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AEROMODELLER

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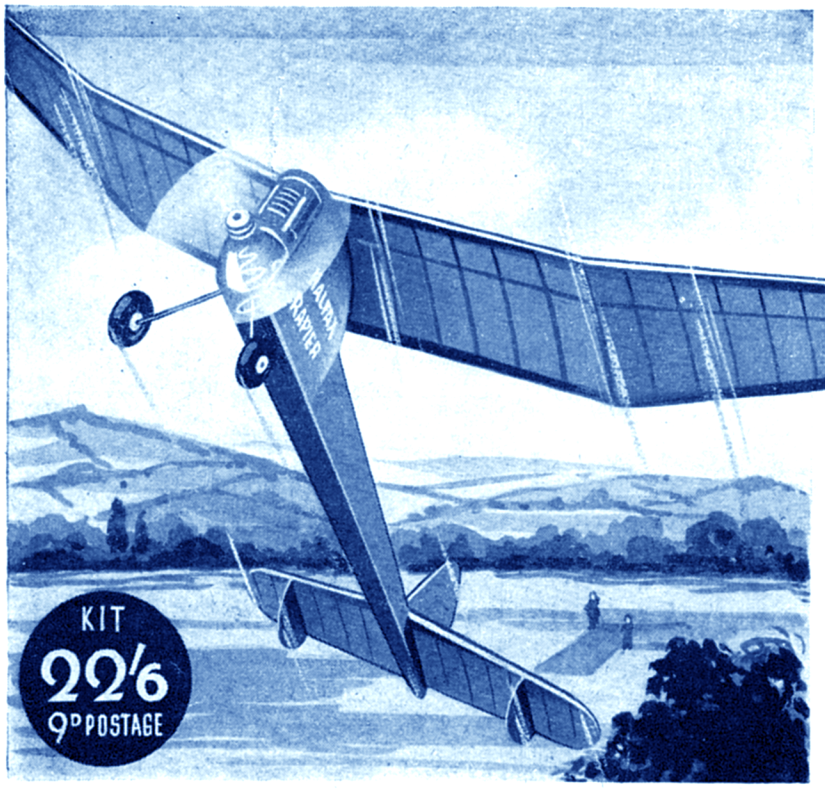

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THE MODEL AERONAUTICAL JOURNAL OF THE BRITISH EMPIRE
ESTABLISHED 1935

Managing Editor:
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Published monthly on the 25th of the month previous to date of issue by the Proprietors:
The Model Aeronautical Press, Ltd.,
Allen House, Newarke Street, Leicester.
Subscription rate 18/6 per annum prepaid (including Christmas Double Number).
Subscription rate $3.75 in U.S.A. from Polk's Model Craft Hobbies, 315, Fifth Avenue, New York, 1.

Advertisement Office:
THE AERODROME,
Billington Road, Stanbridge,
Nr. Leighton Buzzard, Beds.
Telephone. - - - - - Leighton Buzzard 2328

Editorial Offices:
ALLEN HOUSE, NEWARKE STREET,
LEICESTER. Tel.: LEICESTER 53226

Copies of all photographs appearing in "The Aeromodeller" which are marked "Aeromodeller Photograph" may be obtained from "The Studio," The Aerodrome, Billington Road, Stanbridge, Nr. Leighton Buzzard, Beds.
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AEROMODELLER

INCORPORATING "THE MODEL AEROPLANE CONSTRUCTOR"

"Aeromodeller Photo."
Guest Editor—Adriano Castellani of "Aviazione Populare" Italian aeromodelling monthly—tries his hand in the seaplane event during International Week at Eaton Bray.

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VOL. XII — No. 140 — SEPTEMBER 1947

EDITORIAL

"A GOOD TIME WAS HAD BY ALL"

IT is with some modest sense of achievement that we look back upon the Second International Week at Eaton Bray. This year, in addition to visitors from France, Belgium, Holland, Italy and Palestine, nearly 200 British aeromodellers spent a happy week camping out under canvas. Two workshops were placed at the joint disposal of foreign and "home" visitors, which quickly became the social centres of the aerodrome, where diesels of all shapes and sizes could be acquired or the latest "gen" on model developments exchanged with brisk hand flapping in all languages. For once the sun shone not only on the main contest days but throughout the week. Many impromptu contests were held, and any number of new models were designed, built and flown by this aeromodellers' "entente cordiale."

Keen rivalry was evident in every contest, with an excellent distribution of the prizes amongst members of nearly every country present. The *Aeromodeller* Trophy—a magnificent 100 guinea silver-gilt bowl—for the best all-round performance throughout the meeting, fell to Jacques Morisset of France, who was a clear ten points ahead of the runner-up, Emile Sysmans of Belgium. None would begrudge the winner his spoils, for in addition to placing in most of the events, he devoted his leisure to two new projects which earned him welcome points in the experimental class.

Nor were the organisers so parochial as to confine activities to contests centred on Eaton Bray. On Sunday, August 3rd, a full coachload of foreign visitors were taken to Fairlop, where they competed in the Bowden Trophy, Fillon taking seventh place, while the Dutch team won a return Anglo-Dutch Sailplane Contest, reversing last year's placings at Arnhem when the British team were guests of Holland.

So many readers have requested some lasting souvenir of these and other aeromodelling occasions that we are happy to announce a new service whereby enlargements of any picture published in the *Aeromodeller* with the credit title "Aeromodeller Photograph," can be obtained from the Eaton Bray Studios in accordance with price schedule set out on Contents page. It is hardly necessary to remark on the usual limited supplies, and we can only stress that "first come—first served" will be the rule.

Judging a section of the Concours d'Elegance during International Week. Left to right in foreground are Ing. Tobias Syne, Palestine, M. Pierre Babuisaux, Belgium and Gilberti Benedetti, Italy.

"Aeromodeller Photo"

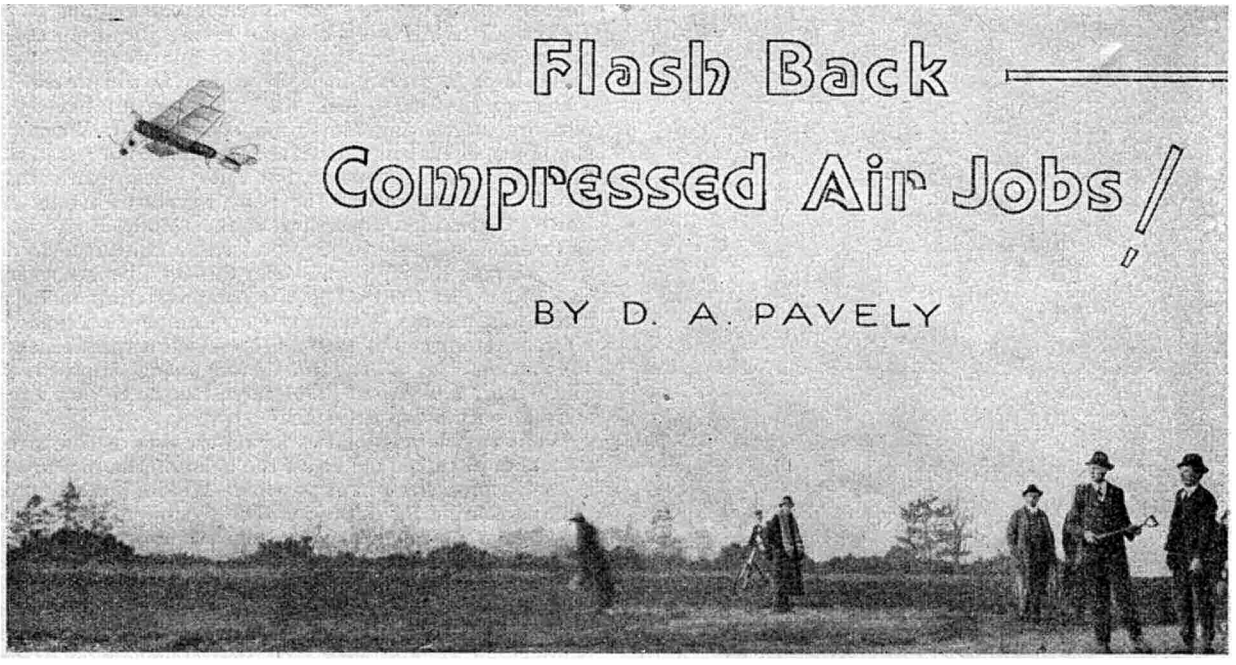
IN this "outline" mention of some who dabbled with compressed air may have been omitted. To give a really detailed account would go far beyond the space limit of an article and would, in fact, require a book. I have, therefore, confined myself to happenings of general interest and ask the indulgence of anyone missed.

Compressed air was used to power their flying models by some of the early experimenters. One of them, Laurence Hargrave, originator of the box kite, used it with successful results round about the year 1885. His compressed air plant weighed 26 ounces and using this his model flew a distance of 343 feet, the duration being 23 seconds. The model was propelled by flapping wings, these wings being small in relation to the fixed main supporting surface. He had difficulty in making a suitable air container to withstand over 80 lbs. per square inch pressure, suitable material not being available. Considering all things, the performance was really very, very good. I have no reliable data as to how the other early experimenters fared, so will skip the years to within my own memory, namely 1913.

In March of that year, a competition was arranged by "The Kite and Model Aeroplane Association" and held at Hendon Aerodrome. Models driven by steam, petrol, carbonic acid gas and compressed air were entered. It finalised into a struggle between H. H. Groves with his steam powered monoplane and a French compressed air powered biplane. The latter's duration was 35 seconds. Mr. Groves did 40 seconds, thereby winning the contest. The other contestants failed to do anything worth mentioning. This competition was a move in the right direction as many of the aeromodellists there saw for the first time engine-driven models in flight. The French compressed air models in those days, usually monoplanes, were made almost entirely of aluminium tube. One or two tubes about one-and-a-quarter inch diameter by twenty inches long made up the air container. The outline of the planes were tube about a quarter inch diameter with a few cross tubes for ribs (no camber). Fabric was stitched to the frames and they were rigged on to the air container by many bracing wires. A rotary engine was used, driving a large propeller at low revs.

My first compressed air powered model, exhibited at Olympia in 1914, was entered in a power competition, again at Hendon, in April of that year. I was with T. W. K. Clarke & Co., model makers, at the time and was asked by them to make this machine, being given a French power plant to do it with. It was a pusher with double surfaced wings. It did get into the air as a photograph in "Flight" shows, but it didn't like it and promptly returned to earth! Looking back on this model, the whole thing was pretty feeble and that does not except the power of the engine. Messrs. F. Hiscox and C. Desoutter entered a beautifully made compressed air scale model of the Caudron biplane, which certainly flew and was going well till it hit a car, and that finished that—the model, I mean.

Round about June, 1914, there came on the market a German compressed air plant, the "Autoplan." It was by far the best that had appeared. The engine, three cylinder radial, weighed 3½ ounces and the air container weighed 10½ ounces. Messrs. Bragg Smith and the late V. E. Johnson carried out some experiments with this plant and proved that it would maintain a reasonably efficient model in level flight with 50 pounds pressure in the air container. My fellow members and I of the Wimbledon Aero Club got busy and in August, 1914, three compressed air powered machines were flying on Wimbledon Common, durations being 15 to 25 seconds.



A 1920 compressed air model by the author, powered by a twin cylinder engine, it had single surfaced wings and regularly put up flights of 50 seconds.

On 2nd October, 1914, D. Laing put up a record of 43 seconds. " It took the united efforts of three members to pump up the air container. What the pressure was is unknown."

Let me say now quite plainly that to pump up any air container that has not been properly tested and without knowing what pressure is being put in is, to put it mildly, foolhardy.

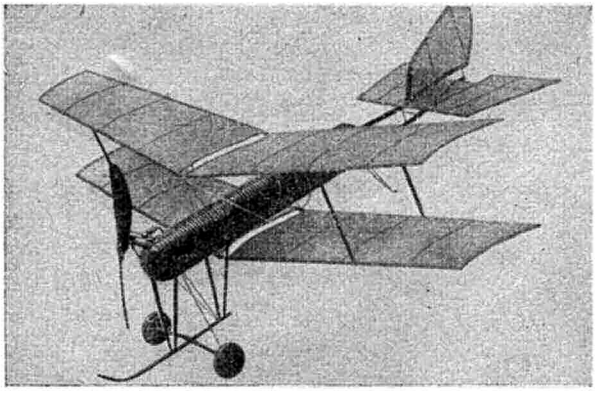
By November, 1914, the Wimbledon Club had six compressed air models, C. Haydon was doing well with his own built plant and things generally were beginning to hum. However, the Great War was getting under way and model interest faded. I was (and still am) keenly interested in the possibilities of compressed air and carried on between times experimenting. My first engine, a single cylinder on original lines, was described in " Flight " in December, 1914. I remember one man, a soldier inventor, who got leave for the occasion and for whom I made a compressed air model to drop a bomb ! The model did manage to fly, but the bomb part wasn't so good. Anyway, he was quite happy. I think he wanted the leave.

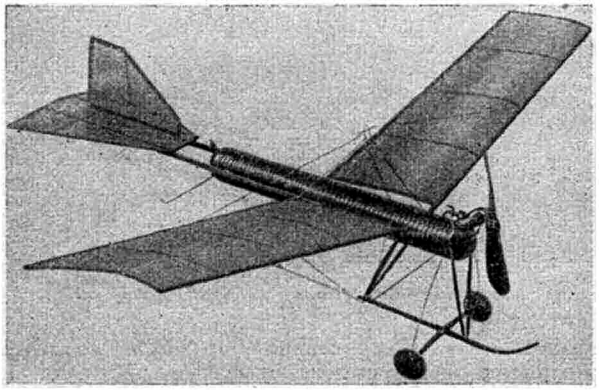
Apart from this one, I did not make any complete planes during 1915–1918, but I did make a few engines.

Early in 1919, being in the model business, I decided to market a compressed air monoplane. With the aid of my brother, many and varied were the experiments made, especially with air containers to this end. Many were the trips to Wimbledon Common to try out alternatives. The undercarriage was not the least of my troubles. Eventually the design was considered good enough and a good many of the models were made. It was a tractor monoplane, two cylinder horizontal opposed engine. Propeller 18 inches diameter, 24 inches pitch. Air container 24 inches long, 3 inches diameter. Wing span 6 feet, weight 1¾ lbs. This model was followed by a biplane, having the same design engine but a larger air container. Both models were good fliers. About this time, " The London Aero Models Association " was formed (afterwards becoming the S.M.A.E.) and a programme of competitions arranged. Compressed air was allowed to compete on equal terms with rubber *at first.* In 1923 in both the Model Engineer and the Gamage Cup competitions open to any type of model aeroplane, extra points were awarded for rising off ground, fuselage models, etc. The only exception to receive any of these points were compressed air driven models, " which receive no concessions whatever."

A further rule made was that compressed air models had to be made so that the plant could be withdrawn from the fuselage, the same as a rubber motor. There was one obvious reason (rightly perhaps) why the compressed air powered model was being handicapped. I leave it to the reader. Then there was the " Kelly Cup " competition for compressed air driven models in 1922 to be won outright by the entrant holding it for three consecutive years. At least one minute's flight to qualify, minimum weight one pound. Minimum loading 8 ounces to one square foot. One of the rules which I should like to see included in to-day's contests for both rubber and engine driven models, reads :—" Machines at termination of flight to be a proper flying condition and shall make a further flight rising off the ground for at least 15 seconds to prove its flying condition is unimpaired."

C. A. Rippon flew a model in the competition, his favourite Farman type. It flew extremely well, average duration about 35 seconds. (He had this model in use for 2 years without any breakages, when it was put aside and finally broken up in 1926.) I won the Cup with 70 seconds duration. The model weighed about 4 pounds. Three cylinder radial engine, 24 inch diameter propeller. Air container 4 inches diameter, 24 inches long. Loading 10 ounces square foot. My " Kelly " Cup winner for 1923 had two 3 inch diameter air containers and a smaller three cylinder engine. It did about the same duration, The model I used for the 1924 final contest was similar to the first one. It did over the minute and gained me the Cup outright. Others were taking an

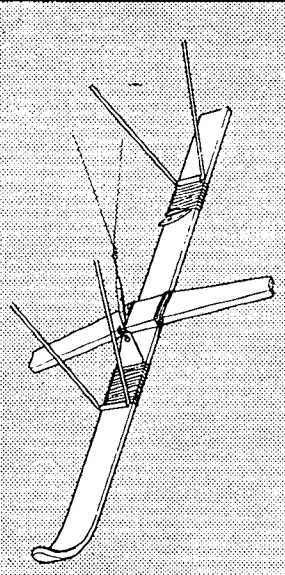




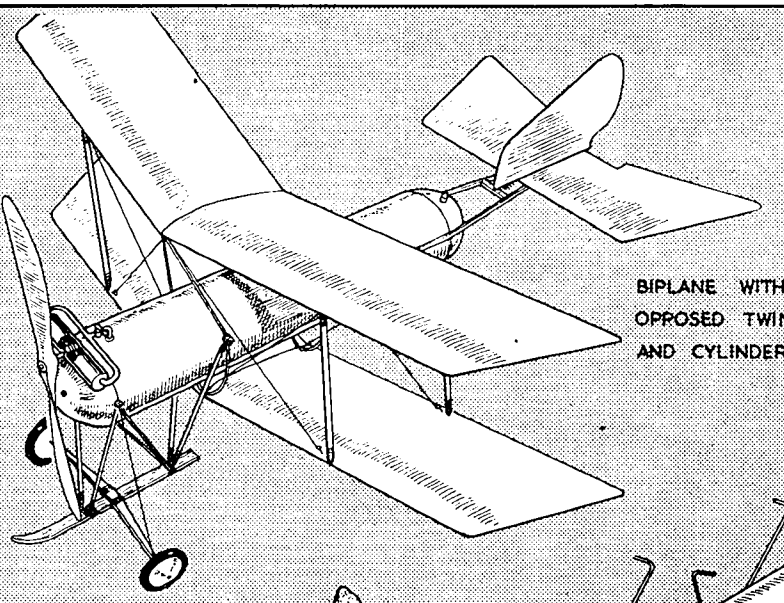
Old Timers of the twenties from the author's collection that would not look out of place today.
Top : Biplane, 1920 vintage, that was available in kit form and usually good for nearly a minute.
Upper Centre: Mid-Wing Monoplane of about the same period powered with twin-cylinder engine.
Lower Centre : Pumping up the author's 1929 Wakefield entry, which took second place in the contest.
Above : Another view of the "Wakefield" model showing forward undercarriage and unusual wheels.
Right : A typical three cylinder engine with rotary valve cone that was a popular favourite in the hey-day of compressed air.

interest in compressed air. I remember visiting R. J. Trevethick at his workshop and seeing the compressed air engine he was making. It was fine work. He did build later a streamline job which is illustrated in "History of Model Aircraft." I hope to have the pleasure of meeting him again soon. J. J. Louch, a champion in his time, designed a small compressed air plant, twin-cylinder engine, but I never heard with what results. Also there was the Pelly Fry racer and F. A. Lowe's "Crusader," described in the "Model Engineer." Both excellent designs. Compressed air continued to do well, winning the Sir John Shelley Cup on, I believe, every occasion up to 1930. The last compressed air model I made was for the Wakefield Cup Competition held at Halton Aerodrome in 1929 and in which it came second. This model had a long life before being disposed of. Since then, and up to date, there has been very little activity with compressed air.

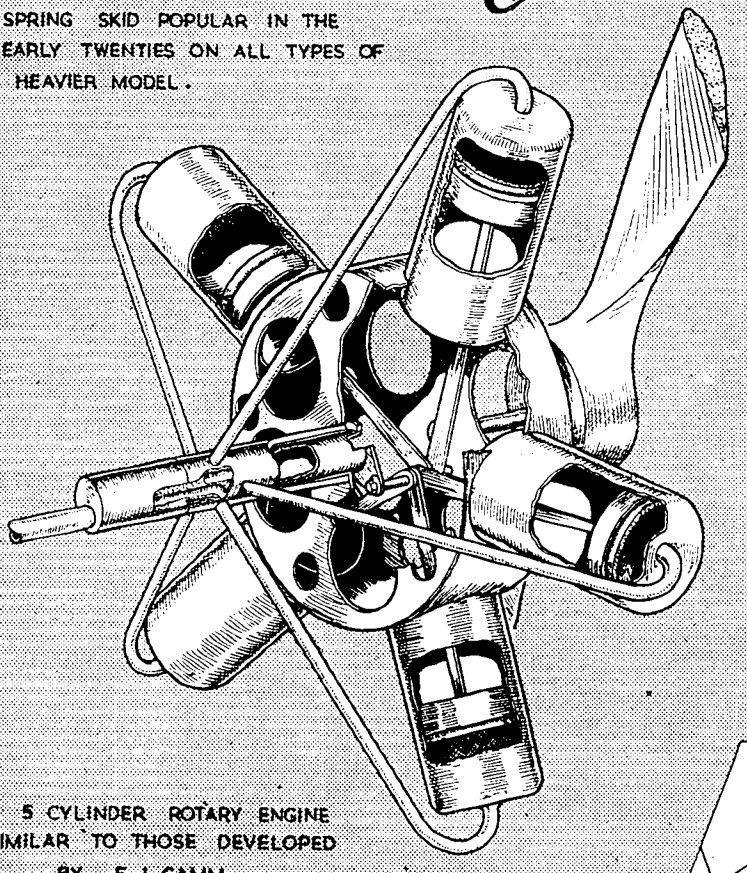
What are the possibilities for its use now as compared to rubber? In the old days, the chief object was to get as long a propeller run as possible. We did not rely on a glide or soaring for duration. The technique is different now. A large propeller with plenty of rubber to take the model to a good height is the main essential, reliance for duration being in the soaring qualities of the model and not in the propeller run. The prime mover, rubber, is the same. It's only its application which has altered, coupled, of course, with vast improvements in model design. Some experimenting would be necessary to bring the compressed air plant up to date, to find the right combination of engine, propeller and air container. When this has been achieved, there is no logical reason why compressed air, compared to rubber, should not do as good to-day as in the past. Regarding its comparison with petrol, one well-known active "old hand" a short time ago expressed the opinion to me that "compressed air could do all that petrol is allowed to do." Whilst giving full credit to the performance of these marvellous little engines, I would add that the compressed air engine has one advantage. It will start every time.



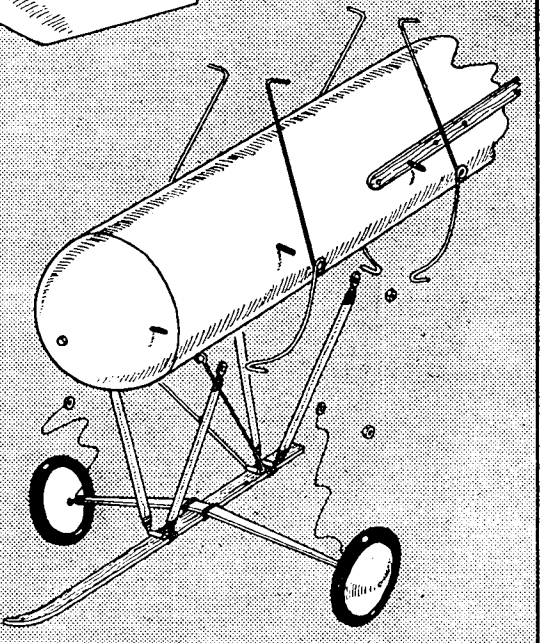
SPRING SKID POPULAR IN THE EARLY TWENTIES ON ALL TYPES OF HEAVIER MODEL.



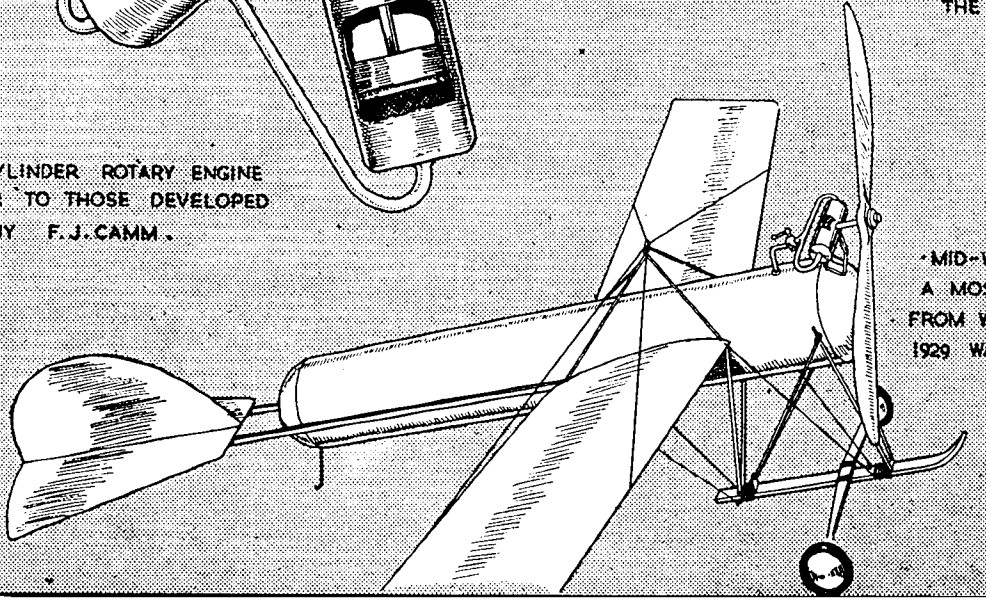
BIPLANE WITH HORIZONTALLY OPPOSED TWIN, USUAL SKID, AND CYLINDER—FUSELAGE.



5 CYLINDER ROTARY ENGINE SIMILAR TO THOSE DEVELOPED BY F.J.CAMM.

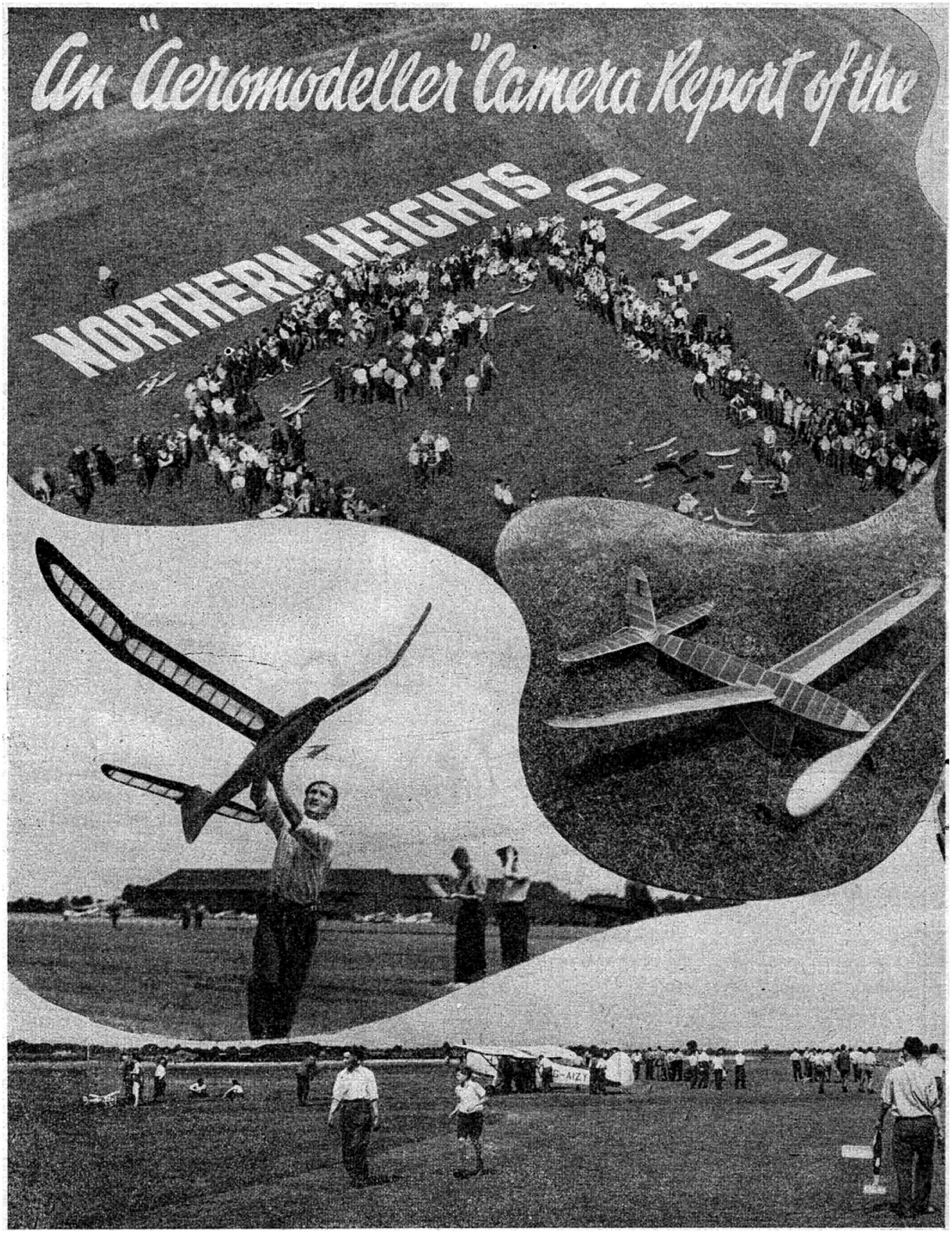


SIMPLE RIGGING OF BIPLANE DIRECT TO AIR CYLINDER WHICH FORMS THE FUSELAGE



MID-WING MONOPLANE A MOST TRUSTWORTHY JOB FROM WHICH THE AUTHOR'S 1929 WAKEFIELD WAS DEVELOPED

An "Aeromodeller" Camera Report of the NORTHERN HEIGHTS GALA DAY



By H. G. HUNDLEBY

Fifteen thousand people spent an enjoyable Sunday at the Gala on July 20th. From the modellers point of view it was a perfect day at a well organised Rally, with real attractions such as flights in an Auster for prizes, kindly provided by Mr. A. D. Duncan of R. K. Dundas Ltd. Spectators had a " hey-day," almost every type of model being in action, including an impressive control-line demonstration provided by Ron Moulton, Bill Dean and many others. Bill Humble, of Hawkers, " beat up " the crowd in no uncertain fashion in a Sea Fury, his subsequent rate of climb even impressing the many ardent " pylonites " present. Almost every well-known modeller in the Southern Area was present and a goodly number even came down from the North. From farther afield came Chris Bruton, popular Irish aeromodelling commentator, entertaining the crowd with lively witticisms. Distinguished visitor Lord Nathan, Minister of Civil Aviation, and his son, were sufficiently enthused to spend the whole day amongst the models, and we do not doubt were considerably impressed with Model Aeronautics as a result. Doctor Thurston, President of the N.H.M.F.C., read a message from Her Majesty the Queen, who sent her best wishes for the success of the meeting.

Congratulations to the officials of Northern Heights on an excellent meeting; for them it was a hard day's work; for spectators and modellers, a day to be remembered.

The heading photograph is an aerial view of the crowd round the Concours d'Elegance—extreme left is a sailplane built by Mr. Gardner of Fulham, not with unusual dihedral but with the wings folding up at point of launching.
(Bottom left) shows competitors proceeding to the take-off area, (bottom right) Ron Moulton with his control line trainer. (Centre) shows an unusual Wakefield model designed by Mr. Evans. Many replicas such as this, flown by members of the Northampton Club, have met with considerable success this season.
(Top left) is a Lancastrian, part of the full-sized flying display, and (centre left) shows Lord Nathan and son facing camera with Dr. and Mrs. Thurston, surveying a nearby " prang." (Lower left) Mr. Miller of Luton with his Concours winner receiving admiring glances from Eddie Keil, centre, and " Wattie " on extreme left. The perfect gloss finish was obtained with Woolworth's enamel and much elbow grease!

HELICOPTERS

An interesting American model in flight, designed and built by Wm. Foshag, Jnr. of Washington. This incorporates fore and aft rotors and is usually flown in the street.

PART THREE

BY R. H. WARRING

Semi-Scale Helicopters.

The duration type helicopter suffers severely from the fact that it is, without doubt, a freak and has little appeal other than to the true enthusiast. A semi-scale model is much more attractive. But such types inevitably suffer a considerable loss of performance and complicate a problem about which we know little enough as it is.

Nevertheless, the S.M.A.E. rules for model helicopters, specify a fuselage—and also that this fuselage shall not rotate. For the purpose of establishing a record in this class the writer decided that a semi-scale " adaptation " of a proven rotor system was worthy of development. At the same time it was realised that the particular design adopted had a maximum potential duration with a rubber motor of only about 60 seconds.

True scale helicopter models have been attempted, but here the complication of gearing and transmission is almost unavoidable and even with a small petrol or diesel motor, success is problematical. As far as possible it is essential to eliminate, or minimise, thrust troubles, so that stability problems can be dealt with, without the added complications of involved mechanisms.

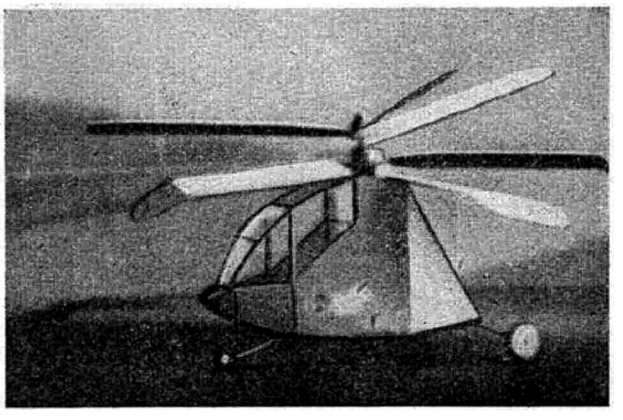
Simplicity is the essence of success—in the initial stages, at least—exemplified by the words of a famous American designer who said, " What you don't put into an airplane, can't go wrong. So leave it out! ", or words to that effect.

The writers own semi-scale model, is simply an adaptation of the counter-rotating different-diameter rotor system, with a light fuselage " floating " on the torque tube. The fuselage itself is provided with generous side area which adequately damps out any tendency to revolve with the torque tube. The only contact between the torque tube and the fuselage is a pivot-joint at the bottom of the torque tube. Thus the only rotary action imparted to the fuselage is due through friction at this point. In practice this is so small as to be negligible. The upper " bearing surface " on the top of the fuselage where the rotor tube emerges is approximately 1·5 times the diameter of the rotor tube. It is of square form, so that only a very small surface can be in contact with the tube at one time, and again friction is negligible.

This particular model holds the British R.O.G. and R.O.W. model helicopter records. Flights off water were very successful. The projected scheme was originally tried out on the small original prototype helicopter. It will be seen that two light balsa cylinders give adequate flotation and do not greatly affect flying performance.

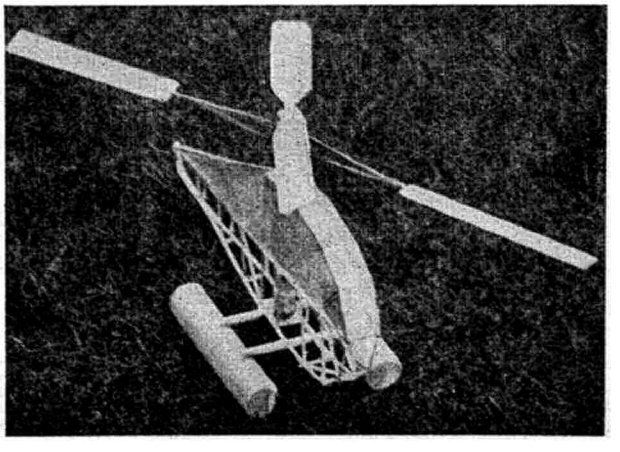
When fitted to the present helicopter, it was thought advisable to fit a semi-circular fin to the upper rotor to balance the side area of the floats low down, which worked very satisfactorily.

Correct side area positioning is very important on fuselage-type helicopter models. Unless this is carefully

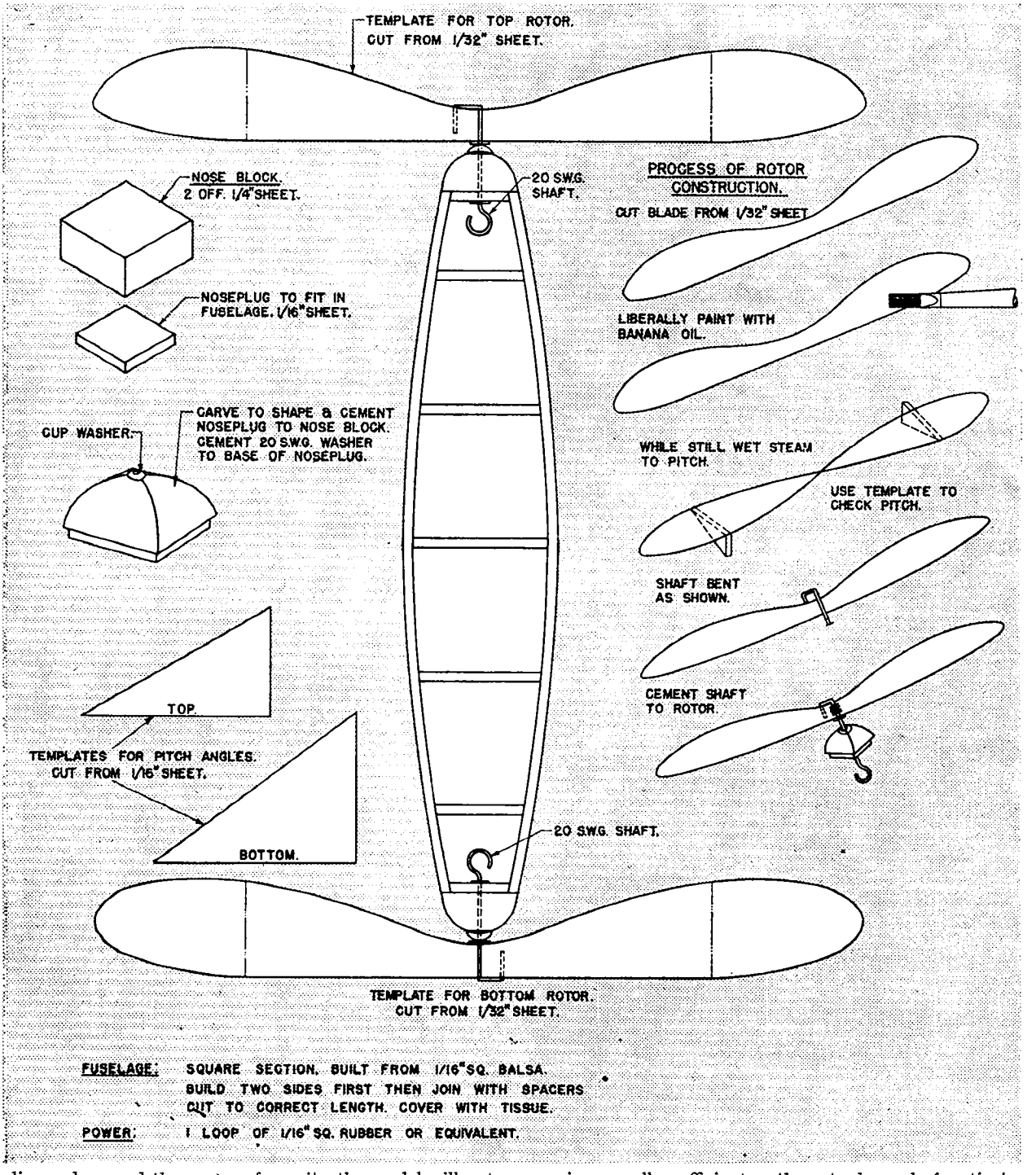


Above : Interesting semi-scale model built by D. J. Robertson of Paisley, following American and Scandinavian designs.

Below : The original and first successful semi-scale model by the author, which has logged over 700 flights. " Floats " enable to take off water.



BABY ZOMBIE. An Indoor Model. Scale Full-size. By D. A. BROCKMAN



disposed around the centre of gravity the model will not perform consistently. If too low, there will always be a tendency for the model to turn over on its back and descend upside-down under power.

It is also important to balance *plan area* fore and aft of the rotor axis—see Fig. 1. Actually the designer should aim at balancing the *drag forces* about the rotor axis in vertical flight, but for practical purposes balance of areas is generally sufficient as the actual speed of vertical flight is not great. Unbalanced forces will cause the model to rock violently, or even tip right over.

Descent with the particular models described is rather a matter of luck. At the end of the power run the model tends to fall on its side. If there is sufficient height for the rotors to stop and then commence windmilling in the opposite direction, the braking force so set up will right

the model and give a reasonable descent. But if the model gets into an awkward attitude, *e.g.* completely upside-down, at the end of the power run, it may stay in that position until it reaches the ground.

For a satisfactory descent, two methods are possible:—(i) Arrange so that both rotors freewheel or windmill to brake the descent. Note that the direction of windmilling will be different to that of power rotation. In other words, the rotors must first stop, and then windmill in the opposite direction. And unless a freewheel is used on the top rotor in the scheme under consideration only the bottom rotor will windmill. The upper rotor will be stopped by the winding up of the motor again.

A normal freewheel is of no use as it will not disengage. An "over-ride" type must be employed, Fig. 2. (ii) Arrange so that both rotors *autorotate* when the power runs out to give a true autogiro descent. This means that the rotors will continue to rotate *in the same direction* when the power runs out.

Most aerofoils will autorotate if suitably arranged, but will only do so—particularly on models—if at a low or negative incidence. That is, an incidence considerably below that associated with the rotors under normal powered flight. A suitable method of doing this is shown in Fig. 3.

Of the two, autorotation is much the better method, although more complicated. Relying on windmilling rotors, almost anything can happen in the way of descent during the time that the rotors have stopped under power and picked up again by windmilling.

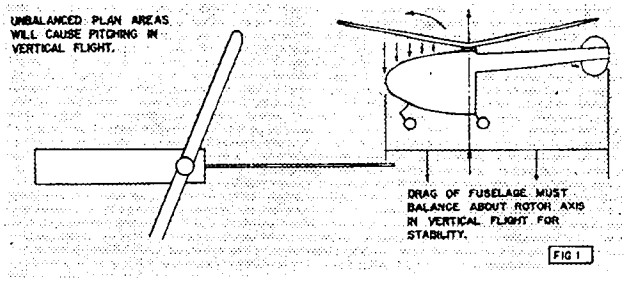
Descent was not considered important on the particular model described and reliance was placed on the windmilling effect, but more attention will be paid to the subject in future developments. But however poor the descent it is surprising how little damage a light rubber model of this type is likely to suffer.

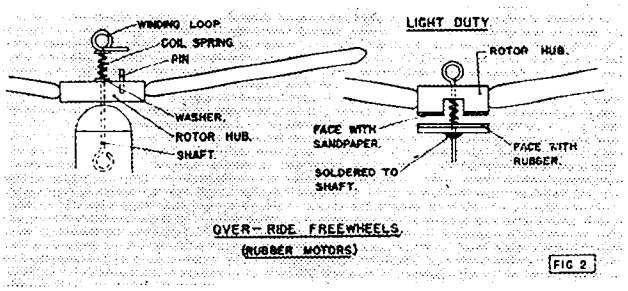
So far, too, there is another limitation associated with this layout. It is only capable of vertical flight. It has been suggested—and, I believe, published elsewhere—that forward (or backward) flight could be achieved by tilting the rotor tube, or loading the nose of tail to bring the C. G. forward or aft of the rotor axis—Fig. 4. Neither of these methods will work. In the first instance the rotor will still ascend vertically, with merely the fuselage tipped up. In the second case the model will be unbalanced and will either tend to perform an inside or outside loop.

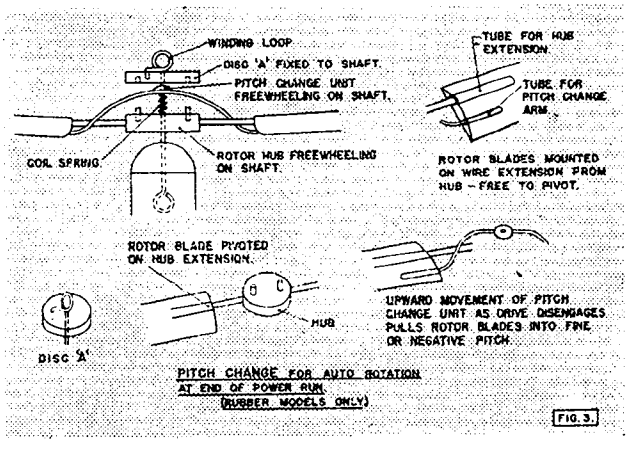
The only method of obtaining translational flight with such a system is to bring about a cyclic pitch change on the rotors. That is to say, at one part of the circular path of the rotors the pitch is increased, to give greater lift, giving a resultant force directed away from the rotor axis. Fig. 5 shows a simple method whereby this can be done.

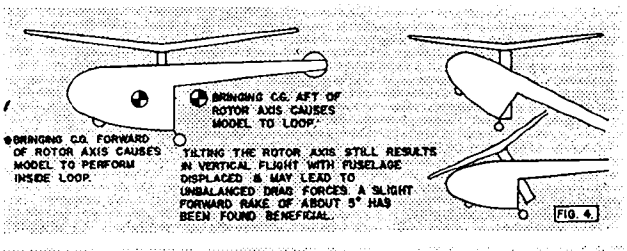
At the same time it would seem worthwhile to develop a rotor blade mounting which is flexible to the extent that the whole rotor could adopt its natural coning angle to increase efficiency and stability of the system. This is probably not necessary within the range of sizes possible with rubber power, but would become important with a power-driven helicopter.

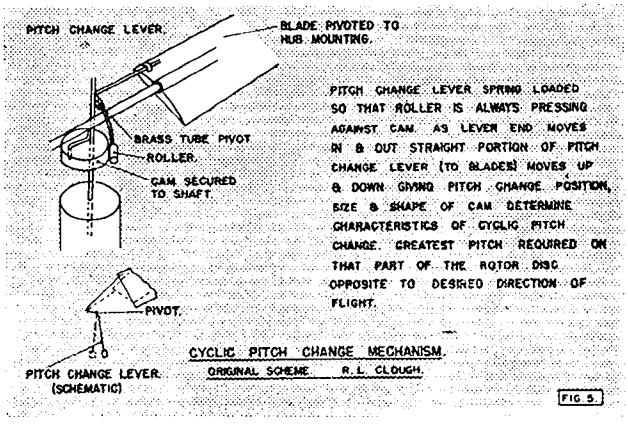
Once a stable model helicopter system has been developed, the limitations of rubber power are at once realised and a power-driven model is the logical step. In the choice of power unit, the small diesel would appear to approach the ideal, eliminating the complexity of the ignition system and simplifying operation. The diesel, too, is more suited for low speed operation, *i.e.* swinging a relatively large propeller (rotor) at comparatively low r.p.m.





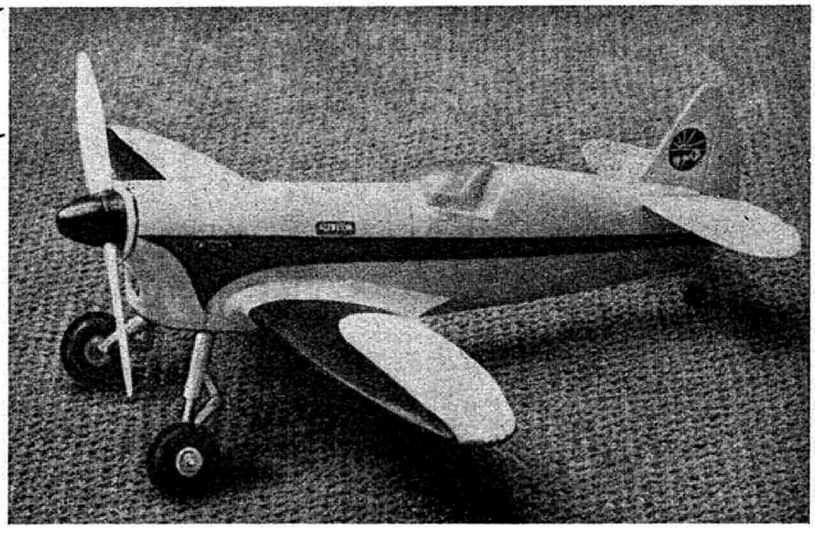






CANDY Mk. II

BY F. B. THOMAS



CONTROL line models are coming well into the public eye nowadays, and Candy II was produced specially to meet the demand for an elementary control-line model which would yet have a performance that would satisfy the modeller with some experience.

With a span of 38 ins., Candy is the best size for combining docility of control with manœuvrability and a fair turn of speed. She is not over sensitive to the elevator movement, a common fault amongst this type of model, but handles nicely and accurately on the line. The model is fully equipped down to the take-off release gadget, an ingenious little mechanism which allows the lone hand to fly his models without help.

Building Instructions.

Wing. Assemble the complete wing flat on building board. Cover with 1/16 in. sheet as far back as the main spar, then cut the wing in the centre, at spars, trailing edge and leading edge. Drill and file slots for 3-ply dihedral centre section and cement up incorporating dihedral. Cover with silk or nylon before installing.

Fuselage. The longerons are of ¼ in. square hard balsa. Vertical and transverse pieces ¼ in. square soft balsa. Assemble each side on the plan, then to cement 3/16 in. sheet front balsa bulkhead (Former C), leaving longerons projecting 3/16 in. forward of this. Fit the undercarriage to plywood bulkhead (Former B), and then cement to front of fuselage. Be sure all bulkheads are at right angles to fuselage or you will upset the thrust line. After-drying, drill as shown through Formers "B" and "C" and ¼ in. square member behind. Cement in lengths of 3/32 in. diameter birch dowel rod to anchor undercarriage bulkhead firmly to fuselage. When fuselage is complete remove upright members (1), (2) and (3) from both sides of fuselage by cutting through cement joints, and mark for correct replacement later. Cement wing in position, raising bottom main spar 3/16ths to give about plus 2 degrees incidence. Reinforce attachments at mainplane to longerons and also leading edge with plastic wood, and build up with plastic wood behind 3/16 in. balsa bulkhead (Former C) where it joins the ¼ in. square upright and transverse members. Put plenty of cement on before the plastic wood. Re-cement uprights (1), (2) and (3) and cement well to centre two ribs.

Cowling. The general principles are shown on the drawing, but must be made to suit engine used. When fitting engine to bearers leave ¾ in. space between induction pipe and bulkhead to allow choking with finger.

Lower portion of cowling is cemented to bearers and engine bulkhead. The top is detachable.

Control Plate. Attach this to the transverse fuselage member at (2) with 16 s.w.g. spring steel wire, bound and cemented to top and bottom transverse members. A centralising spring should be connected to control plate and bound to upright (2)

Engine Cut-out and Tail Release Plate. This is made of ⅛ in. ply. Adjust it so that the tail wire releases *before* engine cut-out or switch is operated. The return spring must be fairly strong to resist any pull on slack line in flight due to wind.

Shot Locker in Tail. Made from ⅛ in. sheet balsa. If using a diesel motor, fill up with lead shot until C.G. is as on plan. If using a petrol motor move battery box as required before cementing in place. After building shot locker cover with silk and dope for strength.

Covering of Fuselage. Single ⅛ in. sheet balsa sides and bottom. Cover bottom first, cut sides to fit, then cement. They must lie half way up the upper longerons (see section of Fuselage). When covering in fuselage top, cement to top centre ¼ in. square member first. Lack of compound curves in the fuselage makes the sheet covering easy.

Fuselage Lid. If using diesel engine this need not be detachable.

Wing Fillets. Before applying plastic wood, smear surface liberally with cement. After moulding, leave five minutes and then rub over gently with cement on finger; this gives smooth finish and prevents retraction of edges of plastic wood when dry.

Painting. When completed, give three coats of clear dope to fuselage and one coat to silk-covered tail surfaces. Sand between each coat. Finish with two coats of cellulose lacquer.

Airscrew. 10 to 12 ins., depending on motor used. A normal free flight airscrew is satisfactory for preliminary flying, but later on a coarser pitch prop. (say 8 ins.) to obtain more speed.

Spinner. Cut out the block to overall dimensions of spinner shown. Cement a ¼ in. diameter birch dowel in centre of block. To the free end of the dowel secure a twist drill chuck, then place the brace in a vice in order to leave hands free to turn drill, and hold the sandpaper block which is pressed against the balsa block so that when the twist drill is turned the sandpaper block will turn the block to the required shape. Whilst turning the centre of the spinner may be hollowed out with a sharp chisel or knife.

Full-sized Plans may be obtained as usual from Aeromodeller Plans Service, Allen House, Newarke Street, Leicester, price 5/–, post free.

A 38" SPAN CONTROL LINE POWER MODEL

CANDY II.

DESIGNED BY

F. B. THOMAS.

5/-

DATA

SPAN - 38"

LENGTH - 34"

ENGINE 4-5 CC OR LARGER PETROL MOTOR
2 CC OR LARGER DIESEL MOTOR

KNOCK-OFF ABLE ENGINE MOUNTING

ALL-UP WEIGHT

PETROL 34 - 36 OZS

DIESEL 30 - 32 OZS

STRIP	MISCELLANEOUS	9" OF 16 SWG PIANO WIRE.
1 STRIP OF 1/8" X 3/8" X 36"	1 SOFT BALSA BLOCK 4 1/2" X 2" X 1 1/2"	14" = 18 " " "
2 STRIPS " 3/16" X 3/16" X 36"	1 " " " 4" X 2" X 1"	12" = 22 " " "
10 " " 1/4" X 1/4" X 36"	1 " " " 4 3/4" X 3 1/4" X 3/8"	3" = 18 " MALLEABLE IRON WIRE
SHEET.	1 " " " 1 3/4" X 1 3/4" X 1/2"	6" " 22 " COPPER WIRE
5 SHEETS OF 1/16" X 3" X 36"	1 3/16" DIA DOWLING 8" LONG	8" " 1/8" I/D PLASTIC TUBING.
5 " " 1/8" X 3" X 36"	1 PIECE OF 1/16" PLYWOOD 3" X 4"	6" " 3/16" I/D " "
1 " " 3/16" X 3" X 36"	1 PIECE OF 1/8" PLYWOOD 7 1/2" X 12"	2" = 16 S.W.G. I/D LIGHT ALLOY TUBING
2 " " 1/4" X 3" X 36"	2 PIECES OF BIRCH OR ELM 2" X 3" X 3/16"	SMALL PIECE OF TINPLATE
PLASTIC WOOD.	24" OF 10 SWG PIANO WIRE.	3/4" DIA HARDWOOD WHEEL.
		1 PR. 2 1/2" DIA AIRWHEELS.

ALL WOODS ARE BALSA UNLESS OTHERWISE STATED

18 SWG LOOP SPRUNG INTO HOLES IN SIDES OF NUT

1/16" PLY DISC CEMENTED BACK & FRONT OF AIRSCREW SPACES BETWEEN THEM FILLED WITH BALSA STRIPS

THIS END OF LOOP SOLDERED TO THREADED ROD

THICKNESS OF THIS STRIP DEPENDS ON ENGINE USED

NUT CEMENTED INTO BALSA SPINNER

1/4" x 1/2" REINFORCING STRIPS

3/16" SHEET

1"x 2" BLOCK

3/16" SHEET

COMPONENT PARTS OF COWLING

REMOVABLE COWLING TOP CARVE FROM BALSA BLOCK

THIN CELLULOID STRIP CEMENTED TO FORMER "B" TO HOLD ENGINE COWLING TOP

THIS LID IS DETACHABLE IF PETROL ENGINE IS USED COVER WITH 1/16" SHEET

THIN CELLULOID STRIP CEMENTED TO THIS FORMER TO HOLD BATTERY LID IN PLACE

1/2" X 3/8" BIRCH OR ELM ENGINE BEARERS.

1/8" PLYWOOD GUSSET NOTCHED INTO ENGINE BEARERS & FORMER 'A' GLUE WITH SEECOTINE.

10 S.W.G. PIANO WIRE FOR U/C

COIL & CONDENSER

ENGINE CUT-OUT & TAIL RELEASE PLATE.

C.G.

CONTROL PLATE 1/8" PLY.

BATTERY BOX.

1/8" SQ. STRIP CEMENTED TO LONGERONS UNDER MAINSPAR TO GIVE 2° INCIDENCE

CELLULOID COCKPIT CANOPY MOULD OR BUILT UP IN TWO PIECES.

1/4" X 1/4"

1/8" X 1/8"

CONTROL & RELEASE WIRES EACH IN TWO PIECES, BIND WITH FUSE WIRE & ADJUST FOR CORRECT LENGTH & SOLDER.

ALL LONGERONS 1/4" SQ HARD BALSA ALL UPRIGHTS & CROSS PIECES 1/4" SQ. SOFT BALSA.

SHOT LOCKER SEALED OFF BOX OF 1/8" BALSA CAN BE USED IF NECESSARY TO TRIM BY FILLING WITH LEAD SHOT THRO HOLE IN FLOOR.

COVER TOP WITH 1/16" SHEET

MAKE FILLET FROM BALSA BLOCK

BALSA BLOCK

1/8" PLY.

SECTION B-B

MALLEABLE IRON WIRE BOUND AT TIPS WITH COPPER WIRE & CEMENTED IN HOLES IN FIN & RUDDER

OFF SET RUDDER TO STAR'BD 5°-10°

1/4" SHEET BALSA FOR RUDDER & FIN COVER WITH NYLON OR SILK

1/2" UP

3/8" DOWN

1/8" O/D PLASTIC TUBE

RELEASE SLOT CUT AFTER CEMENTING PLASIC TUBE IN PLACE

PLASTIC WOOD

18 SWG WIRE

3/4" DIA HARDWOOD TAILWHEEL BUSHED WITH 18 SWG I/D TUBE

FORMER (D) 1/8" SHEET - 5 OFF

FORMER (E) 1/8" SHEET

FORMER (F) 1/8" SHEET

FORMER (G) 1/8" SHEET

FORMER (H) 1/8" SHEET

WHEN FORMERS 'B' & 'C' ARE GLUED TOGETHER 9 - 3/32 DIA. HOLES ARE DRILLED THRO' BOTH FORMERS & 3/32 DIA BIRCH DOWELS ARE CEMENTED IN TO ANCHOR BOTH FORMERS FIRMLY TOGETHER

CUT OUT OF TINPLATE CEMENT WELL INTO SLOTS ON UNDERSIDE OF TAILPLANE HOLES ARE TO RETAIN CEMENT

PLASTIC TUBING TO REPRESENT OLEO LEGS

SPRING

TO CUT-OUT DEVICE ON ENGINE, WIRE PASSED THROUGH BULKHEADS

3RD SLACK LINE

TAIL RELEASE

LIGHT TIN SOLDERED TO U/C LEG

3 1/2" DIA. AIR WHEELS

ENGINE CUT-OUT FOR DIESEL ENGINE MODEL

SPRING

METAL TUBE SOLDERED TO WASHER EACH SIDE OF 1/8 PLY PLATE

SOLDERED IN DRILL HOLE

ON

OFF

PLASTIC WOOD

SMALL RADIO TUMBLER SET

BOUND & SOLDERED

STARB'D SIDE OF FUSELAGE

SWITCH DETAIL FOR PETROL ENGINE MODEL

3" SLACK LINE

TAIL RELEASE

FORMER 'A' 3/8 BIRCH PLY.

FORMER 'B' 3/8 BIRCH PLY.

FORMER 'C' 3/16 SHEET BALSA

1/16" SHEET

1/4" X 1/4"

1/8" SHEET.

1/4" X 1/4"

SECTION A - A

1/8" DIA BIRCH DOWELS CEMENTED INTO THESE HOLES WHICH REGISTER WITH HOLES ON FORMER 'B' WHEN FITTING DETACHABLE ENGINE MOUNT

U/C BOUND TO FORMER WITH FISHING LINE. JOIN HOLES WITH GROOVES TO ENABLE BINDING TO BE COUNTERSUNK

HOLLOWED OUT TO RECEIVE LOOP OF UNDERCARRIAGE

18 S.W.G. PIANO WIRE ELEVATOR HORN WELL CEMENTED INTO HOLES IN ELEVATOR

5/8"

BOUND & SOLDERED

TAIL PLANE & ELEVATORS 1/4" SHEET BALSA. COVER WITH NYLON OR SILK.

CENTRALISING SPRING.

3/16" DIA. BIRCH DOWELS STRONG RUBBER BANDS ARE PASSED AROUND THESE DOWELS TO SECURE DETACHABLE ENGINE MOUNT

WING RIB (6) 2 OFF 1/16" SHEET

WING RIB (8) 2 OFF 1/16" SHEET

1/8" PLY CENTRE SECTION REINFORCEMENT.

WING RIB (7) 2 OFF 1/16" SHEET

WING RIB (9) 1 OFF 1/16" SHEET

WING RIB (1-4) 8 OFF 1/16" SHEET

1/16" SHEET

WING RIB (5) 2 OFF 1/16" SHEET

1/4" X 1/4" L.E.

BALSA REINFORCEMENT.

1/16" SHEET TOP & BOTTOM

1/4" X 1/16" BALSA CAPPING STRIPS

SLOTS CUT IN RIBS 1 & 2 1/8 PLY REINFORCING SPAR INSERTED & SECURELY CEMENTED TO MAIN SPAR.

COVER ENTIRE WING WITH NYLON OR SILK.

3/16 SQ HARD BALSA MAIN SPARS. 2 OFF

1/16 HARD BALSA SHEET T.E

1/2" X 1/4" BALSA REINFORCEMENT.

SOLID BALSA WING TIPS ADDED WHEN WING STRUCTURE IS COMPLETE

SAND T.E. TO PROPER TAPER WHEN ENTIRE WING IS BUILT

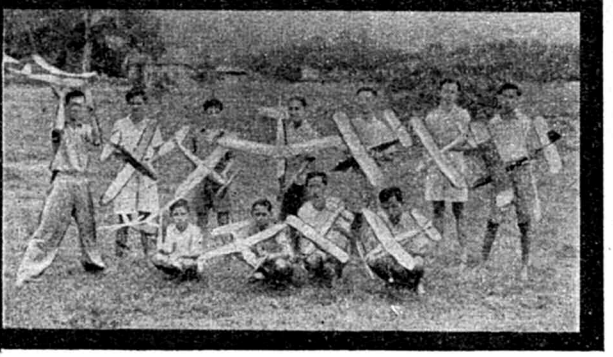
CONTROL LINE

3RD SLACK LINE

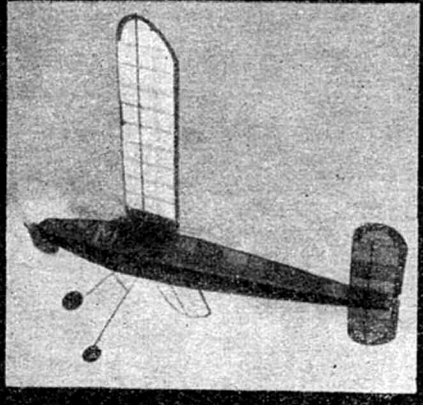
C.L.

PAPER OR PLASTIC TUBE WELL CEMENTED

TIP RIB PORT SIDE 1/8" PLY



OVER TO YOU



Top left. R.A.F. in India: T.P.I. M.A.C. of 322 M.U.

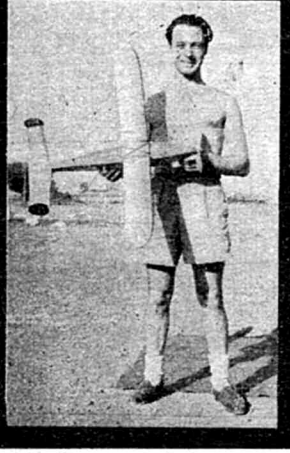
Top right. Penang Pioneers before a week-end work out.

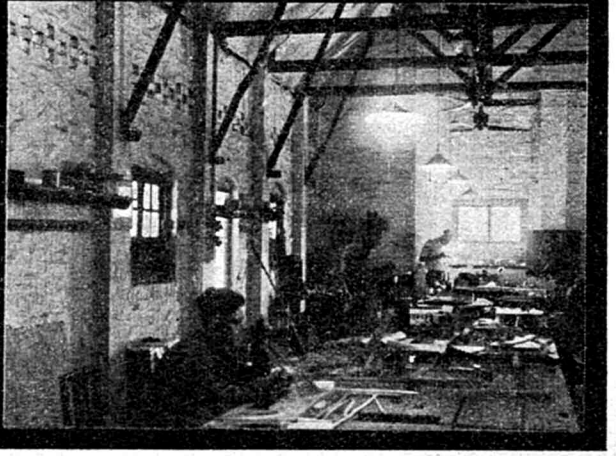
Above. "Mercedes"—typical Penang rubber model in flight.

Bottom left. Pte. Averill, El Ballah Egypt, with his Frog sailplane.

Below. M. Brown of Derby with his Rocketeer while serving in India.

Bottom right. Useful clubroom and workshop of the T.P.I. M.A.C.





For Whom the Bell Tolls. The Boffin seems to have rather dropped a brick in suggesting that our Australian friends prefer to buy British, for correspondent Norm Bell of Victoria hastens to point out the many benefits they have enjoyed from the American market. As usual this wily bird is happy to offer apologies for any wrong impression he may have created and—are we alone?—would even like to mention his own secret longing for a McCoy from "down under" the counter.

Penang on Parade. Another recent paragraph has brought in a host of gen from Penang. Their record holder of 35 : 40 o.o.s. Allan Leong, Penang Pioneer Aeromodellers' secretary, writes, is a Copland Northern Star, built and flown by Woon Mook Kin. Club member Barney Chee has been putting up some good times with his Dusty. With their best wishes comes a bouquet . . . "we are all so anxious to read the AEROMODELLER; even if we get it two months before it is published it would not be too early." Thanks P.P.A.!

Kites of Kasfareet M.F.C. Donald McDougall, of 107 M.U., R.A.F., M.E.F., reports another flourishing Middle East club—the Kasfareet boys. Founder L.A.C. Neil Martin has now been demobbed and is back with Southampton M.A.C. but the club goes from strength to strength. Dusty has again proved a favourite and modified versions have been flown as gliders with best time of 9 : 28 o.o.s. These Eastern flights always seem to end that way—even with dethermalisers fitted *and working*—a difference that!—they climb like jet-powered magic carpets. Heart throb from Kasfareet: "We appeal to you. Has *anyone* please got a foolproof dethermaliser?"

AERODYNAMIC DESIGN

PART XI BY JOHN HALIFAX

In last month's issue I published a Nomogram for obtaining the optimum Aspect Ratio of wings and other aerofoils whose section followed orthodox practice. Thus we must now study the procedure for other and more recent sections available today. These fall into two categories.

1. Laminar flow sections.

The examples produced by the L.S.A.R.A. so far do not have a turbulent boundary layer at normal speeds, and it follows that there can be no " critical VL ". Theoretically then, there is no limit to the Aspect Ratio, although in practice it is not advisable to exceed a value of twelve unless the wing can be made extremely stiff in torsion. Again, from the point of view of stability a very high A.R. is undesirable, since it results in a large moment of inertia about the longitudinal axis—a fatal handicap to spiral stability.

It is just possible that future work will reveal a " critical VL " for these sections below which performance deteriorates rapidly. Should this be the case, it may be used exactly as described last month.

Whilst on the subject, it would be as well to note that the L.S.A.R.A. test data is usually given for a specific Reynolds Number instead of " VL "—just why is rather obscure at the moment, since R.N. is much harder to visualise, and does not possess any advantages in model practice, apart from a very slight one for the actual research people. Nevertheless, it is used, and it is as well to remember the relationship.

$$VL = \frac{R.N.}{6300}$$

2. Turbulent flow sections.

The essential difference between this class of aerofoil and those in general use at the moment lies of course in the fact that the " critical VL "[1] is very much lower. Thus although the method given last month can be applied, it will lead to an unpracticably high figure for all but the smallest machines. Again an A.R. of twelve must be regarded as the limit for ordinary models.

General Considerations.

In all cases it should be realised that the theory gives a " razor's edge " result : if the actual flying speed is a little lower than the design speed, the VL will be a little below the design value, and the calculation made useless. Thus the value taken for the calculation should always be a little less than that expected in practice, or the actual A.R. made slightly *lower* than the theoretical A.R. This naturally raises the problem of climbing flight, for we saw in parts 8 and 9 of this series that the climbing speed varies as the square root of the cosine of the climbing angle, i.e.

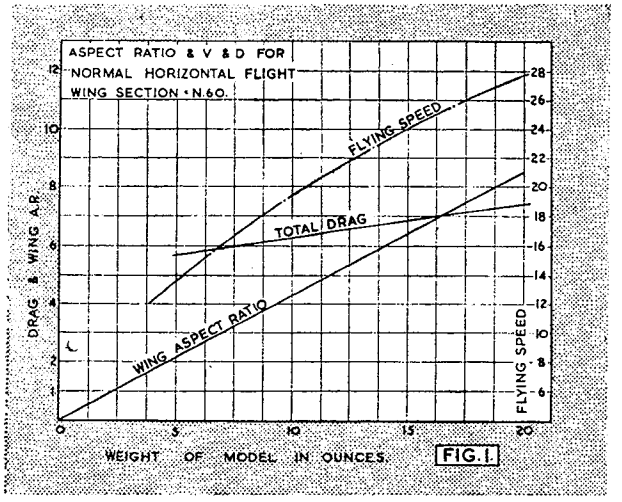
$$\text{Climbing speed} = \sqrt{V \cos\theta}$$

where V = flying speed in normal flight

θ = climbing angle

For normal models this need not be troubled about, but in super-climb power jobs the designer will obtain a slight increase in still air duration by allowing for this.

Ref. 1. The "critical VL" is that value at which a turbulent boundary layer is formed over the aerofoil, with a consequential increase in efficiency. See last month's article.



The relation between rate of climb and weight.

We saw last month that increasing the weight of a model whose wing was of orthodox section, resulted in only a negligible increase in sinking speed, provided that the wing dimensions were altered in accordance with the A.R. theory. This month we shall consider the case of a climbing model under the same conditions.

Consider Fig. 1. As would be expected, the flying speed of the model to which this refers, increases with all up weight. Wing A.R. obtained from last month's Nomogram, increases linearly with weight so that the induced drag for 20 ozs. weight is only half the value for 10 ozs. This has the effect of reducing the slope of the total drag curve, shown again in Fig. 1.

In part 9 of this series we saw that for maximum duration a model should climb at an angle of 54°, and also saw that the thrust required for this was given by the equation.

$$\text{Thrust required} = D + 1{\cdot}38\,W \quad \ldots\ldots \text{equation 1}$$

where D = total drag in ounces

W = total weight in ounces

Assuming our model weighs 5 ozs. and taking the drag from Fig. 1, we get

$$\text{Thrust required} = 5{\cdot}65 + 1{\cdot}38 \times 5$$
$$= 12{\cdot}55 \text{ ozs.}$$

This is figure required for the normal flying speed, and corresponds to a rate of climb of 8·5 ft./sec. If now the weight of the model is steadily increased, we shall find that R/C diminishes as in the lower curve of Fig. 2, despite the reduction which is occurring in induced drag.

But if instead of remaining constant, the thrust is increased with weight in the ratio of equation 1, we find that so far from decreasing, the *rate of climb actually increases with weight. Thus a heavy model will have a longer duration than a light one, other things being equal, provided that wing Aspect Ratio and airscrew thrust are given by the A.R. theory and equation* 1 *respectively.*

Proof of the Pudding.

That weight does not materially affect sinking speed has been suspected for some time, and we find the classic example in George Temple, who has been building superb heavyweight sailplanes longer than I care to remember. With the successful winding up of the A.R. theory ultra-

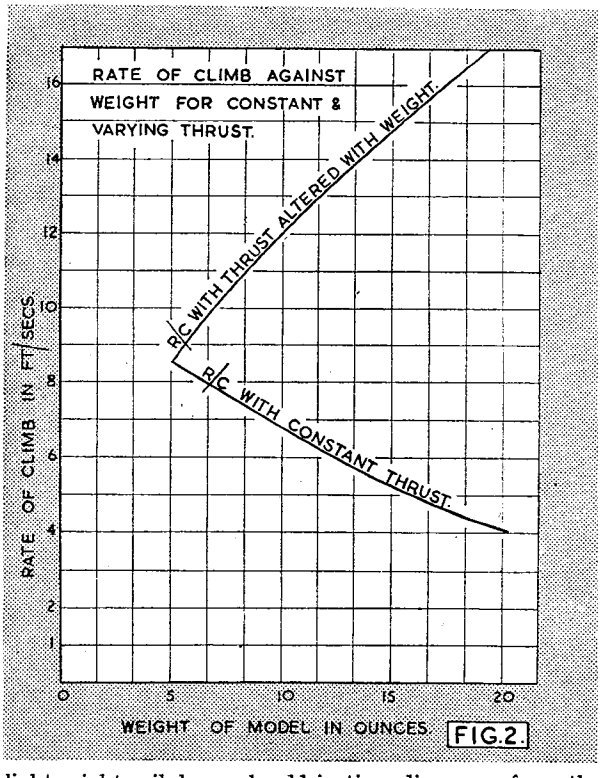


FIG.2.

lightweight sailplanes should in time disappear from the face of the earth.

Power machines are rather a different proposition, since the problem is rather more complex. Thus, until I have had time to make some thorough tests in practice, I should not like to say just how great an improvement may be expected. This may take anything over a year, so if any one is interested in doing a little research which will entail building one model complete with engine and four wings, each of different A.R., I should be glad to hear from them via the AEROMODELLER.

Meanwhile the theory can be expressed as follows for the very conservative :

Provided that the airscrew thrust and wing Aspect Ratio comply with the conditions already laid down, the weight of a power model is immaterial, within reasonable limits.

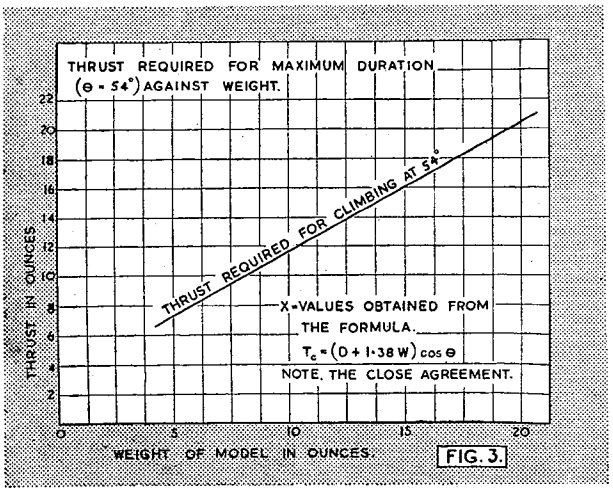


FIG. 3.

CONTEST RESULTS

NORTHERN HEIGHTS GALA—20th JULY, 1947

OPEN RUBBER.

1	J. V Brain	Park M.A.L.	543·8 secs.
2	A. H. Dadd	Springpark	504·6 ,,
3	R. Macpherson	Northern Heights	499·8 ,,

OPEN GLIDER "FLIGHT TROPHY."

1	C. S. Wilkins	Bristol	718 secs.
2	J. Bowerman	Kingsbury	664 ,,
3	A. Wilson	Hayes	603 ,,

TEAM CONTEST "FAIREY CUP."

1	Enfield	431·4 secs.
2	St. Albans	348·4 ,,
3	Hayes	331·9 ,,

FREE LANCE STREAMLINE "CORONATION CUP"

1	P. T. Capon	S.M.A.E.	194 pts.
2	R. Wilton	Northern Heights	189 ,,
3	A. H. W. McBean	Non Coms	178 ,,

POWER CONTEST "MODEL ENGINEER CUP."

1	C. Houghton	Luton	70 pts.
2	R. Calvert	Bradford	68 ,,
3	R. Gunter	Bushey Park	67·8 ,,

CONCOURS D'ELEGANCE.

Power	S. A. Miller	Luton
General Flying	T. J. Rendle	Southern Cross
Flying Scale	H. Money	
Solid Scale	W. J. Fidlin	Halton S.M.A.C.
Unorthodox	J. Saunders	

GALA CHAMPION.

A. Wilson — Hayes

SECOND INTERNATIONAL MEETING AT EATON BRAY, SUNDAY, 27th JULY, 1947

CONCOURS D'ELEGANCE.

Rubber Class	Tournadre	France
Flying Scale	Pridmore	G.B. (Northampton)
Waterplanes	Bexley	G.B. (Leighton Buzzard)
Power	MacBean	G.B. (Non Coms)
Prix d'Elegance	MacBean	G.B. (Non Coms)

OPEN RUBBER

1	Conte, F.	Italy	569·5 secs.
2	Taylor, S.	G.B. (Bushey Park)	539·5 ,,
3	Barnard, B.	G.B.	447 ,,

WAKEFIELD FORMULA.

1	Salt, G. E.	G.B. (Birmingham)	467 secs.
2	Barrett, C	G.B. (Non Coms)	445 ,,
3	Redley, F.	G.B. (Northampton)	445 ,,

WATERPLANES.

1	Marcus, N. G.	G.B.	202·5 secs
2	Eastwell, D.	G.B.	196 ,,
3	Hall, J. G.	G.B.	183 ,,

POWER CONTEST.

			Ratio
1	Gnesi, P.	Italy	18·02
2	Houghton, C.	G.B. (Luton)	12·48
3	Lippens	Belgium	11·4

SUNDAY, AUGUST 3rd—EXPERIMENTAL MODELS.

Powered Flying Wing	MacBean, A. H. W.	G.B.
U-Control	Gnesi, Piero	Italy
Canard, etc.	Morisset, J.	France
	Denyer, E. C.	G.B.
Power/Glider Towing	Morisset, J.	France
Premier Award	Morisset, J.	France

MONDAY, AUGUST 4th—CONCOURS D'ELEGANCE.

Power Models	Miller, S. A.	G.B. (Luton)
Sailplane	Gravett —	G.B. (Luton)
Experimental	MacBean, A. H. W.	G.B. (Non Coms)
	De Neuflize —	France
Prix d'Elegance	Miller, S. A.	G.B. (Luton)

MONDAY, AUGUST 4th—

OPEN SAILPLANE.

1	Hekking, J. F.	Holland	476·3 secs.
2	Smagghe —	France	379 ,,
3	Chandler, B. P.	G.B. (Croydon)	355 ,,

F.A.I. FORMULA SAILPLANE.

1	Fillon, E.	France	907 secs.
2	Morisset, J.	France	461 ,,
3	Vfriend, P.	Holland	375 ,,

POWER CONTEST

			Ratio
1	Sysmans, E.	Belgium	28·15
2	Maraget, J.	France	8·31
3	Gunter, Mrs. D.	G.B. (Bushey Park)	8·14

"AEROMODELLER" CHAMPIONSHIP TROPHY.

1	Morisset, J.	France	41 pts.
2	Sysmans, E.	Belgium	31 ,,
3	Gnesi, Piero	Italy	27 ,,
4	Maeght, P.	France	25 ,,
5	Maraget, J.	France	19 ,,
	Hekking, J.	Holland	19 ,,
6	Houghton, C.	G.B. (Luton)	18 ,,

BOWDEN TROPHY, AT FAIRLOP—SUNDAY, AUGUST 3rd

1	C. T. Buffery	Northern Heights	24 pts.
2	J. Blunt	S.M.A.E.	33·75 ,,
3	J. Wreford	Essex Power	42 ,,
4	C. A. Rippon	Southgate	45·5 ,,
5	E. Bates	Essex Power	48 ,,
6	H. R. Turner	Northern Heights	60·75 ,,

BLACK MAGIC

By Fred Hempsall

IN offering Black Magic to the critical attention of our readers we are confident they will appreciate that rare combination in power models—elegance of form and outstanding performance.

Three aircraft were built to give the design a thorough testing and flown continuously throughout the 1946 season, with more than a fair measure of contest successes. It is interesting to note that none of them have ever "spun" despite attempts to force them to do so. Provided the outline and position of the C.G. are adhered to each model could have been given "full bore" straight from the dining-room table when they were made! Black Magic is simple to build and should give no trouble to the average builder. The weight comes out at about 36 ounces all on, giving a wing loading of 12 ounces per square foot which is ideal for general competition work.

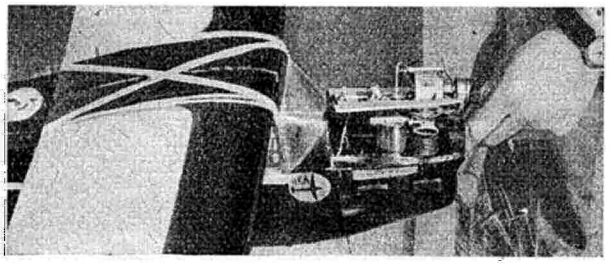
Construction. The two fuselage sides should be built on the plan, one over the other in the usual way, leaving the longerons about 1 inch longer than is necessary at the nose. Cut out main former "A" and rear fuselage decking formers. Glue fuselage sides together at stern-post, then working from stern fit formers, "A" being the last. Make hard wood nose block (with loose top section) cutting rebate all round and all recesses for longerons and motor mount bearers so that when sheeted in everything will be "flush."

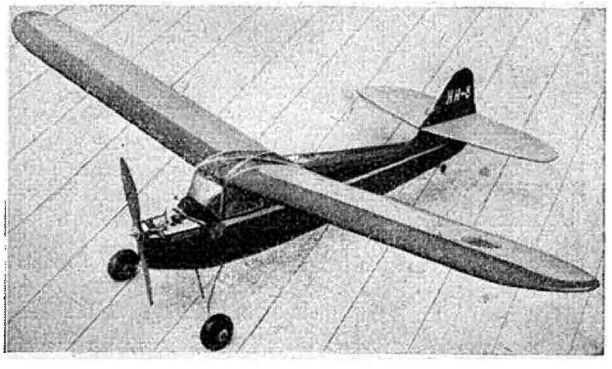
Insert motor plate bearers and glue nose block, bearers and *upper* longerons very securely. Leave at least 24 hours to set. When glue is set, thoroughly steam lower longerons just forward of former "A" and slowly bend up into position cutting the length so that they will slide sideways into the slots cut to receive them in the nose block. This is a bit of tricky—*do not hurry* and keep the longerons well steamed all the time. A perfect bend

Heading picture : Black Magic flies as well as she looks !

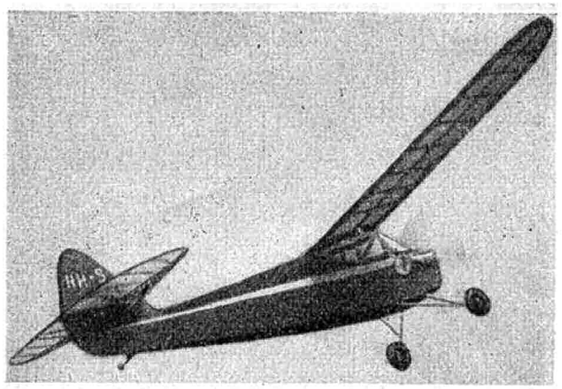
Below : The unique knock-off engine mount lifted from its bearers. Note convenient timer position behind the wing.

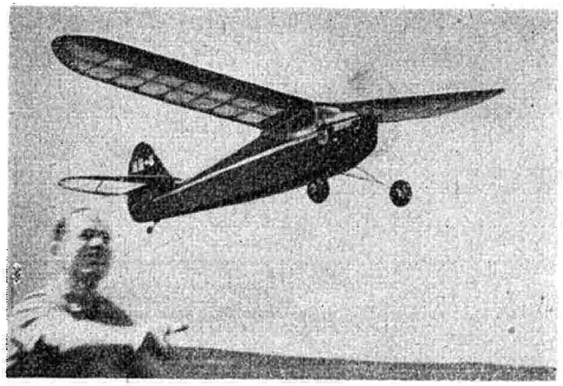
Bottom : The model at rest with engine seated on bearers and cowl removed.

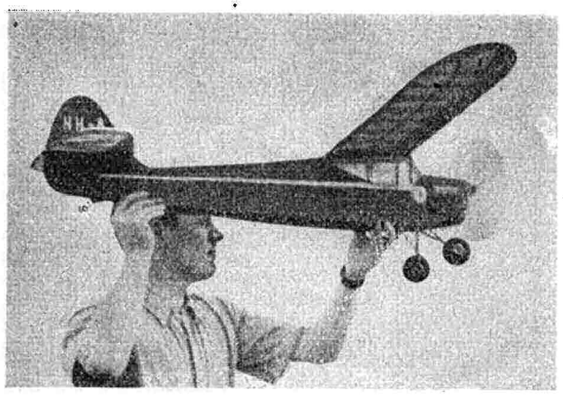


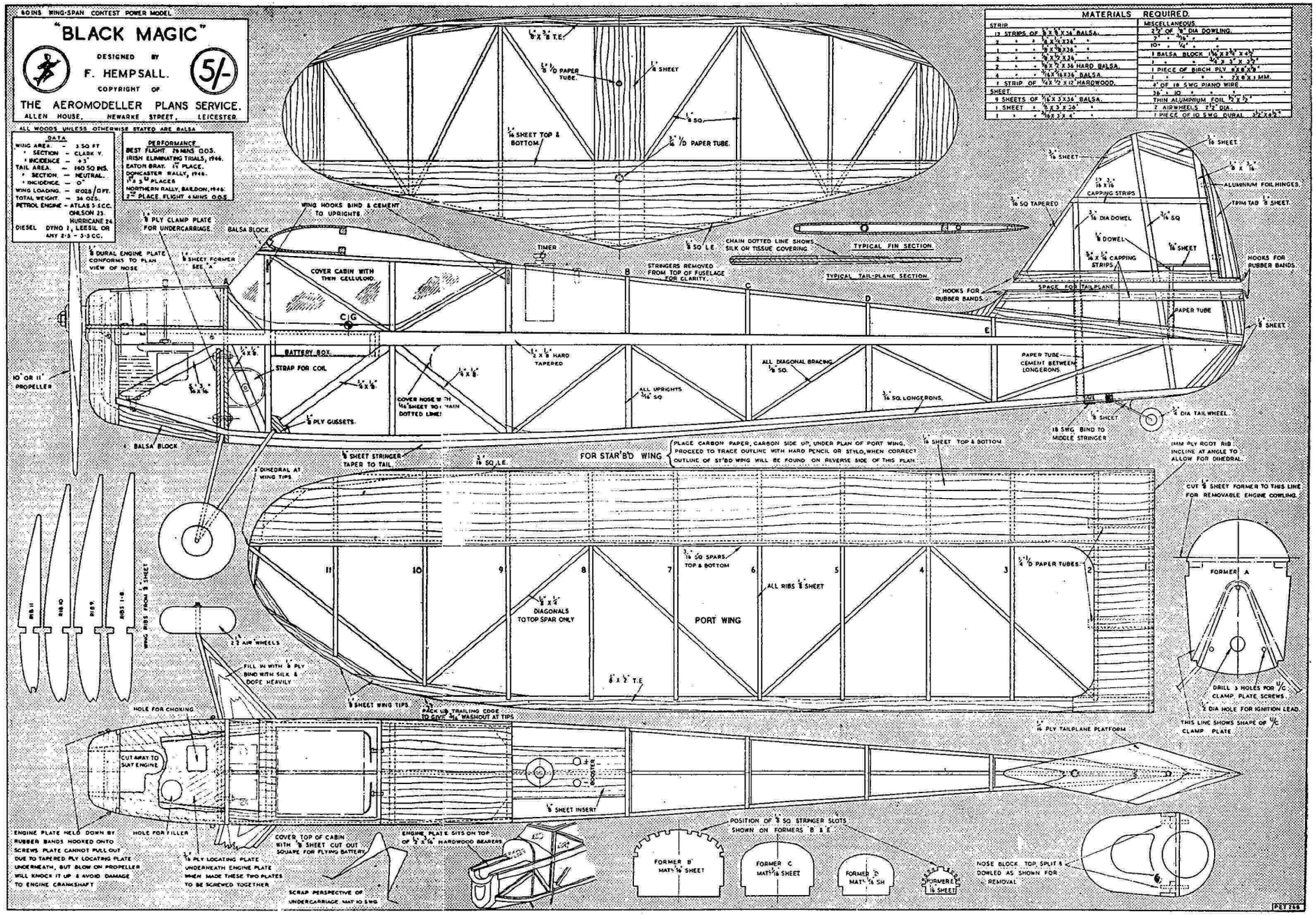


Ready, steady.....go!
Three stages of a hand launched flight by the designer. In the hands of novice or expert Black Magic can be relied upon at all times.









will result, producing an extremely strong nose. Hold in position with rubber bands till dry, then liberally coat with glue. Whilst glue is setting make undercarriage and clamp plate and fit as shown. Make sure that nuts are tight and coat all over with glue to avoid vibrating loose.

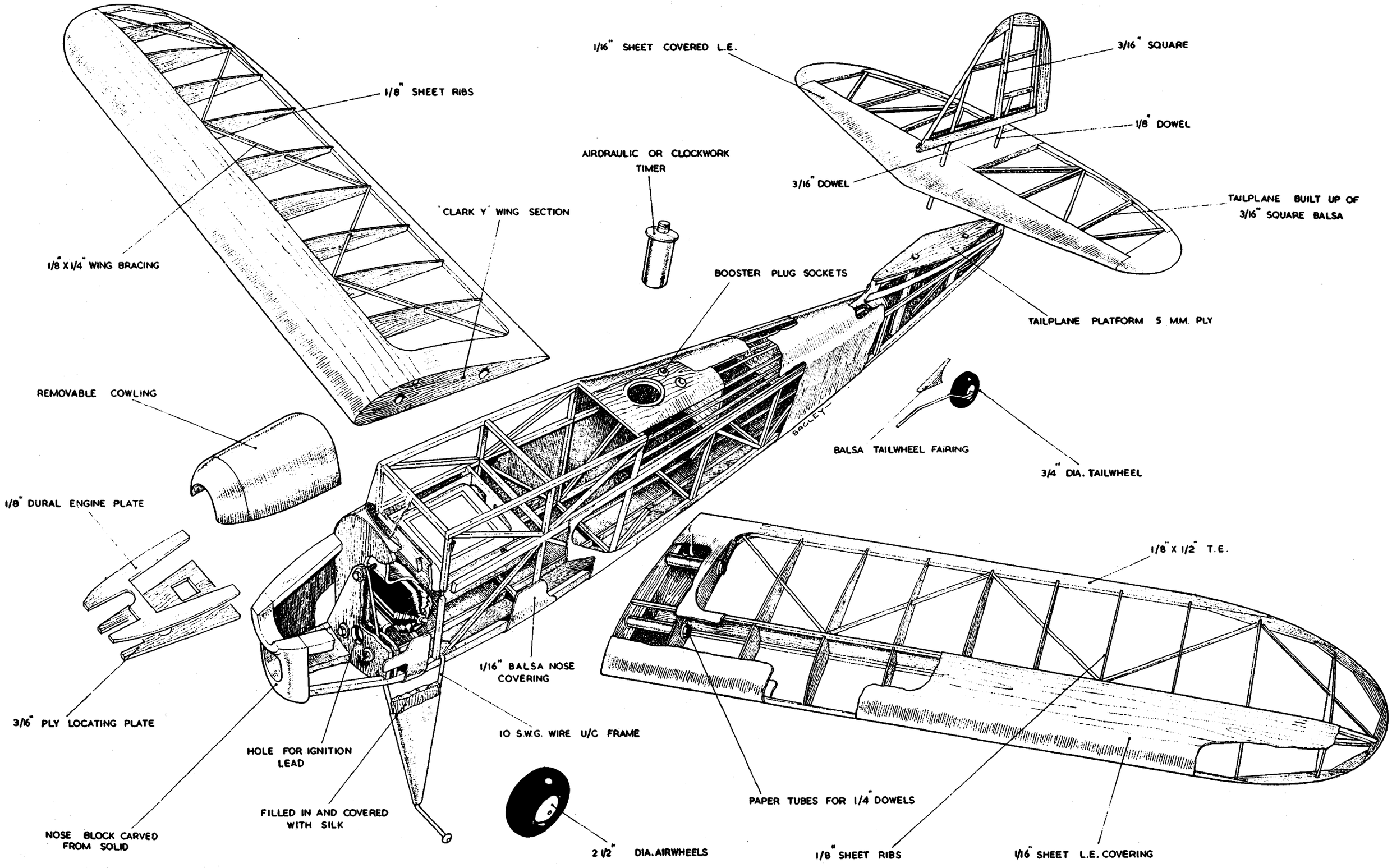
Make and fit battery box in position shown, *not* low down in fuselage. Roll paper tube for rudder fitting—insert in rear end of fuselage. Complete elevator platform. Returning to the nose, cut out "dural" engine plate to suit engine. Cut out wedge shaped plywood locating plate and fit between hardwood bearers. Replace engine plate and screw two together so that the unit can be lifted out vertically, but cannot pull forward due to wedge shape. Make sure everything is flat and finally cut out shape of outside of engine plate to conform with fuselage shape. Refit top half of nose with engine plate in position (without engine), sheet in all nose and fuselage where required using single pieces of 1/16th sheet balsa 3 inches wide with grain horizontal. Sand smooth and true all over.

The wings and tail are built flat in the usual way and call for no comment, except that the trailing edge of the wings should be brought up to the height of the leading edge at the tips having the effect of giving slight "washout"; thereby considerably improving lateral stability near the stall. Fit coil and timer and wire up.

Covering. Original models were silk covered, but double tissue can be used quite satisfactorily.

Flying. Check up balance to see that CG is in the correct place as shown on plan. Check up surfaces for incidence—(wing 3°, elevator 0°). Allow 2° downthrust and ½° right thrust on motor. Check glide once or twice and set off R.O.G. with about 10 seconds engine run. Adjustments should not be necessary, but if required make them slowly and carefully.

Full size plans. Black Magic's appeal may be judged from C. Rupert Moore's cover painting, and the cutaway Bagley drawing. As usual full size plans may be obtained from Aeromodeller Plans Service, Allen House, Newarke St., Leicester at 5/- post free.


1/16" SHEET COVERED L.E.
3/16" SQUARE
1/8" SHEET RIBS
1/8" DOWEL
AIRDRAULIC OR CLOCKWORK TIMER
3/16" DOWEL
TAILPLANE BUILT UP OF 3/16" SQUARE BALSA
'CLARK Y' WING SECTION
1/8" X 1/4" WING BRACING
BOOSTER PLUG SOCKETS
TAILPLANE PLATFORM 5 M.M. PLY
REMOVABLE COWLING
BALSA TAILWHEEL FAIRING
3/4" DIA. TAILWHEEL
1/8" DURAL ENGINE PLATE
1/8" X 1/2" T.E.
1/16" BALSA NOSE COVERING
3/16" PLY LOCATING PLATE
10 S.W.G. WIRE U/C FRAME
HOLE FOR IGNITION LEAD
PAPER TUBES FOR 1/4" DOWELS
FILLED IN AND COVERED WITH SILK
NOSE BLOCK CARVED FROM SOLID
2 1/2" DIA. AIRWHEELS
1/8" SHEET RIBS
1/16" SHEET L.E. COVERING

SOME two thousand aeromodellers are building—or have already built—the special glider designed for the Arnhem Trophy Contest, the finals of which are due to be flown off at Eaton Bray on Sunday, September 21st. While many formulas have been evolved in the past, leaving the builder a certain latitude in their interpretation, this is one of the first occasions on which an attempt has been made to run a major contest with entrants flying identical machines. In effect this means that the winner will have to be the best *flyer*. Skill in trimming, deft release of the model to a perfect unstalled glide at the very peak of the launch—these are the points that will aid eventual victory. Many may have neglected to secure plans as yet, but they need not despair, the design is so simple that even in the hands of a novice it should be possible to build and test an Arnhem Glider in a week of spare-time work.

Again, this is not an occasion where well-known modellers of long experience will take the prize, for in addition to the limitation of a single design, competitors must be under seventeen years of age on 17th September, 1947, so that this is essentially an event for the up-and-coming enthusiast rather than the old and grey-haired. In accordance with the rules, as published in the March-April issue of the AEROMODELLER, entrants sending in the two hundred highest qualifying flights by 21st July would be invited to take part in the finals on September 21st. In view of the great success of the entry, and the many requests that have been received, it has been decided to devote the whole of the meeting to the Arnhem Trophy Contest flights.

WE ARE THEREFORE HAPPY TO ANNOUNCE THAT ALL BUILDERS OF ARNHEM GLIDERS ARE INVITED TO TAKE PART IN THE FINALS —IRRESPECTIVE OF WHETHER OR NOT THEY HAVE SUBMITTED ANY CONTEST TIMES.

This makes it a free-for-all event, where every builder will have the satisfaction of flying in the final—and even those who have not yet built theirs, have time to do so now. The only thing they have to do is to bring their glider to Eaton Bray Model Sportsdrome on September 21st; if they have not already paid their 1/- entry fee, which is a donation to the Airborne Forces Security Fund, this will be accepted on the airfield.

Flying will start at 11.30 a.m. and will continue until 6.0 p.m., with every entrant making three flights—the winner to be the competitor with the highest total for the three flights. Dethermalisers may be fitted to the standard design if desired by entrants.

Quite apart from being an excellent outing with the pleasure of flying in an open contest, entrants have the added novelty of appearing at their local cinemas in the Gaumont British News, for the organisers will be bringing a film unit and covering the contest. By making this a record day at Eaton Bray entrants will be helping along their own hobby of aeromodelling as well as giving practical assistance to an excellent and necessary body—the Airborne Forces Security Fund, which looks after the needs of men and their dependents who suffered in such epic adventures as the Arnhem Drop and many another airborne sortie.

The magnificent Arnhem Trophy, which is a massive representation of the airborne winged horse, with its mounted and armed rider, has cost the producers of "Theirs is the Glory"—the Arnhem film—some £300, and is probably the most valuable trophy ever to be offered to an aeromodeller. This the winner will hold for one year, for it is hoped to make this the main event of the season for juniors, changing the rules each year to cover the various aspects of the hobby. In addition to holding the trophy for a year, twelve special Pegasus replicas will be awarded to the leading competitors, and a further twelve replicas given to clubs or other groups sending in the highest number of entries.

"Arnhem Sunday," which will always commemorate that famous exploit, is the great occasion when clubs should make up a coach party and come along to "the Bray". Campers, too, will be as welcome as ever, while accommodation under cover can be offered to up to a hundred visitors who may wish to stay a night or two. A station coach will be running from Leighton Buzzard to convey train visitors to the airfield—the return trip costs 1/-. Full catering facilities will be available as usual and only good weather is needed to ensure a really fine meeting.

EATON BRAY CALENDAR

SEPTEMBER.

Sunday 7th.
Autumn Meeting, with prizes to the value of £30. Main event will be "Victory Challenge Cup" for Rubber Duration Models—open to all. Sailplane and Power Events will also be run. On Saturday, 6th, Aeromodelling Camp No. 4 open, and lasts until Sunday, 14th. A Residential Camp, with all meals, plenty of aeromodelling, and instructional lectures. There are a few vacancies still, full particulars on request.

Sunday 14th.
A General Flying Meeting, with every opportunity for testing and a few simple contests according to popular demand.

September 21st.
Arnhem Sunday—on which Arnhem Trophy Contest will take place, as described on this page.

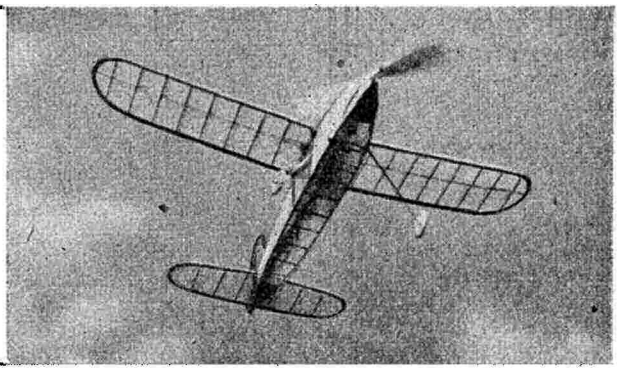
September 28th.
Pterodactyl Trophy for tailless models, powered by petrol, diesel or rubber motors and sailplanes. Special rules to ensure equality for all classes. Winner will hold the Pterodactyl Trophy, value £20, for one year. Prizes value £10 for this and general flying contests.

THERE ARE FULL CATERING FACILITIES AT EATON BRAY EVERY WEEK-END.

THE PERSEUS IIIa

A Simple High Performance Duration Type Model

by W. SMITH ELLIOTT



THERE is nothing elaborate about the model, but its performance leaves nothing to be desired. It may be noted that it holds the present Ripon M.F.C. club record for its class with a time of 7 : 53 3/5 and it has put up many other excellent flights, including a flyaway of six minutes O.O.S.

Construction—Fuselage.

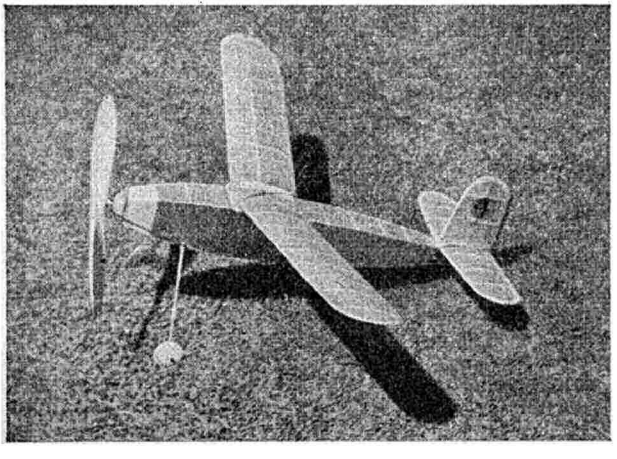
This is just a plain slab sided affair and should present no difficulties. It has been made as light as possible, consistent with strength. Few diagonal braces have been used as it has been found that their weight is not compensated for by the very little useful strength gained. Angle braces are however used at the corners of every third bay from the nose as they greatly increase resistance to handling and their weight is negligible.

The U.C. fixing consists of short paper tubes cemented behind two large gussets in the bottom of the fuselage at the third bay from the nose, these are braced by $\frac{1}{16}$ in. sheet struts and also $\frac{1}{16}$ in. sheet gussets cut to fit over the tubes where they emerge from the fuselage. Plenty of cement should be used in the joints and the whole will be found to be very light and strong.

The U.C. legs consist of a length of bamboo with a wire extension and axle at its lower end. This provides extra spring in heavy landing.

The wheels are streamlined and are made from laminated $\frac{1}{8}$ in. sheet balsa with small 1 m.m. ply circles at either side to support the bush of brass tubing, they are retained on the axles by soldered washers.

The nose assembly is fully described on the plan. This is one of the most important parts of the model and should be carefully made. A really quiet, smooth running prop assembly will work wonders with a model, a point which many people tend to overlook. "Run-True" bobbins are used at both ends of the motor.



The prop boss may be carved down fairly thin, as the ply inserts supply the necessary strength and hold the bush in position.

Wing.

This also is of very simple construction but the ribs will need plenty of patience in the hollowing stage, but the weight saved is well worth while, they should of course have their outer surfaces carved when they are all held as a block in the approved manner.

The detachable dowels in the centre section are straight and should be made from ash of the white or cream coloured variety which has been found to stand a great deal of knocking about.

Fin and Tail.

These too are very simple to build. The rear and leading edges of the bottom of the fin carry bamboo pins. The first being vertical plugs into a paper tube cemented to the tail block of the fuselage. The second is horizontal and has an elastic band passed over it to hold the leading edge down, the band securing the tail plane also.

Covering.

The original model was covered with light blue jap tissue all over. Two coats of dope were applied to the fuselage and wing but only one to the tail and fin.

Flying.

After checking that no warps are present in the flying surfaces, the wing position must first be roughly estimated by balancing and hand gliding and then adjusted for the best glide by power flights. The model will need down thrust with slight right hand side thrust and rudder to obtain a steady fairly fast climb in a wide right hand circle followed by a sharper circle on the glide. The latter is very flat when the wing is set as far forward as possible without actually stalling the model, in spite of the fact that no folding prop is fitted. It will be found that the large tail plane and swept-back wing pull the plane out of all but the very worst air disturbances which it may encounter.

With a motor of 32 strands of $\frac{1}{16}$ in. sq, rubber and a slow climb the model will average $2\frac{1}{2}$ minutes constantly. Lately however, some good quality $\frac{3}{16}$ in. × $2\frac{1}{4}$ in. rubber has been obtained and 10 strands of this 32 in. long give the plane a pretty steep climb which takes it up higher with but a few seconds shorter run.

Consequently the model has become a real thermal hunter and so far the writer has never dared to risk a flight on anything like full power.

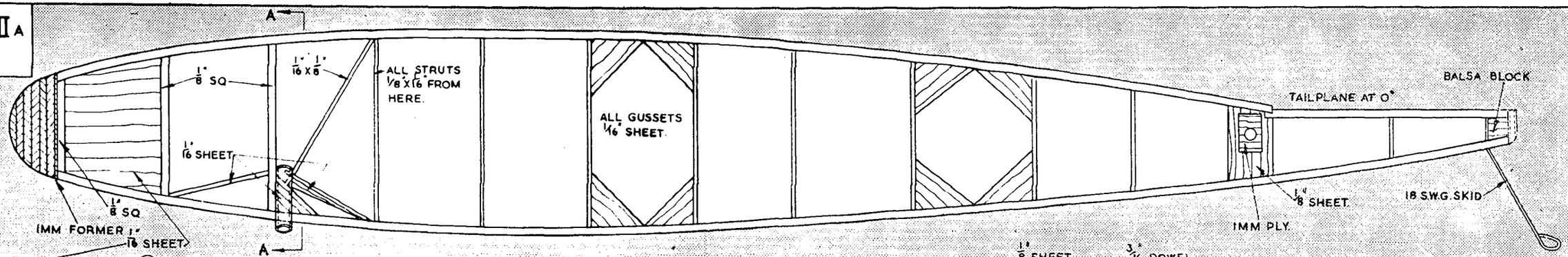
Above all, the model can be relied on to give a good account of itself in most weathers, and as it packs into a fairly small box it is very handy to transport.

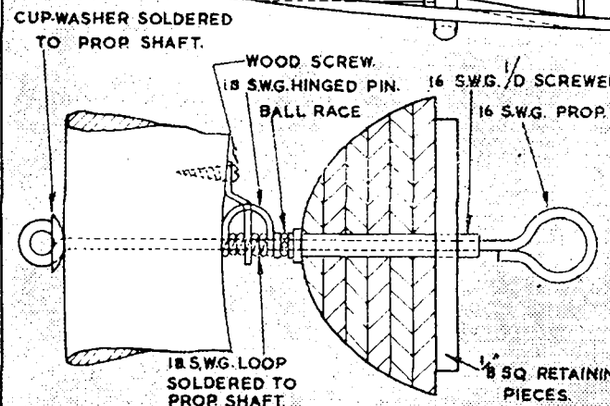
PERSEUS III A

DESIGNED BY
W. S. ELLIOT.

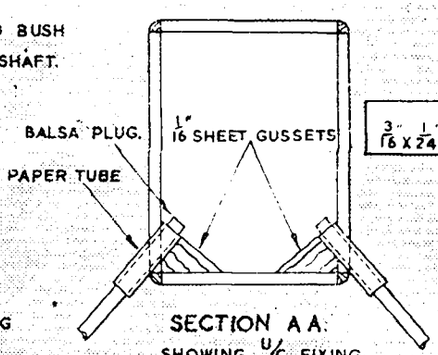
SCALE. 1/1. & 1/2

ALL WOODS, BALSA, UNLESS OTHERWISE STATED.



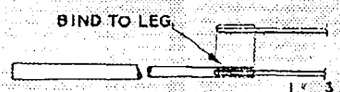


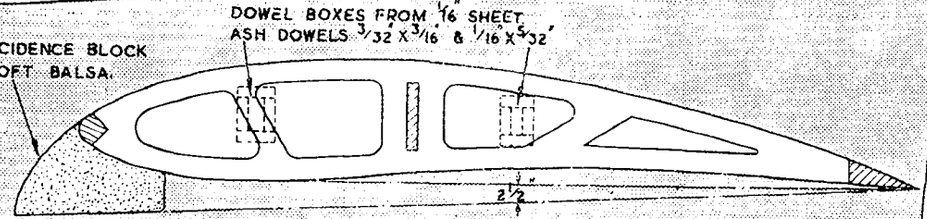
NOSE ASSEMBLY. FULL SIZE.



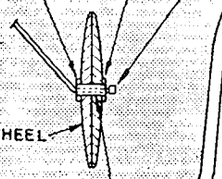
SECTION A A.
SHOWING U/C FIXING.

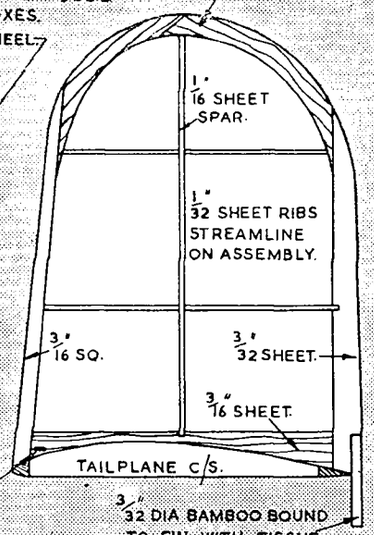
POWER.
3/16 X 1/4 RUBBER 32 LONG

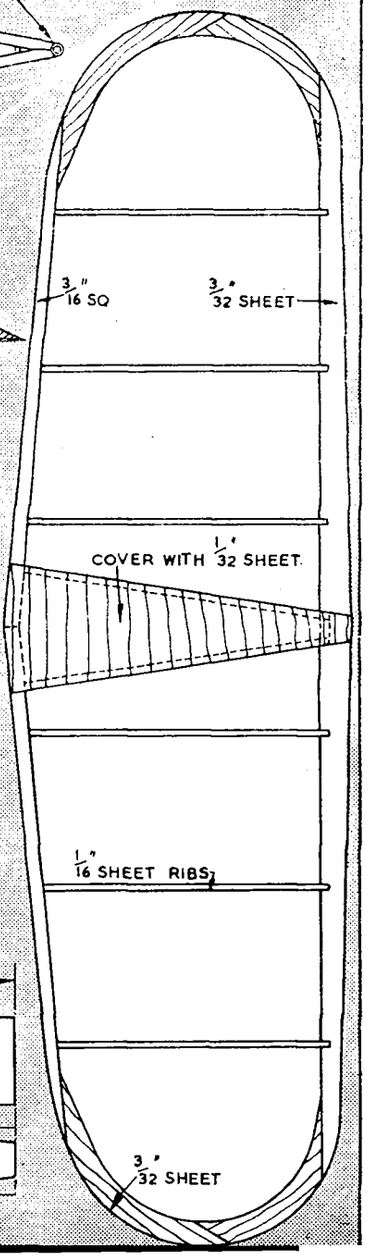


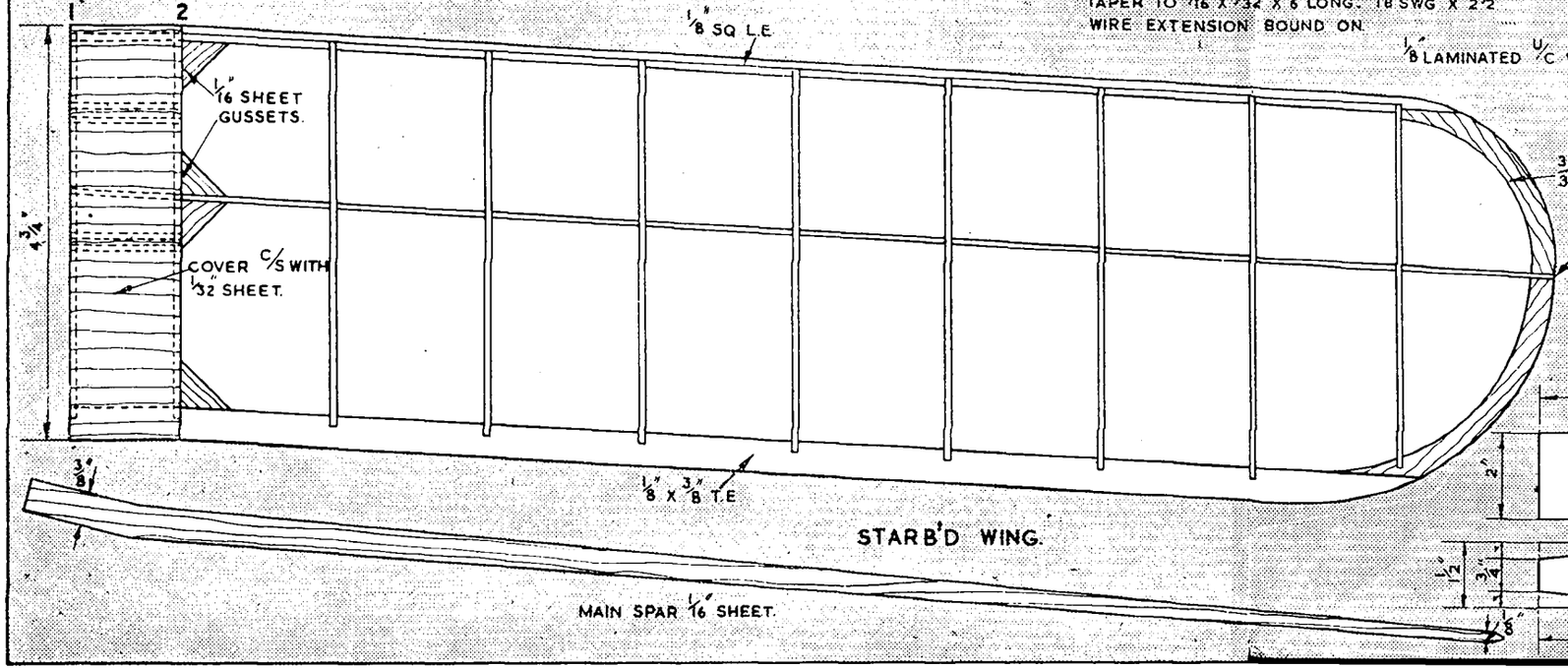


WING RIB. FULL SIZE.
ALL RIBS FROM 1/16 SHEET. 1 & 2 LEFT SOLID & SLOTS CUT FOR DOWEL BOXES.

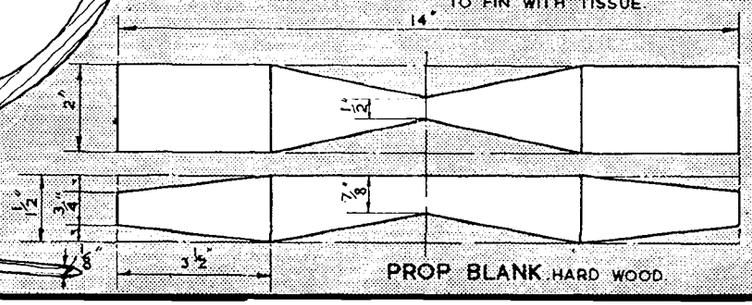




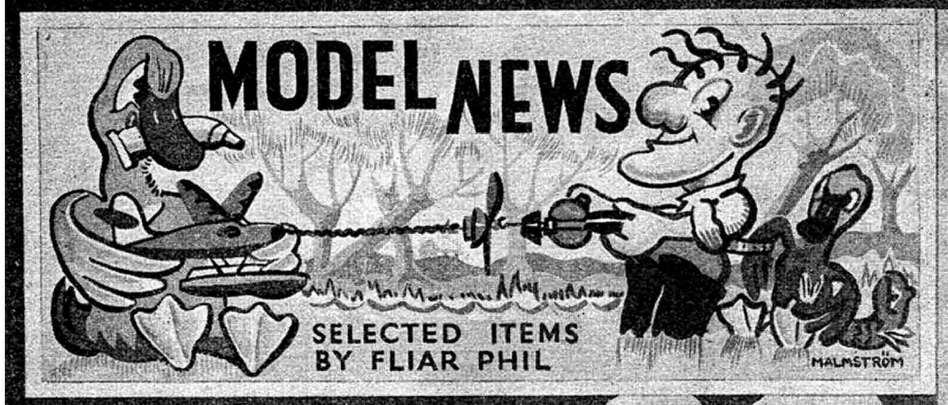


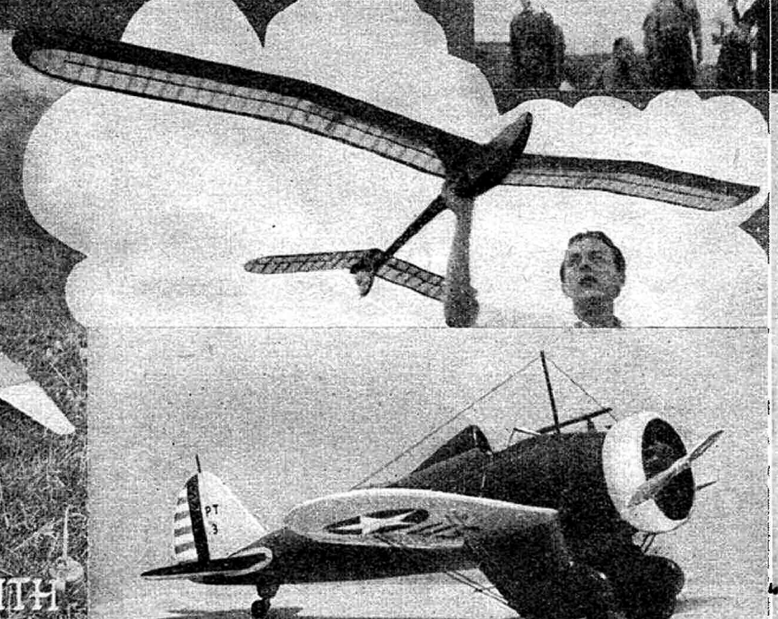


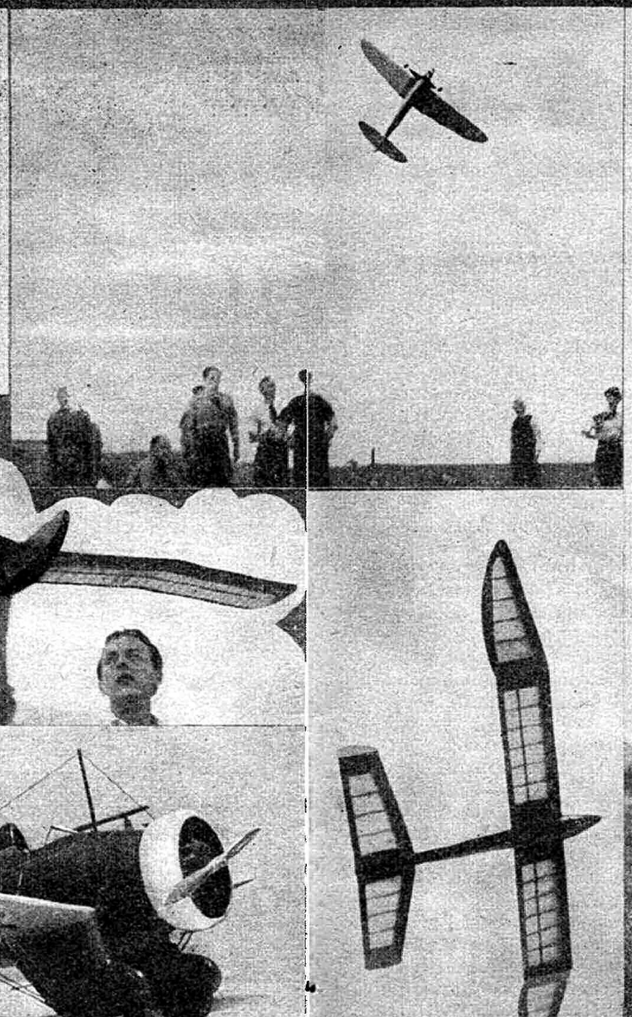
STARB'D WING.

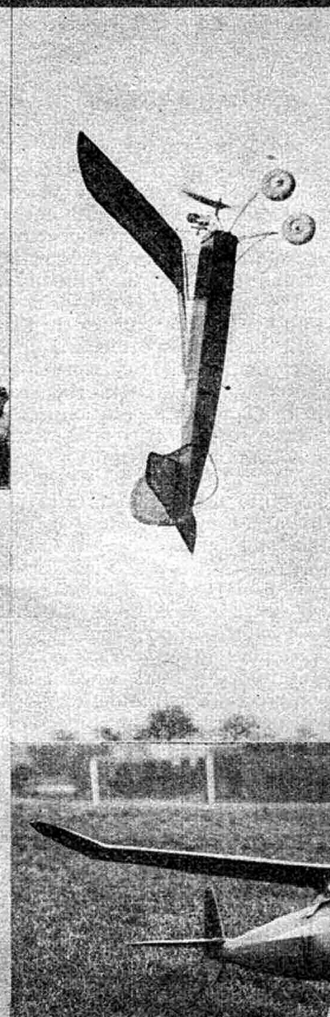


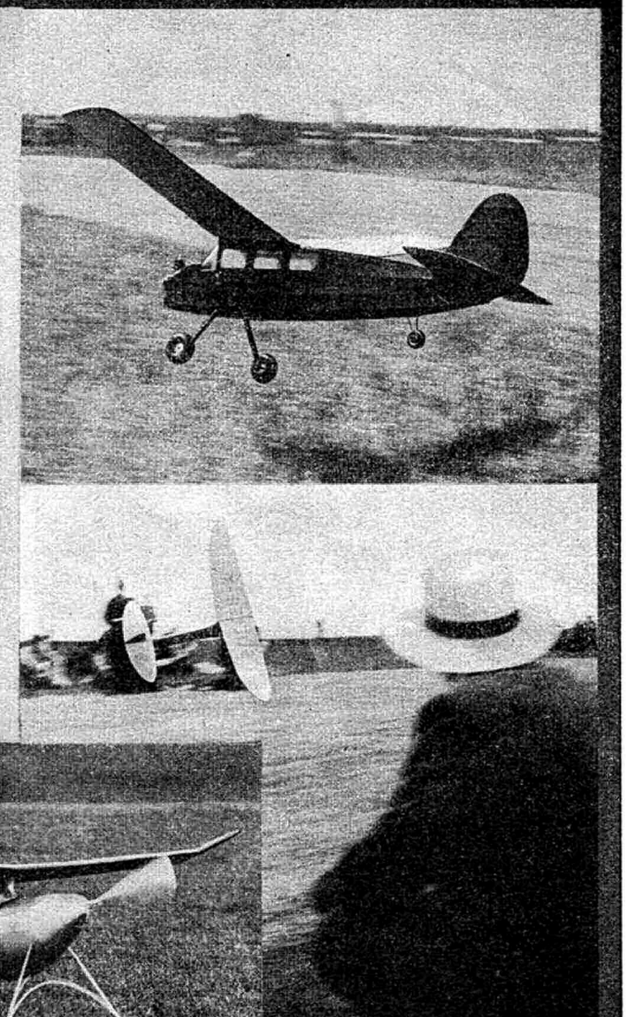
PROP BLANK. HARD WOOD.











JUST recently Fliar Phil has had quite a lot to do with ducks, both on and off the cricket field, and his past efforts at being kind to his webfooted friends have resulted in a tremendous knowledge of hydrodynamics, which, unfortunately, firmly refuses to stretch beyond the take-off point—witness his seaplane which seems unnaturally fond of marvelling at the amount of water under the waves and reassuring itself with frequent submersions . . .

Who is there who has visited the power contests of this year and has not heard the eldritch scream of the Ohlsson and the Bantam, and the phenomenal zoom of the Yankee-originating " Banshee "—in particular Gussie Gunter's " Banshee " which has been collaring honour and glory for itself all over the country. This photo was taken at the British Nationals, and shows the upward flick that begins the hair-raising power climb.

Another shot from the Nationals is to be seen top centre left. This time it is another old stalwart who made an interesting appearance on the contest field. The cut of the clothes may have already informed you that it is our old friend " Rip," busily engaged in watching his " Quicksilver " getting well up in the power competitions. The vertical climb, impossible or not, was definitely the order of that day, and Rip was far from being a wide exception.

We, in common with most other people, do not usually hear much from the Balkans, but despite Jugoslavia's proximity to Russia, an 'odd item of news value does occasionally trickle through. Left centre is a snap of Miric Bora's " Stakhanovac " sailplane, taken at the Swiss Internationals at Frauenfeld, which successfully evaded the censor. A most unusual model, its unusual name was corrupted Russian for the title of honour given to factory workers of exceptionally high output, and it certainly earned the title. Of around seven foot span, it turned in consistently good flights, arousing considerable interest through its unorthodox arrangement of wings swept back from the gull dihedral break, and anhedralled tail with underfin only.

Below this, bottom centre left, is a photo of a very fine 1/36th scale Boeing P26A which J. H. Brooks made from scaled-up plans from the AEROMODELLER. The construction of the model is on the usual solid principle, but the finish deserves commendation. If modellers really realised that it is not much more difficult to turn out a nice looking, well made model like this than a misshapen bit of wood with paint splodged on, perhaps we would see a higher standard.

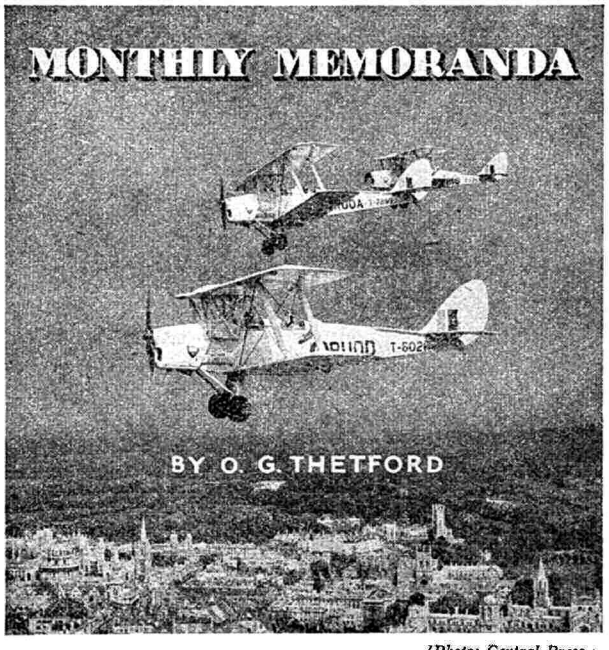
Fliar Phil now calls " Ahoy there " and attention to the aeromodelling efforts of R.N. Cadet P. J. Calkin, sojourning with his brethren at Dartmouth. The photo bottom centre shows his F.A.I. glider of 46 ins. span, which weighs 9½ ozs The wing features a shoulder attachment and a Gottingen 436 section at 2½ degrees. This gives an extremely flat glide with an estimated sinking speed of only just over 1 foot per second : witness her birds'-nesting adventures of an early occasion when she was well and truly " treed " some half a dozen times in the course of the afternoon.

Nowadays it is difficult to associate anything with American modellers other than accompanied by the snarl of " gas " engines. However, here is a timely reminder of the other facets of the flourishing business that aeromodelling is over there. In the photo, bottom centre right is an American-designed Wakefield the " Tsetse Fly," built by D. Raistoick of Bradford, and perhaps a happy augury of the return of the Wakefield contest next year. Despite the multiplicity of petroleers, the rubber movement is still very much alive, and there will no doubt be opposition no less stiff than before when at last the Cup returns to the field. The span of this " Tsetse Fly " is 46 ins., with the rather high all-up weight of 9½ ozs. Maybe this is the fault of the builder rather than the designer.

Top centre right illustrates a menace of the flying field which, if the offenders do not take note, may well result in irksome restrictions on everybody—and we have more than enough of those in other spheres. This power model was caught by the camera of the AEROMODELLER photographer just as it started its flight, which consisted of a number of vicious power loops until the motor cut. So many heedless modellers fly their power models like this—long engine run, full revs, and often no efficient timer—before the model is properly trimmed. Models have a pleasant habit of pranging good and hard on the only open space available, but it won't always be so. Someone will get hurt and someone will have to pay. Fliar Phil is glad to be able to say now that he has seen this model flying rather better trimmed—it is a Mills-engined job by H. White of Luton, who " designs " his models by bending his wood to a pleasing shape upon a wooden floor. The results, if not elegant, do fly in the end—so what of it ?

Again to the British Nationals for our last two photos. Top right is that venerable design, the Vulcan, doing its stuff above the tarmac and providing considerable contrast to the forest of pylons. Fliar Phil does not know the builder of this replica, but the original Vulcan still occasionally ventures out to take the air on a quiet evening at Eaton Bray.

Lastly, to fairly make up the three Musketeers, Eddie Keil's back view, with elegant headgear, watching his Slicker starting to live up to its name. This model is probably one of the most elegant of pylon designs, with its pleasing contours and elliptical wing. It is time that manufacturers catered for a bit of eye appeal as well as flyability.



(Photo: Central Press.)

ACADEMIC ECHELON: All-yellow Tiger Moths of the Oxford University Air Squadron on a training flight over the Colleges. Note the university crest painted on the motor cowlings. Before the war the squadron was equipped with Avro Tutors. The serial numbers of these Tigers reveals them to be of 1939 vintage.

POD GRASSHOPPER: Subject of a production order for the U.S.A.A.F., the Boeing L-15 is the first plane designed specifically for directing artillery fire and liaison work. Fitted with a 125 h.p. Lycoming, the L-15's speed ranges from 36 m.p.h. to 112 m.p.h. Span is 40 ft. and loaded weight only 2,050 lbs. Note exceptional rear-vision for the observer.

MAINLINER 300: Below is the latest Douglas airliner for world routes, the Douglas DC-6. Successor to the famed DC-4, the DC-6 is in service with both United and American Airline systems. First test flight was on 15th February 1946 and the first scheduled flight on 27th April, 1947.

R.A.F. Notes

Second fighter squadron to revive the coloured pre-war style markings mentioned last month in connection with No. 19 Squadron's D. H. Hornets, is No. 41 (Fighter) Squadron, equipped with the Spitfire 21. All-aluminium Spitfires of this squadron are decorated with a red band about 12 inches deep running the entire length of the fuselage sides, from spinner to rudder post. Additionally, the squadron crest appears against an arrow-head background just below the red band on the cowling.

The Spitfires of 41 squadron first appeared in public with the new markings at the Blackpool pageant in July.

Enthusiastic spotters will probably be interested to learn that for the first time since 1939 squadrons of the Auxiliary Air Force will this year attend summer camps at regular R.A.F. Stations. A list of the squadrons follows, together with notes on equipment and the period and location of the camp.

No. 500 (*County of Kent*) *Squadron*, equipped with Mosquito night fighters and normally based at West Malling, Kent, will camp at Tangmere from August 24 to September 6.

No. 501 (*County of Gloucester*) *Squadron*, equipped with Spitfire day fighters, normally based at Filton, Bristol, will attend camp at the Coastal Command station of St. Eval, Newquay, from August 17 to August 30.

No. 602 (*City of Glasgow*) *Squadron*, equipped with Spitfire day fighters, whose home station is Abbotsinch, will proceed for training to Woodvale, Southport. They will be in camp from July 19 to August 1.

The other Scottish Auxiliary Squadron, *No.* 603 (*City of Edinburgh*) *Squadron*, preceded its sister squadron at Southport, where it was camping from July 5 to July 18. No. 603 is also equipped with day fighter Spitfires.

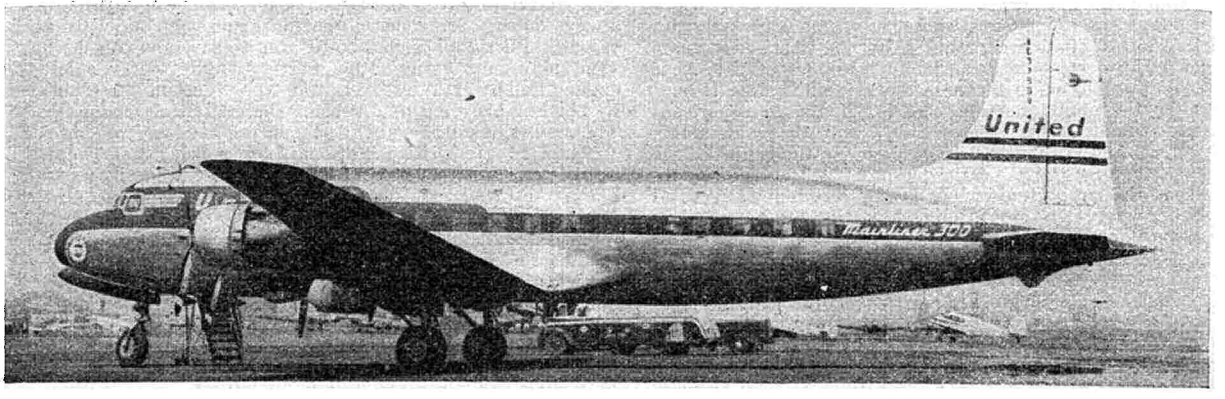
No. 607 (*County of Durham*) *Squadron*, flying Spitfire day fighters and normally based at Ouston, will be in camp at Leuchars, Fife, Scotland, from July 20 to August 2.

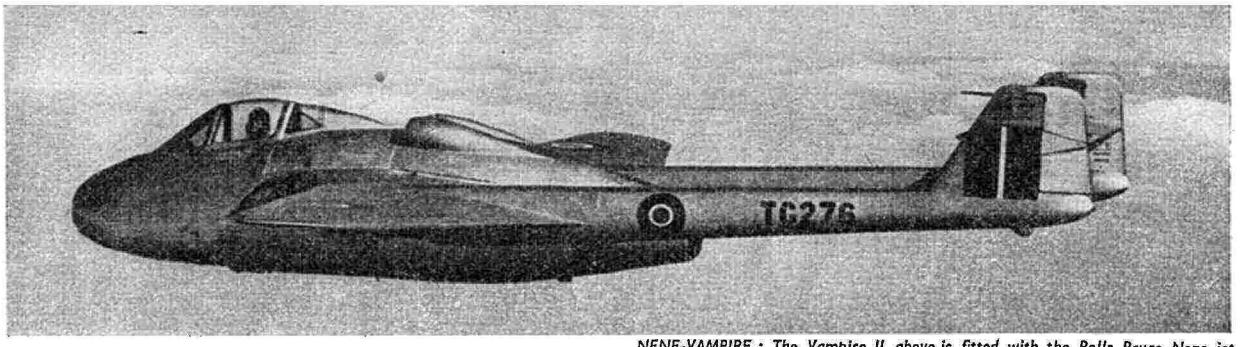
No. 608 (*North Yorkshire*) *Squadron*, equipped with Mosquito light bombers, exercise at their own station of Thornaby, Co. Durham, from August 9 to August 23.

Also in camp at their home stations will be *Nos.* 610 (*County of Cheshire*) *Squadron* at Hooton Park, Wirral, from August 24 to August 30, and *No.* 611 (*West Lancashire*) *Squadron* at Woodvale, Southport, from August 9 to August 17. Both these squadrons are day fighter units equipped with Spitfires.

No. 612 (*City of Aberdeen*) *Squadron* from Dyce will camp at Woodvale, Southport, from July 12 to July 27. No. 612 is equipped with Spitfire day fighters.

No. 613 (*City of Manchester*) *Squadron*, based at Ringway Airport, will camp from July 27 to August 9





NENE-VAMPIRE : The Vampire II above is fitted with the Rolls Royce Nene jet engine, the only external modification being the two intakes above the nacelle. TG 276 is actually a converted Mk. I aircraft. Latest version of the Vampire with the Squadrons is the Mk. III, which has a modified tail assembly.

at the well-known fighter station of Horsham St. Faith, Norwich. No. 613 is also equipped with Spitfires.

No. 614 (*County of Glamorgan*) *Squadron* stays at its home station of Llandow with its Spitfire day fighters from August 23 to September 6.

Finally, *No.* 615 (*County of Surrey*) *Squadron* takes its Mosquito light bombers from Biggin Hill to Horsham St. Faith from August 3 to August 16.

Vikings and Hythes.

It is now possible to provide a complete list of the Vikings already in service with British European Airways, and also of the Hythe flying-boats in service with British Overseas Airways. A list of Hythe names was published in our June issue, but the relevant registration letters were not then available.

Vikings in service are :—*Vagrant* (G–AGRU) ; *Value* (G–AGRV) ; *Vagabond* (G–AGRW) ; *Valentine* (G–AHON) ; *Valerie* (G–AHOP) ; *Valet* (G–AHOR) ; *Valiant* (G–AHOS) ; *Valkyrie* (G–AHOT) ; *Valley* (G–AHOU) ; *Valour* (G–AHOV) ; *Vanessa* (G–AHOW) ; *Vanguard* (G–AHOX) ; *Vanity* (G–AHOY) ; *Vantage* (G–AHOZ) ; *Varlet* (G–AHPA) ; *Variety* (G–AHPB) ; *Vassal* (G–AHPC) ; *Vampire* (G–AHPD) ; *Vandal* (G–AHPE) ; *Vedette* (G–AHPF) ; and *Ventnor* (G–AHPN).

Hythe flying-boats in service are :—*Hungerford* (G–AGKY) ; *Halstead* (G–AHEO) ; *Hadfield* (G–AGER) ; *Hawkesbury* (G–AGHZ) ; *Hazlemere* (G–AGIA) ; *Harlequin* (G–AGHX) ; *Huntingdon* (G–AGKV) ; *Hunter* (G–AGLA) ; *Hudson* (G–AGJN) ; *Hanwell* (G–AGEW) ; *Henley* (G–AGJJ) ; *Harwich* (G–AGKZ) ; *Hythe* (G–AGJM) ; *Howard* (G–AGJK) ; *Hotspur* (G–AGKW) ; *Hobart* (G–AGJL) ; *Hampshire* (G–AGEU) ; *Hamilton* (G–AGHW) ; *Hanbury* (G–AHEP) ; *Honduras* (G–AGJO) ; *Helmsdale* (G–AHER) ; and *Himalaya* (G–AGKX).

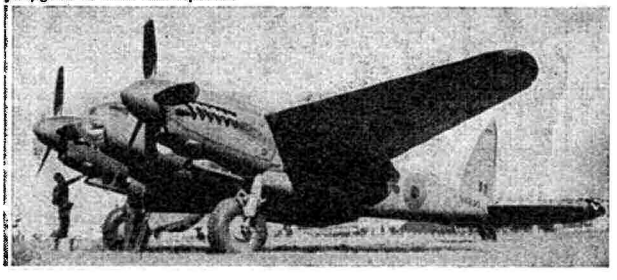
FRENCH VISITOR. Frequent visitor to International lightplane rallies in Britain is the Nord 1201 Norecrin above. Colour scheme is cream with red trim. A 140 h.p. Renault engine gives the Norecrin a speed of 160 m.p.h. with three up.

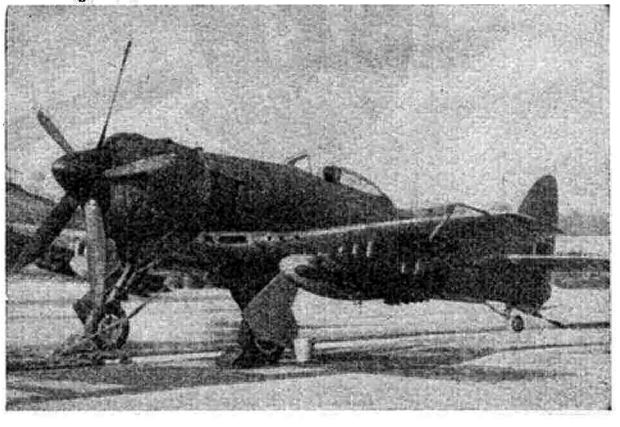
FOOL-PROOF, SPIN-PROOF AND IMPORT-PROOF : The famous American Ercoupe lightplane. Colour scheme of this aircraft, the Belgian demonstrator, is all-aluminium with black letters.

GRUMMAN ZOOLOGY: Grumman's latest Tigercat, the long-nose F7F-3N night fighter, with a F8F-1 Bearcat single-seater behind. Colour scheme of the Tigercat is "Midnight Blue".

RECORD BREAKER (below): The Mosquito RG238 which made the record-breaking flight to Cape Town earlier this year, on display in South Africa.

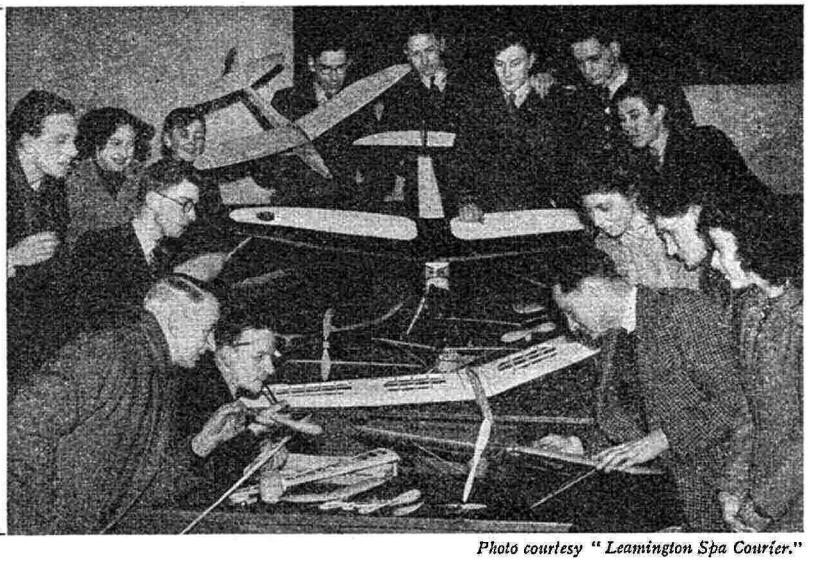
BROCK'S BENEFIT (right): Rare picture of the Hawker Sea Fury X Naval fighter showing full complement of rocket-projectiles fitted below the wings. The Sea Fury is in production both for British Naval Aviation and for the Royal Canadian Navy. This type is the last of the airscrew-propelled Hawker fighters, and a new jet fighter is under development.





Club News

By CLUBMAN



Remember last winter? Here's a chilly view of the Warwickshire Model Society admiring models in their Clubroom back in the "Ice Age."

Photo courtesy "Leamington Spa Courier."

MANY of you will have read with interest the report of the Swiss International Meeting in last month's issue, and having heard one or two rather derogatory remarks regarding our medium successes, I would make the following observations. The English team were complimented on their good average consistency of performance, and, what is even more to the point, on their general conduct and behaviour at the contests. The published rules and regulations were regarded as reasonable, and the English team set out to do their best without attempting to alter contest conditions to suit themselves. Obviously this did not apply to all teams, and the fact that there were differences of opinion reflects all the more credit on our own team in getting down to the job without nattering.

Another point well worth considering is the fact that this year we have Englishmen both as President of the F.A.I. and separately of the Model Section, and in this respect alone an English team was naturally welcomed.

Finally (and I think this is a point that needs keeping in mind in all contests whether club, National or International) it is not possible to always be the winner and in my opinion at least our team did much good for the prestige of English aeromodelling by putting up a good steady performance and conducting themselves in a manner that brought forth favourable comment.

I think the foregoing is an adequate answer to those one or two patriotic but rather unthinking people who expressed dissatisfaction with our placing at this meeting.

Repercussions to my comments on poor sportsmanship (see July 1947 issue) have brought forward a number of comments but I think the letter quoted herewith sums up the whole matter most admirably, and I ask all enthusiasts to read, learn and inwardly digest this.

Sir,

"The members of the York Club have read with interest the account of the Nationals, held at Gravesend earlier this year; but their pleasure was dampened by reading in two aeronautical papers of accusations of unsportsmanlike behaviour and attempted avoidance of certain rules by some of the competitors.

"The aeromodeller today, in many of the S.M.A.E. competitions is placed on his honour to conform to the rules laid down. There are no officials, save his own club members, to see that they are strictly complied with; and if there are certain people deliberately flouting the rules at a centralised and properly run contest, what must they be doing on their own flying ground in the de-centralised competitions?

"If these sort of practices are not stamped out immediately the whole body of modellers is going to be penalised, because the time will come when the S.M.A.E. will decide some of us cannot be trusted, and will make all competitions centralised so that efficient supervision can be carried out.

"For the general good of the sport, this club urges all contestants in every kind of competition to ban these unfair practices; to remember the rules are for the common good, and that as affiliated members of the S.M.A.E. we are all honourably bound to observe them and not seek unfair and unsportsmanlike ways of avoiding them."

One or two readers strongly advocate a re-incarnation of our old friend "Moving Finger". Undoubtedly he would find many targets for his barbed shafts of wit nowadays, and I shall have to scout around to see if he can be brought forth from his long hibernation. (Incidentally which well known aeromodeller—who should certainly know better—conducts an argument with the timekeepers in the middle of a contest instead of taking his complaint to the proper quarters. Word of such action spreads quicker than wild fire in the movement and I can assure the culprit he is doing himself and his reputation a great deal of harm at the present moment.)

Well, well—a lady shows the way home to the lads in a major contest, and I'm sure you will all join me in congratulating Mrs. Gunter on her win in the Power Duration event staged at Fairlop in July. Two flights of 1 : 20·2 and 1 : 00·2 from 15 seconds engine runs placed her well ahead of Eddie Keil who clocked two very consistent flights of 54·2 and 53·4. secs. "Chuck" Doughty and Bill Dean would have undoubtedly placed higher than their 8th and 9th places, but apparently had one flight each scrubbed, and gained their positions with one flight each.

S.M.A.E. POWER DURATION

1	Gunter, Mrs. D. P.	Bushy Park	141·1
2	Keil, E.	Zombies	106·6
3	Nichols, H. J.	Northern Heights	94·0
4	Pollard, T.	Bushy Park	86·85
5	Mason, P.	Bushy Park	86·1
6	Dudley, D. J.	Blackheath	82·2
7	Guest, Mrs. R. / Lanfranchi, S.	Bushy Park / Bradford	78·55 / 78·55
8	Doughty, C.	Birmingham	71·75
9	Dean, W. A.	Zombies	61·6
10	Taylor, A. H.	Bushy Park	60·9
11	Fitch, E.	Northern Heights	58·7
12	Tickner, W.	Essex Power	56·9

(38 entries)

HAMBEY TROPHY

1	Warmington, F. H. E.	Bushy Park	91·6
2	Taplin, J.	Isle of Thanet	83·4
3	Tickner, W.	Essex Power	83·1
4	Campling, W. F.	Bushy Park	74·1
5	Silver, R.	Southgate	67·0
6	Moss, G.	Southgate	64·6
7	Barr, N.	Brentford	58·3
8	Butler, D.	Surbiton	56·65
9	Lanfranchi, S.	Bradford	55·5
10	Paul, G.	Bushy Park	51·9
11	Mowat, G.	Luton	47·4
12	Houghton, C.	Luton	46·8

(38 entries.)

The second **MIDLAND RALLY** organised by the **MIDLAND AREA**, will take place on September 14th, at Anstey Aerodrome, Coventry. In order to cope with the expected large entry (there were over 500 at the April meeting) pre-entry is required in order that the necessary paper work can be completed before the day, thus cutting out confusion. A sub-area meeting held at Market Harborough was spoilt by rainy weather, nevertheless some good times were put up, E. W Evans o. Northampton, excelling himself. Results :

Open Rubber	E. W. Evans	(Northampton)	6 : 43 agg. of 2 flights.
	— Matthews	(Leicester)	3 : 07·2
	— Lacey	(do.)	2 : 16·5
Open Glider	E. C. R. Hudson	(Northampton)	3 : 05
	B. Willmott	(do.)	2 : 42
	R. Goodman	(do.)	2 : 11
Power	D. Gamble	(Leicester)	2 : 59
	C. Followell	(Northampton)	1 : 46
	G. E. Dunmore	(Leicester)	1 : 33

An inter-area clash staged by the **LONDON AREA** only brought full opposition from the Midland Group, who took honours in the rubber event, but had to give best to the Londoners in the power and gliding contests. " Gus " Gunter kept up his winning strain by putting up the best times in the power event with three consistent times of 1 : 26·4, 1 : 12·9 and 1 : 37·4. D. Butler made best showing with gliders with three flips of 3 : 05·7, 2 : 36 5 and 2 : 26·8, and Geoff Salt of Birmingham, clocked 1 : 44, 3 : 39·4 and 5 : 00 to carry off the rubber event. It is planned that clubs using Fairlop Aerodrome should hold a United Meeting shortly.

The **NORTHERN AREA RALLY** took place at Hawarden Aerodrome, on the 6th July, organised by the Merseyside Regional Council, in collaboration with the Chester M.F.C. Fine co-operation was received from the R.A.F., roped enclosures, etc. being provided. Before noon the glider event was well away, with the usual crop of crashes and flyaways. Medium aspect ratio jobs with tip dihedral fared best in the gusty wind. Only three stalwarts ventured in the tailless class, the winners showing good promise of high times under better conditions. Salloway of Rochdale, evidently flying the same job that he took to Flers (a little Arden powered pylon job) took first place in the power class, the full results (all aggregate of two flights) being :

Open Glider	D. Bosworth	(Five Towns)	6 : 45·8
	J. Arden	(Ashton)	4 : 12
	R. Clegg	(Oldham)	3 : 32·6
Open Rubber	C. Jackson	(Ashton)	4 : 35
	W. Higginbottom	(Ashton)	4 : 24
	F. Ward	(Ashton)	3 : 47
Flying Scale	F. Wilde	(Chester)	: 44·2
	W. Higginbottom	(Ashton)	: 34·6
Tailless Glider	W. Oldfield		1 : 16
Power	D. Salloway	(Rochdale)	2 : 00·6
(20 sec. engine)	C. Fitzpatrick		1 : 51·3
	W. Crusham		1 : 29
Rally Champion	W. Higg'nbottom	(Ashton)	.....

Good news for members of the **SOUTH WALES AREA**—St. Athans Aerodrome may now be used for flying each Sunday, potential users to contact the Area secretary, Mr Cope, 10, Parry Street, Cardiff.

Members of the **LOUGHBOROUGH COLLEGE M.A.C.** seem to have things well taped Following the loss of his Mills powered model, R. Thiry was advised by one of the University Air Squadron pilots that he had located the job some two miles away, and said pilot then proceeded to guide the owner from his Tiger Moth over hill and dale to the missing model Co-operation I call that !

The recently reformed **CRANWELL APPRENTICES M.A.C.** got away to a fine start with a couple of good record times. Cpl. Watkinson clocked 6 : 45 o.o.s. with his " Vanda" and Cpl. James got 4 : 45 out of his " King Falcon ". (Old-timers will remember this club under the guiding wing of Mr. Gutteridge.)

The first flying meeting staged by the new **LONDONDERRY M A.C.** was spoilt by poor weather, but the meeting went with a swing nevertheless. P. O. Burton won with an aggregate of 4 : 20, best flight 2 : 06, second Lloyd who aggregated 3 : 10 and third C, Austin 2 : 34.

Main interest in the **WAKEFIELD** (Yorks) **M.F.C.** is sailplanes, but other types are getting an increasing share of attention. Club records to date are : Sailplane—W. Dennison 8 : 50 (lost after 18 minutes), Duration—E. Ramsden 9 : 43 and R. T P.—E. Shillito 2 : 14.

SUNDERLAND & D.M.A.C. have also been record bashing lately, T. Rowlands putting the glider figure up to 5 : 15 with his " Ivory Gull ", J. Wilkinson making exactly the same time for the rubber class, and W. Holdstock getting 6 : 0 o.o.s. with his E. D. powered job. (1947 seems to be a vintage year for thermals !)

A most successful day was that organised by the **PLYMOUTH M.F.C.** when members of the Torquay club were entertained, and the local Aero Club put on a display. Results :

Open Rubber	G. Lynn	(Plymouth)	3 : 55·3
	R. W. Boote	(do.)	3 : 46·4
	D. Brown	(Torquay)	3 : 06
Glider Team	Torquay		10 : 38·9
Nomination	L. Long	(Torquay)	1 sec error
	R. Perrett	(do.)	3·5 " "
	G. Lynn	(Plymouth)	4 " "

A new type of event was that held by the **SALE A.C.** when they visited Great Hucklow (home of the Lancs. and Derbys. Gliding Club) and tried out slope soaring. No flight of under 2 minutes was clocked all day, best time going to P. Whitt, who set up 7 : 15 o.o.s. I understand that a claim is being put forward for the British H.L. record for this flight.

A special demonstration by members of the **NORTHAMPTON M.A.C.** to some 1,500 spectators raked in approx. £25 for the local hospital. Strong gusty wind and variable conditions caused one or two models to be sacrificed in the good cause, but membership has increased as a result.

The **WOLVERHAMPTON M.A.C.** has been divided into senior and junior sections, and a permanent clubroom obtained with large work bench and other amenities. Results of the club contest held at Perton, on the 11th May are :

Open Glider	E. Thompson	8 : 44
	W. A. Griffiths	7 : 34·5
	D. V. Bate	7 : 24
Open Rubber	W. R. Ormerod	7 : 02
	S. A. Ward	4 : 23
	H. Dolan	2 : 48·2
Open Power	C. Ray	1 : 38
	M. Smith	1 : 08

Strange news for these columns this month is a request to announce the disbanding of the Speldhurst (Kent) M.A.C. " through lack of members ".

The **FIVE TOWNS M.A.C.** seem to be in clover. They have the use of Meir Aerodrome, a met. report each Sunday, use of the control tower for timing, etc., and a fine clubroom for weekday use. With all those amenities we should soon be hearing something of these chaps in National contests ! Thanks and congratulations are forwarded to the organisers of the Midland and North Western rallies, and

" To those who work behind the scenes
busy finding ways and means—
to those who toil and stretch out ropes
and diligently time our hopes—
we give our thanks to these "

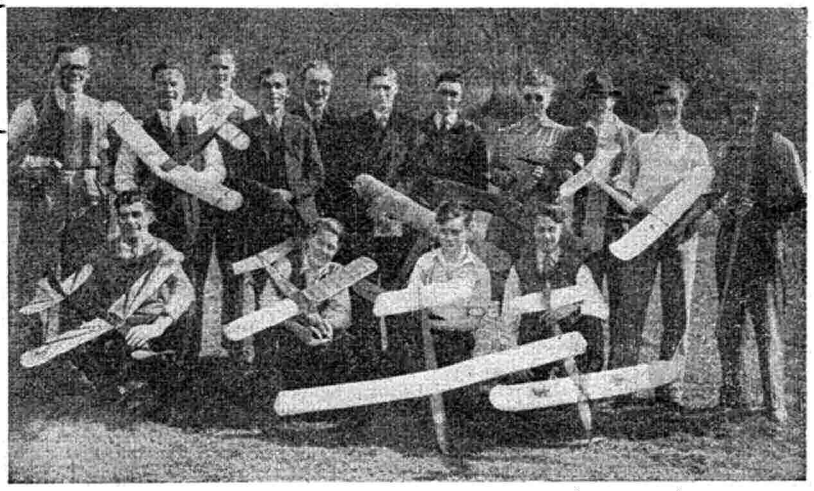
During a visit to Fairlop during the Power Contests, L. Tillet (flying a rubber powered model, diamond fuselage) put up a flight of 5 : 10 and then promptly improved this by breaking the club lightweight record with a flight of 8 : 43 o.o.s.

About fifty per cent. of the **CHEADLE & D.M.A.S.** members now own engines of some description, mainly Mills and Ardens. They were unlucky, however, at the Northern Rally, several models getting bent, and one member only getting about 10 seconds accuracy with his timing ! These things always happen at comps. don't they ! I. Harrison walked away with the junior rubber comp., following up his success at the earlier Manchester meeting.

The **GRAVESEND A.M.C.** has started a junior section for lads from 10 to 14 years of age, serving a six weeks probationary period to start off. A passage in this report is worth recording, and is as follows :

" On reading your views re poor sportsmanship, I only hope we will teach our juniors to be a well mannered group of " bods ", as I have personally met many rude and conceited people at the large comps. Much harm is being done to our hobby by these people, as the great General Public gets a wrong impression ".

For their two power competitions this year the **LUTON & D.M.A.S.** were given permission to use the local airfield. For the first event, the Hinks Trophy, two flights of 45 secs. each were required, and it tried the fliars well and truly to get



A cheery group from Wales, members of the Cardiff Club, snapped during the Flight and M.E. No. 1 Cup Area Meeting at Ely Race Course earlier this year.

Photo courtesy "Cardiff Times."

to these limits. E. Barret won with two flights of 45 and 41 secs. with E. Clark and C. Houghton as placemen. For the Houghton Tankard a stipulated engine run was required, any variation bringing disqualification. This showed up faulty engine timing to a marked degree, and C. Houghton did well winning with a flight of 1 : 12 on an 18 second engine run. He followed this success by winning the power event at the Northern Heights Gala Day with a flight of 2 : 32, engine run 15 secs.

The twelve cylinder engine being made by a member of the **PEGASUS POWER CLUB,** has had its first run, and passed with flying colours — or should it be revs.? The model to take this is a 12 ft. span Typhoon, and all are eagerly awaiting the first test flight(s).

Fine weather blessed the meeting of the **BLAYDON M.A.C.** with their friendly rivals from Durham City and Newcastle. A slight breeze put a maximum of about 5 minutes on flights. Results :

Open Glider	**H. F. Worsnop**	**(Blaydon)**	**7 : 39·5**
	J. Teasdale	**(do.)**	**3 : 23·5**
	J. H. Bell	**(do.)**	**3 : 16·5**
Open Rubber	**S. Fairless**	**(Newcastle)**	**7 : 48**
	W. Jackson	**(Durham)**	**5 : 23**
	A. Kimber	**(Blaydon)**	**3 : 47**

The active support of the R.A.F. by virtue of permission to use Manston Aerodrome, has made vast changes in the **ISLE OF THANET M.A.C.** Over seventy members turned up to a meeting to compete for the Challenge Cup kindly presented by Group Captain Grice, O.B.E., D.F.C. and the officers at Manston. All types of models competed on level terms, the winner being Mr. Brockman, with a rubber driven job of his own design. This was last seen flying out to France over Ramsgate Harbour, and was reported to the Police as a possible flying saucer !

Six of the **BLACKPOOL & FYLDE M.F.C's,** ever increasing number of gas modellers turned up for the first club duration contest for this type of model. Three out of the six were later able to record official flights under sunny, but rather windy conditions. All the models were Mills powered, engine run limited to 10 secs. L. Robinson won with three consistent flights of 23·65, 37·5 and 32·7 secs., this being his first attempt at power flying.

After only nine months of activity, the **AMPLEFORTH COLLEGE M.A.C.** has an imposing set of club records as follows : Rubber—M. D. Pitel 21 : 45 o.o.s. R.O.G. Power—R. E. Gore-Lloyd 6 : 38 o.o.s. R.O.G. and Sailplane—R. A. Twomey 5 : 46.6 o.o.s. H.L. (The latter has been claimed as a British record, but see earlier reference to the Sale club.)

D. Robertson of 15, Whitworth Road, S.E.15 would welcome news of his 54 in. span Comet " Zipper " (coloured yellow and red) with " Movo " engine, lost from Langley on the N.H. Gala Day. Last seen heading North.

And so fellers, that's the lot for yet another month. Seems I've been saying that all my life (it's some nine years since I commenced blue-pencilling club reports) but I never get browned off with learning what the big and little clubs are doing, even if I do get a bit of a headache sorting out the wheat from the chaff occasionally. Keep sending 'em in, but don't forget the closing date—20th of the month, and please don't send along dates for publicity that will be ancient history by the time the next issue is on the news stands !

THE CLUBMAN.

NEW CLUBS

KYROCKETS A.S.
G. A. Caddick, 40, Adur Drive, Shoreham-by-Sea, Sussex.

CAMBERWELL M.F.C. (formerly Borough of Camberwell M.F.C.).
P. F. Landray, 59, Bavant Road, Camberwell, S.E.5.

BLETCHLEY & D.M.S.
F. J. Tattam, 40, Westfield Road, Bletchley, Bucks.

TIPTON & D.M.A.C.
R. O'Nions, 12, Gate Street, Burnt Tree, Tipton, Staffs.

ST. FAITH & D.M.A.C.
V. R. Theobalds, 35, Dennis Road, Middleton Lane, Norwich.

WEST SUSSEX M.A.S.
A. H. Warner, 9, St. Flora's Road, Littlehampton, Sussex.

CHELSFIELD M.A.C.
B. B. Woolard, " Lismore," Glantrannon Road, Green-Street-Green, Kent.

ROYAL PARK M.A. & E.C.
D. Tilleray, 9, Longmead Drive, Sidcup, Kent.

JARROW & HEBURN M.C.
H. Workman, 13, Monkton Road, Jarrow-on-Tyne, Co. Durham.

COLLEGE OF AERONAUTICS M.A.C.
D. C. Bain, Hall of Residence, College of Aeronautics, Cranfield, Bletchley, Bucks.

SOUTH BEDFORDSHIRE JUNIOR M.F.C.
C. A. Bates, " Rose Cottage," Castle Hill Road, Tottenhoe, Beds.

AVON M.A.C.
W. Jones, 26, Ansteys Road, Hanham, Bristol.

R.A.F. LOCKING M.A.C.
Hon. Sec. 1920187 B/E Miles, Hut 13, No. 1 Wing (Boys,) R.A.F. Locking, Weston-super-Mare, Somerset.

CRAWSHAWBOOTH M.A.C.
Hon. Sec. Mr. A. W. Richards, 611, Burnley Road, Crawshawbooth, Rossendale, Lancs.

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PITSEA & DISTRICT M.A.C.
Hon. Sec. J. S. Thomas, " Ormuz," Rectory Road, Pitsea, Essex.

LONDONDERRY & DISTRICT Y.M.C.A. M.A.C.
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R. E. W. Vanderplank, " D " Squadron, Apprentices Wing, R.A.F. Cranwell, Lincs.

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Hon. Sec. B.R.G. Pile, 46, Hawthorn Avenue, Gainsborough, Lincs.

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RADLEY COLLEGE M.A.C.
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LOUGHBOROUGH COLLEGE M.A.C.
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WILLESDEN & DISTRICT M.A.C.
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CLASSIFIED ADVERTISEMENTS

PRESS DATE for November issue—October 1st.
ADVERTISEMENT RATES:
Private **Minimum 18 words 6s., and 4d. per word for each subsequent word.**
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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.

FOR SALE

6 ft. petrol plane, airwheels, minus engine; also four 1/72nd solids. £5. 15s. 0d. lot.—Eastland, 64, Lumley Road, Horley, Surrey.

5·8 c.c. Hallam, as new, with plug, coil, condenser, propeller and pair of unused 2½ in. Caton's airwheels. £6.—Firth, 42, Gargrave Place, Lupset, Wakefield.

Jenco 6·2 c.c. engine, full accessories and spares including coil, little used, nearest offer £7.—Davey, Sightgill Grove, Edinburgh.

Stentor 6 c.c., complete coil, condenser, 2 plugs, prop., tank, etc., new, bench tested 5 minutes only. £8. 5s. 0d.—Gibbs, 159, Gordon Road, High Wycombe, Bucks.

4 ft. Aleous Glider, built from AEROMODELLER plans. 3 ft. Blenheim, 30 in. Ajax, 24 in. Hawk. Kiel Kraft Kits.—£10 or best single offers.—Box No. 80.

Reeves 2·5 c.c. engine with accessories. Stentor 6 c.c. engine with accessories. M.D. 6 c.c. petrol engine with flywheel. Owat 5 c.c. diesel. Nife Mini accumulators. Ohlsson 3½ in. airwheels. Keil Kraft timer. What offers.—Lt. Gathercole, No. 2 E.F.T.S., R.A.F. Station, Yatesbury, Wilts.

Whirlwind 6 c.c. petrol engine, complete less condenser. Bench tested only. £6. 10s. 0d.—Tothill, "Brendene," Marpool Hill, Exmouth, Devon.

Whirlwind 6 c.c. engine, mount, electrics. £7 or nearest offer.—Aeromodels Ltd., Park Works, Liverpool, 17.

Sale to pay hospital costs: Supertuned McCoy, Ohlsson 60, Supercyke, Allouchery special. Masses new American accessories of all descriptions, super quality. If you are interested in power flying send S.A.E. for details. I'm abandoning gassies, not selling junk.—Temple, East Mersea, Colchester.

Scale model Taylor-craft, 63 in. span, silk covered, 7½ c.c. Gwin engine, clockwork timer, airwheels, finished silvered. £15. Also 54 in. span Taylor-craft silver finish 4·5 c.c. Majesco engine, with timer and Rider airwheels. £12. Both of the above are in flying trim.—Box 79.

Streamline 4 c.c. Run only 20 mins., complete coil, condenser, £7. 10s. Also Mills 1·3 diesel, as new, £5.—Mann, 4, Valentines Way, Rush Green, Romford, Essex.

New "Rouer" fitted 1·3 c.c. Mills diesel, 8 gns. Another A.M.D. "Vampire" glider showing slight repair. Offers. Kit building undertaken.—Sparks, 59, Petherton Cons., Bristol, 4.

5 c.c. Kestrel two stroke. Cast iron piston. 2½ in. flywheel. New coil and condenser. First class condition, specially tuned but not yet raced. Tested r.p.m. 8,000 plus.—£7.—Box No. 78.

"New Owat" diesel. Must sell due to call-up. First offer £7. 10s. 0d. secures.—Threlfall, Quarry, Podmore. Stourbridge.

Diesels. Allouchery 1·3 c.c., £5. Ouragan, 0·9 c.c., £6. Eta, 5 c.c., £7. Perfect running condition. Test run for caller.—Brandwood, 185, Styal Road, Heald Green, Cheshire.

New 6 c.c. Stentor petrol engine, with tank, propeller, and Banks coil, bench run only; also snip timer. £7 or near offer.—R. W. Penny, 45, Woodcock Hill, Kenton, Middlesex.

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"Frog 175," not used, with coil, condenser, airscrew, £4 or nearest offer.—Apply to Cole, c/o 120, Grosvenor Road, London, S.W.1.

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Sale: "Scorpion" 44 in. span, powered Mills diesel, ready to fly, £10. "Thorneycroft" A.S.R. launch, powered "Owat" diesel, ½ in. to 1 in. scale, £25 or nearest.—Parks, "Glendevan," Birch Road, Bassett, Southampton.

One Milford Mite Mark II diesel, bench tested only, with prop. £3. 10s.—Waddington, Tenby Lodge, Soham, Ely.

E.D. 2 c.c. diesel, new, only run 10 minutes, complete with prop.—Wrigley, Oak Villas, Hebden Bridge, Yorks.

"Stentor" 6 c.c., brand new, plus coil, condenser, two plugs. £7.—Halliday, 40, Dunlace Road, Clapton, London, E.5.

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"Majesco" 2 c.c. diesel engine and propeller, flown once, in excellent condition. First offer secures.—Write, King, 136, Portland Road, Charminster, Bournemouth.

Ohlsson "23," two props., coil, condenser, spare plug. Run test only.—Offers.—Box 82.

Whirlwind 6 c.c., complete with coil. Propeller, etc., £7 or near offer.—Smith, 22, Halsbury Road, Bristol, 6.

"Scorpion" petrol model, complete with Atlas 3·5 c.c. engine, coil, condenser, airscrew and timer. £12 or nearest offer.—Godden, 49, Challis Lane, Braintree, Essex.

"Ohlsson 60." Absolutely new, run half hour, with spare plug and two airscrews, £10. 10s. Airwheels—2¾ in., "M. & M.," 3 in. "M.S.," 4½ in. "Trexler," and two petrol timers. £2. 5s. 0d.—Box No. 84.

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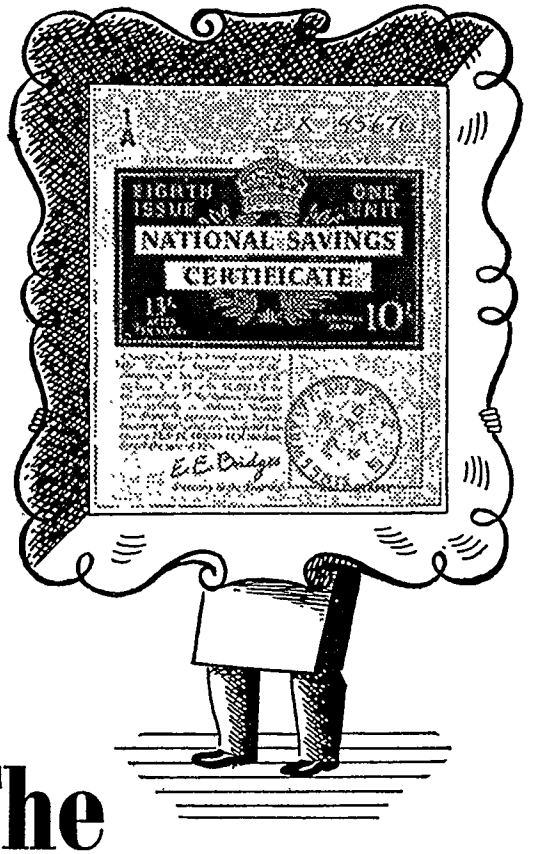

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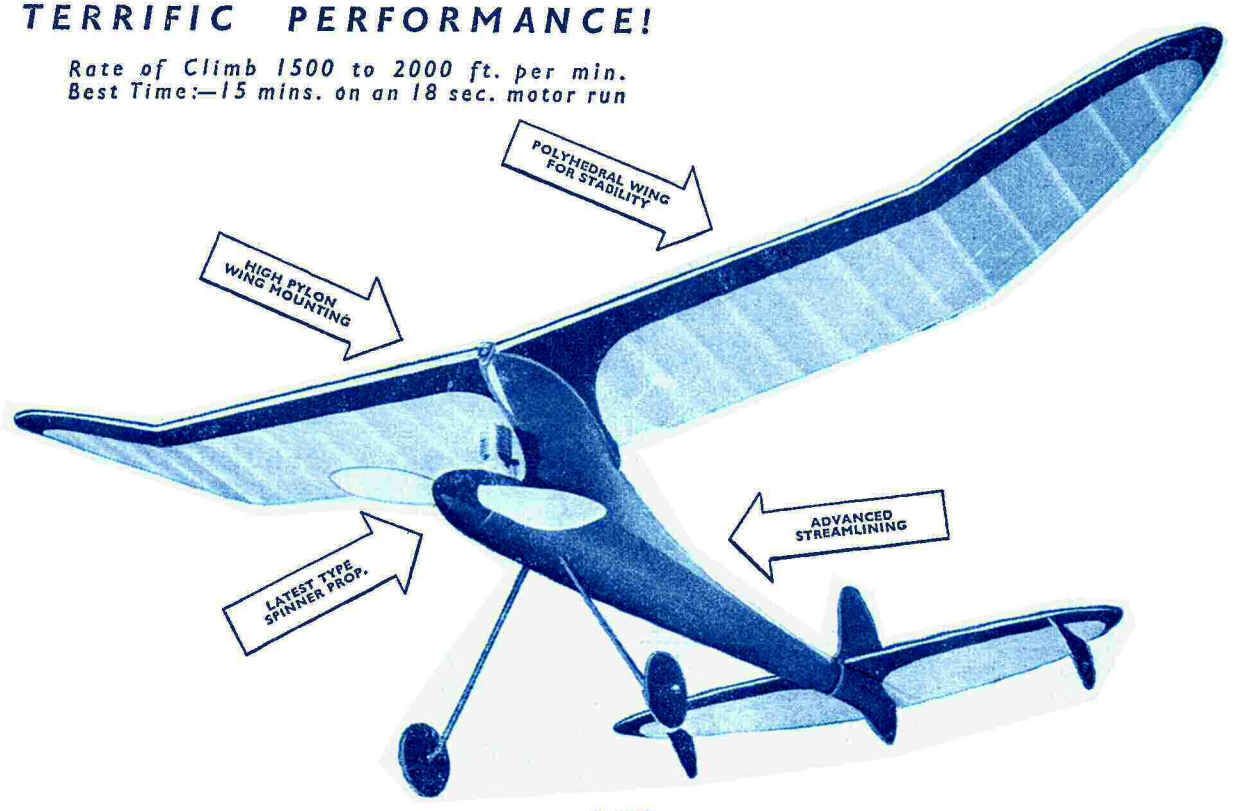

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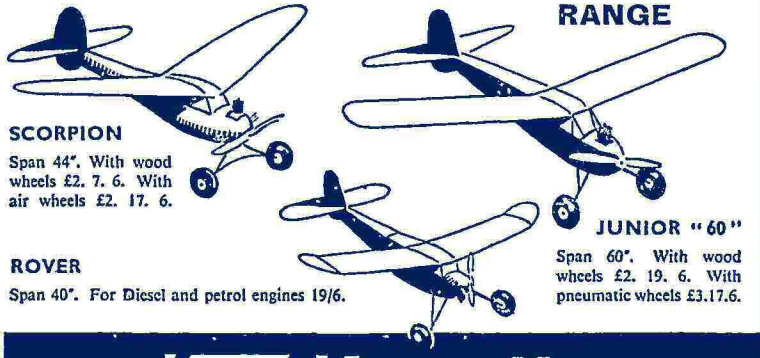

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