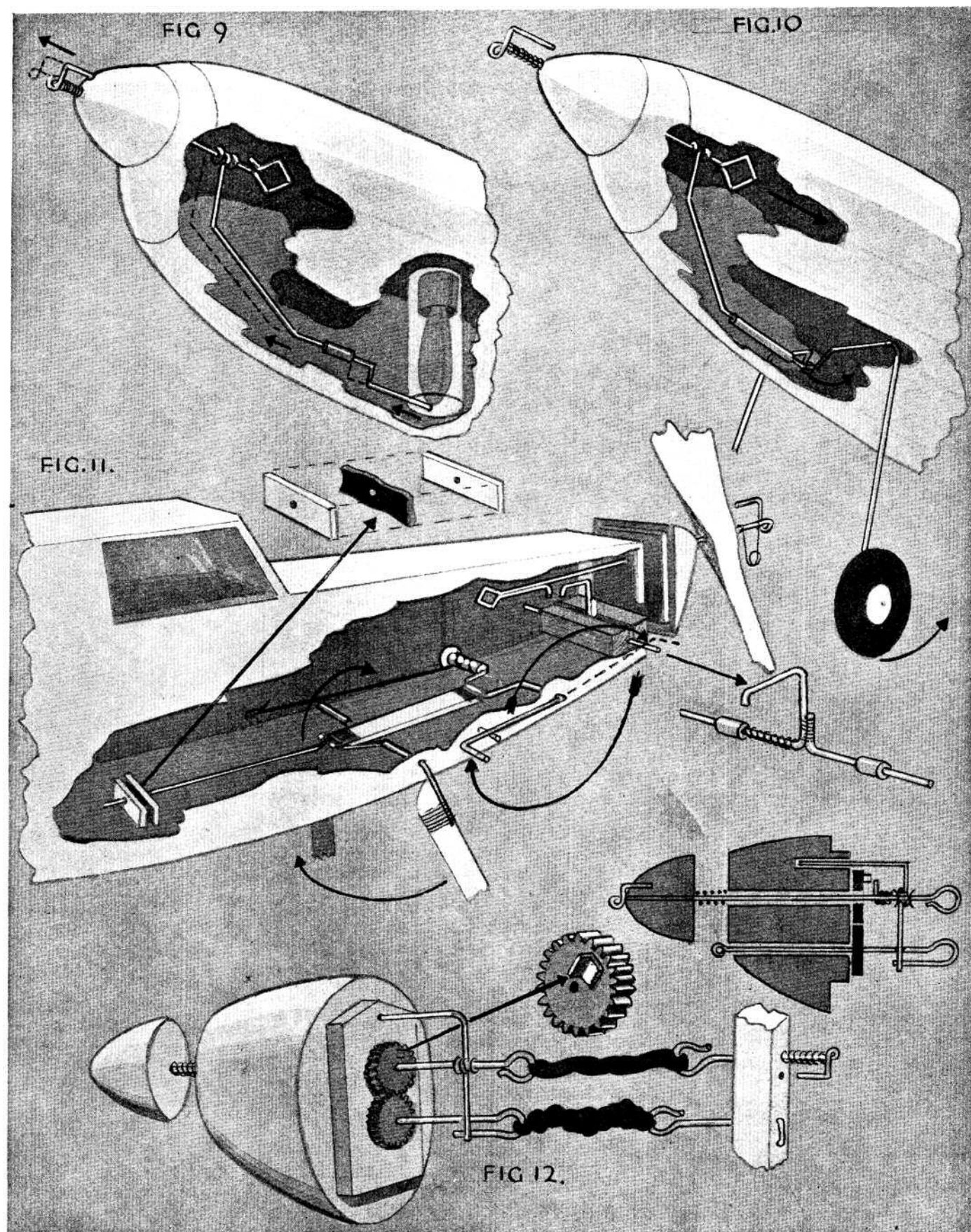
From Mr. Gerald Smith, of Blackburn, has come a suggestion relating to the long-chord cowlings for models of certain radial-engined types. These are apt, when formed from numerous rings, to require rather more balsa sheet than can conveniently be spared in these days of paucity. Fig. 4 shows how a hexagon can be constructed from six pieces of $\frac{1}{4}$ in. balsa sheet, strengthened by a circular front plate of the same material and a back plate of $\frac{1}{8}$ in. sheet. These circular ends also serve as guides for the subsequent sand-papering process. The cowling thus combines strength with lightness, and is economical of time and timber.

A device calculated, in the view of the sender, to appeal to a reviewer with a distrust of gadgetry, is to hand from Mr. H. J. Appleton, of Portway, Wells, Somerset. It is a non-mechanical means of holding an unwound rubber skein in tension, and has proved effective on small duration models. A stout elastic band (covered elastic cord seems indicated) is taken from the rear end of the skein to a peg in the region of the sternpost (see Fig. 5). This band takes up the slack of the skein when unwound, while a few turns of the winder serve to stretch the band and bring the skein into contact with the usual motor peg. The idea has the disadvantage of altering the balance of the model when the skein is pulled rearwards. A plaited skein, favoured by many modellers, including your humble reviewer, avoids this trouble and enables a longer skein to be employed, thus increasing the possible number of turns, and therefore the duration of flight.

Ideas in connection with the use of motor pegs and bobbins are forwarded by Mr. E. W. Bromige, of Peterborough. As many modellers have discovered by painful experience, rear rubber anchorages have a playful way of occasionally slipping out of place, thereby shooting the motor to the front of the model and putting it into a dive. This can be prevented by cutting a flat face and an adjacent groove near one end of the rear peg and inserting the flat part against the edge of a thin plywood key plate suitably positioned, and giving it a half-turn to slip the groove over the edge of the plate, thus locking it (Fig. 6).

Fig. 7 depicts an easily-made and easily-removed airscrew shaft anchorage for a peg carrying a bobbin. Grooves cut





in the peg where the hooks grip it would serve to check any sideways movement.

Mr. D. Noden, of Chorlton-cum-Hardy, has produced a device for dropping a parachute, and Mr. Philip Foster, of Hebden Bridge, a bomb-dropping mechanism, both of which are actuated in much the same manner. The former is shown in Fig. 8. A compartment to house the parachute is built beneath the front part of the fuselage (why not within it, thus avoiding increase of drag and side area?), and a door of $\frac{1}{8}$ balsa sheet is hinged by three layers of tissue, so that it opens rearwards. An actuating rod of 20-gauge wire fits loosely over the airscrew shaft between two washers soldered to the shaft, and its lower end engages with a loop of 22-gauge wire on the inner face of the door. When the motor is unwound the airscrew shaft is pulled forward by the free-wheel spring in front of the airscrew, thereby pulling forward the actuating rod and releasing the door, so that the parachute is free to tumble out.

In the device illustrated in Fig. 9 a bomb of solid balsa, weighted by a tintack, is placed vertically within a paper cylinder in the interior of the fuselage, and resting upon the 18-gauge actuating rod, which passes through a guide of aluminium tubing. The method of release is the same as for the parachute-dropping model just referred to. A hooked wire depending from the top of the fuselage holds the motor skein clear of the bomb and its container.

And now, having worked our way through sundry less involved items, let us study two methods of retracting and extending an undercarriage. Mr. David Crump, of Cheam, asks, with reference to a retractile monowheel undercarriage described in a recent AERO-MODELLER: "Why not two wheels?" Fig. 10 depicts his efforts to remedy the implied deficiency. Once more we find use made of an actuating wire floating on the airscrew shaft. This wire is taken through a guide tube, which is attached to the bottom centre stringer of a multi-sided fuselage, or to a suitably placed member in a rectangular type. Its rear end loops loosely around a V-shaped crank in the centre of the wire connecting the undercarriage struts, which wire is hinged to the lower longerons. The crank must be bent forward at such an angle as will bring the undercarriage into a convenient position within the fuselage when the motor tension pulls the airscrew shaft and actuating wire into their rearward positions. A few turns on the motor are sufficient to effect this. Conversely, when a corresponding number of turns remains on the motor, the free-wheel spring takes charge, pulling airscrew shaft, actuating wire and crank into the forward position, thus extending the wheels ready for the landing. The sender of this idea states that it works "D.V.," from which one infers that occasionally D. is *not* V.!

Fig. 11 illustrates a type of "two-way" undercarriage devised by Mr. Maurice T. Mitchell, of Barnet, which, in the course of many flights has never failed to operate satisfactorily. It offers at least four advantages, namely, lightness, simplicity of operation, reliability and negligible change in the trim of the model to which it is fitted.

Reference to the diagram will show that the wire connecting the undercarriage struts is cranked, and connected by an arm to another cranked wire nearer to the nose. The front crank turns through about 165 degrees, the rear one through a complete circle. One end of the front cranked wire, after passing through a securely anchored tube, emerges from the side of the fuselage to form a handle. The other end carries a pulley-wheel, around which are taken three or four turns of a rubber band, the end of which is

anchored to a peg as shown. The band, thus tensioned, tends to pull the front crank up and over towards the nose. Beneath the airscrew shaft is a wood block drilled and grooved to carry a wire trip, which is held in the "off" position by a lightly-loaded spring.

The manner of working is as follows. Having turned the crank-handle anti-clockwise until it can be lodged beneath a suitably placed wire stop, the rubber motor is wound. The model can then be placed on the ground and the crank handle disengaged from the stop, the weight of the model now serving to keep the wheels extended. At the take-off the tensioned band pulls the front crank up and over, thereby operating the rear crank, which proceeds to pull the wheels into the wings. Meanwhile, the crank handle turns until its movement is arrested by the part of the trip projecting from the side of the fuselage.

When the motor is unwound the easing of the tension allows the free-wheel spring to pull forward the airscrew shaft, a catch on which draws the trip inwards. This releases the crank handle, allowing it to continue its rotation until it is once more resting beneath the wire stop, when the undercarriage moves forward and down and locks in the extended position.

Notice the wire passing rearwards from the rear crank. This is slipped through a small piece of $\frac{1}{80}$ in. rubber strip held between two pieces of $\frac{1}{8}$ in. balsa sheet secured to one of the lower cross-struts of the fuselage. The reluctance of the rubber to part company with the wire imparts a desirable slow-motion to the upward and downward travel of the undercarriage.

Interest in flying scale models and "near-scale" general purpose types would probably be far more widespread were it not for the fact that the realistic appearance is invariably obtained only at the expense of duration of flight.

To the writer's mind, this is not too high a price to pay for the pleasure of flying general-purpose types in which use is made of an airscrew shaft which can rapidly be contrived from a coil of wire. Those, however, who hanker sufficiently for longer flights to be prepared to sacrifice this simplicity, and those building certain types of scale models which practically demand some form of gearing, will be interested in the possibilities of the relay gear employed by Mr. L. J. Clabon.

Reference to Fig. 12 should render intelligible the ensuing description. The tension of the upper motor when fully wound compresses the spring situated to the rear of the airscrew, and draws the airscrew shaft rearwards until a right-angled wire projecting from the rear face of the nose-piece and looping around the shaft between two washers engages with the lower motor hook and prevents the unwinding of the lower motor. Meanwhile the upper gear wheel is idling on its shaft.

The lessening of tension consequent upon the unwinding of the upper motor eventually allows the front spring to pull forward the airscrew shaft, and frees a second spring at the rear end of the upper motor, which prevents winding in the reverse direction. At the same time, the moving forward of the right-angled wire frees the lower hook, thus allowing the lower motor to unwind. The rotation of the lower gear wheel turns the upper wheel in such a direction that a sprig soldered to the upper shaft bears against a clutch on the wheel face, consisting of a shaped spot of solder, thus transmitting the power of the lower motor to the airscrew.

This gear has been employed successfully on a flying scale model of the De Havilland Leopard Moth.

"SKYROCKET"

By J. W. JACKSON

A Handy "Performance" Model

BEFORE the war I was strongly in favour of the type of model with a slow, steady climb and a tremendously long motor run. Such a model was usually of extremely light construction. I moved, on the outbreak of hostilities, from London to Torquay, where I attempted to fly my flimsy duration models. They were quite successful on calm days, but calm days are few and far between in sunny Devon (at least, that's what the guide books call it). I have, accordingly, changed over to the American type of flying—a fast climb to great altitude and a flat glide during which the crate might pick up a thermal or two. Even in winter, without any up-currents, and plenty of down-draughts, the "Skyrocket" has turned in flights of 90-120 sec. with unfailing regularity. R.t.p., with a larger propeller, it has won a duration contest with a flight of 126 sec. The construction is simple; the finished model will just about eat out of your hand. Come, then, get out your building tackle and start the "Skyrocket."

Fuselage and Undercarriage.

Build two sides, one on top of the other, using $\frac{3}{16}$ in. by $\frac{1}{8}$ in. for formers, $\frac{3}{16}$ in. by $\frac{3}{16}$ in. for longerons and nose stringers, and $\frac{1}{8}$ in. by $\frac{1}{8}$ in. for diagonal bracing. See that you get the diagonal bracing running the right way. The solid lines on the side elevation represent the diagonals on the near side, and the broken lines are the diagonals on the far side of the fuselage; similarly with the plan of the fuselage. Join the sides with formers and bracing, and sheet the fuselage where indicated. All sheet, except $\frac{1}{8}$ in. sheet rear peg fixing, is $\frac{1}{8}$ in. medium balsa.

The undercarriage is made from 18 s.w.g. piano wire. It enters the bottom of the fuselage, runs along bottom and up the side of the fuselage. Bind and cement the leg securely and add gussets of $\frac{1}{8}$ in. sheet balsa all around the points of anchorage. Two cross-grained laminations of $\frac{1}{8}$ in. sheet, with a rolled paper tube as hub, make up the wheel. Finally, add the four nose stringers, which are flush, at their rear end, with the fuselage side, but stand proud at the front.

Wing.

Cut two cardboard templates for the ribs, one for the top and one for the bottom ribs, cut out ribs $\frac{1}{8}$ in. by $\frac{1}{8}$ in., indoor fashion. Carve and sand T.E. to section. Pin L and T edges on plan, cement in top ribs; allow cement to dry and remove structure from the drawing; turn over, add spar and bottom ribs. Laminate the tips from $\frac{1}{8}$ in. by $\frac{3}{16}$ in. strip and cement in position with dihedral of 1 in., and don't forget to brace the tips. Cement wing halves together so that total polyhedral under each tip is $8\frac{1}{2}$ in. Brace central polyhedral joints with $\frac{1}{8}$ in. sheet and finish by trimming L.E. to correct section.

Tail Assembly.

The upper ribs are cut in the same way as the wing ribs, but the lower diagonal bracing to prevent light tail-plane structure from warping is cut from $\frac{1}{8}$ in. by $\frac{1}{8}$ in. strip. Pin down shaped T.E. and square L.E., cement in laminated tips, diagonal bracing and top ribs. Finish by shaping L.E.

Build up the fin from $\frac{1}{8}$ in. by $\frac{1}{8}$ in. as indicated; bracing is $\frac{1}{8}$ in. by $\frac{1}{8}$ in. Cement fin directly to top of fuselage and cement-skin the joint.

Propeller and Nose-block.

Carve the blade from a block 6 in. by $1\frac{1}{2}$ in. by 1 in. Leave the hinge tongue square at the end. Cement 1 mm. ply faces to the tongue and drill the hole. Assemble the hub from three pieces of 1 mm. ply and a balsa spacing block, shown by dotted lines. It is advisable to bush the spacing block with 16 s.w.g. bore brass or aluminium tubing. The counter-balance arm is made from 18 s.w.g. music wire bent double with two prongs at the end, which are pushed into, and through, the ply face at the front of the hub. Trim the tongue to allow the blade to fold easily and use a stout pin as a hinge. Solder a large blob of solder to the outer end of the balance arm and, when you have covered the hub with tough paper to stop breakage when flying, file the blob to a streamline shape until the propeller balances correctly. Don't forget that sweeping back the balance arm will help to cut out vibration.

Laminate the nose-block from hard $\frac{1}{8}$ in. sheet balsa and bush with a 16 s.w.g. bore brass bush, preferably a screwed bush. Bend a diamond-shaped rubber hook on the end of a length of 16 s.w.g. piano wire, pass the straight end through the nose-block, ball-bearing thrust washer and propeller. Form the loop, and about $\frac{3}{8}$ in. from the shaft bend the wire back to form the clutch arm which is inserted in a hole drilled through the ply front plate of the hub. When you wind up disengage this clutch arm so that the propeller will idle on the shaft. Re-engage the arm and the ship is ready to fly.

Covering.

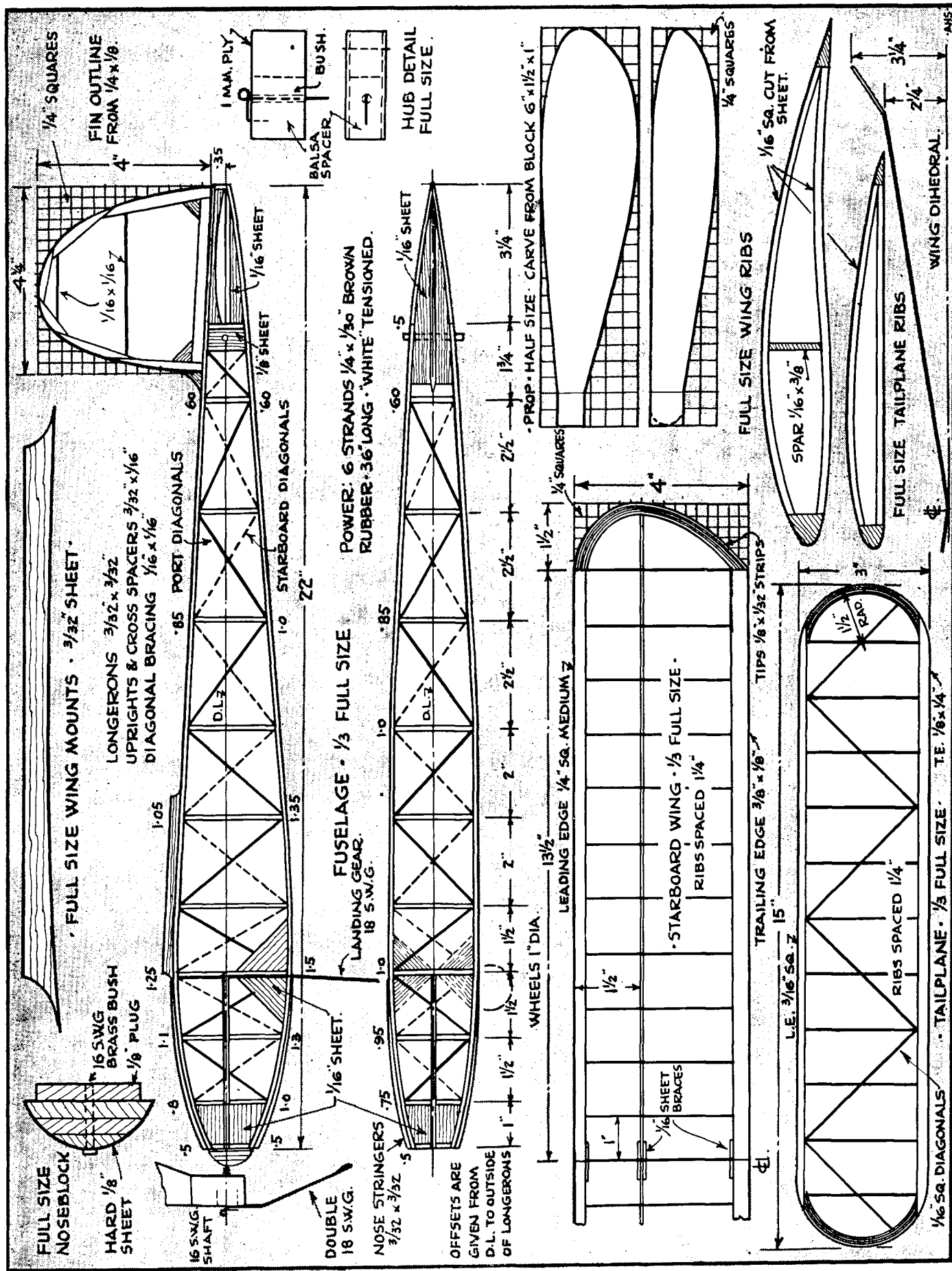
Cover the wing and the undersurface of the tail-plane with the grain of the tissue running parallel to the ribs; the top of the tail-plane and the fuselage are covered with the grain running the length of the structure. Water-spray the whole model and place in a cool atmosphere until dry. Any attempt to hasten the drying will result in warping. Dope the fuselage and give the whole machine one thin coat of banana oil. French polish the propeller.

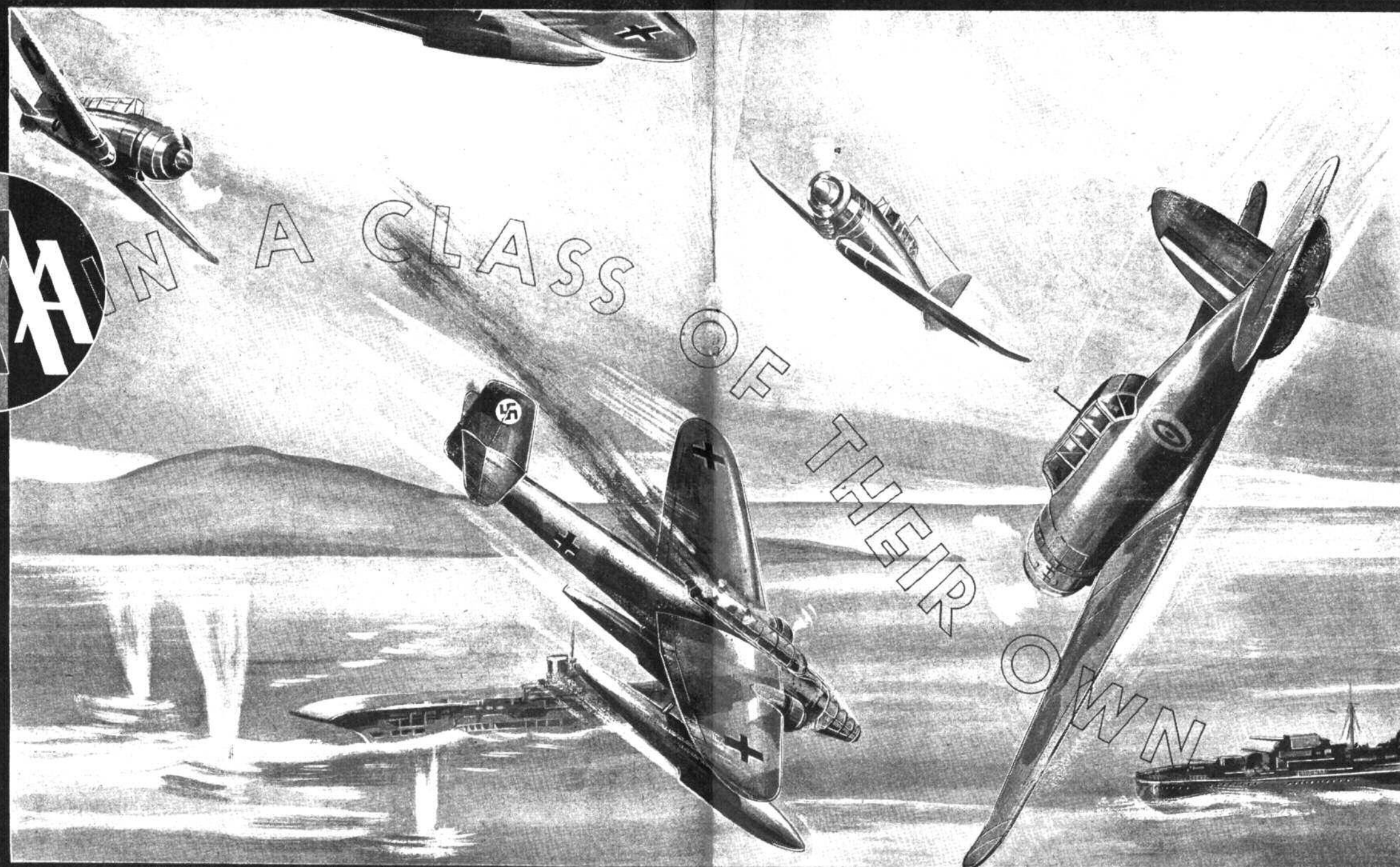
Flying.

The power is supplied by six strands of $\frac{1}{8}$ in. by 1/80 in. brown rubber 86 in. long, tensioned by the White method. Assemble the machine and fold the propeller blade along the top of the fuselage, since this is where it will stop in flight. Adjust the wing position until you get a flat glide; then, by changing the direction of the thrust line, by packing the nose-block, get the model flying in circles of about 50 ft. diameter against torque. Under full power the model should climb almost vertically.



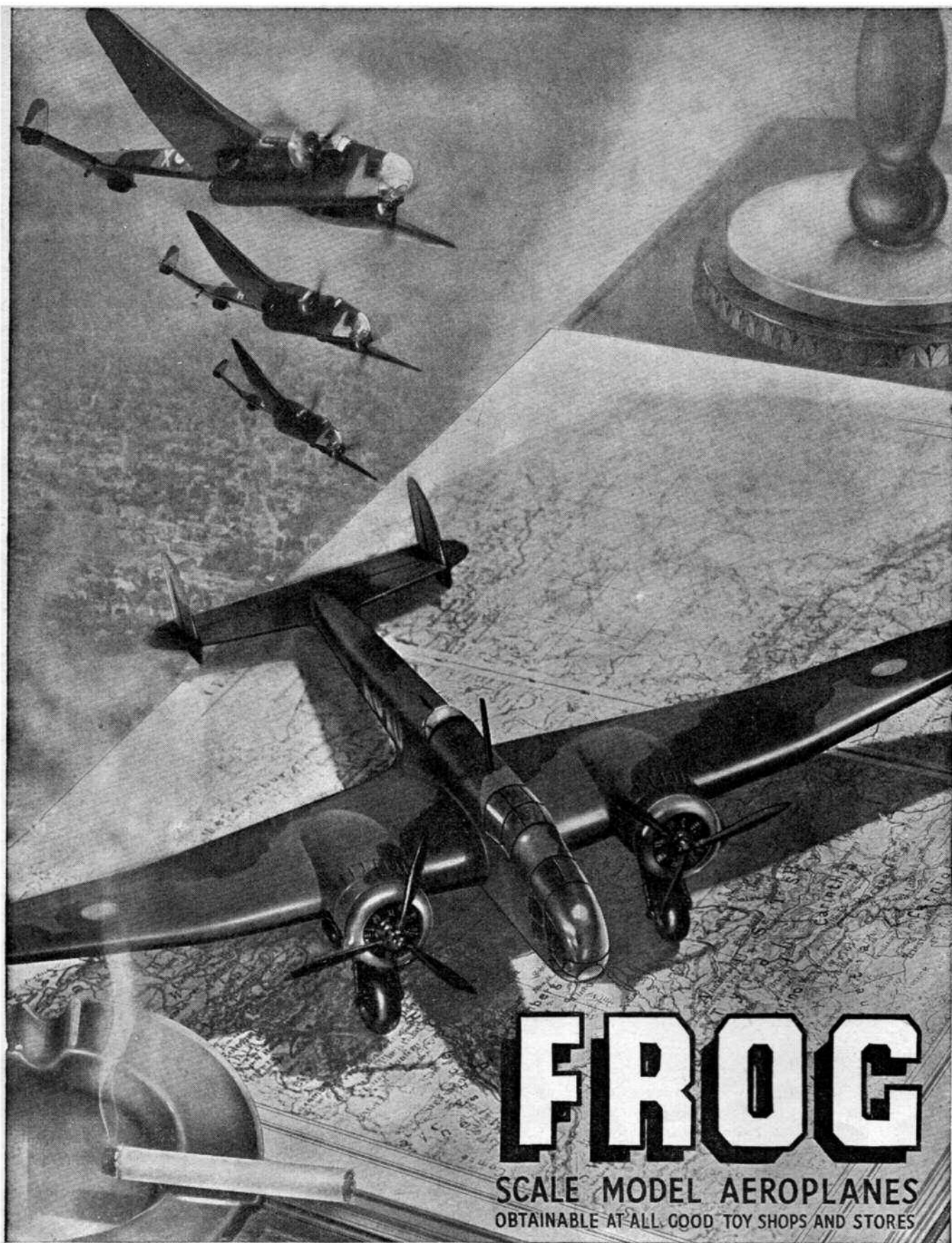
REMEMBER . . . That to be sure of getting your copy of the next issue—THE XMAS DOUBLE NUMBER—you must have an order placed with your local model shop or newsagent





SKILLANDA MODEL AIRCRAFT

BRITISH MODEL AIRCRAFT MANUFACTURING CO MITCHAM SURREY



FROG

SCALE MODEL AEROPLANES
OBTAINABLE AT ALL GOOD TOY SHOPS AND STORES

MADE IN ENGLAND BY INTERNATIONAL MODEL AIRCRAFT LTD
For the Sole Concessionaires: **LINES BROTHERS LTD., TRI-ANG WORKS, MORDEN ROAD, MERTON, S.W. 19**

Continuing—THE "KAMLET"—By M. R. KNIGHT

The Main-plane.

CUT the plan view of the wing from the blue print, and fasten it to the building-board with pins in the positions indicated. Work from one end, smoothing out as you proceed, as in the case of the fuselage. Take a length of $\frac{1}{8}$ in. by $\frac{1}{8}$ in. balsa, cut off 81 in. to form the leading edge, and pin it into position. Form the trailing edge similarly. The odd pieces can be used for the wing ends. Note that at this stage the corners will be square, and no attempt should be made to round them off until later. Cement triangular gussets formed from two thicknesses of $\frac{1}{8}$ in. sheet between wing ends and leading and trailing edges.

Twelve ribs have to be cut from $\frac{1}{8}$ in. sheet, with the grain running as indicated on the blue print. Cut out the drawing of a rib and paste it to a piece of plywood. When dry, cut carefully to shape, paying special attention to the small slots into which the spars fit. This plywood pattern can be laid over pieces of sheet, and the ribs easily and accurately formed by cutting around the edges. A pointed piece of razor blade will produce slots with clean corners.

Place all the ribs together, fit a short piece of $\frac{1}{8}$ in. by $\frac{1}{8}$ in. into the top slots, and while holding them together firmly, remove any variation between them by rubbing the edges with fine glasspaper. They can then be cemented into position over the leading edge and trailing edge, as shown on the blue print, care being taken that their flat bottom edges are resting on the drawing.

A piece of $\frac{1}{8}$ in. by $\frac{1}{8}$ in. balsa is cemented into the top slots from rib 1 to rib 6, and from rib 7 to rib 12. This centre spar must be glasspapered if necessary to enable it to fit into the slots without projecting above the curve of the ribs. Small pieces of $\frac{1}{8}$ in. by $\frac{1}{8}$ in. are cut to fit between rib 1 and the adjacent wing end, and between rib 12 and its adjacent end, as shown in the front view of the wing on the blue print and in Fig. 7.

The two special central ribs A and B are formed from $\frac{1}{8}$ in. by $\frac{1}{8}$ in. balsa, care being taken to place them at right angles to the leading edge, so that the wing will rest squarely beneath the fuselage. The dihedral angle of 10 degrees is applied by cutting nearly through the leading edge and trailing edge at the 4 points indicated on the blue print. V-shaped cuts should be made, so that they will close when the spars are bent to the required angle. If they are not wide enough, the angle will lessen as soon as the spars are unsupported. Pin the leading edge and trailing edge firmly to the board with four drawing-pins, as indicated by the dotted circles on the drawing, and also shown in Fig. 7. The cuts in the spars should then be given a double application of cement, and the wing tips raised by pieces of wood or books under each half of the wing, so that there is exactly $2\frac{1}{2}$ in. between the wing ends and the board.

Sight along the leading edge, and see that the trailing edge is parallel with it, moving the wood or books until it is correct. Cut small pieces of plywood, shaped as shown, to reinforce the cuts in the spars, and fix them into place with Durofix or glue. Then cut and fit the pieces of $\frac{1}{8}$ in. by $\frac{1}{8}$ in. balsa between rib 6 and special rib A, and between rib 7 and special rib B. Do not make them too tight a fit, or the dihedral angle will be lessened when the wing supports are removed. Make and fit 8 remaining gussets.

Allow the structure to remain for some hours before removing the pins and lifting from the building-board. The wing tips can then be rounded off, as indicated by the

broken lines on the drawing, care being taken to make them all alike. With fine glasspaper round off the outer edges of the leading and trailing edges, and the wing ends as shown. Finally, turn the wing over, and glue the four little bamboo pegs into the four central gussets. They can be formed from the odd pieces of bamboo, and should be $\frac{1}{8}$ in. in diameter and about $\frac{1}{2}$ in. in length. See that they do not project above the spars, otherwise the wing will not rest firmly beneath the fuselage.

The Tail-Plane.

The structure of the tail-plane resembles that of the wing, with the exception that the ends consist of ordinary ribs. These end ribs must be exactly at right angles to the leading edge, or the fins attached to them will be out of alignment, and the flying capabilities adversely affected.

Take care also that none of the tail-plane ribs is deeper than shown, or the action of the tail-plane will be quite different from that intended, and the model will fail to respond to the adjustments suggested in next month's article. They are cut from $\frac{1}{8}$ in. balsa sheet, while the leading edge and trailing edge are of $\frac{1}{8}$ in. by $\frac{1}{8}$ in. Note that there is no central spar.

On removing the structure from the building-board, round off the spar edges, as in the case of the wing. Form the front and rear attachment saddles from 20 gauge wire, and lash them to the undersides of the spars, as shown on the blue-print. They must fit over the fuselage, when the leading edge is against No. 9 stringer support, without wobbling or forcing.

The Twin Fins.

The fins are very simply made by cutting them from $\frac{1}{8}$ in. balsa sheet, with the grain running vertical. As the sheet is only 2 in. wide, you will have to cement two strips together, edge to edge, to obtain sufficient width. Lay some flat heavy object, such as a flat-iron, on top of the joined pieces, to prevent them curling as the cement dries. Use the drawing as a pattern for the first fin, and use that fin as a pattern for the second. Then place them together, and sand their edges to secure uniformity. Smooth both sides of each with fine glasspaper, and put them aside to be cemented to the tail-plane after the latter has been covered.

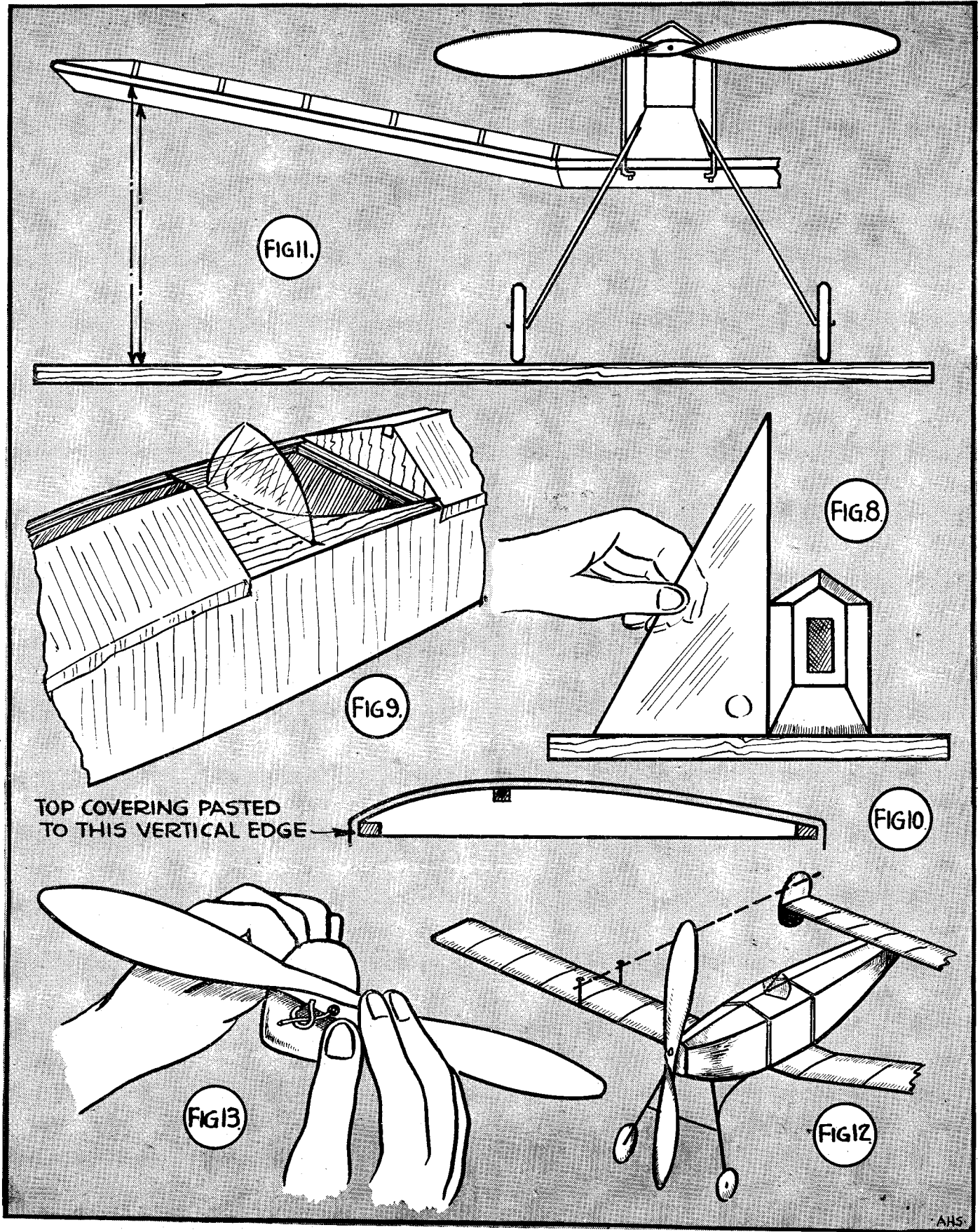
Trial Assembly.

All the parts for the "Kamlet" have now been constructed, but before the covering material is applied they should be examined carefully to detect any twisting that may have developed, and the model should be assembled to ensure that the parts fit without wobbling or having to be forced into place.

Now examine the fuselage for squareness by resting it on the building-board and placing a setsquare against the sides as in Fig. 8. If the error is more than $\frac{1}{16}$ in., remove horizontal struts 4, 5 and 6 and fasten the fuselage upside-down to the board as you replace them.

Looking at the wing from the front, the trailing edge should be parallel with the leading edge. Any error may be due to one of the edges curving, and this can be detected by sighting along each edge from one end. When the faulty part is located, cut away one or two ribs in the vicinity, steam the spar and straighten it, fasten to the building-board with drawing pins, and cement the ribs into place again.

Place the wing on the board, with ribs A and B resting on two or more pieces of balsa, so that the four bamboo pegs



clear the board. Keep it from moving by placing a hammer or pliers on the centre-section, and check the height of each wing-tip. Many beginners are unpleasantly surprised to discover how prone a wing is, even at this stage, to develop a variation in the dihedral angle. This may be caused by the pull of the cement, or by one or more of the V-cuts in the spars being too narrow, or by one of the short pieces of the middle spar between rib 6 and rib A, or rib 7 and rib B, being slightly over the correct size. Do not hesitate to cut through the spars and re-angle them if the dihedral of one wing differs from that of the other by more than $\frac{1}{8}$ in.

The tail-plane should also be tested for any sign of twist.

Attach the wing to the underside of the fuselage, beneath uprights 4, 5 and 6, by means of four 4 in. rubber bands. This can be achieved without assistance as follows. Hold the fuselage upside-down, with the wing lying in position, the fingers of the left hand beneath the fuselage and the thumb holding the wing in place. Slip a band over the left front bamboo peg, pass it around the fuselage and on to the opposite front peg. Still holding the fuselage as before, slip another band over the right rear peg, around the fuselage and on to the opposite rear peg.

There should be rather less than $\frac{1}{8}$ in. clearance between ribs A and B and the fuselage sides. Cut away the inner edges of these ribs if the space is insufficient.

The tail-plane rests on the uncovered end of the fuselage, with its leading edge against No. 9 stringer support. A 2 in. band passes beneath the fuselage, and is attached to each hook of the front saddle. Similarly, a 1 in. band secured to the rear saddle passes beneath the fuselage in front of the tail-skid.

File the undercarriage fittings if they will not slip easily into the tubes in the fuselage. Cut a little from the lower ends of the bamboo struts if necessary, to allow the wheels to turn freely, and bend the attachment fittings to ensure that the wheels do not turn in or out. They must be parallel with the line of flight, or they will cause drag and will cause the model to swing around if rise-off-ground flights are attempted.

With the model resting on the wheels, the fuselage sides should be vertical. Check with the setsquare (Fig. 8), and remedy any tilt by slightly altering the angle of the attachment fittings and the ends of the crosswire. Place the nose-block into position and check that the propeller shaft is parallel with the top longerons. If not, small pieces of card must be cemented to the lower part of the bulkhead to tilt the nose to the correct angle.

Covering the "Kamlet."

Two sheets of Japanese tissue should suffice for covering the model. The fuselage of the original "Kamlet" was covered with black, and the wing and tail-plane with white, but various colours are obtainable.

The tissue has a grain, the direction of which can be detected by the fact that it will not tear evenly across the grain. All modellers are not in agreement as to the best direction of the grain in relation to the model, and it is not a matter of vital importance. The writer's practice is based upon the fact that, when rendered taut by shrinking with water, the tightening is greater across the grain than with it.

On the fuselage it seems preferable for the tightening to be chiefly from the front to the rear, otherwise there is a tendency for the longerons to cave in between the cross-struts. The tissue is therefore applied with the grain parallel with the struts. On the wing it is better for the greater pull to be from tip to root, to lessen the tendency for the covering

to sag between the ribs. The grain should therefore be parallel with the ribs. Admittedly, the ribs may on occasion cut through the tissue if too many coats of dope are applied, but this seems the lesser of two evils. As to the tail-plane, it is better for the grain to run from end to end. This lessens the tendency of so delicate a structure to be pulled into a curve, while the sagging of the tissue between the ribs is not so important, the tail being a stabiliser rather than a lifting surface.

It is one thing to read how to apply the covering evenly, and quite another actually to achieve it. Only practice will enable the art to be acquired. Fortunately, however, though your first efforts may not be particularly neat, the model will not be prevented thereby from flying.

The fuselage, consisting chiefly of short, flat surfaces, is the easiest unit to deal with, so begin with that. Cut a strip of tissue for the bottom, allowing $\frac{1}{4}$ in. margin all round. White paste is used for affixing the covering, and with the tins is usually supplied a small flat brush. Apply paste to the lower longerons between cross-struts 4 and 6. Lay the tissue carefully over this part, and smooth it by drawing the thumbs outwards across the longerons, and gently along the longerons. Do not try to get it tight, merely prevent it from sagging or wrinkling. Then paste the longerons between struts 6 and 8 and repeat the smoothing process. Continue in this way to the end, and also forward to the nose. Allow a few minutes for the paste to dry, and then, with a sharp razor blade, trim away the overlapping tissue close to the longerons.

The left and right sides can be treated similarly, beginning in each case with the part between uprights 4 and 6. For the decking a different procedure is advisable, using four pieces of tissue. Paste the edge of one piece to the centre stringer between the cockpit and the nose, and with sharp scissors trim the opposite edge so that it overlaps the top longeron by $\frac{1}{4}$ in. This portion should be turned over the edge of the longeron and pasted to the side of the fuselage. (See Fig. 9). Next cover from the same stringer to the opposite longeron, and repeat the whole procedure for the part of the decking behind the cockpit. Leave the top of the fuselage uncovered behind No. 9 stringer support.

The covering then has to be tightened by spraying with water. Beg, borrow, or if necessary buy, a small scent-spray, and fill it with water. Direct a fine spray on to the tissue from a distance of about 18 in. Do not approach closer or you may saturate the tissue and cause it to adhere to the structure instead of forming an even surface. It is a good plan to suspend the fuselage by the tail-skid while it dries, so that nothing touches it.

The lower surface of the wing is next tackled. Two pieces of tissue will be needed, one reaching from rib A to the nearer wing tip and the other from the same rib, across the centre-section to the opposite wing-tip. Allow $\frac{1}{4}$ in. overlap all round. Paste one piece to rib A, then paste the leading edge and trailing edge for a distance of several inches, and smooth the covering along the spars and across, as you did for the fuselage. Cover a few inches at a time, until the wing tip is reached. Paste the second piece of tissue to rib A, on top of the first piece, and work across the centre-section to the opposite wing tip, being careful not to pull the tissue too tightly, or you may distort the structure. Check it occasionally by sighting the trailing edge from the leading edge, and if necessary pull away the tissue and make a second attempt.

Next month: Covering, assembling and flying the "Kamlet."

GEARS

16g. $\frac{1}{4}$ in. $\frac{1}{2}$ in. $\frac{3}{4}$ in. $\frac{1}{2}$ in. 16g.



4d. 7d. 9d. 11d. 10d. 8d. 4d.

Postage extra. No C.O.D.

Bushes $\frac{1}{8}$ in. long. All gears drilled 16 s.w.g.

To meet the demand for a range of accurate, precision cut gearwheels, we have secured stocks of brass gears in all the above sizes. To avoid heavy loading stripping the teeth, the thickness is $\frac{1}{8}$ in., but undue weight has been avoided by recessing the larger sizes. All gears mesh with each other and any combination of step up and reduction gearing can be built up from this range with the certainty of obtaining smooth and easy running.

For best results accurate bushes must also be used, and these we can offer drilled to suit 16 s.w.g. shafts.

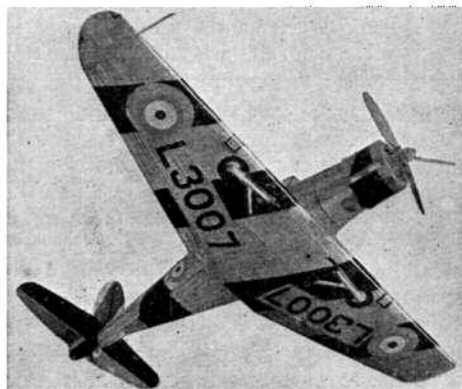
We are always pleased to answer any queries regarding gears and their uses, but please do not forget that stamped addressed envelope for your reply.

Trade enquiries invited for this range of gears

SUPER SCALE KITS

UPPINGHAM, RUTLAND

FLYING SCALE MODELS



Blackburn SKUA

Fleet Air Arm's famous dive bomber

Wing span 20 $\frac{1}{2}$ in. Length 16 in. Most detailed flying model available. All controls movable, fully retracting undercarriage. Detailed Perseus engine. Complete kit with plan and special illustrated instruction sheet, all balsa, ready turned balsa cowl, wheels, wire parts, quick drying cement, tissue, dopes, etc. Carriage paid **7/4**

S. SPITFIRE

Length 13 in. Span 16 in. Fine flyer. Sturdy model with strong undercarriage. Very detailed plan with all radiator cowlings. Complete kit. Set of shadow camouflage dopes sent for 1/- extra when ordered with the kit. **3/1**



SOLD TO H.M. FORCES and A.T.C. ONLY

Timber Control make this restriction due to scarcity of balsa.

SEND YOUR P.O. NOW TO

PRICE LIST post free A. M. SWEETEN Ltd., Bank Hey St., Blackpool

M.S.S. OFFER

THE FOUR ACES

FOR

FLYING MODEL "ACES"



M.S.S. "LYNX"

COMPLETE KITS

"LYNX" 40 $\frac{1}{2}$ in. Span 18/6

"LYNX CUB" 30 in. Span 12/6

"PANDA" 38 in. Span 16/-

"GREYHOUND" 22 in. Span 6/-

All above, postage 7d. extra.

POPULAR OFFER

"LYNX CUB" Plan and Printed Balsa 3/-

"PANDA" " " " 3/9

ALL BEST KITS IN PLenty—FLYING! AND SOLID "SKYLEADA" KEILKRAFT FROG, Etc.

2 $\frac{1}{2}$ d. stamp for complete lists

New "Balsa" substitute woods and all materials in plenty. The best of everything for flying and solid enthusiasts.

Always obtainable at M.S.S.



M.S.S. "PANDA"

MODEL SUPPLY STORES

17 Brazenose St., MANCHESTER 2

Also at 6 Kirkhams Bury Old Rd., Prestwich, Lancs.

A SURE WINNER

"WINSTON"

"PREMIER OF THE SKIES"

Wakefield Type—50" span. Complete kit **19/9** Post Free

Plan and printed Sheets, 3/6 post free.

"MAYBIRD"

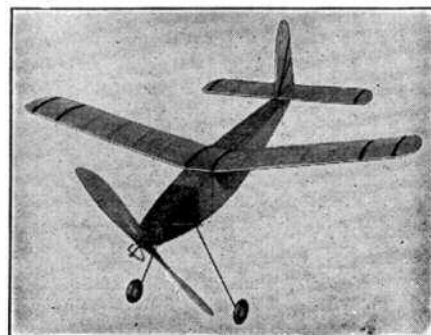
27" span, 23" length.

7/4 POST FREE

Plans and printed sheet of "MAYBIRD," 2/- Post Free.

"NIPPY"

Length 24". Wing span 30". Average duration 80-120 seconds. Unbeatable Value.



Only **8/7 POST FREE.**

Plans and printed sheet of "NIPPY," 2/3 Post Free.

SOLID SCALE KITS. "Hurricane," Spitfire," "Messerschmitt," etc. 16 different models to choose from. Prices from 1/6. Flying Models from 4/6. "Spitfire," "Hurricane," etc., etc.

— ALL ACCESSORIES STOCKED —

Celluloid 3-bladed Props for 1/72 Solid Scale Models.

Wholesale Supplied—Any Quantity. Also Cabins, Turrets, etc.

Send 3d. for CATALOGUE. Fully illustrated

ELITE MODEL AIRPLANE SUPPLIES
14 BURY NEW RD., MANCHESTER 8

AERO-MODELLING IN AMERICA

By A. L. LEWIS

ALTHOUGH building and flying model airplanes in the United States is no new sport, during the past seven or eight years it has, like Topsy, "just growed," to the point where it is one of America's largest and most articulate hobbies.

This is probably because model airplane builders, unlike the majority of model railroad and boat fans, are not confined to one or two sailing basins or track lay-outs—the entire country is their airport, and with the advent of rise-off-water gasoline engine-powered models they bid fair to take up most of the ocean as well!

Model airplanes got their real start in America about 1910, and continued in a more or less desultory fashion after World War I up to the time of Lindbergh's flight across the Atlantic. With the tremendous boost given aviation by this flight and subsequent air activity, the building and flying of model gliders and miniature rubber-powered flying craft increased apace until 1932/3, when the first gas engine-powered craft made their appearance, changing the entire picture as far as the future of model aviation was concerned.

Maxwell Bassett, the "father" of gas model airplanes in the United States, "cleaned up" in practically every event at the American National Model Airplane Meet in 1933. But even *he* did not appreciate the army of gas modellers he was leading. Rubber-powered models had long been recognised as a valuable hobby in the training and character-building of the young. But it was somewhat of an effort to interest great numbers of young Americans in the hobby because of the unspectacular performance of most rubber models in the early '30's.

As a result of the introduction of gas model airplanes, and their subsequent development, more than 2,000,000 folks of all ages in the U.S. are engaged in aero-modelling, according to reliable surveys. A most interesting sidelight on the success of the gas model airplane is the definite increase of interest in rubber-powered models and gliders, and the stepped-up performance of these craft under present-day regulations. To give readers of *THE AERO-MODELLER* who are not too familiar with American model aviation an idea of the scope of the activity, more than 500 sanctioned competitions were held in the United States during the past year. In one of these, the Thirteenth National Championships, held in Chicago, Illinois, under the sponsorship of the *Chicago Times* newspaper and the Chicago Park District, the recreation department for the city of Chicago, more than 1,200 contestants made 20,000 official flights. Outside of rifle competitions, there are probably few activities that run into more staggering figures as far as a national competition is concerned than model aeronautics.

In all these sanctioned meets, which come under the jurisdiction of the Contest Board of the Academy of Model Aeronautics, about 2,500,000 official flights were recorded. The Academy of Model Aeronautics, popularly known as the A.M.A., is a division of the National Aeronautic Association, the governing body for sporting aviation in the United States and the American representative of the Federation Aeronautique Internationale.

The Academy of Model Aeronautics, through its Contest Board, composed of 22 model aviation leaders throughout

the country, sanctions all types of model aircraft competitions and divides them into four categories, as follows: Class A—"closed competition," a contest open only to members of a single model airplane club, or affiliated model airplane organisations; Class AA—"invitation" contest, open to licensed model flyers, with awards available to all who enter; Class AAA—state or regional championship contest, which is large in size, draws 100 or more contestants, and offers important awards; Class AAAA—national and international championship contest, which offers traditional trophies of the Academy of Model Aeronautics; and record trials, a contest conducted for the sole purpose of providing an opportunity and facilities for attempts to establish or surpass official model aircraft duration records, with no special awards offered to the winners.

Almost 500 contest directors, approved and appointed by the Contest Board of A.M.A., conduct all this flying activity in accordance with the official regulations, which are issued at the beginning of each year.

Model aviation has much general appeal and such good publicity possibilities that newspapers, department stores, and service clubs are eager to sponsor the activity for the resulting good-will they receive, and in the knowledge that they are benefiting those who participate in the programme.

That model aviation is a direct benefit to the youngsters who intend to seek a career in aviation is demonstrated by the large number of aero-modellers who are now working in the expanded aviation industry. The U.S. Government has found that a model airplane builder is a skilled craftsman who can cope with new tasks with greater success than the average shop-trained, but sometimes unimaginative, worker. In its three laboratories at Langley Field, Virginia; Cleveland, Ohio; and Moffett Field, California, the National Advisory Committee for Aeronautics, Uncle Sam's aviation testing lab., is employing hundreds of model airplane builders, who receive appointment as Under Aircraft Model-maker through Civil Service examinations. This position leads to advancement as soon as the modeller demonstrates his capabilities for more skilled tasks. The first model airplane builder ever hired by the U.S. Government in that capacity was Charles A. ("Tom") Hulcher, of Hampton, Virginia, who went to work for the N.A.C.A., more or less as an experiment and at the insistence of Edward A. Sharp, now construction engineer for N.A.C.A. and the man delegated to get the new Moffett Field and Cleveland laboratories built and running in short order.

It was Mr. Sharp's contention that model-builders would make excellent craftsmen, and so Hulcher was hired. He proved so adept that his success paved the way for hundreds of aero-modellers now employed by N.A.C.A.

As the focal point for all this supervised activity, the Academy of Model Aeronautics has its headquarters in the nation's capital, Washington, D.C. There the author, A.M.A. Executive Director, and Bruno P. Marchi, Technical Director, operate with the assistance of a modest office staff and the unlimited facilities of the N.A.A.

The daily routine of the Academy would stagger those people who look upon model airplanes as a "kid's game,"

inasmuch as thousands of letters are received a week from youngsters and adults on all phases of aviation and model work.

Not the least important of the A.M.A.'s daily routine is the issuing of competition licences to rubber and gas model flyers, to permit them to participate in sanctioned competitions and compete for established awards as well as set national duration records. The Academy has associated with it approximately a quarter of a million affiliated model aeronauts, more than 12,000 of whom hold individual flyers' licences. These A.M.A.ers represent one out of every eight flyers in the country, and, considering the few who participate in contest work in comparison with the large number of enthusiasts, these figures are a tribute to the energy and loyalty of A.M.A. leaders, whose untiring efforts over a period of eight years have made the Academy a success.

The Academy operates solely upon the income of dues of its leader members and licence fees of its affiliated flyers. It receives no sponsorship from any other source, and, being financed solely by the model aeronaut, it is "of, by and for the aero-modeller."

Since the headquarters staff is directed by active or ex-modellers and leaders, it is thoroughly familiar with all types of contest and club procedure, and as a result of this background has compiled two very effective and helpful manuals for competition and club activity.

Although the Academy functions as a division of N.A.A., it has complete autonomy and operates as a separate entity in all matters. Through this tie-up with the National Aeronautic Association, the Academy gains a great deal of favourable publicity and much support from aviation leaders through the contribution of prizes for the National Meet and encouragement of local chapters.

The main objective of the Academy as outlined in its by-laws is to advance model aeronautic progress by fostering scientific research, disseminate the information obtained from such studies, and encourage more competition flying. It is a non-profit organisation and the officially recognised aero-modelling governing group for the United States. By uniting all model flyers the Academy is able to carry out the co-ordination of aero-modelling activities, so that each affiliated flyer receives a number of benefits which could not be obtained if the modellers were not banded together.

Official activities are conducted through groups recognised as Academy chapters. Chapter members hold individual competition licences; also affiliated with the Academy are large organisations whose flyers are in the novice class.

Rubber model competition members receive credentials which include an official Academy sporting licence, a distinctive bronze Academy lapel emblem pin, a colourful duoduty emblem decal, windshield sticker, and a personal copy of the official regulations governing the flying of model aircraft in the United States. Gas model flyers, in addition, receive a set of decal licence numerals for their models—their lapel pin is silver. Leader members receive a copy each month of *Model Aviation*, the printed bulletin of the organisation, as well as a certificate of membership suitable for framing and a gold Academy lapel emblem pin.

One of the most important contributions the A.M.A. makes to model airplane progress is the publicising of national rules to govern the type of model aircraft eligible to enter sanctioned competitions, and the method of procedure to conduct such meets. These official rules are in use through-

out the nation, and form the basis of Canadian regulations.

The aim of the Academy is to make regulations as broad as possible, to encourage new designs and innovations in the types of models built and flown, at the same time making possible computation of national records through comparable performances by contest craft.

Academy policies are determined by the leaders of the organisation and executed by the headquarters staff. Academy officers, committee and council members, other than national headquarters executives, serve without salary. A unique feature of the Academy is that it is located in the Willard Hotel. As a division of N.A.A. the Academy has the use of N.A.A. Headquarters space and N.A.A. clerical and stenographic service. These cost considerably less than if the Academy attempted to undertake the work alone.

Notable example of how the Academy can aid its licensed flyers was the establishing of the gas model sporting licence and the creation of the first official regulations at a time when the future of the gas model sport was threatened by many local and State aviation officials because of lack of regulations and disregard of safety measures.

The day was saved by formulating common-sense regulations and educating the modellers to fly their craft in a safe manner; this programme is being carried on and extended to-day by the Academy of Model Aeronautics. Another indication that in union there is strength is that now available to Academy gas model flyers is an insurance programme whereby gas modellers may secure, upon payment of \$1 a year, \$500 property damage coverage, \$500 personal liability coverage, \$25 fire and \$25 damage-resulting-from-transportation-accident coverage for gas models.

The model aircraft industry is co-operating in a programme to distribute information of the Academy to model flyers throughout America. Manufacturers include Academy membership applications in their contest and motor kits; distributors and dealers keep a supply of applications for the convenience of customers. Through regularly-published columns in leading publications, news of Academy competition activities is brought to hundreds of thousands of modellers each month.

Model clubs associated with the Academy have found that a tie-in with national activities has helped immeasurably in local work. The designation as an official A.M.A. chapter or affiliated club has proven of immense value to each of these model groups; national recognition resulting in greater emphasis locally on their undertakings. Complete information and membership applications are forwarded on request.

Upon application, qualified individuals who hold leader-membership in the Academy are eligible for appointment as contest directors at no charge. These contest directors, working in conjunction with local Academy groups, request sanction for competitions well in advance of the dates when the meets are held. Upon approval by the Academy and the N.A.A. Contest Board, the meet is publicised as a sanctioned contest and notice of it is sent to all other clubs and leaders through the monthly bulletin, *Model Aviation*. With national recognition given such an undertaking, a much larger turn-out and support for the competition results than if it had not been sanctioned by and conducted under the standardised regulations of the Academy.

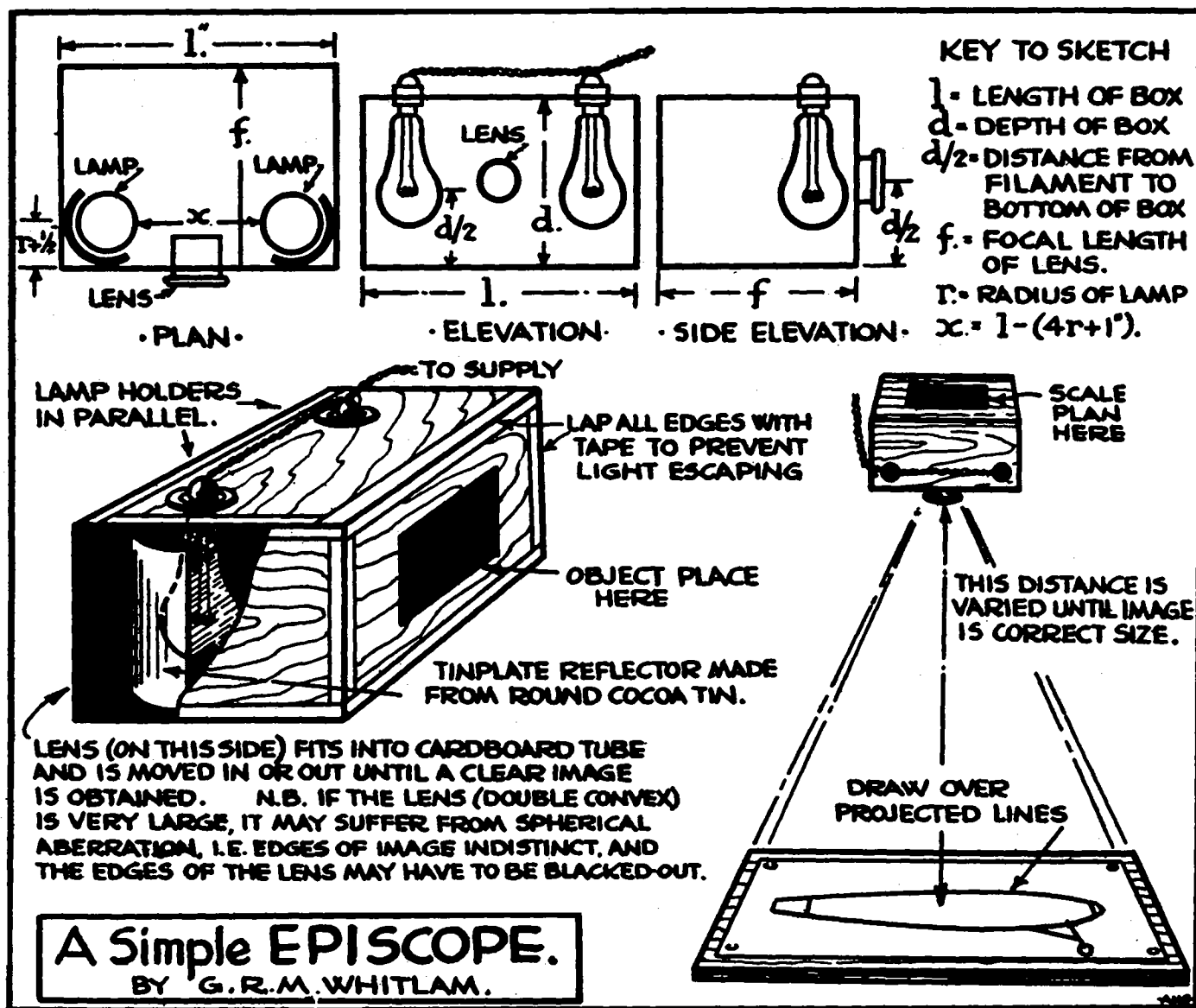
Interest in model aviation has grown to such proportions and has proved to be of such value that many U.S. organisations, such as the Exchange Clubs, Junior Chambers of

Commerce, American Legion posts, and others, have included model 'plane-building and flying in their aviation programmes and have made arrangements to hold Academy-sanctioned competitions.

With these organisations, as with all other reputable groups genuinely interested in furthering model aeronautics,

the Academy works in close co-operation, both in the matter of sanctioning and publicising meets and in providing qualified advisers and assistants wherever possible.

Through their Academy the model aeronauts of America are governing themselves and advancing the art and science of aero-modelling.



NO definite sizes can be given, as all dimensions depend either on the diameter of the lamps used or the focal length of the lens. However, the sketches, together with the key, should enable the builder to get a reasonable idea of the apparatus.

The body of the instrument is easily made out of six pieces of plywood glued and nailed together. When the pieces of ply have been cut the following holes should be bored: One in the front for the lens tube, two in the top to take the lamp-holders, and a large rectangle about 5 in. by 4 in. cut in the back. This having been done, the body can be assembled, but not before tinplate reflectors (old cocoa

tins) have been tacked into place, and the whole of the inside has been painted a matt black.

Two 100 watt lamps will be found sufficient for all normal purposes, although if the apparatus is to be used continuously, as in scaling up drawings, two 60 watt bulbs are preferable, as the heat given out by the larger bulbs might scorch the wood.

It is advisable to smear some anti-misting solution on the lens to prevent it steaming over as a result of the heat.

In order to use the apparatus, the object is placed over the opening at the back of the body, and the lens tube moved in or out until a clear image is obtained.

HOLE FOR HINGE Z TOP VIEW OF MAINSPAR.

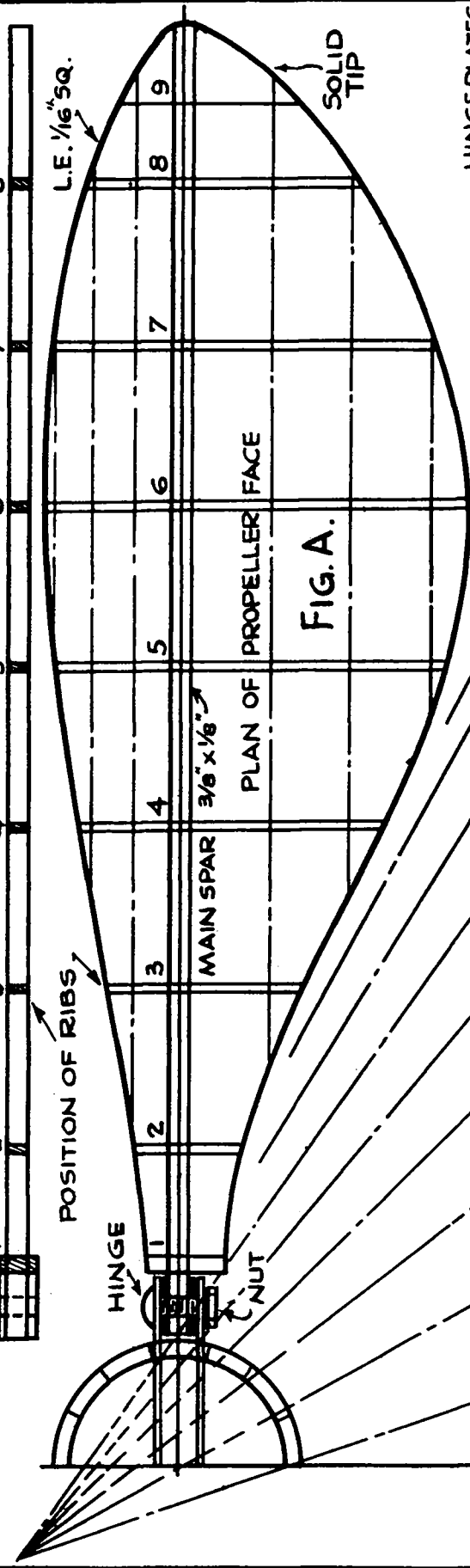
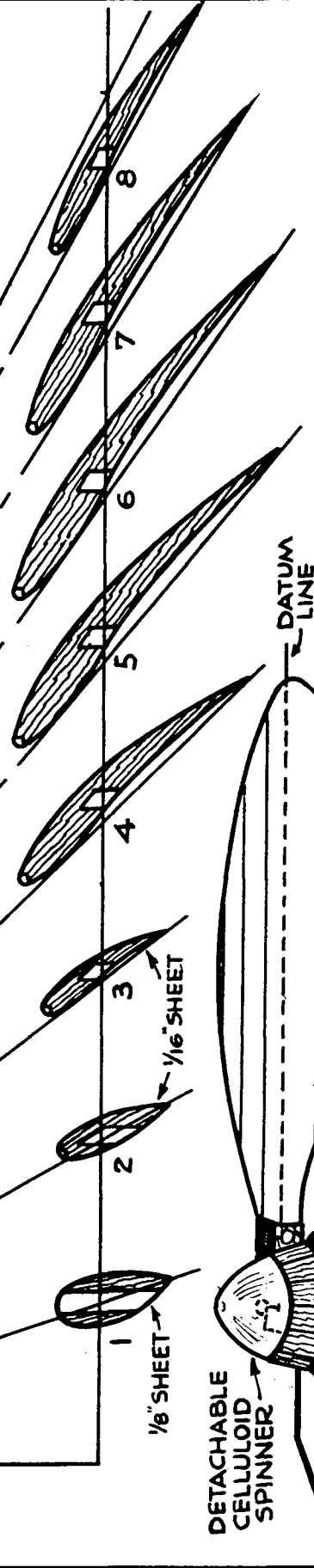


FIG. B.
RIB SECTIONS 1-8



BUILT-UP
FOLDING PROPELLER.
BY R.C.F. DAY.

DETACHABLE
CELLULOID
SPINNER
LEAD
COUNTERWEIGHT
BOBBIN
HINGE ON
DATUM LINE
BEST POSITION.

Built-Up Folding Propellers——By R. C. F. DAY

EVER since I read the excellent article on this subject by Mr. G. W. Day in the June, 1940, issue of **THE AERO-MODELLER**, I decided to carry out his suggestion of using built-up blades. This article is thus the result of that suggestion.

The airscrew described here is the result of experiments on the idea, and it was found, owing to the method of construction, to be lighter, stronger and more efficient than the normal carved type.

Setting Pitch and Drawing Blade.

The first thing to be done, as is usual when making any airscrew, is to draw the face of the blade as shown in Fig. A. The pitch diagram is drawn (Fig. B) to suit the size of the airscrew required. In this case the diagram is for an airscrew 18 in. diameter, 30 in. pitch. Using the widths of sections on the plan of the blade, the correct sections can be drawn on their appropriate pitch lines. Nos. 1—8, as shown. The section, which can be made thicker with this sort of propeller than with a normal one, is thus more efficient. A section I advise is 75 per cent of an R.A.F. 32 section.

Constructing the Blade.

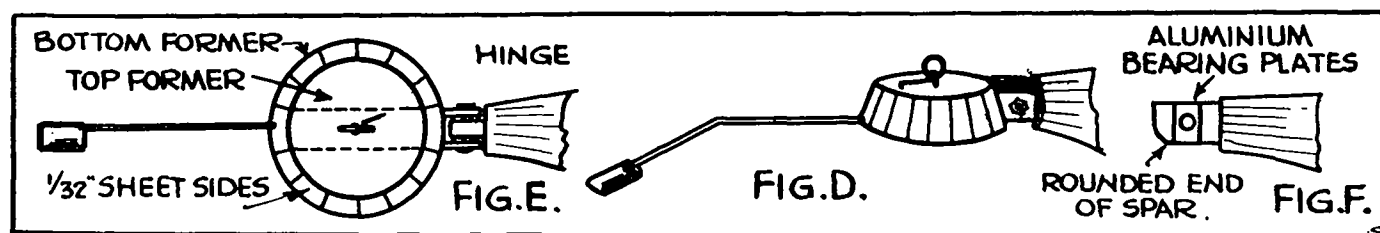
The sections which you have now obtained should be marked off for the position they occupy on the main-spar, and also marked off for the leading edge as shown in Fig. B. The sections should next be cut from sheet balsa, No. 1 from

blade has been completely covered, protruding portions of the main-spar on the undersurface should be sanded flush with the covering. The sheet covering should then be sanded to a smooth surface, then covered with tissue and finished off to a smooth polished finish in the usual way with dope and sandpaper.

The Spinner and Hinge.

The spinner, as can be seen from the diagrams, is built up on a circular former as base, with three pieces of $\frac{1}{4}$ in. by $\frac{1}{4}$ in. balsa cemented across the centre to form a stop for the blade and also a support for the hinge. The wire to which the balance weight is attached is sandwiched between these pieces of balsa. On either side of this balsa are fitted the plywood side plates, with the holes drilled in them in the correct positions, as shown in Fig. G. When this has been done the top circular former should be cemented in position on top of these hinge plates. The sides should next be planked round with $\frac{1}{16}$ in. sheet balsa to form the main portion, as shown in Figs. D and E. A hole should be drilled through the centre of the spinner to take the shaft, which can be fixed according to one's own ideas.

The top portion of the spinner, which is detachable, allowing access to the winding hook, can be made by painting celluloid dissolved in acetone on to a wooden former coated in wax to prevent adhesion to the wood. This portion can be fitted either by means of a hinge and a rubber band or by means of dress snaps.



$\frac{1}{4}$ in. sheet and Nos. 2—8 from $\frac{1}{8}$ in. sheet. No. 9, which is the blade tip, should be cut from $\frac{1}{4}$ in. sheet. The ribs which have now been made should next be assembled on the main-spar, which, as shown, must also be notched to receive them. Also fit the tip at the correct angle, as shown in the figures; the main-spar in this case consists of $\frac{1}{4}$ in. by $\frac{3}{8}$ in. balsa. When the ribs have been firmly cemented to the main-spar, the leading edge of $\frac{1}{16}$ in. square balsa should also be cemented in position. Before the $\frac{1}{32}$ in. sheet covering is cemented in position, $\frac{1}{8}$ in. sheet balsa should be attached to the spar where the bearing hole is shown on the figure. At this point the aluminium bearing plates should then be fixed in position on top of these pieces, as shown in Fig. F.

Whilst the cement is drying, the $\frac{1}{32}$ in. sheet balsa required should be cut into strips $\frac{1}{4}$ in. wide to cover the part of the ribs in front of the main-spar, as shown by the broken lines in Fig. A. Strips $\frac{1}{4}$ in. wide should be cut to cover the remaining portion of the ribs. All the strips should be cut off to the approximate length shown in the Fig. A.

The covering should next be attached to the ribs in the same way as a monocoque fuselage is covered. When the

Assembly and Balancing.

The main-spar of blade at hinge point should be placed between the two sides of hinge plates and the small brass or aluminium (to save weight) screw passed through the holes, which should be extended and hard up against the side of spinner. The nut should then be put on and cemented into position where blade folds back easily and also does not wobble.

The airscrew should be balanced in the usual manner by the addition of lead to the wire, extending from the spinner, which should be about 5 in. long.

To help to produce "vibrationless" running, which is an essential of a good propeller, the wire should be bent back about an inch, as shown in the diagrams.

If you wish to use a stop to cause the propeller to remain in a certain position, you should consult Mr. G. W. Day's article, already referred to, but I myself prefer to do without one.

I hope some more enterprising individual—it may be you—will produce a better idea than this during the coming season, and so help to further the grand hobby in which both young and old indulge.

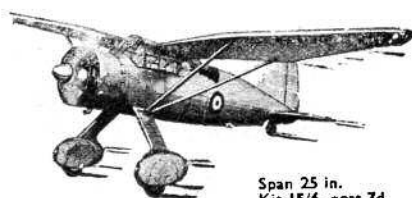
NORMAC!!! STILL IN THE LEAD

DURATION AND FLYING SCALE

KEILKRAFT

From 3/8 to 5/6.

Post extra



Span 25 in.
Kit 15/6, post 7d.

A Real Super Kit THE CONDOR

Westland
"LYSANDER"

As used by R.A.F.
This fine kit makes
the most detailed
and perfect flying
model you could
wish to own.
GET YOURS NOW

ATLANTA

BLENHEIM AND HAMPDEN

12/6 plus 7d. post

HUDSON PLANS

2/- plus 3d. post

POSTAGE EXTRA ON ALL PRICES

CLIPPER, 30 in. span
12/6 plus 7d.

CURLEW, 25 in. span
6/6 plus 4d.

NIMBUS, AIRYDA JUNIOR
VERONITE, AEROMODELS

NORTHERN MODEL AIRCRAFT CO.
25 LOWER MOSLEY ST. MANCHESTER 2

1/72 scale only

1/72 scale only

EVERYTHING FOR THE SOLID MODEL BUILDER

COCKPIT COVERS
ALL TRANSPARENT

WHEELS $\frac{1}{8}$ in. to $\frac{3}{8}$ in.
2d., 4d. & 5d. per pair

3-BLADED PROPELLERS
3d. each. 2 in. diameter

COWLS with exhaust,
3d. each

ENGINES, 9 cylinder radial

JOY STICKS, 1½d. each

PILOT IN SEAT, 3½d. each

BOMB AND GUNS

INSIGNIA.—British, German, Italian, Russian, French, Polish,
Dutch, American. All waterslide.
NUMERALS AND ALPHABETS

BEAUFIGHTER, FOR-
TRESS, STIRLING AND
HALIFAX

RUSSIAN RATA AND
CHATO

Plans and C. Covers

FUSELAGE SHAPES cut
to correct outline from
6d. to 1/6

HALIFAX, SKYLEADA,
C.M.A., TRUSCALE
SCALECRAFT

"AERO-MODELLER"
PLANS

AIRYDA KITS & PLANS
UNDERCARRIAGE
PARTS

WHOLESALE TRADE SUPPLIED WITH OUR ACCESSORIES
All enquiries must have stamped addressed envelope
for reply

SEND FOR OUR CATALOGUE

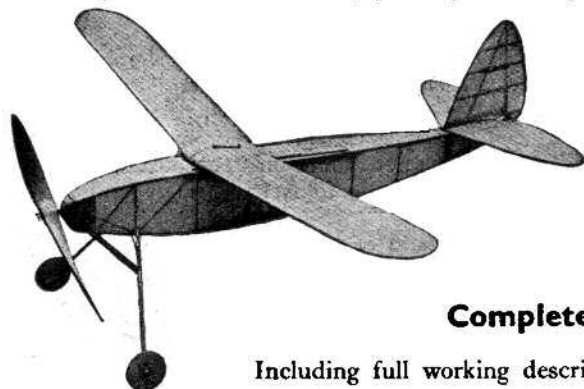
4d. post free

Tel.: CEN. 1804

PREMIER'S SUPER SUCCESS!

This is how one of our satisfied users described PREMIER SPECIAL SUBSTITUTE FOR BALSAWOOD. We have received many letters testifying to the sterling quality of P.S.S. and many repeat orders! The wide range of sizes and sections available, and which includes twelve new sections, ensures that a model built from P.S.S. is not too heavy or overloaded. Many discerning builders already express the opinion that they prefer P.S.S. to balsa wood, for they appreciate the consistent weight and texture of the wood.

ONE OF THE BEST MODELS FOR WINTER FLYING when, contrary to what might be supposed, we get many calm days on which to enjoy a spot of flying, is



Span 38 in. Length 28½ in.
Area 144 sq. in.
An air cadet has flown
for over 30 minutes.

"THE AIR CADET"

This model built from P.S.S. stands for PERFORMANCE!
STRENGTH! SATISFACTION!

BUILD THE PERFECT MODEL FOR WINTER
FLYING

THE AIR CADET.—A Pedigree Model designed by C. A. RIPPON,
British Wakefield Team 1935, Flight Cup Winner 1940, Silver and
Bronze Medallist, etc.

Complete Kit **14/-** Post Paid U.K.

Including full working description, accurately hand-carved airscrew, and all necessary materials
to build the perfect model.

Send at once for 1941-42 Premier Guide and Current Price List, and lay the foundation for
a successful 1942 flying season—3d.

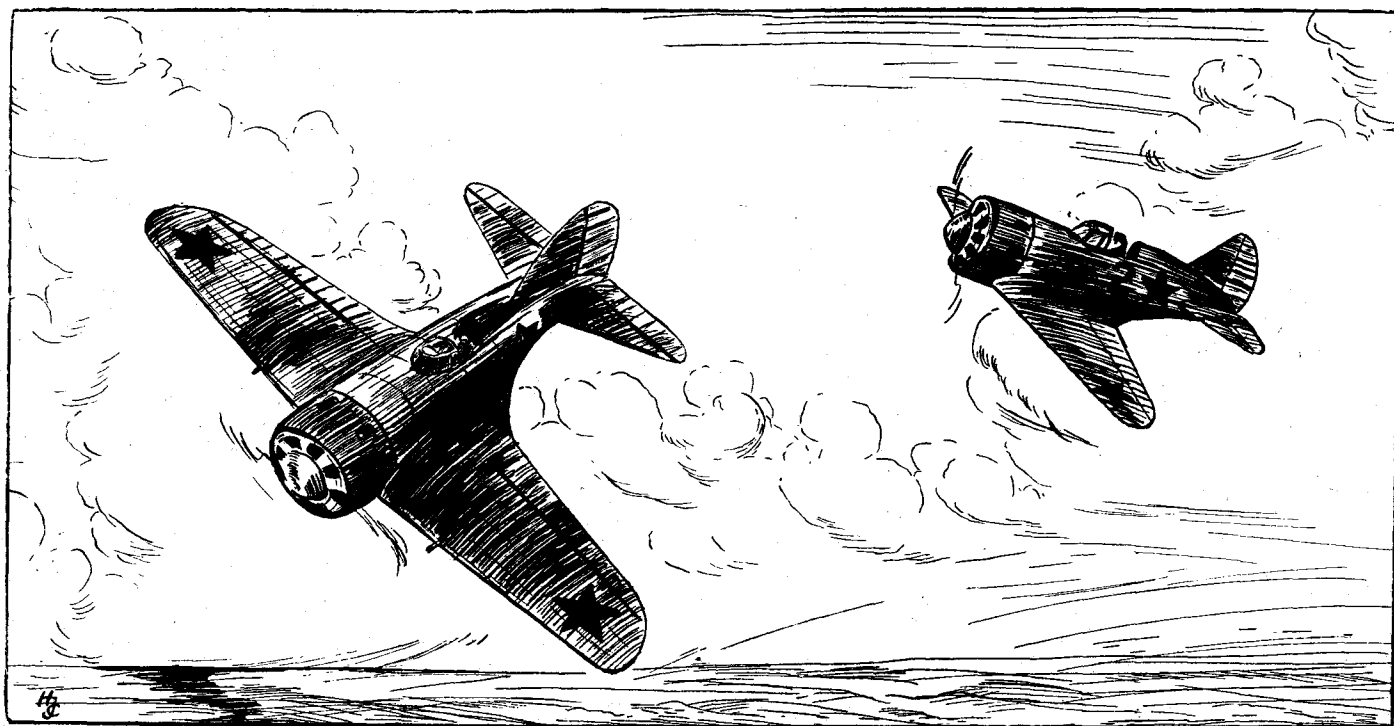
PREMIER AEROMODEL SUPPLIES

2a HORNSEY RISE, LONDON, N.19

Phone—ARC 2376

Kindly mention THE AERO-MODELLER when replying to advertisers.

FIGHTING AIRCRAFT OF THE PRESENT WAR—X



THE I-16B RATA FIGHTER MONOPLANE

By H. J. COOPER

RUSSIAN aviation and aeroplanes have always been very obscure to people both inside and outside that country.

There seems to be no particular reason why the Soviet Government should wish to enforce such a strict censorship on all matters associated with aeroplanes, because, with little exception, all of her aircraft are either copies of French or American types, or are in fact those countries' types built under licence, and the designers of them, or their agents, if they existed, would hardly be desirous of getting back their own knowledge at the risk of detention and/or liquidation by the G.P.U.

Aircraft that are of genuine Russian origin are not so outstanding in matters of performance and quality that other designers would strive to emulate them. On the contrary, Russian types appear to be singularly inferior, as was proved when Russia invaded Finland and lost such overwhelming numbers at the hands of the Finnish airmen and A.A. gunners. Now that we are allied with the Union of Soviet Socialist Republics (a matter of about eighteen months after we were lamentably endeavouring to get arms to Finland to resist her) she appears to possess aircraft with truly amazing performances.

The Soviet designers show a tendency to produce large aeroplanes. A good example of Russian teratogeny was the inelegant eight-engined monoplane called the "Maxim Gorki," after the author of that name. It was designed by Komrade Anatole N. Tupolev, and its ungainly appearance and function earned it the name of the "Maximum of Gawkiness" in this country. This prodigy expired after a collision with a single-seat fighter in 1935 and resulted in the loss of about forty komrades.

Tupolev has also designed the series of A.N.T. monoplanes, which have been used as commercial machines and as bombers, and, although they have been fairly reliable,

in performance are much inferior to contemporary standards. One of these types, the A.N.T.6 (also called the T.B.8), is still in service with the Red Air Fleet as a heavy bomber, and in fact appears to be one of the best of Russian 'planes, cruising at just over 90 m.p.h.

(In 1937 it was reported that Tupolev had been shot for sabotage, but apparently he is still producing aeroplanes in Moscow.)

The subject of this article—the I-16B fighter—named the Rata, is one of the few Russian aircraft about which a reasonable amount of information is forthcoming.

The Rata first appeared around 1937, when, known as the Moeca, numbers were supplied to the Republican forces in the Spanish Civil War, and in action were reported to be extremely manoeuvrable.

Accurate details of performance are not, of course, available, reports from Spain indicating a maximum speed which varied from 250 m.p.h. to 800 m.p.h., but it is evident that the Rata is not to be compared with British or German, or even Italian, monoplanes in a similar category, and any success with which it may have met on the Eastern Front certainly cannot be explained by superior performance, but more likely to manoeuvrability, or rawness of German pilots, or both.

The Rata is the design of Komrade N. N. Polikarpov and is built at Plant No. 1, Moscow, and at Plant No. 21, Nishni Novgorod (which, incidentally, is pronounced Nishni Novgorod). It is a tubby, low-winged monoplane with a radial motor and a retractable undercarriage, and closely resembles the American Boeing P.26 and Gee Bee monoplanes of a few years ago. It is remarkable mostly for its sharply tapered wing. The chord at the root is very high, reaching from in front of the trailing edge of the motor cowlings almost to the tail-plane.

The wings are an all-metal structure with a stressed-skin covering. On some of the earlier versions they were covered with fabric. Fabric-covered ailerons are fitted to the trailing edge. There are no flaps, which results in an extremely high landing speed. The tail-unit is a metal structure, stressed-skin covered except for the rudder and elevators, which are covered with fabric.

The original I-16, and later models up to and including the I-16B, have wooden monocoque fuselages, but the latest version, the I-16C, has one of metal with stressed skin covering.

The undercarriage consists of two units which retract inwards into wells in the wing and fuselage, flaps covering the apertures when retracted.

A 660 h.p. M-25 air-cooled radial motor (which is really a Wright Cyclone) was fitted to the I-16. The version here described also has a Wright Cyclone of 1,000 h.p., which is called the M-68 in Russia. It is believed that the I-16C has a two-throw Cyclone of over 1,000 h.p.

The motor is closely cowled, with small cooling inlets in front. A two-bladed metal airscrew with a fairly large spinner is fitted.

The pilot in the Rata is situated in a cockpit midway between the nose and fin, where his outlook must be considerably obscured by the large chord of the wing. To protect him from the slipstream, a refined form of wind-shield is fitted, rather in the manner of that on the little gull-winged P.Z.L. fighter monoplanes which formed the standard equipment of many squadrons of the Polish Air Force up to September, 1939. Behind the pilot's head the fuselage is faired on to the fin.

The armament of the Rata varies with different versions. In Spain it was fitted with four machine-guns—two of .30 calibre fitted above the motor cowling and two more in the wings. The latter were reported to be of .50 calibre. There

were 800 rounds for each gun. It is believed that this armament is the most common variety fitted to the Ratas in the present fighting, though experiments include the installation of only two guns with a very high rate of fire in the wings and the fitting of eight forward-firing guns in the wings and fuselage. With eight guns and ammunition therefor, the all-up weight is substantially increased, but no doubt the Russians consider that a slow top speed but heavy fire-power is an effective reply to Germany's Messerschmitts, with two machine-guns and a quick-firing Mauser cannon and a maximum speed of 380 m.p.h.

From the number of letters received at THE AERO-MODELLER offices, Russian aeroplanes are very popular with modellers, but all seem to be ignorant of the correct form of camouflage to be applied. Unfortunately we also are unaware of this, but various reports indicate that all types are coloured either grey or green, or a combination of both, while it seems likely that the undersurfaces are light coloured. The red five-pointed star is carried on the wings and fuselage, and sometimes on the rudder.

During the invasion of Finland the hordes of Russian bombers were painted all white, as a camouflage against the snow, and carried only the national markings.

Brief Specification (Approximate).

Dimensions: Span, 31 ft. 2 in.; length, 21 ft. 11 in.; height, 10 ft. 4 in.; wing area, 204 sq. ft.

Weights: Tare, 4,910 lb.; loaded, 6,100 lb.

Loadings: Wing, 29.9 lb./sq. ft.; power, 9.8 lb./h.p.

Performance (I-16): Maximum speed, 280 m.p.h.; climb to 16,400 ft., 6½ min.; service ceiling, 31,500 ft.; range, 500 miles; landing speed, 95 m.p.h.

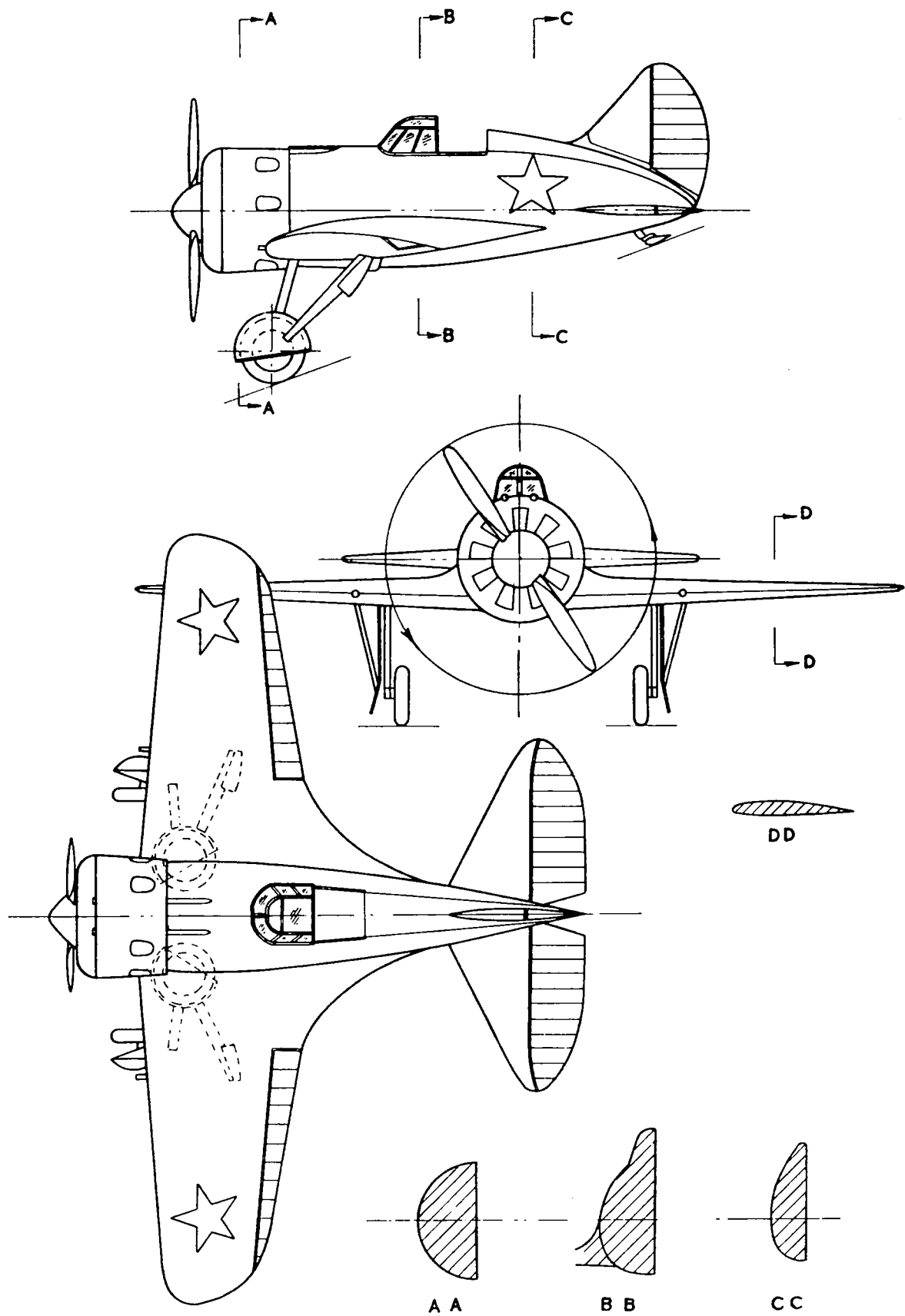
(I-16B): Maximum speed, 290 m.p.h.; cruising speed, 220 m.p.h. at 18,000 ft.

(I-16C): Maximum speed, 300 m.p.h.; range, 460 miles.

Although the Grumman F5F-1 "Skyrocket" (shown below) is not yet strictly a fighter aircraft of this war, so many readers have requested it that an article on it will appear in next month's issue.



Photo by courtesy of Planet News Ltd.





Magnificent Series of
BOMBER FLYING SCALE KITS

Aero
Model ©



Not yet in production
but plans available at
2/- each



Latest Magnificent Addition 'HUDSON'

Specially designed by H. J. TOWNER

NOW IN PRODUCTION—

BLENHEIM "Long-Nose" & HAMPDEN

PLANS ONLY 2/- EACH

12/6

Famous "ACE" Series Flying Scale Kits

Range : 28 in. to 30 in. span

- HEINKEL He 112
- SUPERMARINE "SPITFIRE"
- Boulton Paul "DEFIANT"
- MESSERSCHMITT
- BOYSTEROUS (Wonderful duration job) 6/6
- HAWKER HURRICANE
- AIRACOBRA (now in use by our Forces)

8/6

1/9

CADET SERIES

SPLendid
NEW
ADDITIONS

TOMAHAWK
Curtiss MOHAWK
Brewster BUFFALO

(U.S. Productions)

MESSERSCHMITT & AIR COSSACK Famous Russian Fighter

All Enquiries to :—

Dept. E.

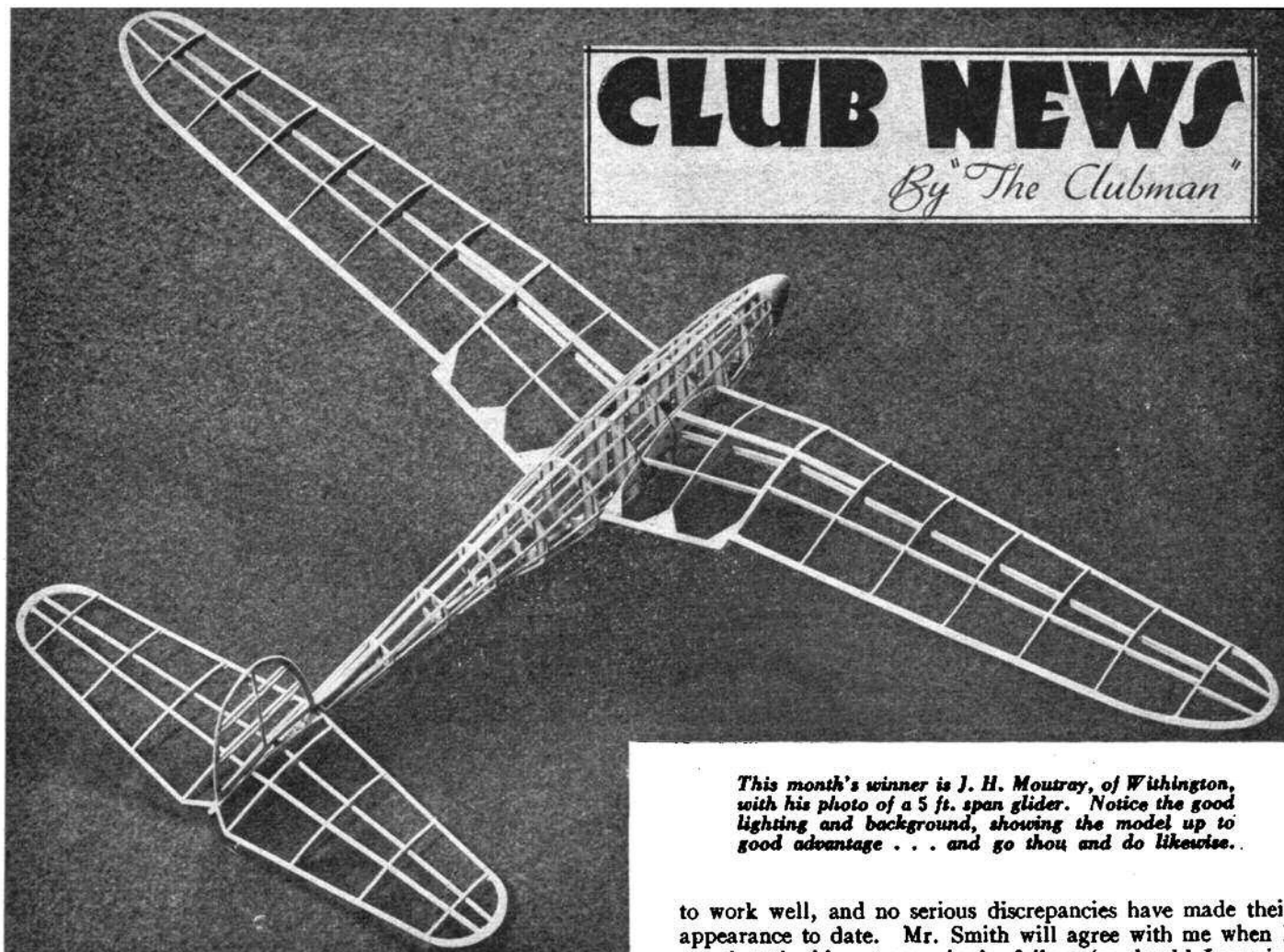
ASTRAL MILLS, Dixon Lane Road, LEEDS 12

Phone: 37921 (3 lines)

ASTRAL KITS ARE QUALITY KITS

Kindly mention THE AERO-MODELLER when replying to advertisers.





CLUB NEWS

By "The Clubman"

This month's winner is J. H. Moutray, of Withington, with his photo of a 5 ft. span glider. Notice the good lighting and background, showing the model up to good advantage . . . and go thou and do likewise.

WELL, you will have all seen the list of results and placings in the S.M.A.E. national competitions, and I feel that much satisfaction will be evident at the way things have gone round the country. Present conditions have brought an end to the old London predominance, and, while sympathising with the Londoners on the varied events that have both depleted their ranks and hampered their efforts, I think they will agree with me when I say it is a good thing for the movement as a whole that some of the sweets have gone out to the provinces.

For a number of years London clubs had things all their own way—or at any rate to a large extent—and those who have had any insight to the movement generally know that it was a bad thing to happen. Certain grumbles, both justified and otherwise, did much to hamper the smooth running and consolidation of a real national group, and a great deal of the hard work put in by enthusiastic officials was discounted by the run of things (luck, if you like to call it that).

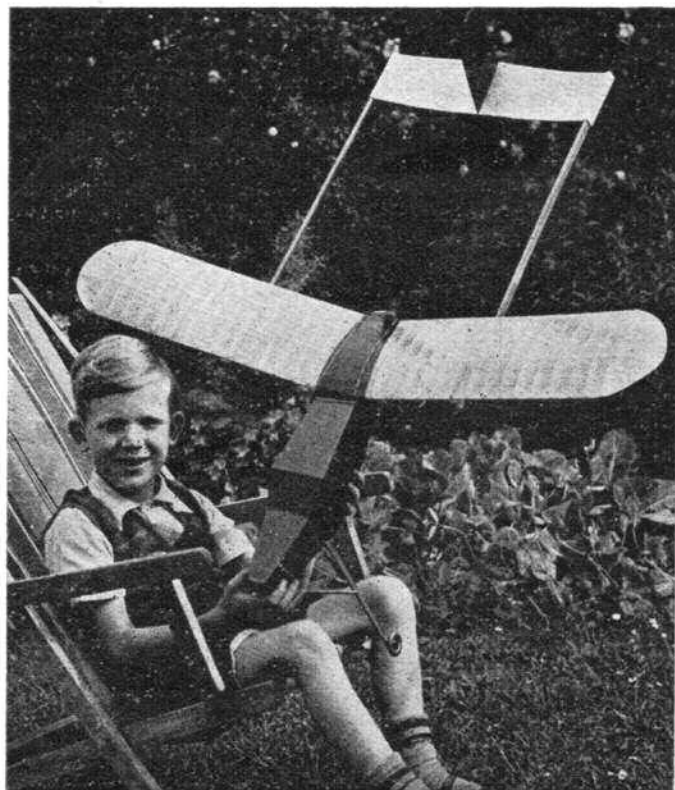
Decentralisation of contests, in spite of additional work and inseparable difficulties, has been one of the finest means of nationalising the hobby. To-day the smallest of clubs can compete with the largest, and it no longer obtains that the wealthier clubs or individuals have a pull over less fortunate enthusiasts by attendance at centralised events in London or other venues. We know that much must be taken for granted, but the present "honour" system has been found

to work well, and no serious discrepancies have made their appearance to date. Mr. Smith will agree with me when I say that the biggest snag is the failure (or should I say incompetence?) of certain club officials, who just cannot seem to do their job properly. Failure to send in clear and concise reports, omissions of important details, and—more than anything else—lateness in attending to their duties, is the main drawback in the conducting of such decentralised events.

What tickles me most is the fact that the worst culprits in these respects are those who have the most to say when something goes wrong. I could quote you instances that would look ludicrous in print, but are true, nevertheless. (Incidentally, did you hear of the club who stated in their own magazine that "'Clubman' was either muzzled or misinformed"? Did I laugh—and would their ears burn if I was also to print the full facts of certain shortcomings in their camp! I write nothing without full knowledge of the facts (surely they should appreciate that it would be dangerous to do otherwise); as for being muzzled—Quick, Montmorency, my smelling salts! I can't be bothered to be other than amused.)

The "Women's Cup" competition only flushed six entries, and makes one wonder if it is worth while continuing this event. However, I acknowledge that current entries are no indication of the peace-time value of such a competition, and I look forward to seeing more and more ladies taking their part in competitions at a later date. Certainly some Amazons can show the lads a thing or two when it comes to both building and flying models.

When winning the "K. and M.M.A. Cup" in August,



The young son of the Ulster M.A.C. secretary holding his father's pusher type model. Healthy-looking blighters both of 'em!

Mr. A. D. Piggott, of Blackheath, set up a new national biplane record of 17:52.6, and turned in an average for three flights of 7:34.8. Granted, a thermal flight accounted for both cup and record, but I'm sure we have the answer here to many modellers who still cannot make up their minds about the efficiency of biplanes. The article in last month's issue should still further help towards an increased interest in this class of model, and I am sure we have still plenty to learn with both this and many other types.

Many readers are complaining about the lack of balsa—and some go so far as to say, in effect . . . "no balsa, no models." What a short-sighted attitude. Hang it all, what did the older aero-modellers use before the introduction of balsa? And to scotch any rude retorts on the comparative performance of to-day's models and those of yesterday. I will claim that the *average* club flight, discounting thermals, is no better to-day than it was ten years ago. Heavier woods can be used in slightly smaller sections, and result in a stronger model almost as light as its all-balsa counterpart. Experimental models have made their appearance already, and the Halifax report on page 629 will serve to answer the sceptics. So let's hear no more of this defeatist talk. A little more hard work put into models will be all the better, and many hundreds of so-called models I have seen of recent years would pay for the extra time spent on them—whether of balsa or oak!

An additional list of clubs will be found on page 632 together with certain alterations notified since our "poster list" was printed. I'm afraid that some groups have still failed to notify us of their continued existence, but as I said before, we cannot claim to be clairvoyant, and omission from the list can only mean omission to send details.

The BRADFORD M.A.C. junior Wakefield competition was won by J. N. Dean, whose best flight was 2:18 o.o.s. A general meeting is to be held on October 6th for the appointment of officers. Members and prospects please note.

Miss B. le Messurier, of the HALSTEAD (Essex) AND D.M.A.C., was the only entrant from this club for the S.M.A.E. Women's Trophy event, in which you will notice elsewhere she placed second, establishing a new ladies' record for the club of 1:26 r.o.g. After the contest she set up a new h.l. figure of 1:19.6, while this young lady gave the lads a running when she finished second to B. Cox in the Club Cup event, only six seconds separating them at the finish. It will be seen that the ladies can more than hold their own with the "stronger sex."

Wings—the Halstead magazine, mentioned in earlier notes of mine—contains one little passage that really tickled me. "In our first issue we spoke about this club being recognised as fitting into the social life of Halstead. We actually thought that we were gaining ground—until we sponsored a recent War Weapons Week exhibition. *Not a word of thanks has been received.*" Well, well—did you really expect any? No, me lads—when you've had as much experience of municipal bodies as yours truly, you'll know that it's the brass hats who do nothing until it comes to speech time who collect all the kudos, and they invariably look down their noses at these "little boys playing with toys." Still, as our American friends succinctly say—So what? (Just a personal observation, Halstead—cut out some of the redundant "jolly old" and "don't you know." They pall after a bit.)

Much successful flying has been taking place with the WALTHAMSTOW M.A.S., a new record of 8:40 h.l. being set up by B. F. Alder. (What unfortunate initials, mah frands!) Anybody wanting explanation of a loose "Ajax" over Dagenham way might get in touch with this fellow—it's most likely his. A scratch contest between Walthamstow, Chingford and Enfield, resulted in a win for Chingford, with Walthamstow second.

The BRIGHTON D.M.A.C. have been removed from their second ground now, and can't go much farther north or there will be too many clubs in the London area! However, their third attempt seems to have brought them a good spot for model flying, and thermals are specially bred there. (It is hoped that big things will be done in S.M.A.E. competitions next year—that is if any members older than ten months are left!) Best flights this past month are 6:00 o.o.s. for good by P. W. Lammiman (no—his model, you twirp!), 4:00 by Thomson's glider, and 4:08 by P. G. Browne's "peg-leg parasol folder"—this ornate-sounding model being recovered a fortnight later from Lewes.

Messrs. Brown and Lammiman cycled to Epsom for the Blackheath Open Day, lost one brand new model, collected second place in one competition and spent two nights in pouring rain. You should have seen them when they got home! Pity more of the members haven't cultivated the same do-or-die spirit—in fact, I have heard of slackness in some directions. Tch, tch.

Mick Farthing (I was wrong—he's not called Robin, and I'm told it's a Wren, anyway) clocked 1:40 on a first test flight with his new stick model (why *do* they build such atrocities?), while friend Piper won a recent "penny points" event. And what do you think, playmates—the old Press secretary of the CROYDON AND D.M.A.C. is now planting *trees* for the Forestry Commission!!

Following the unfortunate death of secretary J. W. Maher.

of the IRISH JUNIOR AVIATION CLUB, an energetic sub-committee has got things running again, starting off with an inter-club affair. The Wakefield Class was won by T. D'Arcy, with an average time of 4:51.02, with J. Archbold (Dublin) second and T. J. Collins third. The Spencer Freeman Trophy was collected by C. Hancock (Dublin), with an average of 1:40.63, Dr. Charles (Ulster) bagging both second and third places with two models making exactly the same times—1:34.83. Remarkable feat, that. D'Arcy also won the Alderman Alfred Byrne Cup for the best flight by an I.J.A.C. member, also the prize for the best time of the day, his flight being 2:14.85.

Mr. Lowe, of the OXFORD M.F.C., flew his "Flying Minutes" to victory in the "Houlberg Cup" event, while A. A. (Gamage) Courtney flew his mighty 67-inch glider to first place in the "Forward Memorial Cup." A lecture by Mr. Houlberg on "Trimming that Model" was very well attended. (What about a paper on the subject, Mr. H.? The clubs would welcome it, I'm sure.)

Under extremely bad weather conditions, the HESTON M.A.C. held its first contest for the Heston Aero Cup. Fifteen models competed, of which only seven finished, the rest being lost or smashed. Mr. Collis placed first with 1:05, followed by Mr. Pratt (0:55) and Mr. Gough (0:48).

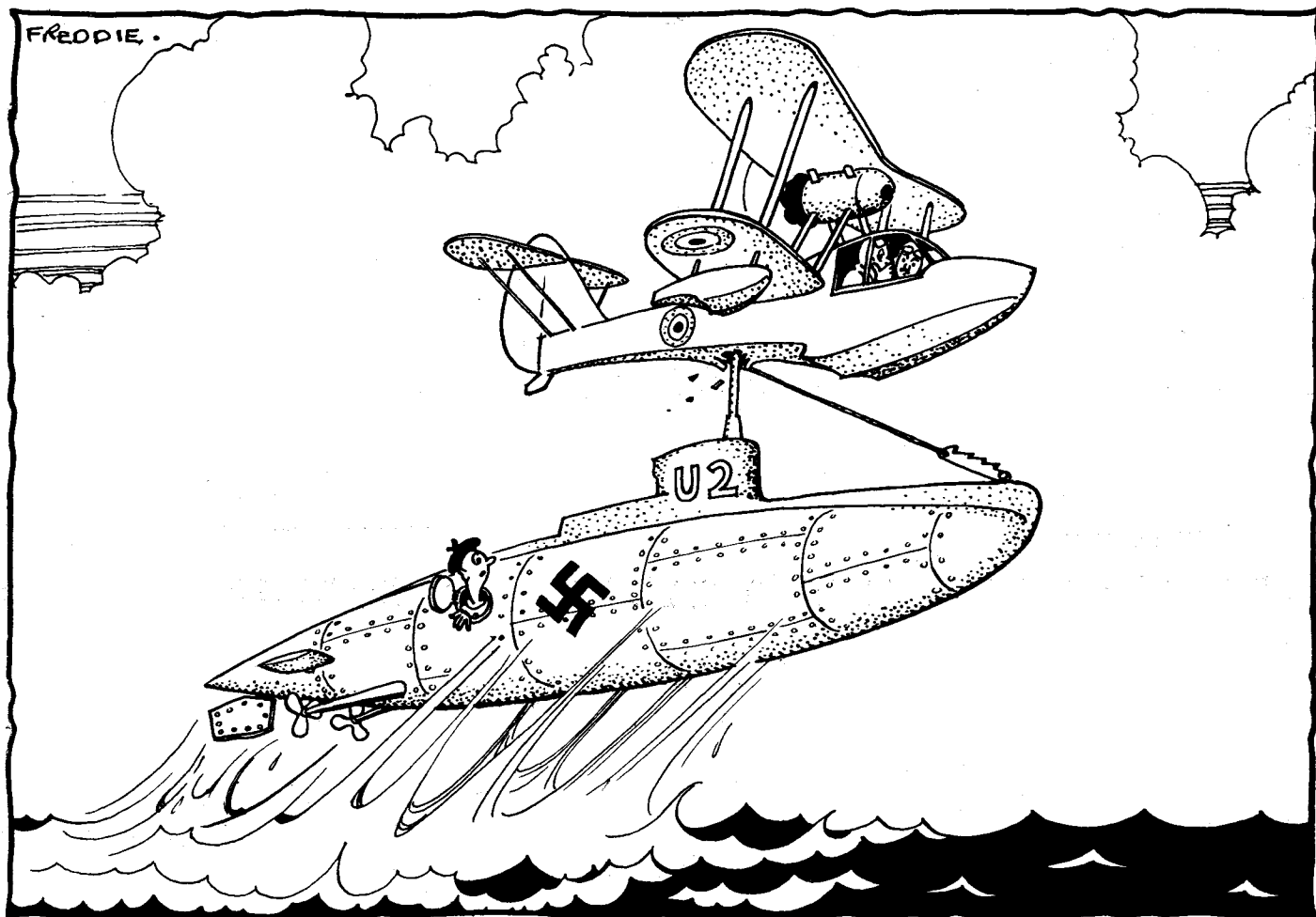
The Open Contest for the COTEBROOK AND D.M.F.S. annual event, the prize for which is a special challenge cup, was held in ideal weather on September 6th,

with a field of 18 competitors. C. J. Pink (Chester) averaged 1:42 to win, with E. Meredith (Chester) second with 1:33.08, and F. L. Johnson (Sale) 1:27.02, second and third respectively. Appreciation is expressed of the way some clubs travelled considerable distances to compete.

The EDGWARE M.A.C. is continuing its activities, and has already doubled its previous membership. Meetings and r.t.p. flying take place at the Watling Centre, with outdoor flying at Edgwarebury Park.

J. M. Hardman, of "Carrington," The Dell, Prestatyn, wishes to form a club in his area, and would be pleased to meet other enthusiasts who can co-operate in this direction.

After four months of enforced comparative inactivity owing to harvesting on their flying fields, the HALIFAX M.A.C. held an impromptu competition, when some remarkable flights were made, five models being lost, disappearing at a tremendous height and reminding the boys of American weather. The first few places are given to show how the times, etc., came out, and for another most important reason these days. Three of the models were made from hard wood or part hard wood, and proved very decisively that although balsa is still the ideal stuff, aero-modelling need not stop because of the shortage. The models lost by Messrs. Lees and Austerwick were made from bass wood, weighed about 10½ oz., and yet climbed and soared out of sight in exactly the same manner as a light-weight balsa job—another headache for the "Wakefield" committee when considering alterations to the rules.



"DON'T LOOK ROUND NOW, BUT I THINK WE ARE BEING FOLLOWED"

'AIRYDA' MODEL AEROPLANE CONSTRUCTIONAL KITS

AND "NATIONAL" SUNDRIES



1/72 SCALE SOLID MODELS



HURRICANE - 1/8

Actual photograph of "Airyda" model.

OTHER MODELS AS FOLLOWS:

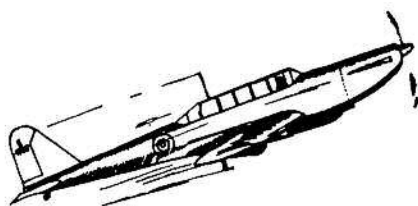
LYSANDER	- 2/-	WHITLEY	- 4/11
SPITFIRE	- 1/8	JUNKERS JU 52-	4/11
TOMAHAWK	- 1/8	HUDSON	- 4/6
HEINKEL HE 112	1/8	AVRO ANSON-	4/6
MESSERSCHMITT ME 110	- 2/3		

Each Kit contains fully detailed plan and ample instructions. Wings and body cut to outline shape. Elevator and rudder, etc., printed on sheet wood. Cement, wheels, wire, celluloid, slide of water transfers, etc.

THEY CANNOT BE BEAT FOR VALUE

ALL PRICES TAX FREE

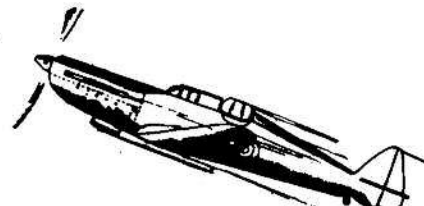
16 in. WING SPAN FLYING MODELS



FAIREY BATTLE

SPITFIRE
HAWKER
HURRICANE
BLACKBURN SKUA
BLACKBURN ROC
MESSERSCHMITT
M.E. 109
CURTISS HAWK
P75A
FAIREY BATTLE
MR. MULLIGAN

MONOCOUE
BOEING P26A
ART CHESTERS
RACER
PUSS MOTH
MILES MAGISTER
PERCIVAL GULL
BOULTON PAUL
DEFIANT
FAIRCHILD 24



**BOULTON PAUL DEFIANT
PRICE 1/8 tax free**

ALL KITS ABSOLUTELY COMPLETE

MINOR

30 in. WING SPAN DURATION MODEL

7/6 TAX FREE

Full sized plan and instructions. Ample wood, tissue, wire, cement, etc. Very simple to build and remarkable flyer.

JUNIOR

20 in. WING SPAN DURATION MODEL

5/- TAX FREE

EVERYTHING COMPLETE

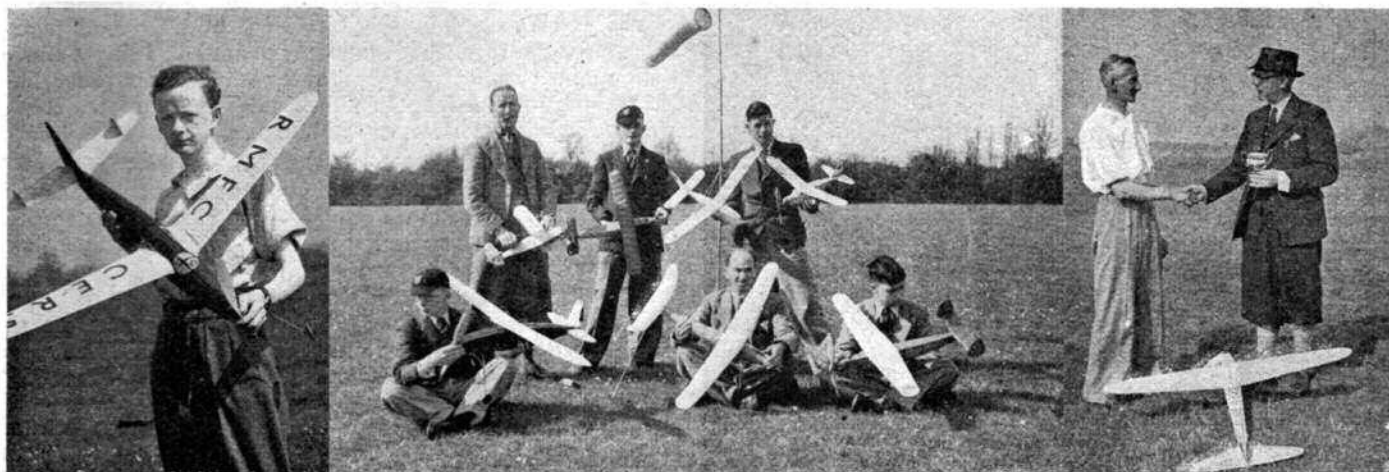
THE IDEAL MODEL FOR THE BEGINNER

Clear Dope 6d. bottle. Coloured Dope 4½d. & 7d. jar. Cement 2d., 4d. & 7d. tubes. High Gloss Dope 6d. jar. National Rubber ½" 11d., ¼" 1/2, ¼" 1/4. THE FINEST PROCURABLE. 12 yards in a box

Also large stocks of tissue paper, wheels, plans, wood, plastic wood, etc., etc.

SEND FOR FREE PRICE LIST TO—

NATIONAL MODELLERS' SUPPLY, Airyda Works, 22/24 St. John's Rd., Huddersfield
Telephone 4919



(Left to right) Secretary Elliott (Ripon M.A.C.) with his well-finished "G.B.3." Members of the Chelmsford M.A.C. find a spot of sunshine. C. C. Horner, of the Lancaster M.A.S., being presented with the Light-weight Cup by the Vice-President.

Len Stott's "Flying Minutes," which made the best time of the day, landed within a few minutes of his home. Nice going, considering the flying ground is about seven miles away and petrol so scarce!

	1st	2nd	3rd
H. Austerwick...	1: 22	1: 32.5	6: 43 (lost)
L. Stott ...	9: 09 (lost)		
P. T. Lees ...	2: 05	1: 16.5	1: 59
N. Lees ...	1: 34	5: 47 (lost)	
D. Peckett ...	3: 37.5 (lost)		
F. Hubbard ...	1: 23.5	1: 33.5	1: 29

In addition to the models lost above, Dennis Peckett and Dennis G. Lees both lost their gliders in trimming flights prior to the Thurston Glider Cup Contest. And so to bed, after a day mingled with joy and sadness, to dream of better days.

The HEAVITREE (Exeter) M.A.C. held a field day on August 31st, clearing up one or two competitions that had to be cancelled owing to weather and other adverse conditions. Times were not spectacular but consistent. One thing of note about this day was a hat-trick by Mr. D. M. Peters, who carried off the Under 150, Biplane and Nomination, with 128.7, 125.7 and 84.2 sec. (nearest 35 sec.) respectively.

The club is thinking of changing its name at the end of the year to the Exeter M.A.C., as it is now the only club

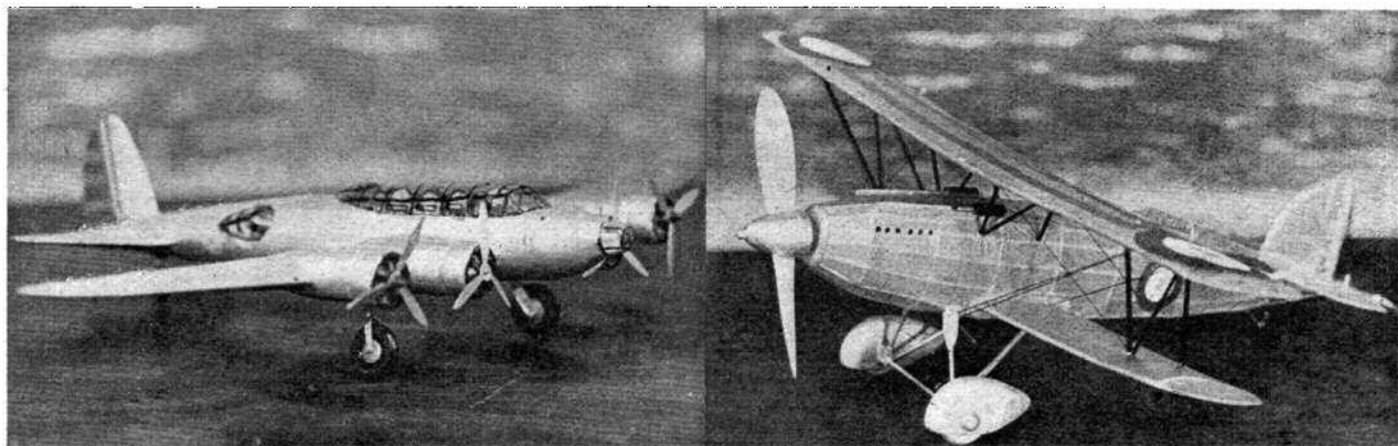
in Exeter, and has thus members all over the city. The present name rather leads people to believe that the club is confined to the Heavitree district alone.

A small hall is being negotiated for, and during the winter months it is hoped to be able to use this for instruction for novices, social evenings and lectures.

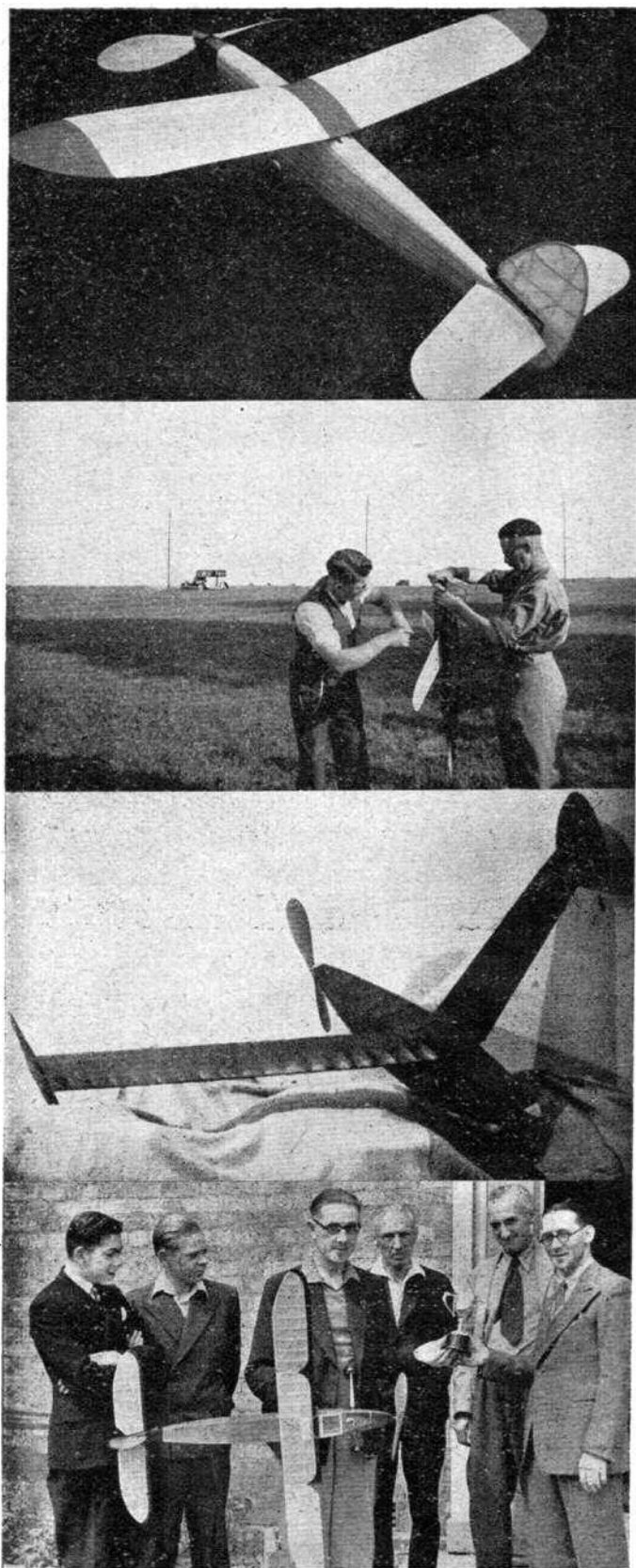
Mr. Piggott, of BLACKHEATH M.F.C., about whom I have spoken earlier in connection with the Biplane Cup, is also the winner of the club's Gosnell Trophy, with an average time of 1: 27.3, while Mr. Bishop carries off the Faulkner Trophy for junior members, his time being 4: 01.1. This latter fellow is under sixteen years of age, and has the making of a future expert.

The first Welsh Rally was held on August 31st, and was a great success. Ideal weather conditions saw seven teams competing from Cardiff, Mountain Ash and Ebbw Vale. The Cardiff team formed by Mr. and Mrs. Morgan totalled 359 points to win the event, followed by Mountain Ash with 348.5 points, and Cardiff "B" team at 307 points. Mr. Norseman, of Mountain Ash, won the special prize for highest individual score, and A. Sheen, of Cardiff, carried off the junior prize.

Over 70 models were on show at the exhibition staged by the MOLESEY M.A.C., ranging from solids to 6 ft. petrol jobs. S. Pilch won a recent contest with a total time of 2: 33. while he also tied for first place in a spotters contest with R. Towell, both scoring 100 per cent.



Prize-winning models built by Messrs. Nichols (Boeing) and Speak (Hacker Fury), of Hereford.



(Top to bottom) A "Rocket," built by C. Furse, of Leeds. Messrs. Clarke and McAlpine, of the Luton club, prepare for flight. (Field now ploughed up. Shame!) A 78 in. span pterodactyl model, by J. C. Hatley, of Sheffield. Mr. Sharman collects the prize at Scunthorpe.

The NEWCASTLE-UPON-TYNE M.A.C. send news after a long silence the main topic of interest being a competition held under poor conditions, the winner being M. Scott, who averaged 1:32.5 (best time 2:29.5), D. Hepworth (55.3) and J. Harpin (49.7) took the other two places.

The STRATFORD-ON-AVON M.A.C. has now affiliated to the S.M.A.E., and are going ahead well. Messrs. Milne, Higham, Austin, Potter and Double were the place winners at a recent contest, the best time of the day being set up by R. Higham, with 2:08 r.o.g.

In spite of earlier reports to the contrary, the WHITSTABLE, TANKERTON AND D.M.A.C. were able to hold their proposed rally and though of course attendance was not up to peace-time standards, the events were well contested and good times set up. Best time was set up by D. Rice when competing in the Wakefield Class, flight being 6:12 o.o.s., which constitutes a new club record. This chap also won the ordinary duration event with an aggregate of 4:58, while V. Smeed took the Nomination.

C. H. Aggett won the "Trapp Trophy" for Wakefield models in the TORQUAY AND D.M.A.C., with an aggregate of 2:25, runner-up being E. H. Davies, 1:44. Competitors did not care to put on full turns owing to an off-shore wind carrying the models out to sea. M. Embury set up a new record of 10:38.5 when winning a glider contest, his competition aggregate being 13:46, while J. W. Jackson won the Junior Trophy with one flight of 2:06.

Since its formation a few weeks ago, the WHITEFIELD M.F.C. have been fitting up their clubroom and enrolling new members (membership now about 25). A friendly match with the Ashton and Bury Clubs proved an enjoyable affair, with good weather, and places were fairly evenly shared out among the Ashton and Whitefield boys. Records in this club are held by K. Allison and I. Donaldson, who hold the h.l. and r.o.g. times with 4:37.4 and 2:12.1.

The PHAROS M.A.C. lost their ground right in the middle of the competition season, but are now sharing the Harrow Club's ground, and things are going strong again. J. P. Buckeridge lost a blue and white Northern Star after an o.o.s. flight of 7:30—and lost another a week later after 1:25. Any news will, of course, be welcomed. R. Sykes has broken the junior record with a time of 2:20.

SHORTS M.A.C. have just held a most successful exhibition, where every type of model, including locomotives, etc., was on show. A cup was awarded to Mr. Smith for his fine 50 in. petrol model, while Mr. Buton won second place with a flying scale Lockheed "Lightning." A slap-up high tea for all the members brought the day to an exuberant close.

Another record to go by the board is the r.o.g. class in the RIPON M.F.C., where C. F. Elliott flew his model away for a flip of 7:38, the plane being recovered from over a mile away. An autumn rally is to be held—and competitors are expected to take their own de-icers along!

The r.o.g. record of the STREATHAM AERO-MODELLERS was broken twice in ten minutes—the same thermal obliging each time! D. R. Taylor, off first, clocked 4:19, and then J. Miler (previous holder) regained his laurels with a flight of 4:51. Taylor won the competition that was in progress, being lucky enough to get in his two other flights, but Miler had to be content with second place, which his record flight gained.

Smallness of ground restricts the LEEDS M.F.C. in their activities, but many models are built and in course of construction, among the most interesting being a 60 in. span scale petrol model of the Dart Kitten by F. Hemsall.

*Bill White, of Blackheath, with his
"Bovius" type sailplane.*

This model incorporates slots, which have been tried out successfully on a 4 ft. span geared up rubber job. P. Albericci holds the club duration record with a time of 1:32.2, while H. Tubbs and H. E. Vauvelle have won recent nomination contests.

A gala day staged by the COLERAINE AND D.M.A.C. proved a field day for F. J. Morley, who collected five first places in seven contests. R.t.p. flying is now going ahead with this club, the records at present being 1:47 h.l. and 1:3 r.o.g. Scale figure stands at 88.5.

A good idea has been instituted by the WALTON AND D.M.A.C. in the form of a "pairs competition," in which each senior is paired with a junior. Three flights each are made on three separate flying days, and the total times count as points. Messrs. Wyman and M. Clarke were the winners of the first series, their total being 1,669 points. Mr. Wyman raised the club record during the event to 14:51—the model landing within a quarter of a mile of the take-off. The Gliding Competition went to P. D. Clarke with 4:38, his son following into second place with 3:47. A new type of contest, e.g. "banner-towing," was won by Mr. Benson with a time 3:05 for one flight. Not bad going that.

Well, that's all for this month, my chickadees, and I look forward to hearing much of indoor work, both flying and otherwise. Taking it all round, this has been a fairly good season from the weather angle, and I hope we can follow this up with plenty of activity round the pole. Keep me posted with news—and don't forget it has to be of general interest—and keep the old Club News section as full of interest as usual. (Cheerio!

THE CLUBMAN.



S.M.A.E. REPORT

Notes on a Delegate Meeting of the Society of Model Aeronautical Engineers, held at the Royal Aero Club, Piccadilly, on Sunday, September 7th, 1941.

Mr. Houlberg occupied the chair of a very well attended meeting, the proceedings commencing at 10.30 a.m.

The minutes of the previous delegate meeting were read by Mr. Bell, and signed as correct by the Chairman.

Arising from the minutes the meeting was informed that Mr. Hawkins, the Treasurer, had forwarded to the Ministry of Production a cheque for £200, the amount collected by the Society towards a Fighter Aircraft.

Mr. Rippon informed the meeting that the club subscription cards were in the printer's hands, but some slight delay may occur owing to the printer being extremely busy.

The following clubs were affiliated: Edgware, East Birmingham, Kingston-upon-Hull, Stratford-on-Avon, Sudbury Heights, Witney and District.

The following clubs were reaffiliated: Pharos, Kendal, Bristol, York, and Ashton.

The delegates considered the advisability of increasing the affiliation fee of large clubs. The meeting also discussed the possibility of starting a Wakefield Fund. Both these suggestions were put back for consideration at the annual general meeting.

Mr. Smith, Competition Secretary, and Mr. York, Press Secretary, desired alteration to the constitutional rule which states that the Competition Secretary should notify the Press of competition results. This rule had led to some overlapping of work. The meeting therefore decided that the Press Secretary should in future be responsible for the publication of these results.

Mr. Bell stated that the advisability of publishing in the JOURNAL reports of delegate meetings in minute form was open

to doubt. In this he was seconded by Mr. now Sgt.-Pilot Cosh, past secretary of the society. The meeting decided that the usual notes by the Press Secretary should be published.

A claim from Mr. A. D. Piggott, of the Blackheath M.F.C., for a Biplane r.o.g. record with a flight of 17:52.6, was granted. This is also the best time to date for the Caton Trophy.

Mr. Houlberg produced the chart he had prepared showing the various types and classes of models for which records could be granted. In order that clubs should have the opportunity of studying the chart, before it is accepted by the society, it will be reproduced, together with an explanatory article, in the next issue of the JOURNAL.

Mr. Rushbrooke asked if it were possible for the society to issue F.A.I. licences. The meeting decided that The Royal Aero Club be asked for guidance in the matter.

Mr. Briggs said he considered the method of allocating Plugge points could be improved. The most popular competition of the year was undoubtedly The Gamage Cup. This, therefore, carried the most points, and a club that was placed well up in the results held a big advantage throughout the season over other clubs. Mr. Knight pointed out that if a club gained this position they deserved it, as they had beaten a greater number of other competitors.

After some discussion it was decided that a special Council meeting should be held to consider the possibility of revising the rules of various competitions.

Mr. Bell, on behalf of the meeting, welcomed Mr. Cosh and his lady.

In a brief reply, Mr. Cosh said that he was happy and gratified to see the society so alive and active on this the first opportunity he had had of attending a meeting of the society since joining the R.A.F. in September, 1940. He thanked the meeting on behalf of Mrs. Cosh and himself for the very warm welcome accorded them.

The meeting closed at 1.15 p.m.

ADDITIONS TO LIST OF MODEL AIRCRAFT CLUBS

BATTERSEA AERO-MODELLERS' SOCIETY.—A. B. Jenner, 118 Nightingale Lane, Balham, S.W.12.
BLACKWOOD AERO-MODELLERS' CLUB.—Roy Hood, 135 High Street, Blackwood, Mon.
BURY AND DISTRICT M.A.C.—M. K. Carter, 4 Birkdale Drive, Ainsworth Road, Bury, Lancs.
BUXTON AND DISTRICT A.C.—J. Marchington, "Stakesby," Spencer Road, Buxton, Derbyshire.
COLERAINE AND DISTRICT M.A.C.—R. J. Troy, 21 Nursery Avenue, Coleraine, N. Ireland.
COTEBROOK AND DISTRICT M.E.S.—H. Morrey, Cotebrook, Tarporeley, Cheshire.
DERBY M.F.C.—R. J. Baker, 102 Uttometer New Road, Derby.
EASTBOURNE M.F.C.—H. J. Towner, "Trencom," King's Drive, Eastbourne.
GUILDFORD AND DISTRICT M.A.C.—G. Bloomer, 22 Curling Vale, Onslow Village, Guildford.
IRISH JUNIOR AVIATION LEAGUE (Limerick).—Corbally Cottage, Corbally, Limerick, Eire.
MOUNTAIN ASH M.A.C.—D. Fidler, "Bryn Myfyr," Mountain Ash, Glam.
NEWCASTLE-UPON-TYNE M.A.C.—J. L. Bowmer, "Braemar," Victoria Avenue, Forest Hall, Newcastle-upon-Tyne.
SHEFFIELD AIR LEAGUE SOCIETY.—C. F. W. Cudworth, 18 Derbyshire Lane, Sheffield 8.
TOTTENHAM M.A.C.—F. Ferry, 14 Church Road, Tottenham, N.17.
TROWBRIDGE AND DISTRICT M.A.C.—L. W. Dallimore, 6 Silver Street, Trowbridge, Wilts.
WALTHAMSTOW M.A.S.—L. Phipps, 44 Waverley Road, Walthamstow, E.17.
WHITEFIELD M.F.C.—K. J. S. Donaldson, "The Firs," Colefield, Prestwich, Manchester.

AEROPLANE BRONZE CASTINGS—To Scale

FILE AND POLISH TO MAKE A BEAUTIFUL ORNAMENT.

Spitfire	6 in. wing span	4/8 each
Hurricane	5 1/2	5/8
Defiant	7	6/8
Lockheed Lightning (sensational American Fighter)	9	10/8
Wellington Bomber	7	6/8
Blenheim Bomber	5 1/2	10/8
Hamden Bomber	9	10/8
Consolidated Liberator (American Heavy Bomber)	14	15/8
Skua, Dive Bomber	8	8/8
Sunderland Flying Boat (with floats)	11	11/8

MODERN TRANSPARENT STANDS

To display above models attractively.

6 in. high for Fighter Models	6/8 each
9 in. " " Bomber Models	10/8
Transparent Flight Motion Propellers	8d.

Orders carriage paid. Send for list. Trade enquiries invited.
W. K. GIBB, Metal Aero-Model Specialist
 57 JOHN STREET, AYR, SCOTLAND.

Small Traders' Announcements

BIRMINGHAM Model Supplies, 96 Dale End, wish to draw the attention of buyers to their Mail Order department; send for list of aircraft, solid, flying; also ship kits and accessories.

BLACKPOOL.—The Sports Shop, Palladium Buildings, Waterloo Road. All model supplies. Joy, Studietta, Cloud, Droma, Kite, cements, dopes, grand flying scale kits. Latest models, solids, duration. Remember "The Sports Shop."

BROMLEY.—H. E. Hills & Son, 481 Bromley Road, Downham. 'Phone Hic. 4197. Model Aeroplane Supplies. Dozens of kits, Kail Kraft, Cloud, Atlanta, Skyleads, Veron, Truscale. Caton's rubber, Joy-plane, Studietta Balsa Tools.

CHISWICK.—G. W. Jones Bros. & Co., 56 Turnham Green Terrace. (Chiswick 0838). Largest stock of kits and accessories in West London. Agents for Veron, Kail Kraft, Club, Atlanta, Airyda, Aero-models, Penguin, Scalecraft, Skybird, Skyleads, etc. We specialise in spare parts for Solids. Caton's rubber, Joy-plane products, Aircraft publications, and photographic postcards. Stamp brings List.

CHISWICK.—A. A. Baker, 526 High Road. Large selection of flying scale, duration and solid kits. Ball races, propellers, wheels and other accessories. Balsa cut to sizes as required. Agents for Hobbies. 'Phone: 3816 Chiswick.

DUMFRIES.—Campbells, 46 High Street. Send for our free lists all model aeroplane kits, balsa wood, and sundries. Largest stockists in Scotland. Frog, Penguin, Airyda, Scalecraft, Truscale, Star, C.M.A., Veronite.

EDINBURGH.—"Calling all aero-modellers." Whatever your requirements, Frank Royce, 54 South Clerk Street, is at your service. Fulllest range of kits, balsa wood, accessories.

EDINBURGH.—Everything for the aero-modeller. All the leading models stocked. Joy-plane cements, dopes, Jap. tissue, ball races, etc. Wade & Co., 40 Chambers Street.

IPSWICH.—A. J. Saezum & Sons, 31-36 Norwich Road. 'Phone 2779. Model aero supplies, Joy-plane products, Caton's rubber. Limited stocks of all leading makes of Duration, Scale and Solid Model Kits.

WHITLEY BAY M.A.C.—P. S. Chesney, "Monkwood," Hawthorn Gardens, Whitley Bay, Northumberland.

WORKSOP MODEL AERO AND BOAT CLUB.—A. Roberts, 271 Gatefold Road, Worksop, Notts.

CHANGE OF SECRETARY

ALDENHAM SCHOOL M.A.C.—P. J. Farr, Cox's House, Aldenham School, Elstree, Herts.

CARDIFF M.A.C.—B. Morgan, 47 Richards Street, Cardiff.

EDGWARE M.A.C.—A. J. Pizer, 81 Beverley Drive, Edgware, Middlesex.

KINGSTON-UPON-HULL M.A.C.—P. R. Watts, 18 Berkeley Street, Cranbourne Street, Hull, E. Yorks.

PERTH M.A.C.—S. Keay, 56 Hunter Crescent, Perth.

STREATHAM AERO-MODELLERS.—D. R. Taylor, 161 Grayscroft Road, Streatham, S.W.16.

TAUNTON AND DISTRICT M.A.C.—C. L. Ranger, "Kildare," The Avenue, Taunton, Som.

ULSTER M.A.C.—T. H. Daulman, 37 Grangeville Gardens, Finaghy, Belfast, N.I.

STOP PRESS

RESULT OF WOMAN'S CUP COMPETITION.
 SEPTEMBER 7TH, 1941.

	Aggregate. (sec.)
1. Miss D. Humphries, Bushey Park	329.3
2. Miss Barbara Le Messurier, Halstead	338.6
3. Mrs. N. Hayes, Ashton	330.5
4. Mrs. M. Morgan, Cardiff	300.5
5. Mrs. F. Hubbard, Halifax	190.0
6. Mrs. I. Wakling, Bristol	96.9

AUTUMN Ideal for chasing
AFTERNOONS model aeroplanes.

CATON'S
SUPER POWER AERO STRIP

will give you the longest run!

Obtainable in sealed boxes from all dealers.

CATON Ltd., 89a Blackfriars Road, London, S.E.1

LEICESTER.—Harper's—The Aero-modellers' Scores. Large selection accessories and kits. 34 Belgrave Gate, and 67 Braunstone Gate; also at Oakham, Melfon Mowbray, Market Harborough.

LONDON, S.E.—Toy and Model Shop, 15 Sydenham Road, S.E.26. Skyleads, Cloudcraft, Kail Kraft, Keelbild, C.M.A. kits. Waterline and Layden ship kits. Balsa, dopes, cement, tissue, rubber, brushes, bamboo, wire, plans, etc. Tremo warship and aeroplane models. AERO-MODELLER stocked.

SHEPHERD'S BUSH, W.12.—K's, Manover Court, Uxbridge Road. Large selection of flying scale, solid and duration kits. Accessories of every description, and Joyplane products.

STAFFORD.—Aircraft Models, South Walls, is just the place to call and see a good variety of models, and obtain advice from modellers like yourself.

STOCKPORT'S Aero-model Shop.—Materials and accessories in stock. Large range of kits, Cloud, Studietta, Kail Kraft, Airyda, "Droma, Skyleads, and Chingford, etc. 54 Wellington Road South.

WILLESDEN'S Leading Aero-model Suppliers. Woods Sports Ltd., 98 Chamberlayne Road, Kensal Rise, N.W.10. Comprehensive stocks of all kits, materials, prints, etc. 'Phone LADbroke 1414. Buses Nos. 6, 46, 52, 70 stop at door.

WILMSLOW, Cheshire.—Wilmslow Model Aircraft Co., Water Lane. We have a big range of kits and accessories, including Kail Kraft, Skyleads, Scalecraft, Studietta Elita, Club, Atlanta, Halifax, Tower and many others.

WOLVERHAMPTON.—Regent Cycle Scores. Kits by all popular makers, Duration, Flying Scale, Solids, cements, dopes, tissues. Expert advice given. Regent, Cleveland Street, Wolverhampton.

WOLVERHAMPTON.—The Aero-modellers' rendezvous. Start & Sons, Victoria Street. Kits by all popular makers. Cements, dopes, etc. Complete range of materials and accessories. Expert advice.

WORCESTER.—A. N. Cutler, Bridge Street. For balsa, dopes, tissues, elastic, propellers, cements, etc. In fact, all accessories for the aero-modeller. Stockist in "Droma, Studietta, Skyleads, Scalecraft, etc." 'Phone: Worcester 4137.

FOR SALE.—Dopes, insignias, Cement, Balsa, Piano wire, etc., at very reasonable prices. Send 1d. stamp for list to Smith, 13 Kenyon Lane, Gosforth, Newcastle-on-Tyne, 3.

DEWFLY MODEL PLANS

The "DE-H-HORNET MOTH." A nicely designed scale biplane, easily constructed with detachable wings, stabiliser and fin. Average duration 40-45 sec. Scale 1 in. to 1 ft. Price 2/9. Post 3d.

"THE DEWFLY." A 32 in. span cabin type high wing monoplane of smart appearance. Winner of many contests. Average duration 95-100 sec. Best official time to date 11 min. 4 sec. Price 2/-. Post 3d.

"THE FALCON." A 48 in. span cabin type high wing Wakefield model of pleasing appearance. This model has proved very successful in competition and has made many flights of over 10 min. Price 3/6. Post 3d.

For better results this summer use Dewfly high grade (latex) aero-rubber. Price, $\frac{1}{2}$ in., 10d.; $\frac{3}{16}$ in., 1s.; $\frac{1}{4}$ in., 1/6 per dozen yards. Postage 3d. per dozen yards.

Manufactured by:

DEWFLY (MODEL) AIRCRAFT

(C. P. DYNE LTD.)

72 Falcon Road, CLAPHAM JUNCTION, S.W.11

14 The Triangle, Loxford Bridge
BARKING

213 London Road
MITCHAM

SORRY! NO BALSA WOOD

W. G. EVANS & SONS regret to repeat that BalsaWood is still not available for Model Aeroplane Construction, and that although a limited stock of other woods is still held, extreme pressure of essential orders forbids for the time being any deliveries for model work.



W. G. EVANS & SONS

EVERTON BUILDINGS

Stanhope Street, Euston Road, London, N.W.1

Phone—EUSTON 3614 (2 lines)



THE "SETTER"

A distinctive low-wing monoplane with a performance unequalled by any. Span, 36 in.; length, 27½ in.; weight, 3½ oz. Average duration (without thermals), 120 sec. Splendid semi-scale appearance.

COMPLETE KIT, including finished propeller, wheels, dope, cement, clearly printed balsa sheets and plenty of best quality materials.

12/- CARRIAGE 1/- EXTRA

B RISTOL **M** ODEL **A** ERO **S** UPPLIES
est aterials and ervice

"THE MODEL AIRPORT"
51 COLSTON STREET, BRISTOL 1

The "FLUXITE QUINS" at work



"Forgive my sarcasm," smirked EH
"But I call that a pretty display—
Your soldering's all right,
Can't go wrong with
FLUXITE—
But gas stoves don't function
that way."

See that FLUXITE is always by you—in the house—garage—workshop—wherever speedy soldering is needed. Used for 30 years in Government Works and by leading Engineers and

Manufacturers. OF ALL IRONMONGERS, IN TINS, 4d., 8d., 1/4 & 2/6. Ask to see the FLUXITE SMALL SPACE SOLDERING SET—compact but substantial, complete with full instructions—7/6. Write for Free Book on the Art of "SOFT" SOLDERING and ask for Leaflet on CASE HARDENING STEEL, and TEMPERING TOOLS with FLUXITE.

TO CYCLISTS! Your wheels will not keep round and true unless the spokes are tied with fine wire at the crossings AND SOLDERED. This makes a much stronger wheel. It's simple with—FLUXITE—but IMPORTANT.

The "FLUXITE" GUN is always ready to put "FLUXITE" on the soldering job instantly. A little pressure places the right quantity on the right spot and one charging lasts for ages.

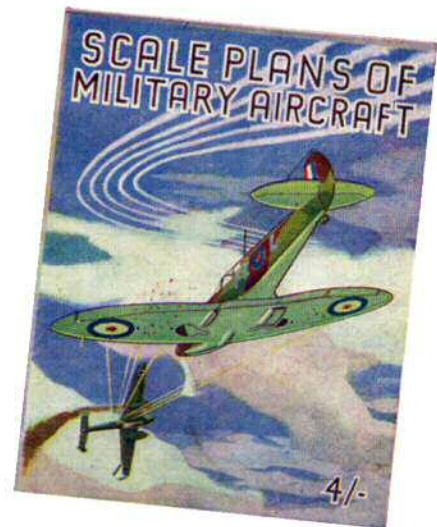
Price 1/6 or filled 2/6.
FLUXITE LIMITED, Dept. M.A.
Dragon Works, Bermondsey St., S.E.

ALL MECHANICS WILL HAVE

FLUXITE

IT SIMPLIFIES ALL SOLDERING

HAVE YOU ALL THESE?



HARBORO' BOOKS ARE BEST

Allen House
Newarke Street
Leicester

