AUG. 1946

AEROMODELLER

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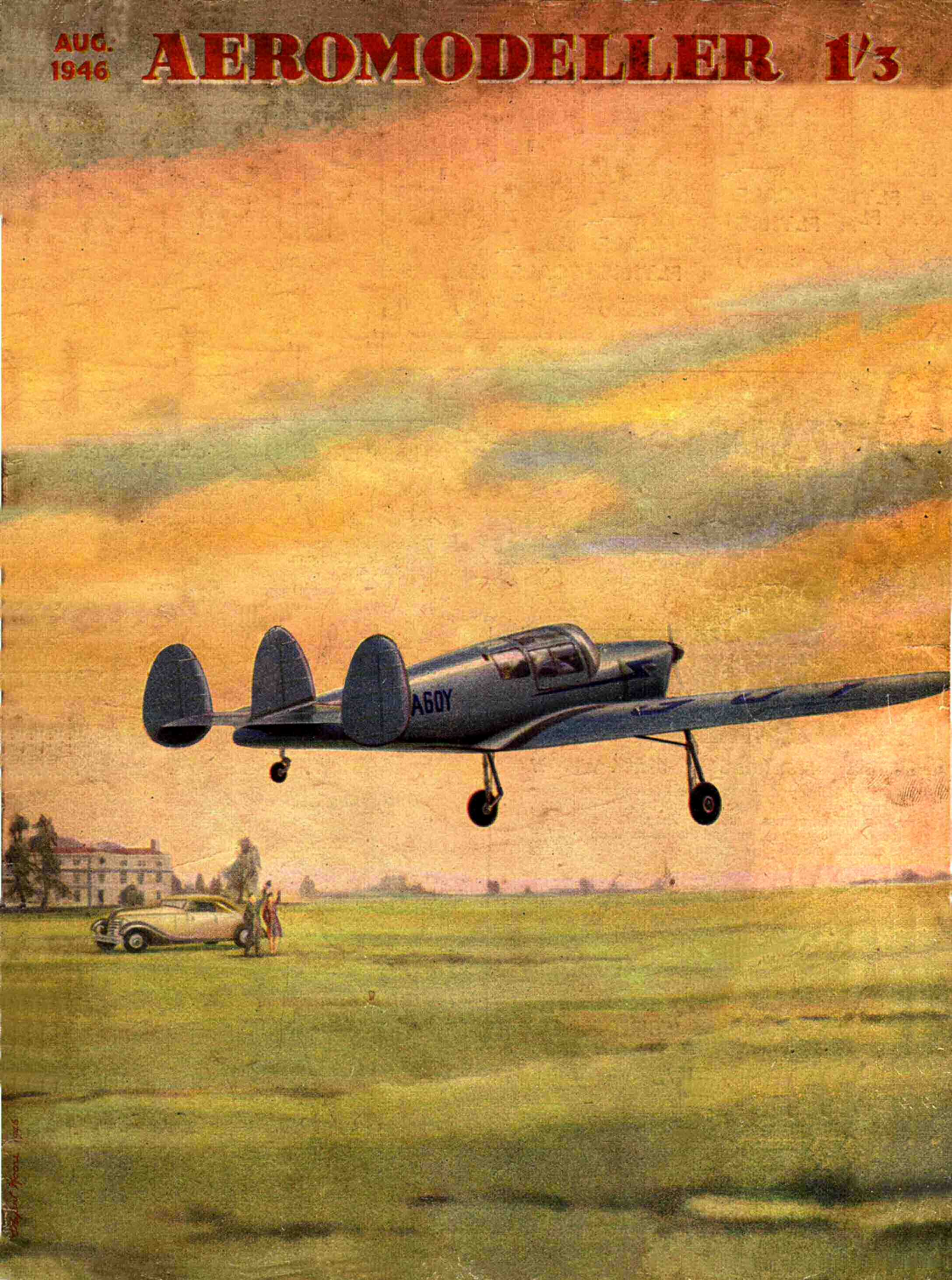

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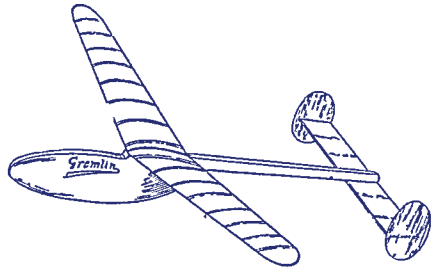

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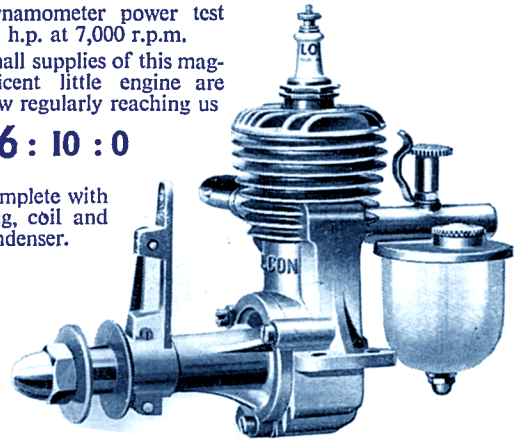

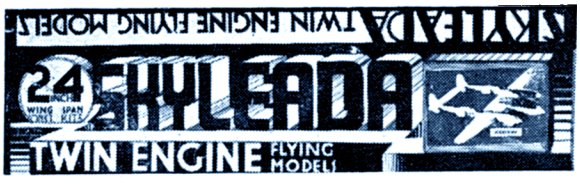

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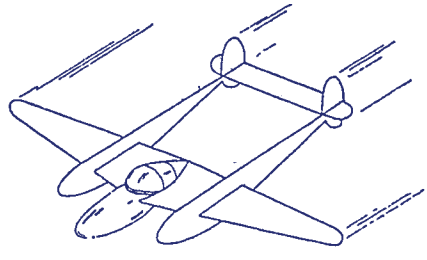

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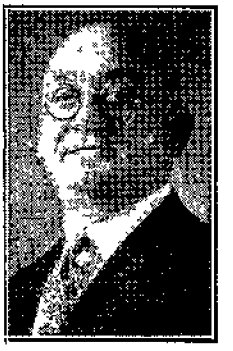

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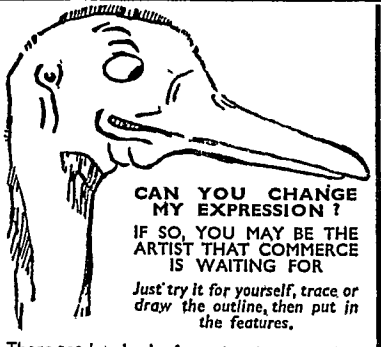

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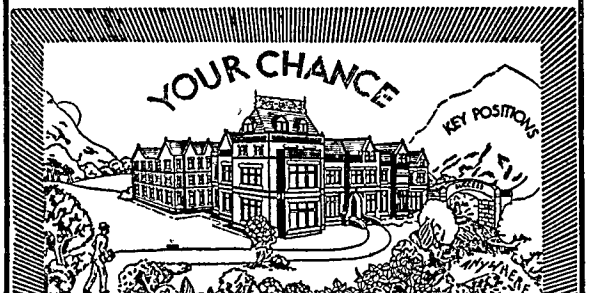

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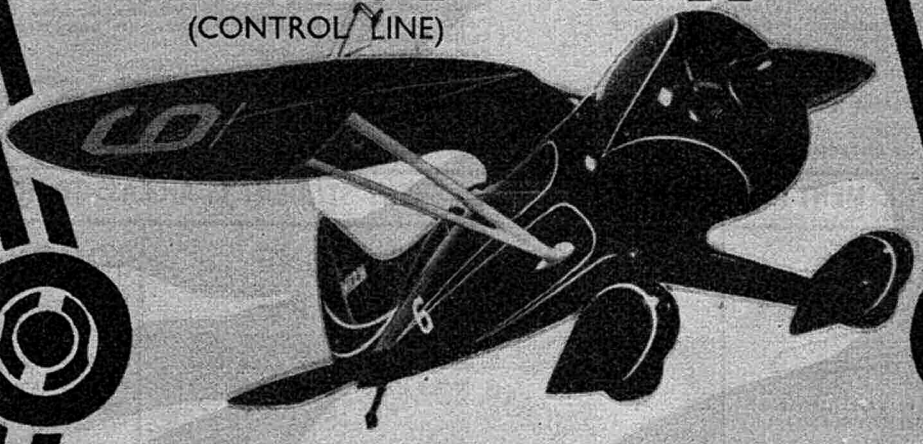

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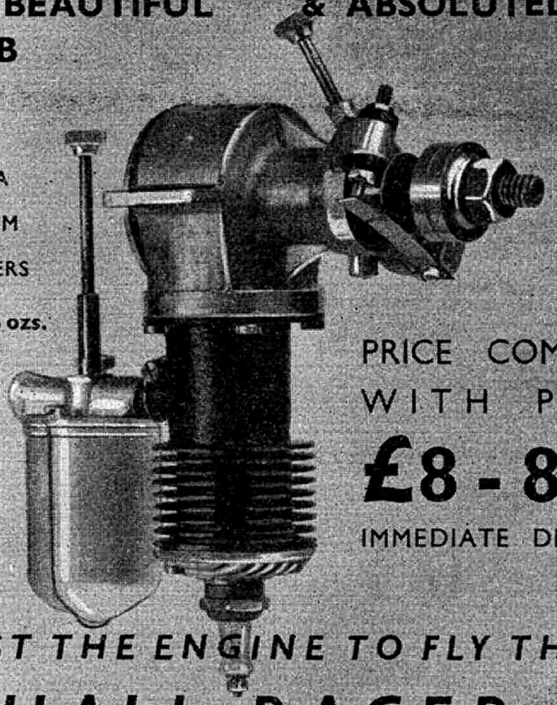

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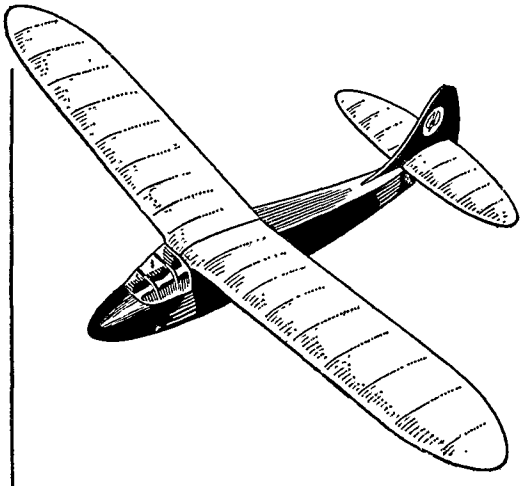

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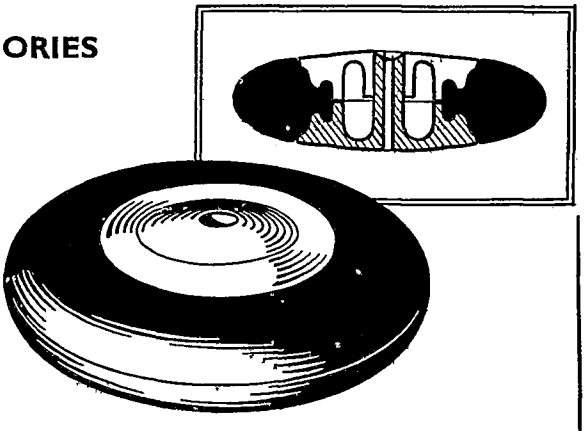

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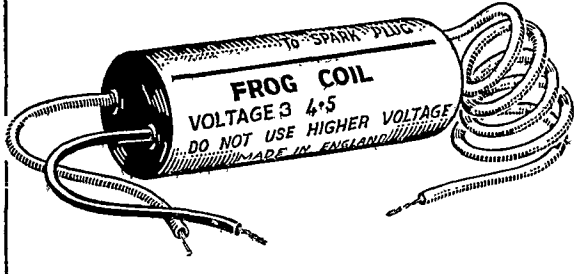

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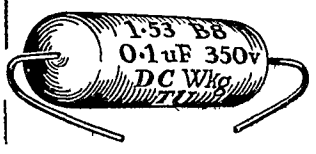

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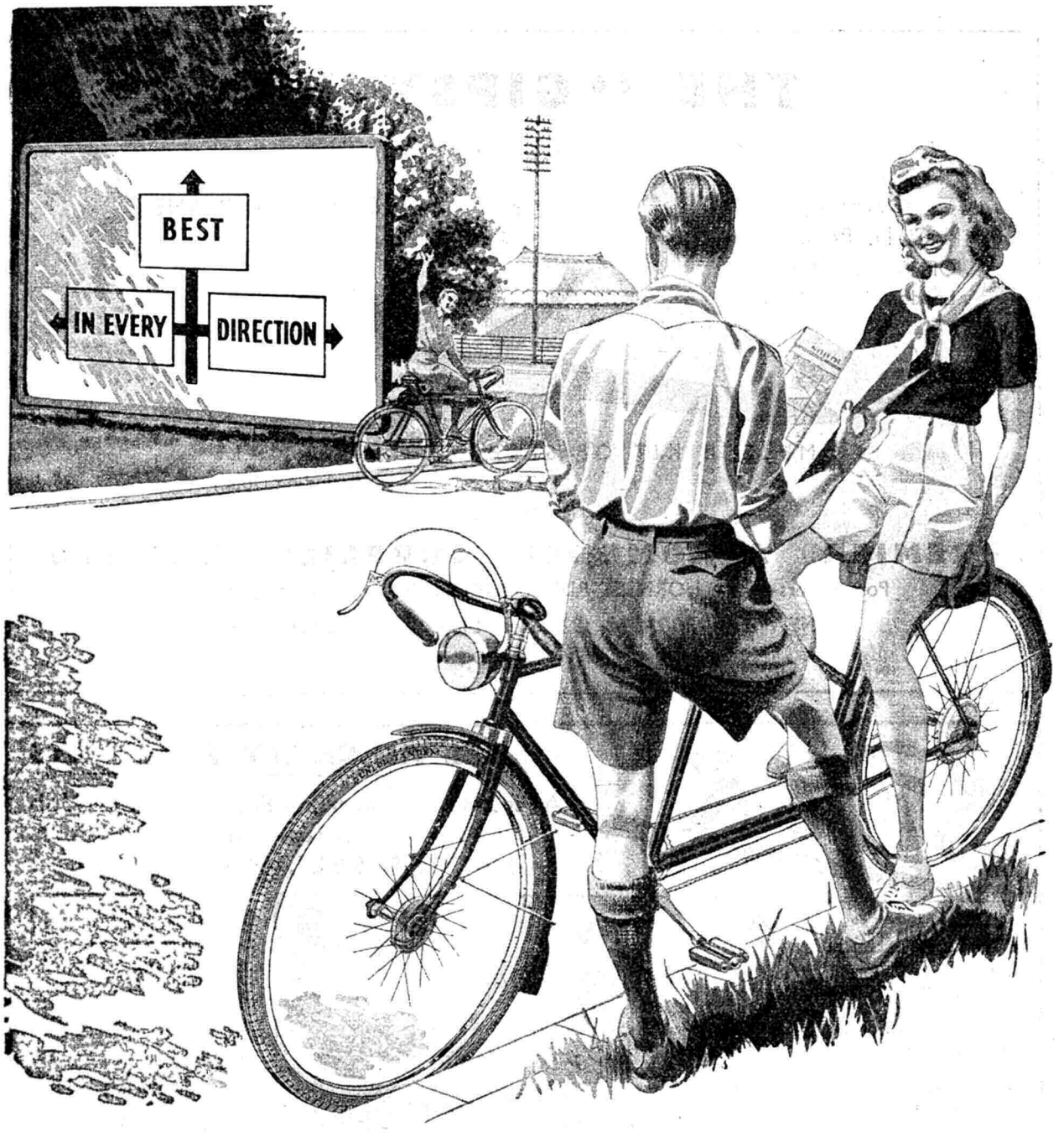

DUNLOP

The AEROMODELLER
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ESTABLISHED 1935
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The Model Aeronautical Journal of the British Empire

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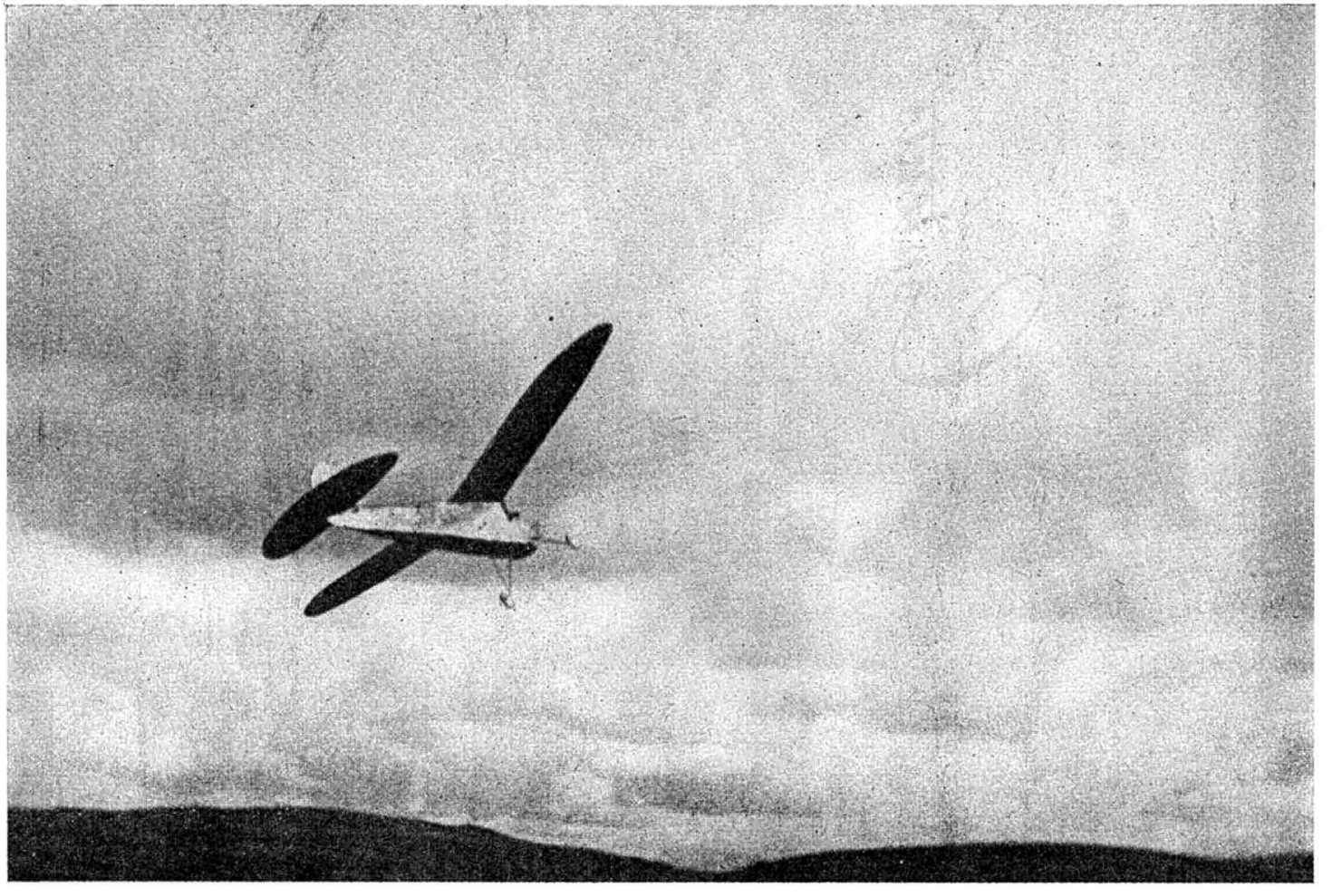


A "Buccaneer," flying in the recent "Irish Nationals," heads for the wide open spaces, with a patchwork of green fields on the hillsides near Baldonnel, forming an admirable setting.

EDITORIAL

UNITY IN DIVERSITY

THESE lines are being written on a seaside holiday. The fickle sun—unbelievable as it may seem—is beating down, flecking with dazzling silver the crests of the waves which pound relentlessly at the nearby breakwater.

In the foreground a carefree group reclines in deck-chairs, while from the middle distance comes the drone of the almost inevitable Dakota, sole aerial challenger of the graceful gulls that wheel and swoop, skim the water, and zoom aloft again. Sole challenger? No, for suddenly and soundlessly there flashes by, rocked in the stiff breeze but triumphantly riding it, an elegant snowy birdlike shape that instantly conjures up thoughts of firm but pliable balsa wood, glistening tissue, cement with its familiar tang, and power-laden rubber strip. Clearly, some enthusiast making holiday has *not* left his model at home, and though, as it is heading out to sea, this is almost certainly its swan-song, it will not have ended its career without winning interest in aero-modelling from some of the occupants of the deck-chairs, and even stirring afresh the enthusiasm of one who has long known this for the hobby *par excellence*.

There is, surely, something typical of life in this simple, unexpected episode. Whether our day-to-day existence be calm or crowded with happenings, aeromodelling will not be left out. Once we have been captured by the incredible fascination of it, we cannot escape it, though its storm and shine eclipse the fabled ups and downs of Bouncing Benjamin. Weather may challenge us, hamper us, frustrate us, but defeat is merely a passing phase. The clash of viewpoints at technical discussions in the lecture room, or in places where they plan the format of model contests, may leave the head (metaphorically speaking) bloody, but it certainly leaves it unbowed. In short, when the Frenchman Penaud took feathers, cork and elastic, and wore them, so to speak, into a simple apparatus that could fly, and again when the Englishmen Henson and Stringfellow did doughty deeds with a tiny internal-combustion engine, they started something that has most assuredly come to stay.

The fascination of aeromodelling is unbounded, and not the least of its fascinations is its manysidedness. There is something in it for almost every temperament and for people of little ability or great ability. Let us, for the sake of newcomers to our hobby, take a quick glance at some of its possibilities. First of all, for the airminded youngsters who today are numbered in tens of thousands, there is afforded an opportunity to do more than read of other people's aeronautical exploits. Proved model aeroplane designs and materials exist in comparative plenty, enabling them, with a reasonable degree of care and patience, to produce simple yet entirely successful flying machines that will afford hours of pleasure, in addition to the intense satisfaction of having made them. Incidentally, the building will have afforded invaluable training for hand and eye, and the subsequent flying will assuredly furnish opportunities of healthy outdoor exercise in retrieving models from distant parts of the landscape—or from the tops of trees.

Again, admirers of Mitchell, Camm and other designers of super flying machines, may themselves emulate their triumphs, albeit in the more modest realm of aero-modelling. Clearly written and dependable text-books are available for their initial guidance, and eminently satisfactory designs can be produced even on a "rule-of-thumb" basis—a comforting reflection for the vast numbers of those without mathematical taste or ability. On the other hand, the disciples of Einstein can find unlimited scope for their peculiar gifts on the higher levels of model aircraft design!

For the many whose interest is centred on constructional work, ample satisfaction is afforded by the numerous scaled-down designs of full-size aircraft now available in the form of blue-prints and kits of materials, or they can launch out and produce their own design. These masterpieces of craftsmanship can be elaborately finished as show pieces, or if the constructor so desires; can be induced, with appropriate modifications, to fly quite well, though admittedly neither so far nor so high as the simple freelance design intended solely as fliers.

Then we come to that large group of potential modellers who have marked mechanical leanings, the true "model mechanics" to whom the simple model aeroplane driven by rubber strip is apt to seem an ingenious toy rather than an example of aeronautical engineering. For them, aeromodelling has something of particular attraction to offer, the petrol-engined flying model. We still retain a lively recollection of the mental "kick" derived from watching one of the earlier models of this class establish a British type record. With the bark of a motor-bike, the blue and silver monoplane with its eight-foot spread of wings, leaped off the ground and climbed steeply in high spirals. Up and up it went, the noise of the motor getting fainter, until finally it faded into the distance, a tiny speck some 2,000 feet up. The model was retrieved later, quite intact, from a farm some miles away. There was model flying on the grand scale. And today, for those with a flair for things mechanical, there is an inexhaustible fund of enjoyment to be had from the building of a petrol-engined model, and maybe the building from castings or from new material of the motor itself.

Today, however, the model with internal-combustion reciprocating engine is no longer the last word in aero-modelling endeavour. Diesels, rocket-propelled jobs, though still in the embryonic stage, give promise for the future; a jet model has recently shown itself capable of sustained flight; and much has been done in America and in Britain, with petrol models controlled by radio. In the last-named category, as well as in the realm of the diesel engine, the AEROMODELLER Technical Staff has been hard at work for some considerable time, and worthwhile developments will, in due course, be announced. There can be little doubt that there is a tremendous future for the radio-controlled model, especially when regard is had to the fact that the biggest limitation of the pilotless model, be it rubber or petrol powered, or a glider, is its determination more or less to go where it pleases. Accurate construction and adjusting can do much, it is true, to curb directional

waywardness, and dethermalisers to minimise its tendency in fine weather to emulate a homesick angel, but the inconvenient fact remains that the average modeller is still committed to a good deal of trekking across the countryside in pursuit of his straying masterpiece, while its complete disappearance is by no means an uncommon occurrence. Radio control offers the possibility, with the larger sizes of model, of more purposeful flight, apart from the fascination of radio allied to aeronautics.

One could go on to speak of the various other types of models, each with a peculiar fascination for its own group of devotees—the ultra light midgets used for indoor flying, particularly in the winter, the high-performance gliders launched by winch, the somewhat neglected float-seaplane and flying-boat which have been seen rather more frequently since the inception of the portable canvas tank " brought the sea to the seaplane," to employ the description coined by our esteemed contemporary *Flight*, the experimental " tough nuts " such as the so-called " tail-first," the tailless, the helicopter, and the speedy control-line petrol models that can be induced to perform a variety of realistic evolutions without getting out of hand (figuratively or actually)—all these, while lacking the superlative flying performance of specialist contest type, certainly impart an additional zest to the aeromodelling games.

Finally, we come to that body of enthusiasts whose aspirations are devoted to the winning of trophies and prizes of various sorts, and with the production of the types of models that lend themselves to victory in the contest field. This is not *quite* as meritorious as it might appear to the uninitiated, for the simple reason that various conditions other than the search for the utmost efficiency determine that, with few exceptions, duration of flight shall be the deciding factor in contests. True enough, this does constitute a rough and ready test of merit as well as being simple and time-saving in application. We do not wish to labour the point that " duration " is not a 100 per cent. criterion of design merit, being content for the sake of true perspective, merely to make the point. Having made it, let it readily be conceded that " duration " can afford scope for sound design, accurate construction and skilled adjustment. In any case, thousands of accomplished modellers have been very thoroughly bitten by the " duration " bug and to refuse to recognise this fact would prove as futile as the recorded attempt of King Canute to hold up the tide.

Let us hasten to explain to the uninitiated that " duration " models are, broadly speaking, of two main types. First, there are the light-weights, for use in contests where no limit is placed on the weight of the models, their wing area, or the amount of rubber used to drive them. Then there are the " formula " types, built to conform to one of several specifications, the most outstanding being the " Wakefield " class, which derives its name from the trophy offered for international competition by Viscount Wakefield, who died during the recent war. By way of example, it may be mentioned that the Wakefield specification calls for a wing area of 190–210 square inches, and a total weight of model of not less than eight ounces.

We of this journal have stood consistently for this *larger conception* of aeromodelling—as something more than a pleasurable scientific pastime, and for the implied obligations to play our game worthily in the technical and in the ethical sense. It is a hobby that depends for its fullest enjoyment and development on the co-operation of *others*. This being so, it is clear that we cannot have things our own way all the time, human though it may be to desire it and attempt it. The individual modeller's best interest, as well as the good of the Aeromodelling Movement, will in the long run be realised in regarding himself as an important unit in a vast group, and in consistently seeking to understand, appreciate, and co-operate with his very different aeromodelling " neighbour." This is a viewpoint we have frequently expressed, and in repeating it, we would offer to each aeromodeller, incurable individualist and yet a member of a world-wide family, the slogan " Unity in diversity."

Meet the Stars

Mention of International Contests and friendship brings us to the subject of the nine days' International Rally to be held at Eaton Bray Model Sportsdrome, Bedfordshire, from Saturday, August 17th, to Sunday, August 25th. This will be the key event in the Eaton Bray 1946 model flying season, and one cannot think of a more interesting way of spending a holiday, should it prove possible to fix it at that time.

The policy of the Sportsdrome management is to cater for the needs and enjoyment of the *many* rather than of the *few*. Hence, while there will be competitions on Sundays, 18th and 25th, the emphasis will be on " go-as-you-please " flying during the intervening week-days. Numerous continental stars of aeromodelling have been invited to take part in the Rally and to camp out at Eaton Bray as the guests of the management. Already, at the time of writing, acceptances have been received from France, Belgium and Holland.

While it is to be expected that during their stay they will wish to make business and pleasure calls in London and elsewhere, it is anticipated that there will be a sufficient number available to enable visitors to Eaton Bray to see demonstrations at *any time* during the Rally, and discuss problems with these Continental friends. They, in their turn, will undoubtedly be equally keen to see " what's cookin' " over here, and we are confident that British modellers of distinction will be there in strength to satisfy their curiosity in this direction.

Here we would recall that, while every week sees something added to the amenities of Eaton Bray, it must inevitably, under continuing conditions of labour and materials shortage, be a year or two before the full range is in working order. However, coming events have already cast substantial shadows before, and something of nearly everything promised for the future is already available. *Some* food can be obtained there, though not in vast quantities or varieties, *some* cloakroom accommodation has been provided, though not so extensive nor so complete as we intend it shall be, *some* modelling material is available, though not a full range, *some* take-off bases are complete, but others remain to be added; while the aerodrome itself, though not yet as smooth as it is extensive as we plan to make it, is already a very convenient place at which to try out a good model's possibilities.

Further details of the International Rally programme will be found elsewhere in this issue; and we will say no more on the subject except to recommend aeromodellers to get out their diaries and enter these dates therein—August 18th to August 25th.

Special Harborough Announcement

On account of its importance we draw attention to the announcement by the Harborough Publishing Co., Ltd. on page 547 of this issue.

Firstly as from August 1st next considerable price reductions are made in certain of the "Harborough" publications which have a somewhat "war-time" basis.

As visitors to Eaton Bray will have seen, the office and factory buildings of the organisation are nearing completion and recently the Company's binding factory (The North London Bookbinding Co., Ltd.) was removed from wartime accommodation in London to the new premises at the Aerodrome. Here, some forty miles from London, it is not convenient to provide large storage and warehouse accommodation, and consequently stocks need dispersing, and what better than via the model shops, booksellers and newsagents of the country! These considerable price reductions will now bring some half dozen excellent titles within the range of a considerable larger number of aeronautically minded persons.

Secondly, the "Harborough" Company announces that it will no longer accept individual orders for copies of its publications at its Leicester Offices. Here again, with the steady expansion of business, it is no longer possible to provide the space required for an increasing number of titles and it has been decided that as from August 1st next intending purchasers shall be referred to the model shop, bookseller, or newsagent stocking "Harborough" publications, who is nearest to their home addresses.

Readers of the AEROMODELLER requiring "Harborough" publications are advised, therefore, not to send their orders to our Leicester Offices, but to post them to their nearest model shop, bookseller or newsagent. All orders received at Leicester Offices after August 1st, will, together with the cash enclosed, be sent immediately to the Harborough stockist nearest to the address of the intending purchaser.

Thirdly, the Harborough Company has arranged with over 1,000 of its regular stockists to make a special display of its publications in August week, and readers will be well advised to visit their local "Harborough" stockist with a view to examining the wide range of books now available. (A list of every title now in print is published on page 547.)

In the next issue of the AEROMODELLER we intend publishing a list, as complete as possible, of model shops, booksellers, newsagents, etc., who stock a full range of "Harborough" publications together with the AEROMODELLER. Readers who know of any kind of business stocking model aircraft accessories but *not* stocking Harborough publications and copies of the AEROMODELLER, will assist both these firms and us by sending us a postcard with the name and address of the firm thereon, so that we may communicate with them and arrange a display of publications.

New List of Clubs

We are getting a steadily increasing number of enquiries at our Offices from would-be club men for particulars of clubs in their district.

Obviously since our last list was printed in 1943 a great number of changes have taken place, and this is now redundant. We have, therefore, recently circulated amongst clubs a questionnaire requesting particulars of their club, secretary's name and address, etc., together with certain other particulars on which we wish to base a survey of the Club Movement in Great Britain.

However, as we are not aware of all the various changes which have taken place, it is obvious that some clubs have not received a copy of this questionnaire, and we would ask all club secretaries who have not received this circular, to apply *at once* to our Leicester Offices, when a copy will be forwarded to them. Remember, any omission from this published list will be your own fault, and will lead to possible loss of prospective members.

Please let us have your requests immediately as this list will be finalised within the next few days.

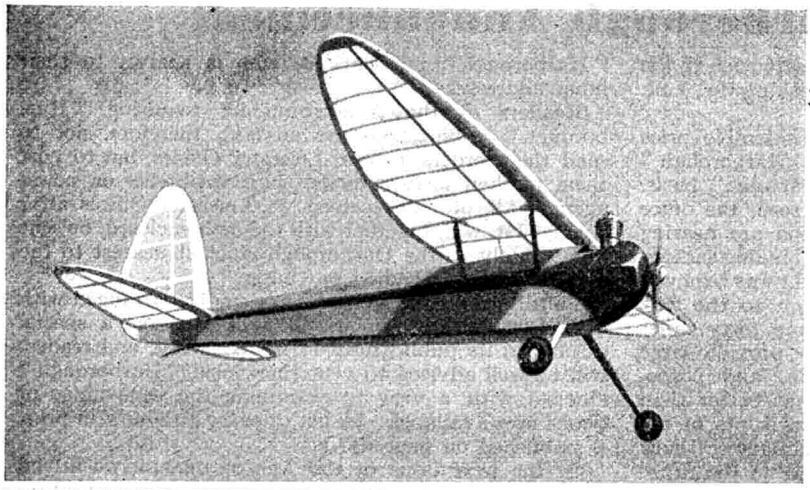
TRAINS TO EATON BRAY

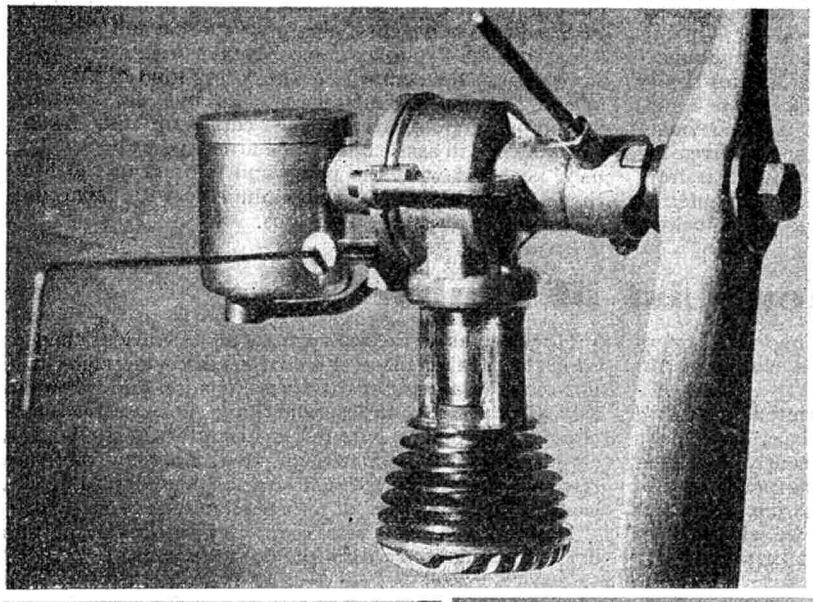
Since last a list of trains to Eaton Bray over the weekend was published, a number of alterations have been made in the service, so the revised list below is issued for your guidance. Keep this timetable by you for handy reference.

EUSTON to LEIGHTON BUZZARD L.M.S.				LEIGHTON BUZZARD TO EUSTON L.M.S.			
Saturday		Sunday		Saturday		Sunday	
Depart.	Arrive.	Depart.	Arrive.	Depart.	Arrive.	Depart.	Arrive.
7.35 a.m.	9.01 a.m.	8.05 a.m.	9.35 a.m.	5.10 p.m.	6.20 p.m.	4.26 p.m.	5.49 p.m.
8.52 a.m.	10.07 a.m.	9.10 a.m.	10.25 a.m.	5.24 p.m.	7.02 p.m.	5.08 p.m.	6.15 p.m.
12.15 p.m.	1.42 p.m.	11.35 a.m.	12.50 p.m.	7.12 p.m.	8.40 p.m.	6.31 p.m.	7.54 p.m.
12.45 p.m.	1.58 p.m.	1.55 p.m.	3.20 p.m.	10.28 p.m.	11.30 p.m.	7.34 p.m.	9.02 p.m.
1.40 p.m.	3.01 p.m.						

THERE IS A GOOD SUPPLY OF TAXIS AVAILABLE TO TAKE VISITORS TO AND FROM THE SPORTSDROME

DIESEL

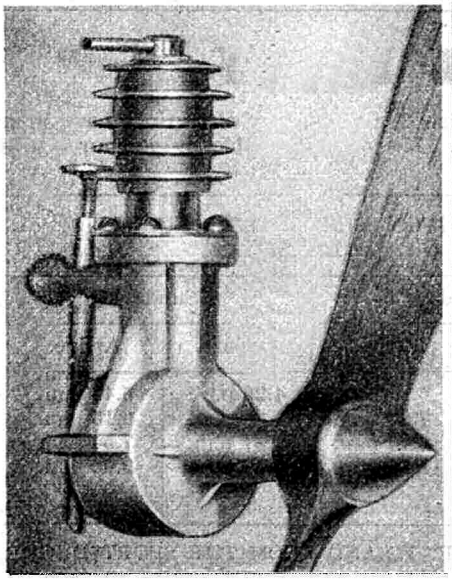


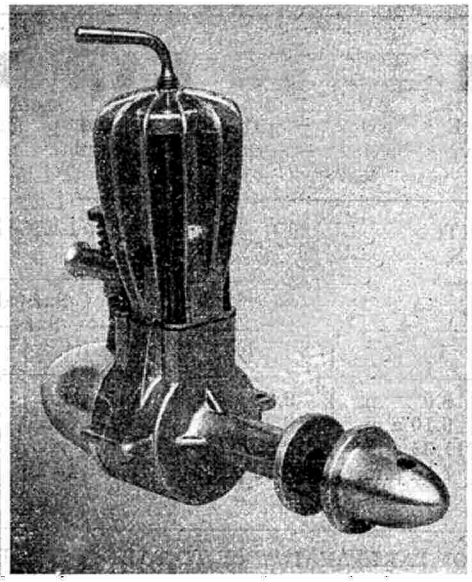


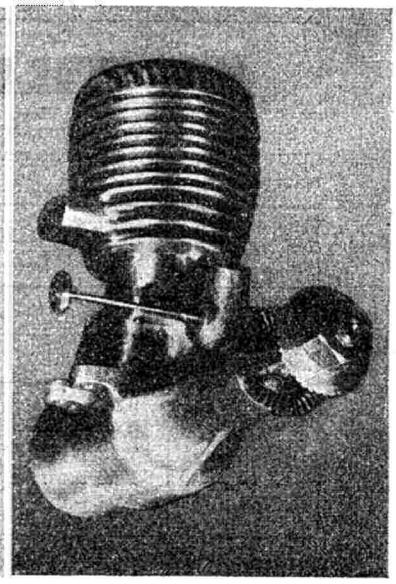
(Top left.) Latest power model to join the Plans Service range, Kolibrik is the brain child of a leading Czech designer. This 31½-span diesel is a very popular plan in the range published by the Czech model house of M. K. Moucka. The parasol wing gives excellent stability, and the small size makes a model whose carrying-box no conductor will object to.

(Centre left.) This photo shows the "Ouragan," a 3·36 c.c. French design fitted with variable compression by means of an eccentric crankshaft. This allows of all the advantages of variable compression without a cylinder of unwieldy length. Power developed is 1/7th horse-power.

(Bottom row from left to right.) First, the "Folgore L.N.2" is a 2 c.c. motor from Italy, developing 1/8th horse-power at 6,500 r.p.m. All-up weight with propeller is around 6 ozs. and it is fitted with variable compression. Next is the unusual "Helium MB.6," also hailing from Italy. It is open to question whether the pecular finning offers any advantages. The vertical fins would appear to interfere with the cooling, and although this is not so important on a diesel, the structural strength is not helped at all and the fins cause a lot of drag on an uncowled engine. Fixed-compression diesels have found much favour in France, and the Morin 10 c.c. is of this type. The quality of the running must depend entirely upon the accuracy of the mixture. This engine develops a quarter horse-power at 5,700 r.p.m. Another French engine, the "Comète Junior 5A," is fitted with variable compression, is of 5·3 c.c. capacity and develops 1/6th horse-power at 5,000 r.p.m. The long and short of it, these are two French Micron diesels, one a 14 c.c. twin and the other a 0·8 c.c. baby. The variable compression on the twin might cause some little difficulty in mutual adjustment. The baby engine develops fractional horse-power at 5,000 r.p.m.







DEVELOPMENTS

WHEN first the AEROMODELLER Research Staff promised a full report on the many foreign diesels passing through their hands it appeared a comparatively simple task to provide the necessary data. Thanks, however, to the very fine spirit of co-operation displayed by continental manufacturers there are now over thirty different makes requiring detailed study, plus a number of new designs appearing on the British market. This then is a purely interim report on notable features that have been encountered that it is hoped will serve to assuage the thirst for knowledge indicated by the extensive correspondence already received.

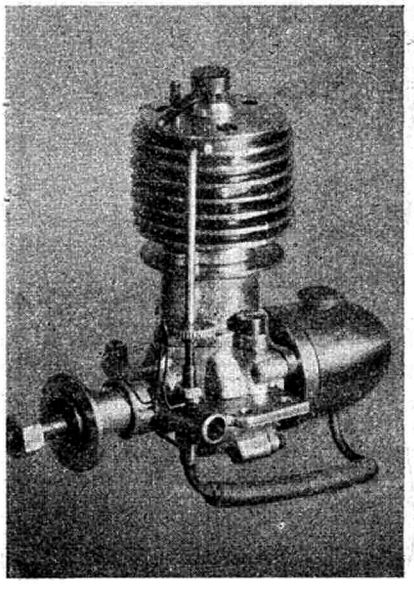
In order to give as much information as possible in the space available, abridged fuel tables and size analysis charts appear on page 549. From these it will be seen that there is apparently no ideal fuel mixture and no ideal engine capacity. It is possible to produce reliable commercial engines of all sizes from 0·8 c.c. to 14 c.c. in every variety of layout and finning arrangement, as the illustrations show. A review of the popular makes reveals that while 30 per cent. of the engines are above 5 c.c., 70 per cent. are below this figure, with the 2–3 c.c. group showing the largest proportion at 27 per cent. These figures do not necessarily imply that the most reliable motors are to be found in the popular size range, but only that the demand has proved greatest for them. If it is borne in mind that a diesel of 2–3 c.c. will be suitable for a model that could be flown with an internal combustion engine of from 3·5 to 6 c.c. it becomes immediately apparent that this is the natural favourite as the power unit of a stoutly built model of from 350 to 600 sq. in. in wing area weighing from 1½ to 2½ lbs. all up. The fact that the under 2 c.c. group account for a total of 26 per cent. would seem to prove that the usual difficulties experienced in flying the smaller powered models have been largely overcome.

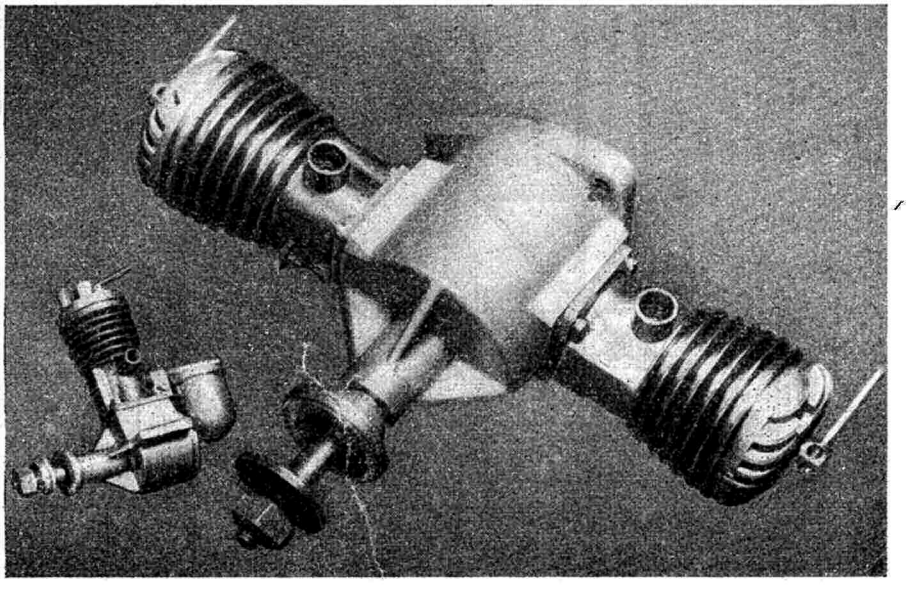
The smallest of all commercial engines is the Allouchery ·16 c.c., weighing just over half an ounce complete with airscrew. This brings the diesel engine into the super lightweight class—such an engine could power a model weighing, say, 2 oz. all up, or no more than an R.T.P. model! Such small designs have, indeed, been built and flown free in medium-sized halls abroad.

An examination of the fuel table reveals a bewilderingly diverse opinion as to the proper mixture. This is not so contradictory as at first appears. Many foreign makes employ—for reasons of simplicity or cheapness in construction—a fixed compression ratio which varies from make to make and the recommended fuel is the best for that particular engine; which does not mean to say it will not run on some other mixture. It has been found by the AEROMODELLER Research Staff that these recommended mixtures usually give trouble-free starting and good operation, but in several instances it has been possible to improve on the maker's suggestion. This is probably because there is a greater range of suitable ingredients readily available in England. Where variable compression is fitted, then practically any of the mixtures can be used by a suitable adjustment of the contra-piston. It is interesting to note that the Dyno I, which is claimed to be earliest diesel design, employs the most varied mixture while the comparatively recent product the Delmo uses a very simple half and half of oil and ether. As more and more engines come on to the British market the need for fuel research will become a major issue. Already a number of readers have enquired if there is any substitute for ether as they have been unable to obtain it. The answer at present is that this is the one essential ingredient, and they must just persuade the local chemist to get some in for them!

A third table is given of comparative data, this time of bore and stroke dimensions. Would-be designers will note that it is possible to have these of approximately similar size, thus bringing nearer the "square" engine. Such a step would overcome one of the purists' objections to the diesel, that it is unduly long and spindly on account of the added height required by the contra-piston. In fixed head designs this is obviated,

(*Continued on page* 549.)





A 31½" SPAN PARASOL WING, DIESEL MODEL.

KOLIBRIK

DESIGNED BY

Z STANICEK

2/6

THE AEROMODELLER PLANS SERVICE LTD.
ALLEN HOUSE NEWARKE STREET LEICESTER

ALL UP WEIGHT - 12 OZS.

RIGGING DIAGRAM.

ALL WOODS USED UNLESS OTHERWISE STATED ARE BALSA

FRONT VIEW
½ ACTUAL SIZE.

WINGS HELD IN POSITION BY AN ELASTIC BAND

THESE WIRES ENGAGE IN STRUT ATTACHMENTS BOUND TO WING SPAR.

WING POSITION

COVER FUSELAGE WITH 1/16 SHEET BALSA SAND TO 3/64" AT FRONT & 1/32" AT REAR.

COVER DOWL WITH 1/16" PLY

DETACHABLE COWL

1-2 C.C. DIESEL ENGINE

1/4" X 1/8" SPRUCE STRUTS

18 S.W.G. HOOKS

1/8 SQ. BALSA

1/8 X 3/16"

BIND & CEMENT

1/8" SHEET KEEL

18 S.W.G. HOOKS FIXED BY MEANS OF PLASTIC WOOD

RUBBER BAND

BIND & CEMENT.

1/8 SQ BRACES

1/8" SQ

USE A 10" DIA. STANDARD PETROL PROP

1½" DIA HARD-WOOD WHEELS

1 OFF 1/16 PLY

BIND & CEMENT

U/C LEGS.

FUSELAGE FORMERS D-M OF 1/16" PLY

REAR WING STRUT POSITIONS.

DRILL HOLES IN SHEET TO ALLOW FOR ALTERATION OF TAILPLANE INC

1/8" SHEET.

1/8" DIA. BIRCH DOWEL TO PLUG INTO TAIL-PLANE.

TAILPLANE POSITION

BIND & CEMENT

1/8" SHEET

1/8" SHEET SPRUCE

18 S.W.G. WIRE BOUND TO TAILPLANE L.E. ENGAGES IN THESE HOLES. HELD IN POSITION BY AN ELASTIC BAND PASSED AROUND FUSELAGE & ONTO OTHER WIRE.

18 S.W.G BOUND & CEMENTED TO L.E.

1/16 PLY

1/8 SQ L.E.

1/8" SHEET T.E.

3/8 SHEET SPRUCE

1/8" SHEET T.E.

1/8 X 3/32 SPARS TOP & BOTTOM

TAILPLANE RIBS.

RIBS S TO U OF 1/16" SHEET
RIB R OF 1/8" SHEET

FIN RIBS.

ALL FIN RIBS 1/16" SHEET.

1/8 DIA BIRCH DOWEL CEMENTED IN PLACE

WING RIBS.

ALL WING RIBS 1/16 SHEET

1/16" PLY

1/8" PLY

1/8" PLY SPIGOT

SECTION Y-Y

3/8" SHEET SPRUCE

SECTION X-X

HOLES TO MOUNT ENGINE.

BIND & CEMENT.

SIDE VIEW

FRONT VIEW

U/C LEG 2 OFF 1/4" SHEET SPRUCE

¼" SHEET SPRUCE BOUND TO TOP OF LEG.

18 S.W.G. AXLE BOUND IN PLACE

FRONT STRUT.

REAR STRUT.

2 OFF EACH

18 S.W.G. WIRE

18 S.W.G. STRUT ATTACHMENTS BOUND TO UNDERSIDE OF SPAR.

4 OFF

18 S.W.G. STRUT ATTACHMENT

HOLE FOR STRUT

FRONT STRUT.

TO ENGAGE IN LOOP

COVER L.E. WITH 1/32" SHEET TOP BOTTOM

SAND SHEET COVERING INTO L.E.

1/8" SQ. SPRUCE ON BOTTOM ONLY

1/8 X 3/16 L.E.

3/16 SHEET SPRUCE

1/8 SQ. SPARS TOP & BOTTOM.

STRUT ATTACHMENT

SAND CAPPING STRIPS INTO T.E.

1/8" SHEET T.E.

1/8 X 1/32 CAPPING STRIPS

SHEET COVERING & CAPPING STRIPS OMITTED TO SHOW CONSTRUCTION.

DIHEDRAL STARTS HERE — FLAT CENTRE SECTION — DIHEDRAL STARTS HERE

COVERING.

COVER ALL SURFACES WITH BAMBOO PAPER, WATER SHRINK UNSHEETED SURFACES & APPLY 3 COATS OF CLEAR DOPE SO WINGS & FUSELAGE & 2 TO FIN & TAILPLANE, THEN 1 THIN COAT OF COLOUR DOPE ALL OVER.

MATERIALS REQUIRED.

SHEET	STRIP
2 SHEETS OF 1/32 X 3" X 36" BALSA	4 STRIPS OF 1/8" X 3/16" X 24" BALSA
7 " " " 1/16" X 3" X 24" "	6 " " " 1/8" X 1/8" X 24" "
1 " " " 1/16" X 3" X 24" "	1 " " " 1/8" X 3/32" X 24" "
1 " " " 1/16" X 4" X 36" PLY	MISC.
1 " " " 1/8" X 3" X 4" "	24" OF 18 S.W.G. WIRE
000 PIECES OF 1/8", 3/16", 1/4" & 3/8" SPRUCE	1 PAIR OF 1½" DIA. HARDWOOD WHEELS
	ONE 10" DIA. PETROL PROP
	3" OF 1/8" DIA. BIRCH DOWEL.

A 31½" SPAN PARASOL WING, DIESEL MODEL.

KOLIBRIK

DESIGNED BY

Z STANICEK

2/6

THE AEROMODELLER PLANS SERVICE LTD.
ALLEN HOUSE NEWARKE STREET LEICESTER

ALL UP WEIGHT - 12 OZS.

RIGGING DIAGRAM.

ALL WOODS USED UNLESS OTHERWISE STATED ARE BALSA

FRONT VIEW
½ ACTUAL SIZE.

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1/8" SHEET KEEL

18 S.W.G. HOOKS FIXED BY MEANS OF PLASTIC WOOD

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BIND & CEMENT.

1/8 SQ BRACES

1/8" SQ

USE A 10" DIA. STANDARD PETROL PROP

1½" DIA HARD-WOOD WHEELS

1 OFF 1/16 PLY

BIND & CEMENT

U/C LEGS.

FUSELAGE FORMERS D-M OF 1/16" PLY

REAR WING STRUT POSITIONS.

DRILL HOLES IN SHEET TO ALLOW FOR ALTERATION OF TAILPLANE INC

1/8" SHEET.

1/8" DIA. BIRCH DOWEL TO PLUG INTO TAIL-PLANE.

TAILPLANE POSITION

BIND & CEMENT

1/8" SHEET

1/8" SHEET SPRUCE

18 S.W.G. WIRE BOUND TO TAILPLANE L.E. ENGAGES IN THESE HOLES. HELD IN POSITION BY AN ELASTIC BAND PASSED AROUND FUSELAGE & ONTO OTHER WIRE.

18 S.W.G BOUND & CEMENTED TO L.E.

1/16 PLY

1/8 SQ L.E.

1/8" SHEET T.E.

3/8 SHEET SPRUCE

1/8" SHEET T.E.

1/8 X 3/32 SPARS TOP & BOTTOM

TAILPLANE RIBS.

RIBS S TO U OF 1/16" SHEET
RIB R OF 1/8" SHEET

FIN RIBS.

ALL FIN RIBS 1/16" SHEET.

1/8 DIA BIRCH DOWEL CEMENTED IN PLACE

WING RIBS.

ALL WING RIBS 1/16 SHEET

1/16" PLY

1/8" PLY

1/8" PLY SPIGOT

SECTION Y-Y

3/8" SHEET SPRUCE

SECTION X-X

HOLES TO MOUNT ENGINE.

BIND & CEMENT.

SIDE VIEW

FRONT VIEW

U/C LEG 2 OFF 1/4" SHEET SPRUCE

¼" SHEET SPRUCE BOUND TO TOP OF LEG.

18 S.W.G. AXLE BOUND IN PLACE

FRONT STRUT.

REAR STRUT.

2 OFF EACH

18 S.W.G. WIRE

18 S.W.G. STRUT ATTACHMENTS BOUND TO UNDERSIDE OF SPAR.

4 OFF

18 S.W.G. STRUT ATTACHMENT

HOLE FOR STRUT

FRONT STRUT.

TO ENGAGE IN LOOP

COVER L.E. WITH 1/32" SHEET TOP BOTTOM

SAND SHEET COVERING INTO L.E.

1/8" SQ. SPRUCE ON BOTTOM ONLY

1/8 X 3/16 L.E.

3/16 SHEET SPRUCE

1/8 SQ. SPARS TOP & BOTTOM.

STRUT ATTACHMENT

SAND CAPPING STRIPS INTO T.E.

1/8" SHEET T.E.

1/8 X 1/32 CAPPING STRIPS

SHEET COVERING & CAPPING STRIPS OMITTED TO SHOW CONSTRUCTION.

DIHEDRAL STARTS HERE — FLAT CENTRE SECTION — DIHEDRAL STARTS HERE

COVERING.

COVER ALL SURFACES WITH BAMBOO PAPER, WATER SHRINK UNSHEETED SURFACES & APPLY 3 COATS OF CLEAR DOPE SO WINGS & FUSELAGE & 2 TO FIN & TAILPLANE, THEN 1 THIN COAT OF COLOUR DOPE ALL OVER.

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1 " " " 1/8" X 3" X 4" "	24" OF 18 S.W.G. WIRE
000 PIECES OF 1/8", 3/16", 1/4" & 3/8" SPRUCE	1 PAIR OF 1½" DIA. HARDWOOD WHEELS
	ONE 10" DIA. PETROL PROP
	3" OF 1/8" DIA. BIRCH DOWEL.

Important Announcement Concerning—

"HARBOROUGH" BOOKS

Sales by Post from Leicester Office to cease on and after 1st AUGUST

BOOKS THEN TO BE SOLD THROUGH RETAILERS ONLY

THE LEICESTER OFFICE is primarily editorial, as is well known, and has not the facilities for handling adequately the volume of post orders for books that nowadays pour into this office.

Originally our postal service was begun for the convenience of country customers and those in the Armed Forces, who, in the early years of the war, when stocks were scarce and distribution uncertain, found difficulty in obtaining locally the "Harborough" publications.

More Books now available

During the last few months production and distribution of books has improved, and the time has now come, we feel, when without inconvenience to customers, we can say "No more direct orders, please, on and after 1st August."

From that date, "Harborough" books will be available through local retailers only. All orders and money received at our Leicester Office on and after 1st August will be passed to the retailer nearest to the customer's address, FOR THAT RETAILER TO DEAL WITH DIRECT.

We are certain that our many customers will be well served by dealing with their local retailer. They will get that personal touch which, of necessity, is lacking in postal business.

Shop Locally

A fair distribution of "Harborough" books is being made to all Model Shops, Booksellers and Newsagents, so that when you need a "Harborough" publication you will have no difficulty in finding a full range of these books at your local dealer's. Should you have any difficulty in obtaining "Harborough" books, please write to us. We will see that ample supplies are forwarded to your town and we will give you the name and address of your nearest retailer where you can be sure of getting the "Harborough" books that you want.

At your local shop you can examine the book before you part with your cash, and you will have no postage to pay. Make a point of seeing the Book Bargains detailed on right.

SPECIAL BOOK BARGAINS

See them at Your Local Shop

Greatly reduced prices come into operation on 1st August on the under-mentioned books which were published during and towards the close of the war. This offer makes a wonderful opportunity for the aircraft enthusiast to build-up or start a reference library. Ask your retailer to show you these Book Bargains :—

TITLE.	FORMER PRICE.	NOW.
Aircraft Paintings	21/-	10/6
They Fly From Britain	21/-	7/6
Japanese Aircraft (De luxe binding) ...	25/-	15/-
Japanese Aircraft (Utility binding) ...	12/6	7/6
Hurricane	7/6	5/-
Second Dog	8/6	5/-
Civil Air War	12/6	8/6
"I couldn't care less"	8/6	5/-

Now is your chance ! Go along to-day and see the range of "Harborough" books and these Special Book Bargains your local retailer has waiting for you.

"Harborough" Books for Aeromodellers & the Air-minded

Just a Reminder—here is a list of the "Harborough" books for Aeromodellers. The best in their class. Inexpensive, authentic, accurate and informative ; written by experts who know their subjects thoroughly.

Aerodynamics Analysed ... 2/-
Airscrews for the Aeromodeller, 2/-
An A.B.C. of Model Aircraft Construction ... 5/-
McGillicuddy's Year Book, 3/6
Camouflage, 14-'18 Aircraft, 3/6
The Design of Wakefield Models ... 2/-
The Design and Construction of Flying Model Aircraft ... 10/6
Petrol Engines for Model Aircraft, 3/- & (Cloth) 6/-
Model Gliders, 5/-
Solid Scale Model Aircraft ... 4/-
Simple Aerodynamics... 3/-
Bird Flight for Bird Lovers, 7/6
Nomographs, 2/-
Practical Design, 2/-
Indoor Flying Models ... 5/-
Airfoil Sections, 2/-
Plan Fare ... 2/6
Radio Control for Model Aircraft, 2/-
Model Flying Boats ... 2/-
Book of Westland Aircraft ... 12/6
Book of Miles Aircraft ... 10/6
History of Model Aircraft ... 8/6
Camouflage, 1939-42 Aircraft, 8/6
Aircraft of the Fighting Powers, Vols. V and VI, 31/6
Volume III, 21/-

THE HARBOROUGH PUBLISHING COMPANY LIMITED

Allen House Newarke Street · Leicester

GO FLY A BOAT

BY J. A. SIZER, A.R.Ae.S., A.I.N.A.

AFTER so long, I've at last managed to grab time to read and study the article by Dr. J. F. P. Forster on the practical design considerations of "Petrol Powered Flying Boats," appearing in the December, 1945, issue of the AEROMODELLER.

At the outset I want to make it quite clear that Dr. Forster's immense work in the development of petrol driven model flying-boats is appreciated by no-one more than myself. I find myself almost sea-green with envy that he is blest with both the time and the geographical features of his country to go to it with such zest and have his fun in peace.

Nevertheless, there are quite a few points in this December article upon which we might profitably hold forth in debate. And in so doing, I want to make it quite clear that (*a*) I have yet to build a petrol-engined model and (*b*) fly any such model from the open sea. Therefore, practically, I know nothing of the subject, and Dr. Forster will be able to regard himself on this point at least as much my master. Having said so much by introduction, let us go.

In his third paragraph, Dr. Forster stresses the lack of published conclusions, but mentions the work of Lt.-Col. Bowden and himself, and then the work of Mr. White and myself. He says that not much of this information (presumably of Mr. White and Mr. Sizer) is applicable to petrol models. I would question that. The fundamentals of hull design and the aero-structure to go with them are the same in both cases; it is the welding of these fundamentals which makes for success. Dr. Forster goes on to emphasise that he has been almost entirely uninfluenced by anything he has been able to read on the subject, and he remarks that the successes he *has* had have been brought after great tribulation. This may well be so; and I am inclined to believe that the longer all of us remain "entirely uninfluenced" by anything we read the longer shall we have to wait before, in most of its aspects, aeromodelling loses its shell of hit-and-miss and becomes truly progressive. In this matter of being "entirely uninfluenced" by the written word, I must confess that before I made my first, and only (prior to this article) written contribution to the art of the model flying-boat, I had read every one of Dr. Forster's and Lt.-Col. Bowden's articles on the subject of petrol-engined model flying-boats. And in honesty, I regret to say, that much, if not all, the words in these articles which dealt with the hydro-dynamic side to things, struck me as being so much nonsense.

The trouble with most experts, either in our hobby or in any other sphere, is that they are inclined to be so frantically dogmatic. For instance, Dr. Forster says that "wing tip floats *must be ruled out as impossible*" to attain the required measure of lateral flotation. I'm not sure what is meant by the term "lateral flotation," but I imagine that "righting-moment" is the expression needed. Now no one is going to tell us that floats are no good for this purpose. They are, in fact, much better than sponsons for the job of *aiding lateral stability by applying a righting moment.* What Dr. Forster really means is that wing-tip floats are a nuisance at take-off, and they are not as sea-worthy as sponsons. But who is going to say what virtues attach to a hull, wider in the beam at the water-line, in conjunction with wing-tip floats? The floats themselves could be set high enough above the water-line to clear any ripples; only coming into action when the model heeled to a gust, at rest. This is not to say that Dr. Forster may not be right. But the rational thing to do would be to investigate a point before deciding it must be "ruled out as impossible."

Dr. Forster's wings fill with water in a crash. There's only one way to avoid further damage (when lifting the model out of the water); that is to provide eyelets for draining. This avoids split covering.

Neither myself nor anyone else is likely to know what Dr. Forster means by his advice to provide "*plenty of length to the hull in front of the C.G.*" This, I take it, is to prevent crash "nose-overs". Well! how much "length"? A couple of feet?; eighteen inches? All this fogging! Why cannot the bald, simple statement be made. *Provide enough forebody volume!*

I wish writers would call a spade a spade all the time and not occasionally, a shovel! In this article of Dr. Forster's we read of "aquatic stability," and then when he outlines the desideration for this peculiarity, he calls them the "chief considerations for attaining lateral stability." Now, at first glance, I haven't a single idea what is meant by "aquatic stability." In fact, I've never heard such an expression before and I've spent a fair number of years in marine circles. The term *might* mean the stability of water itself or something *in* the water as distinct from being *on* the water. Anyway, most of the points listed are logical enough, although I fail to see what the *planing area* (item 3) has to do with it, even if it was possible to have such a thing, literally, as a "wide area." Here, I feel, Dr. Forster must be touching upon the need to provide adequate hull volume disposed beam-wise. And in his six "chief considerations" there's no mention of providing a "righting moment" by any extraneous means!

It is possible to avoid the use of a large fin by making the hull longer, but *not* on the water-line. After "*Aquatic Stability*" we come crack up against another relationship of which, until now, we had no knowledge. This new-comer to our expressions is "*Freeboard and C.G.*" Now, I have always understood "Freeboard" (in the naval architectural sense, anyway!) to mean *the distance of the gunwale above the water-load line.* And the C.G. to mean the *Centre of Gravity.* I cannot see what on earth either has to do with the other, and Dr. Forster is particularly vague in explaining their relationship. Almost every one of the points raised in the paragraphs under this obscure and peculiar sub-heading are far enough away from a true understanding of the hydro-dynamics of flying-boat hulls to be completely misleading.

All we need is plenty of forebody volume—displaced as you like, but preferably a bit each way, horizontally and vertically—and a fair amount of "flare" (outward curving of hull keelson to chine). So that's that and let's have done with this hokum of "Freeboard and C.G."! There are a few other words of Dr. Forster's which do not read sense. "*I have kept the hull light, especially at the tail.*" And he has kept "the total side

The B.M. 160 a clean looking flying boat of Italian design by Bogalino Marino.

area low down by continuing the foredeck level right back to the tail." This, although being easy to draw and make, looks dreadful, and would it not have been possible to use less fin area if the hull side area aft of the C.G. had been greater? The *centre of pressure* of the combined hull and fin would then have been lower.

Next we come to the learned remark about "Forward Step." It took a few years of expensive and disheartening effort on the part of full-size flying-boat hull designers to get away from accepted speed-boat practice in the matter of hull shape and step disposition, forced upon them by speed-boat "types." When they branched out on their own after prolonged tank-testing, it was clear that flying-boats were one thing and speed-boats were another. "Rapid pitch oscillations," my foot! Dr. Forster says "Incidentally the hull section is interesting, as it is very like that of the DO.18 in which the V bow . . ." etc. And, incidentally, does Dr. Forster know that this type of hull-section is about the dirtiest running and most inefficient of all types, and that the Germans abandoned it with the introduction to Dorniers of men who knew their job in hull design? The Germans knew better in their latter designs and had the good sense to copy to a certain extent the more successful British and American designs. If Dr. Forster has found that the take-off and alighting (not *landing*, please) has improved because he used a Dornier pattern under-hull, then the previous results must have been a shaky do.

Towards the end of his "design considerations" Dr. Forster tells us that he "spared no weight in the construction . . . when building the hull." Earlier we were told that the hull had been built to weigh as little as possible—or words to that effect. The whole thing is as clear as crystal—spare no weight and make as light as possible. Just what the Doctor ordered!

We are in trouble up to our necks in this "Downwash" problem. We learn that downwash is worse with power on than with power off. And, believe you, Dr. Forster, it's worse when it's flying with power on than when the model is gliding.

Dr. Forster has trouble in getting the "Neptune" on to the step to start its planing. This is a legacy from that nasty fellow "downwash." The solution is simple. Design the after-body and fore-body sections correctly and, downwash or no, the model will plane.

Well, that's all for the moment. I hope Dr. Forster will have no more trouble with his hulls!

(*Continued from page* 545.)

but at the expense of fine adjustment.

Another problem that needs consideration is the employment of a suitable device to cut off power. The absence of an electrical circuit renders the usual timing device useless and other means must be explored. In very small engines, where additional weight is to be avoided, this can be achieved by a measured quantity of fuel, but offers only a very approximate timing range, and necessitates constant refilling with minute quantities of fuel. A device that has gained ground in France and Italy is a spring-loaded trigger, actuated by a clockwork or airleak timer, that upsets the throttle adjustment after a due period, causing misfiring and stoppage. This has been tested but is not particularly reliable as sometimes the engine will not stop in spite of the change in setting. A further method is a flap to be pulled down over the air intake by the same means—this has proved more satisfactory on test, but is not completely accident proof.

Finally, for the benefit of those lucky enough to have already obtained a diesel, plans are published of a 31½ in. span high-wing model specially designed for use with engines of under 2 c.c. If built in hardwood 1·5—2 c.c. will fly it; in all balsa from 1—1·5 c.c. will prove sufficient. Full-size drawings, price 2/6 post free, are available from the AEROMODELLER Plans Service, Allen House, Newarke Street, Leicester.

CAPACITY ANALYSIS TABLE.

Under 1 c.c.	1–2 c.c.	2–3 c.c.	3–4 c.c.	4–5 c.c.	Over 5 c.c.
10%	16%	27%	7%	10%	30%

FUEL TABLE.

Make	Mixture					
	Ether	Petrol	Lub. Oil	Castor Oil	Paraffin	Turpentine
Dyne I ...	13%	24%	15%	—	24%	24%
Micron 5 c.c.	80%	—	5%	—	15%	—
or	75%	—	5%	—	20%	—
Mikro ...	40%	35%	25%	—	—	—
Moucka Atom ...	20%	45%	20%	15%	—	—
Jide 8 & 12 ...	45%	10%	45%	—	—	—
Ouragan ...	45%	15%	40%	—	—	—
Delmo ...	50%	—	50%	—	—	—
Morin 76, 47, 81	40%	40%	20%	—	—	—
Allouchery ...	33⅓%	33⅓%	—	33⅓%	—	—
Micron .8 ...	75%	—	25%	—	—	—

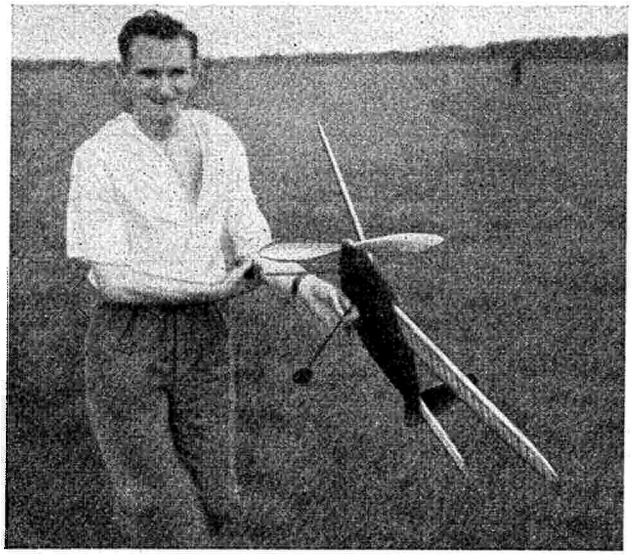
COMPARATIVE DATA.

	Bore in m.m.	Stroke in m.m.	C.C.	H/P	R.P.M.
Moucka Atom ...	12	16	1·8	1/10	6000
Comete Junior...	18	20	5·3	1/6	5000
Jide 8	12	15	1·7	—	5500
Jide 12	15	16	3	—	4500
Ouragan... ...	13	15	3·36	1/7	5250
Delmo	13	20	2·65	1/9	5500
Micron 2·8 ...	14	16	2·8	1/10	4700
Morin 70 ...	21	28	10	1/4	5500
76 ...	21·5	27	10	1/4	5700
47 ...	16	20	4	1/5	5000
81 ...	16·5	23	5	1/5	5500
Allouchery ·16 ...	5	8	·16	—	12000
·7 ...	9	15	·7	—	7000
Eclair 1.25 ...	10	16	1·25	·035	6100
Micron ·8 ...	10	10	·8	—	5000
Marquet... ...	17	22	5	1/8	4700

THE 1946 IRISH NATIONALS

A section of the large crowd at Baldonnel surrounding the competitors' enclosure.

Copeland's winning model, which weighs 8½ ozs., uses 12 strands of ¼ rubber and a Davis wing section. Note the parachute dethermaliser in the "open" position. Below, the winner returns from his 3 mile run.



DESCRIBED BY H. G. HUNDLEBY

SATURDAY, June the 22nd, saw a reception committee headed by Dr. Charles, of the Dublin M.F.C., awaiting the arrival of the British teams at Dun Loaghaire pier. As the s.s. *Cambria* neared the dock a model wing was waved from the lower bridge indicating the presence of the British competitors. Once ashore modellers and model boxes were swiftly and efficiently whisked into Dublin by our Irish hosts.

Over subsequent events in Jury's hotel that evening we draw a veil out of respect for our readers' feelings (gastronomical variety) in rationed England. Sufficient to say that one competitor, completely overawed by the steak set before him, photographed the tempting morsel before commencing his meal.

Sunday, June 23rd, dawned a fine day with high cumulus cloud and a moderate breeze, a good omen for the contest. As we strolled across Baldonnel Field towards the take-off area, test flying was already in progress. The pits allotted to the various clubs were busy hives of activity as models were unpacked and assembled. By midday the loud-speakers were erected, the contestants had been briefed as to the rules, an influx of spectators had commenced, and, finally, Gilbert Roe, the Controller, warned the first two Wakefield competitors to prepare to wind.

J. Archbold, with a soundly constructed slabsider, was the first away, clocking a modest 57·7 secs., others following in rapid succession. The first time of any consequence being raised by Ron Calvert, of the A.B.A., with 106·4 secs.; R. H. Warring, S.M.A.E., bettered Calvert's effort with 194·4 secs. Warring was flying a slabsider with tapered wings and a tail assembly incorporating main fin and tip fins. Gris Bruton, the official commentator, then announced with an air of expectation, the well-known Bob Copeland. Bob more than justified these expectations. His familiar streamlined Wakefield finished in black and white, was soon climbing steadily after a somewhat precarious take-off. Perfectly trimmed and flying in large circles it was not long before the model was straining the time-keeper's eyes. The thermals were extremely high at Baldonnel, and Copeland, with his terrific motor run and steep climb, was the only contestant throughout the day who succeeded in climbing high enough to reach one.

With Bob and his model now o.o.s. at 426·5 secs., hopes ran high amongst the British competitors. J. Hinks, of the A.B.A., followed with 112 secs., which proved to be the last time of any consequence in the first round. Most of the Irish competitors achieved times round the 40 secs. mark. Dr. Charles, Harry Daulman and R. Hanna being the only exceptions with

flights of a minute or more. In all fairness to the Irish lads, it should be pointed out that, generally speaking, few of them had seen rubber for several years, until a few weeks before the event, with a resulting lack of competition experience.

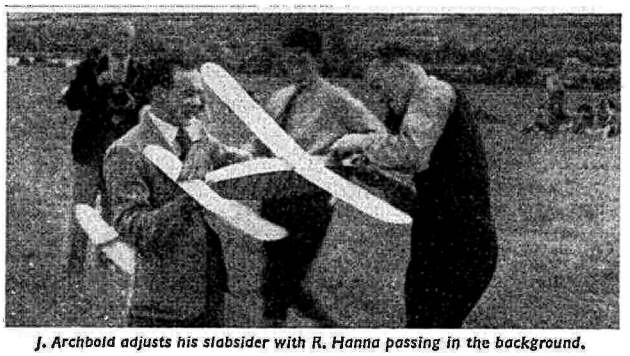
In the second round J. Hinks improved on his first time, but failed to catch one of the elusive thermals. R. H. Warring retired for repairs when his motor broke at 600 turns. This seemed to effect the trim of his model in his subsequent flights, as it wallowed on its back and refused to climb. At 3 p.m. a familiar figure came trotting across the field complete with black and white model. Yes! It was Bob Copeland returning from a three-mile run, his parachute dethermaliser, set for 9 minutes, bringing the model down in a field. By now Brian Crawford had organised a model recovery service with his motor cycle combination and Copeland leapt on to the pillion as soon as his model had taken off for its second flight. Unfortunately, the rubber bunched in the tail, resulting in a flight of 91·2 secs.

The third round produced excellent flights by R. Calvert and W. Houghton, with another high altitude effort by Bob Copeland that failed to catch a thermal but nevertheless clocked 186·4 secs. Thus ended the Wakefield contest, Bob Copeland achieving a total time of more than double his nearest competitor.

The petrol event was held on duration lines, two flights being allowed, with a motor run of 20 secs. Models were hand launched and a three-minute time limit imposed on starting. Trevor London, flying proxy for Silvio Lanfranchi, was the first away for England, employing the right tactics for this type of contest, *i.e.* a near vertical spiral climb followed by a long, flat glide. His time was 78·4 secs. Doc. Charles, however, soon quelled any ideas that the contest was to be easy for the English competitors. His model "Nerts," hurtling vertically skywards with a familiar scream from its Ohlsson 23, achieving the splendid time of 92 secs. Readers will be interested in details of the winning model as "Nerts" subsequently proved to be. A polyhedralled pylon mounted wing with a loading of 14·6 oz. per sq. ft. is used. The all-up weight of the model being 30 oz. E. W. Little, of Belfast, provided yet a third example of the vertical climb technique with his parasol wing model "Wizard."

It was interesting to note the number of American type models in this event, particularly amongst the Irish contestants. This being due to the import of kits from the U.S.A. Few of the original designs were capable of that steep climb so essential for this class of contest, notable exceptions were E. W. Little's "Wizard" mentioned above, and Bob Copeland's model. The latter, believe it or not, flew a slabsider! Maybe he has different ideas about petrol models? K. Tansley, R. Hanna, and H. Daulman were consistent performers, a fine action shot of the latter's Buccaneer is shown as our Frontispiece this month.

There were the usual quota of thrills and crashes for the crowd. P. Lane gave a perfect example of a spin under power



J. Archbold adjusts his slabsider with R. Hanna passing in the background.

J. Hinks fits his nose block after winding.

N. Osborne winds his "Wakefield" of original design.

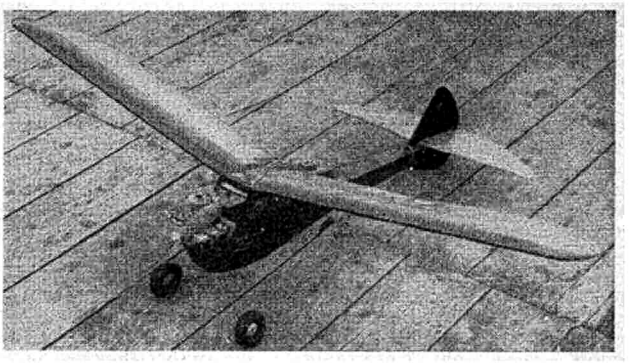
Below left. T. Collins finishes winding, assisted by D. Woods. Right. H. Daulman assisted by Brian Crawford with W. Brazier winding in the background.

CLASS "A" WAKEFIELD

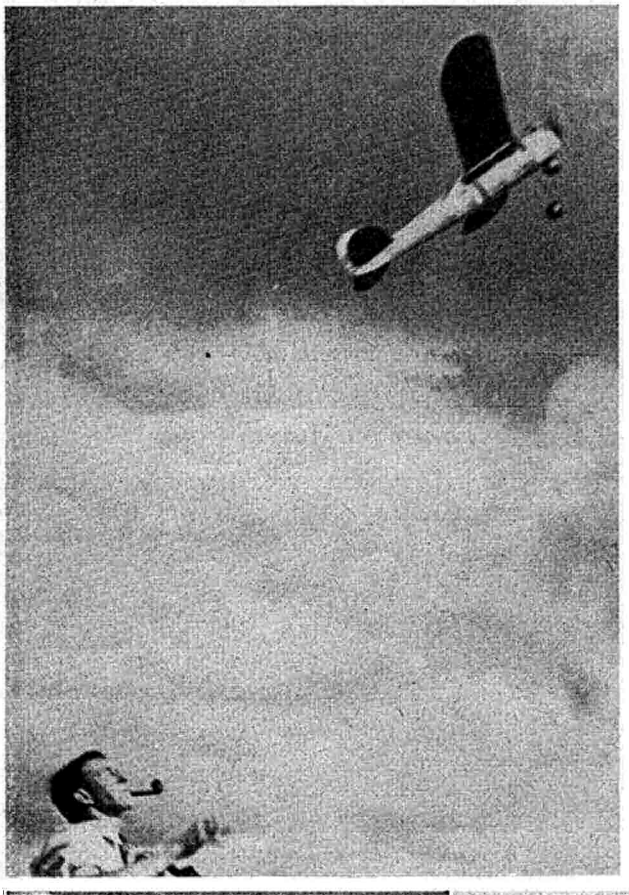
	Club	Total	Average
R. Copeland	S.M.A.E.	704·1	234·7
J. Hinks	A.B.A.	305·95	101·98
R. Calvert	A.B.A.	292·2	97·4
R. Hanna	Ulster M.A. C.	262·3	87·4

PETROL EVENT

	Club	Total	Average
H. Charles	Dublin M.F.C.	151·1	75·5
E. W. Little	Ulster M.F.C.	146·6	73·3
S. Lanfranchi	A.B.A.	141·4	70·7
R. Copeland	S.M.A.E.	117·4	58·7



Above is T. London's "Diamond Demon," whilst on the left P. Lane's Buccaneer goes up like a lift.

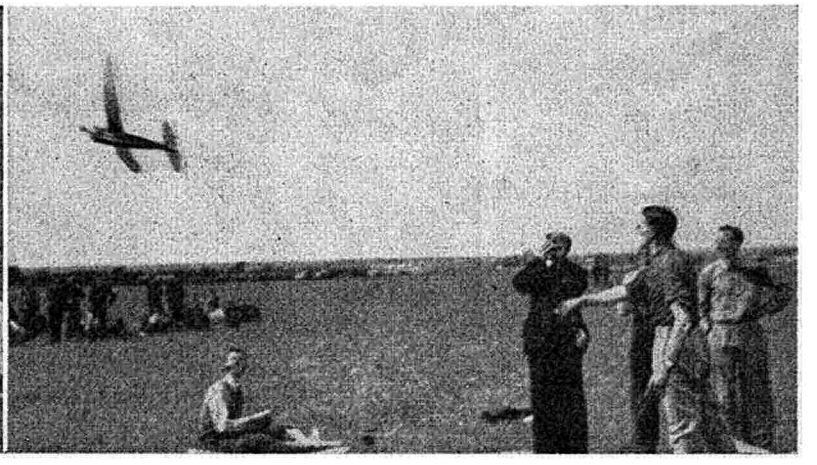


from 600 ft. to ground level; E. Bingham, of Ulster, demonstrated control line flying minus line and controller by executing tight circles just above ground level *Without* sliding in; J. Archbold, of Dublin *Did* slide in with his Buccaneer "C" Special, having first entertained the spectators with a series of wild ground loops with himself in hot pursuit of the model. This exhibition bringing forth assorted witticisms from Chris Bruton, the commentator, delivered in rich Irish brogue. R. Hanna provided the most spectacular crash of the day. His model "Rattlebones" (most appropriate in this instance) went in under full power in a shallow dive scattering pieces in all directions.

Finally and reluctantly we came to the end of a perfect day's flying, having witnessed a splendid example of competition organisation resulting from the enthusiasm and teamwork of all concerned.

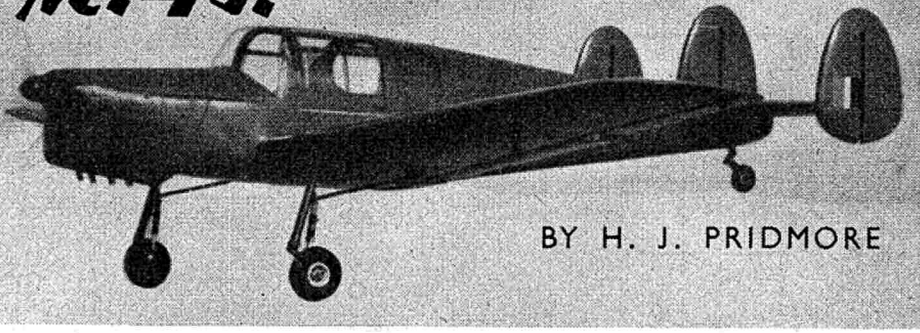
Competitors and officials then adjourned to Dublin, where a magnificent dinner was provided by our Irish hosts. Space is not available to quote the individual speeches that took place after the prize-giving. Sufficient to say that most of the English speakers expressed their heartfelt thanks for the overwhelming hospitality they had been accorded, and their warm admiration of the contest in general. The Irish speakers expressed satisfaction at their first effort in a contest of an International nature, and all in general agreed that the event should be the first, of what will undoubtedly prove to be, a series of successful international events.

Below, left. E. W. Little starts up his "Wizard" in the pits. Right shows Doctor Charles launching "Nerts" with his brother on the right, and Cpt. Hammond, President of the Model Aeronautics Council of Ireland on the left with camera.



Miles M.48.

ONE INCH TO THE FOOT FLYING SCALE MODEL



BY H. J. PRIDMORE

THIS month's cover painting by our artist C. Rupert Moore, shows the M.48 which is a development of the well-known Messenger communications aeroplane used by "Monty" during the war. 1/72 in. scale drawings with specifications of the full-size machine are given on page 560.

As the drawing of this model is well detailed and many constructional features are clearly explained thereon, these building instructions are cut down to the minimum.

Fuselage.

Pin keel to drawing, cement half formers in place, add stringers, and leave half fuselage until cement is set. Remove from drawing and cement on remaining formers and stringers. Glue on ply nose former, cement centre section spar in place, and proceed to cover fuselage with 1/32 sheet balsa. After fuselage is covered, cement wing fairings in place, glue celluloid on for cabin and cement on strips of 1/64 sheet balsa to represent the frames. Finally add the tail-wheel and exhaust pipes and give the fuselage a very light rub down with flour paper (*i.e.*, the very finest grade of sand paper).

Wings.

These are built on the drawing in the usual way and when completed are very strong. It will be found easier to build one complete wing at a time, and then cut off the centre section afterwards. After cutting them off cement in wing boxes and ply tongues, and cement centre sections to fuselage, checking to see that they are set to give 4 in. dihedral under each wing tip and 3 degrees incidence.

Tail Unit.

This is easily built and no difficulties should be encountered, build up as on drawing.

Undercarriage.

This is constructed from 16 and 18 S.W.G. piano wire and faired with balsa and paper tube. Bend wire parts to shape and solder where shown. Fair to the required thickness and sandwich top of legs into block balsa in leading edge of centre section. Push wheels on axles and solder on a small cup washer to retain them in place.

Propeller, etc.

Carve propeller from a block of hard wood, such as deal or mahogany, to the sizes given on drawing and balance blades as finely as possible. Cement on a hard balsa spinner and bush with brass tubing. Cut and sand nose-block to shape and hollow out as shown.

A 36¼" FLYING SCALE MODEL

ALL UP WEIGHT 9 OZS.

MILES M.48.

(1 INCH TO 1 FOOT)

DESIGNED BY

H.J. PRIDMORE

2/6

THE AEROMODELLER PLANS SERVICE LTD.
ALLEN / HOUSE NEWARKE STREET LEICESTER.

CABIN FRAMES REPRESENTED BY 1/16 SHEET GLUED ONTO CELLULOID.

1/8 X 1/16" 1/16 SQ.

ALL KEELS 3/32" SHEET

1/16" SHEET OUTLINES.

3/16" X 1/16" SAND TO STREAMLINE SECTION

FAIRING

TAILPLANE POSITION

3/32" SHEET ON EITHER SIDE

SOFT BLOCK

1/8" SHEET.

THIN CELLULOID WINDOWS

1/16" SHEET FLUSH WITH OUTSIDE

STRINGERS OMITTED FOR CLARITY

ALL FUSELAGE STRINGERS 3/32 SQ.

3/16" DIA. DOWEL

INK ON

BIND

3/32 SHEET

¾" DIA. CELLULOID WHEEL

SKETCH OF TAILWHEEL SUPPORT

22 S.W.G.

CEMENT FIN HERE

CENTRE FIN

CEMENT TO 1/8 SHEET TO FIT OUTLINE OF TAILPLANE C/SECTION

18 SWG. FREEWHEEL LOOP SOLDERED TO SHAFT.

SMALL WOODSCREW

BRASS BUSHES

ALL SHAFTS 16 SWG

3/8" DIA. CEARWHEEL

CUP WASHERS SOLDERED ON

3/16" SHEET SPIGOT

5/8" DIA. CEARWHEEL LET IN FLUSH

PLATE B

SIDE VIEW

BACK VIEW

PLATE A

BEND HERE

PLATE B FROM THIN BRASS OR DURAL

HARDWOOD NOSEBLOCK

HOLLOW OUT SLIGHTLY TO REPRESENT AIR INTAKES

POSITION OF EXHAUST PIPES

FRONT VIEW

EXHAUST PIPES 1/8" DIA. DOWEL ON STBD SIDE ONLY

COVER ENTIRE FUSELAGE WITH 1/32" SHEET BALSA.

3/32 SQ. L.E.

1/16" SHEET FAIRING SEE SIDE VIEW

TOP & BOTTOM SPARS 3/32" SQ.

INK OUTLINE OF AILERONS ON TISSUE

1/4" X 1/16" T.E.

1/64" SHEET TOP & BOTTOM.

SHAPE TO FIT FIN

ROOT RIB CEMENTED ON EITHER SIDE OF FUSELAGE FORMERS

2 OFF 3/8" SHEET

SIDE VIEW

TOP VIEW

FRONT WIRE FAIRED WITH PAPER TUBE

THESE FAIRED WITH BALSA

1¼" DIA. HARDWOOD OR PLASTIC WHEELS

SIDE VIEW

PROPELLER BLANK

HARDWOOD PROP

TOP VIEW

BRASS TUBE

WOOD SCREW

22 S.W.G. TO ENGAGE IN FREEWHEEL LOOP

1/16 PLY DISC.

HARD BALSA SPINNER

ALL WOODS USED UNLESS OTHERWISE STATED ARE BALSA

ALL FORMERS EXCEPT F1 & F2 ARE 1/16 SHEET

FUSELAGE FORMERS

NOTE

WHEN ATTACHING THE CELLULOID TO FRAMEWORK USE GLUE & NOT CEMENT

1/8" SHEET

TO CONSTRUCT FUSELAGE PLACE KEELS ON PLAN & PROCEED TO CEMENT HALF FORMERS IN POSITION. WHEN DRY REMOVE HALF FUSELAGE FROM PLAN & ADD OTHER HALF FORMERS. NEXT ADD STRINGERS, ETC.

ADD STRIPS OF 3/32" SQ. TO STRENGTHEN FORMERS

OUTER FIN. 2 OFF

1/16" SHEET OUTLINES

3/16 X 1/16 SANDED TO STREAMLINE SECTION

POSITION OF T3

1/8" SHEET

WING RIBS.

ALL WING RIBS EXCEPT W1 & W5 1/8 SHEET W1 & W5 ARE 1/8 SHEET.

W1 W2 W3 W4 W5 W6 W7 W8 W9 W10 W11 W12 W13 W14 W15 W16 W17 W18

RIBLETS

W4 HAS SLOTS SHOWN BY THE CHAIN LINE CUT OUT TO ALLOW SLIGHT TRAVEL OF REAR U/C LEG. SANDWICH W4 BETWEEN W3 & W5.

CEMENT IN PLACE WHEN BOTH SIDES OF FUSELAGE ARE

2 OFF 1/16" PLY.

2 OFF 1/32" SHEET

POWER – 12 STRANDS 1/4" FLAT RUBBER 24" LONG PRE-TENSIONED MAX TURNS 550

MATERIALS REQUIRED

SHEET		BLOCK	
7 SHEETS OF 1/64" X 3" X 4" BALSA		1 HARDWOOD BLOCK 2½" X 4" X 1¼"	
1 " " 1/32" X 3" X 24" "		1 " " 9" X ⅝" X ¼"	
6 " " 1/16" X 3" X 36" "		1 " BALSA " 3" X 1½" X 3/4"	
1 " " 3/32" X 3" X 36" "		MISC.	
1 " " 1/8" X 3" X 36" "		1 PAIR 1¼" DIA WHEELS	
1 " " 3/8" X 1½" X ¼" "		1 " " 5/8" " & 2 BRASS BUSHES	
1 " " 1/16" X 4" X 8" PLY.		21" OF H.C. WIRE, 1 ONE 3/8" DIA GEARWHEEL	
STRIP		20" 18 G " 8" ONE 5/8" "	
16 STRIPS OF 3/32" X 3/32" X 24" BALSA		4" + 22 G " & 6 CUP WASHERS "	
3 " " 1/8" X 1/8" X 36" "		3 WOODSCREWS & THIN SHEET BRASS 5X1	

COVERING & DOPING

COVER ALL SURFACES WITH TISSUE & WATER SHRINK. GIVE 2 COATS OF CLEAR DOPE, & 1 COAT OF LIGHT CREAMY YELLOW ON ALL SURFACES

U/C CONSTRUCTION

FRONT LEG

REAR STRUT

BIND & SOLDER

BEND THIS TO SHAPE AS SKETCH & PLAN VIEW

TAILPLANE R/35

ALL TAILPLANE RIBS 1/16 SHEET.

FRONT LEG 16 S.W.G. 2 OFF

BEND TO THIS SHAPE

RETAIN WHEEL BY SOLDERING CUP WASHER TO AXLE

THIS END SLIDES IN W4

LOOP TO TAKE REAR STRUT.

FULL SIZE STRUTS

WING CONSTRUCTION

BUILD EACH WING PANEL SEPARATE. BUILD UP THE CENTRE SECTION PORTIONS WITH EACH WING PANEL & WHEN DRY CUT BETWEEN W3 & W6.

TONGUES 2 OFF 1/16 PLY

CEMENT TO REAR OF F3 THEN ADD CENTRE SECTION PANELS.

WING DETACHES HERE

1/8 SQ L.E.

U/C LEG.

FILL IN WITH BLOCK

3/32 SHEET.

JONGUE

INK IN

3/16 X 1/8 T.E.

END VIEW

1/16 SHEET

WING BOX

¼ X 1/16

3/32" SHEET GUSSETS

WING DETACHES HERE

1/8 X 1/32" CAPPING STRIPS TOP ONLY.

SAND CAPPING STRIPS INTO T.E.

4° DIHEDRAL UNDER EACH WING TIP.

COVER TOP OF WING ONLY WITH

CUT HERE FOR CENTRE FIN.

18 S.W.G.

HARDWOOD BLOCK

SIDE VIEW

NOT CORRECT BEND SEE SKETCH

CABIN FRONT PATTERN

FRONT VIEW

TOP VIEW

MOULD CABIN FRONT BY PLACING WOOD PATTERN IN A PYRUMA MOULD, REMOVE, HEAT MOULD WHEN STILL WARM PRESS IN A SHEET OF CELLULOID BY MEANS OF WOOD PATTERN.

Gear Box.

Purchase one $\frac{5}{8}$ in. and one $\frac{3}{8}$ in. gear wheel and obtain some thin brass or Dural sheet. As the detailed drawing makes assembly clear no instructions will be necessary here.

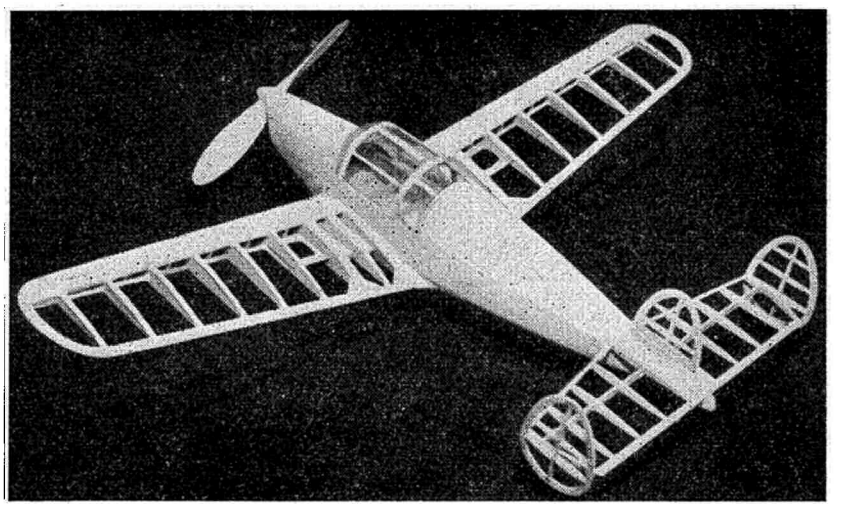
Covering and Finishing.

Cover entire model with good quality white tissue, applying this in the usual manner. Flour paste is the best adhesive and will be found most suitable. After covering is complete spray with water and when dry brush on one or two coats of clear dope. As this machine is a civilian type colouring may be left to the individual taste. The original model was coloured creamy yellow, and a light shade is recommended as dark colours do not show models to the best advantage. By far the best method of applying colour is by spraying, as this gives a more even finish and adds less weight to the machine than the brush method gives. Dope should be diluted with thinners to suit the spraying equipment available. Spray guns such as are available for use with vacuum cleaners are very suitable. Registration letters may be added and the control surfaces marked with Indian ink.

Flying.

Make up a motor of 12 strands of $\frac{1}{4}$ flat rubber, lubricate well, pre-tension and instal in the fuselage. Assemble model, and holding it in line with the C.G. add lead to nose until it balances. Put a spot of oil on the gears and prepare for test flights. When a good flat glide is obtained wind on about 200 turns and launch gently into the wind. No up or down thrust was necessary on the author's model, but 1/16 sidethrust was required to counteract torque. Due to the construction of this model it will stand up to a great deal of rough handling.

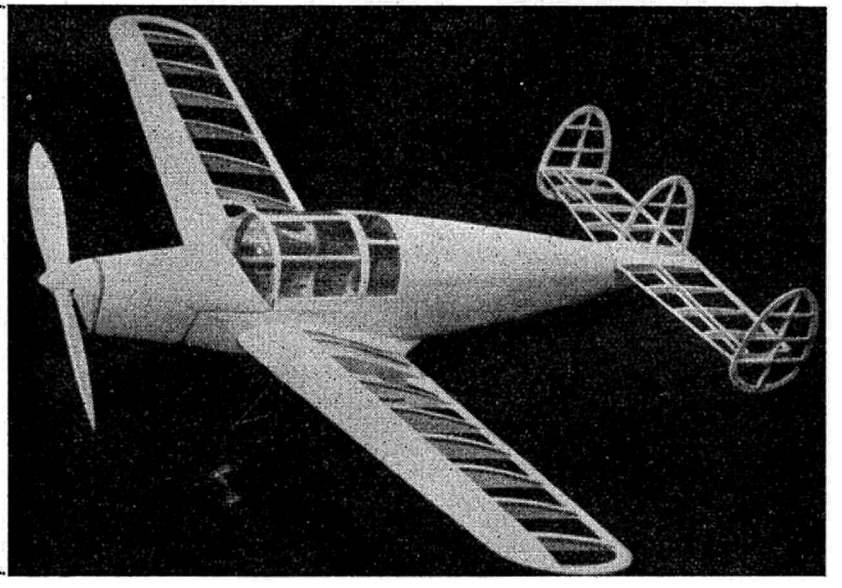
Full-size plans of this model may be obtained from Aeromodeller Plans Service, Ltd., Allen House, Newarke Street, Leicester, price 2/6.



Working to the scale of one inch to the foot, Mr. Pridmore has produced a model which would be hard to surpass for realism as the accompanying photographs show.

The strong method of construction is shown to great advantage by the top and bottom photographs on this page, and the $\frac{1}{2}$ scale reduced drawing opposite.

Heading photograph shows the full-size M.48 in its drab war-time colours. Sticklers for realism will avoid the registration letters shown on the model—these we believe will ultimately be borne by a Bristol Type 170—M.48 letters to date are given on page 560.



Photo, above shows one of the first radio controlled models in the U.S.A. Note the twin engines.

IT seems very desirable to have all large power-driven model aircraft under control from the ground, in the interests both of public safety and of safety of the model, and the answer to this would appear to be radio control, the two main systems being Sequence and Audio control. Sequence control is rather an inconvenient method savouring of " hit and miss," as it may be necessary to operate and release unwanted controls when passing from one control to another.

Audio control is the alternative method whereby the carrier is modulated with an audio frequency, and the control operated depends upon the modulation frequency selected by the " pilot " on the ground. The disadvantages of this system up to date lie in the methods of separating or selecting the audio frequencies at the receiver in the aircraft. The best method, that of using a series of electric wire filters, is not practicable because of the large weight of such filters (this occurring in the soft iron cores of the inductances).

Another suggested method is the use of mechanically-tuned reeds, so that one reed will resonate when current at its resonant frequency is passed through the common electro-magnet. This system suffers from temperature variations as the model climbs, whilst the contact made by the reed which is vibrating is not a satisfactory one and will not pass much current. The obstacle, therefore, is the discovery of a suitable method of causing the reliable operation of the control relays on receipt of their respective frequencies, and I put forward the following circuit as a solution.

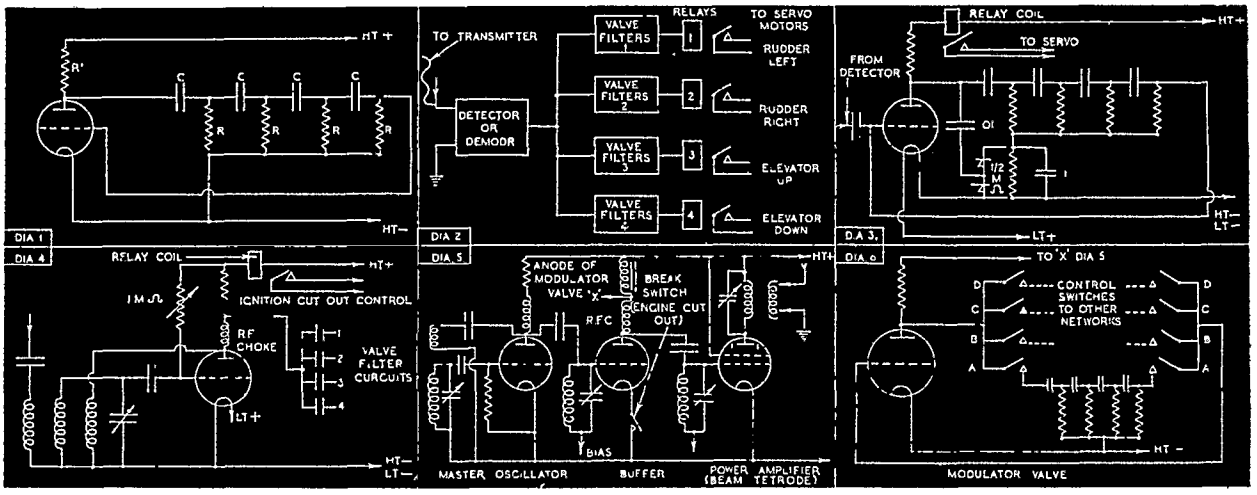
It is well known in the radio world that an oscillator circuit which responds to only one frequency can be built without the use of inductances. The circuit is generally known as the Resistance Capacity oscillator, and depends for its operation on the phase shift produced by a reactive network. It will be seen from diagram (1) that any voltage disturbance on the grid of the valve will be amplified and inverted in phase at the anode. In order to maintain a steady oscillation, it is necessary to provide a circuit from grid to anode which will produce a further phase inversion, thus bringing the signal round to the grid again in phase with the original voltage. In diagram (1) this is done by the four resistors and condensers in the network, but only at one frequency will there be exact phase inversion, and this is the frequency at which the circuit oscillates. The circuit is best arranged so that at the desired frequency the reactance of C (in ohms) equals the resistance of R in ohms. Thus each section of the network gives a phase shift of 45 deg., and the total shift is 180 deg. It is also obvious that each section forms a potential divider across its input and that the voltage taken across each resistor is half that across the whole section, so the voltage at the grid will be 1/16th the voltage at the anode, therefore, the total voltage gain of the valve must exceed 16 to give continuous oscillation. If we make the voltage amplification just under 16, by adjustment of resistor R1, then the circuit will be on the point of oscillation, but will not quite oscillate. If in this condition we apply a signal from an outside source to the grid of the valve, the circuit will burst into oscillation if the outside frequency is the frequency to which the oscillator is " tuned," but at any other frequency, the circuit will act as an ordinary amplifier, giving much less of a voltage swing on the anode than when it is oscillating. We have here a circuit which is equivalent to a filter circuit, but much less in weight, consisting of a valve and a few small components.

Receiver.

We need for our receiver, then, a normal detector circuit for demodulation, followed by one of these "valve filters " for each radio frequency we wish to use. If we want rudder and elevator control, we need four audio frequencies for control. (Rudder left, right, Elevator up and down. The engine control will be discussed later.) Therefore we shall need four oscillator sets or valve filters, each one operating a relay on receipt of its respective frequency, and the relay contacts control the servo motors. A block schematic is shown in Diagram (2).

It is necessary, however, to modify the " valve and filter " circuit somewhat in order that it shall operate its relay on receipt of the correct audio frequency. The easiest way of doing this is to connect the relay in the anode circuit of the valve, and rearrange the circuit so that when it oscillates, the anode current rises, and the change in current is sufficient to operate the relay. A portion of the signal is tapped off from the anode, rectified, and fed back to the grid as a steady positive bias, which causes the anode current to rise. This incorporates two extra condensers, two " Westector " metal rectifiers, and an extra resistance into each filter circuit.

The final arrangement of the " filter set " is given in Diagram (3). The portion of the circuit which provides the increase in bias on the valve grid is a voltage doubling rectifier circuit of the unbalanced type. The load resis-



tor is included in the grid-cathode circuit; the rectifiers are arranged so the voltage across this resistor is positive on the grid side and negative to the cathode.

The radio frequency part of the receiver follows normal practice, and as short or ultra short waves will be used, a super-regenerative detector of the self-quenching type is recommended. A circuit diagram of such a circuit is given in Diagram (4) for completeness, but most radio fans will know the general outlines of this type of circuit.

The ignition cut-out control is by means of a simple dodge called carrier suppression. When the properly adjusted super-regenerative detector is receiving its carrier, the anode current is insufficient to operate the relay. Should the carrier cease, then the bias on the grid goes more positive, the anode current rises, and the relay operates, thus cutting off the ignition by shorting the H.T. line of the ignition to earth. All we have to do to obtain control over the engine is to arrange a switch on the transmitter to cut off the carrier, and this will cause operation of the appropriate relay in the aircraft. This system acts independently of the audio part of the circuit, and will operate whether the carrier is being modulated or not. It also gives two added advantages. Should any trouble develop in the radio link between ground and aircraft, such as transmitter failure or aircraft flying out of range, the engine immediately cuts out and the control surfaces return to normal, thus giving the aircraft a fair chance of a good landing. It also prevents the aircraft leaving the ground until the radio link is working properly.

The Transmitter.

All that is needed on the ground is a three-stage transmitter of the Master Oscillator—Buffer—Power Amplifier type, with anode or screen modulation of the buffer stage by the appropriate frequency for the wanted control. The transmitter must radiate carrier all the time, whether modulated or not, as the carrier is being used as the engine cut-out control.

For the modulator stage, one valve only is necessary, arranged as a resistance capacity oscillator (Dia. (1)). The "pilot" has two three-position non-locking keys of the telephone switchboard type, each key operating two make contacts when thrown, and these contacts bring in a phase discriminating network set for the desired frequency. Alternatively, if it is desired to operate more than one control at a time, then separate oscillators may be used, and the control keys then select any one or more oscillators depending upon which keys are thrown. The additive mixing of the two or more audio frequencies, before they modulate the carrier does not, of course make any difference to them, they will still separate at the receiver. The other controls necessary on the transmitter are, firstly, a break switch for suppressing the carrier (for engine cut-out) and a depth of modulation control, which may be used on the ground to give some measure of control over the sensitivity of the receiver in the aircraft. I would recommend the following power supplies for the transmitter in the order of their usefulness.

(1) A.C. mains. (2) D.C. mains. (3) 6 or 12 v. battery and rotary transformer. (4) 6 or 12 v. battery and vibrator power pack. (5) L.T. and H.T. batteries.

The suggested circuits for the transmitter are given in Diagram (5).

General Notes.

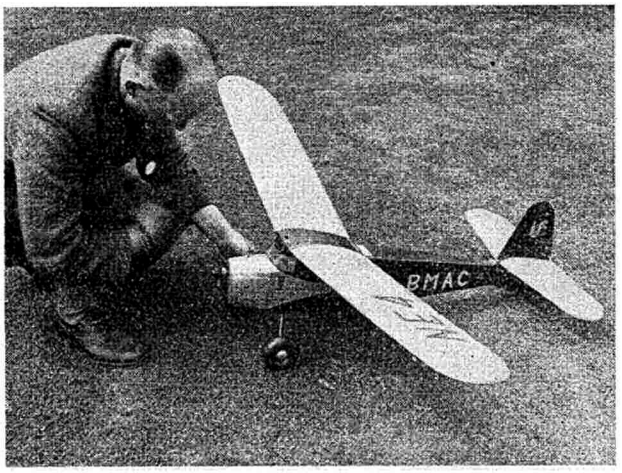
The choice of frequencies for audio control should be such that no simple harmonic relationship exists between any of them, as no simple oscillator is entirely free from harmonies. The frequencies should be as far apart as possible, and should be chosen bearing in mind that the higher the frequency the smaller are the components necessary in the circuit. I would suggest the following frequencies for a 4-control system :—

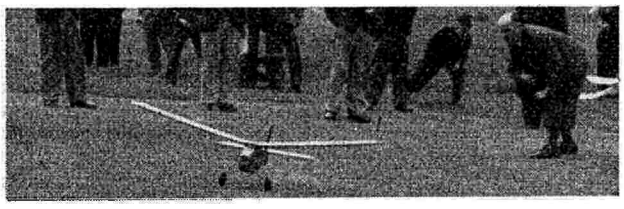
900 c/s	.. ..	Elevator up.
1,400 c/s	.. ..	Elevator down.
2,000 c/s	.. ..	Rudder left.
2,500 c/s	.. ..	Rudder right.

In designing a resistance capacity network for any particular frequency, choose the value of resistor which will be suitable for the grid of the valve, and this is the value of all four resistors in the network. (A suitable value is about ¼ megohm.) Then calculate the condenser value which has a resistance of the same value (¼ m.) at the desired frequency. This may be accomplished with abacs, or worked out from the formula :—

$$\text{reactance (ohms)} = \frac{10^6}{2\pi fc}$$ where c is in fds. and f in cycles.

In conclusion, I would point out that I have no practical claims for this system, but the resistance capacity oscillator circuit certainly works very well as an oscillator, and is very stable in its frequency. The system would only be suitable for larger type aircraft, as enough power must be carried to run several valves, but it should produce a reduction in weight over the system using filters, as all the components are small and light. Perhaps other readers may like to comment upon the system.





THE HAMLEY TROPHY

BAILDON MOOR · SUNDAY, JUNE 9th

THE weather at the time the actual contest for the Hamley Trophy was in progress was almost perfect, much to every competitor's surprise. The organisers are to be warmly congratulated, as the contest ran smoother and quicker than any it has been the writer's privilege to be present at. There were 19 competitors who each had three flights. Three minutes were allowed each flight for starting and take off and the contest took exactly two hours from start to finish.

The standard of flying was very high, and after the first two rounds it was anybody's contest, but about four likely placed competitors failed to make the grade on the last round.

Amongst these were Messrs. Trevor London, whose engine would not respond to frantic prop. flickings. Bob Copland whose engine started but would not rev up sufficiently to get off the turf, and Ken Tansley whose model turned too quickly into the wind and came down with one of those awful dives that send a shudder through the whole crowd of spectators. With these three fallen by the wayside, Norman Lees, Silvio, and the holder R. C. Monks also out of the running, no one could possibly foretell who the winner would be. The three remaining favourites were Messrs. Harry Austwick, Fred Hempsall and H. E. Vauvelle. Mr. Vauvelle flew first and his model, one of the most consistently steady flyers, made a good long take off and whilst not gaining much height due to its very heavy wing loading, made a nice flight pretty near the mark. Fred Hempsall was next and with a motor run of some 18 seconds, got up very well for a good glide. The excitement became rather tense as the only competitor with a good chance of snatching victory was the last to make a flight. This was Harry Austwick of Halifax, now one of the Bradford Club's stalwarts. His engine started the second flick and with the most full-throated roar of the lot, proceeded to take off and with a beautiful spiral climb, attained a good height. The engine cutting out at 19 seconds, the model glided for another 20 seconds, the exact specified time.

After the final check up, Mr. Austwick was acclaimed the winner before an enthusiastic crowd.

As can be seen from the picture, Mr. Austwick's model is of very pleasing design being a high-wing cabin job, 64 in. span, 14 ozs to the square foot wing loading, and powered with an Ohlsson 23, with an 11 in. propeller.

By this time the weather had reverted to its usual style of wind and rain, and flying was called off for the day. The evening was spent in jollification at Len Stott's house where a film of aeromodelling contests and activities was shown to a very enthusiastic audience.

1. *Harry Austwick getting results with the first flick.* (*Photo: L. Stott.*
2. *Silvio Lanfranchi's model in a steep climb.* (*Photo: Helliwell.*)
3. *Harry Austwick's model taking off.* (*Photo: Helliwell.*)
4. *Bob Copland releases his model.* (*Photo: L. Stott.*)
5. *Peter Holt's "Commander" taking off.* (*Photo: Helliwell.*)

RESULTS

Harry Austwick	**Bradford M.A.C.**	**error 18·5 sec.**
Fred Hempsall	**Leeds M.F.C.**	**error 21·45 sec**
H. E. Vauvelle	**Leeds M.F.C.**	**error 29·9 sec.**

ELEMENTARY AERODYNAMIC DESIGN

SAILPLANES—PT. VI

BY JOHN HALIFAX

IN the past five articles I have endeavoured to present as simply as possible the main blocks of theory which are needed by a modeller in order to design a sailplane. The purpose of this, the last article in the series, is to present the complete picture, as it were, and show where all the blocks fit in. There are also one or two little gaps in the structure to be filled in at the same time.

Design procedure summary.

1. *Weight and wing area.* These are the foundations upon which the rest of the design is based. If the wing area is decided upon first, then the usual procedure is to next fit the wing loading and from this, the weight. The converse also holds true, of course, and more information on the subject can be obtained from Part I of this series.

2. *Layout.* In a future article, the question of aircraft layouts will be discussed at some length, but for high performance sailplane work, the orthodox wing and tailplane type is invariably used.

3. *Fuselage proportions.* There are two general dimensions which must be decided upon before the actual design calculations are embarked upon. These are the tailplane moment, and the approximate size and cross sectional area of the fuselage. The former may have to be amended later in the design, of course, but we must have somewhere to work from in the first place.

4. *Aspect ratio.* This is only decided at this stage if the projected machine is a large one, and as a consequence may be expected to operate in the "super-critical" region of the R.N. scale (see Part I). It should be as high as possible, consistent with reasonable structural strength and rigidity.

5. *Aerofoil section and angle of incidence.* If the model is large, an "orthodox" section whose performance conforms to the rules laid down in Part I should be chosen, and the angle of attack for minimum sinking speed calculated as described in Part II. If, however, it is of a small or medium size this is unnecessary because with a laminar boundary layer the power factor maximum invariably occurs at, or near the stall. This also applies if the wing is subject to a turbulent BL at small angles, which changes to laminar as the angle is increased. (*It is interesting to note that the well known American aeromodeller, Frank Zaic, recently proved this by some practical free-flight experiments, described by him in the September, 1945, issue of the Aeromodeller.—Ed.*) Thus it is best to set the wing at a "safe" angle from the stall, whether or not the "stall" is caused by a total breakdown of the airflow, or merely the separation of the BL. By "safe" I mean from 3 to 4 degrees from the stall.

6. *Aspect ratio.* If the model is operating in the sub-critical R.N. range, then the best A.R., will almost invariably be low, and should be calculated as described in Part III.

7. *C.G. position.* Having the angle of attack of the wing section, we can determine its centre of pressure position for normal horizontal flight, and consequently that of the C.G. This is fully dealt with in Part IV.

8. *Directional stability.* The fin area must next be determined and this is best done by Zaic's method of cutting out the side elevation of the machine in thin card. It is obvious that the point about which this cut-out will balance is not only its C.G., but also its centre of lateral area (C.L.A.). The position of the model's C.G. is then marked on the card, and the fin (which should have been left oversize) is trimmed down until the C.L.A. is situated a short distance behind, and a little above the C.G.

9. *Longitudinal balance.* By this calculation, the tailplane area and angle of incidence is decided and the moment may also be amended, though this is not usually necessary. It is fully dealt with in Part IV.

10. *Longitudinal stability.* This is more of a check than anything else, as it enables us to see whether or not the machine will be stable. If it is not, then it must be altered, in accordance with the rules laid down in Part V, and the calculation repeated.

11. *Performance calculations.* The designer would not be human if he did not want to know something about the probable performance of his brain child, before commencing the construction. In the case of a sailplane this is easy. The total lift and drag is first computed and with the aid of Nomographs, the gliding angle obtained. The gliding speed is obtained from the wing loading and coefficient of lift (Nomographs again) and this multiplied by the sum of the gliding angle, gives the sinking speed.

Conclusion.

There then we have the complete picture for a sailplane. If I have succeeded in my aim to present the subject simply yet accurately, and have shown that any intelligent aeromod can scientifically design his own machine, I shall consider my labours well rewarded. But this is not the end: only a starting point. We have found a picture, drawn up on certain lines, and it has interested us so much that we have taken the trouble to see just how it was drawn up. We are not stopping here, however, because we know of other more ambitious pictures, which although they are based on the same principles, have a far greater wealth of detail. Thus in the near future I shall start to outline power model design. It is a subject which is very much more interesting than sailplanes from a designer's point of view, and because we have done all the spade work in this series, I hope it will make very good reading.

CIVIL AIRCRAFT No. 33

BY E · J · RIDING

THE MILES MESSENGER M36/48

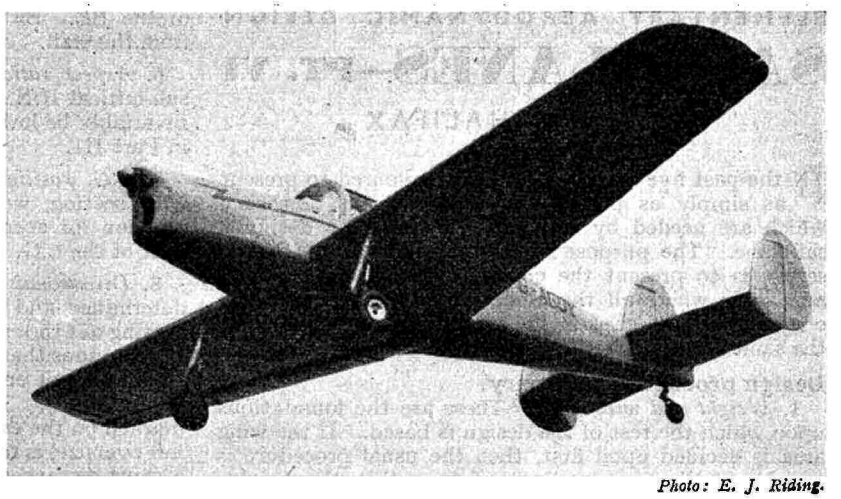


Photo: E. J. Riding.

THE Miles Messenger was originally intended to play the part of an Army Observation Post capable of operating from an ordinary field. Service requirements called for a steep angle of climb, easy maintenance, robustness and that it should be able to carry two or three crew with parachutes and the usual military paraphernalia connected with Army Co-operation work.

The M.38 Mk. III, of which the M.48 is an experimental model, is the civil version of the service Messenger, and the above characteristics have made it an ideal private owner's or charter aeroplane. Spectators at recent air meetings have had a good opportunity of seeing for themselves the remarkable performance of the demonstration machine G-AGOY, which at the moment is the only M.48 in existence. It seats a pilot and three passengers and retains all the features of its predecessor, the M.38, from which it differs only in having retractable trailing edge flaps. The engine is the 150 h.p. four-cylinder inverted Blackburn Cirrus Major III.

Construction : The fuselage consists of four spruce longerons supporting "U" shaped formers covered with a plywood skin, the rear portion being a semi-monocoque structure.

The wing is made in one length and incorporates front and rear spruce and plywood box spars and ribs carrying a plywood skin covered with a protective layer of fabric. The lift and drag flaps work independently of each other, the former operated by a hand wheel to the right of the pilot, are situated along the trailing edge of the wing outwards as far as the ailerons, and the latter are fitted to the centre portion of the wing passing beneath the cabin. These are operated by a hand lever also to the right of the pilot.

The tail unit, the most unorthodox feature of the machine, is of similar wooden construction to the wing. The tail plane is fully cantilever and all three rudders are hinged at the fin posts, the centre one being horn and mass balanced.

The three rudder layout gives ample directional control at low speeds.

A non-retractable undercarriage has been fitted, consisting of two individual oleo pneumatic shock legs working in conjunction with levers at the lower end of the fixed undercarriage struts, which are bolted on to the front face of the front wing spar. Each unit is braced by means of a radius rod running from the centre of the fixed strut back to the rear spar.

Standard equipment includes an electric starter, blind flying panel, and Bendix wheel brakes operated by a hand lever on the left-hand side of the cockpit working in conjunction with the rudder pedals.

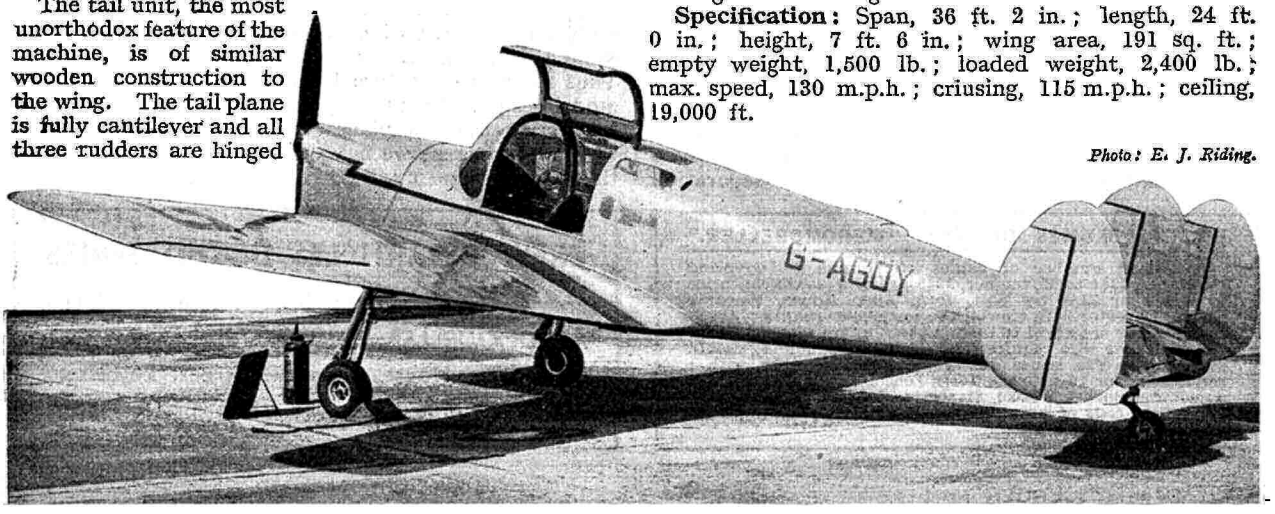
The two fuel tanks, each holding 18 gallons, or sufficient petrol for a five-hour flight at cruising speed, are housed in the wing roots. Incidentally, these tanks are collapsible, being of a non-metallic nature, thus obviating the danger of escaping petrol in the event of a crash.

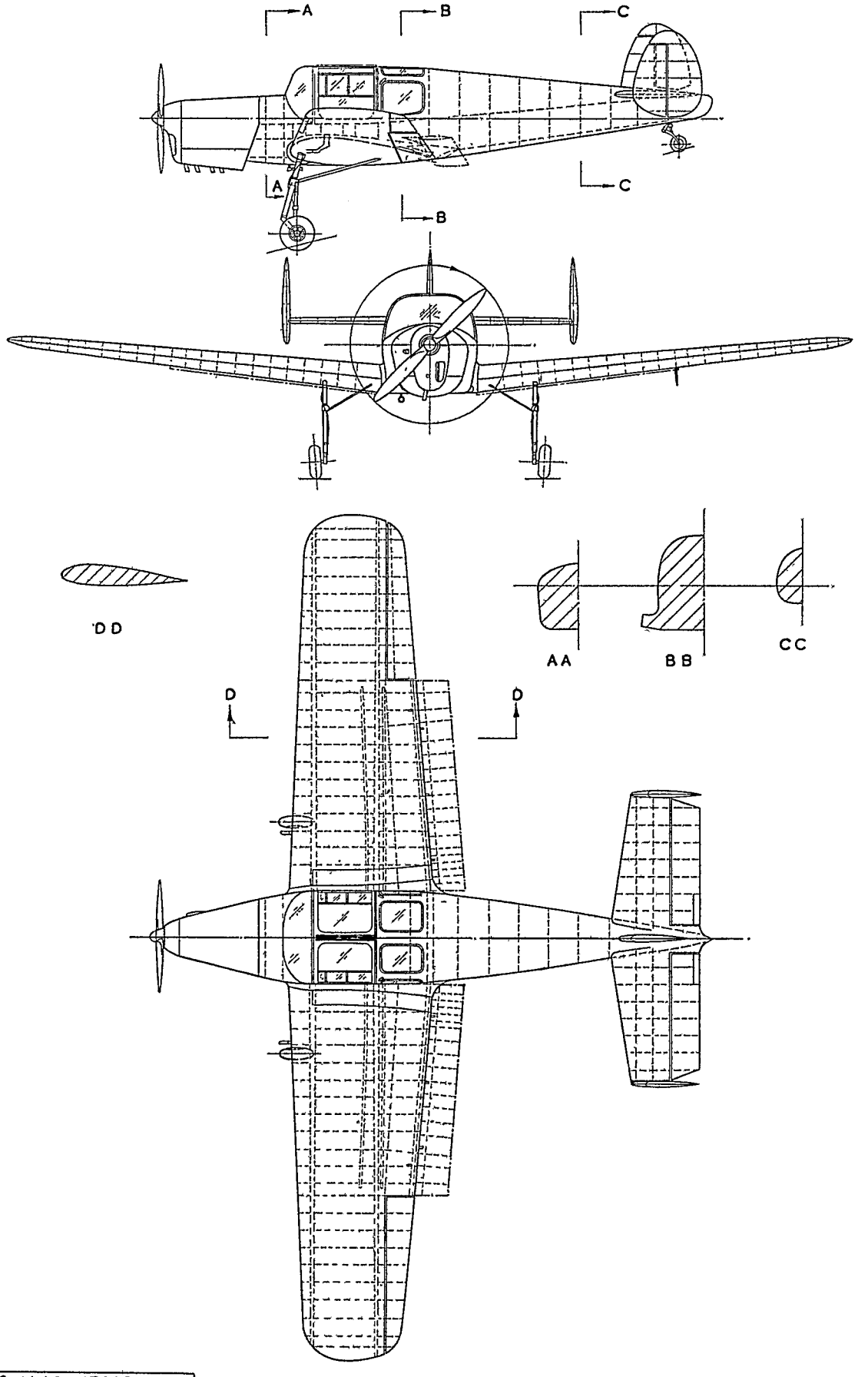
With the lift flaps in the fully down position, the slow flying qualities of this machine are remarkable, it being possible to land at speeds around 25–30 m.p.h. The stalling speed is actually 25 m.p.h., so it seems that the M.38/48 formula is a long step towards the aeroplane that will "land slowly and not burn up."

Colour : G-AGOY, shown in Mr. Rupert Moore's cover painting and in the accompanying photographs, is finished in P.R.U. blue all over with ultramarine fuselage flash and registration letters.

Specification : Span, 36 ft. 2 in.; length, 24 ft. 0 in.; height, 7 ft. 6 in.; wing area, 191 sq. ft.; empty weight, 1,500 lb.; loaded weight, 2,400 lb.; max. speed, 130 m.p.h.; cruising, 115 m.p.h.; ceiling, 19,000 ft.

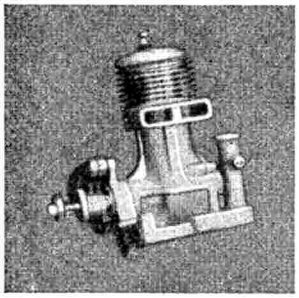
Photo: E. J. Riding.





MILES M·48 MESSENGER

ET



The Atwood Champion Engine

PETROL VAPOUR

BY

LT. - COL. C · E · BOWDEN

The Author's Model in flight

Mounting the Engine Upright.

NOW that we are flying our petrol models, or feverishly finishing off a "world beater", there are one or two little pitfalls that I want to prevent Mr. and Mrs. Newcomer from plunging into.

"Shall I mount my engine upright or inverted" is a question asked by many people who make their first petrol model. I have mounted mine inverted for very many years with only occasional upright lapses for certain specific reasons, but I have often questioned the desirability of preaching inversion to the exclusion of everything else. You will notice the Americans almost always mount their gas jobs with the plug facing the eyes of the operator. This is doubtless partly because most model engines are built that way and delivered that way, although many can be inverted if desired. For the newcomer to petroleering the upright engine has much to recommend it. The inverted engine looks nicer and cowls more easily, and often keeps the thrust line suitably high with weight low, and is also easy to clear a flooded engine when starting up by removing the plug and turning over the engine, but, and it is a very big but, sparking plugs collect oil drainings from the cylinder when the model waits for its next flying day, unless one turns the fuselage on to its back for storage. Also getting at a plug to take it out quickly is so very much easier when the cylinder stares one in the face.

I have done a lot of upright engine fitting and operation recently and have come to the conclusion that except for looks, or rather lack of them, the upright engine is on the whole a more reliable and simple method of fitting the engine. There will doubtless be howls of fury and what not over this statement from certain quarters but that is my considered opinion and heaven knows I have run and operated enough engines and I shall certainly not give up inverting engines on all my models! Both methods have their uses. Although there is difficulty in clearing a flooded upright engine, unless the whole model is turned on its back whilst the engine is turned over with sparking plug removed, one does not foul plugs so frequently, If you are a very careful sort of bloke and always take out your plug and clean it out with petrol after a run, then by all means invert your engine, but if you are naturally idle then consider popping it in upright. The fact of the matter is that there are things for and against either method of mounting. Having tried both methods, I find less trouble from upright mounting and I approach my upright engines with a slight feeling of relaxation. Admittedly an upright engine usually spoils the appearance of a model, but this really does not matter if it is a general purpose utility flying bus, as even an upright cylinder can be fairly well cowled in if so desired.

Engine Revolutions.

Now the next item on my list is how to fly a model on the correct revs. I have been very open minded, in the usual British method of compromise, over the upright or inverted issue, but I intend to be a bit dogmatic and perhaps annoying to some people over the flying business.

At most petrol meetings and also secret flying sessions too, one sees a large number of models careering wildly upwards in horrible zooms followed by dives, wild banking and other most *unrealistic gyrations*. Now these look horrid, give the model aeroplane man a bad name, make the whole thing look childish and as though they are playing with a kid's toy, and in short demonstrate that the operator *does not understand control.*

If a machine is designed with a wing loading, a wing section and angle of incidences to produce a certain speed, then if we greatly exceed that speed the centre of pressure moves too far forward, the airflow breaks down over the section and all sorts of unstable and undesirable things happen. Our longitudinal dihedral necessary for stability, i.e. the angle between the mainplane and the tail, works too violently at the extra speed and the whole contraption becomes unstable. It all really amounts to controlling the speed of the model, and yet we see so many people open up their model engines to full bore and release the model and hope for the best. This procedure should only happen when a low-powered engine is fitted that will only just fly the model on full revs. I think that we may say that 90% of aeromodellers wisely produce a slow flying model and then spoil the whole thing by an overpowered engine and complete the vicious circle by giving it the gun.

Many people will now know my little "Bowden Contest" model, plans of which appeared in the Aeromodeller Plans Service a few months ago. I was having some soul satisfying flying with this model a few evenings ago when the weather was quiet, I find that with an Ohlsson "23" (a baby engine as the reader knows of 4·3 c.c.) I can keep the engine revving quite low down its maximum scale, with a nice bit of downthrust and a 10" prop and the model flying delightfully. The engine also has a modicum of sidethrust to the right. With this and the lower range of revs the model is lightly loaded and therefore flies slowly and will waffle round beautifully, climbing steadily. This is naturally followed by a landing of the thistledown type. Now I can well see some people with their Bowden Contest opening the engine all out and spoiling the whole thing, hence my remarks. If you want a faster climb then merely advance the ignition a little more. The model has a reasonable speed range because of its wing tip slots.

Fin setting.

It is as well to remember that a Petrol model is a far better landing machine if one *adjusts it to glide perfectly first* and then keep this setting without being tempted to alter it, to suit power, engine on, conditions. The latter conditions are best adjusted for by alteration of engine thrust line and r.p.m. The fin should be set straight so that the model glides straight. In this way

the model will be on an even keel when it lands and not on a banked turn with one wing low. The latter so often causes a cartwheel on landing by the lower wheel giving the model a kick round and in extreme cases by the lower wing on the bank touching and causing a nasty cartwheel crash.

My method is to set up my model as a straight glider. I then circle in the air on a predetermined number of revs from the engine to suit the flying speed of the model and using the engine torque to turn. I offset my engine just sufficiently to convert a violent turn to the left with torque, into a gentle turn with torque.

There is only one time when I can see that it is necessary to circle on the glide by fin, and that is for a competition that requires soaring flight, because as you know, if one finds a thermal one must circle in it. But our British competitions, very wisely, do not encourage soaring petrol flights.

If it is found that the petrol model will not keep a gentle turn with only a reasonable amount of offset of thrust line, and the model is a well designed one and not greatly overpowered and has no warped surfaces, do not forget that the reason is the propeller is of unsuitable pitch or design and is causing too much torque, i.e. resistance.

Propeller sizes and Engine designs.

I have recently been most struck by the unsuitable sizes of prop that some people fit. One man said his 4·5 c.c. British "Majesco" engine would not run properly. I found he had a prop of 5" diam! It sounds incredible but it is true. We put on a 12" prop of lowish pitch and the engine ran beautifully. I also found a 11" prop gives excellent results too. Certain engines live on revs to obtain their power. The little Ohlsson 23" will not push a big prop slowly, but it will produce a great deal of power with a 10" diam. prop of lowish pitch screaming round. Other two stroke engines are pullers and will swing a large propeller. British model aero engines were pretty terrible before the war and very far behind the American and Canadian engines in finish and power output. Apart from their bad finish and poor workmanship, most of them were half smothered from birth by inadequate respiratory systems; their ports were throttled. Anyway, I hope to have more brighter and better British engines through my hands in the near future. There are quite a number one knows about on the way. It is not quite the simple thing that many people imagine to produce a really good miniature engine with all the bugs knocked out of it. For the sake of enthusiastic petrol enthusiast's pockets it is advisable to make sure of what one is buying before one splashes one's all in all in a new and untried engine. There are sure to be a few "misfires" on the market.

We are at a most interesting development stage in model engines. A general cleaning up in detail design making the engine more compact is required, without spoiling efficiency "get-at-ability" and performance. The British projects in a number of cases that I have seen are still rather old fashioned in layout and even now their ports are restricted although improved. Nevertheless I have also seen some likely new designs and projects coming along. I follow the American post war engine design very carefully and it is noteworthy that our pals across the Atlantic are progressive minded on this cleaning up of layout and opening up the ports.

I have recently acquired several new American engines that interested me, and the finish of the castings, etc. has been superb in every case, the power output for c.c. almost staggering, and the starting really first class.

One engine I have absolutely fallen in love with is the little 4·5 c.c. Forster "29". As the Americans say "She's a honey". I apologise for whetting your appetite, because you can not buy them over here yet because of the money restrictions. But if I were an engine manufacturer I would have a darned close see at the Forster "29" Perfect starting, and lovely even power output down to the last smell of petrol mixture, and she pulls a large prop or can produce the revs on a small one. It is obvious that if a model engine can swing a large prop there is an advantage, as a large prop revolving comparatively slowly is more efficient than a stupid little prop half stalling its blades at some fantastic number of r.p.m. That by the way is one of the points of the model diesels. They develop good torque at comparatively slow speeds.

Many of my readers will have heard of Bill Atwood, one of America's outstanding model engine designers. He started off the famous Baby Cyclone in the days when the 6 c.c. engine was a noteworthy feat, and the Baby Cyclone was a real first-class job. He set up the American model hydroplane record at one time, and he produced the little 4 c.c. Atwood Phantom. A very excellent and light little engine. Now Bill Atwood has produced his masterpiece in the form of a 9 c.c. Super hot engine for aeroplane, speed boat or race car work, and I have got hold of a brand new one.

The engine has vast ports that a young aeromodeller could almost walk in and out of. There is no throttling of the respiratory or exhaust systems here, there are two rotary crankshaft valves, fore and aft, leading to a most impressive intake orifice and needle valve by means of an induction pipe cast integral with and around the bottom of the crankcase.

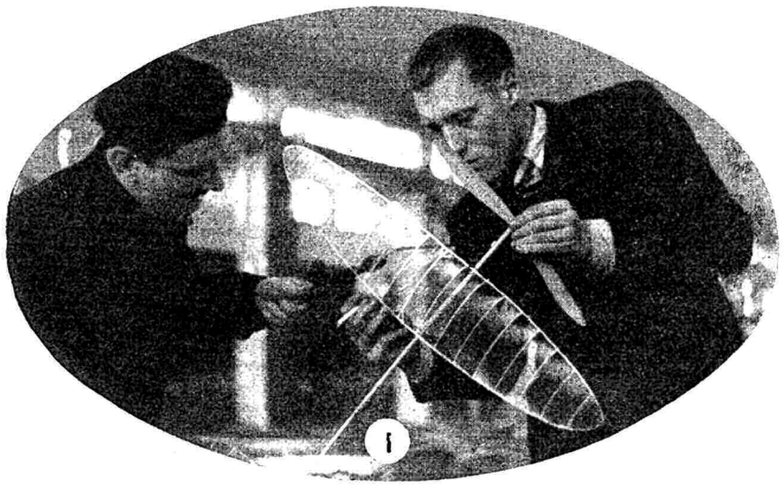
For those stick in the muds who say large ports make for irregular running and starting at lower speeds, and make a cylinder inclined to collapse my reply is to have a careful look at the Atwood Champion's design and then see it running. The proof of the pudding is in the eating.

Mini accumulators.

One other item before I close. You have often heard me drool about the added electrical efficiency and out-put of mini accumulators for model ignition. I was tackled the other day by a very penetrating and logical young aeromodeller who asked me why I "gassed freely" on the virtues of mini accumulators and then designed a model for the mighty British Public like the Bowden Contest and included provision for a 4 volt, 4½ oz. flash lamp battery for flight.

A very sensible query. I designed the model for the average man and I considered his facilities and what would give him the best all round success in the circumstances he was most likely to find himself. 1. There are no really light lead acid accumulators on the British market. 2. The average man is not capable of making his own, and if he is generally he has not the facilities. 3. The mini lead acid accumulator deteriorates and loses its charge rapidly unless it is given frequent attention in the form of slow trickle charging. Has the average man even got a wee trickle charger suitable for model work because they are not yet on the market in this country.

The famous concern of NIFE has placed on the market a baby 2½ volt accumulator of the Nickel Cadmium Alkaline type, that is virtually undamageable and can be neglected for long periods of idleness without damage. The 2½ volts gives starting without booster on any good modern coil, and also gives first-class running. The only snag is that the little battery has a steel case at present and weighs 8 ozs. and is therefore too heavy for any model aeroplane other than a large one.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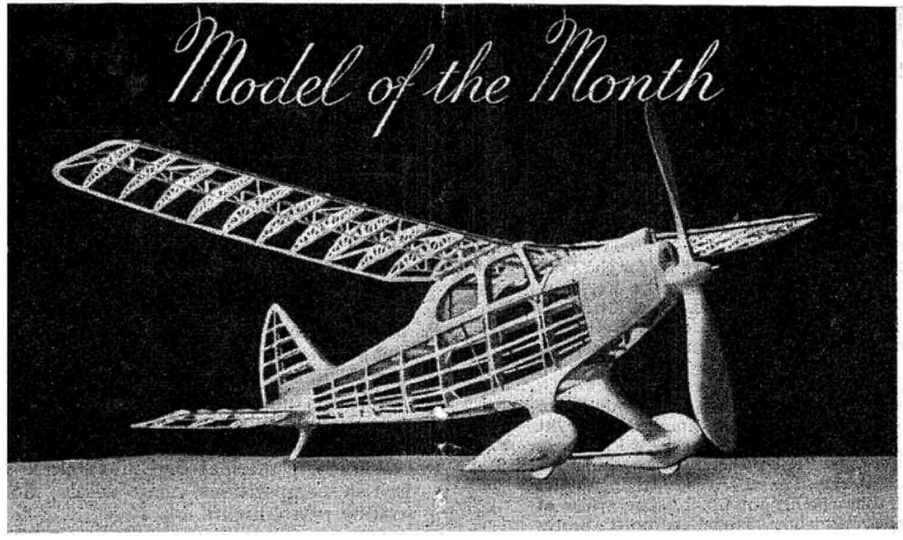

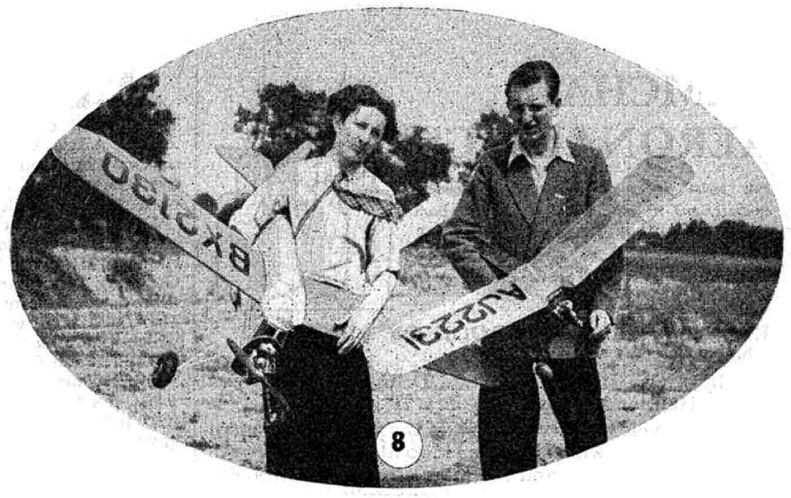

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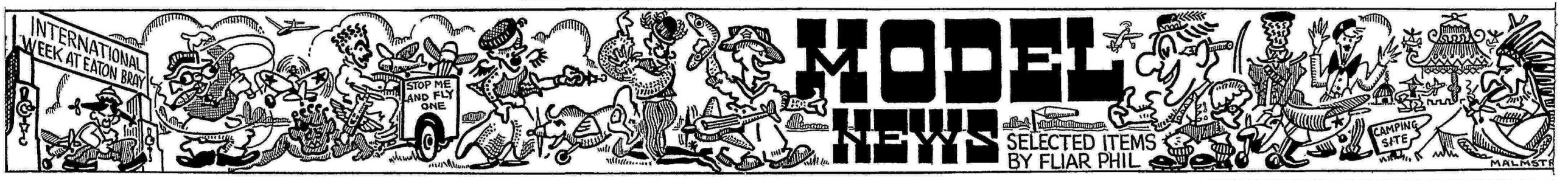
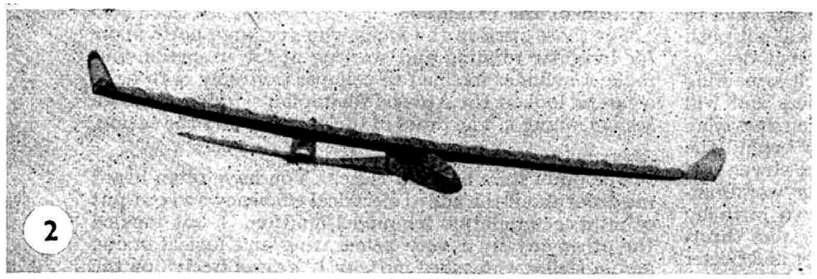


MODEL NEWS

SELECTED ITEMS BY FLIAR PHIL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JUST returned from his tour of Europe, Fliar Phil has brought back many memories and photos of modelling friends. Many of them he knows he will be meeting again this month, for though no guarantee is given that Eaton Bray will look *exactly* as Raymond Malmstrom thinks, there will undoubtedly be many celebrities such as these flying there during International Week.

First of all, however, we present a superb piece of British workmanship. Our Model of the Month shows "Buttercup," a 33½-in. span semi-scale model designed and constructed by Mr. Chas. Sherratt, of Leighton Buzzard. The model, of revolutionary design, features minutely built-up construction with wings and airscrew embodying a laminar flow aero-foil section, the L.S.A.R.A. L.D.C. 3m. (described in our next issue). Since this photograph was taken the model has been covered and flown at Eaton Bray with remarkable results. The model is very strong and despite its intricate construction weighs only 2 ozs. without rubber. Mr. Sherratt is to be congratulated on a really beautiful piece of work.

In Photo 1 we see Dutch indoor enthusiast, H. L. F. Dekat, his model being held by his friend, F. J. Twight. Though specialising in microfilmies, these lads have quite enough all-round knowledge to stand them in good stead should they come to Eaton Bray.

Many visitors at Eaton Bray on the occasion of the A.B.A. Eliminating Trials and at other times, saw a tall, fair-haired figure obtaining remarkable flights from the semi-stick glider in Photo 2. The figure, of course, was Lennart Sundstrom, Swedish model expert, and the model "Hellbent," featuring light but "whippy" all hard wood construction. Plans will be appearing shortly in the AEROMODELLER. This model put up durations of 3 mins. plus on several days when howling gales and constant drizzle marred the occasion.

Photo 3 shows another well-known Swedish modeller, Nathurst Westfelt, from Boras, with a Wakefield of his own design which features two motors geared together. This model is a regular winner. Note the large underfin, and the wearing position of the "competition number."

Smiling B. Henry has been an ardent reader of the AEROMODELLER for years, and a modeller for even longer. Photo 4 was taken at Paramos airfield, Portugal, and shows him with his graceful high performance sailplane "Ida e Volta."

In few countries is aeromodelling as well supported officially as in Palestine, and from Tel-Aviv Dr. Ing. F. Piattelli sends us Photo 5. The scene is a local competition organised by the Rehovot branch of the Palestine Aero Club. A semi-scale "Spitfire" glider is going up on the towline. It is interesting to note that many English aeromodellers from a nearby military camp attended.

The tailless meeting of the Rhone Aero Club was won by Hans Rustenholz, of Switzerland, who is seen with his model in Photo 6. The model had twice the minimum F.A.I. loading, a span of 100 ins. and featured a section similar to a modified Clark Y.

Another well-known aeromodeller who specialises in tailless types, Guy Borgé, was the actual organiser of the Rhône Rally on behalf of the Rhône Aero Club. Photo 7 shows Guy with an early version of his Plans service design, the A.V. 10, now fast becoming a popular favourite.

Readers will remember a recent Model of the Month, a beautifully-made petrol model by Romain Van Assche, of Ghent, Belgium. Photo 8 shows the model, "Skykisser," and its designer (on left), with P. Maes of the Same club and his "Dirty Bee." Ardent petroleers, these boys, and we'll hope soon to meet them in friendly rivalry.


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ARMCHAIR AERONAUTICS

This series is for the benefit of aeronautical students, and its main object is to keep them advised of new books as they are published. All books reviewed may be purchased from the Aeronautical Bookshop, 7 Hanover Court, London, W.1.

ELEMENTARY HANDBOOK OF AIRCRAFT ENGINES

by A. W. Judge, A.R.C.SC., D.IC., etc. Chapman & Hall. 225 pages. 5½ in. × 7½ in. 12s. 6d.

This is an elementary treatise on the subject of modern aircraft engines, which is intended to fill the gap between the most elementary and the more advanced textbooks. Well-selected diagrams and photographs render the explanations clear and the text is treated practically non-mathematically. However, an appendix provides most of the essential calculations and formulæ for the student requiring a deeper knowledge of the subject.

Beginning with a brief historical résumé of the struggle to provide power plants for aircraft, the book continues with a detailed account of general principles of aircraft engines, and the general requirements of aircraft engines.

Separate sections deal with carburation, supercharging and cooling systems, leading in turn to the more practical side, the sections following being devoted to components, and types of aircraft engines.

Lubrication and ignition form separate chapters and a final chapter covers the testing of engines.

AEROPLANE FLIGHT

by H. F. Browne. Longmans, Green & Co. 166 pages. 5¼ in. × 7½ in. 7s. 6d.

Assuming that the reader has very little knowledge of mathematics, the author makes it his object to give a simple account of the mechanical facts underlying the flight of aircraft. When any new mechanical principle first appears in the text it is explained in detail, making use of diagrams, not all of them accurate in detail, but which stress by exaggeration the points which are being explained.

AIRCRAFT BLUEPRINT READING

by H. V. Almen, B.Sc., and R. K. Mead. Pitman. 120 pages. 5¼ in. × 7 in. 8s. 6d.

This book is intended as a textbook on the reading of aircraft blueprints.

Since aircraft engineering embodies the methods of the mechanical, marine, structural and the electrical engineer in the construction of a completed aeroplane, the elements of the entire field of draughting are described.

This is not a course in mechanical drawing, but a section on "Draughting-room Practice" is included to furnish a slight knowledge of the engineering procedure required to produce the blueprints.

Using figures which are mostly actual prints of parts which are, or have been, in use, the student is shown how these prints are built up into more complicated prints, just as the actual parts are built up in the factory.

The student soon realises that the most complicated and difficult looking print is, after all, no more difficult than the print of a simple part in the whole.

The instructions and problems to be worked are presented in order to teach the student to develop a receptive imagination.

A.B.A. GALA DAY

FIFTEEN charabancs and perfect flying weather attended the A.B.A. Gala Day, at Eaton Bray, on July 7th. Close on two thousand aeromodellers and friends came from all over the country, by car, train, bicycle, on foot, to enjoy a perfect aeromodellers' day.

Events started at 12.30 p.m., when the judging for the Concours d'Elégance took place, the judges being the Rt. Hon. the Earl of Craven (a new member of the A.B.A.), Mr. B. A. Germany (Chairman, the A.B.A.), and Sq./Ldr. H. E. Hervey (Sportsdrome Manager). The Prix d'Elégance was won by Mr. D. Capon, with his beautifully-made duration model, which also took the Concours prize for its class.

After lunch flying started in earnest, the first contests for Rubber Duration and Sailplane running simultaneously at 1.30. As there were so many entrants, these two contests were judged on one flight only. The thermals which abounded gave many competitors plenty of exercise, the winning flights giving a good idea of times being put up. A fine cruise of 13 : 34 o.o.s. won the handsome Model Aircraft Stores (Bournemouth) Trophy for C. Frith, of Bedford. The Sailplane contest, the Elite Trophy, was won by W.O. Lamb, of Mildenhall, Suffolk, with a flight of 9 : 29 o.o.s. Incidentally, he was one of a gang of these R.A.F. laddies who arrived from Mildenhall and took three of the first prizes back with them. They came and returned by Lancaster from a nearby aerodrome, celebrating their victory on their return by flying over the Sportsdrome and dropping toilet roll streamers!

Following on at 3.30 came the contests for Water Models and Experimental Models, again running simultaneously. The Water Models contest was very poorly supported, there being only three entries, one flying-boat and two seaplanes. However, there was no mistaking the quality of the winning flight—E. J. Buxton, of St. Albans, clocked the excellent time of 7 : 40 o.o.s. with his seaplane. In the Experimental class Mr. Birden carried off the honours with a longer-than-wide all-wing design, to win the A.T.C. Gazette Trophy.

The shrill scream of diesels and petrol engines heralded the advent of the Petrol contest at 4.30. This was attended by several spectacular smashes which gave the crowd its eagerly awaited chance to hold its breath. The winner was Sq./Ldr. "Wattie" Watson, of North London, flying his large Ohlsson 60-powered red and yellow model, which had a nasty prang last time he flew it at the Sportsdrome. No after effects on this occasion, however, and Wattie won the 50 guinea "Airyda" Trophy with a comfortable flight of 1 : 22.

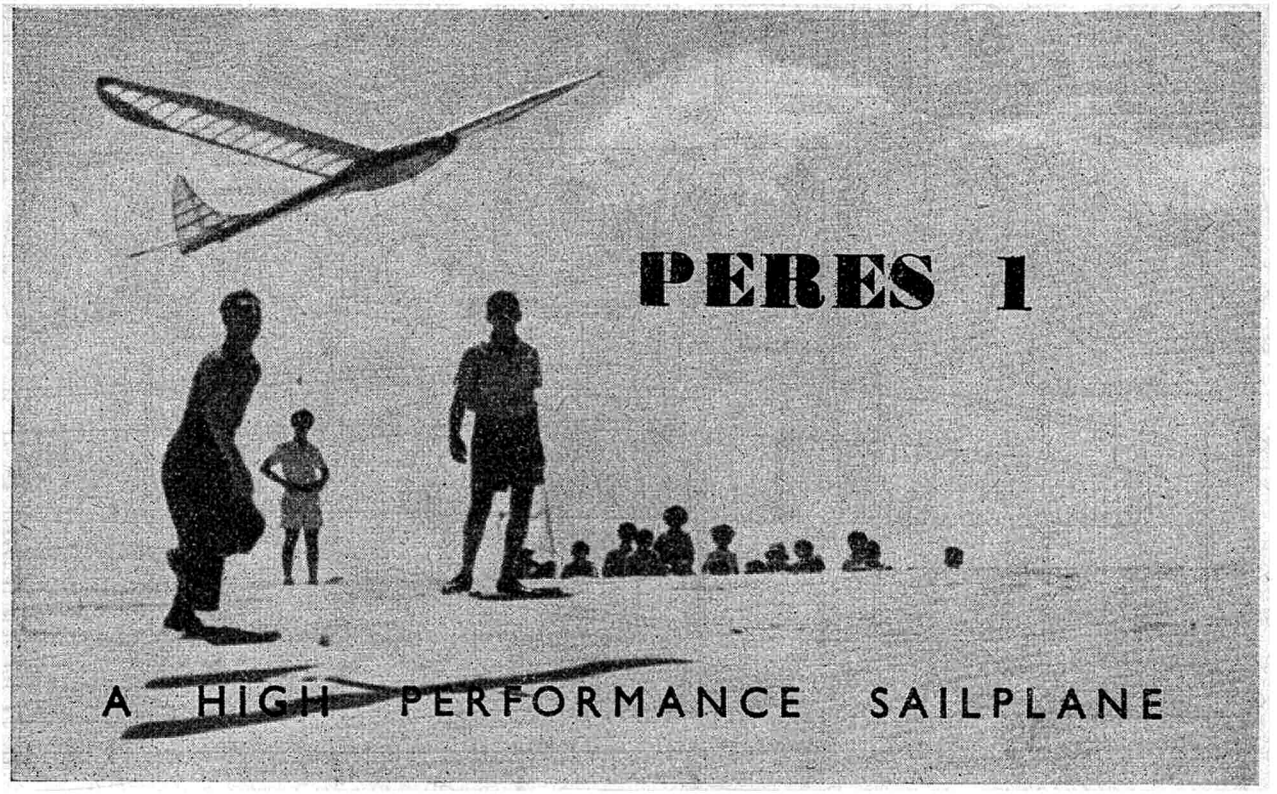
Taking place at the same time was the Flying Scale event, which was won by one of the self-styled "Mildenhall Modbods," G. Waddington, who received the Astral Trophy for his winning time of 1 : 12·1.

As several National contests have witnessed, the ladies are beginning to take a by no means uncertain hand in the game, and the A.B.A. provided some timely encouragement by holding an Air Rangers' team contest, which was nobly won by a fair team from Wellingborough.

At 5.45 the prize-giving was announced, and amongst the cheers of the crowd the winning competitors came to Flying Control to receive their prizes and trophies from the Earl of Craven.

RESULTS

Competition	Winner	Time
Sailplane and Glider	W.O. Lamb, Mildenhall	9 : 29 o.o.s.
Rubber Duration	C. Frith, Bedford	13 : 24 o.o.s.
Flying Scale	G. Waddington, Mildenhall	1 : 12·1
Petrol	Sq./Ldr. R. Watson, N. London	1 : 22
All Day Event (45 secs.)	M. A. King / P. L. Smith	0 : 45
Seaplane	E. J. Buxton, St. Albans	7 : 40
Flying-Boat	J. Latchford, Hemel Hempstead	0 : 12
Concours d'Elégance		
Duration	D. Capon	
Glider	D. Williams	
Flying Scale	Mr. Heathcote, Mildenhall	
Petrol	D. C. Petry	
Prix d'Elégance	D. Capon	
Air Rangers	Wellingborough Air Rangers	
Experimental Models	Mr. Birden	



Designed by Dr · I · F · Piattelli

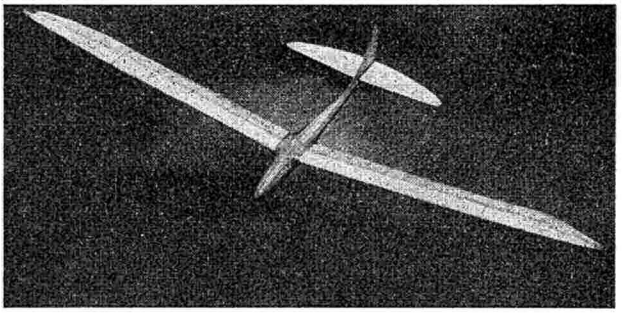
THE Peres I is a sleek high-winged sailplane with very graceful lines, the fin sweeping high above the fuselage giving exceptional stability in flight, long wings tapering at the tips ensure a high performance. It is indeed a beautiful model whose aspect promises great things and is constructed with hardwood and veneer throughout. On the original model the mainplane leading edge was sheeted with cardboard, but as ply is obtainable in this country this has been modified. The great strength derived from the hardwood construction has enabled this model to survive many accidents that would have completely smashed a model of lighter build. It is always necessary when using hardwoods to ensure perfect adhesion at all joined surfaces and for this reason a cold water glue should be used throughout the construction.

Ordinary bamboo tissue may be used for covering, but for a really strong job silk or " Planefilm " is preferable.

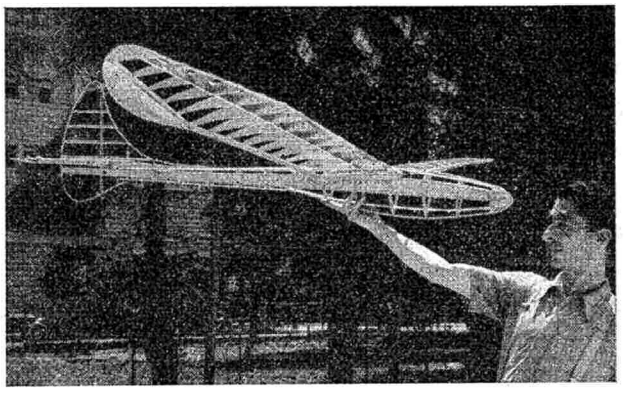
The size of the Peres I is: wing span, 10 ft.; length, 5 ft. The all-up weight of the model ready to fly is only 5 lbs. The model will make a very strong job and one that will give excellent results if due care is taken with the construction.

The model was designed entirely by Dr. Piattelli and constructed at the Tel-Aviv experimental centre for Aero-modelling and Low-Speed Aerodynamics (Tel-Aviv Aero Club). Dr. Piattelli is the Director of Research at Tel-Aviv, which is the first established centre in Palestine.

Well known in this country for his popular Kirby Kite, scale model glider, and the A.P.6 contest sailplane, Dr. Piattelli puts before our readers the fruit of much research and experiment. Peres I is an outstanding achievement in the field of the large model sailplane, so little explored in this country as yet.



The heading photo shows Dr. Piattelli launching the original Peres near Tel-Aviv. Ideal flying country and an ideal model make an excellent record-breaking combination. Above is Peres I ready to fly, and below is the designer with Peres I uncovered, showing its remarkable simplicity which allowed the original to be constructed in 60 hours.



A 10 FT SPAN SAILPLANE.

PERES I

DESIGNED BY
F. J. PIATTELLI

6/-

THE AEROMODELLER PLANS SERVICE LTD.
ALLEN HOUSE NEWARKE STREET LEICESTER.

WEIGHT OF COMPLETED MODEL — 5 LBS.

SIDE VIEW

FRONT VIEW

WING ROOT BLOCK

WING ROOT BLOCK CEMENT BETWEEN FORMERS D & E AS SHOWN. CAN BE CARVED FROM SOLID PINE OR BUILT UP IN HARD-WOOD LAMINATIONS.

1 OFF BIRCH ROD A

SLOTS FOR 1/8"X3/16" BIRCH STRINGERS.

SKETCH OF WING ROOT BLOCK

SLOTS FOR TONGUES.

NOTE — REVERSE CAMBERED SECTION

ALL TAILPLANE RIBS 1/8" PLY

ALL FUSELAGE FORMERS 1/8" PLY.

SLOTS FOR 1/8"X3/16" HARDWOOD STRINGERS.

CEMENTED ON EITHER SIDE OF WING ROOT BLOCK.

OUTLINE OF STIFF PAPER FAIRINGS

FUSELAGE CONSTRUCTION.

PIN PLAN TO FLAT SURFACE & THEN STEAM & PIN IN POSITION MAIN LONGERONS, COVER THESE WITH 1/16" PLY AS SHOWN REMOVE FROM PLAN & ADD FRONT & REAR FORMERS BETWEEN PLY SIDES. NEXT, STEAM SIDES TO ACCOMODATE FORMERS B—H WHEN FORMERS ARE IN POSITION ADD STRINGERS, WING ROOT, FIN, ETC

SIDE STRINGERS OMITTED FOR CLARITY

1/16"X3/16" HARDWOOD L.E.

3/16"X1/8" HARDWOOD SPARS TOP & BOTTOM

1/8" SHEET HARDWOOD

1/8" SQ. BIRCH T.E.

1/16"X3/16" HARDWOOD STRIPS TO FORM STREAM-LINED SECTION.

COVERING.

COVER ALL SURFACES WITH HEAVY GRADE BALSA PAPER OR SILK & APPLY 4 COATS OF CLIDER DOPE TO FUSELAGE, FIN & WINGS. GIVE 3 COATS OF DOPE TO TAILPLANE

1/8" SHEET HARDWOOD T.E.

L.E. 1/8 SQ. BIRCH.

1/8" PLY IS PARTICULARLY FLEXIBLE GRAIN MAY RUN LENGTHWISE.

1/16" SQ MAIN LONGERONS.

HARDWOOD FILLER CAP

HARDWOOD NOSEBLOCK

FILL WITH LEAD SHOT.

1/16" PLY SIDES

C.G.

W1 2 OFF 1/8" PLY

W2 20 OFF, 2 ONLY WITH SLOTS SHOWN DOTTED

ALL WING RIBS 1/8" PLY

W7

1/16" PLY TOP & BOTTOM.

WING & TAILPLANE RIBS MAY BE LIGHTENED. LIGHTENING PY ETCHES SHOWN IN CHAIN LINE

W2

W4

W3

W5

3/16" PLY TONGUES 2 OFF.

ROD A IS TIGHT FIT IN THIS HOLE.

TAILPLANE POSITION.

1/16" SHEET BIRCH.

SKETCH OF 1/4" SHEET HARDWOOD CEMENTED BETWEEN PLY SIDES

1/8" SQ. BIRCH.

LEAVE THIS PORTION UNCOVERED

TO ADJUST TAILPLANE INCIDENCE, THIS SCREW IS LOOSENED, TAILPLANE INC ALTERED & THEN SCREW IS TIGHTENED ONTO ROD A THUS HOLDING TAILPLANE IN POSITION.

TONGUE

1/8" PLY GUSSETS

20 S.W.G. RETAINING PIN.

RIB

SIDE VIEW

18 S.W.G. BRASS BUSH.

18 S.W.G. TOWING HOOK

MATERIALS REQUIRED.

SHEET.	20 FT OF 3/16" SQ HARDWOOD STRIP
10½ TO 12 FT OF 1/16" PLY.	20 " 1/4" " "
3 " " " 1/8" "	4 " 1/16"X3/16" "
1 " " " 3/16" "	MISC.
6 " " 1/8" SHEET HARDWOOD	8" OF 18 S.W.G. PIANO WIRE
STRIP.	1" " 20 " " "
5 FT OF 1/8" SQ HARDWOOD STRIP.	3 SQ INS. OF THIN ALUMINIUM.
32 " " 1/8"X3/16" " "	

1/16" PLY CEMENTED BETWEEN EACH RIB ON EITHER SIDE OF 3/16" SQ HARDWOOD SPARS.

THIN ALUMINIUM HINGES.

1/8" PLY TIP

ADJUSTABLE AILERONS OF 1/8" SHEET HARDWOOD

SHEET COVERING OMITTED TO SHOW CONSTRUCTION

1/16"X3/16" HARDWOOD L.E.

1/8" PLY WEBS

TONGUE

TOWING HOOK

DIHEDRAL UNDER EACH TIP

1/2"X1/8" HARDWOOD T.E.

1/2"X1/8" HARDWOOD T.E.

THE BOFFIN'S NEWS OF MODELLERS OVERSEAS

The Boffin likes this tailless stuff,
But does it go quite far enuff?
He's cut out wings
And other things,
And flies a casting in the ruff.

Northern Highlights

The Scandinavian model clubs certainly know how to get things done, if the Boffin's postbag is any indication. The heading picture shows representatives of the Northern countries in a fourteen-hour huddle over rules and regulations; now we have received a comprehensive code covering Norway, Sweden, Denmark and Finland under the title of "Nordic Model Flying Rules." We are pleased to note that petrol classes contain a wing-loading clause, as indeed do most of the principal model sections. Gliders and rubber duration, for example, are subject to a minimum wing loading of 3·28 oz. per sq. ft., while rubber speed models have an upper limit of 16·4 oz. per sq. ft. A system of graded Diplomas are also available to modellers achieving a progressive standard of skill, ranging from three flights *in one day* of 45 seconds or more for an A Diploma to three flights of 3 : 30 mins. minimum for a C Diploma.

Aden Aeromods.

Aden is reputed to be one of the most unpleasantly hot outposts of Empire, but this has not prevented a number of enthusiasts from starting a club there. L.A.C. Chapman is the organising genius and writes of the complete absence of materials—a state of affairs that is well in hand. With ample opportunity to think over the past and browse amongst back numbers he voices a plea for an annual Wakefield Number such as used to appear in the "good old days." This seems a splendid idea, but must await ample supplies of rubber to cope with the enthusiasm thus engendered.

Midland Adoption.

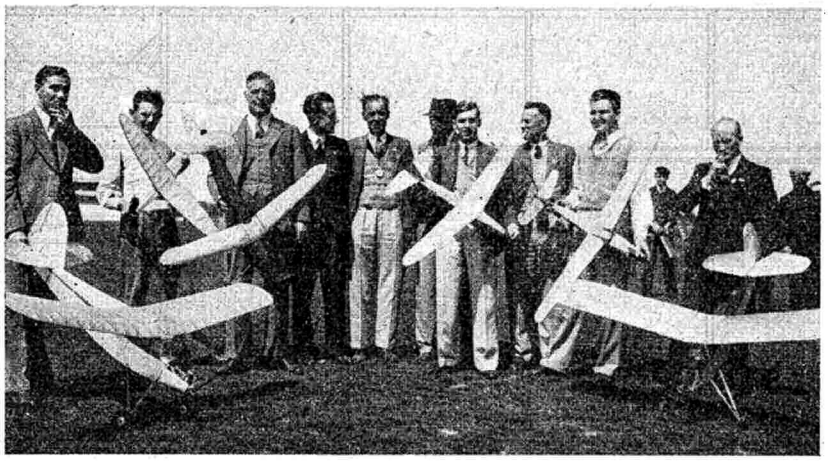
From Tilburg comes an interesting line from C. B. Stockermans. He mentions that Wolverhampton has adopted his home town of Tilburg and asks for the address of the Wolverhampton M.A.C., so that they can exchange greetings and get to know one another. There are possibilities here for a general club adoption scheme, particularly with regard to Dutch clubs, who have suffered more perhaps during the war years than any others. Drop a line to the Boffin if you would like to adopt a club—any such communications will be passed on to the Dutch controlling body and a contact arranged.

More News from Ghent.

Publication of Van Assche's Skykisser in a recent number has prompted J. Vanhooren of the Ghent Club to send some pictures and news of their activities. He is proud to mention that club member R. Clasens is now President of the Association of Belgian Model Constructors. The Ghent boys are keen AEROMODELLER fans and he speaks with pleasure of its "rich documentation." As usual, the Boffin is only too ready to take a bow for someone else's efforts!

Brisbane Bouquet.

Another appreciation comes from Australia by the hand of F. M. O'Brien, who hastens to deny the American influence down under. He declares that no such influence exists in the Eastern States and points out that the only regular U.S. magazine in circulation is "Flying," against which there are six Australian and English journals readily available—including, of course, AEROMODELLER. He does, however, take the British kit manufacturers



Above: Seen at the Stockholm Conference when Nordic modellers got together to formulate new rules. Left to right are Lt. Lennart, Finland, Messrs. Knud Flensted, Denmark; Derautz, Sweden; Parttily Virkki, Secretary, Finland, and Yugve Norrvi of Sweden. The meeting lasted fourteen hours!

Left: A flashback of well-known British aero-modellers at Flers before the war. Amongst them will be recognised Messrs. D. A. Russell, C. S. Rushbrooke, Eddie Kiel, A. F. Houlberg, F. C. Smith, and Harry York.

to task for not including any Australian types, such as the Wirraway and Boomerang Fighter in their lists. What about it, exporters? Only Aussie petrol engine is the Whirlwind, selling at £9 10s. of about 9 c.c. and heavy in proportion to power output—here is another chance to get those vital exports going. In spite of difficulties enthusiasm is high and modelling proceeds apace.

Parisian Pen Pal.

Parisian petrol fan J. L. de Neuflize writes asking for pen pals—particularly those interested in petrol or compression ignition models. He is flying a 2·8 c.c. Micron Diesel and mentioned his scarred and bruised forefinger as token of its immense power—it produces ·1 h.p. at 4,800 r.p.m.—while its weight ready to fly is only 4¾ oz. He is eager for a little Entente Cordiale and welcomes Clubman's suggestion for a London-Paris contest. Eaton Bray arouses quite a lot of interest in Paris where flying grounds are hard to come by, in spite of the valiant efforts of their controlling body. Maybe we shall see our friend over for International week in August.

Hiatus in Java.

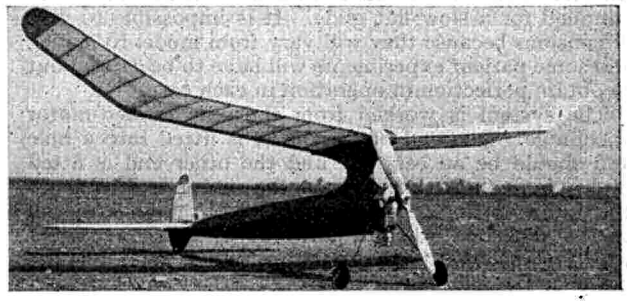
Two Chinese college boys write in perfect English of difficult times during the occupation of Java, where their knowledge just breaks off short at 1941 when Japanese propaganda took over: They are anxious to get hold of back numbers from that date onwards and very frankly remark: "We have some money saved, but it is all in Japanese currency and we are afraid you won't accept that!" So, once more, if you can turn out some unwanted back numbers, here is a good cause—the name is Be Wie Ulwa, Randoesari 20, Sumarang, Java, Dutch East Indies.

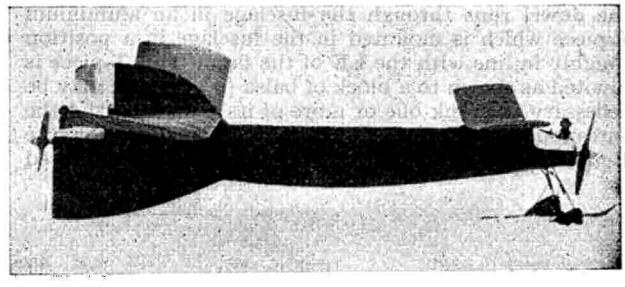
Czech Achievement:

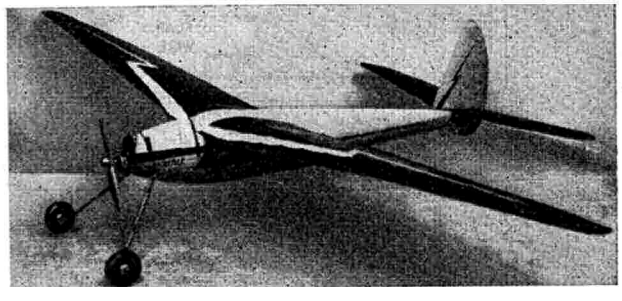
Our Czech friend, M. K. Moucka, writes that he has already taken two first places in the only contests entered with his new Atom Diesel—a picture of which recently appeared in these pages. This is now in mass production, turning out 400 a month—what a sale they would have here if only . . .

Calling all Continental Modellers.

As announced elsewhere in this issue there will be an International Week at Eaton Bray from August 18th to 25th, when it is hoped to have a number of the foremost European experts as our guests. Just who those experts are is something of a problem. Happily, most of those friends who figured in many a hard-fought contest before the war are still well to the forefront, but many new stars have risen and we should not like to neglect them. Will any continental modeller, then, who would be free to come over for this week let us hear from him. The Boffin cannot promise that it will be possible to accommodate all who would like to come, but we shall do our best.







Top. Open meeting in Pretoria. Note the wide open spaces of the veldt. Second. Diesel-engined model built by Renzo Pavanello of Florence, powered with the popular 2 c.c. Giglio. Third. Another unusual project by Sven Goetze of Switzerland—this time a push-pull, twin Diesel canard featuring Dyno engines. Fourth. The Rafale, an attractive streamlined petrol model from Belgium.

Right. The principal Belgian model meeting during the war. A scene near Brussels in May, 1911.

AUTOMATIC FLAP CONTROL

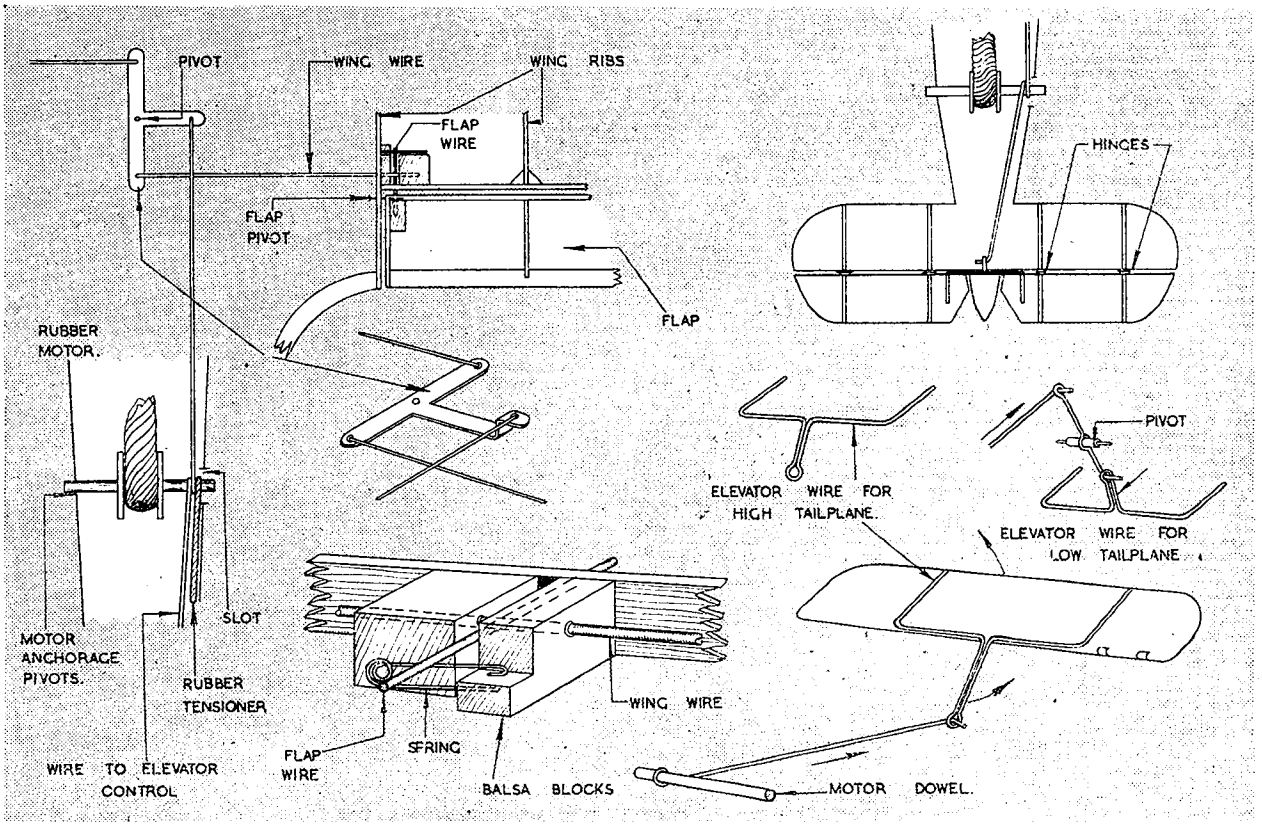
BY C · R · NEWING

I WAS very interested in F./Lt. Jay's article " Stalling the Stall " in the February, 1945, issue of the AERO-MODELLER. I have given some thought to F./Lt. Jay's problem, and because I am convinced it will work satisfactorily, I put forward the following method by which in a flying scale model flaps may be dropped at the end of the motor run and the aircraft automatically trimmed for a slow flat glide. It is impossible to give dimensions because they will vary from model to model, and some patient experiments will have to be carried out to obtain perfection in operation in each case.

The system is worked from the rear rubber motor anchorage. One end of the dowel is fitted into a hole and should be an easy fit, and the other end is fitted into a horizontal slot. When the motor is wound up the motor anchorage dowel is pulled to the forward end of the slot, and when it unwinds a rubber tensioner which is anchored further back in the fuselage pulls the dowel to the rear end of the slot.

An 18 or 20 gauge wire with one end wrapped round the dowel runs through the fuselage in an aluminium T-piece which is mounted in the fuselage in a position roughly in line with the LE of the flap. This T-piece is pivoted as shown to a block of balsa (if any). It may be necessary to crank one or more of its arms to avoid the wires fouling one another. Two other wires run from the T-piece into the wings and movement should be allowed for by bending the wires through holes in the T-piece When the rear anchorage is pulled back at the end of the motor run this mechanism disengages the wires in the wings and releases the flaps.

The flaps themselves may be made any size desired, but it is suggested that they are reasonably true to scale. Split flaps may be fitted and operated in this way: A spar must be fitted into the wing just forward of the flap. A piece of soft wire, preferably filed or hammered to square section, is fitted to the flap by means of a block of balsa, as shown, and protrudes into the wing itself through a vertical slot in the rear wing spar. On each side of this slot two blocks of balsa are fixed as shown and a hold is drilled spanwise through both and bushed with small pieces of brass tube to take the wire running from the T-piece. It must be so arranged that when the near anchorage is forward the wires into the wings are pushed home into the outward blocks of balsa, and when the anchorage is in the rear position the wing wires are withdrawn sufficiently just to clear the slot between the two blocks of balsa. The wire from the flap must protrude forward of these blocks and a spring must be fitted to exert upward pressure on it. If the upper surface of the wing is covered with a strip of thin wood just above the mechanism, a strip can be fitted to it which will regulate the upward movement



of the flap.

To operate, the flaps can be kept in the " up " position by means of small bulldog clips on the TE between the flap and the wing; as the motor is wound the wing wires will be pushed outwards, closing the " gate " between the two blocks of balsa and when the bulldog clips are released the wire from the flap pushing upwards against the wing wire will return the flap in position. When the motor is run down the wing wires will be withdrawn sufficiently to allow the spring-loaded flap to flick upwards, this lowering the flap.

By arranging for one flap to be lowered slightly more than the other the model can be made to circle. To adjust the trim of the model when the flaps are in operation, negative incidence can be given quite simply and automatically to the elevators. The elevators must both be made to hinge to the tailplane, and a piece of wire is bent as shown in the diagram so that it can be fixed to the innermost elevator ribs.

The central part with the eye incorporated hangs downwards in the fuselage and the eye is moved to and fro by another wire from the rear motor anchorage. When the motor anchorage is in the forward position the elevators are in line with the tailplane, and when the motor anchorage comes to the rear end of its slot at the end of the motor run the flaps drop and the elevators are raised to allow for the alteration in trim necessitated by the dropping of the flaps. Any adjustment can be made by putting a double " kink " in the elevator wire immediately above the eye, thereby shortening this part of the wire and giving more movement to the elevators; it would be as well to make this part of the wire as long as the fuselage will allow in the first place. For a low set tailplane the system must be a little more complicated; rearward movement of the motor anchorage must be converted into a forward movement of the eye of the elevator wire, and this can be done by a link as shown in the diagram.

A CELLULOID PETROL TANK

BY H · BOWMAN

SOME time ago, when working on the R.W.D.8 Polish Trainer, the idea of a celluloid petrol tank, which would be both attractive and lighter than a thin brass or copper one, came to my mind.

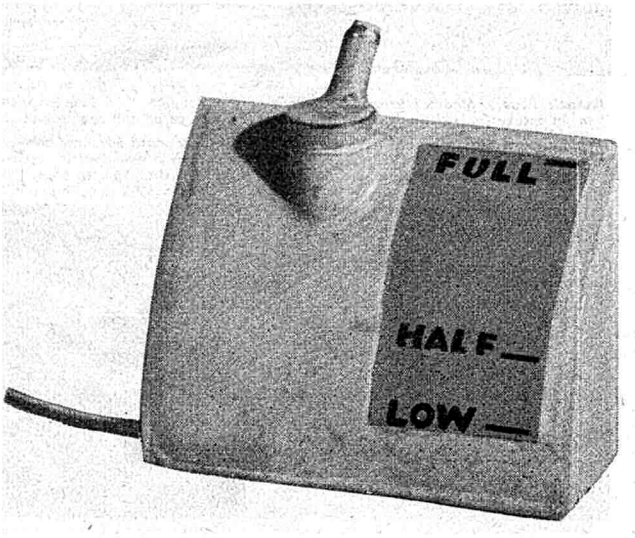
This style of tank—I do not know of anyone other than myself who has built one—can be built by anyone, in a short time. I will not venture to give any particular specifications, as to size or shape, as these measurements vary considerably on different models. I shall give the methods employed on my R.W.D.8 tank as an example.

Thick quality celluloid, about 1/32 in. is the type I advise. This can be purchased, usually in the form of scraps, from most good garages, or again from a good ironmonger. Mark out with the point of a compass, or other similar sharp-pointed instrument the back of the tank, sides, top and bottom, but not the front (if it is a curved one), as in the photo of my R.W.D.8 tank. The two sides are joined to the back first, about 1/32 in. in from the edges. The method of joining all our edges in this type of tank is by the simple use of a good balsa cement. After our joints on the sides and back have set, we run more cement on the outside and inner side of same; you will now see why I suggest putting the side 1/32 in. in. This ridge gives the cement a firmer grip, more so than running the edges flush.

Our top is next cut, on this we mark the position of the filler cap (a small bolt, with a washer under the head) and the entry hole for the petrol outlet tube. 16 g. brass tubing is suggested for the petrol outlet. The length of this tube is governed by the depth of your tank. A hole as near as possible to a tight fit as you can get, is drilled 1/16 in. from the back edge of this top cover piece of celluloid. Another hole most suitable to the position of the tank and corresponding to your bolt, is drilled at the same time. This top is now securely cemented in place as described before, BUT first we make sure our small outlet hole is on the inside of the back edge. When this has set we cement our brass tube securely through the hole; it is advisable to cement this tube right down to almost the bottom, bringing the cement right over it. Before doing this, however, it is just as well to rough the tube a little at the point where it enters through the celluloid, to give the cement a better grip and be sure to keep this tube 1/16 in. or slightly less from the bottom edge of the back.

The front portion of our tank is the last section to be added, if this is a curved piece. A tank with a curved front is most attractive, but a paper pattern should be taken of the size first. This is always the best policy, as sometimes on a curved surface you may find you have cut it short. The back edge only of the bottom should be cemented at first, and this should be allowed to set thoroughly before pulling it to the shape of the curve.

Finishing the tank can provide an interesting few minutes. On my own particular tanks I put a scale showing the amount of petrol it has in at a given depth. Full, half, empty (this one is put near the bottom, but not quite empty), with a series of strokes in between them. This scale will also serve as a guide to the time the motor will run, to those who do not possess a time switch. These markings are put on with ordinary Indian ink, fixed with a coat of clear varnish. The finish, however, depends on the individual capabilities of the aeromodeller. I paint all my tanks with a good enamel, all over, except the sections where I have the scale.

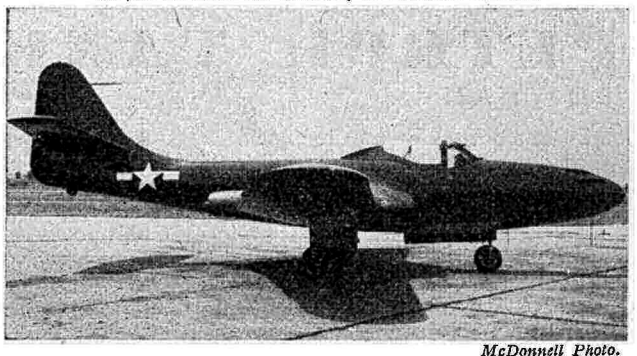


MONTHLY

BY O · G · THETFORD

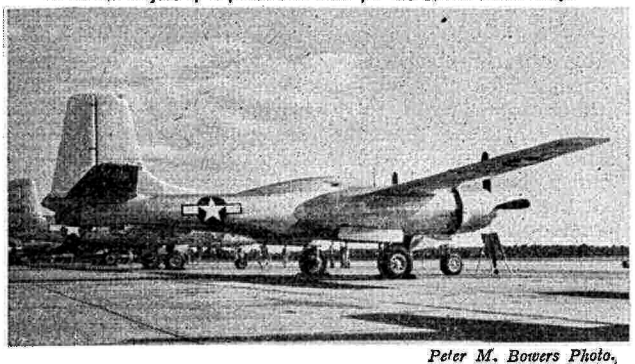
Miles Photo.

One of the Brabazons. *The Miles M.60 Marathon medium-size airliner which first flew on May 19th last. "U-10" is the Miles experimental number. The first Marathon will ultimately be registered G-AGPD.*



McDonnell Photo.

Naval Jet. *The McDonnell XFD-1 Phantom twin-jet fighter which is reputed to be the subject of a production order for the United States Navy.*



Peter M. Bowers Photo.

Attack Plus. *Modified version (XA-26F) of the Douglas A-26 Invader with a jet intake for J-31 unit above the fuselage in place of the rear turret.*

Training of Yesteryear. *A Hawker Hart Trainer, standard advanced trainer of the R.A.F. from 1935 to 1938. The Hart (T) was merely a dual-control version of the light day bomber. See R.A.F. Flashbacks on the opposite page.*

Photo: "The Aeroplane."

Hustling Hurricane.

Recently seen at Farnborough was a Hurricane IIc with modified wings. The whole machine was painted white, and apparently varnished. There was no trace of a blemish on the surface of the outer panels. These were of thin section from the centre-section outwards. The fuselage and tail markings were of the standard type, but the wing roundels were painted on the centre-section touching the fuselage to avoid roughness on the outer panels. It is understood that this machine is being used for high speed experiments. The serial number was in the LZ series.

D.H.108 Swallow.

Some of our readers living near Woodbridge, Suffolk, have seen a strange tailless device recently. It can now be referred to as the D.H.108 Swallow. Built round a Vampire fuselage, this aeroplane is intended to provide de Havilland's design staff with information regarding a new control system, which will be used in the forthcoming D.H.106 civil transport. The Swallow uses a D.H. Goblin Turbo-Jet mounted in the fuselage and has intakes in the wing-roots, a little farther out than in the Vampire. Fixed slats are mounted on the leading edge and anti-spin parachutes are enclosed in the wing-tips. Both wing and fin are heavily swept-back. The speed is temporarily restricted to 350 m.p.h. The machine was built at Preston by the English Electric Co., Ltd., and is numbered TG 283. It has now been flown to Hatfield for further modifications. It is silver doped.

Sweden Buys British.

On June 4th, five pilots of the Royal Swedish Air Force collected their first de Havilland Vampires from Hatfield and flew them across the North Sea to Sweden. All the Vampires had large long-range tanks under the wings. They were coloured the usual drab green on the upper surfaces and blue-grey underneath. The normal Swedish insignia of blue containing three yellow crowns and surrounded by a yellow roundel were carried on the wings and on the nacelles below the windscreen side-panels. There were no fin markings. The number 13 was carried between the insignia and the air-intakes. The first was numbered 28001. All carried one-piece bubble hoods. The Swedish pilots were brought over to Hatfield in a Swedish built Ju. 86K or S.A.A.B. B 3.D, powered by Swedish built 815 h.p. Bristol Pegasus XIX air-cooled radials. The machine was shadow camouflaged, and wore the same insignia as the Vampires. The number 78 was painted on the nose and fins.

Farnborough Surprise.

Among other interesting exhibits at the display held at Farnborough on June 27–30th was the prototype Short Sturgeon Naval reconnaissance two-seater. This is a mid-wing monoplane powered by two Merlin 140's driving contra-rotating airscrews. Of all-metal construction, except for the rudder and elevators, it is left a natural finish. It has folding wings. No hook is fitted yet, as its position is occupied by an anti-spin parachute. Armament is four ·05 M/G's and bombs. Three

MEMORANDA

cameras are mounted in the floor.

B.O.A.C. Constellations.

B.O.A.C. have taken delivery of their five Lockheed Constellations which have been allotted the following registrations :— G-AHEJ "Bristol II," G-AHEK "Berwick II," G-AHEL "Bangor II," G-AHEM "Balmoral," and G-AHEN. They are natural metal finish except for a blue flash from nose to tail, and the usual "Speed-bird" below the cockpit side windows.

Keystone Photo.

Waltzing Halibag. *Geoffrey N. Wikner's private Halifax, G-AGXA, leaving Hurn Airport for Australia. Note that the aircraft retains its operational camouflage and insignia despite the civil letters.*

Victory Fly-past.

Among the squadrons taking part in the fly-past on June 8th were No. 35 (Bomber), (Lancaster VII with ·5 in. guns in dorsal and rear turrets and squadron letters TL. TL-H was TW 878, No. 201 (G.R.), (Sunderland V, squadron letters NS), No. 254 (T.R.), (Beaufighter T.F. X). The squadron letters of 254 squadron are QM. Individual aircraft have the following letters and serial numbers :—QM-B RD 690, QM-D RD 508, QM-J RD 467, QM-N RD 500, QM-P SR 914, QM-S RD 574, QM-U RD 772. All these aircraft are finished in standard camouflage, and squadron letters are black.

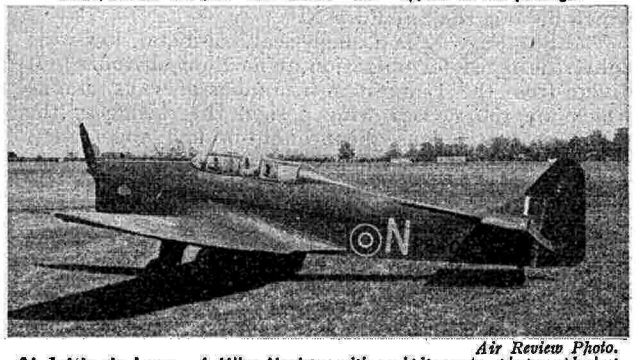
Photo: R. H. K. Roberts.

Bader's Buggy. *The personal Spitfire of Group Captain Douglas Bader, R.A.F., number RK 917. The letters "DB" appear on the fuselage.*

R.A.F. Flashbacks—20.

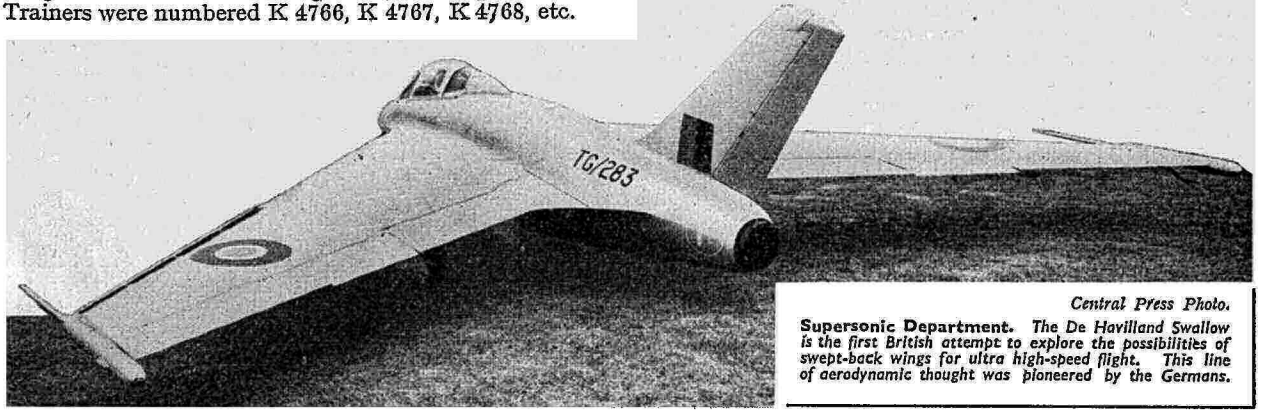
Following the Armstrong Whitworth Atlas the Hawker Hart Trainer went into service with the Royal Air Force as a standard trainer at Flying Training Schools in 1935. Another of the prolific family of Hawker two-seaters, the Hart (T), was a conversion from the standard day bomber, the only major differences being the revised cockpit arrangement, derated engine, long exhaust tail pipe, tail wheel replacing the older skid, and yellow dope throughout, except the cowling, which was polished metal. The Hart was the first R.A.F. trainer to wear the then new training colour.

Constructed of bolted steel tube throughout and fabric covered, the Hart was a single bay biplane with medium stagger. The upper wing had no dihedral and was swept back, while the lower wing was straight but had dihedral. The engine was a Rolls Royce Kestrel X giving 635 h.p. at sea level. This Kestrel version was unsupercharged. Span, 37 ft. 4½ in. Length, 29 ft. 4 in. Height, 10 ft. 4 in. Wing area, 350 sq. ft. Hart Trainers were numbered K 4766, K 4767, K 4768, etc.



Air Review Photo.

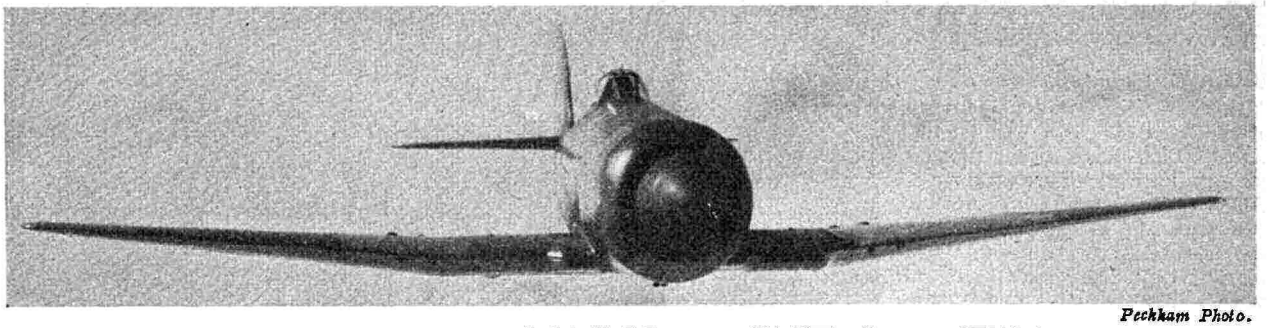
Ab Initio de Luxe. *A Miles Magister with cockpit canopy, photographed at Marshall's Flying School, Cambridge.*



Central Press Photo.

Supersonic Department. *The De Havilland Swallow is the first British attempt to explore the possibilities of swept-back wings for ultra high-speed flight. This line of aerodynamic thought was pioneered by the Germans.*

AEROPLANES DESCRIBED NO. XLII



Peckham Photo.

THE HAWKER SEA FURY

IN the early 1930's, the Hawker Fury biplane made a name for itself as a thoroughly good first-line fighter. The impression retained by those who knew it is one of sharply staggered wings, polished cowlings, stalky undercarriages, and the hoarse crackle of stub exhausts.

In 1943, when the new Fury was conceived, fighter aircraft were becoming larger and heavier with each new design, and Sydney Camm foresaw, as usual before most other people, that there would be a demand "to add more lightness." The new fighter was therefore designed to incorporate all the lessons learnt from the Typhoon and the then new Tempest at the minimum expense of weight. The original plan for the Fury was to be a "light Tempest," to a specification F6/42, but it was later decided to build a new design bearing a superficial resemblance to the Tempest around a specification called F2/43. The latter was afterwards used as a basis for the subsequent Naval version N7/43 which became the Sea Fury X.

The Sea Fury X is a single-seat, all-metal, low-wing fighter designed for operation at medium altitudes. It differs from the Tempest in a number of ways, among which are the revised wing design, the raising of the pilot's seat and consequent hump-backed appearance, the new fuselage construction, and spring-tab controls. The wing section is the same as that of the Tempest, but the span is somewhat less as the wing consists of two Tempest outer-sections joined together with no centre-section. The raising of the pilot's seat has resulted in a greatly improved view which is essential for carrier operation.

The Fury is built in six major sub-assemblies, namely, centre fuselage, power plant, rear fuselage, wings, tail-end with integral fin, and tail-plane. The fuel is pumped from two tanks totalling 124 gallons in the fuselage, which are fed by two other tanks holding 48 gallons in the starboard wing, and a further 20 gallons in the port wing.

The fuselage is a semi-monocoque structure throughout, as opposed to those of the Typhoon and Tempest, only the after part of which could be so described, as their front structures were of bolted steel tube construction. The Fury employs four longerons in the centre fuselage but these taper off to become normal stringers towards the rear. The usual formers and stringers with skin attached direct form the basic structure. The cockpit has a floor which is a great improvement over previous British fighters. The telescopic, sting type arrester hook is operated hydraulically.

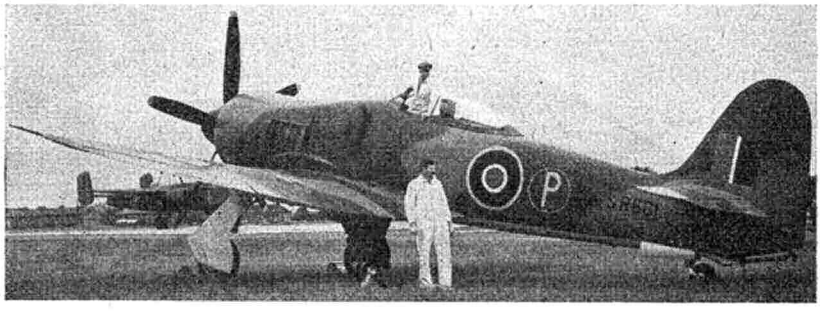
The standard engine installation in the Sea Fury X is a Bristol Centaurus XVIII, 18 cylinder air-cooled power plant delivering 2,300 b.h.p. for take-off, and driving a five-bladed Rotol airscrew.

Basically similar to the Tempest, the Fury has two-spar stressed-skin wings which are folded hydraulically from the cockpit. The carburettor air-intakes are mounted in the wing-roots and the oil cooler shares the port intake which is larger than the starboard. The flaps are of the split type and are hydraulically operated as are the undercarriage legs. The latter have the same parallel link action as the Tempest. The ailerons are operated by the tabs through torque tubes transmitting a load proportional to the pilot's effort.

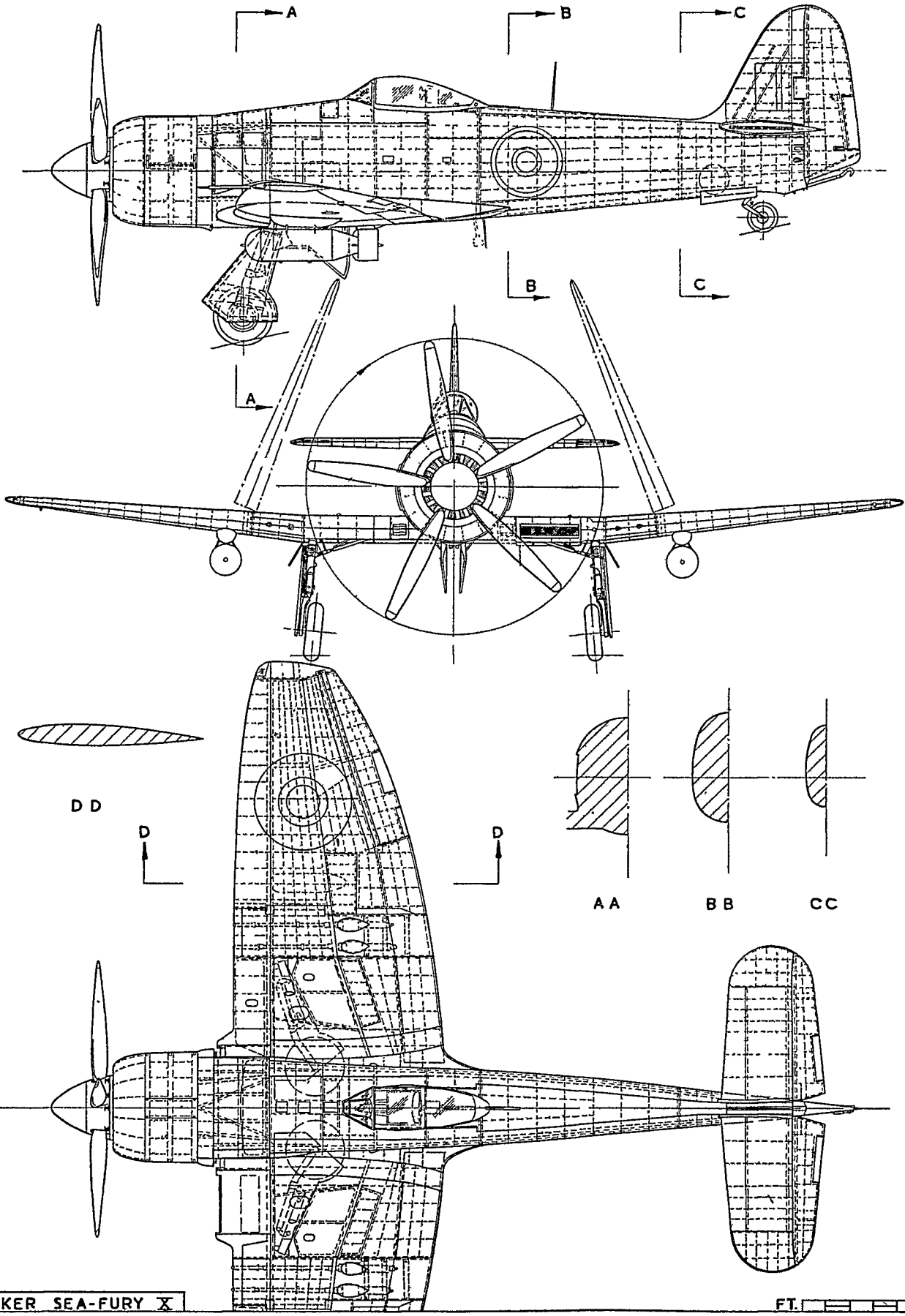
The tail wheel retracts forwards and is completely enclosed by doors. The tailplane is built in one piece and is slid into place through a slot in the base of the fin.

Several prototypes of Fury were built. The first, NX 798 with a Centaurus XII first flew on September 2nd, 1944, piloted by Philip Lucas, G.M. The second machine, LA610, had a Griffon 81 driving a Rotol Contra-prop. This Fury now has a Napier Sabre VII. The fourth machine became the Sea Fury X SR 666, and like the others, had brown and green camouflage with yellow underside.

SPECIFICATION: Span: 38 *ft.* 5 *in. Length:* 34 *ft.* 7 *in. Height Tail Up:* 12 *ft.* 3½ *in.* (*Wings Folded:* 16 *ft.* 1 *in.*). *Airscrew Diameter:* 12 *ft.* 9 *in. Wing Area:* 280 *sq. ft. Aspect Ratio:* 5·26. *Mean Chord:* 7 *ft.* 4 *in. Incidence:* 2½ *degrees. Dihedral:* 5½ *degrees. Wing Loading:* 43 *lb./sq. ft. All Up Weight:* 12,030 *lb. Max. Speed:* 460 *m.p.h. at* 18,000 *ft. Climb at S/L:* 5,640 *ft./min. Time to* 30,000 *ft.:* 8 *mins. Range with* 90 *gall. drop tanks:* 1040 *miles.*



Aeroplane Photo.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CLUB NEWS

BY CLUBMAN

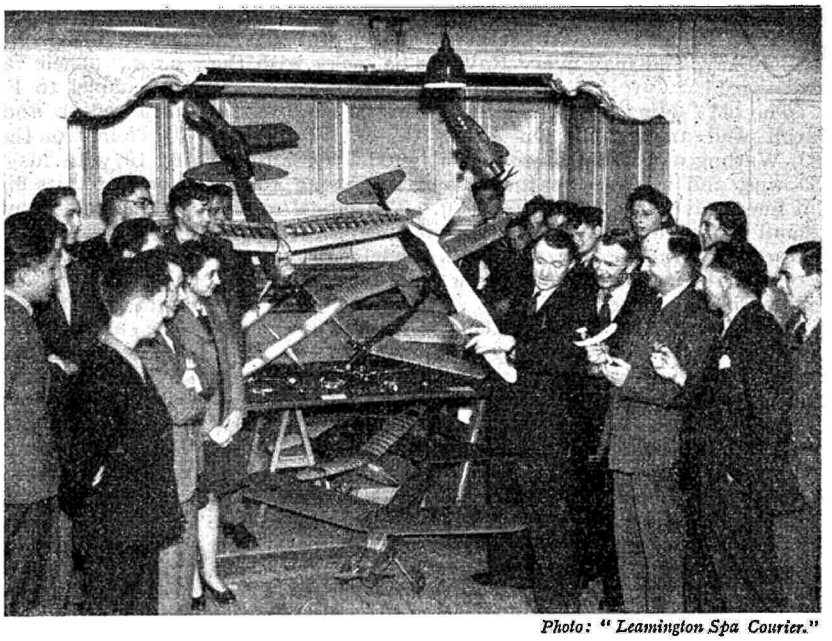


Photo: "Leamington Spa Courier."

Mr. W. S. Saunders, Chairman of the Leamington and District M.A.C., explains constructional points on his glider at the Club's quarterly model show.

REFERENCE to this month's Editorial columns will inform you that a new list of clubs in the British Isles is being compiled. During the past few weeks we have circularised all the known clubs according to our old list and later information received, but there is no doubt that a number of discrepancies still exist.

Unfortunately there are a number of changes of secretary, addresses, etc., and the returns so far received show that a number of clubs have gone out of existence. To assist getting out as complete a list as possible, will *all* clubs who have not yet received a copy of our circular please write in for one *at once* as we wish to get this new listing out as soon as possible.

The opportunity is being taken to survey the club movement as far as possible, and in this connection we are requesting such information as total membership, subscription rates, etc. (To allay the suspicions/fears of some club officials it should be pointed out that information supplied will be used collectively, and no individual details will be published.)

Both the Northern and Midland Areas have been holding big meetings during the past few weeks, and I am very pleased to note the way these chaps are really getting down to things. As noted last month, the Midland Area has got really well organised, with Area constitution and rules—one very wise item being the power of voting, which is granted to a club at the ratio of one vote per ten members. This gives the large club its proportionate vote to which it is entitled by virtue of its membership, yet does not allow the complete swamping of a meeting under the rules existent in the Main Council, the cause of so much controversy.

The MIDLAND RALLY was held at Worcester on the 16th June at Perdiswell Aerodrome, and comprised three events, plus flights for the Weston Cup. Times were good average, as the following results show :—

Open Rubber Duration

Harrison, D. W.	(Birmingham)	6 : 28 agg.
Ward,	(Wolverhampton)	5 : 39 ,,
Parham,	(Worcester)	5 : 05 ,,

Open Glider

Harrison, D. W.	(Birmingham)	4 : 23 ,,
Parham,	(Worcester)	4 : 12 ,,
Payne, R.	(S. Birmingham)	4 : 09 ,,

Nomination

Dallaway,	(Birmingham)	nil error
Chatwin,	(Birmingham)	·5 sec. ,,
Parliam,	(Worcester)	2 sec. ,,

The following week saw the NORTHERN AREA RALLY, held at Rochdale in ideal weather. Over 300 entries were received from 30 clubs for the four contests—and the entry of over 100 for the Open Glider event made the recorders' job anything but an enviable one, testing the organisation to the limit. The Manchester & District Council can feel proud of its workers, and wish to acknowledge with many thanks its appreciation of the work done by the recorders and various timekeepers from the clubs. Results were :—

Open Glider (Seniors)

Nuttall, D.	(Farnworth)	10 : 20
Evans, E. D.	(Blackpool)	10 : 10
Wainwright, E.	(Salford)	9 : 50

Open Glider (Junior)

Hewitt, R.	(Wythenshawe)	8 : 50·8
Blanchard, W.	(Merseyside)	2 : 15
Hetherington, W. B.	(Doncaster)	1 : 56·5

Duration R.O.G. (Seniors)

Scott, R.	(St. Helens)	6 : 11·4
Gilbert, H.	(Whitefield)	4 : 51·5
Bentley, Mrs.	(Blackpool)	4 : 36

Duration R.O.G. (Junior)

Wright, O.	(Cheadle)	2 : 17
Blanchard, W.	(Merseyside)	1 : 51·5
Salloway, R.	(Rochdale)	1 : 46

Restricted Glider (Senior)

Holden, C. M.	(Farnworth)	4 : 36
Macbeth, A.	(Ashton)	3 : 44
Hetherington, M. A.	(Doncaster)	1 : 48·5

Restricted Glider (Junior)

Duckworth, T.	(Rochdale)	2 : 28
Rigg, C.	(Wallasey)	1 : 51·5
Blanchard, W.	(Merseyside)	1 : 34·5

All-In Contest (Senior)

Hetherington, M. A.	(Doncaster)	4 : 14·2
Leeming, H.	(Salford)	3 : 53·6
Scott, R.	(St. Helens)	3 : 45·6

All-In Contest (Junior)

Wright, O.	(Cheadle)	2 : 45·3
Hetherington, W. B.	(Doncaster)	2 : 3·4
Blanchard, W.	(Merseyside)	1 : 32

M. A. Hetherington of Doncaster won the Cup for Rally Champion, while the best flight times went to D. Nuttall and E. Wainwright who tied for the top

glider time with 5 : 40, R. Scott getting the top R.O.G. flight with 4 : 22·4. Altogether a successful day I should say, and may every Rally be as lucky with the weather ! !

The old " King Falcon " glider seems to be doing its stuff well and truly. On June 7th, D. White and D. Watling of Carshalton took their model to Banstead Downs, and in ideal weather conditions, using 400 ft. of line, they got a perfect take-off. The model rose in small circles until after 18 : 50·3 it disappeared from view. As Watling states : " this model has given us considerable ' trouble,' but never before has it become so completely out of hand."

The READING & D.M.A.C. has at last found the modeller's paradise—a flying field of over 100 acres, quite flat and free from obstructions. It is Theale Aerodrome, 5 miles from the centre of Reading. Ample shelter facilities are available, and transport is good. Flying takes place in the evenings and Wednesday afternoons.

The ST. HELENS M.A.C. entertained visitors from the Warrington M.F.C. on June 9th and managed to take five of six places in two contests run off in rain. R. Scott made best time of the day with 1 : 41—which is not bad in pouring rain.

Three out of the four English contestants at the recent French Tail-less Competitions held at Lyons were members of the NORTHAMPTON M.A.C. Good flying has taken place on the club ground at Duston, W. T. Barry losing his 37½ in. span glider " Owlet," the job disappearing from sight after a flight of 17 : 30. News of this model is still eagerly sought ! Another member to get a good flight was E. Hudson, whose " Albatross " flew for a total of 8 : 30. E. W. Evans did his stuff to good purpose in the first club competition of the season, his well-known " Firefly " gaining an aggregate of 4 : 39·3.

In the M.E. No. 1 Cup event, A. W. Green of the WALTHAMSTOW M.A.S. lost his glider twice, and after extensive motor cycle chasing was recovered, the team totalling 1333·7 points, gaining 6th place in the event. E. H. Aylward was the best of three entries for the Pilcher Cup with a time of 5 : 22·7. Recently the club H.L. record was raised by A. D. Mitchell to 17 : 30, flying a lightweight rubber-driven job.

The WEST COVENTRY M.A.C. is spreading, and has opened a branch at Kenilworth, with another following at Brinklow. Seems they are out to form an Area all their own ! ! However, organisation is a thing that has been lacking in a number of districts, and I am pleased to see someone really getting down to it in this manner.

The SWINDON M.A.C. is now well on the way to prosperity after its wartime closure, and a permanent clubroom has been found. To mark the start of the outdoor season, an Open Gala Day was held on the 9th June, but high winds and poor weather made things difficult. Best time of the day was made by L. Sutcliffe's " Zenith," other models being well and truly bent !

May proved hopeless for flying in the SOUTHAMPTON M.A.C., but they managed to fly off a contest with the Portsmouth modellers. Though coming out well on top in the sailplane event, they were just beaten to it by the Portsmouth chaps in the rubber duration. D. Gordon made the best aggregate in the rubber event with a total of 3 : 02·2, while P. Goodchild took the glider honours with an aggregate for two flights of 1 : 54·7.

Gliders still enjoy the greatest popularity in the BURY & D.M.A.C., and in a recent competition K. Toole raised the towline record to 19 : 30 with his " Mick Farthing " model. Another new record is the canard glider, in which class C. Lee obtained a flight of 2 : 30 o.o.s. (Their tail-less expert, E. Hargreaves, took his gas model to France for the Lyons competitions and returned to find his calling-up papers awaiting him !) D. Helm won the April glider competition with a time of 3 : 19 with his " H.58," but unfortunately the model completed its flight under a double-decker 'bus !

The well-known BUSHY PARK M.F.C. glider teams have been very active this season, prominent successes being first place in the Surbiton glider Rally with an aggregate of 2496·3 points, also winning the glider contest at the Croydon Gala. M. A. Wright has broken the club r.t.p. record with an impressive 2 : 39.

Plenty of outdoor flying is being done by the WALTHAM & ENFIELD M.A.C., the best flight to date being 4 : 35 o.o.s. by J. Warren's much repaired " Icarus " sailplane, the model being followed for 12 minutes before finally passing out of sight.

The first annual Gala of the BATHGATE & D.M.F.C. was a tremendous success, 98 entries being received from eight clubs. Spectators numbered around the 200 mark. No members of the home club flew, having enough on their hands running the events ! Weather was bright but windy, and machines quickly went out of sight downwind. Results :—

Junior Glider

Harvey, A.	(Stirling)	5 : 20·5
McConnachie, W.	(Glasgow)	2 : 33·5
Gorrie, H.	(Falkirk)	1 : 36·8

Open Rubber R.O.G.

Wardell, H. A.	(Edinburgh)	3 : 02·9
Montgomery, P.	(Fife)	3 : 00
Wedderspoon, J.	(Fife)	2 : 25

Open Glider

R. Marshall	(Garnock)	2 : 59
Montgomery, P.	(Fife)	2 : 43·4
Martin, S. R.	(Edinburgh)	1 : 45

G. Bissett won the Nomination event with a one second error, while Harvey put up best time of the day with a flight of 2 : 45·5.

The GLASGOW M.A.C. is holding a contest for the " Clyde Model Dockyard Trophy," at Kirkhill, Cambuslang, on the 8th September. The event is confined to Wakefield models, and entry forms, etc., can be obtained from the Competition Secretary, Mr. I. N. Mailer, 75, Walnut Road, Glasgow, N.

Since the MAIDSTONE & D.M.A.C. was formed last December, the membership has risen to over 40. Gliders are predominant in the outdoor flying, the record at present being 4 mins. o.o.s. by F. Le Hagarat's " Thermic 50." The first of a series of exhibitions held at Easter drew large crowds, and the membership appreciated accordingly.

An Open Day is to be staged by the R.A.F. Club MORETON-IN-MARSH M.A.C. on August 11th, and entries are invited. Events for petrol, Wakefield gliders and duration jobs will take place, and further particulars can be obtained from F/Lt. L. W. Jackson Wynch, Officer's Mess, R.A.F. Station, Moreton-in-Marsh, Glos.

Although the weather in May and June was enough at times to discourage the most hardened of enthusiasts, the LUTON & D.M.A.S. competitions have been run off as near to date as possible. The " Faunch Cup " for sailplanes was flown in a high wind, the winner, R. Minney, flying a model of his own design to first place with an aggregate of 3 : 10·5. He also won the " Brown Trophy " with his Ajax model. The juniors put it across the senior members in the course of a team glider

event. Best senior was R. Bateman's time of 5 : 42·5 with his model " Wasp " on its first flight, while the best youngster was E. King, also flying a " Wasp," his total for two flights being 4 : 49·5.

The HAYES & D.M.A.C. have at last managed to secure a room for indoor meetings, large enough to accommodate r.t.p. flying during the winter months. A very successful first meeting was held, and things look O.K. now for future activities.

Several members of the ARBROATH M.A.C. between the ages of twelve and sixteen years desire aeromodeller pen-pals in the U.S.A., the Dominions or France. Intending correspondents should communicate with the Secretary, D. D. Edwards, 12, Dalhousie Place, Arbroath, Scotland.

Flying a modified " Mick Farthing Glider," H. Leeming of the SALFORD M.A.C. broke the club record with a flight of 5 : 40 o.o.s.

In spite of plenty of publicity, no outside entries were received for the NORTH KENT M.A.S. contest for the " C. H. Roberts Cup " for flying boats. A. D. Hall made two very consistent flights of 35·2 and 33·4 seconds to win, with H. Sayers second with three flights of 14·8, 28·3 and 23·3 secs. One flight by Hall, and one by Rainer were very spectacular, inasmuch as the machines re-alighted on the water successfully.

T. Davies won the " Paterson Shield " contest in the CROYDON & D.M.A.C. event held at Epsom Downs, with a time of 7 : 18·6, while the " Thorpe Cup " for juniors went to E. Denyer with a total of 3 : 49·3. This club gained three out of the four places in the London Area rubber trials.

The ST. ALBANS M.A.C. is proceeding favourably in its first flying season, and club records are being established. Despite bad weather, Mr. Grant flew his experimental pterodactyl glider (modified Westland-Hill) out of sight after 4 : 12. Mr. Brown, flying a " Mick Farthing " lightweight, obtained 4: 05, his model being recovered. Two different types of jet units are being successfully bench - tested by J. Greening, who is collaborating with Mr. Newhouse in designing and building a jet-propelled pterodactyl.

The Air Ministry have given the CAMBRIDGE M.A.S. permission to use Bourn Airfield, and efforts are now being made to link up with all the other clubs in the area with a view to forming a much-needed East Anglian area. Will clubs concerned please contact Mr. D. A. Gordon, 9, Orchard Estate, Cherry Hinton, Cambridge.

The GUILDFORD M.A.C., after a lapse of some 6–8 months, is on the point of being restarted, and all interested should get in touch with Mr. J. D. Aston, at 35, High Street, Guildford, or Tony Brooks, at Brooks' Cycle Stores, Chertsey Street.

New life is being introduced into the YEOVIL & M.S.A. and a more vigorous policy is being planned. G. Woods hit a " riser " with his glider " Chadpole," which clocked 10 : 26 o.o.s. A pterodactyl pusher by Mr. Gyfford has been seen about, and shows remarkable stability (as well as a weird appearance), turning in consistent flights of 40–50 seconds.

M. Kibblewhite of the LEIGHTON PARK M.A.C. lost his own design model glider on its fourth flight after

" THIS BUMP SUGGESTS AN INTEREST IN AVIATION "

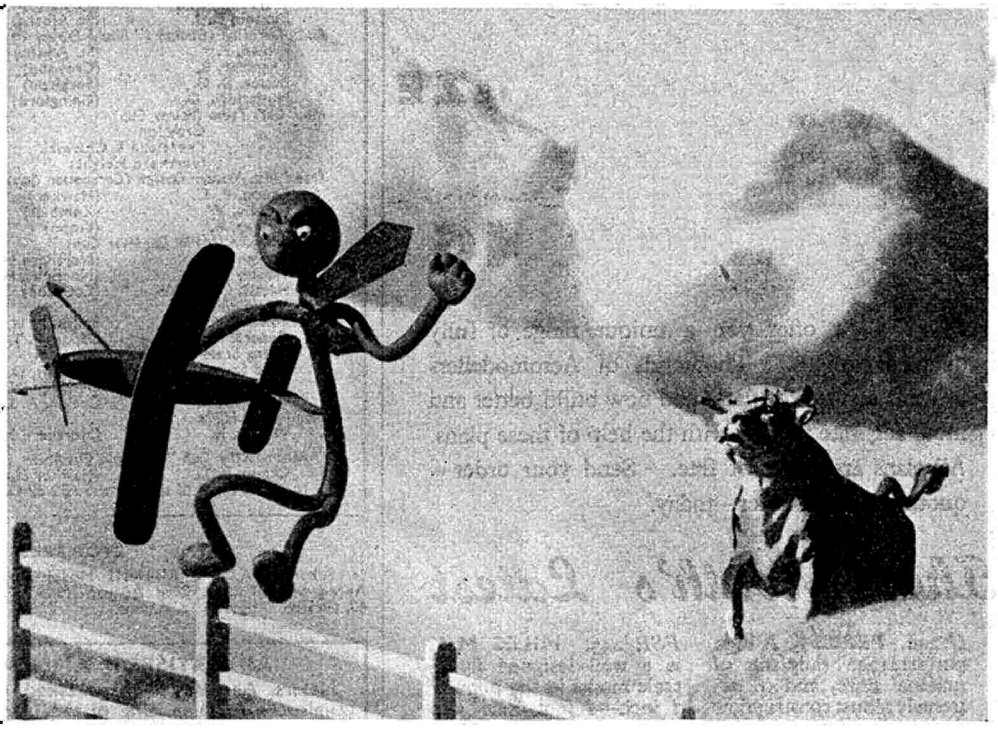
BEN TWYRE • By J. H. MAXWELL

Though gates are provided for people with sense,

Ben Twyre has elected to hurdle the fence,

And, though it seems silly, he's really no fool,

For the field where he flies is the home of a bull.



a time of 4 : 20, last seen heading towards Burghfield (near Reading) from Theale Aerodrome. Of streamlined monocoque fuselage construction, the elliptical wings are 50 in. span, and the job was finished all cream. Any news will be welcomed.

The BURNLEY M.A.C. is to hold a meeting open to all Lancashire enthusiasts on July 28th, and will be open to all types—both models and their fliers! Flying will commence at 11 a.m. and will cater for petrol, glider and duration models.

One or two old clubs announce that activities are recommencing, and for the purpose of records, etc., I am classing these under the heading "New Clubs." Don't forget to send in for our Club List form. (Omission to do so will mean that your club will not appear in the full list, and the wrath of your fellow members will be upon your own heads!)

THE CLUBMAN.

NEW CLUBS

DULWICH M.A.C.
C. Hubert, 17, Buller Square, Peckham, London, S.E.15.
SUNDERLAND & D.M.A.C.
J. E. Wolson, 18, Devonshire Street, Monkwearmouth, Sunderland.
NORTH MANCHESTER M.F.C.
F. W. Vann, 1, Pinfold Avenue, Blackley, Manchester.
FROME M.A.C.
R. J. Morgan, Critchill House, Frome, Somerset.
NELSON & D.M.A.C.
H. Morris, 4, Hartley Street, Nelson, Lancashire.
1005 (RADCLIFFE & WHITEFIELD) SQUADRON A.T.C. M.A.C.
R. Holland, 45, Ainsworth Road, Radcliffe, Lancashire.
STAFFORD & D.M.A.C.
J. R. White, 35, Salt Avenue, Stafford.
GUERNSEY M.A.C.
R. Marquand, Melrose Cottage, Gibauderie, St. Peter Port, Guernsey, Channel Islands.
FARNBOROUGH A.T.C. M.A.C.
B. Main-Smith, South View Lodge, Upper South View, Farnham, Surrey.
STANLEY, TANTOBIE & D.M.A.C.
F. Ritchie, 10a, South View, Tantobie, Newcastle-on-Tyne.
GRANTHAM A.S.A.
J. Barker, 13, Launder Terrace, Grantham, Lincolnshire.
ERDINGTON DISTRICT M.A.C.
W. G. Upton, 312, Tyburn Road, Erdington, Birmingham, 24.
KIVETON PARK M.A.C.
D. Stimson, 59, Wales Road, Kiveton Park, Nr. Sheffield.
LOUGHTON SKYRANGERS M.A.C.
S. Pearce, 34, Spring Grove, Loughton, Essex.
DARLINGTON M.A.C.
T. A. Walker, 9, Abbey Road, Darlington.

SECRETARIAL CHANGES, ETC.

SUDBURY YOUTH M.A.C.
H. J. C. Burrell, 14, North Street, Sudbury, Suffolk.
BEXHILL & D.M.A.C.
N. J. Butcher, 16, Eversley Road, Bexhill-on-Sea, Sussex.
BURY & D.M.A.C.
D. Helm, 3, Ainsdale Road, Bury, Lancashire.
SEAHAM M.F.C.
T. Holliday, 2, Queen Street, Seaham, Co. Durham.
BRENTFORD & CHISWICK M.F.C.
N. Winsley, 5, Borestide Road, Hammersmith, W.6.
HAYES & D.M.A.C.
J. Marshall, 43, Keith Road, Hayes, Middlesex.
MORDEN & D.M.A.C.
H. R. Geal, 14, Rutland Drive, Morden, Surrey.
ROCHDALE & D.M.A.C.
A. Ashworth, 43, Melville Street, Castledon, Rochdale, Lancs.

S.M.A.E. CONTEST RESULTS
PILCHER CUP

Butler, D.	(Surbiton)	582·5
Hobbs,	(Pharos)	567·7
Yeabsley, R.	(Croydon)	534·8
Sergent, K.	(Bristol)	492·3
Warring, R.	(Zombies)	490·8
Marcus, N.	(Croydon)	480·4

PLUGGE CUP POSITION INCLUDING PILCHER

Croydon	579·76
Northern Heights	530·17
Birmingham	485·81
Bushy Park	471·69
Zombies	459·99
Blackheath	442·29
Pharos	434·08
Bristol	421·63

NORTHERN HEIGHTS M.F.C. GALA DAY RESULTS

Open Duration (Rubber)		
Lees, D. G.	(Bradford)	485·2
Warring, R. H.	(Zombies)	454·8
Buxton, D. J.	(St. Albans)	383·6
Open Duration (Glider) ("Flight Trophy")		
Brown, P.	(St. Albans)	321·4
Chandler, B.	(Croydon)	252·5
Butler, D. G.	(Surbiton)	243·0
Hinstridge, D.	(Chingford)	
Inter Club Team (Fairey Cup)		
Croydon	282·4	
Brentford & Chiswick	280·8	
Northern Heights	233·1	
Free Lance Modern Design (Coronation Cup)		
Capon, P. T.	(Hawker)	188·4
Geddie, W.	(Zombies)	169·5
Minney, R.	(Luton)	143·0
Power Driven (Model Engineer Cup)		
Copland, R.	(Northern Heights)	81·8
Tansley, K.	(Northern Heights)	63·0
Harris, G. W. W.	(Croydon)	51·5
Concours d'Elegance		
Power Driven	Smith, R. H.	(Wolverhampton)
General Flying	Capon, P. T.	(St. Albans)
Flying Scale	Miller, A.	(Luton)
Solid Scale	Yeabsley, D.	(Croydon)
Gliders	Deudney, N.	(Walthamstow)
Unorthodox	Cockle, A. J.	(Northampton)
Nomination Flight		
Wilton, R.	(Northern Heights)	45·2

"Aeromodeller Cup" for Gala Champion
Capon, P. T. (Hawker M.A.C.)
(Best flight of the day : 5 : 52 by D. G. Lees (Bradford)

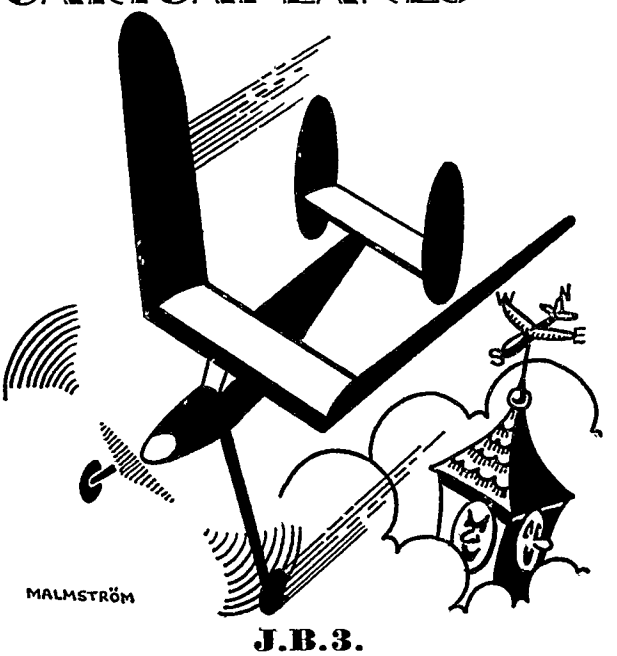
STOP PRESS

St. Albans M.A.C. "All-Herts Model Aircraft Rally." Handley Page Aerodrome, Radlett, 25th August, 1946. Particulars: Sec. R. Seabrook, 40, Church Crescent, St. Albans.

ADVERTISERS' ANNOUNCEMENT

Messrs. Aeromodels have asked us to point out the unfortunate misplacing of the illustrations in their July advertisement. "Wicko" is of course the 15¾-inch span flying scale model, and "Don" the 27-inch span duration model.

CARICAPLANES No. 10



J.B.3.

A model designed by Mr. J. Bezemer, incorporating pronounced tip dihedral, and a fine flight performance.

CLASSIFIED ADVERTISEMENTS

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

REQUIRED

Wanted, in good condition, Volume 8, 1943 AEROMODELLER or complete numbers for same—J. G., Portsmouth, 72, D'Arcy Gardens, Kenton, Mddx.

Winch in good condition, good price paid.—Particulars to E. Godwin, 6, Belgrave Promenade, Ilfracombe, N. Devon.

Mini accumulator, 2-4 v., and airwheels in good condition. State dimensions and price. Would part exchange AEROMODELLER, A. T. C. Gazettes, spotters' and recognition books, or sell separately.—Send for details, Parbery, "Domus," Stanley Hill Avenue, Amersham, Bucks.

Copies of Air Review 1, 2, 3, 4 of Volume 7. Good price paid for clean copies.—Stevens, 42, Moorland Road, Weston-super-Mare.

Urgently wanted. Will some kind chap please spare me 1 sheet Planefilm. Good price given.—Bartlett, 34, London Street, Mountain Ash, Glam.

Plan of 46-in. span Veron Eagle. Duration Model. Will pay 2s. 6d. for plan.—Willes, 32 Eastwyld Road, Weymouth.

FOR DISPOSAL

Syncro B.30 (4·9 c.c.) Engine, plug, coil and condenser, £3.Plox duplicator, £1.—P. Yates, 9, Manor House Lane, Deepdale, Preston.

Half-finished "Spencer-Larsen," ditto "George," all materials for completing. Uncovered 40-in. Duration, 36 in. scale Mr. Mulligan. V ious drawings. Carrying-case, wood, 48 by 9 by 12 ins. Ditto cardboard, 40 by 8 by 8 ins.—S.A.E. D. Edwards, 8, Sneyd Road, Cricklewood, London, N.W.2.

A.F.P., IV, V, perfect condition. 17s., 25s., AEROMODELLERS, December, 1943 to present, 9d. each.—Hook, 75, Park Road, Brentwood, Essex.

Set of Standard Training Glider drawings, £3.—E. Addyman, The White House, Starbeck, Harrogate.

55 Aeroplane books and journals, glider kit, Stirling flying kit, 1/72 scale plans and kits. Good condition.—Anson, Osgodby, Selby, Yorks.

Collection 70 1/72nd solid model replicas; two large showcases, £75 (not sold separately).—Littlewood, 72, Richford Street, London, W.6.

Nearly finished Bowden Contest petrol plane. 68 ins. span., with plan and airdraulic timer, spatted undercarriage, uncovered, minus engine.—Enquiries, J. Allanach, 99, Cross Flatts Avenue, Leeds, 11.

Aircraft of the Fighting Powers, Vols. IV, V, VI. As new. 22s. 6d. each or £3 5s. the set.—D. Pincott, Wealdmount, Haslemere, Surrey.

Natsneez, minus engine, undercart, plus plan. 30s. New Harborough books, A.F.P., etc., Solid, Petrol, Duration, Glider plans. S.A.E. full list.—J. Ralph, Clanna Cottage, Alvington, Lydney, Glos.

1942–1946 Aeroplane Spotters and books of Aeronautical interest. S.A.E. for list.—Montague, 101, Westwood, Bradford-on-Avon, Wilts.

Many Inter-services Recognition Journals and Aeroplane Spotters. Send S.A.E. for details.—J. Ware, 2, Edwards Cottages, Hayes Lane, Kenley, Surrey.

69-in. Bowden Contest. Planefilm covered, sprayed white, air wheels less engine, £6. Natsneez 31 petrol high-wing monoplane. Less wheels and engine, £2. £7 for both.—BM/GBDN, London, W.C.1.

Aeroplane Spotters, 1–152. 6 vols. (4 plain bound), 55s. £5 15s. worth. Aircraft and Ship books, etc., all for 45s.—Simmons, 87, Greenway Road, Taunton.

Aircraft of Fighting Powers, Volumes I–VI. Excellent condition. Bargain, £3.—Izard, 37, Somers Road, Reigate, Surrey.

EXCHANGE

A.F.P., Volumes 1–6, excellent condition, £5; or exchange for R.A.F. rubber dinghy.—Roberts, 16, Crowndale Road, Bristol, 4

Large quantity wireless parts, exchange for any perfect 6 c.c. petrol motor.—Vickers, 13, Tristram Road, Hitchin, Herts.

Hornby Electric Train set, £10, or will exchange 3 c.c.—7½ c.c., cash adj.—R. Field, 76, Lower Paddock Road, Watford, Herts.

Magnetic compass type P.11 for sale, or exchange, for A.F.P. vols. What offers?—Box No, 29.

2-valve battery wireless set, 2 extra valves for 3·5 to 6 c.c. petrol engine. Cash adjustment if necessary.—Dalgleish, 59, Douglas Street, Peel, I.O.M.

PERSONAL

Experienced Aeromodeller is willing to undertake free lance work in any of the following: Drafting, Design, and Advertising, Layout, etc.—Reply to S. R. Crow, 19, Wenvoe Avenue, Bexley Heath, Kent.

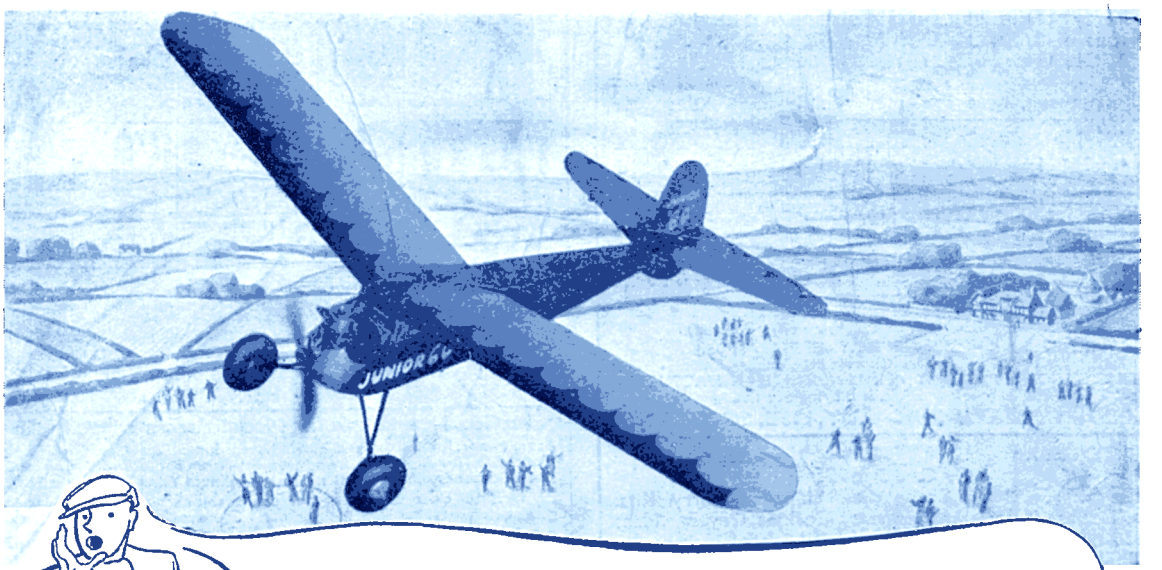
TRADE

1/48th Blueprints, fully detailed. Tempest, XFD-I, Meteor, Vampire, etc., 1s. each. S.A.E. for list.—A. I. S., 32, Cumberland Avenue, Wellington, Kent.

Stafford Modellers, all you require, plus good service. Est. 1936. —Aircraft Models (J. W. Bagnall), South Wells, Stafford. Tel, 420.

Owing to shortage of space one or two advertisements have been carried forward to September.

Made and printed in Great Britain by Alabaster, Passmore & Sons, Ltd., London and Maidstone, for the Proprietors and Publishers, The Model Aeronautical Press, Ltd., Allen House, Newarke Street, Leicester. Trade Distributors : Horace Marshall & Son, Ltd., Temple House, Tallis Street, London, E.C.4—C1601.
Ⓢ Sole Agent for Australasia : G. Mason, 4, Princes Walk, Melbourne. Registered at the G.P.O. for transmission by Canadian Magazine Post.



"KEIL KRAFT JUNIOR '60' GAINS THE DAY AT EATON BRAY"

Keil Kraft do it again, first with the FALCON on Sept. 15 and now with JUNIOR 60 win at Eaton Bray (Petrol Section) on Easter Monday. Make this the subject of your next model. It's a winner in every sense—a simple, slab-sided, petrol-engined model with five foot wing span. Capable of fine performance to reward your constructive skill, yet simple enough for a beginner to tackle with confidence. Completely detailed, easy-to-follow PLANS ready NOW. Price 10/-. Kits now ready.

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Accessories Always Available
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2⅛", 3", 3½" and 4½" dia.
K. 6 Petrol Engine now ready.

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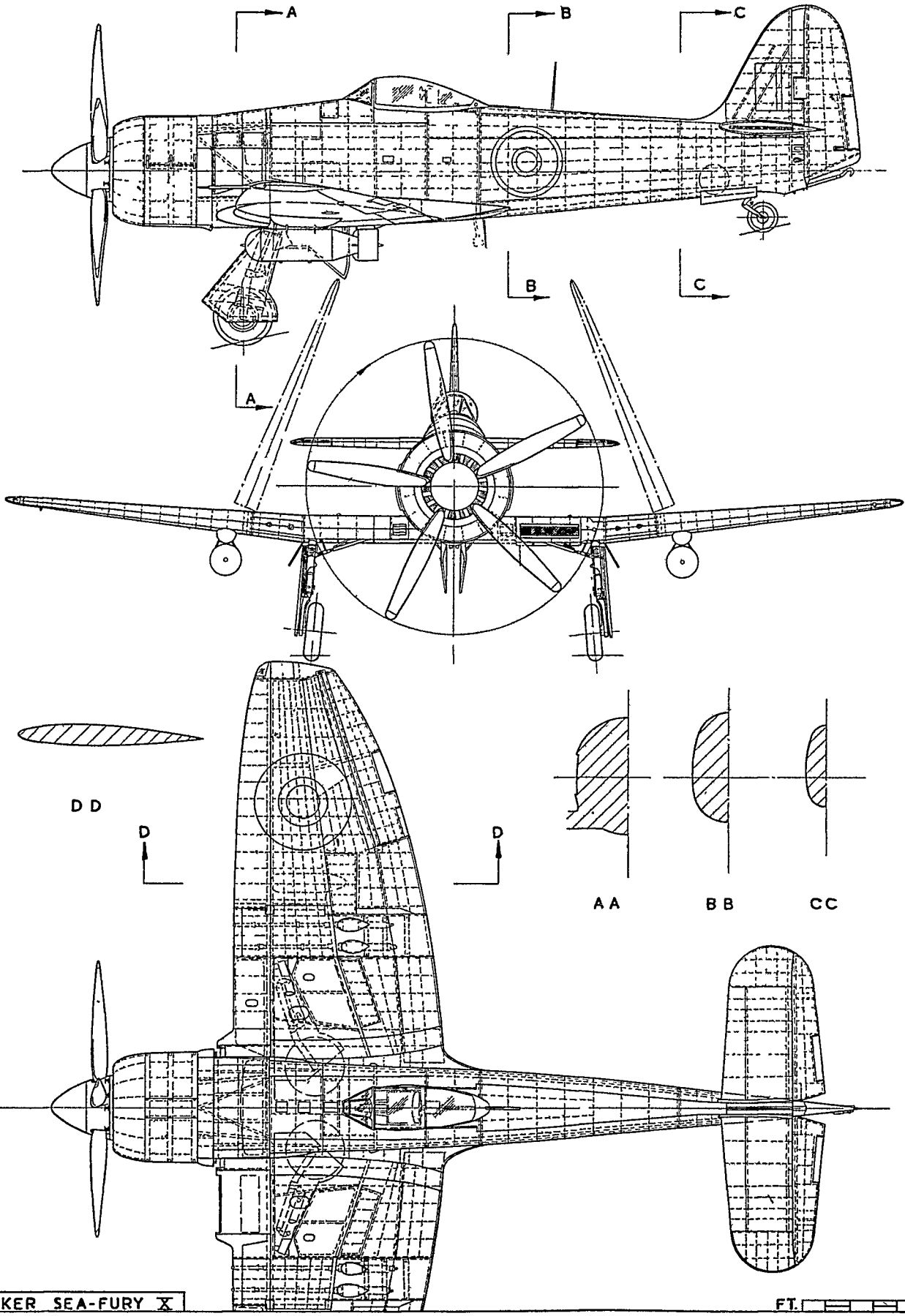
We regret we are unable to reply to enquiries from private purchasers.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CLUB NEWS

BY CLUBMAN

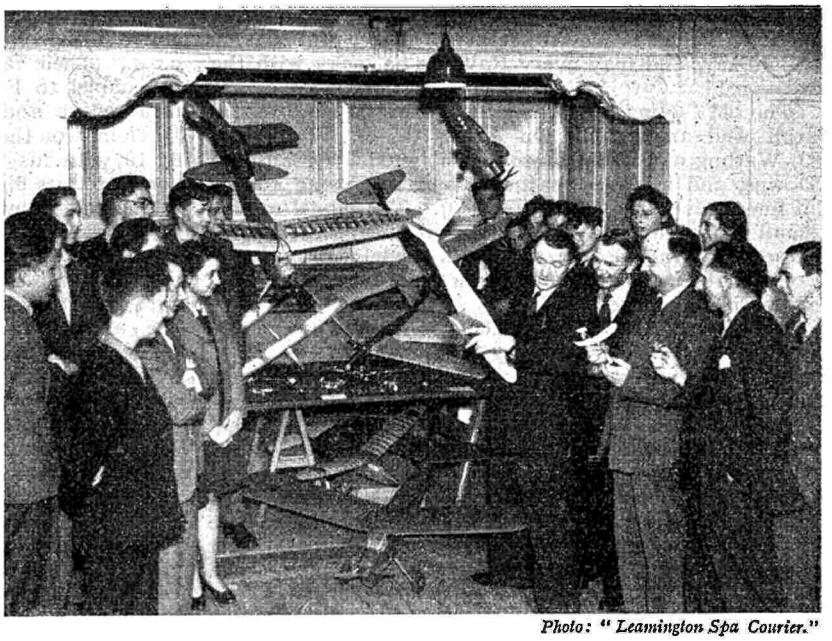


Photo: "Leamington Spa Courier."

Mr. W. S. Saunders, Chairman of the Leamington and District M.A.C., explains constructional points on his glider at the Club's quarterly model show.

REFERENCE to this month's Editorial columns will inform you that a new list of clubs in the British Isles is being compiled. During the past few weeks we have circularised all the known clubs according to our old list and later information received, but there is no doubt that a number of discrepancies still exist.

Unfortunately there are a number of changes of secretary, addresses, etc., and the returns so far received show that a number of clubs have gone out of existence. To assist getting out as complete a list as possible, will *all* clubs who have not yet received a copy of our circular please write in for one *at once* as we wish to get this new listing out as soon as possible.

The opportunity is being taken to survey the club movement as far as possible, and in this connection we are requesting such information as total membership, subscription rates, etc. (To allay the suspicions/fears of some club officials it should be pointed out that information supplied will be used collectively, and no individual details will be published.)

Both the Northern and Midland Areas have been holding big meetings during the past few weeks, and I am very pleased to note the way these chaps are really getting down to things. As noted last month, the Midland Area has got really well organised, with Area constitution and rules—one very wise item being the power of voting, which is granted to a club at the ratio of one vote per ten members. This gives the large club its proportionate vote to which it is entitled by virtue of its membership, yet does not allow the complete swamping of a meeting under the rules existent in the Main Council, the cause of so much controversy.

The MIDLAND RALLY was held at Worcester on the 16th June at Perdiswell Aerodrome, and comprised three events, plus flights for the Weston Cup. Times were good average, as the following results show :—

Open Rubber Duration

Harrison, D. W.	(Birmingham)	6 : 28 agg.
Ward,	(Wolverhampton)	5 : 39 ,,
Parham,	(Worcester)	5 : 05 ,,

Open Glider

Harrison, D. W.	(Birmingham)	4 : 23 ,,
Parham,	(Worcester)	4 : 12 ,,
Payne, R.	(S. Birmingham)	4 : 09 ,,

Nomination

Dallaway,	(Birmingham)	nil error
Chatwin,	(Birmingham)	·5 sec. ,,
Parliam,	(Worcester)	2 sec. ,,

The following week saw the NORTHERN AREA RALLY, held at Rochdale in ideal weather. Over 300 entries were received from 30 clubs for the four contests—and the entry of over 100 for the Open Glider event made the recorders' job anything but an enviable one, testing the organisation to the limit. The Manchester & District Council can feel proud of its workers, and wish to acknowledge with many thanks its appreciation of the work done by the recorders and various timekeepers from the clubs. Results were :—

Open Glider (Seniors)

Nuttall, D.	(Farnworth)	10 : 20
Evans, E. D.	(Blackpool)	10 : 10
Wainwright, E.	(Salford)	9 : 50

Open Glider (Junior)

Hewitt, R.	(Wythenshawe)	8 : 50·8
Blanchard, W.	(Merseyside)	2 : 15
Hetherington, W. B.	(Doncaster)	1 : 56·5

Duration R.O.G. (Seniors)

Scott, R.	(St. Helens)	6 : 11·4
Gilbert, H.	(Whitefield)	4 : 51·5
Bentley, Mrs.	(Blackpool)	4 : 36

Duration R.O.G. (Junior)

Wright, O.	(Cheadle)	2 : 17
Blanchard, W.	(Merseyside)	1 : 51·5
Salloway, R.	(Rochdale)	1 : 46

Restricted Glider (Senior)

Holden, C. M.	(Farnworth)	4 : 36
Macbeth, A.	(Ashton)	3 : 44
Hetherington, M. A.	(Doncaster)	1 : 48·5

Restricted Glider (Junior)

Duckworth, T.	(Rochdale)	2 : 28
Rigg, C.	(Wallasey)	1 : 51·5
Blanchard, W.	(Merseyside)	1 : 34·5

All-In Contest (Senior)

Hetherington, M. A.	(Doncaster)	4 : 14·2
Leeming, H.	(Salford)	3 : 53·6
Scott, R.	(St. Helens)	3 : 45·6

All-In Contest (Junior)

Wright, O.	(Cheadle)	2 : 45·3
Hetherington, W. B.	(Doncaster)	2 : 3·4
Blanchard, W.	(Merseyside)	1 : 32

M. A. Hetherington of Doncaster won the Cup for Rally Champion, while the best flight times went to D. Nuttall and E. Wainwright who tied for the top

glider time with 5 : 40, R. Scott getting the top R.O.G. flight with 4 : 22·4. Altogether a successful day I should say, and may every Rally be as lucky with the weather ! !

The old " King Falcon " glider seems to be doing its stuff well and truly. On June 7th, D. White and D. Watling of Carshalton took their model to Banstead Downs, and in ideal weather conditions, using 400 ft. of line, they got a perfect take-off. The model rose in small circles until after 18 : 50·3 it disappeared from view. As Watling states : " this model has given us considerable ' trouble,' but never before has it become so completely out of hand."

The READING & D.M.A.C. has at last found the modeller's paradise—a flying field of over 100 acres, quite flat and free from obstructions. It is Theale Aerodrome, 5 miles from the centre of Reading. Ample shelter facilities are available, and transport is good. Flying takes place in the evenings and Wednesday afternoons.

The ST. HELENS M.A.C. entertained visitors from the Warrington M.F.C. on June 9th and managed to take five of six places in two contests run off in rain. R. Scott made best time of the day with 1 : 41—which is not bad in pouring rain.

Three out of the four English contestants at the recent French Tail-less Competitions held at Lyons were members of the NORTHAMPTON M.A.C. Good flying has taken place on the club ground at Duston, W. T. Barry losing his 37½ in. span glider " Owlet," the job disappearing from sight after a flight of 17 : 30. News of this model is still eagerly sought ! Another member to get a good flight was E. Hudson, whose " Albatross " flew for a total of 8 : 30. E. W. Evans did his stuff to good purpose in the first club competition of the season, his well-known " Firefly " gaining an aggregate of 4 : 39·3.

In the M.E. No. 1 Cup event, A. W. Green of the WALTHAMSTOW M.A.S. lost his glider twice, and after extensive motor cycle chasing was recovered, the team totalling 1333·7 points, gaining 6th place in the event. E. H. Aylward was the best of three entries for the Pilcher Cup with a time of 5 : 22·7. Recently the club H.L. record was raised by A. D. Mitchell to 17 : 30, flying a lightweight rubber-driven job.

The WEST COVENTRY M.A.C. is spreading, and has opened a branch at Kenilworth, with another following at Brinklow. Seems they are out to form an Area all their own ! ! However, organisation is a thing that has been lacking in a number of districts, and I am pleased to see someone really getting down to it in this manner.

The SWINDON M.A.C. is now well on the way to prosperity after its wartime closure, and a permanent clubroom has been found. To mark the start of the outdoor season, an Open Gala Day was held on the 9th June, but high winds and poor weather made things difficult. Best time of the day was made by L. Sutcliffe's " Zenith," other models being well and truly bent !

May proved hopeless for flying in the SOUTHAMPTON M.A.C., but they managed to fly off a contest with the Portsmouth modellers. Though coming out well on top in the sailplane event, they were just beaten to it by the Portsmouth chaps in the rubber duration. D. Gordon made the best aggregate in the rubber event with a total of 3 : 02·2, while P. Goodchild took the glider honours with an aggregate for two flights of 1 : 54·7.

Gliders still enjoy the greatest popularity in the BURY & D.M.A.C., and in a recent competition K. Toole raised the towline record to 19 : 30 with his " Mick Farthing " model. Another new record is the canard glider, in which class C. Lee obtained a flight of 2 : 30 o.o.s. (Their tail-less expert, E. Hargreaves, took his gas model to France for the Lyons competitions and returned to find his calling-up papers awaiting him !) D. Helm won the April glider competition with a time of 3 : 19 with his " H.58," but unfortunately the model completed its flight under a double-decker 'bus !

The well-known BUSHY PARK M.F.C. glider teams have been very active this season, prominent successes being first place in the Surbiton glider Rally with an aggregate of 2496·3 points, also winning the glider contest at the Croydon Gala. M. A. Wright has broken the club r.t.p. record with an impressive 2 : 39.

Plenty of outdoor flying is being done by the WALTHAM & ENFIELD M.A.C., the best flight to date being 4 : 35 o.o.s. by J. Warren's much repaired " Icarus " sailplane, the model being followed for 12 minutes before finally passing out of sight.

The first annual Gala of the BATHGATE & D.M.F.C. was a tremendous success, 98 entries being received from eight clubs. Spectators numbered around the 200 mark. No members of the home club flew, having enough on their hands running the events ! Weather was bright but windy, and machines quickly went out of sight downwind. Results :—

Junior Glider

Harvey, A.	(Stirling)	5 : 20·5
McConnachie, W.	(Glasgow)	2 : 33·5
Gorrie, H.	(Falkirk)	1 : 36·8

Open Rubber R.O.G.

Wardell, H. A.	(Edinburgh)	3 : 02·9
Montgomery, P.	(Fife)	3 : 00
Wedderspoon, J.	(Fife)	2 : 25

Open Glider

R. Marshall	(Garnock)	2 : 59
Montgomery, P.	(Fife)	2 : 43·4
Martin, S. R.	(Edinburgh)	1 : 45

G. Bissett won the Nomination event with a one second error, while Harvey put up best time of the day with a flight of 2 : 45·5.

The GLASGOW M.A.C. is holding a contest for the " Clyde Model Dockyard Trophy," at Kirkhill, Cambuslang, on the 8th September. The event is confined to Wakefield models, and entry forms, etc., can be obtained from the Competition Secretary, Mr. I. N. Mailer, 75, Walnut Road, Glasgow, N.

Since the MAIDSTONE & D.M.A.C. was formed last December, the membership has risen to over 40. Gliders are predominant in the outdoor flying, the record at present being 4 mins. o.o.s. by F. Le Hagarat's " Thermic 50." The first of a series of exhibitions held at Easter drew large crowds, and the membership appreciated accordingly.

An Open Day is to be staged by the R.A.F. Club MORETON-IN-MARSH M.A.C. on August 11th, and entries are invited. Events for petrol, Wakefield gliders and duration jobs will take place, and further particulars can be obtained from F/Lt. L. W. Jackson Wynch, Officer's Mess, R.A.F. Station, Moreton-in-Marsh, Glos.

Although the weather in May and June was enough at times to discourage the most hardened of enthusiasts, the LUTON & D.M.A.S. competitions have been run off as near to date as possible. The " Faunch Cup " for sailplanes was flown in a high wind, the winner, R. Minney, flying a model of his own design to first place with an aggregate of 3 : 10·5. He also won the " Brown Trophy " with his Ajax model. The juniors put it across the senior members in the course of a team glider

event. Best senior was R. Bateman's time of 5 : 42·5 with his model " Wasp " on its first flight, while the best youngster was E. King, also flying a " Wasp," his total for two flights being 4 : 49·5.

The HAYES & D.M.A.C. have at last managed to secure a room for indoor meetings, large enough to accommodate r.t.p. flying during the winter months. A very successful first meeting was held, and things look O.K. now for future activities.

Several members of the ARBROATH M.A.C. between the ages of twelve and sixteen years desire aeromodeller pen-pals in the U.S.A., the Dominions or France. Intending correspondents should communicate with the Secretary, D. D. Edwards, 12, Dalhousie Place, Arbroath, Scotland.

Flying a modified " Mick Farthing Glider," H. Leeming of the SALFORD M.A.C. broke the club record with a flight of 5 : 40 o.o.s.

In spite of plenty of publicity, no outside entries were received for the NORTH KENT M.A.S. contest for the " C. H. Roberts Cup " for flying boats. A. D. Hall made two very consistent flights of 35·2 and 33·4 seconds to win, with H. Sayers second with three flights of 14·8, 28·3 and 23·3 secs. One flight by Hall, and one by Rainer were very spectacular, inasmuch as the machines re-alighted on the water successfully.

T. Davies won the " Paterson Shield " contest in the CROYDON & D.M.A.C. event held at Epsom Downs, with a time of 7 : 18·6, while the " Thorpe Cup " for juniors went to E. Denyer with a total of 3 : 49·3. This club gained three out of the four places in the London Area rubber trials.

The ST. ALBANS M.A.C. is proceeding favourably in its first flying season, and club records are being established. Despite bad weather, Mr. Grant flew his experimental pterodactyl glider (modified Westland-Hill) out of sight after 4 : 12. Mr. Brown, flying a " Mick Farthing " lightweight, obtained 4: 05, his model being recovered. Two different types of jet units are being successfully bench - tested by J. Greening, who is collaborating with Mr. Newhouse in designing and building a jet-propelled pterodactyl.

The Air Ministry have given the CAMBRIDGE M.A.S. permission to use Bourn Airfield, and efforts are now being made to link up with all the other clubs in the area with a view to forming a much-needed East Anglian area. Will clubs concerned please contact Mr. D. A. Gordon, 9, Orchard Estate, Cherry Hinton, Cambridge.

The GUILDFORD M.A.C., after a lapse of some 6–8 months, is on the point of being restarted, and all interested should get in touch with Mr. J. D. Aston, at 35, High Street, Guildford, or Tony Brooks, at Brooks' Cycle Stores, Chertsey Street.

New life is being introduced into the YEOVIL & M.S.A. and a more vigorous policy is being planned. G. Woods hit a " riser " with his glider " Chadpole," which clocked 10 : 26 o.o.s. A pterodactyl pusher by Mr. Gyfford has been seen about, and shows remarkable stability (as well as a weird appearance), turning in consistent flights of 40–50 seconds.

M. Kibblewhite of the LEIGHTON PARK M.A.C. lost his own design model glider on its fourth flight after

" THIS BUMP SUGGESTS AN INTEREST IN AVIATION "

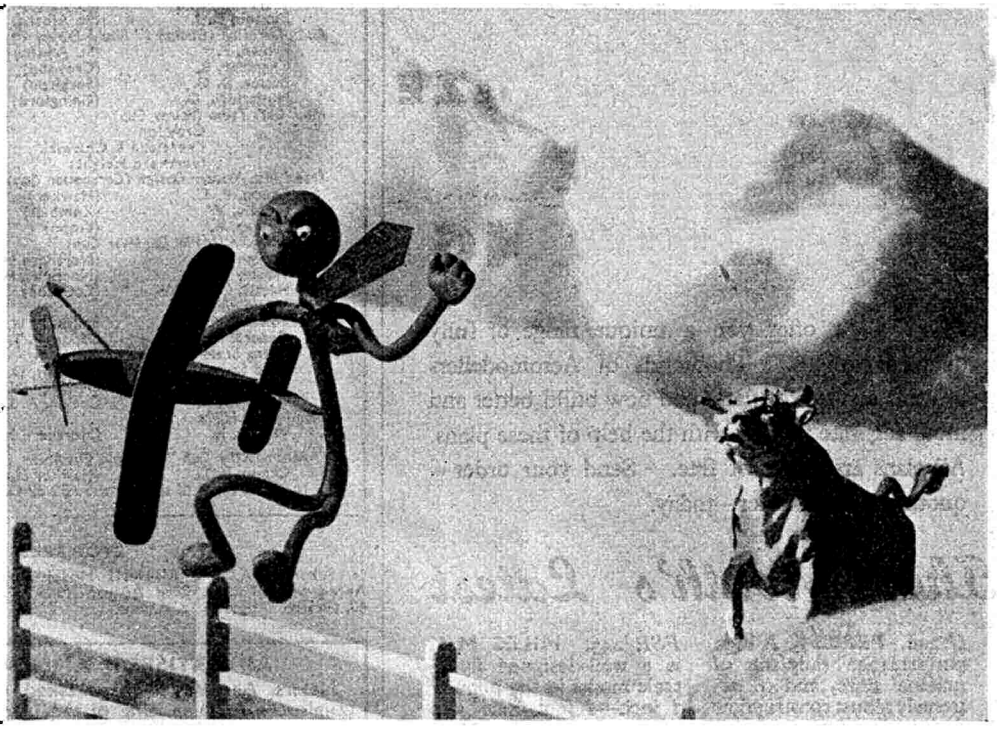
BEN TWYRE • By J. H. MAXWELL

Though gates are provided for people with sense,

Ben Twyre has elected to hurdle the fence,

And, though it seems silly, he's really no fool,

For the field where he flies is the home of a bull.



a time of 4 : 20, last seen heading towards Burghfield (near Reading) from Theale Aerodrome. Of streamlined monocoque fuselage construction, the elliptical wings are 50 in. span, and the job was finished all cream. Any news will be welcomed.

The BURNLEY M.A.C. is to hold a meeting open to all Lancashire enthusiasts on July 28th, and will be open to all types—both models and their fliers! Flying will commence at 11 a.m. and will cater for petrol, glider and duration models.

One or two old clubs announce that activities are recommencing, and for the purpose of records, etc., I am classing these under the heading "New Clubs." Don't forget to send in for our Club List form. (Omission to do so will mean that your club will not appear in the full list, and the wrath of your fellow members will be upon your own heads!)

THE CLUBMAN.

NEW CLUBS

DULWICH M.A.C.
C. Hubert, 17, Buller Square, Peckham, London, S.E.15.
SUNDERLAND & D.M.A.C.
J. E. Wolson, 18, Devonshire Street, Monkwearmouth, Sunderland.
NORTH MANCHESTER M.F.C.
F. W. Vann, 1, Pinfold Avenue, Blackley, Manchester.
FROME M.A.C.
R. J. Morgan, Critchill House, Frome, Somerset.
NELSON & D.M.A.C.
H. Morris, 4, Hartley Street, Nelson, Lancashire.
1005 (RADCLIFFE & WHITEFIELD) SQUADRON A.T.C. M.A.C.
R. Holland, 45, Ainsworth Road, Radcliffe, Lancashire.
STAFFORD & D.M.A.C.
J. R. White, 35, Salt Avenue, Stafford.
GUERNSEY M.A.C.
R. Marquand, Melrose Cottage, Gibauderie, St. Peter Port, Guernsey, Channel Islands.
FARNBOROUGH A.T.C. M.A.C.
B. Main-Smith, South View Lodge, Upper South View, Farnham, Surrey.
STANLEY, TANTOBIE & D.M.A.C.
F. Ritchie, 10a, South View, Tantobie, Newcastle-on-Tyne.
GRANTHAM A.S.A.
J. Barker, 13, Launder Terrace, Grantham, Lincolnshire.
ERDINGTON DISTRICT M.A.C.
W. G. Upton, 312, Tyburn Road, Erdington, Birmingham, 24.
KIVETON PARK M.A.C.
D. Stimson, 59, Wales Road, Kiveton Park, Nr. Sheffield.
LOUGHTON SKYRANGERS M.A.C.
S. Pearce, 34, Spring Grove, Loughton, Essex.
DARLINGTON M.A.C.
T. A. Walker, 9, Abbey Road, Darlington.

SECRETARIAL CHANGES, ETC.

SUDBURY YOUTH M.A.C.
H. J. C. Burrell, 14, North Street, Sudbury, Suffolk.
BEXHILL & D.M.A.C.
N. J. Butcher, 16, Eversley Road, Bexhill-on-Sea, Sussex.
BURY & D.M.A.C.
D. Helm, 3, Ainsdale Road, Bury, Lancashire.
SEAHAM M.F.C.
T. Holliday, 2, Queen Street, Seaham, Co. Durham.
BRENTFORD & CHISWICK M.F.C.
N. Winsley, 5, Borestide Road, Hammersmith, W.6.
HAYES & D.M.A.C.
J. Marshall, 43, Keith Road, Hayes, Middlesex.
MORDEN & D.M.A.C.
H. R. Geal, 14, Rutland Drive, Morden, Surrey.
ROCHDALE & D.M.A.C.
A. Ashworth, 43, Melville Street, Castledon, Rochdale, Lancs.

S.M.A.E. CONTEST RESULTS
PILCHER CUP

Butler, D.	(Surbiton)	582·5
Hobbs,	(Pharos)	567·7
Yeabsley, R.	(Croydon)	534·8
Sergent, K.	(Bristol)	492·3
Warring, R.	(Zombies)	490·8
Marcus, N.	(Croydon)	480·4

PLUGGE CUP POSITION INCLUDING PILCHER

Croydon	579·76
Northern Heights	530·17
Birmingham	485·81
Bushy Park	471·69
Zombies	459·99
Blackheath	442·29
Pharos	434·08
Bristol	421·63

NORTHERN HEIGHTS M.F.C. GALA DAY RESULTS

Open Duration (Rubber)		
Lees, D. G.	(Bradford)	485·2
Warring, R. H.	(Zombies)	454·8
Buxton, D. J.	(St. Albans)	383·6
Open Duration (Glider) ("Flight Trophy")		
Brown, P.	(St. Albans)	321·4
Chandler, B.	(Croydon)	252·5
Butler, D. G.	(Surbiton)	243·0
Hinstridge, D.	(Chingford)	
Inter Club Team (Fairey Cup)		
Croydon	282·4	
Brentford & Chiswick	280·8	
Northern Heights	233·1	
Free Lance Modern Design (Coronation Cup)		
Capon, P. T.	(Hawker)	188·4
Geddie, W.	(Zombies)	169·5
Minney, R.	(Luton)	143·0
Power Driven (Model Engineer Cup)		
Copland, R.	(Northern Heights)	81·8
Tansley, K.	(Northern Heights)	63·0
Harris, G. W. W.	(Croydon)	51·5
Concours d'Elegance		
Power Driven	Smith, R. H.	(Wolverhampton)
General Flying	Capon, P. T.	(St. Albans)
Flying Scale	Miller, A.	(Luton)
Solid Scale	Yeabsley, D.	(Croydon)
Gliders	Deudney, N.	(Walthamstow)
Unorthodox	Cockle, A. J.	(Northampton)
Nomination Flight		
Wilton, R.	(Northern Heights)	45·2

"Aeromodeller Cup" for Gala Champion
Capon, P. T. (Hawker M.A.C.)
(Best flight of the day : 5 : 52 by D. G. Lees (Bradford)

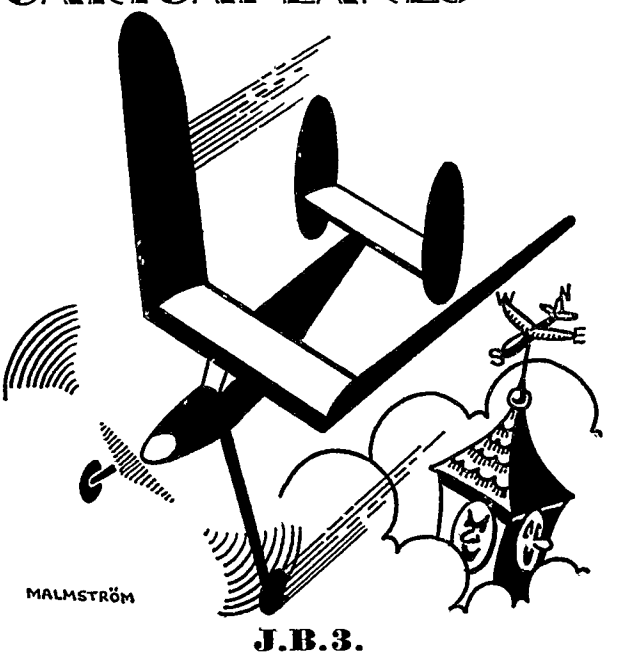
STOP PRESS

St. Albans M.A.C. "All-Herts Model Aircraft Rally." Handley Page Aerodrome, Radlett, 25th August, 1946. Particulars: Sec. R. Seabrook, 40, Church Crescent, St. Albans.

ADVERTISERS' ANNOUNCEMENT

Messrs. Aeromodels have asked us to point out the unfortunate misplacing of the illustrations in their July advertisement. "Wicko" is of course the 15¾-inch span flying scale model, and "Don" the 27-inch span duration model.

CARICAPLANES No. 10



J.B.3.

A model designed by Mr. J. Bezemer, incorporating pronounced tip dihedral, and a fine flight performance.

CLASSIFIED ADVERTISEMENTS

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

REQUIRED

Wanted, in good condition, Volume 8, 1943 AEROMODELLER or complete numbers for same—J. G., Portsmouth, 72, D'Arcy Gardens, Kenton, Mddx.

Winch in good condition, good price paid.—Particulars to E. Godwin, 6, Belgrave Promenade, Ilfracombe, N. Devon.

Mini accumulator, 2-4 v., and airwheels in good condition. State dimensions and price. Would part exchange AEROMODELLER, A. T. C. Gazettes, spotters' and recognition books, or sell separately.—Send for details, Parbery, "Domus," Stanley Hill Avenue, Amersham, Bucks.

Copies of Air Review 1, 2, 3, 4 of Volume 7. Good price paid for clean copies.—Stevens, 42, Moorland Road, Weston-super-Mare.

Urgently wanted. Will some kind chap please spare me 1 sheet Planefilm. Good price given.—Bartlett, 34, London Street, Mountain Ash, Glam.

Plan of 46-in. span Veron Eagle. Duration Model. Will pay 2s. 6d. for plan.—Willes, 32 Eastwyld Road, Weymouth.

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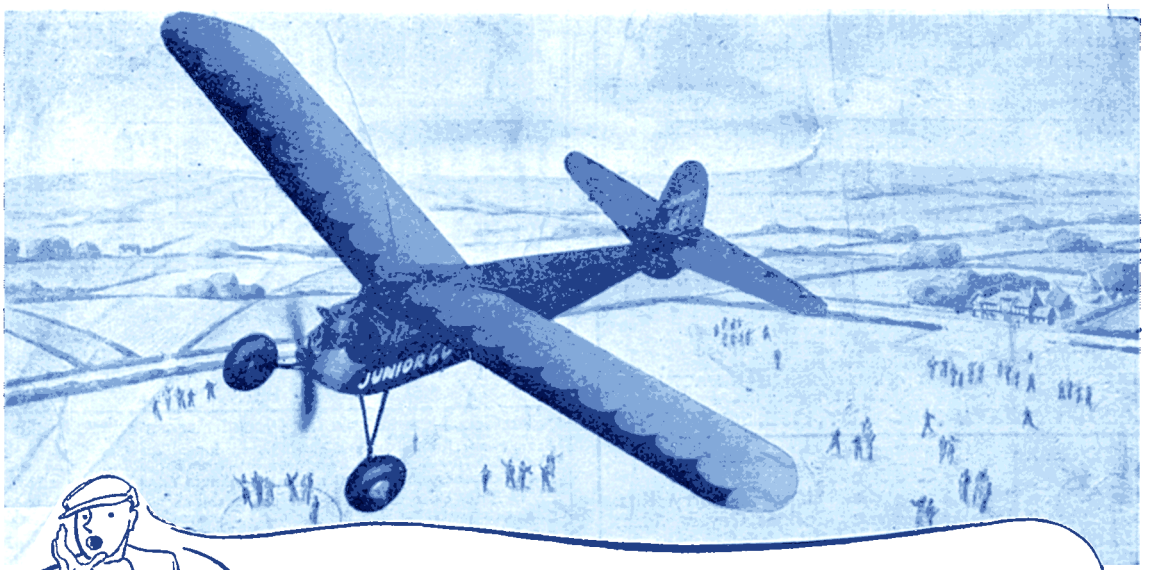

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