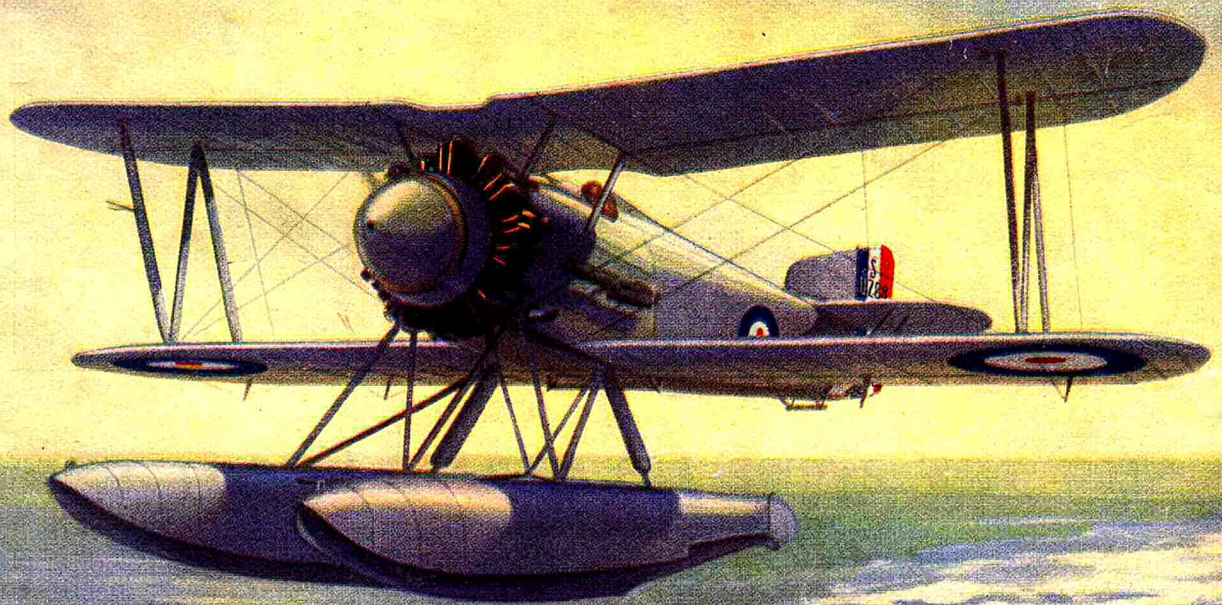
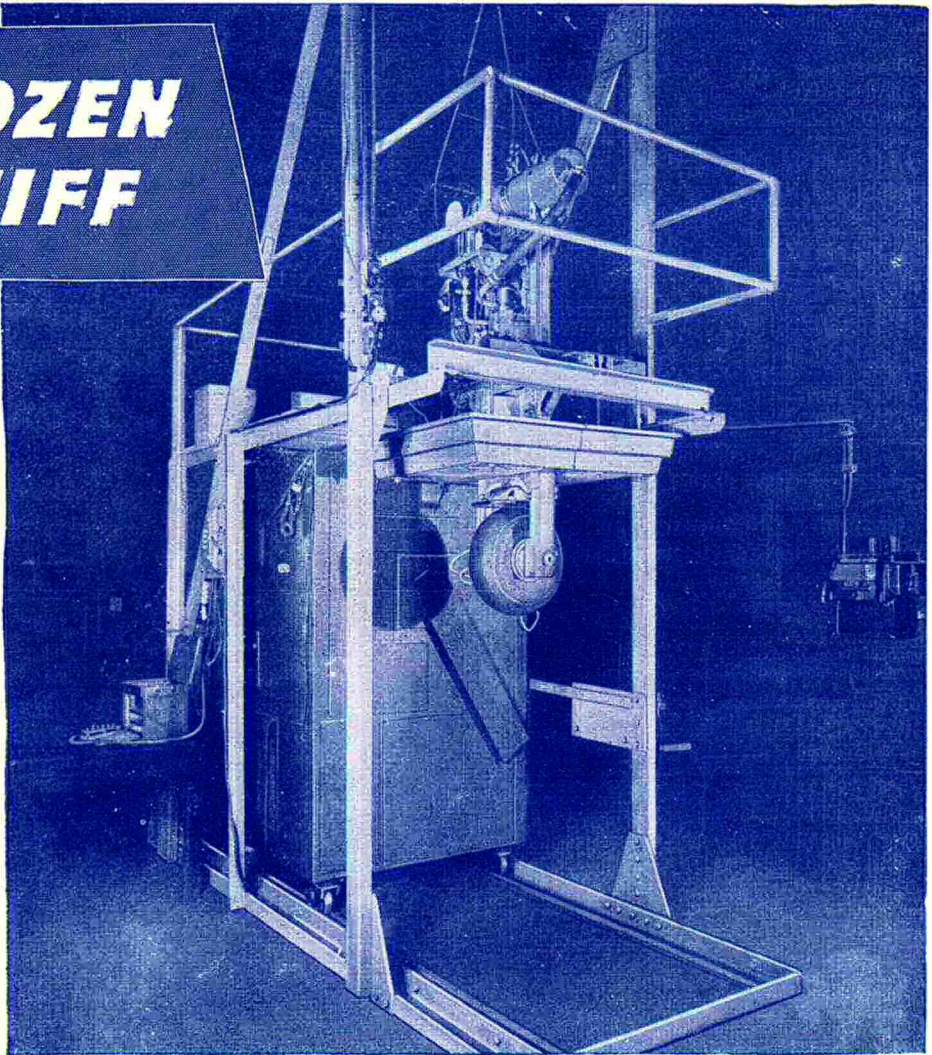


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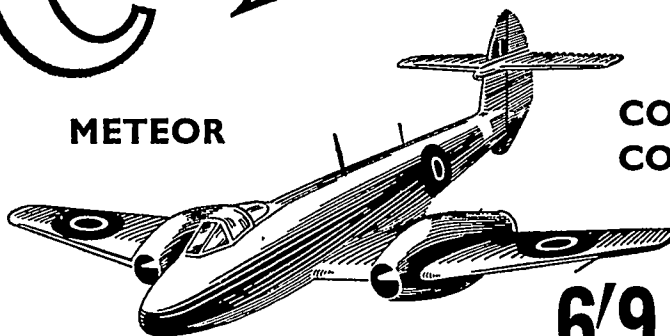
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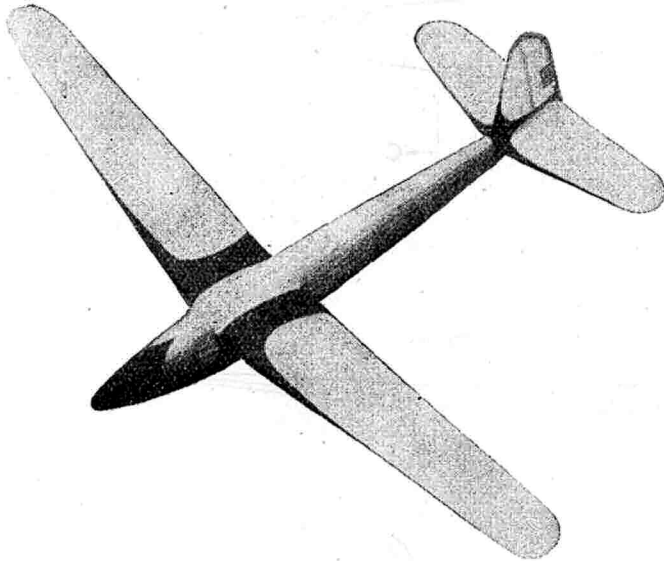
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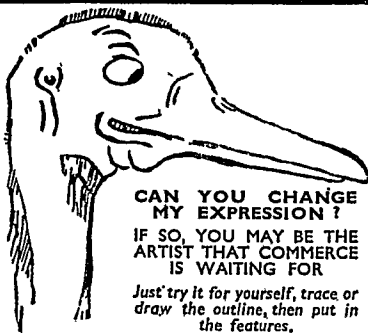
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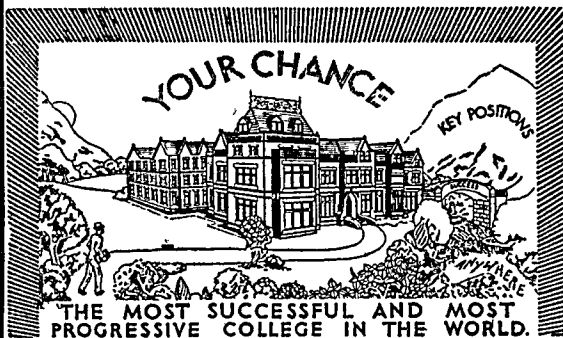
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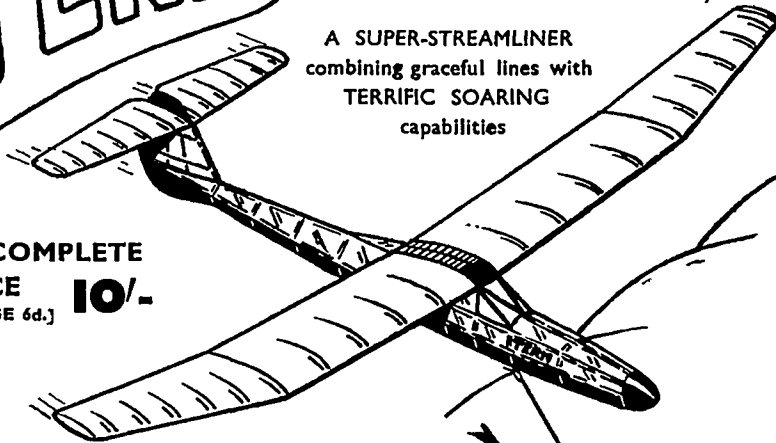


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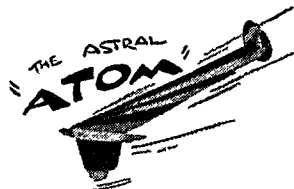
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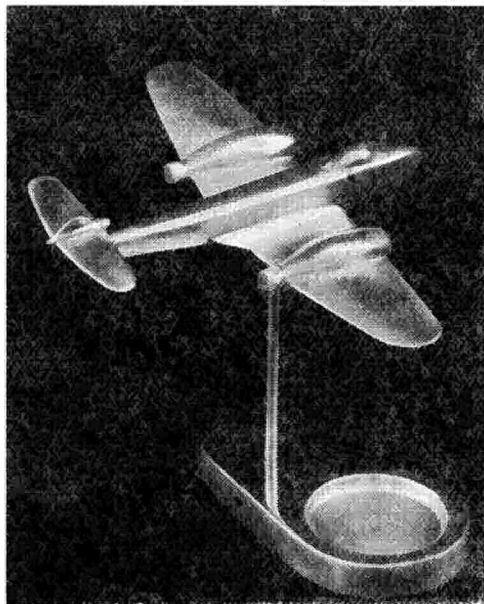
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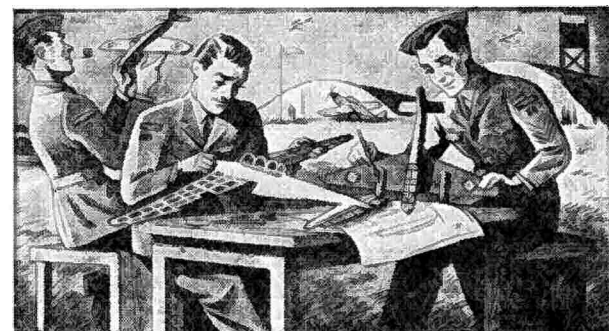
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**THE FAIREY FLYCATCHER.** Featured on page 256



**CONTROL LINE LINE-UP.** Representative of the American trend in Model Aeronautics, this array of protruding cylinders will undoubtedly arouse comment from the "Inverted" fans. American post-war activities, always of great interest to our readers, will be described in the next issue.

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# EDITORIAL

## AEROMODELLING AS A HOBBY

"**B**EAGONE, dull care, begone, I say; I to the downs will wend my way, And spend the hours in airy play." So quoth the poet, and though the "airy play" to which he referred was not aeromodelling, his sentiments will doubtless find an echo, now that Spring is in the offing, in the heart of every ardent follower of our hobby. This month we propose, accordingly, to get away from our recent pre-occupation with Model Exhibitions and Competitions, not to mention business cares and problems, and think of aeromodelling in simple terms as the hobby *par excellence*, which, in our view, it certainly is.

Let us hasten to explain that we have been moved to write in these terms not simply by the stirring of the blood that is commonly associated with the onset of Spring, but by a delightfully frank letter from a youthful enthusiast in Scotland, in which he takes us to task for what he regards as an unwarranted departure from the true course of aeromodelling. It is a letter well worthy of consideration, though we certainly do not agree with it in its entirety.

"I have been a regular reader of the AEROMODELLER for some years," our correspondent writes, "and I have found it excellent in every respect, apart from what appears to be the deliberate attitude of the editorial staff—the encouraging of a belief in aeromodelling as merely the first stage in preparing to be a designer of full-size aircraft. The idea seems to be that you start off on rubber jobs, and evolve through petrol models to the 'real thing.' This is typified in the praise of petrol models in your first description of the Dorland Hall Exhibition. As one of my family remarked, why not a B.A.C. Drone instead? This persistent attitude of connecting aeromodelling closely with full-size aircraft is stupid and irritating. I think aeromodelling should remain a very pleasant hobby, not be regarded as a step to full-size design, nor, for that matter, as a 'great national asset.' And club meetings should be regarded simply as aeromodelling affairs and not social gatherings. I think rubber jobs with plenty of gadgets, gliders and experimental jobs should form the peak of aeromodelling achievement. All experimental work should be purely for models."

We must confess to a considerable measure of sympathy with the general outlook of this reader, especially when he says, "I think aeromodelling should remain a very pleasant hobby." There have been many occasions when we have felt the attraction of this mental picture—the business side of aeromodelling, club and contest organisation, and what not, all left behind in favour of a carefree devotion to the sheer enjoyment of model flying in the congenial company of a few close friends.

To heck with all the hard graft of club organisation, the sweat of contest running, and the interminable drone of committee and general meetings with trivialities occupying a large proportion of the time! "Why not forget all the grind of the organisation side of things," we have asked ourselves, "pick up our 'kite,' get out into the open, and play our game in our own way"?

It is an intriguing picture, but one, we fear, difficult of retention. Other things, try as we will to exclude them, will obtrude. First to come into mind is that bugbear of so many pure-souled amateurs, the fellow enthusiast who is connected with the trade. We have known many a modeller get into a frightful stew in the attempt to exclude this pernicious influence, as he is pleased to regard it, and not least in his perspiring and completely futile effort first to define an amateur and a professional! In any group of modellers there is almost certain to be one of this type. For our part, we have never grasped what all the fuss is about. We have yet to learn what harm the trade or any member of it has done to the movement, but we can very easily recall benefits derived therefrom. To begin with, where would our amateur be without some "commercial bloke" to provide those nicely-cut lengths of balsa wood—or balsa in any shape or form, for that matter—the tubes of cement, the sheets of tissue, the rubber strip, and so on?

From whence should we have obtained the designs of proved merit and the technical instructions that for many years past have served to start people on the road of aeromodelling endeavour? And when it comes to the question of a ground sufficiently spacious for us to demonstrate in worthy fashion the latent possibilities in our latest design—and in this connection we are thinking primarily of Eaton Bray Model Sportsdrome—what chance would there have been of this modellers' mecca coming into being had it not been for the fair and reasonable profits made from the sale of aeromodelling publications?

Our correspondent does not actually raise this issue, but it has its bearing on the points that he does raise. As to his suggestion that we should cease to regard aeromodelling as a national asset, we would say that though we might agree to ignore the fact, aeromodelling is a national asset just the same, while to placard the movement, as it were, with a large and plainly worded notice, "*No connection with the full-size firm next door*," would be equally futile! As a matter of fact, we have never suggested that the average modeller, let alone every modeller, should aspire to a position in the full-size aircraft industry, and we cannot agree that such a conclusion could reasonably be drawn from a regular perusal of our columns. The nearest we have approached to it, and that is not very near, is to pursue an "all-in" policy of catering for all tastes, including those with a leaning towards the reproduction of full-scale types. Nevertheless, many of our readers do take an interest in full-size aviation, and not a few have found in modelling consolation for the fact that there is no longer a place for them in that sphere.

The link between aeromodelling and full-scale aviation is, in fact, inevitable, and is responsible for the fact that our correspondent is in a position to express his opinions and that we are in a position to publish them. We refer, of course, to the fact that we owe our freedom to the winning of the Battle of Britain, in which the aeromodelling community may quite reasonably be said to have had a share in that it provided a goodly number of

the pilots and maintenance staff, not to mention operatives in the aircraft industry, and even some of the designers of the victorious aircraft.

By all means let us constantly bear in mind that aeromodelling is a hobby, the very best of all hobbies, and let us make the most of it on every possible occasion. But let us realise, too, that we cannot perpetually enjoy it in isolation, for in aeromodelling, as in every other sphere of activity, we are dependent upon one another, and benefit from the efforts of other people, whose ideas and desires merit our consideration. If we will not recognise this and act upon it, we ourselves must lose in the long run. To take a simple example, if we will not trouble to close the door as we enter the house, we can scarcely expect the other occupants, who have had the resulting draught to contend with, to exert themselves very much for our comfort! Translated into aeromodelling terms, the fact is clear that if we press our notions unduly, we cannot complain if other people find our outlook too restricted to be worthy of consideration, and potential suppliers of materials and facilities decide that we are not worth catering for.

It all amounts in the end, of course, to a question of balance, give-and-take, broadmindedness, call it what you will. Any viewpoint pursued to its ultimate conclusion and regardless of other viewpoints becomes a "bee in the bonnet." And when that isolationist attitude is translated into self-centred action, it is apt to have an unpleasant boomerang effect, as, in a larger sphere, Germany has been experiencing. Both the isolationist viewpoint and the self-centred action are, in fact, of the essence of Fascism, and contain the germs of their own disruption.

On the other hand, when we have regard to the ideas and convenience of other people, a viewpoint is seen in true perspective, and perceived to be a viewpoint, good or bad, and nothing more. And when a proposed course of action is decided upon after due consideration for the interests of other people, it becomes practical, sensible, and convenient to all concerned. Thus, when we seek to limit aeromodelling to our own range of vision, we are pursuing a will-o'-the-wisp. Individualistic a hobby as it is, it cannot be enjoyed on any narrow basis. Our movement has suffered enough in times past from duration exponents who regarded the construction of small solids as plain tomfoolery, from petrol plane enthusiasts who thought rubber-driven jobs infantile efforts, from over-zealous amateurs who worried themselves sick over a competitor's connection or possible connection with the trade. Far be it from us, therefore, having witnessed so much of this sort of thing and its ill effects, to advocate this new version of it—that aeromodelling should be rigidly confined to "rubber jobs with plenty of gadgets, gliders and experimental jobs," and that, presumably, a plentiful supply of raspberries should be kept for those who show signs of wandering beyond the confines of this pretty little picture!

Rather would we encourage the modeller to rejoice in the wide scope of his hobby, its many-sidedness, its happy links with other forms of worthwhile activity. Let him, we would urge, regard the trader as his aider and abetter instead of thinking of him as a spoiler or pirate; the full-scale worker as his aeronautical cousin rather than the high-falutin' fellow over the way. The sooner modellers acquire the "one great family" outlook that we hear so much about in other connections in these days, the better it will be for aeromodelling.

Having made these points, let us revert to our youthful correspondent's basic contention that we should regard

aeromodelling as a hobby. We are all for it and cheerfully admit that nothing pleases us better, when opportunity affords, than to forget publishing and sportsdrome management and enjoy as lengthy a spell as possible of carefree model flying. If the editorial legs are less speedy than heretofore, our wind less dependable, and our fingers less nimble, to us it is still the hobby of hobbies, and we hope to enjoy it for many years yet, even though we may eventually have to rely upon an ancient bathchair and a wheezy propellant to get us to the flying field!

Of recent months, we have perforce devoted considerable editorial space to such subjects as the Dorland Hall Exhibition, Eaton Bray, this or that publication, and so on. It is refreshing to come back this month to the congenial atmosphere of balsa, Jap tissue, the odoriferous banana oil, and the tang of rubber strip. By all means let us enjoy our hobby to the limit of our opportunities, and use every means in our power to bring home to as many people as possible the incomparable fascination of it. The individual modeller is, after all, the backbone of the movement, whether he associates himself with others in a club or elects (or is forced by circumstances) to work as a lone hand. He it is, indeed, whom we are seeking to serve, whether it be through the production of plans, the dissemination of news and technical information, or the organisation of a flying ground like Eaton Bray.

As to the last point, though we shall be glad for club meetings and big rallies to be held there, we are not proposing to fill the calendar with such fixtures, and wish Eaton Bray to be regarded primarily as a place where the individual modeller can wend his way, with his box-of-tricks, his family and friends, for a day's clean, healthy sport. We have previously mentioned in these columns that politics will not enter into the matter. Any modeller will be welcome to fly there, whether he belongs to this group or that, or to no group at all. The only conditions are that he pays the appropriate dues, which are quite modest, and conforms to the few simple rules necessary to ensure the comfort and convenience of all concerned. We do not at this juncture wish to stress this matter of Eaton Bray, but merely make the point that it constitutes a tangible expression of our intense interest and belief in the potentialities of *amateur* aeromodelling in all its many phases.

As a final point, we would urge that the well-being of our movement depends upon the individual modeller enjoying the sport in his chosen way; respecting the views and rights of those who choose a different way; steering clear of aeromodelling politics, regarding the trade and full-scale aviation as allies instead of foes or even neutrals; and above all, keeping an open mind in respect of new ideas and developments. We shall continue to do everything in our power to further the sport of aeromodelling along these comprehensive lines.

## Opening of Eaton Bray

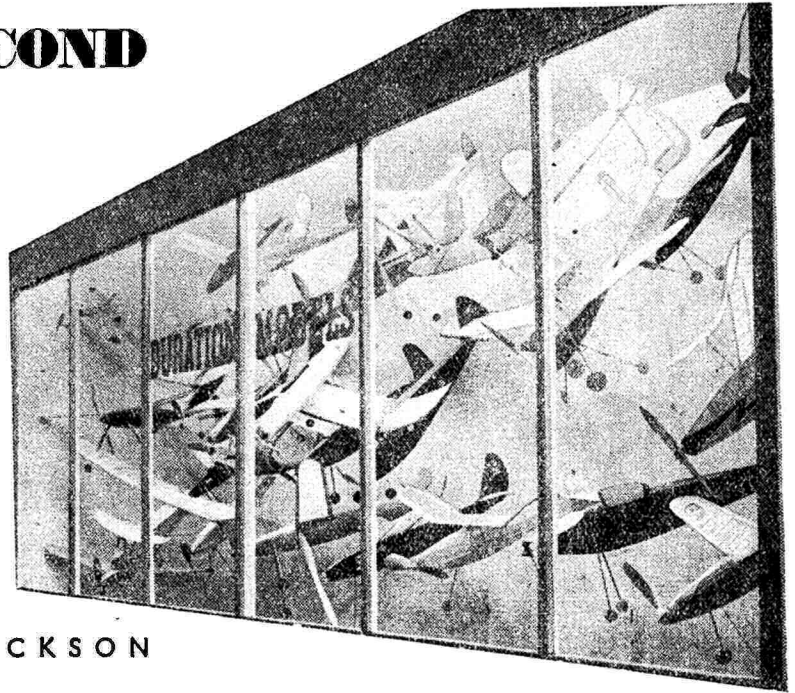
The "Flying Season" at Eaton Bray will commence on Saturday, 20th April, with a "Three-day Meeting." General flying will take place on Saturday and Sunday, 20th and 21st April. On Easter Monday, 22nd April, there will be, in addition, a series of competitions organised by the Sportsdrome Company. Camping facilities will be available as from Saturday, 20th April.

Full particulars of charges will be announced in the April issue of the AEROMODELLER, on sale towards the end of March.

# BRITAIN'S SECOND NATIONAL MODEL AIRCRAFT EXHIBITION

C O N T I N U E D

BY D · J · LAIDLAW DICKSON

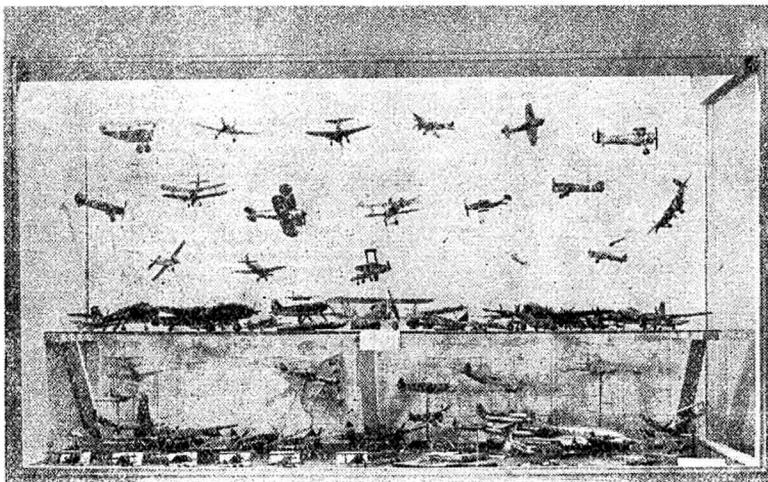


Continuing with the electric R.T.P. models it is now the turn of "Vertric"—F./Lt. Tucker's own electrically-driven model—weighing seven ounces only. This runs on the lower perspex strip and is flown with full elevator control. Up she comes, half throttle only or she will hit the strip above, ease back the controls and level out. Wool tufts at the wing tips enable the pilot to give a running commentary on tip vortices and the like. So, round and round she goes under full control until she touches down smoothly. A welcome chink of coins follows as the controller reminds onlookers that the models are being run for the benefit of the R.A.F. Benevolent Fund. But the crowd is loth to go, and clusters round the barrier to see it all over again! There is no doubt that the electrically-driven model has arrived. J. S. Evans, who designed the Magister for the first Exhibition, has surpassed himself with his efforts on the Viking, while F./Lt. Tucker's little model has a great future as planes of this simplicity should—with suitable guidance—be within the capability of any good aeromodeller.

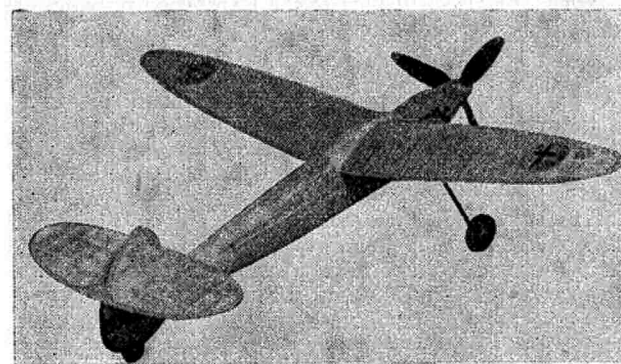
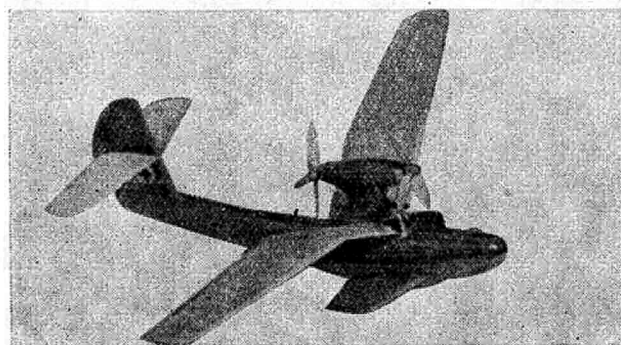
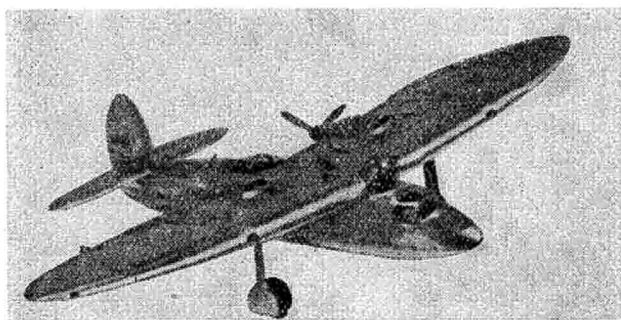
For many the next part of the Exhibition provides as great a thrill as anything that has gone before. There, in the best "pre-war" traditions, are stands offering a diversity of aeromodelling accessories, kits, and publications that make austerity days a thing of the past.

International Model Aircraft—the "Frog" people—have a well-arranged display of waterline ships, solid and flying models. The well-known plastic "Penguins" are there in force; new methods of prefabricating fuselages for their popular flying scale types are on show and occupying places of honour—their prototype 1.75 c.c. petrol engines. These have been specially designed for the company by Mr. R. Court of North Kent M.A.C., and will be in full production in a very few months. The neat finning, well arranged contact-breaker and high finish make them sure of a welcome. Especially noteworthy is the easy starting on a variety of fuels that make these small engines as well behaved as their bigger brothers. The writer has seen this engine in action on the field and can vouch for its excellence. Other sizes up to 10 c.c. will also be marketed.

The Dagra Engineering Company's showcase attracts an admiring throng. As makers of precision miniatures of the full-size aircraft for such firms as Vickers-Armstrongs, Westland Aircraft and Fairey Aviation, their work is of a notably high standard. Mainly to a scale of  $\frac{1}{2}$  in. to the foot these models, which are fully detailed and built to special order only, show what can be done by skilled craftsmen.



The heading photograph is an excellent example of the diversity of types amongst the duration models. On the left is a selection of solids with the Senior Championship Winner in the centre of the showcase.



Model Aircraft Stores (Bournemouth) can be seen through the crowd at their counter. Here are ample supplies of balsa and kits, while orders are being taken for a range of petrol engines from 10 c.c. downwards. Also on display is the new Nife dry-cell alkaline accumulator that has been produced for the R.A.F. and is now available to the general public. Popular Bill Foster is there to give freely of experience to those in need of it.

The author of the famous McGillicuddy books himself presides over the Harborough Publishing Company's stand. A "Drambuie" glider by his side gives support to the sales of the extensive range of Harborough books. Orders for Volume VI of "Aircraft of the Fighting Powers" are brisk, while other titles, both new and old, secure their share of attention.

A fine display of Mr. Towner's own scale models lend a practical air to the Astral Model Aero Company's stand. Here, too, may be seen a selection of R.A.F. recognition solids all ready for painting. The latest Towner venture may also be seen in uncovered state—an imposing version of the Republic Seabee, a civil amphibian that lends itself to reproduction as a scale version. This will be powered with an Atlas engine driving a pusher prop and should make a popular appeal. The main attraction, however, must be a mock-up of the Ram Jet—one of the first efficient model jet units. A book on jet and rocket propulsion is proving irresistible to the serious experimenter.

Down the stairs Dr. Forster's latest flying-boat "Neptune," with its sturdy lines and elegantly proportioned wings, is sure to catch the eye.

Past a handsome high-wing petrol model which does great credit to its 17-year-old builder and designer, D. Jackson, and so to Club Alley.

The "Uppingham" wind tunnel first catches the eye. This demonstration wind tunnel, designed by Mr. G. W. Gregory of Uppingham School, teaches the facts of aerodynamics in an unmistakable way. A series of wing sections and assorted shapes, including spheres, flat plates, streamline spheroids and a gimbal-slung aircraft are available as demonstration aids. Wool streamers are employed to indicate air flow. The tunnel's practical value has been well demonstrated at Uppingham School for some considerable time. Provided the builder is content with accuracy to 1/100 lb., and does not expect



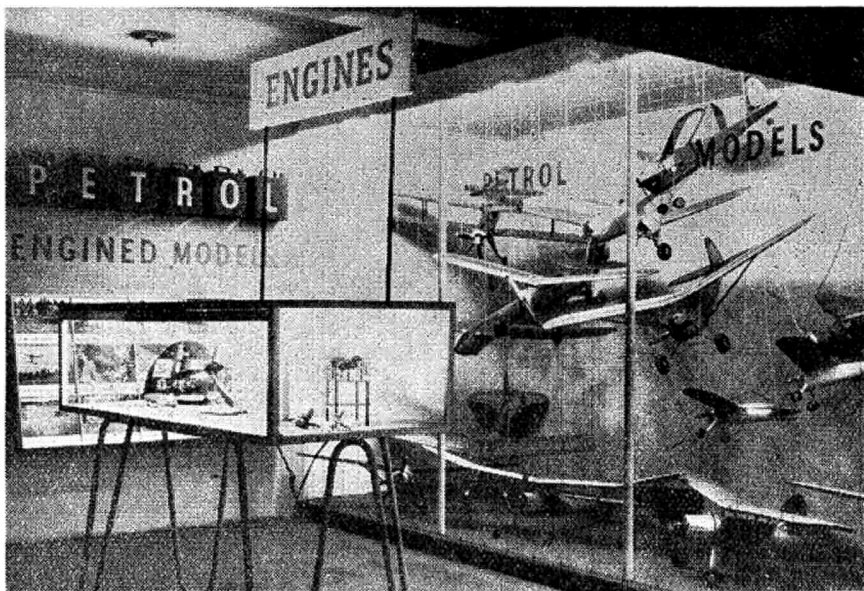
At the top of the page is F/Lt. Buddie's prototype scale model H.B.1. Beautifully detailed in metal, with the engine nacelles faired into the trailing edge of the wing, this highly original model earned a well-deserved special award.

Below the H.B.1 is E. W. Jackson's 36-in. span flying boat, second prizewinner in its class. Again originality of design is evident and we shall be interested to hear the results of flying tests with this model.

F. Patey's streamline Wakefield model was an example of construction "par elegance." Note the tailwheel which is faired into the underfin and the fully-elliptical flying surfaces. The three bladed airscrew is also an unusual feature on a model of this type.

Photograph on the left shows a section of the trade stands with Mr. H. J. Towner's Seabee amphibian overhead.

Photographs on the right from top to bottom :—A view of Petrol Corner with the engine showcase in the foreground and two of P. E. Norman's "Nats" family on the right. F O Van Cuylenburg's flying scale "Tempest" in its naked state. A. Lincoln's prize-winning version of the ever popular Lysander, a most creditable effort for the under 16 class. C. B. Maycock's 1/72 scale Wright Biplane, a treat for those who prefer historical models.



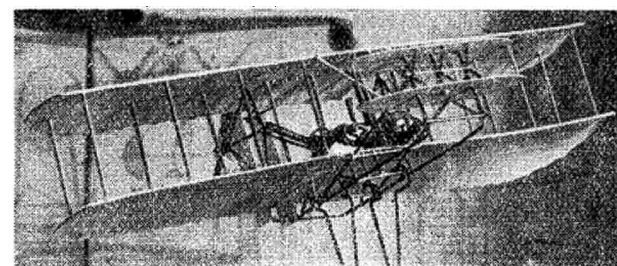
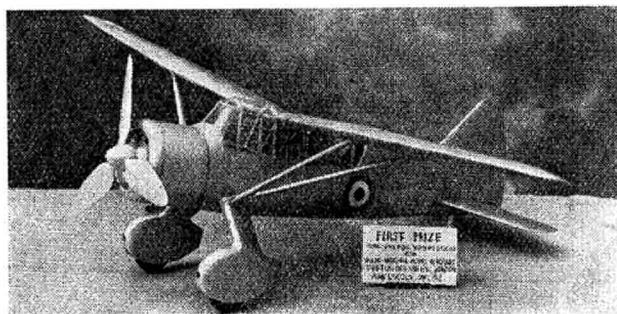
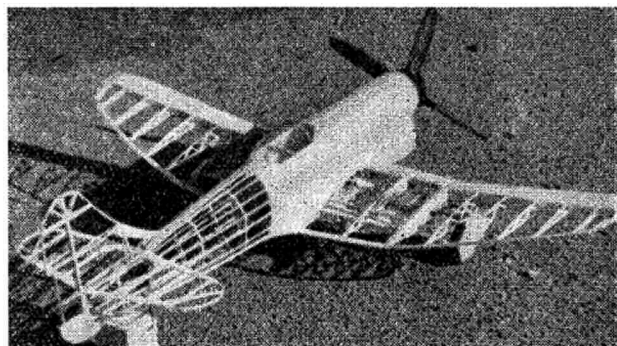
micrometer precision from this simple instrument, there are abundant uses within its scope. Assured of its possibilities the Harborough Publishing Company has secured the copyright and offers plans and an instruction manual (25s. complete) to enable schools and clubs to construct their own model. This may be done by any handyman at trifling cost.

A fine range of models are displayed by the A.T.C. Their entry was so large that many others have had to be displayed elsewhere in the Exhibition. Three special awards may be noted on their exhibits, besides a third prize for one of the few Japanese aircraft on show. They may also claim with pride that Junior Champion J. G. Hearn is an A.T.C. Cadet—fine tribute to the excellent work produced by squadrons all over the country. Since the opening of the Exhibition the organisers of the A.T.C. have decided to award two silver cups for the best A.T.C. entrants, and we shall be publishing details of the prize winners in our next issue.

Opposite, the L.C.C. Men's Evening Institutes show what these modellers have achieved. A diversity of exhibits range from well finished solids to rocket propelled types and large petrol models. The trend here is definitely towards original thought and unusual designs, which seems to prove that communal activity adds rather than detracts from individuality.

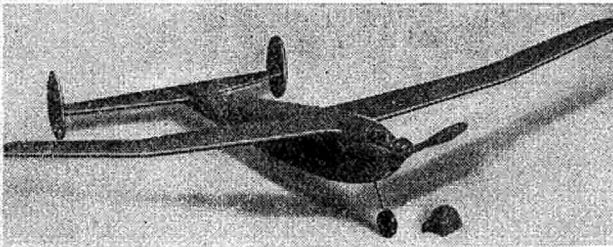
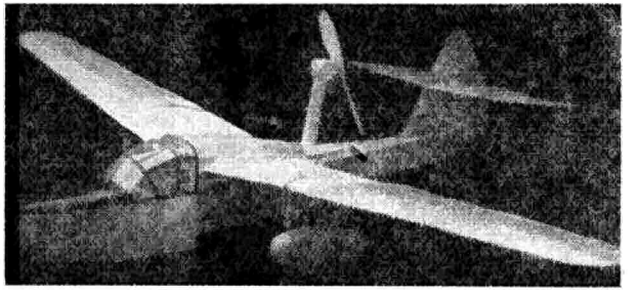
A group of would-be members are clustered at the Association of British Aeromodellers' counter. Over their heads hangs a huge "Celestial Horseman," while other models are displayed under glass and on the walls. Glittering in the background an imposing array of cups serves to encourage the passer-by to sign the membership forms under the welcoming smile of their energetic secretary Mrs. Tuck. Atlas Motors are doing a roaring trade—as the only Trade exhibitors with engines for sale "over the counter." Even the display models are marked up with "sold" tags. The new Atlas 3.5 c.c. engine bids fair to become as popular as any of the American designs were in the old days. Compression is excellent, while careful placing of controls removes that usual crack on the fingers as a thoughtless adjustment is made. Similar designs of 6 c.c. and 8.5 c.c. capacity will, it is understood, soon be available. Besides engines, the H.I.C.4 coil is on sale and orders for air wheels in three sizes are being taken for early delivery. These range from 2 in. to 4½ in. in diameter and include spun aluminium hubs.

"Electron" has its place in any aeromodelling exhibition, and Messrs. F. A. Hughes & Co., Ltd., present a selection of the uses to which this alloy can be put in

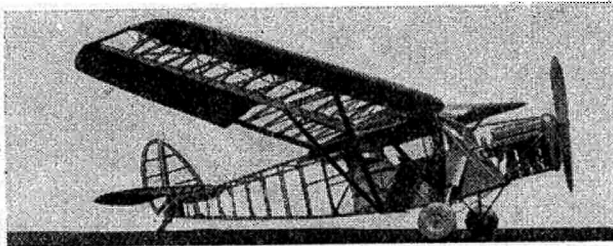




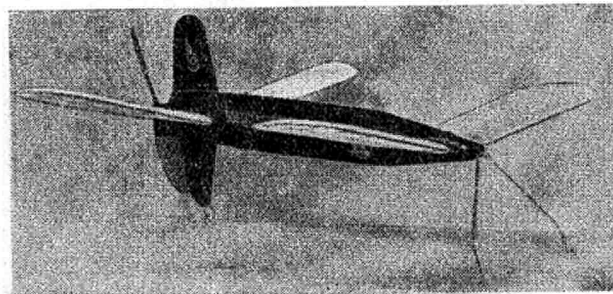
G. S. Colyer's twin motored petrol model, an enterprising design and a deserving first prize winner.



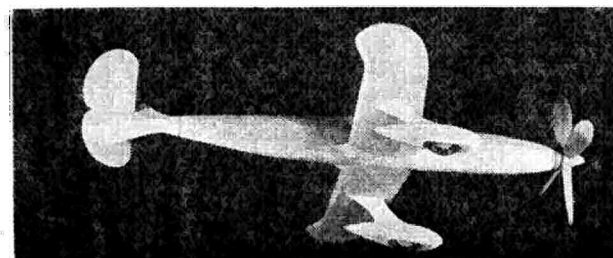
Unusual in design for its class, and clean appearance are the main features of Royce Collin's petrol driven "Duration" type.



H. C. Baines gives us this flying scale "Leopard Mo'h," with movable control surfaces and a dummy Gipsy Motor.



D. W. Avery's prize winning pusher tandem, an original model for the under 16 class.



the shape of a series of solid models built by members of their staff. But it is for the petrol engine and airscrew castings that the enthusiast is most likely to welcome "Electron."

The Low Speed Aerodynamics Association—now a well established body receiving the support of many influential groups in the full-size and model worlds—are demonstrating their wind tunnel designed by the Airscrew Company of Weybridge. In the latter stages of its development members of the L.S.A.R.A. were able to give assistance and suggestions that must have influenced its final design, but their Director of Research, Mr. N. K. Walker, very modestly disclaims any vital part in the project. Be that as it may, the result is a wind tunnel of really scientific layout that offers unlimited scope for exact research. A selection of test sections are demonstrated with visual smoke streams formed by the injection of boiled paraffin showing as a series of thin white frills against the dark background of the tunnel, whereby excellent photographs can be easily obtained. A number of such records have already been incorporated in the literature issued by the Association and available to members. Apart from its value in aerodynamic research, it is interesting to watch the effect of such objects as race cars and the amazing Hook Hydrofin when placed in the tunnel. Tunnel testing for full-size race cars has long been employed in the creation of world record-beating designs—it should have its place for the model craftsman in the development of really high speed model race cars.

For the benefit of those still unacquainted in the work of L.S.A.R.A. it should be mentioned that it comprises a band of enthusiasts bent on remedying the sad lack of information on low speed aerodynamics. Any sincere experimenter is welcomed to their ranks and may, for a nominal sum, take part in their work, which is putting model aerodynamics on a sound scientific basis. A number of papers have been issued and are available to members. Sure proof of its progress is that already applications are being received from prominent continental aeromodellers for membership—so that its scope has become international—while not yet two years old!

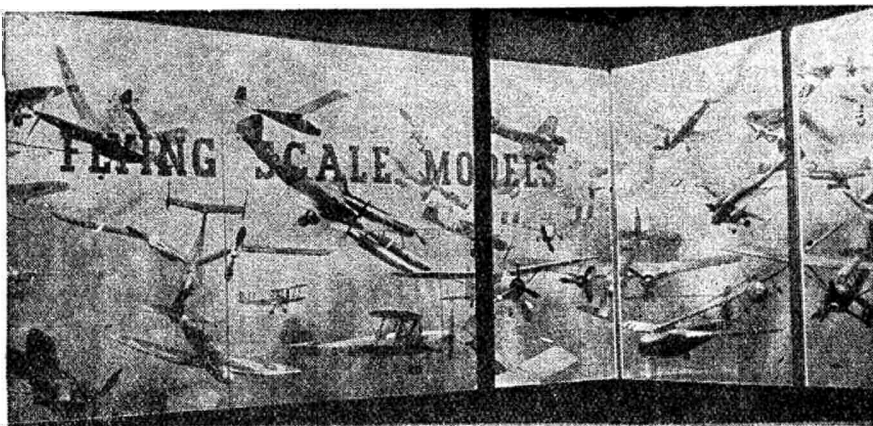
In an exhibition of sensations it is hard to give any exhibitor the laurels, yet all who pass will carry away memories of "the amazing Hydrofin." Designed by Mr. Christopher Hook and awarded First Prize and Gold Medal at the 1945 Paris Exhibition, it cannot be appre-

Top right is B. Richardson's pusher flying boat, a first prize winner in the under 16 class.

Left, a slick R.T.P. speed model by A. Newick of Kingsbury. Note the unusual wing shape and four bladed airscrews.

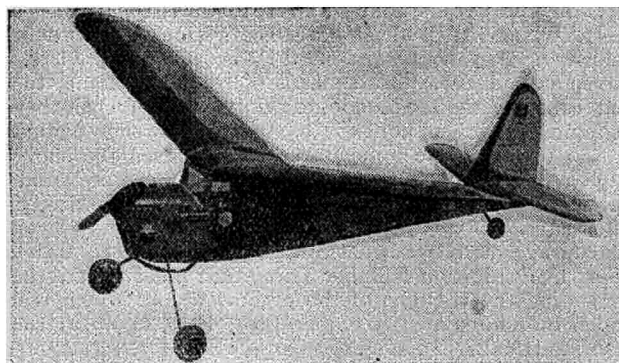
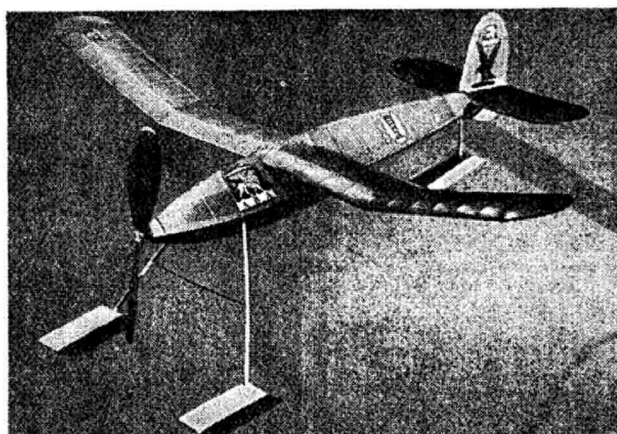
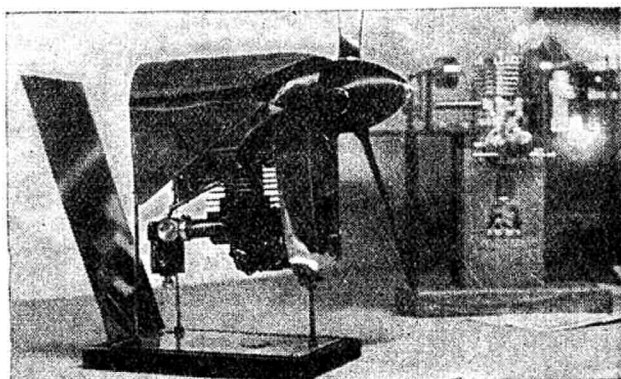


Flying scale models of every type with the original Gyford Gull playing cuckoo in the nest. Below is an O.H.V. engine built by 18-year old R. E. Buswell, a very commendable effort. Note the V.P. airscrew and the well-finished exhibition mounting and cowling. In the background is a twin-cylinder two-stroke by K. J. Barham that earned a special award. Beneath the engines is an old favourite, the Diasphere. This prize-winning model is the work of P. Robinson and shows a high standard of workmanship. Bottom right is D. S. Larner's 1/72 scale "Shooting Star," the finish of which is superb. Bottom left is a neat and practical semi-scale petrol model by D. H. Elmes, which includes an engine of his own design.



ciated by a mere transitory inspection. It comprises a streamlined hull that at anchorage rests on the water. When in motion, however, the hull rises clear of the water and the structure is supported on thin cambered hydrofoils—similar to rectangular stub wings—two on each side and one at the rear. In front and connected to the main hydrofoils extend two predictor skids. These adjust the angle of the hydrofoils in relation to variations of the water surface. Models only are being demonstrated, but a full-size version has operated successfully at Mombasa, East Africa. Whatever the practical application of the device may ultimately be, here it may be mentioned that the Air Ministry have the invention under close consideration. There seems here immense scope for the model flying-boat experimenter. By this means 50 per cent. of that vicious hull drag that wastes power at the take off would be eliminated—lighter models could be built, while existing records could be doubled and trebled indefinitely. Plans are available from the designer—accounts of any experiments in this direction will be welcomed and successful designs published in these columns.

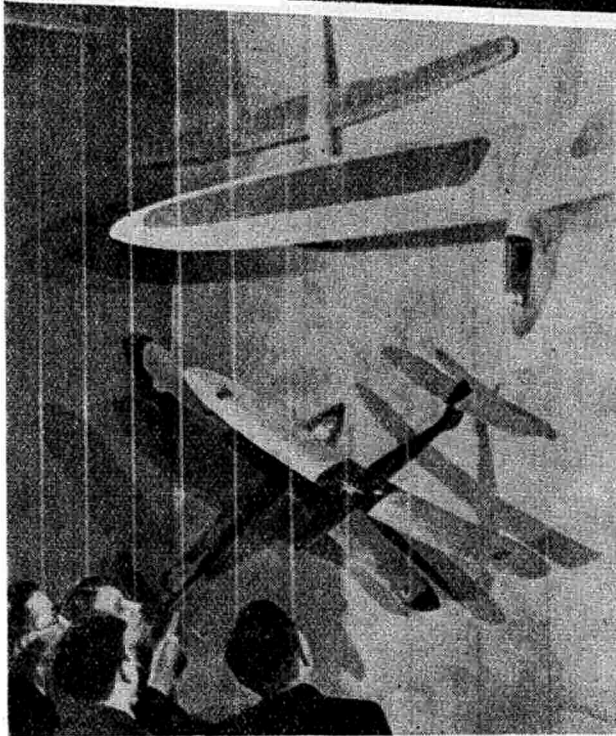
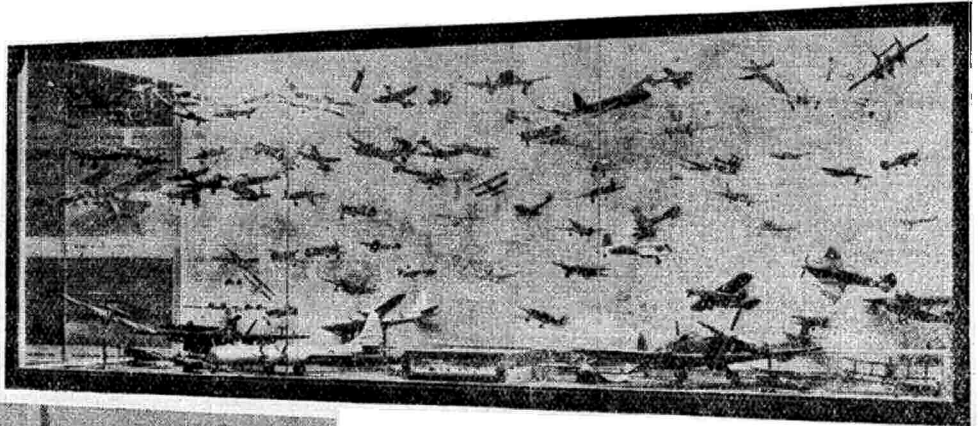
Next to the Halifax stand—a popular port of call—for here the visitor can really get at the stock and see for himself such well known efforts as "Flying Minutes"—the Halifax control-line model, or the new "Tern" sailplane. Silverwing solids line the walls made from standard kits and adorned with Titanine finishes. Len Stott is there, too, dispensing advice and kits with a smiling air. Balsa and rubber are stocked in abundance: some clients can hardly believe it is really for sale, and just ask to handle the goods for old times sake!



Just how many working hours there are in this showcase of solids we dare not imagine, but the results speak for themselves. Below, a crowd of youngsters admire some of the prize-winning sailplanes, the large model being the 9-ft. span "Apocalypse," superbly finished in "trainer" yellow.

G. Anning's 1/48th scale Gladiator, although not a prize winner, is worthy of attention, with a fully-detailed cockpit, aluminium cowling and movable controls.

At the foot of the page is the "Viking," resting from its prolonged labours and suffering, no doubt, from vertigo.



Opposite, Aeromodeller Plans Service does a brisk business. So many of its published designs are on show that half the business is done by demands for plans of "that black and white sailplane second along in the first showcase." Others know their own mind and come up smartly with their orders; yet others browse awhile through the list, and encouraged by the 25 per cent. Christmas Gift reduction ask to see a variety of plans before making their selection. A feature is the large demand for petrol-model plans—the sight of engines acts like magic—an optimism that will doubtless be justified by the high buzz of mini-engines that will sound a continual anthem overhead during the coming summer.

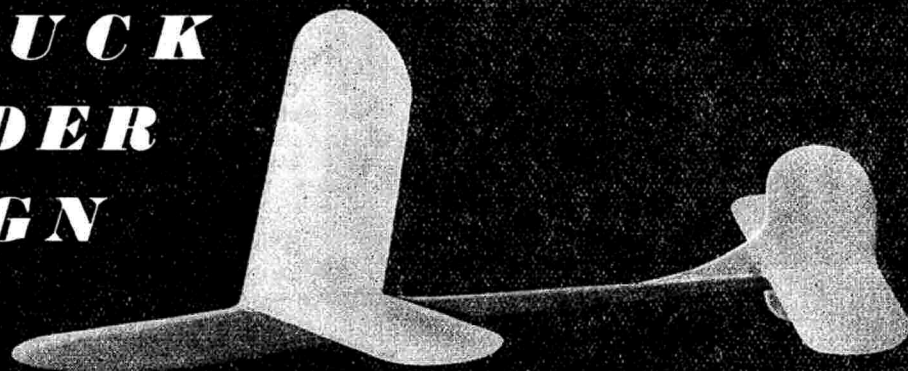
Round the corner under the perspex flying pylons of "Viking" and "Vertric," to the Drysdale Press, where models of air sea rescue launches and race cars are on show in finished and skeleton state. The new Race Car book finds a ready sale, while plans of the numerous designs may also be inspected. These little marvels already attain speeds of up to 60 m.p.h.—on the specially designed race track at Eaton Bray even higher speeds may be confidently expected, until, perhaps, three figure speeds, as claimed in America, may be officially obtained in this country.

Prominent amongst the race cars are those fine veterans of Mr. D. A. Russell—the S.S.100 and the Auto-Union—bearing honourable scars of many miles of running but still ready for more. Others by Messrs. Morgan and Curwen show the sleek lines of free-lance racers. Ingenious leaf springing and shock absorbing engine mountings make each model worthy of individual study. The launches in the shining paint and elegant sheer lines invite the merely curious to "have a go" and awaken the enthusiasm of the expert.

Now the tour is done—the visitor has seen Britain's Second National Model Aircraft Exhibition, the exit door slowly swings to behind him. The provincial visitor must consider ways and means of returning home, the suburbanite and the Londoner think rather of when they can next snatch an hour or two to "do" the show again!

To remind those unlucky ones who missed the show, a complete 24 page Exhibition Guide has been prepared, price 1/- post free, from Allen House, Newarke Street, Leicester. Dog-eared by handling these may well encourage many who just dropped in to take an active part in Exhibition Number Three that must already be engaging the thought of the organisers and which will open on Thursday, December 12th, 1946, again at the Dorland Hall.

# CHUCK GLIDER DESIGN



BY J. H. MAXWELL

FIG. 3.

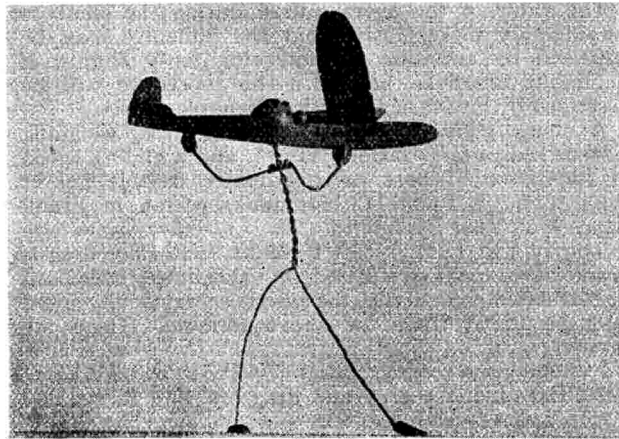
IN an article published recently in this journal, the writer mentioned that few British aeromodellers had ever seen a good example of that style of hand-launch glider familiarly known as the "chuck glider." It has since become evident that this was something of an understatement, and that a great many enthusiasts in this country were quite unaware even of the existence of this fascinating branch of model flying. For that reason, the present article, dealing with the more technical side of chuck gliding, will assume "no previous experience" on the part of the reader.

A certain amount of confusion arises from the fact that two altogether different styles of model gliding are both known as "hand-launch gliding." In the Continental style, large sailplanes are launched from the brows of hills, in the dignified manner depicted in Fig. 1. On the other hand, the American style of chuck glider is small in size, and is hurled skywards with not much dignity, but any amount of energy, as demonstrated by the wiry fellow (sorry!) in Fig. 2.

The latter method of launching brings, in its train, a whole series of design problems peculiar to the chuck glider.

When a glider is thrown really hard, its speed as it leaves the hand may be something like five times its normal flying speed. Therefore the lift and drag at that instant, being proportional to the speed squared, may be 25 times the normal!

FIG. 1.



## Drag Reduction.

The effect of the high drag is to retard the model in its climb, and so reduce the height attainable. Consequently wing sections are made thin, with a maximum thickness equal to about 5 per cent. of the chord, and only slightly cambered, the under surface usually being flat. Fuselages, being subject to no "fuselage formula" restrictions, are made slim and streamlined—as are the tail surfaces. All the junctions are carefully filleted, and, finally, the whole model is given a glossy finish.

## Longitudinal Dihedral.

The average model aircraft, if made to fly at a speed greatly in excess of its normal flying speed, climbs steeply and stalls or loops. To guard against this, chuck glider wings employ "low lift" aerofoil sections, as mentioned in the last paragraph, which are set to fly at very small angles of attack. Usually both wing and tail are rigged at zero degrees incidence, so that, geometrically, the longitudinal dihedral is nil. Aerodynamically, since the wing's "no lift" angle is something like 2 degrees above its datum chord line, the longitudinal dihedral is about 2 degrees.

This angle is small compared with the 10 degrees or so often found in models; and consequently the reserve of longitudinal stability is small. To compensate for this, the wings are usually swept back considerably, but even so, if a chuck glider stalls violently at the peak of its climb, it often fails to pull out of the resulting dive before hitting the ground.

Lateral stability is taken care of by means of a generous dihedral angle, usually of the order of 3 in. per ft. of semi-span.

## Strength Considerations.

It is safe to say that, when launched, a chuck glider is called upon to withstand relatively greater loads than any other type of model aircraft. Yet even these launching loads are dwarfed by the forces set up when the model dives into the ground.

A chuck glider must be able to stand up to repeated terminal velocity dives straight into the ground—a manoeuvre which it performs fairly frequently. When, for example, a 0.8 oz. glider dives into firm turf at its terminal velocity of about 40 ft./sec., each wing "weighs," at the moment of impact 4 lb., and the tail unit 2 lb.!

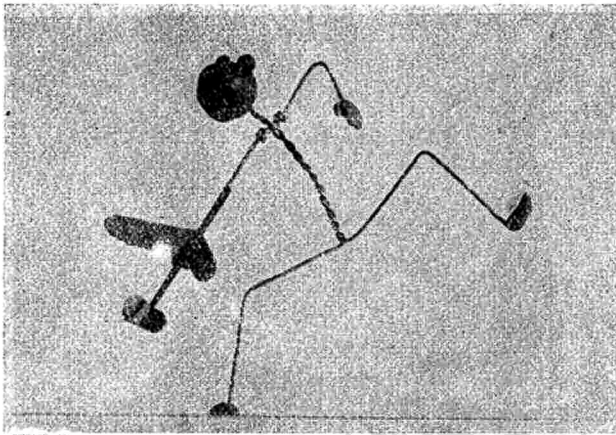


FIG. 2

Obviously forces of such magnitude demand an extremely strong structure, and it has been found that the best strength/weight ratio can be obtained by making the whole glider of solid balsa, with wings and tail surfaces permanently cemented to the fuselage. Sometimes the fuselage is of harder wood, such as spruce, but the advantages, if any, are slight.

As will be readily appreciated, the flying loads imposed by even the strongest winds are "chicken feed" to such models, and it is true to say that chuck gliders may be flown in practically any weather.

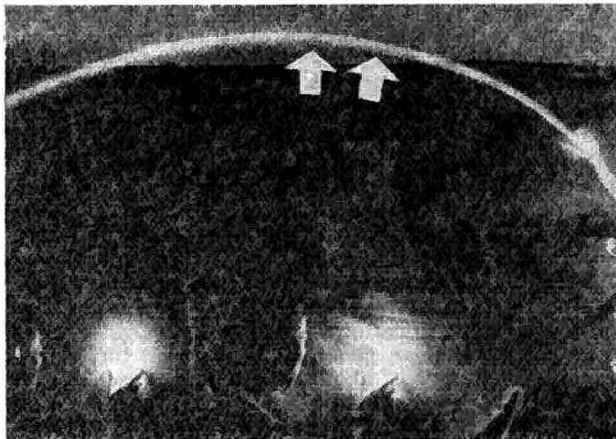
The foregoing, together with Fig. 3, will, it is hoped, give the reader a general picture of the peculiarities of chuck glider design; and it is now proposed to deal with some of the specialised problems in detail.

### Height.

The objective in throwing a chuck glider is, of course, to get it as high in the air as possible. Therefore, it behoves the designer to consider the factors which affect the height attainable.

Text book examples on throwing stones, etc., vertically are invariably misleading in that they assume no air resistance (drag), and give the impression that the weight of the object has no bearing on the height. Just how far this is from the truth can be simply demonstrated by throwing a golf ball and a table tennis ball. They are similar in size, and the table tennis ball, being smooth, presumably offers less drag, yet the golf ball can be thrown much higher. The explanation is that the

FIG. 4.



heavier object possesses more kinetic energy with which to overcome the drag. In other words, the greater an object's weight/drag ratio—within reason—the higher it can be thrown.

Reasoning on logical lines leads to the conclusion that the height which a glider will reach (assuming that it climbs vertically, which is nearly true) is equal to its initial kinetic energy, divided by its weight plus the average drag during the climb.

$$\text{Kinetic energy} = \frac{W \times V^2}{64.4} \text{ ft. oz.}$$

where W = Weight, in ozs.

V = Velocity, in ft./sec.

$$\therefore \text{Height} = \frac{W \times V^2}{64.4} \times \frac{1}{W + D_c}$$

$D_c$  being the average value of drag during the climb.

### Initial Velocity.

Before any calculations can be made, it is necessary to arrive at a value for V. To do this the writer photographed himself going through the motion of throwing (a ball) while holding a lit electric light bulb. The result was the somewhat ghostly Fig. 4, which shows the path of the bulb, and two stationary patches of light placed exactly 2 ft. apart, to give the scale.

As explained in a recent article in the AEROMODELLER, a bulb on A.C. current flickers 100 times per second, and these "flickers" show up, faintly but definitely, in the streak of light on the film. By measuring the distance between two "flickers" the speed of the hand is obtained. In this case the distance, indicated by the arrows, is 5.9 in.; and 5.9 in. per 1/100 sec. equals 49 ft./sec. Another test in which the arm alone moved, there being little or no body "follow through," gave a result 7 ft./sec. slower.

Now, these were no namby-pamby efforts, but they were made in a confined space with a fragile object, and the writer believes that in the freedom of the open air he could do better—perhaps reach 55 or 60 ft./sec. A budding Atlas or a Larwood would do better still. An American writer some time ago mentioned "40 to 60 m.p.h." (59 to 88 ft./sec.), but gave no indication as to how or where he obtained his figures.

The writer's figures, of 50 to 60 ft./sec., form at least a basis from which to work.

### Example.

The value of the average drag during the climb is considerably more elusive, but the difficulty may be bypassed by adopting the following fairly simple, if somewhat laborious, method. The procedure will be described by means of a practical example.

A chuck glider of 66 sq. in. wing area, weighing 0.78 oz., has a L/D ratio of 11.5/1, and a gliding speed of 12 ft./sec. (These are apparently reliable figures from tests by Raoul J. Hoffman reported in Frank Zaic's 1938 Year Book.)

The drag at 12 ft./sec. is 0.068 oz., and since drag is proportional to speed squared, its value at any speed can be calculated. Similarly, the kinetic energy at any speed may be found from the above formula. These are plotted in Fig. 5.

Assuming the model's initial velocity to be 60 ft./sec., its initial kinetic energy and drag are 43.6 ft. oz. and 1.7 oz., respectively.

The process now is to take the first foot of the model's climb, calculate how much energy is used up in covering that distance, and subtract the answer from the initial energy; thus leaving the kinetic energy available at the beginning of the second foot. The energy used in the second foot is calculated and deducted, leaving the kinetic energy at the third—and so on until all the energy is used up.

In figures, it works out like this:—

$$\begin{aligned} \text{Energy used in 1st foot} &= (\text{weight} + \text{drag}) \times 1 \text{ ft.} \\ &= (0.078 + 1.7) \times 1 \\ &= 2.48 \text{ ft. oz.} \end{aligned}$$

$$\begin{aligned} \text{K.E. at beginning of 2nd foot} &= 43.6 - 2.48 \\ &= 41.12 \text{ ft. oz.} \end{aligned}$$

From Fig. 5, the drag corresponding to 41.12 ft. oz. may be read off. It is 1.61 oz.

$$\begin{aligned} \text{Energy used in 2nd foot} &= (0.078 + 1.61) \times 1 \\ &= 2.39 \text{ ft. oz.} \end{aligned}$$

$$\begin{aligned} \text{K.E. at beginning of 3rd foot} &= 41.12 - 2.39 \\ &= 38.73 \text{ ft. oz.} \end{aligned}$$

Fig. 6 is a graphical representation of all this, and shows that the height attained is 29 ft. To this must be added the height at which the model leaves the hand—say, 6 ft.—giving a total height of 35 ft.

This may seem low, especially when compared with American claims ranging up to 150 ft. But heights are difficult to judge, and nearly everybody grossly overestimates them, so that, making a conservative estimate of observed throws, the writer would say that 35 ft. is not so far out.

The human limit for this particular glider would appear to be about 50 ft.

**Optimum Weight.**

A heavy glider, as previously explained, can be thrown higher, but then, it sinks faster. On the other hand, a light glider cannot be thrown so high, but it has a lower sinking speed. For best results, a compromise must be struck.

From Fig. 6 the average drag of the glider during its climb can be obtained. Assuming this to remain constant whatever the weight of the glider (the size and shape being unaltered) the height corresponding to any given weight may be calculated. Likewise the sinking

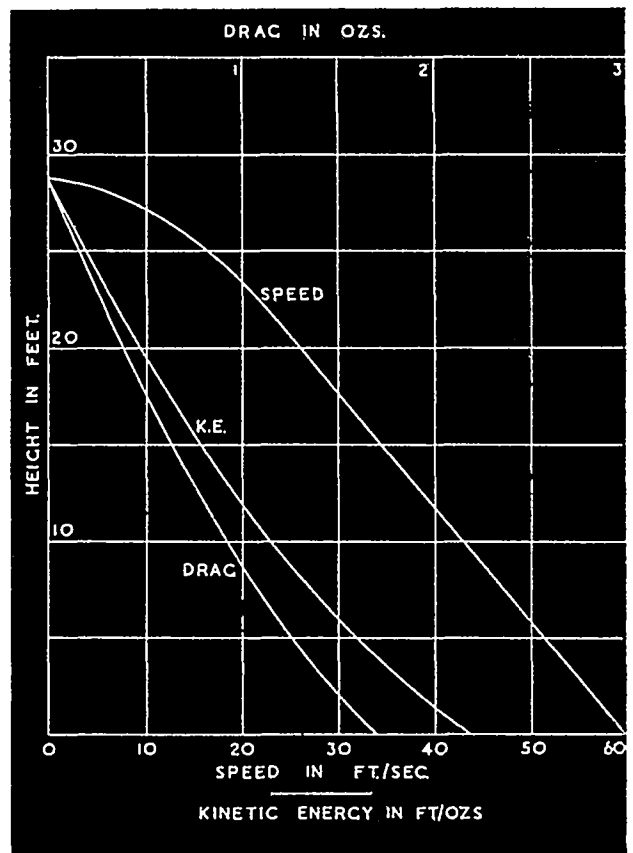


FIG. 6.

speed can be found, and, from these, the duration of glide. When plotted as in Fig. 7, a peak appears in the duration curve, denoting the optimum weight. In this case it is 0.5 oz.

The calculated duration figures are based upon theoretical still-air conditions. However, with a sinking speed in the region of 1 ft./sec., a chuck glider is susceptible to the slightest rising current, and it is not uncommon to average over a minute, even on days when there is no apparent thermal activity.

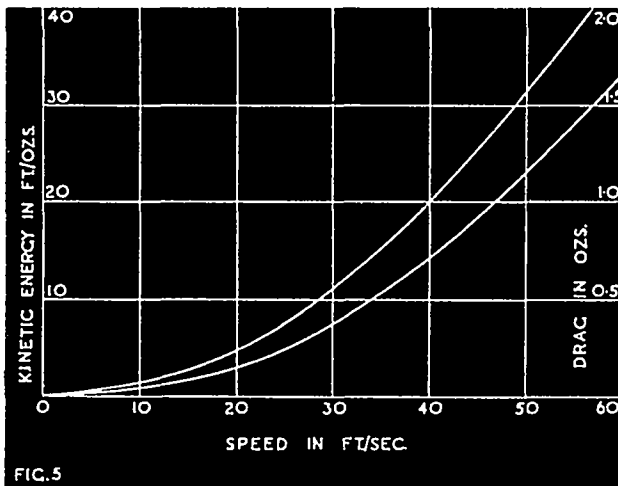


FIG. 5

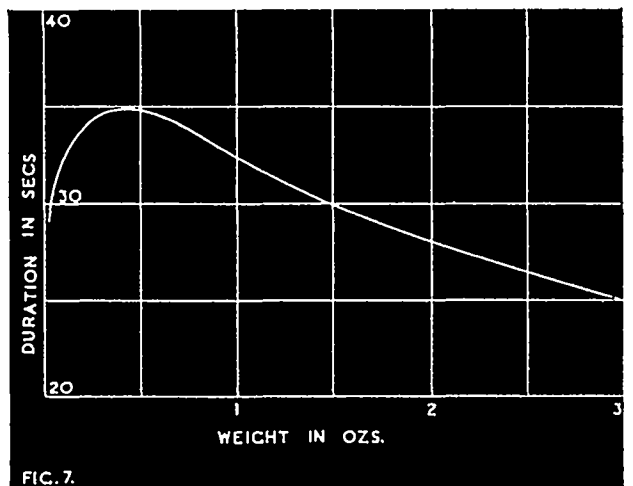
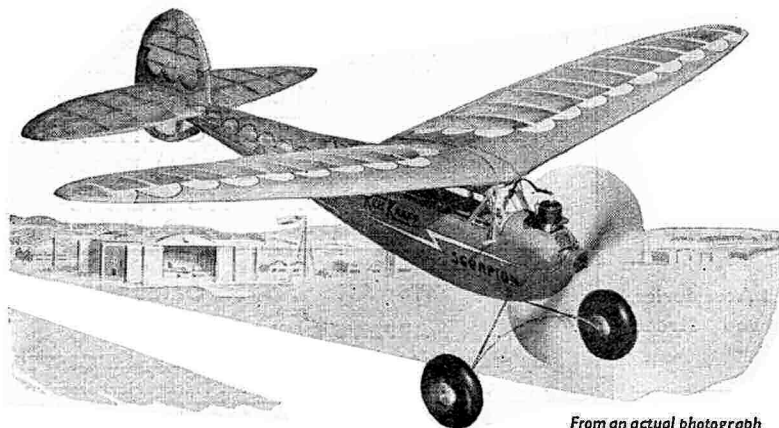


FIG. 7.

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I HAVE not written in this column for some time, as I have been engaged on a number of different subjects, including full-sized and model sailing boats. Nevertheless, I have built another petrol model aeroplane, but I am not going to inflict a description of that upon my gentle and long-suffering readers—perhaps some are not quite so gentle and long-suffering at the end of a long war! I have something else that I think will interest the petrol fans and, incidentally, the soarer sailplane enthusiasts. As some of you who read my "Vapour" with reasonable regularity will have noted, I have always been a believer in building *slow speed* petrol models for free flight, and where a small engine of limited power has to fly a model, I design my machine so that it is very nearly a soaring sailplane. The little engine then has to produce only the gentlest of pushes and the thing flies. Now this soaring business is interesting, because if one gets down to it a very light-weight affair is poor stuff for soaring, and this fact is not always recognised by the sailplane fans who aspire to great things.

There needs to be quite a lot of weight to give forward energy, *vide* the Albatross with its 30 lbs. or so of weight. There also needs to be plenty of wing area for the weight—again take the Albatross as an example, and we find that it has to soar for hours over the vast Atlantic Ocean or perish. This bird has a wing span of about eleven feet and a wing area of about eight and a half square feet. Thirdly, there needs to be a deuce of a lot of aerodynamic cleanliness.

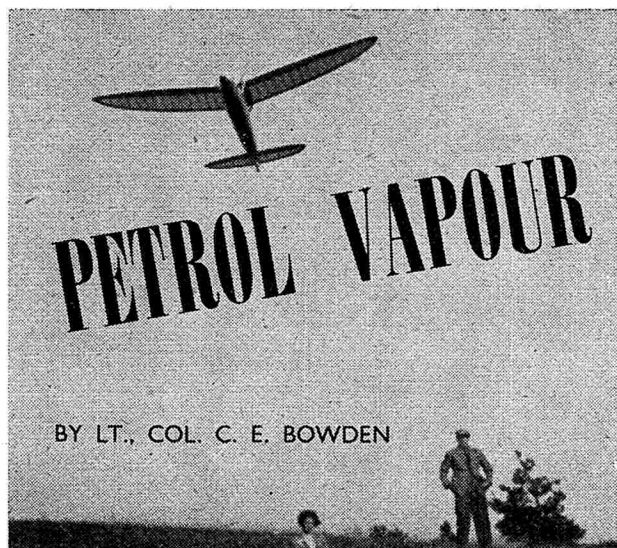
Combine that little lot and you stand a really good chance of soaring, and even if you do not soar you will certainly obtain a glide worth talking about. Now that all sounds very simple, but each item requires a certain amount of knowledge and subsequent craftiness to obtain what one wants.

Perhaps I should first explain that I am writing this with the British Army of the Rhine, and being on a Mechanical Inspectorate job I have travelled over Belgium, Holland and Germany, which has led me to some full-sized and model sailing, two hobbies of mine which form a relaxation from petrol model aeroplanes! They are, in fact, linked up with the petrol model aeroplane as regards airflow, and also with flying-boats and float-planes.

### The Stiff Arched Surface

The Germans were wily birds, as we well knew, over their sailing craft and gliders, and the Dutch over their windmills. I notice that the latter have even built up aerofoil-shaped leading edges to the blades, with a spot of undercamber—and this is on old-fashioned windmills, too! The Germans used airflow principles in designing their sails. They went in for making the most of the suction *behind* their sails as we model aeroplane people do on top of our wings. Every good model petrol man, of course, knows that we can obtain from three to five times greater lift in the form of low pressure or suction from the top of our wings than we can obtain pressure below the wing. Well, the wily German fits thin flexible wooden battens that stiffen his sails all the way across from luff to leach, or, as we aeromodellers say, from the leading edge to the trailing edge. These battens are fitted all the way up the sail to give that nice stiff cambered top surface that we are so keen about on our model aeroplane wings.

The German treats his sail like a wing on end, and goes gaily sucking his way along instead of being only blown along like Christopher Columbus in the dark



and unenlightened days. We do a bit of this suction stuff in England, not forgetting Scotland, of course! (No, don't misinterpret me.) Not, however, to the same extent as the German. He even cuts his sails to that elliptical shape that is, as I am always so gently and patiently suggesting to aeromodellers, the best answer to the petrol fan's prayer.

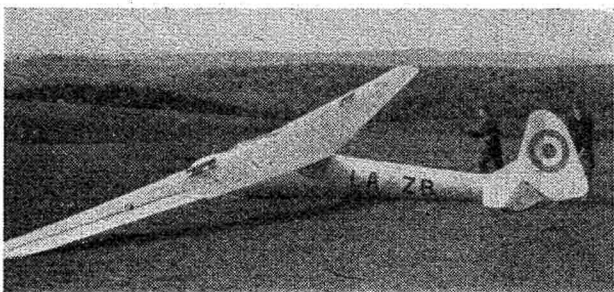
I have sailed these German racing boats and they handle delightfully and amply prove, to my way of thinking, that we aeromodellers know a bit more about airflow efficiency over stiff cambered surfaces than some of ye olde diehard sailor-men at home to-day, who heatedly insist upon flabby sails with a limited number of short battens fitted only to the trailing edge of their sails, i.e., the leach.

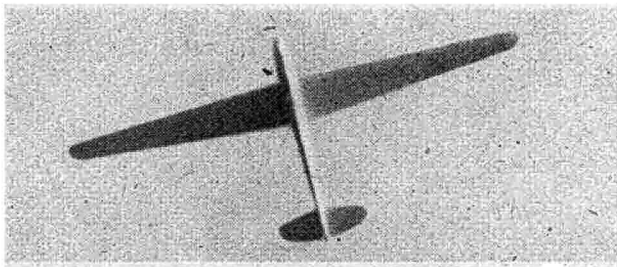
The "full-sized" experiences above have now led me to experiment with model sailing yachts fitted with fully battened sails to obtain the stiff cambered surface of the model aeroplane wing. Results are so far most encouraging.

It is just possible that the ardent petrol man is getting restive and saying to himself, "Yes, yes, but what has all this blather to do with petrol models?" Quite a lot, I assure you.

These German boats set me questing for the thing that inspired them in their sail design, namely, the German sailplanes that we all have heard such a lot about before the war. Where there is a will there is usually a way, and it was not long before I found a high ridge of hills not far from the ancient town of Hamelin

(Above) The author watches his streamlined parasol sailplane after a hand launch.  
(Below) A "Weihe" after landing with spoilers raised.





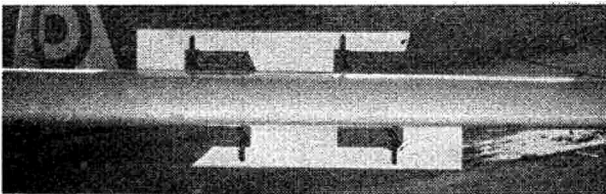
of Pied Piper fame, where to my joy I observed full-sized sailplanes with wings of the most fantastic high aspect ratio, like immensely long thin stiletto blades soaring back and forth along this ridge in the up-current of air. I got some photographs with my Leica, a few of which I am including in this article.

The beauty of this silent and endless soaring flight was only matched by the beauty of design and finish of those machines. They made me think quite a lot about the cleaning up and finish of our petrol models.

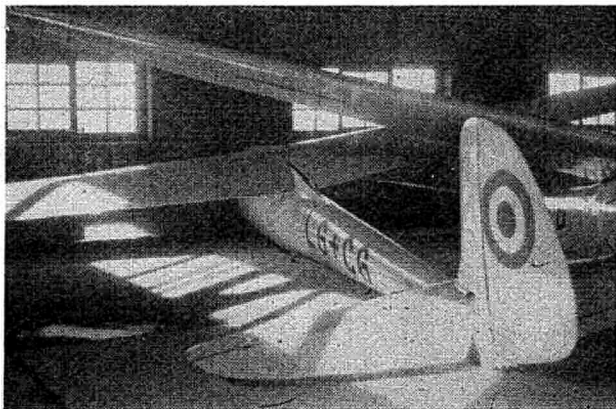
I had better explain that I caught these sailplanes soaring in the hands of expert German soaring pilots whilst they were being tested prior to lessons being given to our British Service personnel interested in the subject. These high efficiency soaring machines are quite heavy, with a wonderful gloss finish put on them that must weigh quite a bit. All this weight gives them energy to rush into the wind and ride on up-currents, like our friend the Albatross. The large wing area gives them a reasonably low wing loading, whilst the super gloss finish and lovely streamlining reduces drag to a very minimum, so that very little of the forward energy due to weight is lost. They slip through the air like a hot sharp knife slips through butter.

### Dethermalizers

Once these sailplanes are launched into the air, it is



(Top) A "Weihe" soaring overhead. (Above) A close-up of the spoilers in the raised position. (Below) Gliders in the hangar, showing the remarkable high gloss finish of all surfaces and the peculiar filleting of wing root to fuselage.



so difficult to get them to sink for landing that panels have to be raised in each wing above and below by the pilot, to "spoil" the airflow and so reduce lift and cause drag, when it is time to come in to land. If my reader will look at the photographs with this article, he will see these "spoilers" that are operated by the pilot. They are raised and lowered by simple parallel links. Now we petrol model men have heard a great deal about various schemes from America called "dethermalizers," which are used to stop our petrol models from being lost in up-currents of air. Most of these schemes are bad, as they cause the model to spin or become otherwise unstable and so lose height, and therefore in my opinion are most undesirable. Since a petrol model can afford to carry weight if it is designed with a correct wing loading and cleanliness of shape and surface, it would seem to me that the best method to bring the model down to a given time in a competition, is to fit similar "spoiler panels" to those used on the German sailplanes. These panels could be operated quite easily by a catch, releasing elastic bands. The catch could be operated by a simple time switch. Once the spoilers open out it is very noticeable how quickly the sailplanes sink on an even keel. Without spoilers these full-sized sailplanes glide on for ever, unless there happens to be a downward air current. Rather different from some of the brick-like landings made by some petrol models I have seen!

Well, there is a thought for ye merrie experimenters! No stalling—no spinning—no nonsense. Just sink and cut short the glide. Surely this is exactly what the doctor ordered!

The photographs of the German sailplanes that I am including may also give the petrol aeromodeller ideas on streamlining and design, so that his baby engine has very little to do. Also, these photographs should certainly give the model sailplane man considerable thought and inspiration. Note how full-sized German high efficiency sailplanes never fit their tailplanes halfway up the fin as many aeromodellers do, also the fin is almost invariably located well behind the leading edge of the tailplane. I saw and took photographs of a number of other makes than those of the "WEIHE" sailplane which I illustrate in this article. All designs had these features. A German also told me that the "gull wing type of mounting and dihedral angle is not considered abroad to be as efficient as the type shown on the 'WEIHE.'"

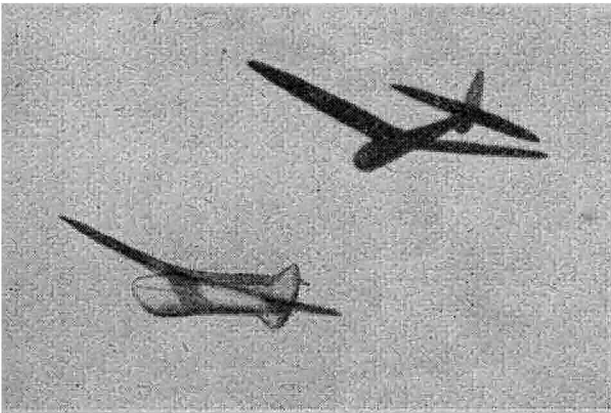
I notice that two new full-sized soaring machines are to be produced in England. They have wing spans of thirty-four feet and forty-nine feet respectively whereas the German "WEIHE" I illustrate has a wing span of fifty-six feet, and a central chord of five feet four inches tapering down to one foot four inches one foot from the wing tip. Other Germans have gone up to sixty-five feet span. The English believe in what they call "powers of greater penetration." I could not see much wrong with the performance of the Germans. The only reason they came down occasionally was to "let another man have a go." Anyway, they would appear to be quite useful prototype for the model sailplane.

I have always maintained in these columns that sailplaning and petrol model work should go hand in hand, and that they make an interesting combination of activities as well as giving each other valuable ideas.

### A Super Finish

I had a talk with the German instructor in charge of the soaring training. He had been a M.E. 109 pilot





in the Middle East, and he had also done a great deal of soaring in Germany. He told me that a fine "finish" is so important, that on some days when lift is not too grand, those sailplanes that I saw painted in the dirty matt camouflage that the Germans had put on some of them would not soar, whereas those they had left finished in the high gloss cream colour would keep aloft quite easily under the same difficult conditions.

I shall never worry again about my usual white gloss finish that I give to my petrol models.

I have always allowed a little extra wing surface to carry the weight of the paint, and I shall continue to do so with added enthusiasm!

### Straight Flight and Turning Flight

Now that we are on this subject of sailplanes in connection with petrol models, I am going to remark upon some other interesting facts not always fully realised by all our petrol men or, indeed, our sailplane fans.

For the eighteen months prior to my leaving England I went in for some extensive model soaring experiments to clear up certain points of petrol model design that I was interested in.

For some competitions and other purposes, the experimenter requires his model petrol plane or sailplane to circle, and for others he wishes his model to keep on a fairly straight course. For instance, thermal hunting requires circling to keep in the thermal, whilst slope soaring is best done straight.

I expect you have noticed that some models are better at one than the other. You may know the reason. On the other hand you may not. A sailplane is the best model upon which to find out this sort of thing (apart from the fun of sailplaning itself) because there is no engine torque to complicate the issue.

Very briefly, for I fear I have already talked too much for the editor, if you have a senior officer type of fuselage with a deep and portly middle-aged spread up forward, the model will glide or soar straight, or at any rate very nearly so.

If the belly of your model has fine and youthful lines at the front, it will circle freely.

If you doubt me, try it and see for yourself. The photograph of my models above will show the kind of stomach that I am talking about.

The next time I write a "Petrol Vapour" I hope it will be from a settled home in England, where one can really get down to the petrol model! There is a nice little German compression ignition engine at home that runs without any electric just itching to be fitted into a tailless petrol model!

## NO COUPONS!

NECESSITY, they say, is the mother of Invention. The truth of this old saw has been amply proved through the lean years of war—many are the substitutes which have arisen, though few are the substitutes which have proved to have advantages over the original material. One at least has proved itself, however—and this in the field of aeromodelling; I refer, of course, to Plane Film. This article is an attempt at overcoming the lamentable lack of information on this material, a lack which the AEROMODELLER has become vividly aware of owing to the large number of readers' enquiries received. Most people have heard of this material, though many have yet to come into contact with it, for like everything else it is in short supply. It is a cellulose material, light yet strong and easy to apply once the knack has been acquired. In its raw state Plane Film bears a strong resemblance to crinkly sausage skin (unstuffed!); this is presumably responsible for the peculiar name of "Pig-skin" with which this material was saddled before its trade name of Plane Film came into general use. Plane Film is not as heavy or as durable as silk, but has several advantages to recompense, not the least being the fact that it is coupon free! In my opinion silk has yet to be bettered for the large heavy petrol model or glider, but for smaller jobs the strength of silk is not worth the weight, which becomes excessive. This is where Plane Film comes into its own.

Plane Film is excellent covering for petrol models and gliders up to about five foot span. Several examples of Plane Film-covered models were to be seen at the Second National Model Aircraft Exhibition early in the year. I questioned several of the owners about this material and all, with one exception, thought it admirable. His complaint was that it was liable to become rather brittle—though not to a very harmful extent.

Covering with Plane Film needs a little more care as the surface, unlike ordinary materials, cannot be dope-shrunk after application (dope is unnecessary in any case as the material is already air-proof.) This property of non-reaction to dope does not cause any trouble, however, as the material undergoes a considerable natural shrinkage after it has been applied. "Operation Plane Film" is carried out in three simple stages:

1. Thoroughly wet the material and then shake off all surplus moisture.
2. Apply while in this very damp condition, using ordinary photo-paste of the Grip-Fix variety. Take great care to avoid wrinkles and any undue stretching of the material—keep it just taut, *not* stretched.
3. Allow to dry naturally.

The result will be a tight-surfaced wing, the transparent covering having a sheen that is similar to that obtained with gloss dope. Left natural, it is far from unattractive, but if something more colourful is desired the perfectly smooth surface is ideal for spraying or painting with coloured dope. Perhaps, however, the greatest recommendation for Plane Film is the lack of fiddle and mess entailed when compared with previous substitutes, such as destarched draughtsman's linen or double-covering with tissue.

ARTIFEX.



## THE D.H. LEOPARD MOTH

BY E. J. RIDING

**S**IMILAR in outward appearance to its predecessor the "Puss Moth," the Leopard appeared in 1933, starting its career well and in accordance with D.H. tradition by securing first, third and sixth places in the King's Cup air race of that year. The winning machine, G-ACHD, was piloted by Capt. de Havilland himself, who averaged 139 m.p.h. over the course.

It differed from the Puss Moth in having a considerably wider cabin, a tapered wing, an adjustable and externally braced tailplane, and a new positioning of the undercarriage shock legs on the fuselage.

Designed as an ultimate replacement for the Puss Moth, the Leopard was a two-three-seater private owner's machine. The pilot sat in front, where his view was unrestricted in all directions, and the two passengers sat side by side behind him on a seat fitted with an adjustable back, with room behind for luggage.

A primary batch of six machines was laid down early in 1933, and it was announced that production would follow only when all teething snags had been ironed out. These first machines had flat fuselage sides and later, in order to facilitate maintenance and overhauls, fabric covering supported on wooden stringers outside the plywood walls was made a standard feature. The registration numbers of the first four aircraft were G-ACHD, G-ACHB, G-ACGS and G-ACHC. Later batches ran from G-ACKJ to G-ACKS, G-ACLK to G-ACLO, and G-ACLW to G-ACMA inclusive.

About seventy were registered in Great Britain alone, and as many again sold to private owners abroad.

The D.H. Co. Ltd. still operate a couple of Leopards as Service machines, camouflaged in the standard

war-time communications colours with R.A.F. serial numbers. These machines, BD.148 and X.9380 used to be G-ACMA and G-ACLM respectively. Other Leopards in service with the R.A.F. during the war were AW 121 (G-ACLZ) and X.9382 (G-ACPK); the latter has ended its days with the Harrow A.T.C.

*Construction.*—Fuselage: Spruce and plywood box pattern with fabric covering laid over longitudinal stringers down the four sides.

*Wings:* Wooden with tapering box spars. Fabric covered except for portion on underside from inboard edge to attachment point of the Vee struts and backwards to the rear spar. The width with the wings folded was 12 ft. 6 in. The pilot could use the undercarriage as an air brake by swivelling the shock leg fairings through an angle of 90° to the direction of flight, reducing the gliding angle from 1:12 to 1:9. Bendix wheel brakes were also fitted.

*Colouring.*—G-ADAR: Fuselage light blue, white letters. Wings silver with black letters (Birkett Air Service Ltd.). G-ACLZ: Silver all over with black letters.

*Specification.*—Length 24 ft. 6 in. Span 37 ft. 6 in. Height 8 ft. 9 in.

Speeds: Max. 140 m.p.h. Cruising 120 m.p.h. Landing 40 m.p.h.

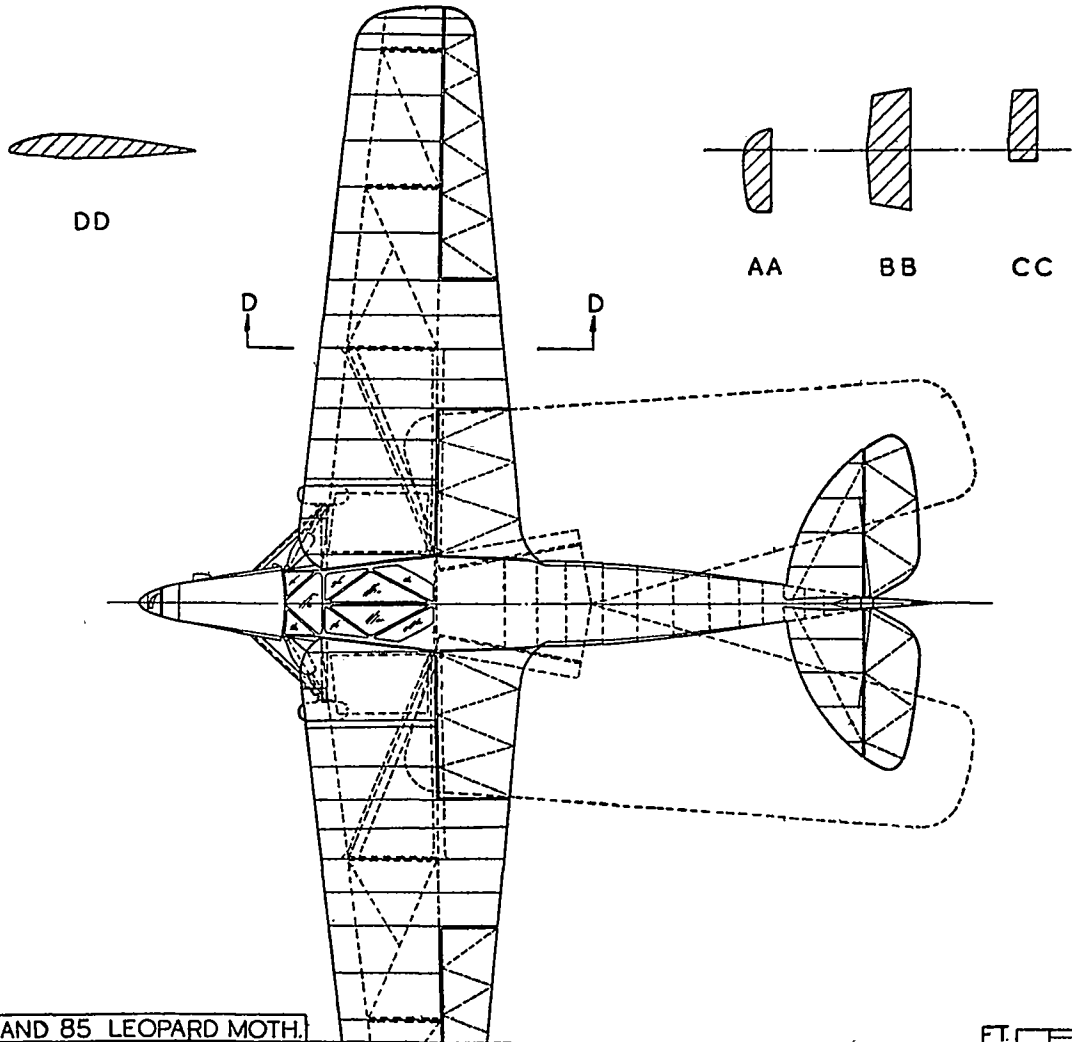
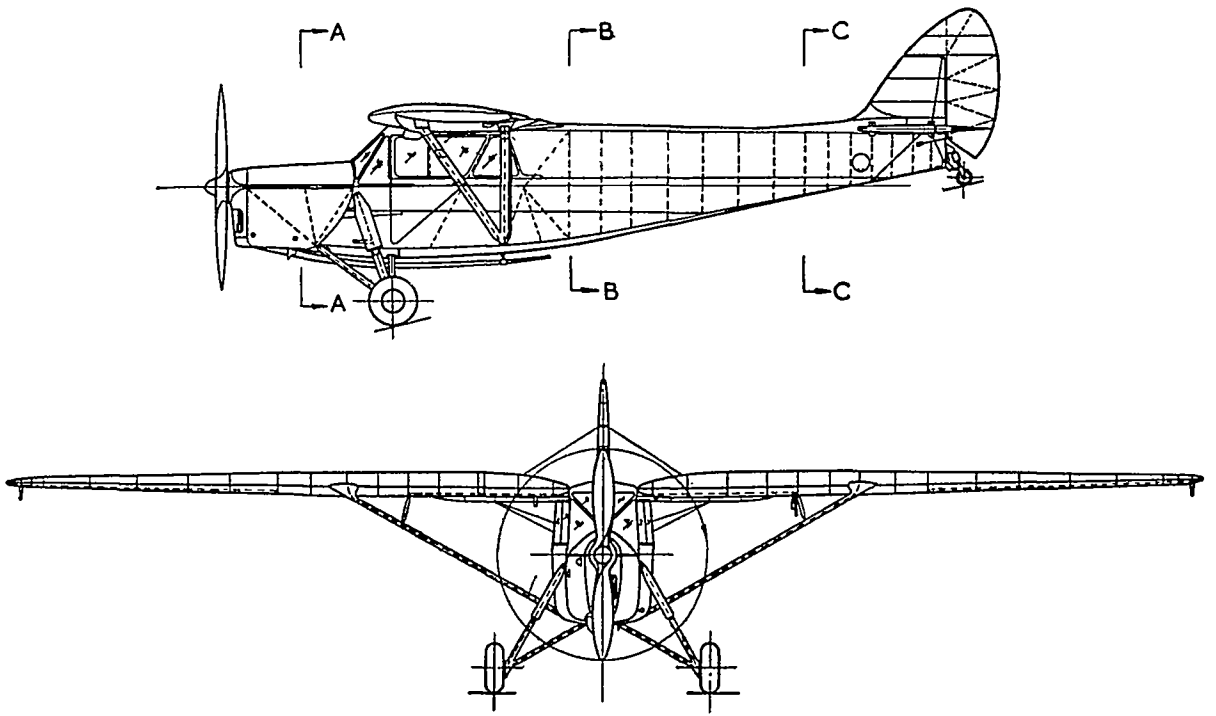
Weights: Empty 1,300 lbs. Loaded 2,225 lbs. Range: 707 miles at cruising speed. Ceiling 17,000 ft.

Price ex works: £1,275.

*Power Plant.*—130 h.p. inverted 4-cylinder-in-line, aircooled D.H. "Gipsy Major" engine.

Photos by E. J. Riding





# 'ELITE' MODELS



## The "BAT"

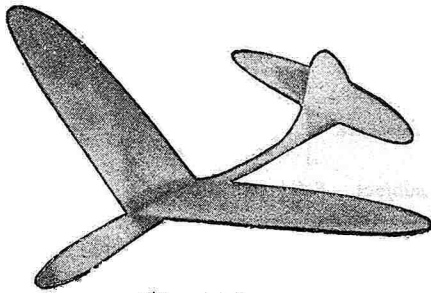


15 inch wing span.

Kit contains :—  
CUT-OUT BODY, WINGS, PLAN, etc.

KIT **2/-**

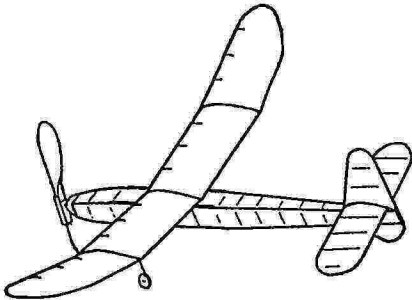
## ELITE 20 in. Solid Glider



Kit contains :—  
CUT-OUT BODY, WINGS, TAILPLANE  
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29 inch wing span. Kit contains :—  
CUT-OUT RIBS, Balsa STRIP AND  
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33 inch wing span.

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# PLOTTING AEROFOIL SECTIONS

## A NEW METHOD FOR TAPERED WINGS

BY C · D · BERGER (Reproduced by courtesy of Air Age Publications Inc.)

THE purpose of this article is to describe a simpler yet quicker method of plotting aerofoil sections, a process usually found very tedious. The main feature of the method is the use of a master chart for each particular section, and this enables sections to be drawn with chords ranging from that of the master section on the chart, to zero.

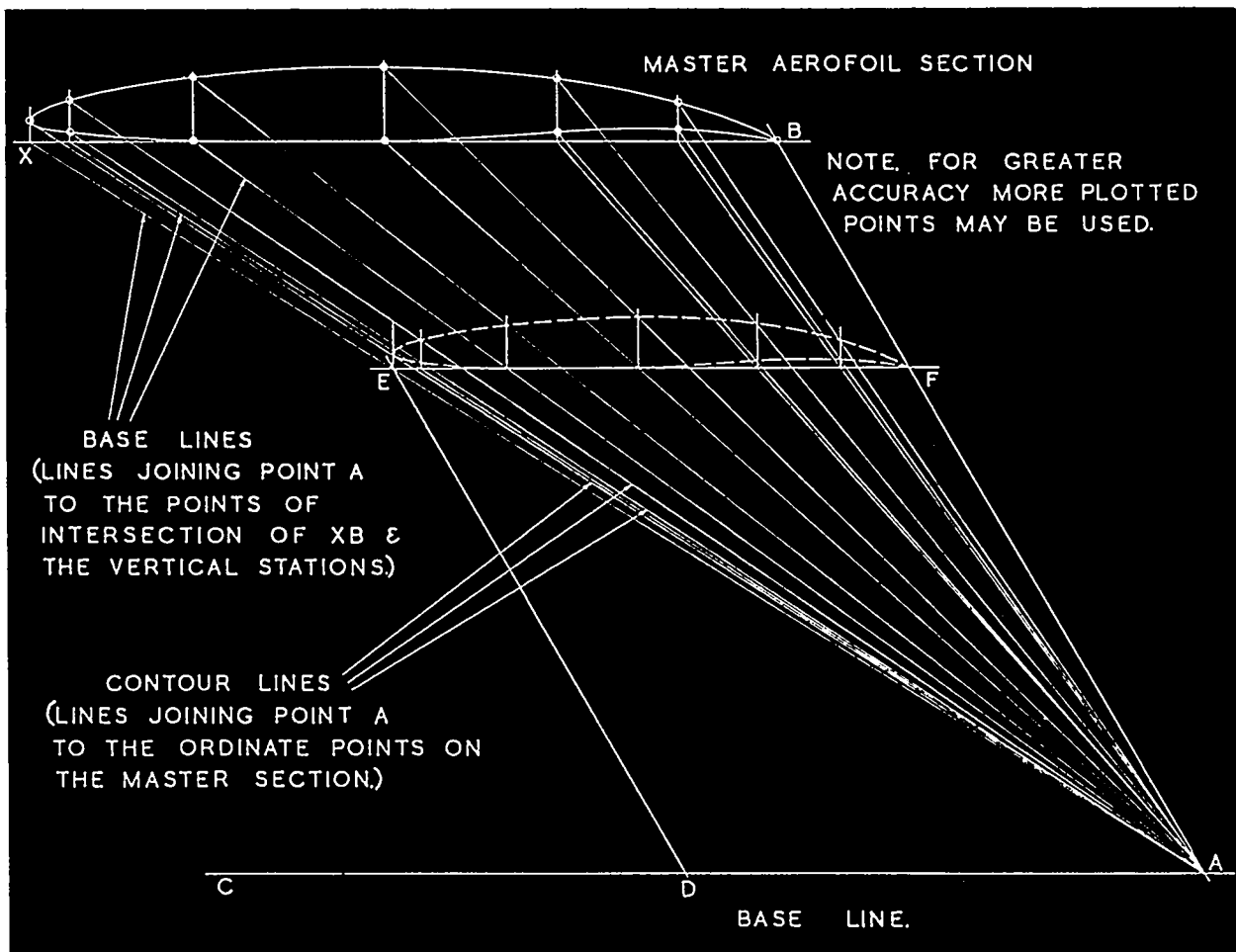
The chart is drawn by first carefully plotting the aerofoil section for a fairly large chord (10 in. is a convenient size), clearly marking the plotted points. From the trailing edge draw a line AB at 30 degrees to the vertical, and another, AC, parallel to the chord of the master section, and the distance of one chord below it. These two lines intersect at A, and lines are then drawn connecting A to all the plotted points of the sections, as shown in the accompanying drawing. This completes the chart.

The procedure for drawing a section of any chord other than that of the master section is as follows. First secure a piece of tracing paper over the chart and

measure off a distance equal to the chord of the desired section on AC (denoted by AD for ease of reference). Through D draw a line parallel to AB and where this cuts XB draw a line parallel to XB. This is the chord of the desired aerofoil (EF for ease of reference) being equal to AD. Erect a vertical line where the base lines intersect with EF and mark the points where these and the appropriate contour lines intersect. Then connect these points with french curves.

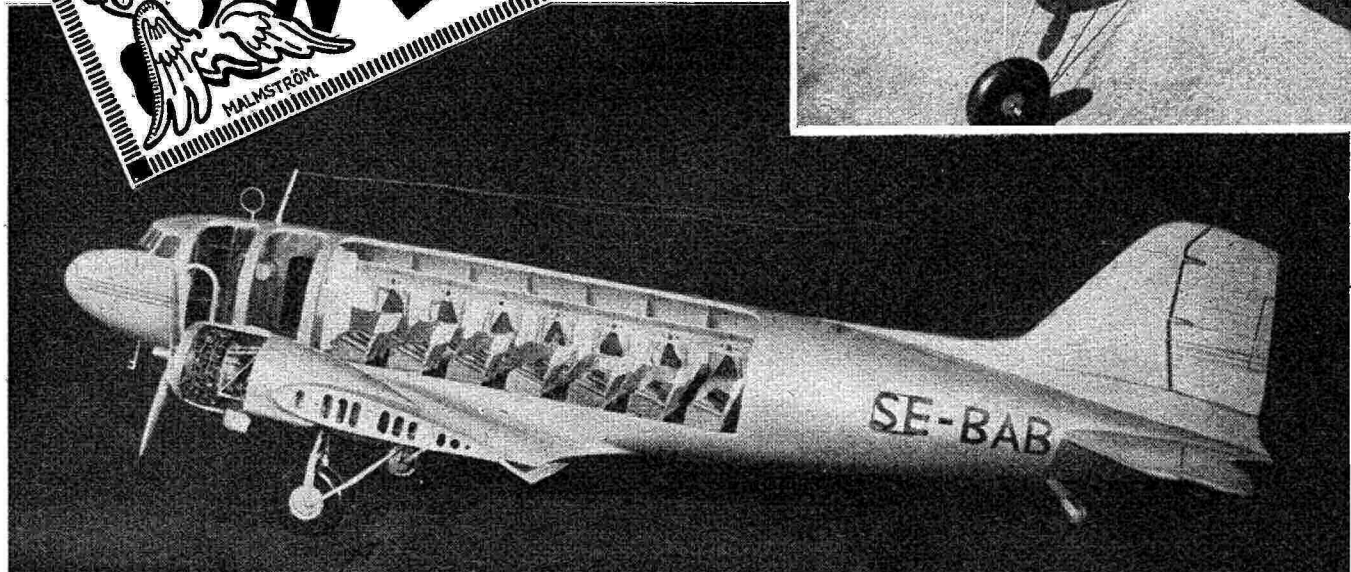
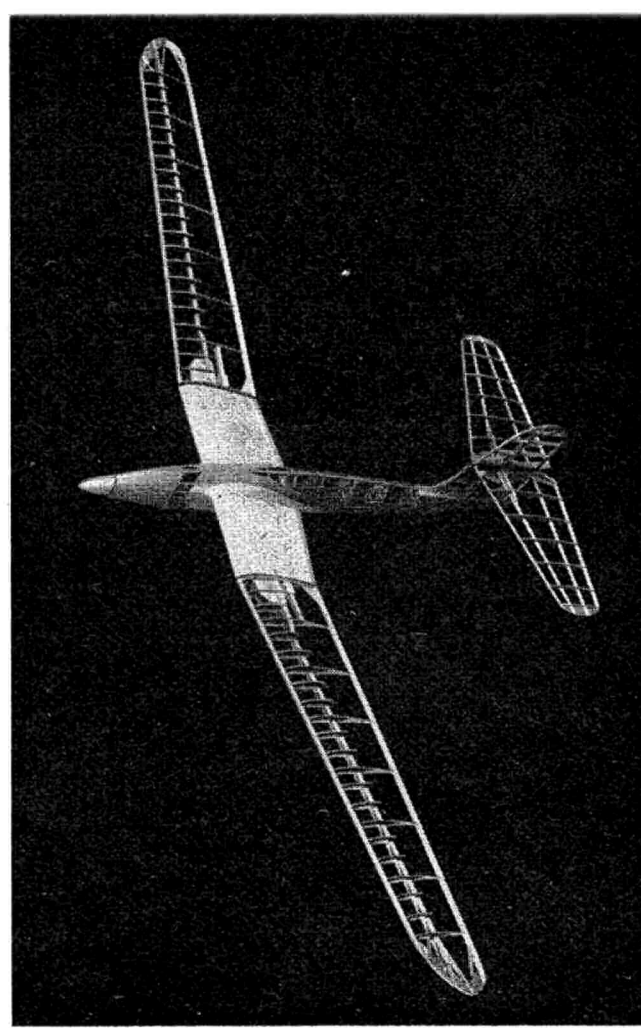
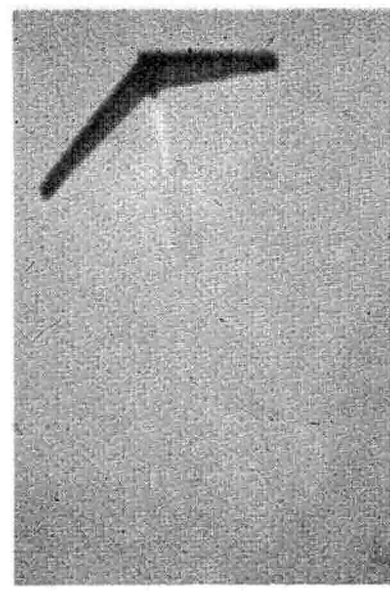
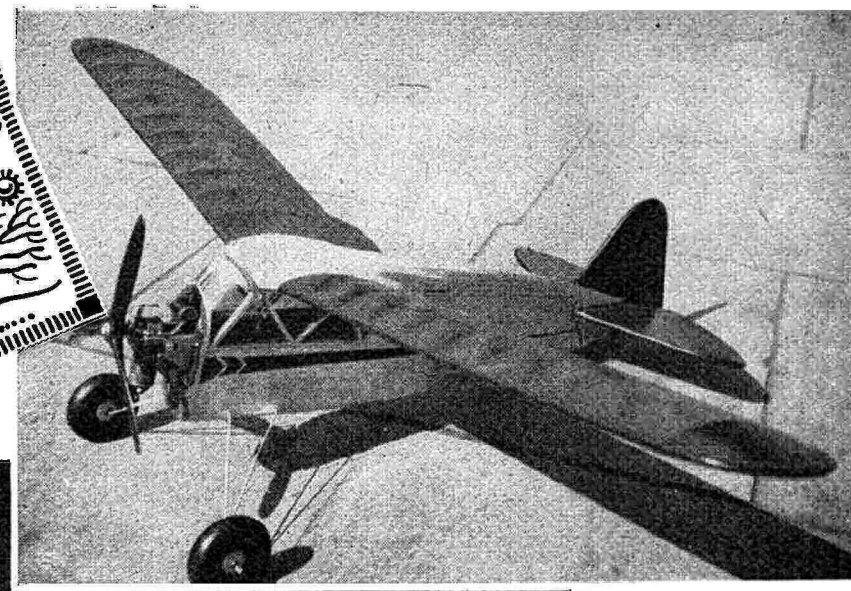
The actual drawing of the profile with french curves is a point where many modellers nullify their careful and accurate plotting of the ordinate points. Some modellers even draw these curves without any mechanical aid at all. Profiles produced in this manner are mere approximations, and approximations, in this field at least, are comparatively useless.

The best method is to first sketch through the plotted points, thus gaining a general idea of the profile and then, with french curves and a hard pencil, firmly draw in the curve, making sure that it passes *through* each point.



# MODEL NEWS

MALMSTRÖM



(Above) **Model of the Month.**—Once again the month's honours go to a beautifully built petrol model, originating this time from Belgium. The model, "Skykisser," was built by Romain Van Assche of Ghent, and was a prizewinner in the Concours D'Elegance at an Exhibition organized by the Aero Club of Belgium and held in Brussels in June, 1945. It is powered by an inverted Baby Cyclone, shown above with the cowling removed. Nice work, M. Van Assche!

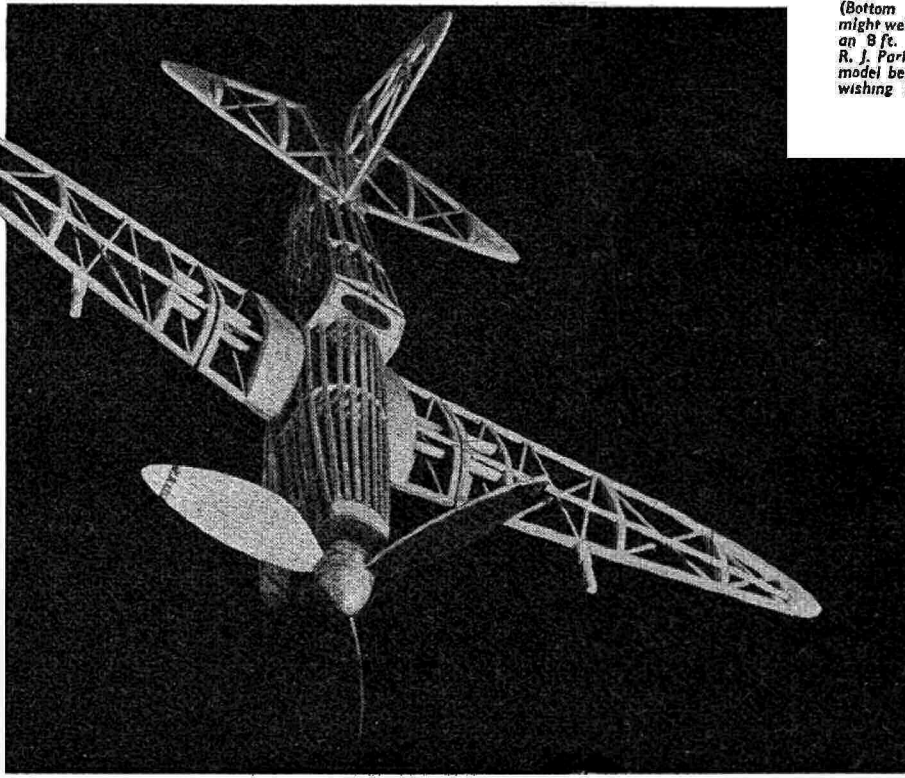
(Top centre) **The Moon and Back.**—A thought-provoking shot of Howard Boy's rocket glider in a vertical climb. If this can be done with a glider, maybe there's hope yet for those hefty petrol jobs whose earthbound Boffin-like antics have been the despair of their owners!

(Top right) **Naked Nautical.**—Not a headline in the Sunday papers, but a nice bit of modelling from A. A. Newick of Kingsbury. The model, "Commodore II," is a sleek 49 in. span sailplane of his own design fitted with auto rudder control. From the photograph Mr. Newick is to be congratulated on the excellent standard of workmanship.

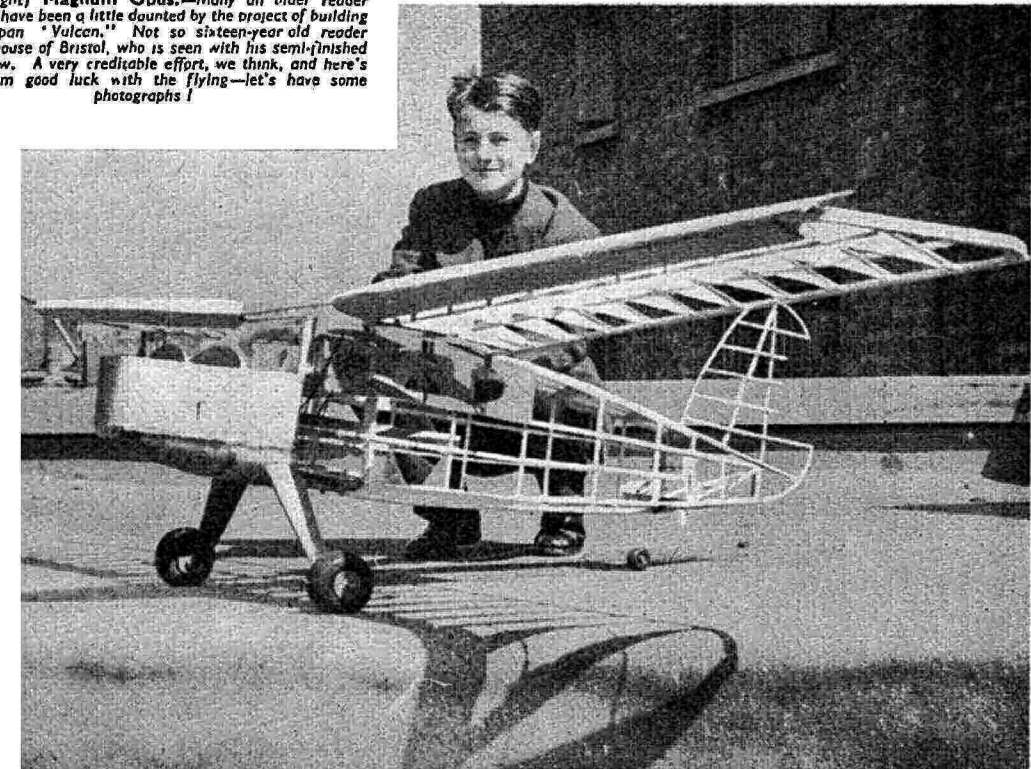
(Bottom centre) **Tiny Terror.**—Brain child of M. W. Toohey of Kingsbury, this little job is described by the proud owner as an R.T.P. fighter. It is of only 14 in. span, and appears to have an original wing section. By now it should have weathered its test flights and been "put into service." The excellent photography is due to A. A. Newick.

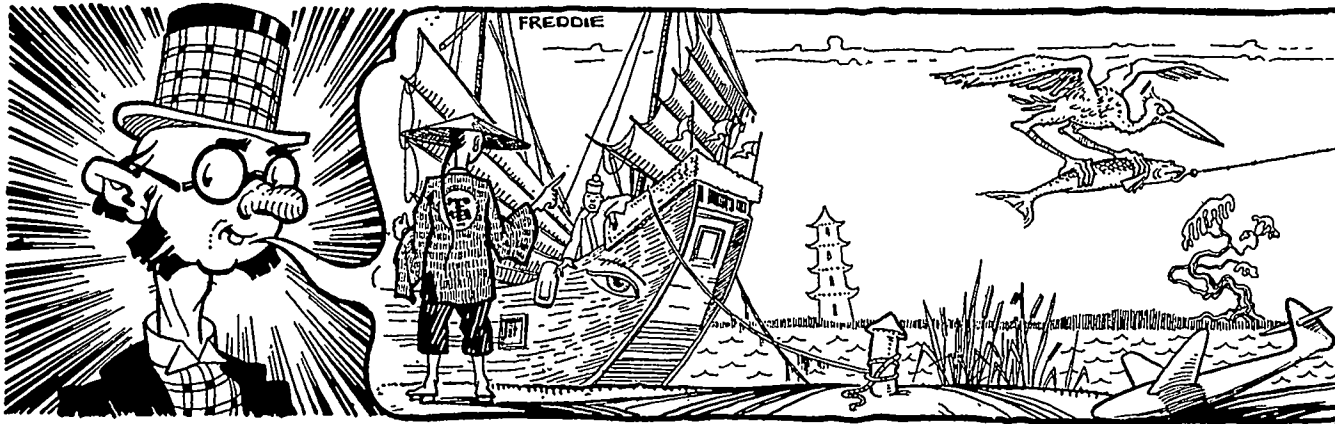
(Above) **Furnished Apartments.**—A wealth of detail is incorporated in this 1/24th scale D.C.3, built by P. Nelson of Heston. The interior is cut away on one side to show the fully furnished and decorated interior. The undercarriage retracts correctly, the control surfaces are fully working, and the engines are built up to scale. Even the doors open in the correct manner.

(Below) **Howzat?**—Will he hold it? Even in Italy, the principles of cricket are not unknown, and this enthusiast seems all ready for a fine catch. No easy business, one would think, arresting a 3 lb. petrol model travelling at speed, and one needing not a little adroitness. Can any reader who has made a practice of it let us know?



(Bottom right) **Magnum Opus.**—Many an older reader might well have been a little daunted by the project of building an 8 ft. span "Vulcan." Not so sixteen-year old reader R. J. Parkhouse of Bristol, who is seen with his semi-finished model below. A very creditable effort, we think, and here's wishing him good luck with the flying—let's have some photographs!





## Continuing **The Wisdom of Wang Ho**

A SAGA OF THE ORIENT BY ROBERT JAMIESON

On arrival at Curly's lodgings a fresh set-back awaited them.

News of the rumpus with the farmers' guild had spread through the town, as had also the part played by the "Hairless Foreigner," and Curly found a letter awaiting him from the leaders of the party. Much as they hated to lose him—the letter informed him—a man who set the whole town by the ears before breakfast in the morning was no use to them, as they were anxious to avoid trouble with the natives. The expedition had set out for Fling Hi without him—and he was NOT to follow. They would pick him up on their return—if he was still alive, which they very much doubted.

Curly showed the letter to Wang Ho, who read it thoughtfully.

"Truly it is said, my son," the old sage murmured, "the rain that refreshes the fevered brow doth also wet the feet and set the nose to sniffing. Let us hie to a tea-shop to imbibe a dish of the fragrant brew, when we can ponder on what's to be done."

Curly agreed, and soon they were comfortably relaxed with a steaming dish of a famous blend—the toe nails of the tamarind—set before them. Wang Ho sipped his tea thoughtfully.

"For your kindness to me, my friend," he told Curly, "I pray that the years of your life be as many as the hairs of—" He broke off abruptly, noticing Curly's bald pate; and continued, "that was perhaps a trifle tactless of me, but if your elegant person and noble mind would condescend to grace the miserable hovel that is my home—perhaps we could discover some solution to the problem—"

Together with the letter Curly had been handed the information that his quarters were no longer available—and as he was now homeless, Wang Ho's offer of hospitality looked good. He accepted with thanks.

"We shall send a messenger in advance, to inform my number one wife of your coming. We shall also—as befits a person of your dignity—delay our arrival until a little later in the day."

In Curly's opinion it wasn't so much his dignity that was in danger as Wang Ho's skin, as parties of the farmers' guild were still reputed to be scouring the town in search of the old sage. But he remained silent on this point, and they passed several hours in the tea-shop, chatting of this and that. At last, when they were on the point of departing for Wang Ho's residence, the

proprietor came forward and informed them that a young lady desired speech with them. She was brought forward at once.

"Greetings, noble lord!" she cried. "I bring a loving message from Bitter Umbrage, your number one wife. She bids you not to return home, since you have lost face—and it is not seemly thus to expose her to the gibes of the neighbours. Also her beloved maternal parent, your mother-in-law, has arrived for a long visit."

Wang Ho groaned as he listened, but replied quite calmly.

"We thank you for your message. What is your name, fair maid?"

"The name of the unworthy person who stands before you is Wilting Lotus," said the young woman.

"It is well," replied the old sage kindly, adding, "pass on, Wilting Lotus, dust bin first on the right."

When Wilting Lotus had gone, Wang Ho turned to Curly and regretted being unable to extend the hospitality he had promised. "I feared something like this might happen," he said. "Apart from my failure as a magician, Bitter Umbrage had all her teeth extracted a few days ago, and I fear her temper—"

"You can't expect a woman to be easy to live with if she can't masticate her victuals," said Curly, who was a realist at all times.

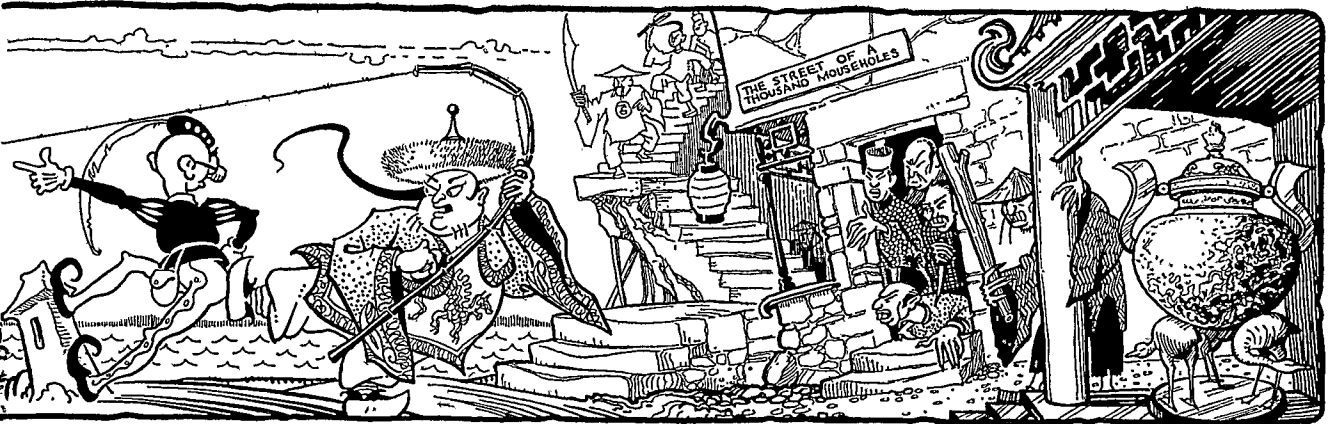
"True, true," sighed Wang Ho. "Better the croak of a croupy crow than the tongue of a toothless woman."

Now their plight was indeed desperate; for they were both homeless and in addition had very little money between them. It was only by combining their scanty resources that they were able to settle their modest bill at the tea vendors. Curly went out first, and after assuring the old sage that the coast was clear, Wang Ho joined him in the busy street. What were they to do now?

But Wang Ho's troubles did not weigh down his buoyant spirit.

"It has been truly said, my dear friend," he observed with his arm about Curly's shoulder, "that the blows and buffets of fate are sent to strengthen and temper our souls. Let us not wilt under our misfortunes, but go down to the river side and fish—and while engaged in the quiet pursuit we can meditate on the mysteries of nature."

Now Curly had experienced a tiring day, and had eaten



nothing since the previous night. Consequently the pangs of hunger were beginning to gnaw at his stomach, and the only thing he felt like meditating on was a good square meal. But as he was flat broke and homeless there was nothing he could do but accept the old man's proposal—and there was always the chance they might catch a few fish.

With the last thought in his mind he quickened his steps, but Wang Ho called on him to restrain his impatience, saying "Haste, my son, is the enemy of thought. Truth can only be wooed with a tranquil mind—and too rapid movement is unseemly in men of our status and learning."

At length they reached the river bank, and Wang Ho borrowed tackle from a junk moored nearby. The old man began fishing at once and Curly sat and watched him. He was not really interested, as fishing was not a sport of his; but in his present homeless state he had no alternative. With his glider lying on the bank beside him he let his mind wander back to the hills of home. If only he could get his new steering gadget tried out . . .

A sudden shout from Wang Ho pulled his thoughts back to the present. "By the pigtail of the prophet! A bite," the old sage cried, "and it's a whopper!"

"Reel in, reel in!" Curly shouted, visions of a hot fish supper already warming his aching innards.

Wang Ho did his best; but the fish had other ideas. The line screamed in the reel as the fish streaked away down stream. The rod bent and quivered with the strain. Now all the line was extended, and the fish seemed exhausted. "Now we have him!" Wang Ho cried, but he spoke too soon.

Just as he began to reel in, drawing the fish into the bank, a large grey heron swooped down and grasped the fish in its claws.

"May thy feathers drop like snow and leave thee naked—spawn of a race of thieves!" Wang Ho growled, seeing his catch in danger of being stolen. He bent anew to his task—determined to secure the fish—and the bird clung on tighter than ever.

With heart beating high, Curly watched the battle. His supper was in danger; then he noticed something, something akin to magic that knocked all thoughts of food from his mind.

The line was still fully extended, though Wang Ho was reeling in fast—then Curly noticed what the heron was doing. With the fish in its claws the bird was hovering with outspread wings, and as the old sage drew in the line both bird and fish rose slowly into the air *without any effort on the part of the heron!*

"Hey, pal! I've got it!" yelled Curly, his voice quivering with excitement. "The glider business I

mean—if we had a long line, and pulled the 'plane up against the wind, and then had some sort of gadget for getting rid of the line—"

The keen mind of Wang Ho grasped the idea in a flash. "Verily my friend you've got it," he said "Let us secure our fish and then hasten at once to the street of astringent string makers to secure the necessary line."

Unfortunately, however, they had no chance of carrying out their plan, for at that moment a group of men from the farmers' guild appeared from nowhere and began to close in on them, brandishing sticks and uttering loud cries. Wang Ho flung his rod aside and scrambled, the heron escaped with the fish—and Curly was lucky to escape with a whole skin, although he became separated from the old sage in the fast gathering darkness.

For the next three days Curly had a pretty thin time. He stayed down by the river, and kindly fishermen saw to it that the hairless foreigner did not altogether starve; but despite all his enquiries and searchings, he could get no word of Wang Ho, until, on the dawn of the fourth day, he saw a number of strange black specks in the sky, hovering over the hill of well-filled stomachs. He lost no time in making his way out to the familiar spot.

As he drew near he found that the specks were strange, bird-like shapes fashioned—so far as he could make out—from split bamboo and rice paper. High above the earth they floated, straining at the cords that secured them, waving their long tails in the fresh breeze.

He found Wang Ho at the summit. The old sage embraced him fondly, his face beaming with delight. "Great is your wisdom, my son," the old man said. "As you yourself would put it—it's a wow!"

He led Curly beyond the gateway, where Beauteous Almond favoured him with a dazzling smile. At the foot of the hill the farmers' guild were gathered, awestruck at the miracle. Already, away in the West, dark clouds were gathering.

"But you've sort of got the idea wrong," Curly protested. "I meant the line to be attached to some kind of ring, so that the glider could go off on its own when it was high enough."

Wang Ho turned to him in mild surprise. "But surely, my son," he argued gently, "it is better to keep the magic birds fast on the cords. Think of the fatigue of chasing them should they be set free to wander the Heavens—"

(Concluded on page 250.)

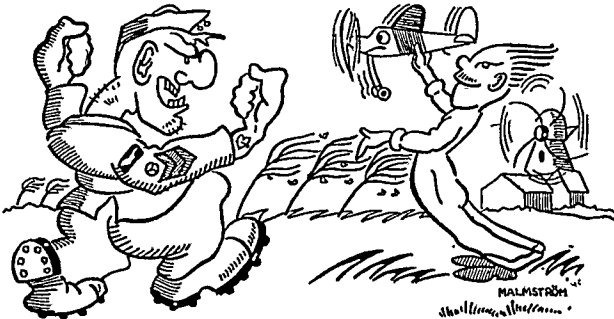


# HOW TO FLY THAT MODEL

BY R. S. WELFORD

THERE must be a considerable number of recruits each year to our best of hobbies who have never built and flown a model 'plane before. To such new hands the chief difficulty is not in the building of the model itself, because most kits on the market contain copious building instructions; rather, it is in the flying of the model afterwards that the raw hand comes up against some snags and discouragements, these sometimes being sufficient to induce him to discontinue modelling. It is with a view to helping such newcomers to our hobby that the following notes have been written.

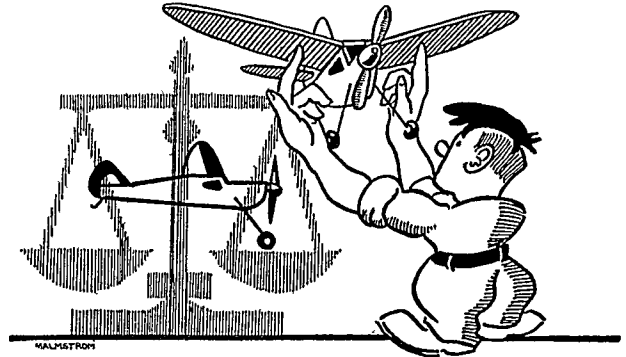
I would like to commence the business of being helpful with a word of advice about the model. If you have never built one before and are now thinking of mending your "evil ways," I would suggest that for your first attempt you choose a simple, slab-sided, duration model of a well-known manufacture. You will find it will be difficult to fail to get this to fly, provided you build it carefully and correctly, whereas other types of model are apt to be tricky to fly for a beginner. Follow this advice, and my flying directions, which deal exclusively with the type of model I have recommended to you, and you will have some thrilling and enjoyable flying.



... as the drill sergeant says, you must "wait for it" ...

Well, you have built your model and are eager to fly it. Good! But what about the weather? Is it calm? If not, you must restrain your impatience until it is, because it is hopeless for a beginner to carry out on a breezy day that necessary preliminary to flight called "trimming the model." As the drill sergeant says, you must "wait for it." Wait for a calm day patiently—or haul your reluctant body out of bed early in the morning in an attempt to take advantage of the period of calm generally to be found at that time. The alternative to either of these courses will almost certainly be a wrecked "crate." The period of waiting will by no means be wasted if you employ it in checking over the model, making sure that everything is *really* ship-shape and true, and that the model balances correctly. I will explain the "how" and the "why" of this balancing business in the following paragraph.

Firstly, as to the "why." Perhaps you do not know that the whole weight of a model is carried by the main wing (or wings) and that the elevator is only intended for purposes of fore and aft balance, i.e., maintaining the machine level in flight. This being so a moment's thought will probably lead you to the conclusion that the best place to put the wing on a model would be the point of fore and aft balance, so giving the elevator the



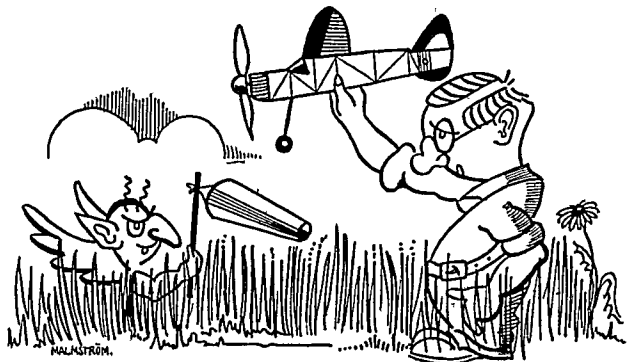
... the model should balance levelly at about one-third of the chord ...

least possible work to do in maintaining the model level in the air. This is very nearly correct; actually, for reasons into which there is no need to delve, the model should balance levelly if the finger-tips are placed under the wing at a spot about one-third of the chord (or wing width) back from the front edge of the wing. If a test proves that your model does not balance thus, move the wing backwards or forwards along the fuselage and try again, persevering until balance is attained. That is the "how" of the matter.

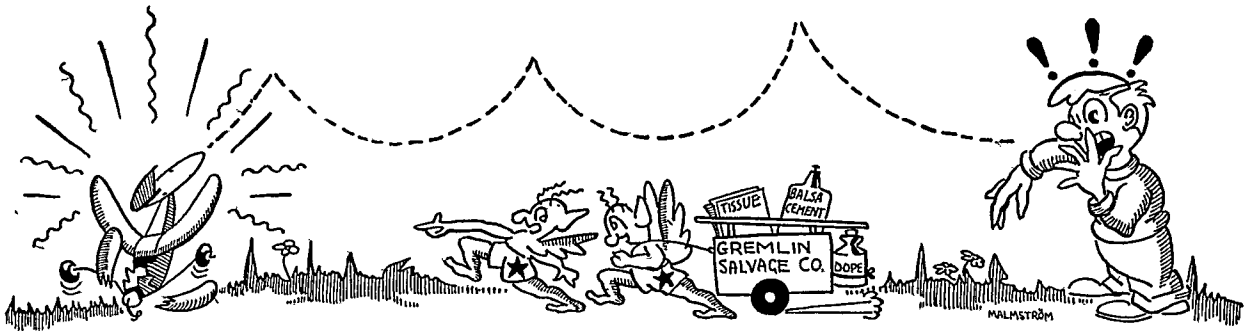
A few attempts should be sufficient for you to fix upon the position for the wing, which should then be marked unmistakably on the fuselage. This position will, however, only be approximately correct and will almost certainly require finer adjustment on the flying field.

When a calm period of weather arrives you can take the model for its first tests. It is essential to trim it correctly for gliding before any attempts at powered flight are made. To do this, grasp the model in the right hand just behind the point of balance (you will probably find it best to hold the lower longerons between finger and thumb at the junction of a cross piece or former) and launch it into the air gently over some long grass or a clump of nettles, which will prevent a crack up in the event of a heavy landing.

The model should be launched *steadily* and in a slightly nose-down attitude, the object to aim at being to propel it at the speed at which it will normally fly.



... launch it gently over some long grass or a clump of nettles ...



. . . No! Stalls are not to be encouraged if one values one's model

Do NOT HURL THE 'PLANE from you with all your strength, nor yet go to the other extreme and propel it so gently that it falls almost from your hand to earth owing to its inability to attain flying speed. Its normal speed of flight will almost certainly be ten to fifteen miles per hour and, as I said earlier, you should aim to put it into the air within this range of speeds. Try to imagine what a model flying at from ten to fifteen miles an hour looks like from a speed point of view, and they try to translate your imagination into reality.

The propulsive effort should be smooth; a jerky throw is no good at all. A steady, rhythmical push is what is required and is not at all difficult to attain.

A point upon which it is necessary to touch is that the model should be on a level keel when released. This may seem so obvious as not to require mentioning, but it is surprising to see the number of modellers who do unconsciously launch their 'planes with a dipped wing. Make sure you do not!

If the launch has been correctly carried out, a nice flat glide may be your reward for your efforts. However, it is much more likely that the model will misbehave itself in one of two ways—by indulging in either a nose-dive or a stall. As regards the former, the term "nose-dive" is in itself so descriptive of the evolution the model will perform as to require no further explanation or elaboration even for a beginner at model flying. It may, however, be well if I dilate somewhat upon our pet bugbear, the stall.

In this very unwelcome evolution the model commences to climb—and forgets to leave off doing so. The result is that the angle of climb steepens until in most cases the model is standing on its tail and all forward flying speed is lost. The next horrible step is that either it dips a wing and goes over into a nose-dive spin, out of which it probably does not recover before it crashes into the ground, or it proceeds to tail-slide backwards into the earth. Sometimes it is able to recover from the tail-slide before terra firma is reached, but in this case the usual result is that it promptly goes into a forward dive and does its best to push its nose through Mother Earth to Australia! Other variations on these two main themes exist, but we do not need to go into them here.

A mild stall will result in a switchback flight or glide, the nose alternately rising slightly and being forced down again by the masterful elevator. No! Stalls are not to be encouraged if one values one's model, and when I say that a stall can be brought about by too powerful a push when launching a correctly trimmed model you will realise why I recommended earlier that it should not be hurled off too heartily at the launch.

Having launched your model and carefully watched the result, you should now proceed to make corrections

until a perfect glide is achieved. It is useless to proceed to powered flights until the glide is perfect (unless you like carrying a model home in bits after its first flight!), so take great pains to get it so. Here's how you do it.

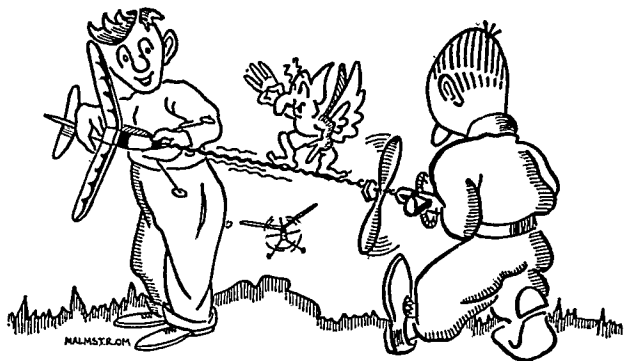
Let us suppose that when you launched your model it glided at a steep angle and hit the ground with more semblance of a nose-dive than the required flat glide. To correct this you move the wing forward about a sixteenth of an inch and then try again. The glide will be flatter, but if it is still too steep, try a further sixteenth forward wing movement next time continuing in this way until the glide is as flat as it can be got without the model stalling.

Exactly the opposite treatment is given to a "crate" which stalls when launched—the wing is moved backwards by sixteenths at a time until the glide is perfect.

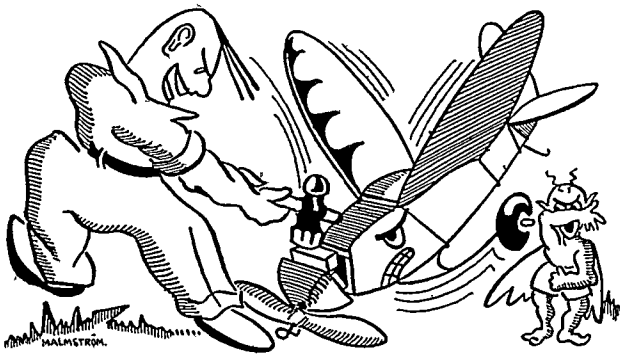
When the glide is correct, you will be ready for the first exciting attempts at powered flight! As a preliminary, set the rudder across slightly (about a quarter of an inch or less) so that it will tend to turn the model in large right hand circles. (I say right hand circles because I assume that as with most models your propeller will revolve from left to right when viewed from where the pilot's seat would be if there were one.) Make sure that the rudder will not move from this setting.

But you probably ask, "Why right hand circles?" The answer is that the propeller's action in revolving to the right causes a reaction which tends to dip the left wing.

If the model was flown in left hand circles, the reaction referred to would tend to steepen the angle of turn, and in doing so keep the model's nose down, thus preventing a good climb. We want our models to climb well, so we fly right-handed.



. . . stretch your rubber until it is three times its normal unstretched length . . .



. . . Do not overdo this downthrust packing . . .

Your building instructions will have told you what is the maximum number of turns you may put on the rubber motor with safety. Make your first trial flight with only one-eighth of the maximum on the motor, and when putting on the turns stretch your rubber until it is three times its normal unstretched length. For those who do not know how to do this, I would explain that a hook is fitted into the chuck of an ordinary geared hand-drill, and this hook is engaged with the loop your plan will have indicated was to be made on the front end of the propeller shaft when building the model. If you can now persuade a friend to hold your model for you, you will be able to pull the propeller and nose-block unit free from the fuselage, stretch the rubber as required, and at the same time wind on the desired number of turns. Make sure beforehand that you know the *correct* gear ratio of your hand-drill, and so can be exact in your motor winding.

Having wound the motor and refitted the noseblock, hold the propeller in the left hand whilst with the right you grip the fuselage ready for launching from shoulder height.

Release the propeller, wait a couple of seconds to allow the propeller to pick up speed, then launch the 'plane in a slightly downward direction, exactly as you did for gliding. If you treasure your model very much and wish to proceed even more cautiously with a view to avoiding a crack up, you may launch at the start from about *normal* waist height by squatting down on your heels whilst launching from the shoulder.

The 'plane will probably fly levelly for some yards, finally descending to the ground in power glide when the power of the rubber motor becomes insufficient to maintain the model in the air. This is just what we want for the start. Watch how the model behaves, and if everything about the flight appears to be in order apply a further twenty-five turns to the motor next time you wind.

Continue adding to the number of turns by twenty-fives if succeeding flights are correct and in time (possibly quite quickly) you will come to the point where the model displays an inclination to stall immediately after it is launched. This is because the first burst of power given by the motor on release of the propeller tends to lift up the nose of the model and so cause a stall. This is easily corrected by giving the propeller some down-thrust, i.e., by inserting packing between the nose-block top and the upper front cross piece of the fuselage, so that the propeller is slanted *slightly* downwards and, when revolving, tends to pull the nose in a downward direction.

Do not overdo this down-thrust packing. The correct

amount, as found by trial, is just sufficient to prevent a stall on *full* turns. A piece of sixteenth square hard balsa will probably be more than sufficient for the purpose.

When you have found the right amount of packing, cement it in place permanently.

And that's pretty nearly all you need to know to get good flights, but before I close here are one or two tips worth noting.

Make a habit of checking over each part of your model *before each flight* to make sure that all is in order. This will save much repair work to bent models!

The more rudder you use, the less down-thrust you will need. Hard rudder tends to put the nose of the model down during circling flight. So use your rudder sparingly, and once it is set correctly do not alter the setting.

For ordinary flying do not use more than eighty per cent. of full turns. In these days of deteriorated rubber a still smaller percentage may be preferable. Overwinding and the consequent breakage of the motor can cause an awful lot of wreckage to a model!

Side-thrust is frequently used to assist a model to circle. It is applied by offsetting the propeller (on the same principle as down-thrust) so that it tends to pull the machine in the direction in which you wish it to circle. Like down-thrust, it must be used very sparingly, and as it *can* be dispensed with altogether you will be well advised not to experiment with it until you have had a little experience of flying.

*Always* launch your model into the wind, *not* with it. This will cause it to climb as quickly as it can and so remove it from the dangerous proximity of Mother Earth at the earliest moment possible. Remember that the most hazardous moments of any flight are those when the model is taking off and also when it is landing again.

That's all there is for me to say, except "Good flying to you—always."

## The Wisdom of Wang Ho

(Continued from page 247.)

"But—" Curly began, and scratched his head.

The old sage patted him gently on the shoulder. " 'Tis ever the way of youth to waste its energy in violent exercise." He looked up at the magic birds, still hovering high above. "Come," he went on, "while your magic pleases the demons of the upper air, appeases the irate farmers, and brings on the rain, let us sit at ease for a while and meditate on the profound mysteries—"

"It's a pity," said McSwindle, breaking the silence that followed the end of the story, "that listening to such lies is a sin, for it's a grand way of passing the time."

"Do you mean to say you don't believe me?" the Maestro demanded.

"Of course we believe you," McSwindle assured him, anxious for peace. "All the same," he went on, as the lads who had been chasing the glider appeared over the hill, "I don't think we'll tell the lads that story—I mean, there's no sense in putting ideas into their heads."

The Maestro looked at the returning model recoverers. It was evident the chase had been long and tiring. "You're quite right," he said, in agreement with McSwindle for once. "They're better able to chase after them than we are—is the tow line ready?"

THE END.



# OVER TO YOU

## THE BOFFIN'S NEWS OF MODELLERS OVERSEAS

*The Boffin's shed his Winter feathers  
And of his refit fondly blethers :  
At Eaton Bray  
They've got a spray—  
New doped—I can stand any weathers."*

### Cannibals Abroad

VALUABLE data on "prime cuts" of balsa to be found on numerous aircraft, including Mosquito and Liberator, were disclosed to an attentive Boffin when L.A.C. Chinery of 139 Wing Hobbies Club dropped in for a chat. This unit is stationed near Brussels and has an active aeromodelling section. Amongst other amusing diversions L.A.C. Chinery mentions contról line flying with a Little Vagabond—built to twice the size. Tough types these R.A.F. boys!

### Kites in Copenhagen

Correspondent Per Weishaupt, who, incidentally, is by way of being an expert on the new "diesel" engines, sends news of aeromodelling in Denmark. A praiseworthy effort has been made in conjunction with Norway, Sweden and Finland to produce an improved set of competition rules and record regulations to supersede the now obsolete F.A.I. standards which have remained unchanged since long before 1939. Three papers are published dealing with aeromodelling in whole or part and enthusiasm runs high, as R.A.F. participants in Danish contests last year can confirm.

*(Right) Ready to Go. A typical Danish Duration model, with folding prop and retracting undercarriage, by Frank Hendrik of Copenhagen. This model compares favourably with the best of British slab-sided contest models.*

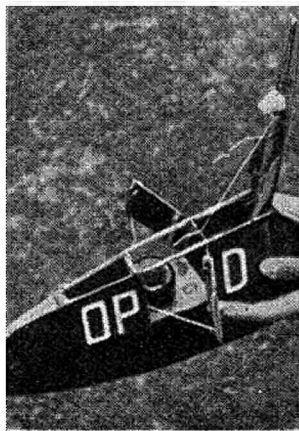
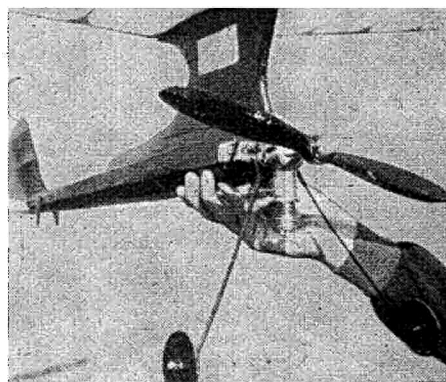
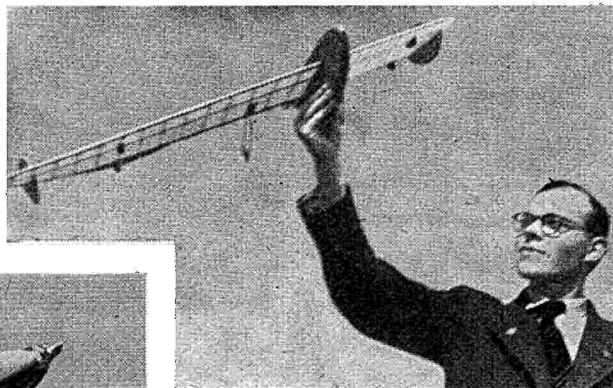
*(Below) Will it Crash? Anxious Dutch modellers watch the last stages of what seems to have been an unsuccessful flight.*

### Italian Back Room Boys

Our old friend Fred Neville—one of our most regular correspondents writes from Italy: ". . . . A lot of these Italians seem to have been brought up with lathes in their back bedrooms. Almost every dark alley-way ends up in an equally dark and gloomy workshop fitted out with lathes and other power tools. Their workmanship is amazingly good—better than the equivalent English. 'Diesel' engines are an example of what these backstreet workshops can produce." Nearly every month Fred sends us some new aeromod magazine that has sprung up. It seems there must be more than a little in the way of backroom editors as well—astonishingly good too, their efforts, though some only run to four-fold uncut leaflets.

### A French Diesel

Monsieur A. Bacrot, of the Claude Bonnier Company, points out that the engine pictured on page 41 of the Christmas *Aeromodeller* is not as stated an Italian model, but their own Micron Motor—an all-French product. We are happy to give credit where it is due. M. Bacrot has promised an early article on this engine, which is now going into quantity production after passing official tests with flying colours.



*(Top) Shades of Howard Boys! Tailless rocket-propelled model developed by Knud Hartvig Jensen, another Copenhagen modeller. Successful flights are claimed for this design.*

*(Above) The Diesel at Work. Italian model fitted with Vantini 7.5 c.c. Diesel, one of the best of the Italian compression ignition engines. This ugly design has proved a regular contest winner.*

*(Left) Something Different in Dethermalizers. Per Weishaupt's automatic air brake fitted to Opvind glider. This works pneumatically and increases the sinking speed to five times normal rate.*



# ARMCHAIR AERONAUTICS

By Lt. Comdr. R. Pierce, R.N.V.R. (retd.)

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



MODERN air transportation owes its success to the efforts of so many groups—scientists, engineers, mechanics, meteorologists and pilots—that it is impossible to isolate the contribution of any one and say, "This Alone" made safer flight possible.

I would like to think, however, that the success of any enterprise is due in a final sense to the work of the men last entrusted with the carrying on of the job. If this is true, modern air transportation owes a great debt to the pilot group. Their flying skill and ability to "get there" have contributed largely to the progress of this enterprise.

Modern aids to navigation, while rendering valuable aid along their routes, have neither simplified their work nor lessened their responsibilities. Indeed, the very existence of these aids has encouraged the development of longer and longer air routes, and pilots are now expected to circle the world as confidently as they once encircled a field. To the pilot's already rigorous flight training has been added an equally rigorous navigational training. The books here selected are to assist in the latter field.

## DEAD-RECKONING NAVIGATION

by W. J. D. Allen. 2s. 6d. 3s. od.

This book covers all forms of D/R. navigation, a subject with which every navigator should be thoroughly at home. In recent years the increasing speed of aircraft has involved the introduction of a new technique, and this modern practice is embodied in this volume.

## AIR NAVIGATION

by P. V. H. Weems. 35s. od. 35s. 9d.

This book is designed to cover the entire field of air navigation for the civil aviator. Special attention is given to radio, celestial navigation and meteorology. No special effort is made to meet any examination requirement, but rather to present in an orderly manner the latest and best methods of navigation, omitting useless material and reducing the space allotted to the less essential items.

## AIR NAVIGATION

by J. Hearley. 5s. od. 5s. 6d.

The object of this book is to show in simple terms some of the problems which confront the navigator of an aircraft, and to give and explain the solutions to these problems.

Beginning with definitions, the book leads up to the harder problems of interception.

To all interested in the subject it should give a thorough grasp of the problems of navigation in the air, and should have a special appeal to all intending air crews whether in the A.T.C. or R.A.F.

## ELEMENTARY AIR NAVIGATION

by G. K. Clatworthy. 3s. 6d. 4s. od.

The purpose of this book is to afford instructors and students a supply of numerical examples in elementary air navigation in progressive order, and in this way to enable students to gain the facility which, in this work, is so vital to quick and accurate computation under flying conditions. The answers are in such a form as to enable students to check their work in its various stages.

## AIR NAVIGATION

(AP.1234.) H.M.S.O. 7s. 6d. 8s. od.

The standard manual of the R.A.F., now released for publication, entirely revised and amended up to June, 1944.

## APPLIED D/R. NAVIGATION

by J. H. Clough-Smith. 6s. od. 6s. 6d.

This book makes no claim to be a "work" on air navigation. It is written for those who already have some knowledge of theory, and it is intended to be used in conjunction with any standard book of reference.

It is also intended to supplement the standard textbooks by showing how the principles explained in such books are applied to the navigation of an aeroplane, and to provide the reader with some practise in applying his knowledge to practical air work.

## THE AIR CADETS' ASTRONOME

by C. J. Grimwood. 1s. 6d. 1s. 9d. (Spherical Stellar Chart.)

The Astronome has been invented in the first instance to meet the need for a simple scientific instrument to enable the student easily to identify among the "fixed" stars, the principle stars and groups in common use for navigation. This chart, for making up into spherical shape, avoids the distortion inherent to the ordinary planisphere and, with a little care in construction, an instrument of real educative and scientific value can be produced which should be worth many times its cost.

## DIRECTION FINDING BY THE STARS

by J. B. Sidgwick. 5s. od. 5s. 6d.

Many people can recognize the constellation of the "Great Bear" or "Plough," and are familiar with the dodge of finding due NORTH by means of the two stars called "Pointers." This book extends this limited basic method and shows that you need never be absolutely lost, no matter where you are—out on night patrol in unknown country, adrift in the Atlantic, or just on an exercise on Salisbury Plain.

# "DIESEL" FUELS DISCUSSED BY P · H · HUNT

WHEN Mr. D. A. Russell and Mr. L. H. Sparey asked me to carry out fuel tests for their miniature diesel engine, there was not much to work on, other than that the engine and the many experimental prototypes were known to run well on a mixture of ordinary petrol and di-ethyl ether (equal parts) with the normal quota of lubricating oil (1 in 5 or 6 fuel) admixed for lubricating.

To carry out exhaustive qualitative and quantitative fuel tests is a waste of time until most of the normal and readily obtainable fuels have been tried, and a suitable mixture found which can be regarded as a standard for thermal efficiency tests reference.

Running the engine on its "basic" ether mixture reveals four very obvious features:—

- (1) Very pungent exhaust fumes with a sickly odour.
- (2) Constant knocking or pinking.
- (3) Coolness in running.
- (4) Quantity of unburnt fuel thrown out of exhaust.

These four points reveal a lot, and taken in the same order, show us that:—

- (1) (a) Incomplete combustion is taking place.
- (2) (a) Detonation is taking place, and (typically) the products of preliminary combustion are running the engine as is normal with an engine that is knocking continuously.
- (3) (a) Confirms (1) (a) above, and the latent heat of vaporisation of unburnt petrol and ether are rapidly cooling the engine.
- (4) Confirms (1) (a) and (2) (a) above.

As the choice of fuels hinges mainly on octane and cetane values, a brief explanation of these terms is offered.

Certain fuels, notably the ethers and the paraffins (both terms embracing literally hundreds of substances) have, as a rule, low or negative octane values.

Now, low octane fuels, due mainly to their molecular construction, will cause detonation and when used, will cause an engine to pink or knock. High octane fuels do not detonate, but burn smoothly under pressure, again mainly due to their molecular structure.

Stating the case very briefly, as is necessary, ring molecular substances will detonate (low octane) and chain molecular substances will not detonate (high octane). Cetane value, for the purpose of this article, can be interpreted as low or negative octane value.

As high octane fuels are quite clearly ruled out for compression ignition engines, our choice is really limited to the many and variegated fuels of low, or negative octane value with high cetane values.

Further, the fuel must be liquid, volatile, with a short ignition lag, and a low inflammation point (incidentally, fuels with extremes of long or short ignition lag can damage an engine badly).

Typical fuels can be most readily found in the homologous paraffin series, and the simple and mixed ethers. The commonest of these, with some of the required values, include n. hexadecane, n. octane, n. heptane (etc.) of the paraffins, and di-ethyl ether, di-methyl ether, methyl propyl ether, and a good many others, of the ethers. Many of these fuels are unsuitable as some are solids or gases, or are unstable, especially some of the mixed ethers, but luckily we are not solely confined to the series mentioned, but can turn, if necessary, to many other substances which can be blended together to add or subtract from their own individual properties.

At first sight, the action of the ether mixture can apparently be explained quite simply. The ether is ignited by compression, fires the petrol, and the resulting

expansion of gas drives the piston down, etc., whilst the lubricating oil merely lubricates, and as can be expected, is slightly oxidised.

In fact, however, the process is not quite so simple. The ether is ignited by the compression and begins to burn, but owing to its low octane value (negative) detonates, and virtually prevents the petrol from igniting fully. To say that the detonation of the ether (which causes the knocking) "blows out" any combustion that begins to take place, is both untrue and stretching a point, but it does serve to illustrate the sort of processes that take place in the engine.

The lubricating oil serves another and even more important part in the mixture. It increases the ignition lag of the ether, and by so doing, takes some of the violence out of the detonation.

If the engine is run on a mixture of five parts pure ether and one part lubricating oil, the detonation that occurs is really alarming and quickly ruins both big and little ends of the connecting rod, as well as straining the crank shaft. The ether can, of course, be toned down by mixing it in equal parts with the oil, but the resultant fuel is unsatisfactory as it is too oily and messy generally. A better plan is to mix a high octane fuel ("good" petrol) with the ether and to adjust the oil content to control the ignition lag of the ether. The mixture specified earlier suits the purpose admirably.

So far, we have only rather briefly examined one method of approaching the fuel problem. Di-ethyl ether is a violent fuel with a negative octane value, and using it as the basis of a diesel fuel it must be toned down by the addition of deadening agents. Another approach is to use a stable and rather "inert" fuel which has some of the ideal properties, and to adjust any deficiencies in its properties by the addition of accelerators.

Recently—and deliberately—I have been running one of Mr. Sparey's diesels on a very high cetane value fuel, I got what I asked for! a ruined connecting rod in that it was bent and the big end more or less "hammered" oval on the crank pin. This was due, it seems, to the very long ignition lag of the fuel, and when, on starting, the first explosion (or rather, detonation) occurred, the piston was forced rapidly down and came up again only to meet the same detonation, this time at its maximum, again.

It now remains to find an accelerator which, unaffected by the presence of lubricating oil (which lengthens ignition lag), will cut down the main fuel ignition lag.

So far, additions of benzene derivatives and inorganic acid esters have shown a certain amount of promise in the blending of a comparatively "safe" fuel.

The reader may by now be wondering why I should go to the trouble of ruining perfectly good engines by using odd fuels. The answer is found in the necessity of finding a more stable fuel (physically speaking).

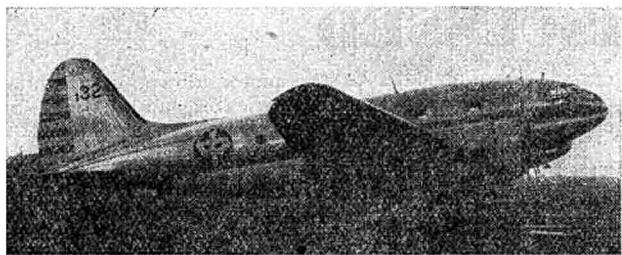
There are several objections to the ether mixture. The ether evaporates very rapidly and so the fuel proportions are easily upset. Luckily they are not critical, as 20 per cent. by volume of ether is adequate, but the 50 per cent. mixture recommended does allow for evaporation.

The vapour from ether, apart from its anaesthetic properties, is very heavy compared with air, and mixed with it, forms a violently explosive mixture, so that care is needed both for storing and handling the substance.

To carry out thermal efficiency tests on these engines necessitates, amongst other things, the use of carefully measured volumes of fuel, and if ether is the basic fuel, evaporation greatly increases the problem.

# MONTHLY MEMORANDA

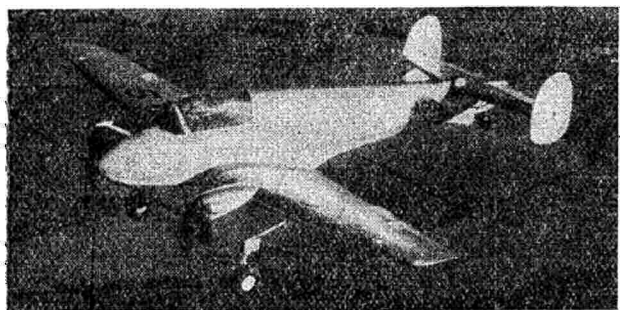
BY O · G · THETFORD



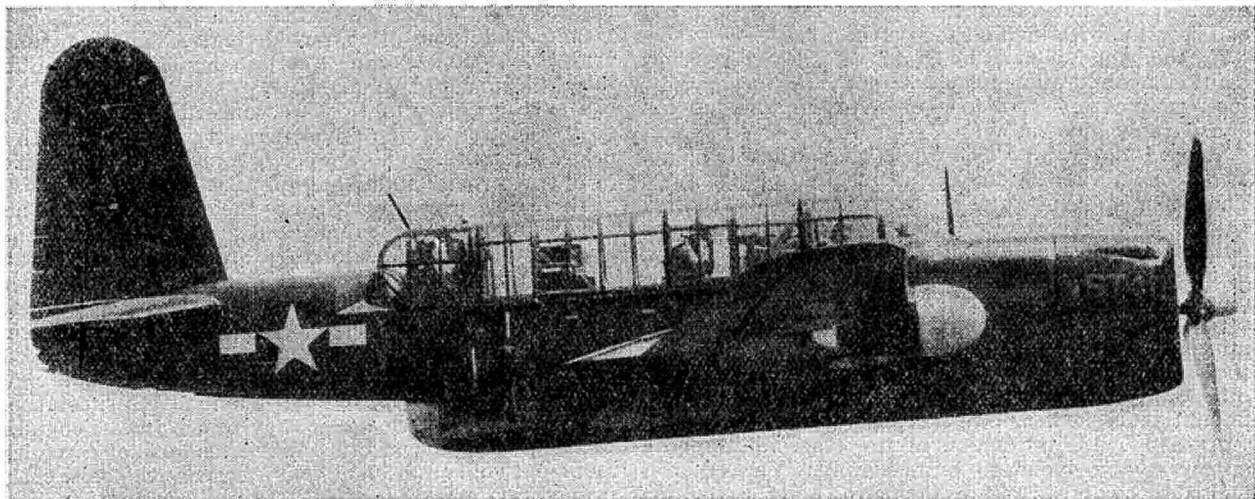
*Photo. Peter M. Bowers.*  
**East meets West.** A Curtiss C-46A Commando in service with the China National Aviation Corporation. The Chinese military marking is displayed on the rudder and the C.N.A.C. (civil) emblem on the fuselage.



*U.S. Navy Photo.*  
**Tub Tradition.** Replacement type for the famed Grumman Hellcat in the U.S. Navy is the F8F Bearcat seen here. Modifications include spine fin fillet and bubble cockpit. Powered with R-2800 Double Wasp and spans 35 ft. 6 ins., which is smaller than its predecessor.



*A.T.P. Photo.*  
**The Compleat Trainer.** Reid and Sigrist's Desford is intended as a combined elementary and intermediate trainer. The prototype, G-AGOS illustrated, first flew in the summer of 1945.



## Dutch Fireflies.

Reminiscent of pre-war days when British military aircraft were popular with the Air Forces of many foreign nations, six Fairey Firefly fighters were recently handed over to Heston Airport to the Royal Netherlands Naval Air Service. These Fireflies were the first British military aircraft to be sold to a foreign government since the end of the war. The familiar Dutch orange triangle, edged in black, was painted on the fuselage, just beneath the pilot's windscreen, and repeated the same size on the rudder, about one-third the depth from the top. Apart from the orange triangles, the Dutch Fireflies bore normal British camouflage, roundels and fin flash.

## Civil Registrations.

The new Miles Gemini, a twin motor version of the Messenger, is registered G-AGUS—the Aero van, U-0248, has become G-AGOZ. The original Avro XIX, G-AGLB, was rebuilt and became G-AGNI with Railway Air Services on the Liverpool-Belfast service where it is now joined by G-AGVA, G-AGUD, G-AGUE and G-AGUX. Avro XIX C-AGPG is being operated on the Renfrew-Stornaway route of Scottish Airways. From the Avro factory comes the news that the first production Tudor I airliner will be registered G-AGRC. The first two Lancastrians on the British South American Airways route to Latin America are G-AGWG *Starlight* and G-AGWH *Star Dust*. The third prototype of the Viking is G-AGOM, the first prototype of the Hermes (now destroyed), G-AGSS and the Bristol Type 170 Freighter G-AGPV. The prototype Short Sandringham flying-boat transport G-AGKX was formerly the Sunderland III ML 788, with R.A.F. Transport Command code letters OQZF on the rear of the hull.

## Desford, Son of Snargasher.

Inspired to some extent by the pre-war Snargasher, the new Reid and Sigrist Desford two-seat monoplane is intended as a combined elementary and intermediate

**People in Glass Houses.** Incredibly ugly, the Convair TBY-2 Seawolf, originally built by Chance-Vought as the XTBU, was intended as replacement for the Avenger in the Pacific Theatre. Production has now terminated and few were built.

*U.S. Navy Photo.*

trainer. The prototype Desford made its first flight in July, 1945, and is registered G-AGOS. It is finished aluminium on the top surfaces and training yellow underneath.

Fitted with two D.H. Gipsy Major Series I motors of 130 h.p., the Desford is fully aerobatic and has a top speed of 162 m.p.h. at sea level and a normal operating speed of 148 m.p.h. The rate of climb is 1,100 ft. per minute, the service ceiling 17,730 ft., and the range (which can be extended by the use of an auxiliary belly tank) is 463 miles with 44 gallons of petrol. All-wooden construction is used and loaded and empty weights are 3,300 lb. and 2,413 lb. respectively. Span is 34 ft., length 25 ft. 6 ins., and wing area 188 sq. ft.

**Ultimate Geodetics.**

Employing the well-proven Geodetic method of construction of its predecessors, the Wellington and Warwick, the Windsor four-motor bomber displayed at Farnborough some months ago was scheduled for production if the war had continued. Fitted with four Rolls-Royce Merlin 85 motors driving Rotol four-blade airscrews, the Windsor has an elliptical wing spanning of 117 ft. 4 ins. and a length of 77 ft. 6 ins. One of the unorthodox features of the design is the separate under-carriage leg beneath each of four nacelles, the track of the outer wheels being 50 ft. The Windsor at Farnborough was the second prototype, DW 512, and differed from the original aircraft (destroyed in an accident), DW 506, in having later Merlins in the new annular cowlings. Windsor DW 512 is camouflaged green and brown on the top surfaces and training yellow underneath, with the prototype "P" on the rear fuselage. The serial number is repeated beneath the wings.

**R.A.F. Flashbacks—16.**

The Short Singapore III flying-boat was the standard type in service with the R.A.F. at home and overseas from the early 'thirties, when it replaced the Southampton, until just before the outbreak of war in 1939 when it was superseded by the Sunderland.

The Singapore III was fitted with four Rolls-Royce Kestrel motors mounted in tandem pairs, each motor developing 605/630 h.p. Of all-metal construction and carrying a crew of 6/7, the Singapore III had a span of 90 ft., a length of 64 ft. 2 ins. and a loaded weight of 27,500 lb. The top speed was 145 m.p.h. at 2,000 ft., the rate of climb 700 ft./min., and the range 1,000 miles at 105 m.p.h. Its duties included open-sea reconnaissance and coastal patrol.

Production batches of Singapore III boats were numbered K 4583, K 4584, K 4585, etc., and K 8567, K 8568, K 8569, etc. All-silver finish was standard.



*Bristol Photo.*  
**Communications Conversion.** With all armament and armour removed and four additional seats, this Buckingham transport is used in considerable numbers by R.A.F. Transport Command. Developed from the Buckingham day bomber illustrated in Monthly Memoranda last month.

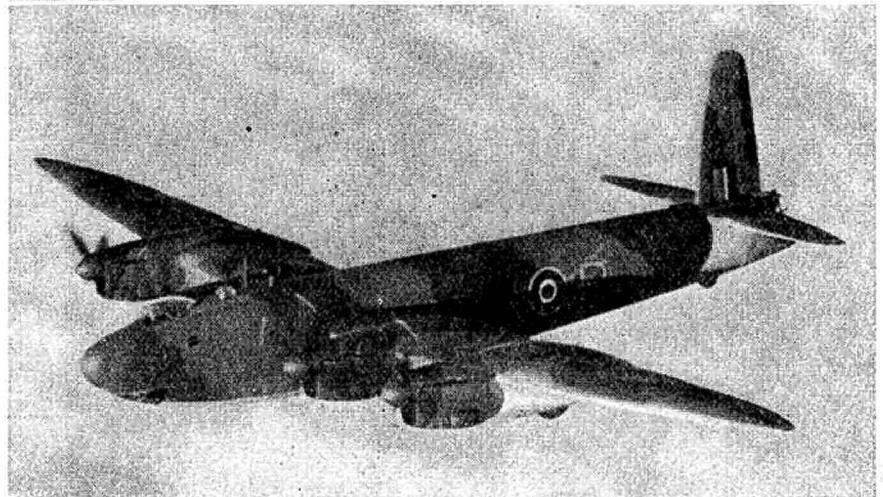


*Avro Photo.*  
**Old Soldiers Never Die.** The immortal Anson is perpetuated for post-war-civil routes as the Avro XIX feeder-line aircraft. In production at Avro's Yeovil works, the Avro XIX is serving with Railway Air Services pending the arrival of Vikings.



**Four-Motor Geodetics.** The first prototype Vickers-Armstrong Windsor heavy bomber, DW 506. The second Windsor, DW 512, has annular Merlin cowlings in place of the type illustrated.

*Vickers Photo.*



*"Flight" Photo.*  
**Push-Pull Effort.** The Short Singapore III was one of the last biplane flying-boats to be used by the R.A.F. before the Sunderland was introduced.



# AEROPLANES DESCRIBED XXXVI

## The FAIREY FLYCATCHER



"Flight" Photos.

**T**WO associations always arise when the name of the Fairey Flycatcher is mentioned—memories of an incredible amount of noise (the type was famous for its blue notes in a dive) and the inimitable exhibitions of converging dive-bombing and machine-gunning attacks which were executed by Flycatcher Flights of the F.A.A. at several of the Hendon R.A.F. displays of the period.

The Flycatcher is notable as the first fighter specially designed for deck-flying duties to go into large-scale service with the Fleet Air Arm. Developed soon after the Great War, the prototype Flycatcher, N 163, was first on public view in the New Types Park at the R.A.F. Display at Hendon in July, 1923. The prototype was fitted with the Bristol Jupiter, an alternative installation to the Armstrong-Siddeley Jaguar used on the production Flycatchers. The Flycatcher went into production at the Fairey Works in 1924 and deliveries to the Fleet Air Arm commenced the following year. It was issued to Nos. 401, 402, 403, 404, 405, 406 and 407 Fleet Fighter Flights, where it remained the standard fighter until 1931-32, when it was replaced by the Hawker Nimrod (the sea-going version of the Fury).

Just as the present-day Firefly naval fighter-reconnaissance monoplane is renowned for its wide speed range, so was the Flycatcher in its day the subject of widespread comment of its astonishing controllability at abnormally low speeds and a high performance at the top end of the speed range. In the Flycatcher, this was achieved by the use of patent Fairey full-span trailing-edge flaps, the

outer sections of which functioned as ailerons. These flaps, also a feature of the IIID, IIIF and Seal series of Fairey naval biplanes, were developed from the original patent flaps fitted on the Hamble Baby seaplane of the 1914-18 war.

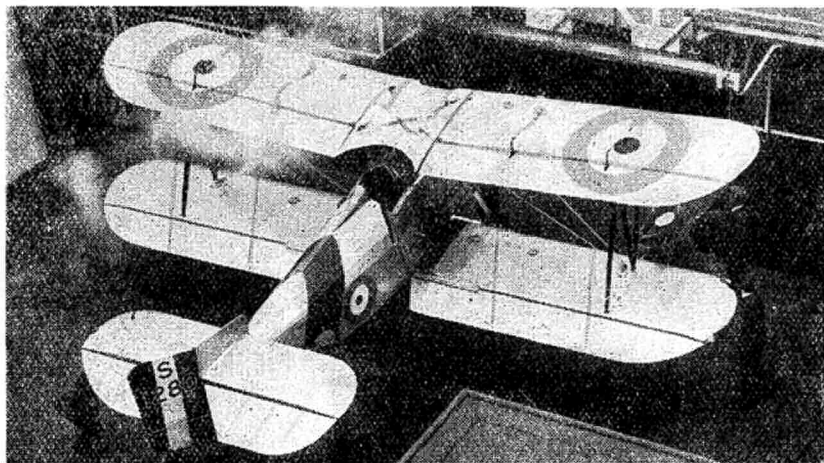
The prototype Flycatcher was produced contemporaneously with the Parnall Plover, N 160, a Fleet biplane fighter with a Jaguar motor. The Plover did not go into production. Both the Plover and the Flycatcher were designed for operation as landplanes, floatplanes or amphibians. The amphibian version of the Flycatcher was fitted with a single non-retractable landing wheel in the bottom of each float and presented a rather odd appearance when taxying on an aerodrome as the wheels were almost out of sight.

The float seaplane version of the Flycatcher was used by Catapult Flights of the F.A.A., and saw extensive service in the Mediterranean area and on the China Station. A Flycatcher seaplane is the subject of this month's cover painting by Mr. C. Rupert Moore.

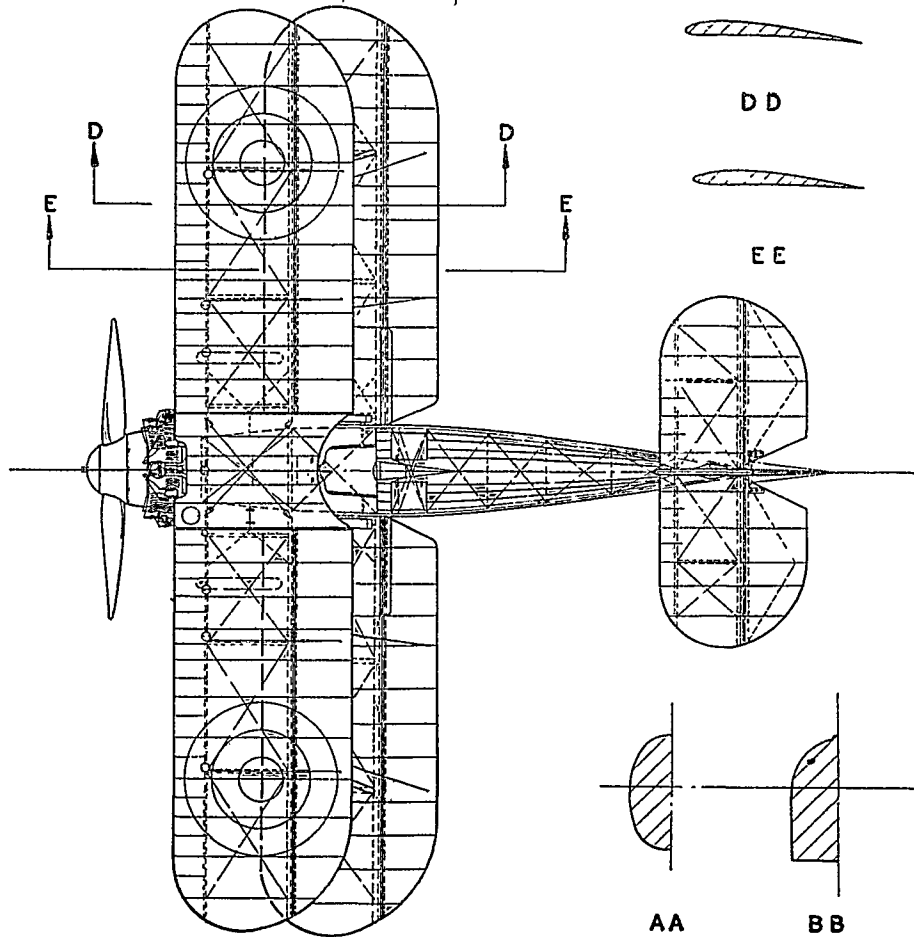
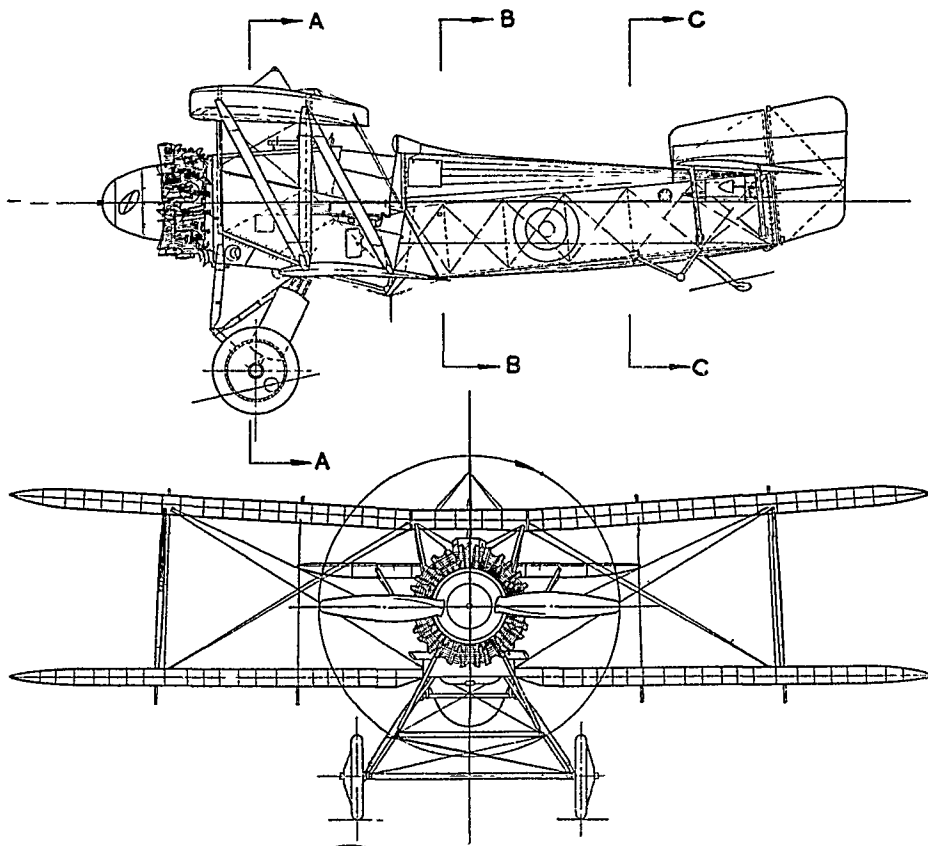
The converging bombing displays by Flycatchers at the R.A.F. displays were a feature of the show in 1925 and again in 1930. The latter display was perhaps the most memorable of all and was carried out by No. 404 (Fleet Fighter) Flight led by F/Lt. L. C. Sharma (Lt.-Cdr., R.N.). The Flycatchers dived on a ground target from several directions at once, so as to confuse the ground "defences," avoiding mid-air collision by split-seconds.

When fitted with the 385 h.p. Jaguar two-row radial the Flycatcher had a top speed of 138 m.p.h. at 10,000 ft. The span was 29 ft, and the length 23 ft. Wooden construction was used for the wings, with fabric covering, and the fuselage was mixed steel tubular and wooden construction with fabric covering. The "N" interplane struts were of steel.

Flycatchers were doped aluminium and the machine illustrated the bottom of the page, S 1280, bears the red fuselage band denoting H.M.S. *Glorious* as its base carrier.



Left, a Flycatcher on board H.M.S. *Glorious* on the deck lift.



FAIREY FLYCATCHER

# HERE IT IS

## Building & Flying

ROBERT ALMOND



The finest and most comprehensive catalogue and guide to ever be produced in the country. Printed in FIVE colours, with diagrams and constructional hints to appeal to beginners and experts. This wonderful book covers the designing and building of solids, scale flying models, gliders, rubber-duration models, competition and petrol models, etc.

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 Cut out this coupon NOW, and send with 8d. for post free catalogue and guide.

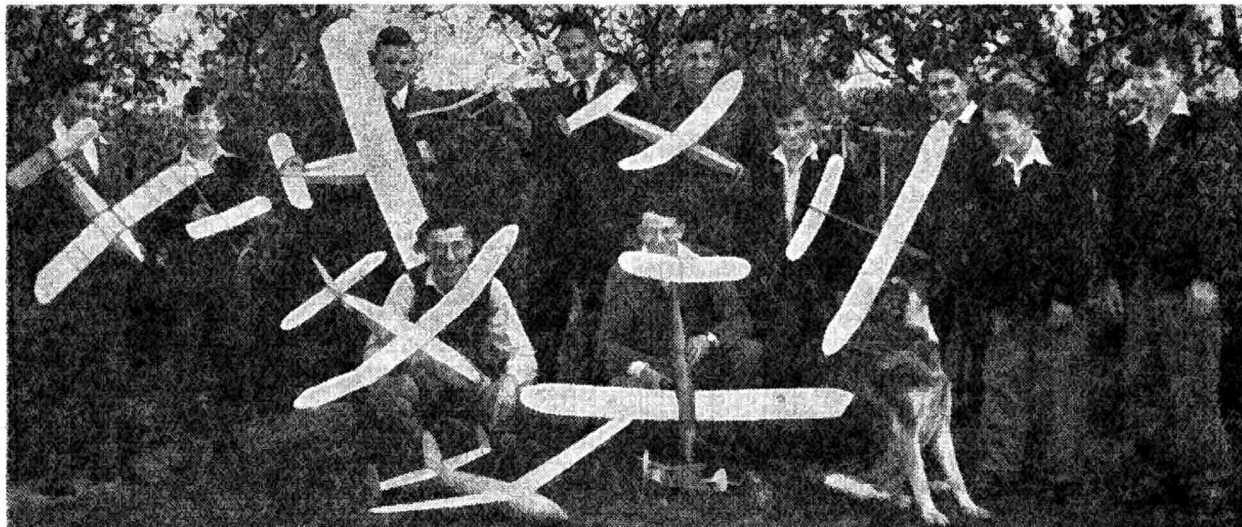
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### Model Aerodrome



141 STRATFORD RD BIRMINGHAM 11



The Grantham M.A.C. with a goodly array of models. The club includes no doubt a number of "Tarzans" to cope with the trees in the background.

# CLUB NEWS

B Y C L U B M A N

MY remarks in the January issue re what constitutes the best type of club member have brought a number of letters in support of my own definition of the ideal club, with just a few dissentients (some, indeed, quite ribald!). One emphatic writer asked if I wanted all clubs to degenerate into a collection of milkshops—a statement that showed he had not troubled to read the article properly in the first place, and, in the second place, showed all the evidences of a one-track mind. Fortunately (or unfortunately for him) I know the writer personally—and do you know what type he is? Yes, an out and out rubber duration fan . . . no time for petrol models, gliders, solids, or indeed any other than his "pet freaks," to quote his own definition. Ah well, it takes all sorts to make a world—and club!!

I hear that a film is to be made dealing with Model Aeronautical activities, mainly through the S.M.A.E. Filming will take place on Epsom Downs and at the Northern Heights club indoor meetings. (While presuming that this club has good facilities, may I suggest that it is high time the Society got rid of some of its Northern Heights complex—it caused much comment in the past, and I am getting an increasing number of complaints of the current trend to Northern Heights everything!)

I am surprised to note that the S.M.A.E. has "unanimously accepted" an invitation to participate in a Model Exhibition later this year, particularly in view of their refusal of facilities at both the shows staged by the AEROMODELLER. Without going into the whys or wherefores, it is strange that a "National" body allows its activities to assume such an apparent bias, and while the reasons may be known to a select few, the many thousands of modellers who depend for their information on the model periodicals are left wondering just where things are heading.

R. Rock has had his application for the British Indoor Biplane Record of 1:07 accepted. Quite some accomplishment this in my opinion—a biplane is not the easiest of types to fly correctly, and the time reflects great credit on the designer.

Incidentally, I am pleased to note the way in which

Delegate meetings are now being spread over the country, the next venue being Blackpool. (May I suggest to the Council that the Scottish clubs should get a look in—they are currently feeling somewhat out in the cold as regards national matters.)

The full competitions' list for 1945 is to hand for the S.M.A.E. events, and are quoted here in full.

## S.M.A.E. COMPETITION RESULTS, 1945

### PLUGGE CUP

Croydon	...	...	2344.22	points
Pharos	...	...	2297.2	"
Bushy Park	...	...	2133.92	"
Birmingham	...	...	1991.95	"
Aylestone	...	...	1956.49	"
Walthamstow	...	...	1858.34	"
Sub-biton	...	...	1794.39	"
Northern Heights	...	...	1784.34	"
Bristol	...	...	1622.47	"
Rhyl	...	...	1394.99	"
Blackpool	...	...	1322.57	"
Merseyside	...	...	1087.85	"

### INDIVIDUAL CHAMPIONSHIP

R. V. Hobbs	Pharos	673.71	points
J. L. Pitcher	Croydon	665.76	"
A. T. Taylor	Bushy Park	628.68	"
N. G. Marcus	Croydon	613.72	"
P. Lee	Pharos	592.23	"
W. Dallaway	Birmingham	582.50	"

### INDIVIDUAL CONTEST RESULTS

Gamage Cup	M. A. Wright	Bushy Park	1248.2	secs.
Weston Cup	E. Rawlings	Croydon	508.2	"
M.E. No. 2 Cup	N. Stacey	Pharos	380.5	"
National Cup	(Team event)	"	1468.4	"
Pilcher Cup	N. Langley	Eston	677.0	"
Flight Cup	W. A. S. Geddle	Bromley	536.2	"
M.E. No. 1 Cup	(Team event)	Bushy Park	1291.0	"
K. & M.A.A. Cup	R. Ladd	Croydon	498.1	"
S.M.A.E. Cup	J. L. Pitcher	"	920.8	"
Thurston Cup	J. P. Buckeridge	Pharos	3293.0	"
Lady Shelley Cup	J. L. Pitcher	Croydon	271.1	"
White Cup	A. D. Hall	North Kent	107.2	"
Ladies' Cup	Miss J. Shaw	Victoria	488.5	"
Frog Senior Cup	F. Guest	General Aircraft	91.0	"
Handley-Page Cup	R. E. Connor	Brentford	127.3	"
Gutteridge Trophy	R. Copland	N'thn. Heights	706.6	"
Civil Service Cup	B. Mullins	Croydon	216.1	"
Frog Junior Cup	J. D. Watkins	"	450.4	"
Hamley Trophy	R. Monks	Birmingham	error 27	"
Sir John Shelley Cup	S. Lanfranchi	Bradford	error 19	"
Bowden Internationala	J. Clarke	Bushy Park	198	points

Now for my "bone of contention" this month; a bone which I want all Press Secretaries to gnaw thoroughly. A certain area accuses me of favouring the London clubs with publicity in these columns, cutting their own reports, and printing them late.

Now, to get things into proper perspective, let me first of all state that I have always, and shall continue to conduct this section impartially, whether the club is large or small, affiliated or otherwise, and whatever its geographical position. I consider a club of half-a-dozen keen youngsters worthy of just as much consideration as a group with a membership of over the hundred mark, and, providing their reports contain material of sufficient interest, it will be faithfully reported in these columns.

The main snag is—and I am saying this with some eight years' experience behind me (the first appearance of "Club News" was in the May, 1938, issue)—too many Press Secretaries cannot get down to reporting items that will interest readers other than just those in their own particular circle. Let me quote from the first "Club News"—passages which have not altered in their intention with the passing of years!

*" . . . it is hoped to make this feature a readable, even 'newsy' item, that will be interesting to all our readers. After all, who is really interested in the fact that a member of the 'Little Muddelcombe' club spilt his soup over the President at the annual banquet!—or that Bill Smith has had 30 seconds out of a lightweight 'Neverwas.' Now, if he'd built a 'Neverwas' incorporating a 12-g geared, co-axial propellor, and got 10 seconds—that's NEWS, and I think the majority of our readers will agree that it is news of general as against domestic interest that makes the best reading, which, after all, is the aim of this journal."*

*"So, you Press Secretaries, don't be discouraged if your 20-page report is slimmed down to a paragraph! My job will be to weed out the 'juicy' items, and where a word of praise is indicated it will be given. Likewise, if a little constructive criticism is interposed here and there, remember it is given with the best of intentions and with the desire to help."*

The whole matter of club reports swings on that requirement of GENERAL interest, and the fact that the London area clubs are presumably more publicity conscious (and, dare I say, generally employ better Press Secs.?). It is surely a feather in their caps, and should lead others, who are not satisfied, to get cracking and do likewise, rather than be "sour-grapers." As I said before, I don't give a darn if a report is from Whitehall or "Little Packing-on-the-turns,"—if the gen. is there it will find its way into "Club News"; if not, the old blue pencil comes into play!

Cutting of reports is—except in unfortunately few cases—inevitable if a readable whole is to be compiled. Practically every report received gives weather news (yes, usually lousy), and the generalisation that "many models are on the stocks in preparation for next season's flying." This, plus lists of club officials (which surely your own members should not need to buy the AEROMODELLER to find out), must be eliminated or mentioned as a general remark, to save needless repetition. Frankly, some reports are a menace, and I can honestly admit that from time to time I have occasion to completely re-write and re-hash a report if only to be fair to the club itself.

Finally, lateness in printing reports. This is entirely up to the senders. It has been stated time and again that club reports MUST reach the AEROMODELLER offices NOT LATER THAN THE 20th OF THE MONTH. Today, the 25th of January, I am writing up for the March issue, which will appear next month, February. Conditions

in the printing trade do not yet allow of our running to a closer schedule, and it is necessary to submit MSS much earlier than usual to the printer in order to meet the publication date. This is further complicated by the fact that I am still serving in the R.A.F., and therefore all material has to be forwarded to me, thus creating the situation that a deadline must be strictly adhered to.

So remember, reports received by the 20th of the month appear in print in the following month. Any late in-arrival must necessarily be held over for a further month, by which time invariably the news is stale or—if announcements of forthcoming events are included—completely pointless.

Forgive me if I seem to be long winded on this matter, but it is a hardy annual that keeps cropping up, and the air must be cleared from time to time. Publicity for your clubs depends essentially on delivery to time, and intelligent selection of the items reported. That's something I cannot do for you, so—IT'S UP TO YOU.

The Eighth Annual Exhibition to be organised by the KODAK RECREATIONAL SOCIETY is to be held at the Kodak Hall, Wealdstone, Middlesex, from the 28th to the 30th June, inclusive, and full particulars for participation can be obtained from the secretary of the Experimental and Craftsmen section.

The SCOTTISH AEROMODELLER'S ASSOCIATION is organising a National Show and Competition, to take place at the Y.M.C.A. Grand Hall, 70, Bothwell Street, Glasgow, C.2, from the 21st to 23rd March, inclusive. Open to all aeromodellers in Scotland, models will be judged on workmanship, general design and finish, with special attention to detail and accuracy of outline in the scale model sections. Entry forms and full details can be obtained from Mr. George Leask, 2, Whitefield Terrace, Kirkhill, Cambuslang.

R. Bayley, one of three members of the WALTHAM & ENFIELD M.A.C. who exhibited models at the recent National Exhibition, succeeded in gaining second place in the 1/72 scale contest (junior section) with his finely detailed "Mustang." Congratulations.

A new club, the recently formed WORTHING M.F.C., is progressing well, and have adopted as their motto—"Press on Regardless." (I'm wondering, as a RAFite, just where I've heard that before!!) The club glider record, to date, is held by one of the youngest members, who was flying his first glider! Clive Bourne is eleven years old, and his 16-in. solid balsa glider clocked 2 minutes before finishing up in a high tree. The suggestion comes from this club that "*when quoting times over 10 mins. o.o.s., the nature of the terrain be stated. It occurs to us that, if a glider is launched at the top of a hill, with a deep valley below, and a 200 ft. towline is used, the height of the model if it flies over the valley is the 200 ft. line plus the height of the hill, and anything can happen under those circumstances.*" (I wonder how often the S.M.A.E. regulation that gliding contests "shall be flown from substantially flat ground" is adhered to!)

A. W. R. Martin, secretary of the EBBW VALE M.F.C., 22, Alfred Street, Ebbw Vale, invites clubs to enter for the "Horace Palmer Challenge Cup" on August 17th. The contest requires a team of four, and in addition, glider and solids competitions will be held.

The MONTROSE M.A.C. held an inter-club contest with members from the Dundee club last autumn, each club flying eight gliders. Dundee carried off the prize for best flight of the day with a flight of 2:09, but Montrose proved the winners on final points, breaking their own club record twice during the day. T. Hendry

first set up a time of 2 : 55 with his " Aegeus," but this time was bettered by J. Grant's " Thermic 50," which clocked 3 : 26. Other records in this club are: General Duration (H.L.) 1 : 04 and (R.O.G.) 0 : 54, both by K. B. Whyte, and R.T.P. 0 : 48 by W. Hamlin.

R. Toms, of the COVENTRY M.A.C., has added the club R.T.P. record to his impressive collection with a time of 2 : 03.2. Negotiations are going ahead for the use of a local aerodrome, now unused, and it is hoped to run a few big rallies during the coming season at this venue.

The OSWIN AVE. (Balby) M.A.C. staged a slap-up exhibition after being given only a week's notice, and after five nights' overtime, surprised everyone (including themselves) by having some 180 models on show ranging from " King Falcons " down to a 2-inch " Flying Bomb." Twelve of the senior boys have formed themselves into a Glider Team, and are hoping to do great things this year. In a recent try-out, F. Barthorps took first place with his " Igo," time 1 : 53. A. McBurnie got 1 : 21 with his " King Falcon," and S. Walker 1 : 17 with a self-designed model.

A good turn-out of members showed up for the second indoor meeting of the season for the MERSEYSIDE M.A.S. R.T.P. duration flying was the main attraction, the best times being :-

A. O. Sutcliffe	2 : 05.6	2 : 13	2 : 13.8
R. F. L. Gosling	1 : 00	0 : 43	1 : 16.5

D. C. Davies    0 : 51    0 : 42    0 : 59

Mr. Jackson's speed model clocked 28 m.p.h., and many commendable flights were made by small free-flying models.

The NORTH KENT M.A.S. announce that competitors wishing to have their entries for the C. H. Roberts' Cup for flying boats flown by proxy should communicate with the Hon. Comp. Sec., Mr. T. Newell, 32, Veroan Rd., Welling, Kent. Mr. Court recently demonstrated a l.c.c. compression ignition engine of his own design, which drives an 8½-in. prop. at 5,600 r.p.m. It is vibrationless, weighs 3 ounces, and starts from cold quite easily. In other words, the " gas man's " dream !

The indoor rally staged by the BIRMINGHAM M.A.C. proved very successful, and in general times were much higher than in previous rallies. Microfilm covered models took 1st and 2nd places in both r.t.p. events, while a new introduction was a speed event. Full results were :-

1 oz. R.T.P. (2 flights) :-

R. Parham	(Worcs)	5 : 32.4
K. Thomas	(E. Birmingham)	4 : 57.6
R. Monks	(Birmingham)	2 : 56.2

2 oz. R.T.P. (2 flights) :-

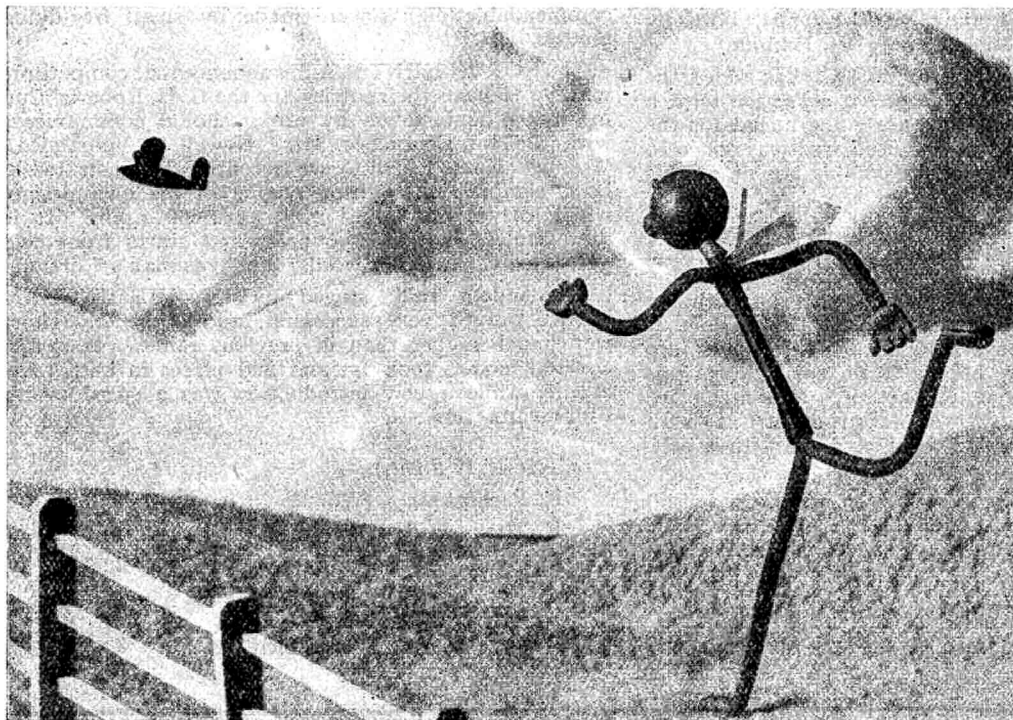
R. Parham	(Worcester)	3 : 21.7
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"AEROMODELLERS NOW PONSONBY, BUT ALSO BRITAIN'S HOPE FOR THE FUTURE"

# BEN TWYRE

● By J. H. MAXWELL



Should  
your model  
fly away,  
The thing  
to do  
is stand  
and say  
Words that  
are rude  
or run  
Like miler  
Sydney  
Wooderson.

K. Thomas	(E. Birmingham)	3 : 16.7
R. Oliver	(King's Heath)	1 : 59
<i>Free Flying—</i>		
G. Bradwell	(Birmingham)	2 : 18
S. Ward	(Wolverhampton)	2 : 00
P. Winter	(E. Birmingham)	1 : 41
<i>Open Speed—</i>		
R. Monks	(Birmingham)	28.6 m.p.h.
G. Bradwell	„	27.9 „
J. Hickloing	„	25.7 „

A new flying ground has been acquired at Hockley Heath Aerodrome, some ten miles out from the centre of Birmingham on the main Stratford Road, and all Midland clubs are invited to use this spot, which has many advantages over the old ground at Sutton Park.

The resumption of flying in the MERSEY M.F.C. has brought a good influx of new members, and an initial indoor meeting was staged at the New Year. Times, considering the novelty of this type of flying to most of the competitors, was not too bad, best time of the meeting going to D. R. Hughes, whose "Pylon Patroller" aggregated 3 : 19.8.

The NORTH LIVERPOOL M.A.C. have kept up outdoor flying throughout the winter, and have not found it too bad, only having to cancel one meeting through bad weather. Good flights have been : 2 : 16 o.o.s. by W. Blenhard's pterodactyl glider, and 4 : 13 by his own design lightweight glider ; 3 : 10 o.o.s. by L. Prendergast's "Elite 1" ; while K. Stephenson's ptero glider did 1 : 55 on the same day. This latter fellow has been

experimenting with jet propulsion, and is now building his Mk. II unit, after some little success with his first unit.

After some initial setbacks at the beginning of the year, when some of the officials wanted to pack things up and call it a day, the BISHOPS STORTFORD M.A.C. is carrying on under the leadership of B. Courtman and J. Blake, and after much hard graft, membership is now around the forty mark. Just shows what perseverance will do !

The Bristol A.C. Aces Club has joined forces with the BRISTOL & WEST M.A.C. A Wakefield model built by K. W. Moon has been turning in flights of 2 : 10 on 350 turns out of a possible 800. The model is a semi-streamliner with plug-in shoulder wings, 18-in. prop., 3 ozs. of rubber, and a total weight of 8½ ozs. A similar version to Flight Cup standards, and incorporating a 2-1 gearbox has given very satisfactory results on a little over half turns.

Four chaps write in this month, wishing to form clubs in their respective districts. Those interested please get in touch with the following : D. Clarke, 42, Vicarage Road, Wollaston, Stourbridge, Worcs. ; I. R. Nettleton, Maryville, Mary Road, Wells, Som. ; E. R. Potter, Bridge House, Gawber Road, Barnsley, Yorks ; and C. G. Lloyd, 19, Holland Road, New Brighton, Wirral.

Well, that's the lot for another month, and I trust you Press Secs. will carefully study what I said at the beginning of this month's notes. It is most important, as if you don't help yourself, I can't do it for you !! So, until next month, all the best, and may we soon see some reasonable flying weather. Winter does seem to hang about for the heck of a time, doesn't it !!!

THE CLUBMAN.

## CLASSIFIED ADVERTISEMENTS

**PRESS DATE for May issue—APRIL 1st.**  
**ADVERTISEMENT RATES:** Minimum 18 words 3s. and 2d. per word for each subsequent word. Box Numbers are permissible—to count as 6 words when costing the advertisement.

**COPY should be sent to the Classified Advertisement Dept., the "AEROMODELLER," The Aerodrome, Billington Road, Stanbridge, Beds.**

### FOR DISPOSAL

Two-valve wireless kit, complete, valves, eliminator, loudspeaker and accumulator. For engine or cash. 3-ft. yacht, six sails, 7-lb. keel, several prizes won. For petrol engine, cash or reasonable exchange.—Barker, 3, Carter Knowle Road, Sheffield, 7.

Brown Junior 9 c.c. engine, with coil, condenser, stand. Perfect condition. £7 10s. 0d., or would exchange for 1.5—3.5 c.c. engine in perfect condition with cash adjustment.—A. V. Alexander, Baron's Court, Bishop's Avenue, N.2.

Brown Junr. 10 c.c. engine (new), complete with prop., coil, condenser and plug. £8.—Hobblewhite, 68, Crossways, Addington, Sth. Croydon.

80 copies THE AEROPLANE and other aeronautical books and plans. S.A.E. lists.—Sowden, 32, Back Lane, Sowerby Thrusk, Yorks.

68-in. Bowden "Big Stuff," all balsa, new, glide tested only. With travelling case and plan. £6.—36, Orchard St., Worcester.

Cloud Airmaster, 7-ft. span, minus engine, timer, landing gear. £5 10s. 0d.—Sykes, Brooklands, Sasingwold, Yorks.

Fifty different beautiful 1/72nd scale models. Average price 30s. State types preferred. Details.—Allan, Calderside House, Shotts Lanarkshire.

Disposal petrol plane. Monocoque fuselage, span 6 ft., with Ohlsson 23 engine and coil, condenser, timer, airwheels, etc. £15.—Box No. 9.

70 AEROMODELLERS, Vols. I and II A.F.P. For sale, or exchange with cash adjustment for small petrol engine.—P. Woods, 30, Westfield Road, Basingstoke.

AEROMODELLERS 1943-45 incl. 30s.—Birch, 49, All Saints Road, Sutton, Surrey.

Solid modeller's outfit, balsa accessories, AEROMODELLERS from July, 1943, books, transfers, plans, A.F.P., vols. III-VI, photos etc. £15.—Box No. 11.

AEROMODELLERS Dec. 1942—Nov. 1943. Bound. Also 20 parts, not consecutive, "Wonders of World Aviation." Perfect condition £1.—S. Cooper, 58, Newcombe Road, Coventry.

"Aircraft of Fighting Powers," volumes 1-5. Perfect condition. Offers round £4.—P. Radcliffe, Saulgrove, Long Sutton, Basingstoke, Hants.

### NEW CLUBS

ISLE OF THANET M.A.C.

Mr. Lawrence, 142, High Street, Broadstairs.

MAIDSTONE & D.M.A.C.

D. Stevens, 26, Kingsley Street, Maidstone, Kent.

NORTH HULL M.A.C.

A. C. Brown, 5, Fairfield Road, Hull, Yorks.

ROSEMARY M.A.C.

J. Stafford, 5a, Goldsmith Street, Mansfield, Notts.

SPIRIT OF PROGRESS M.A.S.

D. Shirley, 19, Tresluggan Road, St. Budeaux, Plymouth.

CLIFTONVILLE SCHOOL M.A.C.

D. B. Lester, Cliftonville School, Margate, Kent.

IRVINE & D.M.A.C.

H. Gibson, 37, Townfoot, Dregghorn, Ayrshire.

CATERHAM M.F.C.

G. Coston, 159, Coudson Road, Caterham.

BEXHILL & D.M.F.C.

N. J. Butcher, 6, Little Twitten, Gooden Beach, Sussex.

### A.B.A. LECTURES.

The Association of British Aeromodellers has arranged a series of lectures for March, April and May, to be held at the Hall of the Junior Institution of Engineers, 39, Victoria-street, London, S.W.1.

Mr. Charles A. Rippon will talk on "Some Hints and Tips" on March 19th, Mr. M. R. Knight on "Cinderella of Aeromodelling" on April 16th, and a lecture to be arranged will be given on May 21st. The lectures are at 7 p.m., and admission is free to all whether members of the A.B.A. or not.

### IMPORTANT NOTICE

#### RE JAPANESE COMPETITION

Due to an error, cutting number 61 was printed upside down so that it appears to be 19. We emphasise that cutting 61 is on the left hand page and cutting 19 on the right hand page.

Airfoil Sections, Nomographs, Airscrews, Design of Wakefield models, plans of Stothers elder, 1/72nd scale Messerschmitt 109.—Ian Donald, 4, Woodmill Terrace, Dunfermline, Fife.

All copies of the "Aeroplane" and "A.T.C. Gazette" for '44-'45. Perfect condition. 32s. 6d. per year of the "Aeroplane." 3s. 6d. per year of "A.T.C."—Critchley, 57, Sandy Lane, Lymm, Cheshire.

A.F.P. 1-5 Miles, Westland; solid, flying, ship, plans, books; recognition, official publications. £10.—Bell, 30, Greenbank Park, Edinburgh.

A.F.P. vols. 1 to 4. Excellent condition. 17s. or best offer. Vol. 5, 25s. or best offer.—Johnson, The Crescent, Osgodby, Selby, Yorks.

AEROMODELLERS Jan., 1942-Jan., 1946, inclusive. Also number of publications such as "Air Battle of Malta," "Bomber Command," etc. £2 the lot.—Write J. Sowersby, Beechwood, Woodfield Ave., Farlington, Hants.

6 c.c. New Atom Minor, complete with coil and condenser, £5.—Voss, 25, Parkbrook Road, Northenden, Manchester.

### REQUIRED

Wanted, plan of an Ohlsson 23 4.3 c.c. engine.—D. Lawson, 10, Primby Park Road, Alwoodley, Leeds.

Miniature rubber ash-tray tyres for model car. Write, stating price, size, quantity.—N. Dixon, Lake View, Coniston, Lancs.

"A.T.C. Gazette," vols. 1-4, good condition and state price.—R. Bailey, 14, Bird Hall Road, Cheadle Hulme, Cheshire.

Young aeromodeller, assistant in first-class model shop. Busy S.W. London shopping centre. Good prospects for practical, presentable, well-spoken youth.—Box 12.

Ohlsson 23 petrol engine, complete, also small timer. Pay £5 the lot.—Kirby, 3, Andover Cottages, Green Lane, Sandhurst, Camberley, Surrey.

Wanted, in good condition, June and August, 1945, copies of "Aircraft Recognition Inter-Services Journal." State price required.—S. L. Hurst, 94, Dunchurch Road, Rugby.

Wanted AEROMODELLERS 1943, Jan. to June inclusive. Good condition essential. State price.—Knight, 6, Teme St., Tenbury Wells.

Austin or other reliable timer, electron engine casting, 12-in. prop., suitable for 3 c.c. engine. Generous prices for all three.—J. Bullmore, Drurles, Harrow School, Harrow-on-the-Hill, Middx.

Wanted G-ADAR monoplane, span 8 ft., complete with engine, airwheels, accessories.—Gibson, Grange Farm, 22, Muston Road, Fley, E. Yorks.

8-10 c.c. petrol engine, complete with all accessories. Must be good condition.—P. Earl, 15, The Green, New Malden, Surrey.

### EXCHANGE

9.5 c.c. Hallam engine, minus coil and tank, to exchange for any engine of under 4.5 c.c.—Box No. 10.

Electric jigsaw for engine up to 5 c.c., or £6.—W. G. Child, 52, Playfield Road, Burnt Oak, Edgware.

1931 Rudge motor cycle, 250 c.c. O.H.V., good condition, for engine under 6 c.c., with plane preferred. Cash adjustment.—A.O.R., The Orchard, Fortishead, Bristol.

### "SOLID DIE-CASTINGS for Mascots."

Wellington, Tempest, Lancasters, Meteors, Lightnings, Spitfires, Thunderbolts, Mustangs, Mosquitoes.

Ash Trays 4/-; Rubber 1/3; Pkts.-Dopes 6d. and 7½d.;

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Waterline Kits from 2/6 Monthly Aeromodellers posted 1/2

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"BABY GULL" 31" span Sallplane by R. F. L. Gosling,

Winner of the PILCHER CUP, 1945,

flown by Mr. H. Langley, Easton Area M.A.C., 677 sec. agr.

Plan 2/3, post free.

"JUDY" 46" span Sallplane, by R. F. L. Gosling,

Winner of Northern Area Distance Trophy, 1944 13 miles.

Plan 3/3, post free.

Also Aeromodeller plans, including "IVORY GULL" 2/6, post free.  
**402, PARK ROAD - - DINGLE, LIVERPOOL, 8**  
 TRAMS Nos. 1, 3 and 20 pass the door.

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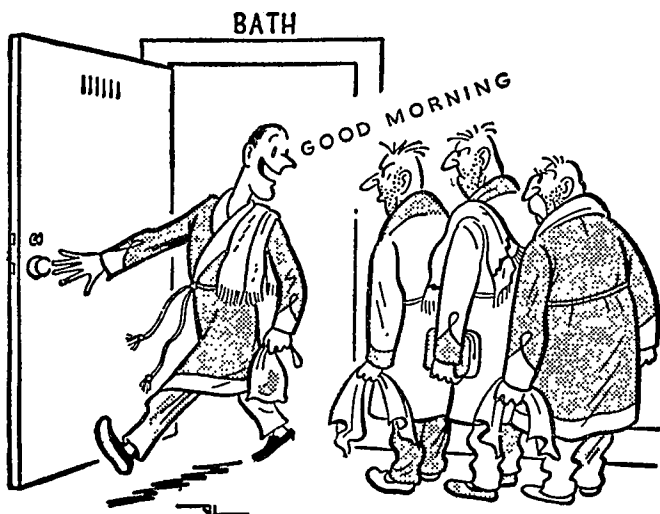
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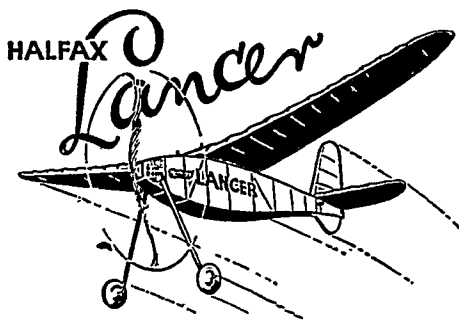
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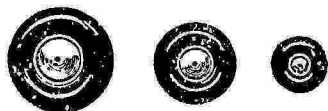
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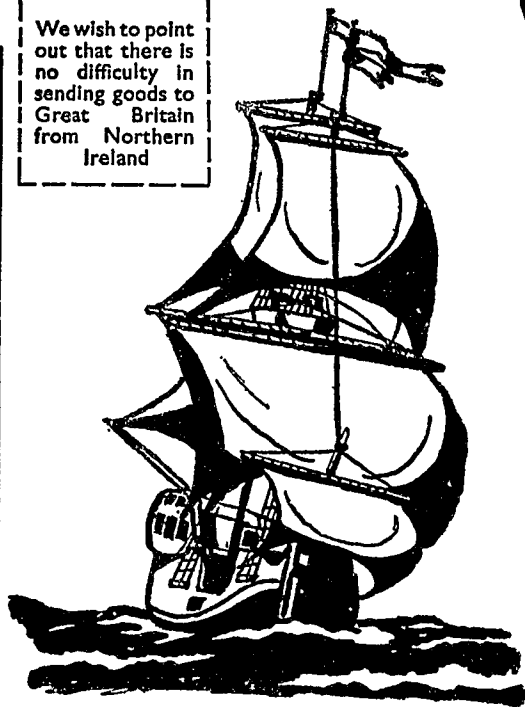
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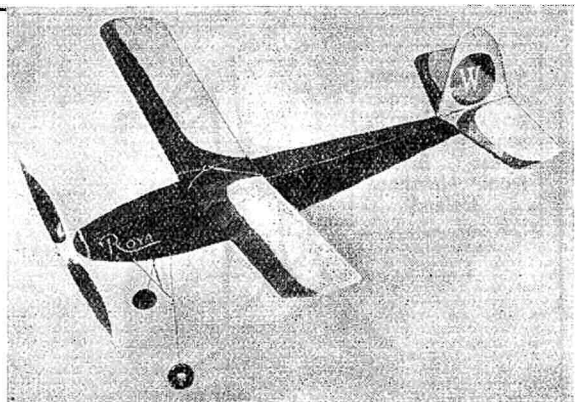
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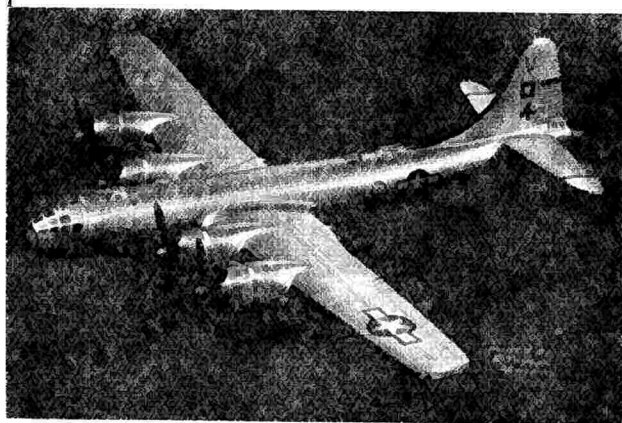
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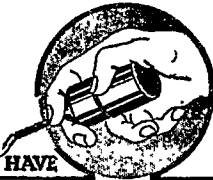
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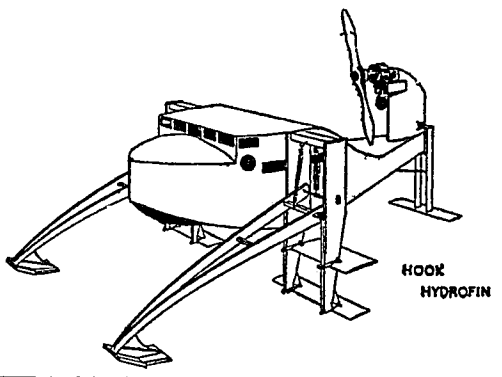
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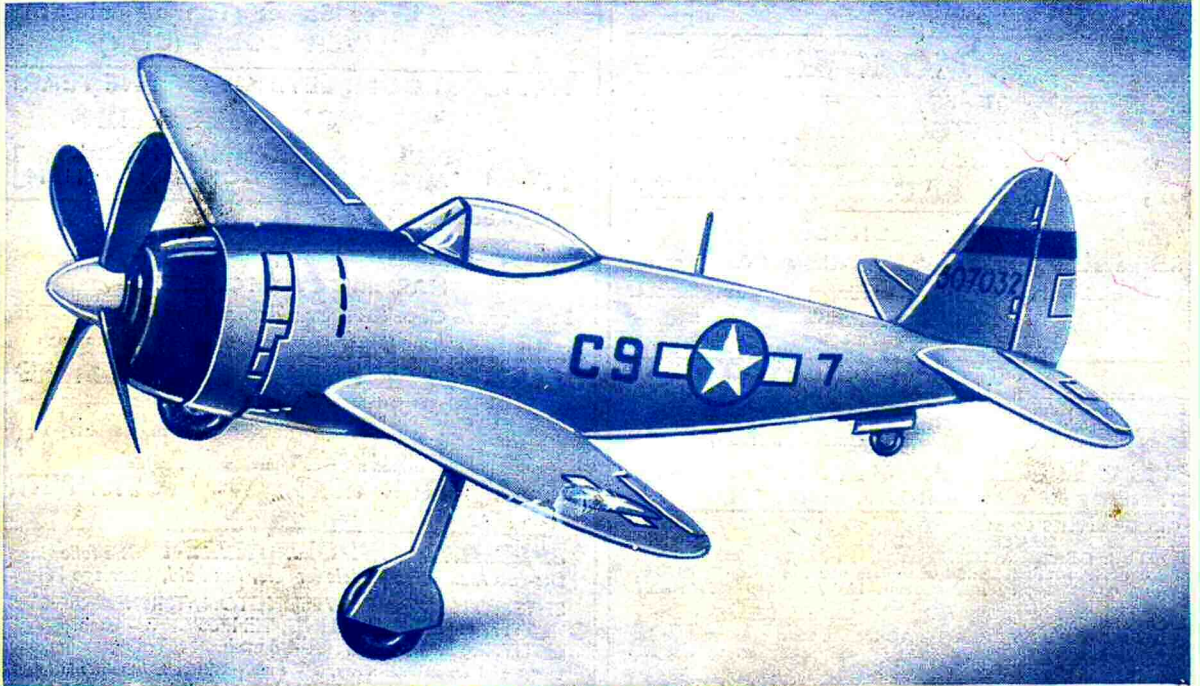
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