

JUNE
1946

AEROMODELLER

1/4



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FROG



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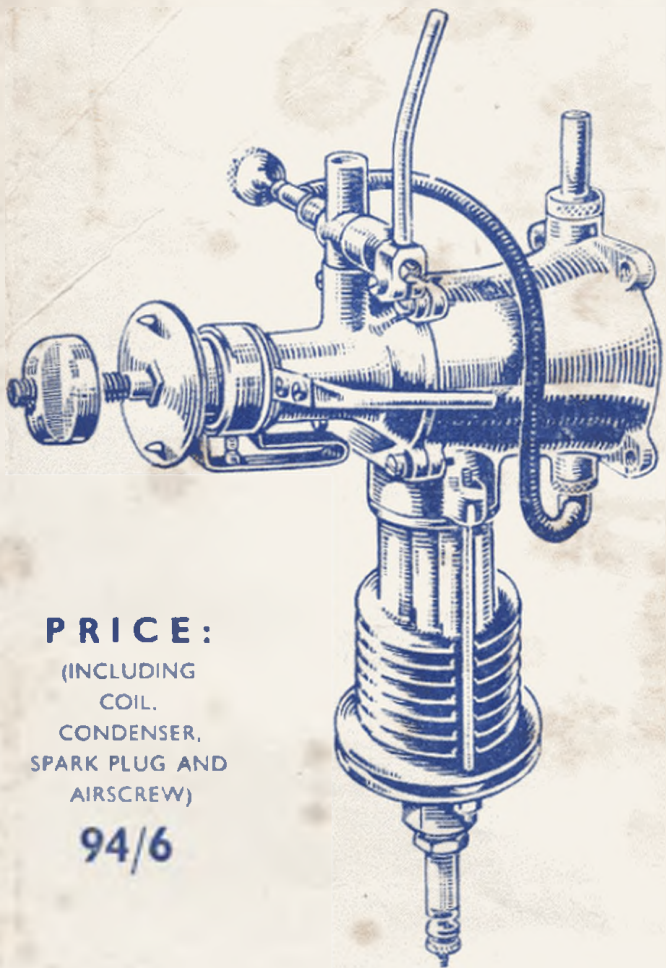
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Bore : .5"
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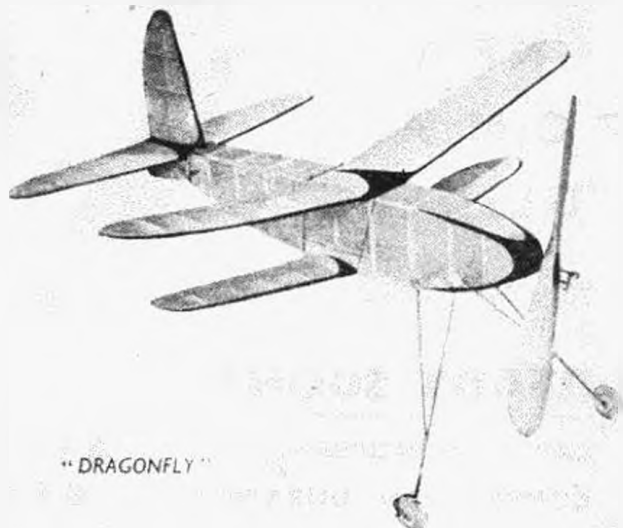
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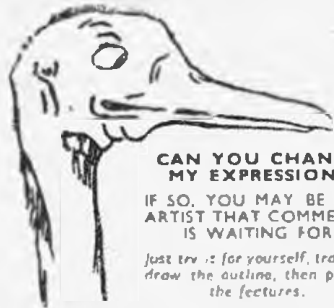
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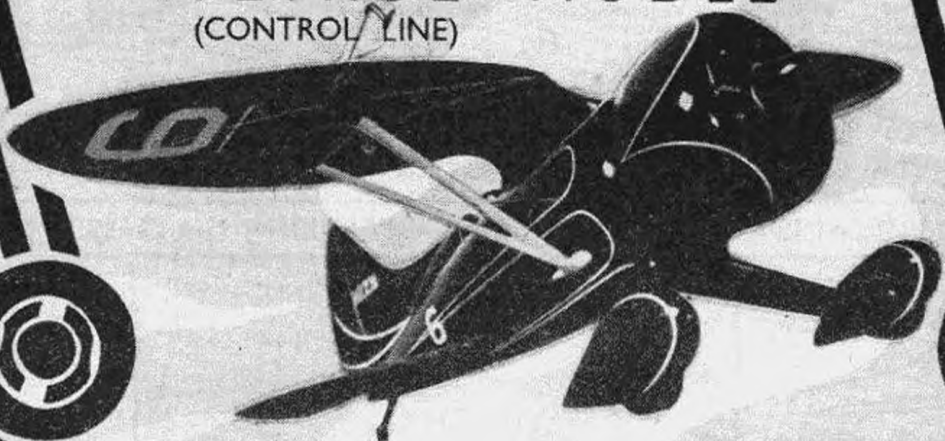
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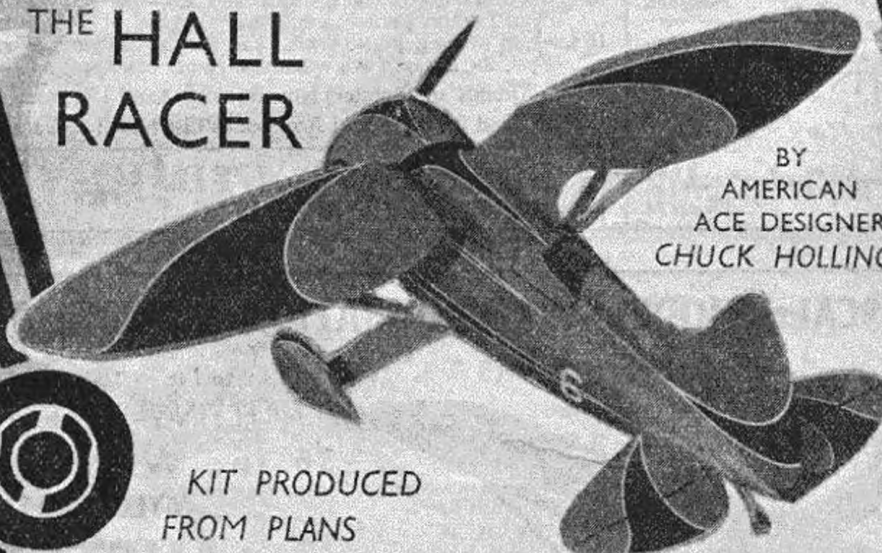
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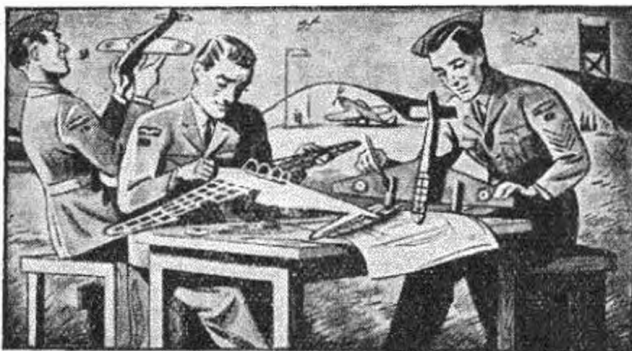
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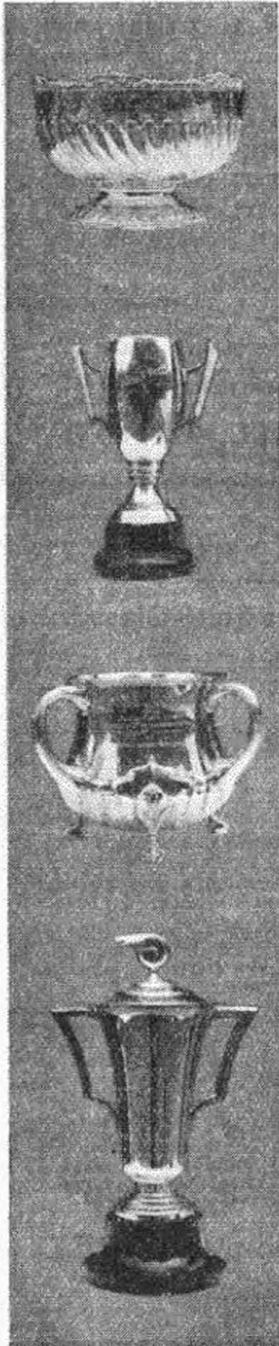


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Euston Trains to Leighton Buzzard: 8.5 (arr. 9.35); 9.10 (arr. 10.26); 11.35 (arr. 12.50). **Open to All.**—There is still time to secure copies of the simple rules and entry forms, from Secretary, A.B.A.

It is particularly emphasised that this is an **Open** contest—anyone and everyone is welcome—if you want a trip to Ireland here is your chance to qualify. Expenses will be defrayed by the A.B.A. International Team Account.

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The

AEROMODELLER

INCORPORATING "THE MODEL AEROPLANE CONSTRUCTOR"

ESTABLISHED 1935

VOL. XI

No. 127

JUNE, 1946

The Model Aeronautical Journal of the British Empire

Managing Editor :

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Published monthly on the 25th of the month previous to date of issue by the Proprietors :

The Model Aeronautical Press, Ltd.,
Allen House, Newarke Street, Leicester

Subscription rate 15/- per annum prepaid (Including Christmas Double Number).

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THE VELIVOLE CANARD	Featured on page 413

Editorial Offices:

ALLEN HOUSE, NEWARKE STREET

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Sir Robert Bird, Bt., M.P., J.P., President of the A.B.A. showed his practical enthusiasm for aeromodelling during the Easter meeting at Eaton Bray, when he entered the Duration Contest with the good-looking model which he is seen launching above.

EDITORIAL

WELL AWAY AT EATON BRAY

WITH the formal opening at Easter, reported elsewhere in this issue, Eaton Bray Model Sportsdrome may be considered well and truly launched on its career. The sun, showing a benignity all too rare on great aeronautical occasions, shone with scarcely a break for the three days of the meeting; the wind, so often frolicsome, was mild mannered, except on the Sunday afternoon; and the meeting was well supported by modelling enthusiasts.

Among those present were Sir Robert Bird, President of the Association of British Aeromodellers, and Lady Bird; Mr. A. F. Houlberg, Chairman of the Society of Model Aeronautical Engineers, and Mrs. Houlberg; Mr. Whitehead, Chairman of the Model Aircraft Trade Association; Mr. Howard Boys, Mr. D. A. Gordon, a former S.M.A.E. Area Delegate, and that veteran modeller, Mr. W. A. Smallcombe, who will be remembered by old-timers as active in the West of England, and still an active participant in our hobby.

In the Founder-Members' Enclosure we noticed, in addition to Sir Robert and Lady Bird, Mr. and Mrs. L. Stott, Mr. E. Keil, Mr. C. A. Rippon, Mr. C. Symes and Mr. M. R. Knight. Founder-Members enjoy the privilege of free admission to the Sportsdrome at any time, and have a private enclosure with club-house, car park and washing and cloakroom facilities. Full details may be had, by the way, from the Secretary, Eaton Bray Model Sportsdrome, Ltd., Billington Road, Stanbridge, Nr. Leighton Buzzard, Beds.

To many modellers, competitions are as the breath of life, and these were duly provided at the Easter Meeting, albeit in impromptu form. For the most part, however, visitors were content to meet their friends, fly as they chose, and "talk shop." There was about the whole affair, as several visitors observed, an atmosphere of friendly informality that was wholly delightful. In fact, the well-worn cliché might well be quoted once again—"a good time was had by all."

There can be little doubt that many enthusiasts will be found at Eaton Bray, not only on these special occasions, but on many Saturdays and Sundays throughout the flying season, for there is afforded an unexampled opportunity of testing out high-performance jobs in uninterrupted calmness, in pleasurable surroundings, and with the minimum risk of a lost model. Moreover, as transport services improve, and more petrol becomes available, the number of week-end visitors will increase, and at any time there will be something of interest to see.

To revert to the Easter meeting, there were but two grouches, though one of them could scarcely be called that. Some of the visitors would have liked a greater degree of crowd control, but the organisers were keen for the maximum number to enjoy themselves to the maximum extent, and, in consequence, felt impelled to be as little restrictive as possible.

The other matter which calls for explanation was the state of the Aerodrome surface. The position is that the grass was sown only last year, and the 'drome is still under the control of the local War Agricultural Committee, as is land all over the country. This Committee has been most co-operative, and although requiring that local farmers, in the National Interest, shall graze their

cattle on the Aerodrome, have been good enough to agree that this shall be only until mid-day from Monday to Friday, and not at all on Saturdays and Sundays. The sudden spell of sunshine just before Easter, though much appreciated, was actually the cause of the trouble, as it hardened the surface before the Sportsdrome proprietors could have it adequately rolled.

Since the rain that fell after Easter, a good deal of rolling has been done, which, with the commencement of the seasonal grass sowing and a special sowing of bare patches, should ensure a very considerable improvement in time for the next big meeting. Incidentally, of course, the process of consolidating the ground and providing a closely-sown and cropped grass surface must take two or three years, and in the light of this, the proprietors may be said to have achieved a substantial degree of development in the short time that has elapsed since Eaton Bray was first mooted as a Model Sportsdrome.

The next big meetings will be the A.B.A. Eliminating Trials on June 2nd, for the Irish Nationals, and a three-day Victory Rally at Whitsun, June 7th-9th. By then, various other improvements and additional facilities will have come into effect. To begin with, there will be in operation a carefully thought out system of control, which, whilst securing fair breathing space for competitors, will enable onlookers to obtain an excellent view of what is happening. There will be an adequate staff of marshals, with distinctive red armbands, and they will arrange red pennants on stakes and ropes, calling attention to a master plan supervised from Flying Control. We must emphasise, in this connection, that for the enjoyment of all concerned, any areas enclosed by ropes with red pennants must be regarded as "out of bounds" to the general body of visitors.

By June, too, there will be increased facilities for light refreshments, additional cloakrooms, especially for the ladies, an additional and larger concrete take-off area, mobile batteries for the assistance of petrol plane operators, a Flying Control system, complete with its battery of loudspeakers, and possibly (though this cannot be guaranteed in the time), a "radar" system of electrical timing.

Full details of the three-day Victory Meeting at Whitsun will be found on another page. Here let it suffice to say that the Saturday and Sunday will be given over to general pleasure flying, and that on the Monday there will be a series of impromptu contests, for which the organisers are offering in each case prizes of £10, £5 and £2. 10s. 0d. In the morning, the contest will be for duration rubber-driven models. During the lunch interval, there will be a demonstration of Model Race-Cars; then will come a contest for petrol models, a sailplane competition in which, in addition to the cash prizes, the winner will retain for one year a trophy valued at 25 guineas; and, finally, a contest for flying scale models.

Further plans for the season include two "Formula Sundays" for the benefit of contest enthusiasts. The first, on July 21st, is for rubber-driven Wakefield and other types, and for gliders; the second, on September 8th, is for flying scale, semi-scale and petrol models.

There will be a three-day August meeting (August 3rd, 4th and 5th), and then on August 17th there will commence the biggest event of the year—a nine-day International Meeting, with organised contests on Sunday, August 18th and 25th. Well-known international aeromodellers from various European countries are to be present, and the Sportsdrome authorities are planning a rota so that, on any day during the meeting, visitors should be sure of seeing demonstrations by one or more of the distinguished visitors. This meeting should be of exceptional interest, and for those whose holiday includes this period, there could scarcely be a better place to spend it than at Eaton Bray.

We should also like to congratulate the Leighton Buzzard and District M.A.C. on being the first club to arrange their Gala Day at the Sportsdrome. This will take place on July 28th, when over £25 in prizes will be offered.

Finally, on Sunday, September 29th, there will be a Michaelmas Gala, the last big organised event of the season, but, of course, the ground will still be available after that date, as it will be all through the season, for the use of the individual modeller and his friends who seek an enjoyable day or week—or month, for that matter—with their models in the wide open spaces.

Altogether, as the enthusiastic followers of our hobby will agree, the management has provided a comprehensive first-season programme that should appeal to all tastes. Moreover, the fixtures, with few exceptions, dovetail with those sponsored by the S.M.A.E. or A.B.A. At the same time, the modeller who just wishes to indulge in his hobby at his own time, and in his own way, is at least as adequately catered for as the contest enthusiast, for he is welcome to the ground on Contest Days and at all other times as well. Thus, Eaton Bray enters on its career as the mecca for all modellers.

The 1946 outdoor competition season got away to a good start on Sunday, April 14th, with the S.M.A.E. Competition for the Gamage Cup. This is an open event, with the minimum of restrictive rules, and has

always been intensely popular. This year's winner was Mr. R. H. Warring, who flew as a member of the Zombies Club, a new group for the light-weight enthusiast. He scored an aggregate of 2,806.7 seconds on three flights, and his first flight was one of no less than 24 minutes. Runner-up was Mr. J. R. Miller, of the Northern Heights Club, who is known to many of our readers as the designer of "Dusty," one of the models included in our Plans Service. His score was 2,008 seconds.

Then there was the S.M.A.E. contest for the Model Engineer Cup No. 2, and on April 21st an A.B.A. decentralised contest for rubber-driven models and gliders, with separate classes in each case for seniors and juniors. There were some 200 entrants and about 60 flying grounds were in use. The results of these two contests are not available at the time of writing.

Looking ahead, a special meed of praise is due to the A.B.A., who are first in the field with plans for participation in the Irish Nationals. This group has opened a National Contest Fund, with a first objective of 100 guineas, to cover the cost of sending two teams, together with two officials, to Ireland to represent Great Britain, and the AEROMODELLER has had great pleasure in starting the ball rolling with a cheque for ten guineas.

On Sunday, June 2nd, at Eaton Bray, the A.B.A. will hold eliminating trials to decide the membership of the two teams. There are two classes, petrol-driven models and Wakefield type rubber-driven models, and a team of three is required in each case. Here it should be emphasised that *any modeller* is free to compete in the trials, whether he is a member of the A.B.A., the S.M.A.E., any other group, or *no group at all*. The organisers are concerned solely to secure the best possible teams for the finals, which will be flown in Ireland on Sunday, June 23rd, the first International Contest since the war.

Also included in the A.B.A. programme for the season is a Gala Day, for contests for various classes of models, which will be held at Eaton Bray, on Sunday, July 7th.

Japanese Competition

Elsewhere in this issue is a note in regard to the "Japanese Aircraft" Identification Competition announced a few months ago. Entries running into some thousands resulted in 139 "all-correct" results qualifying to share equally in the prize money of £100. This figure has been slightly increased to allow of each prize winner receiving the sum of 15s.

Owing to the demand on our space, it is not possible to publish in this issue a complete list of the prize winners with their names and addresses, but a copy of the list may be examined at our Allen House or Leighton Buzzard offices, and a copy of the complete list has been sent to every one of the prize winners, together with a cheque. Any entrant who claims to have sent in an all-correct entry and who has not received his cheque and list of prize winners by the time this issue of the AEROMODELLER

has been published, should write in immediately to our Leicester office, formally making his claim, which will receive attention.

This competition aroused considerable interest and many enquiries were received for a lower-priced edition of "Japanese Aircraft." The publishers have therefore arranged to issue a "half price" edition: the complete text and all the colour plates, exactly as printed in the 25s. edition, are now made available at 12s. 6d. in a thin card cover on to which the original dust cover has been pasted down. That is to say, that the whole of the reading matter is the same, but there is no board cover, cloth bound and gilt blocked.

It has not been possible to bind a very large edition in the cheaper binding and early reservation is therefore advised to avoid disappointment.

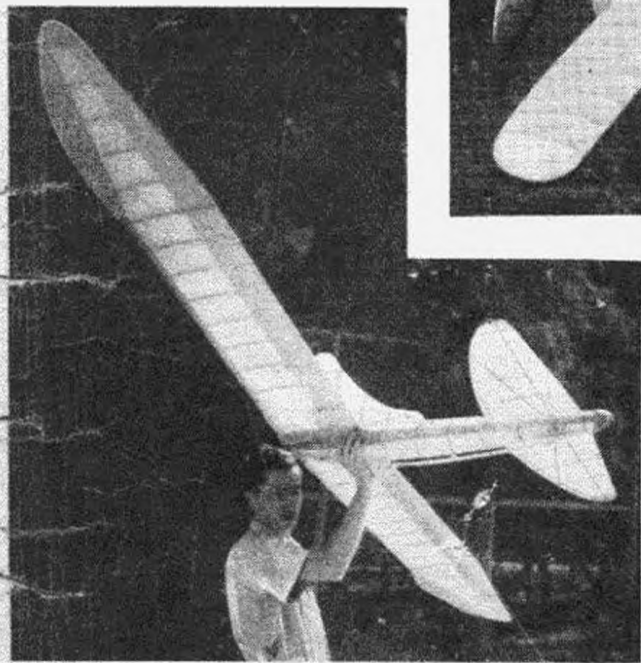
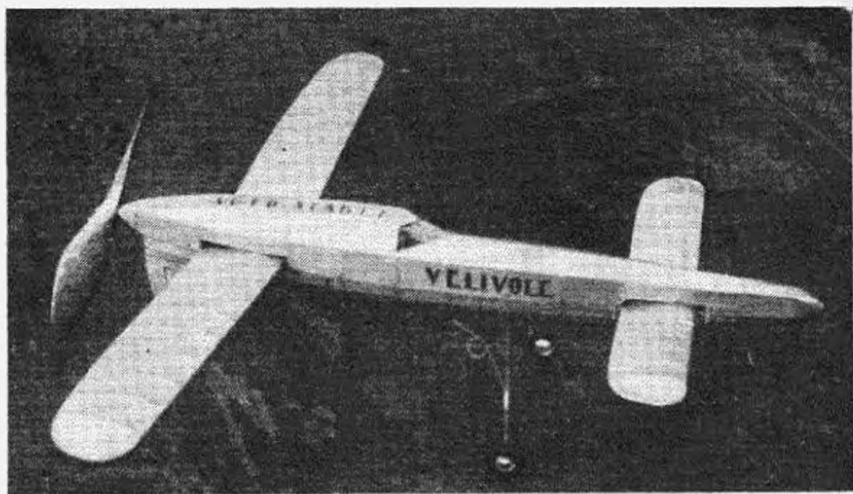
Diesel Analysis

The large amount of data accumulated on Diesel engines, coupled with the vast amount of work entailed in the preparation of special timing devices and radio controlled aircraft by our Research Department, forces

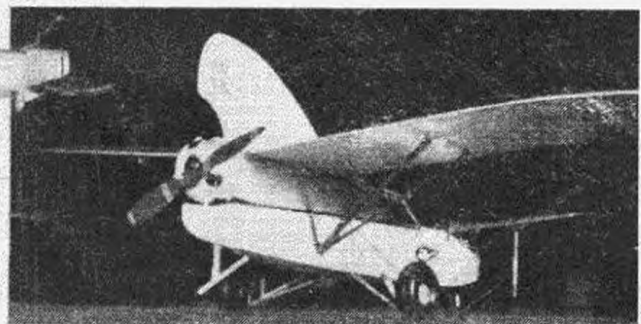
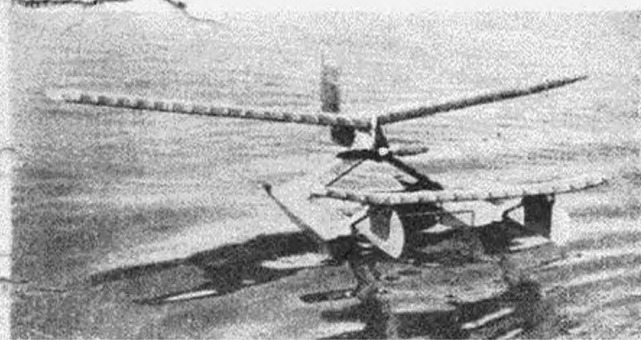
us to postpone the promised article on these compression ignition engines until the July issue. We are sure our readers will be well rewarded for their patience when this article appears.

UNORTHODOX
MODELS. NO. 1
TALKING OF
CANARDS

BY D. J. LAIDLAW-DICKSON



Top right. Watteyne's Canard "Velivole," quarter-scale plans of which appear on page 414.
Above. Dr. Piattelli's experimental tailpiece model developed in the Peres series at the Experimental Aeronautical Centre, Tel-Aviv, Palestine.



THE Canard is due for another lease of life. Time and again the early pioneers stumbled upon designs only to give them up in disgust when their scant aerodynamic knowledge was insufficient to appreciate them. Thus with the Canard, or "tail first" type. Santos Dumont ground-hopped such a design in 1907. Heinrich Focke was an early enthusiast, as were Dr. Rumpler, Albert and Voisin. Only Focke returned to it in modern times with his Focke-Wulf "Ente" developed between 1927-31. Now designers are looking once again at the neglected Canard in their search for the perfect formula: already the Miles "Libellula" and the Curtis "Ascender" have made their appearance, while others are still at the drawing-board stage.

Whatever its future in full-size aviation, it appears, on analysis, to have a great deal to recommend it from a modeller's standpoint. For the benefit of those who, in the past, have been content to dismiss it as "just one of those weird types," the Canard layout has a small elevator in front and the mainplane at the rear. The elevator is at a greater degree of incidence than the mainplane and must consequently stall first. The machine then settles by the nose until the front wing regains its lift. In a badly trimmed model this produces a curious pitching movement, but this is the *sole* result of bad trimming: it will *not* develop into a power dive.

The elevator employs a lifting section and takes a full part in bearing its share of the lift. Lift being proportional to angle of attack, it carries, in fact, more than its share, as it is set at a higher angle of incidence than the mainplane. Such a force set-up is impossible in a conventional design where the tail is set at a lesser angle than the mainplane. Thus, assuming that the same total wing area is employed on a Canard as in a conventional model, merely by changing the relative positions of the wings they can be persuaded to lift more. Surely an important point in the search for efficiency.

It may be contended that the central portion of the main wing will now be flying in disturbed air created by the elevator and so will be less efficient, as it will be flying at decreased true angle of attack. This cannot be denied, but there is still a "profit lift" remaining after making due allowance for this. It should be possible by experiment to devise a wing with the centre section

Centre left. Diesel-engined Canard seaplane by Sven Goetze, of Switzerland. This model flies very well, but requires careful adjustment of C.G.
Bottom. Another of Watteyne's Canard designs. Difficulty in securing effective cooling for the engine has been experienced.

at a higher incidence than the outboard panels, thus nullifying this loss in efficiency.

Now as both wings are contributing lift it follows that the centre of gravity should move to a point somewhere between the centres of lift of the two wings. As an approximation it lies at a point about one-third of the distance between these two points in front of the main wing. The exact position should, of course, be determined in the usual way by gliding tests. What does this mean to the designer in terms of efficiency? Instead of being placed somewhere under the mainwing, the C.G. is now nicely placed, in a well-designed model, at a point more nearly half-way along the fuselage.

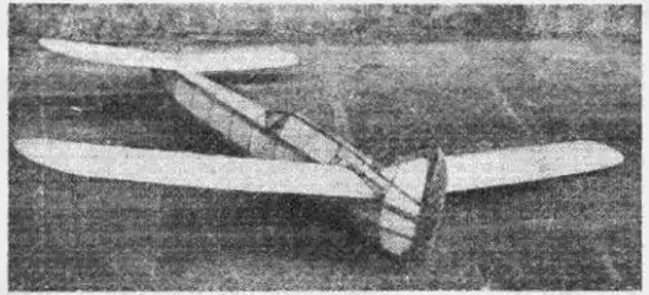
It is agreed that there is much to recommend a pusher layout, but usually with twin boom design structural difficulties stand in the way. Not so with the Canard. Here the pusher layout is ideal; by putting the prop at the rear where it will not disturb airflow over the wings that little extra weight is placed just where it is most needed to enable the utmost rubber length to be utilised in the fuselage. An underslung fin takes care of the ground clearance, and gives three-point tail-up suspension to aid a snappy take-off.

The diehard will still be battling against this plausible case for the Canard. "What about stability?" he will cry with last ditch desperation. There is nothing revolutionary about that. No new forces have been introduced that will not be encountered in any conventional layout—only their order has been changed; longitudinally it is more stable than ever—with the added advantage that it cannot dive in under power. To ensure lateral stability it is common practice for the forward elevator to be dihedralled, thus avoiding any need for a forward fin—though this is favoured by some designers. We are, however, considering the Canard from the point of view of increased efficiency—to retain a flat elevator and a non-productive fin with its extra weight is less efficient than the slight loss of lift—less than 5 per cent.—involved in using a V-form. Dihedral of rear wing should be greater than that of the front. Some authorities recommend polyhedral for the main wing, but this is a matter for individual preference. It may be noted that the pronounced sweepback of the mainwing employed in the Curtis Ascender is not a wing form to be recommended to aeromodellers. With this arrangement centre of pressure is placed further back than normally with consequent longitudinal balance problems. However, for those who might contemplate a scale model of this interesting type the difficulty can be overcome to some extent by the use of a reflex wing section—such as Clark YH—or any special airfoils developed for tailless models.

To summarise the advantages of the Canard over conventional types we find:—

- (1) Wings give more lift from a given total wing area.
- (2) Stalling is impossible.
- (3) More rubber space without trimming difficulties.
- (4) Pusher layout possible without structural difficulties.
- (5) Three-point undercarriage at tail-up angle.

There still remain one or two matters that the now converted enthusiast will need to know before going ahead. In the first place practical angles at which the wings should be set. This will depend largely on the sections employed which should be treated as in normal practice. The incidence of the forward wing should

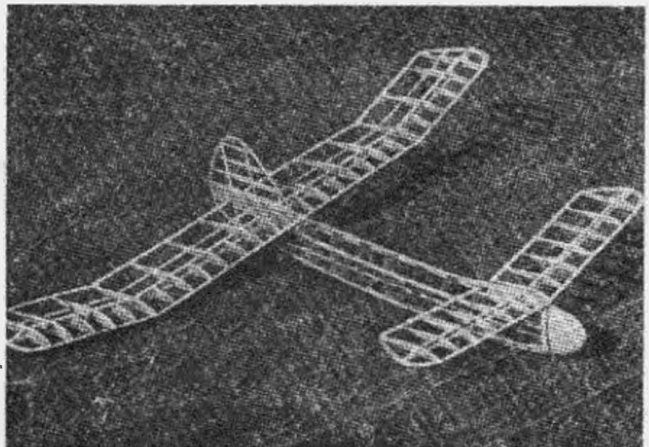


never be less than 1 degree greater than the rear wing. As a general rule a range between 1-3 degrees will be found most effective. This should not be taken as too rigid a rule, for successful Canards have been flown with 10 degrees positive incidence on the forward wing and 3 degrees positive on the rear. The Voisin Canard of 1910-11 flew with 8 degrees and 4 degrees respectively. The effect of downwash on the rear wing must not be forgotten in arriving at these angles; being smaller the elevator will not have so great an effect as in a normal layout, but a correction should be allowed for in design calculations. This can be somewhat mitigated by raising the level of the mainplane or lowering that of the elevator so that the former is comparatively clear of downwash. Bear in mind, however, that to be quite clear of such effects it would have to be raised or lowered approximately five wing chords!

To secure the best results from the Canard layout a long moment arm of not less than four times the main wing chord should be the aim. This gives the elevator adequate control and enables a long motor to be carried.

Developed as a glider the Canard will also surprise with its steadiness on the line and unwillingness to come down. Ron Galbreath, of the Blackheath M.A.C., developed a most attractive sailplane on these lines a season or two ago. Other Canard possibilities abound. A Swiss designer has just had successful trials with a "Diesel" engined Canard seaplane of which he says: "... during experiments it was possible to effect alterations of trim that would have resulted in catastrophe with a normal layout."

For the benefit of those who would like to try a tested Canard design before branching out on their own, plans of "Velivole," designed by A. Watteyne, a leading continental exponent of this formula, appear on the opposite page, and form the subject of this month's cover picture by C. Rupert Moore, A.R.C.A.

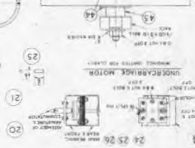


Top. F.A.I. Canard Glider, again designed by Watteyne; span 40 ins., weight 8 oz. Winner of "Le Sair" contest in 1941.
Right. Uncovered Swiss Canard glider similar to above that has achieved creditable performances.

GENERAL ARRANGEMENT OF MAIN HEAD
 SHOWING POSITION OF COMPONENTS



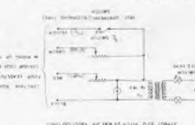
UNDERCARGO MOTOR



ASSEMBLY OF MAIN MOTOR



THEORETICAL WIRING DIAGRAM FOR CONTROL BOX



U.A. OF 50 HERTZ MOTOR
 POINT NOT SHOWN



GEOMETRY OF MAIN MOTOR



GEOMETRY OF MAIN MOTOR



MAIN BEARING ASSEMBLY



GEOMETRY OF MAIN MOTOR



ASSEMBLY OF MAIN MOTOR



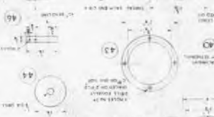
ASSEMBLY OF MAIN MOTOR



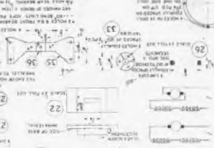
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MAIN BEARING ASSEMBLY FRONT VIEW



MAIN BEARING ASSEMBLY FRONT VIEW



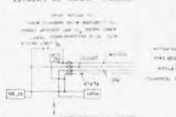
MAIN BEARING ASSEMBLY FRONT VIEW



MAIN BEARING ASSEMBLY FRONT VIEW



GENERAL WIRING OF BATTERY



GEOMETRY OF MAIN MOTOR



ASSEMBLY OF MAIN MOTOR



GEOMETRY OF MAIN MOTOR



MAIN BEARING ASSEMBLY



MAIN MOTOR SPECIFICATIONS

1. MOTOR TYPE	2. MOTOR MODEL	3. MOTOR SERIAL NO.	4. MOTOR DATE
5. MOTOR WEIGHT	6. MOTOR HEIGHT	7. MOTOR WIDTH	8. MOTOR DEPTH
9. MOTOR LENGTH	10. MOTOR DIAMETER	11. MOTOR RADIUS	12. MOTOR THICKNESS
13. MOTOR AREA	14. MOTOR VOLUME	15. MOTOR SURFACE AREA	16. MOTOR PERIMETER
17. MOTOR CIRCUMFERENCE	18. MOTOR AREA OF BASE	19. MOTOR AREA OF TOP	20. MOTOR AREA OF SIDE
21. MOTOR AREA OF END	22. MOTOR AREA OF FRONT	23. MOTOR AREA OF BACK	24. MOTOR AREA OF LEFT
25. MOTOR AREA OF RIGHT	26. MOTOR AREA OF BOTTOM	27. MOTOR AREA OF CEILING	28. MOTOR AREA OF FLOOR
29. MOTOR AREA OF WALL	30. MOTOR AREA OF ROOF	31. MOTOR AREA OF GROUND	32. MOTOR AREA OF SKY
33. MOTOR AREA OF AIR	34. MOTOR AREA OF WATER	35. MOTOR AREA OF FIRE	36. MOTOR AREA OF EARTH
37. MOTOR AREA OF HEAVEN	38. MOTOR AREA OF HELL	39. MOTOR AREA OF PARADISE	40. MOTOR AREA OF HELL
41. MOTOR AREA OF HEAVEN	42. MOTOR AREA OF HELL	43. MOTOR AREA OF PARADISE	44. MOTOR AREA OF HELL
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97. MOTOR AREA OF HEAVEN	98. MOTOR AREA OF HELL	99. MOTOR AREA OF PARADISE	100. MOTOR AREA OF HELL



EASTER CROWDS AT EATON BRAY

GOOD FRIDAY, the 19th, saw the arrival of the first visitor to Eaton Bray, when R. G. Lishman, of King's Langley, was given permission to pitch his tent in advance of the official opening of the Flying Season on April 20th. The full camping contingent included a party of six from Birmingham, and visitors from Selby, Yorks., Biggin Hill, Kent, Leicester, London, and most of the neighbouring towns.

Saturday dawned with the promise of fine weather and soon the crowds began to arrive, as the *Daily Express* reporter was later to observe, "with their models tucked underneath their arms." And how they came!

The refreshment marquee came in for its share of attention. There was a happy, carefree atmosphere that all the organisation in the world could not have engendered if it was not so patently obvious that everyone was enjoying his or herself just as they liked best.

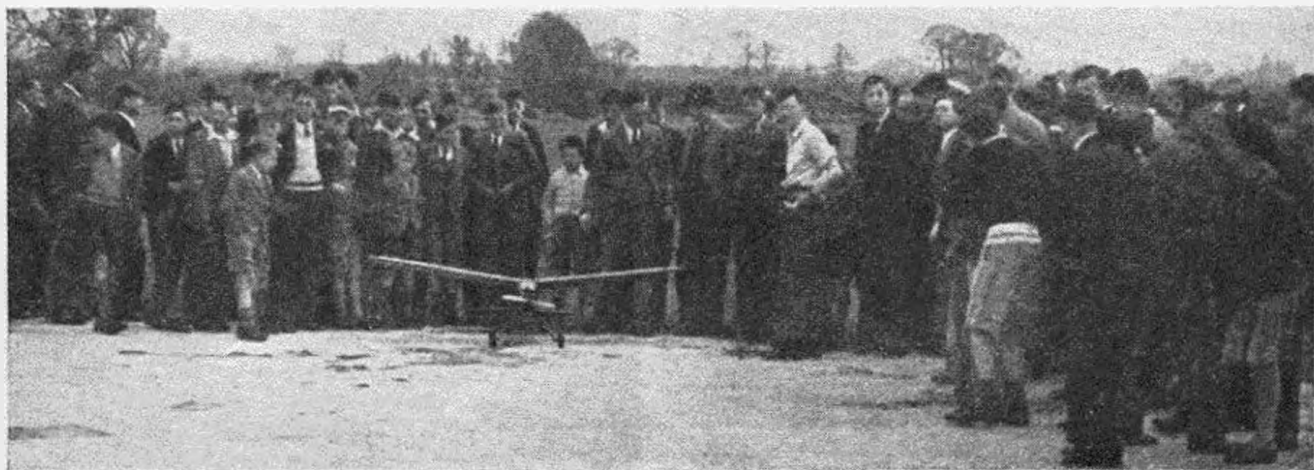
A number of well-known modellers and their models put in an early appearance. There was J. S. Evans, of "Viking" fame, with a biplane developed from his mid-wing "Middy" that took kindly to the evening air. One or two neat petrol jobs made an appearance, including one flown by a test pilot which demonstrated

a truly American climb—until it banked a little too near the deck.

Sunday showed an increase in the attendance—with cars stretching well into the distance. Mr. P. E. "Natsueez" Norman arrived with his flight of miniature petrol models, and "Nimbus"—a descendant of "Old Nog"—towering over them all. A flight was tried about mid-day and the high-aspect ratio soarer climbed like a bird to about a thousand feet, where it made contact with a cotton wool cumulus cloud and disappeared ever upwards. That was the last of "Nimbus" for Sunday. Later that afternoon a small crowd assembled near Fulham, watching what a less knowledgeable onlooker declared to be a new sort of Doodlebug coming in to land—it was "Nimbus"! The model had been aloft for over three hours and covered about 40 miles as the crow flies. Howard Boys in his turn produced some excellent rocket propelled flights with "Flaming Ptero" and his new scale model "Vampire" which gave a fascinating display until the rockets proved too much for the balsa.

Monday was, of course, the culminating day, when everyone who was "anyone" put in an appearance. The trains were packed with modellers, and residents

Mr. Maile, in white shirt, assisted by Mr. Rider of "Rider Wheels," awaiting the timekeeper's signal to start in the petrol contest in which he took second place.





had a busy time directing visitors to Eaton Bray.

Particularly welcome was a visit by Sir Robert Bird, Bt., M.P., President of the Association of British Aeromodellers, accompanied by Lady Bird, who showed their active interest in the hobby by taking part in the rubber duration competition. Mr. A. F. Houlberg, Chairman of the S.M.A.E., was also among those present and showed a keen interest in the evening petrol event, Mr. M. R. Knight was there—equipped, as might be expected, with a low-wing monoplane. Mr. and Mrs. Robert North were present and showed a keen interest in the proceedings. Other notable visitors included Mr. R. H. Warring, fresh from winning the Gamage Cup the previous week, Sqd. Ldr. Watson complete with a new petrol model, Mr. R. Minney, holder of S.M.A.E. Class B. Glider record, who placed in the Duration Competition, representatives of the *Daily Express*, *Illustrated*, *Paramount News*, *New York Times* Photos and most of the local and county newspapers. Nor must we forget "Rip"—Mr. C. A. Rippon—clad as usual in the traditional beret, Mr. Len Stott with a new glider, and Mr. Eddie Keil, who once more managed to win the petrol contest. Another old friend was Mr. R. E. Bowyer,

designer of the King Falcon sailplane in Plans Service.

Out from its wartime retirement came that fine old veteran "Vulcan" and showed many a younger petrol model that it has lost none of its flying powers in the able hands of Mr. D. A. Russell.

Some keen flying was seen when an impromptu contest was staged during the afternoon. Entry was free, and even unsuccessful competitors have something to look forward to, as their times will all count towards a special Aggregate Prize for the highest total time of the flying season.

RUBBER DURATION (Aggregate of two flights).

1.	Wilkinson, P.	Northampton	4:50
2.	Houghton	Luton	4:9
3.	Minney, R.	Luton	2:53
	Clements	Luton	2:53

GLIDER (One flight only).

1.	Taylor, D. G.	Harrow	3:54.9
2.	Marshall	Hayes	1:57
3.	Lang	Bicester	1:56

PETROL (Two flights—limited to 20 secs. engine run).

1.	Keil, E.	Leyton	2:2.5
2.	Maile	London, N.2.	:52

Part of the camping site at Easter.



The dense crowd above looks small in this picture taken from the





One welcome feature was the arrival of an L.P.T.B. bus from London containing the combined strengths of the Hayes and Harrow clubs. If your local club is small it is a splendid idea to co-operate with another and organise a worthwhile outing.

Now to look ahead into the future. Elsewhere we publish our future programme. Only the highlights are emphasised, but we would point out that *every* week-end there is something doing at Eaton Bray—there will be weekly contests for those who desire them, while the flying ground is there for daily use.

There is still time for petrolers to tune up their models for the International eliminating trials organised by the A.B.A., which will take place on June 2nd.

The Whitsun Holiday will provide another three-day Gala, with something to interest everybody every day. A demonstration of Model Race Cars will be given on Monday for those who have never seen this fascinating new sport—but this will not, of course, interfere in any way with the serious business of flying.

Whit Monday should prove the major event of the season when the Victory Championships take place. There is a chance for everybody here as it is not proposed

car park, showing the "wide open spaces" of the aerodrome.



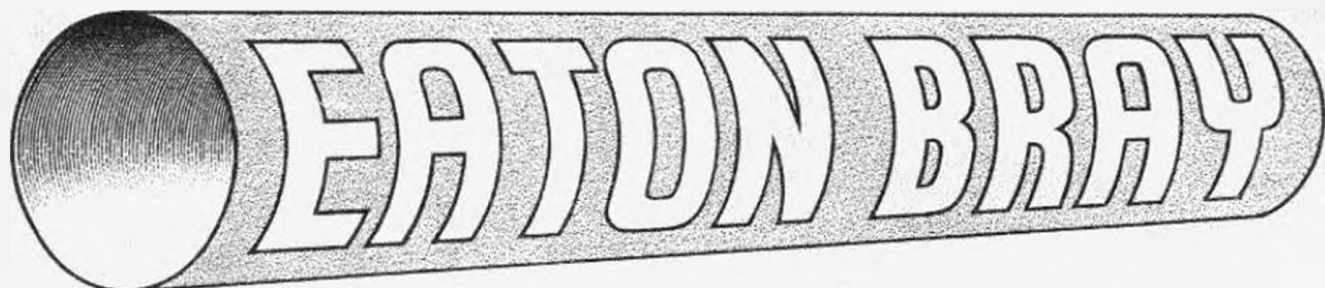
to make irksome and restrictive rules, but to encourage all and sundry to take part. The prize money is more than generous—£70 and a Twenty-five Guinea Trophy are there to be won—more than has ever before been offered at a one-day meeting in this country. Sqd. Ldr. Hunt hopes to have a model ready for radio control by then, and would-be radio flyers will have an opportunity of picking up gen, when, in co-operation with Mr. G. W. W. Harris, the latter's eight-foot Auster is airborne.

Looking still further ahead a special International Week has been arranged, when well-known continental modellers will be battling for the honours once more against British experts.

Those who would like advance rules of future events—not that these will be irksome, even on the special "Formula" days—are invited to write to Public Relations Officer, Eaton Bray Model Sportsdrome, Billington Road, Stanbridge, Nr. Leighton Buzzard, Beds., who will provide also, particulars of the "Founder Member Club," which carries special privileges and free entry to the sportsdrome at all times; and which may be joined by experienced aeromodellers of good standing.

Messrs. Russell and Houlberg have a chat whilst watching the contests.





EATON BRAY

P R O G R A M M E

SUNDAY 2nd JUNE. INTERNATIONAL TRIALS

An A.B.A. sponsored Meeting to select two teams, each of three aeromodellers, in "Wakefield" and Petrol Contests, who will represent Great Britain in the Irish Nationals to be held in Dublin on 23rd June. Expenses of selected teams will be met by the sponsors. There is still time to secure simple rules and achieve International status!

WHITSUN 8-10th JUNE. THREE DAY GALA

Three days packed with incident—"Free for all" contests daily, culminating in the—

VICTORY CHAMPIONSHIPS

to be held on Whit-Monday. Special arrangements have been made for light aircraft to land, and one to be available to tow off visitors' full-size gliders.

25 Guinea Trophy and £10 Prize for Champion Sailplane—only restriction—towing not to exceed 300 feet; Second £5. Third £2. 10. 0 Open Rubber Duration, Flying Scale and Petrol Events each carrying £10 First; £5 Second; £2. 10. 0 Third Prizes. Commencing 11.30 a.m. with Duration Contest; 2.15 p.m. Petrol Planes; 3.45 p.m. Sailplanes; 6.30 p.m. Flying Scale. No Entry Fees—All Models eligible. Send for detailed programme.

£70 in Prizes

SUNDAY 7th JULY. A.B.A. GALA

Sponsored by A.B.A., a Grand Nine Event Programme for Open Duration and Glider, 45 Seconds Event, Sealed Time, Petrol Models, Flying Scale, Concours d'Elegance, Experimental Flying, Flying Boats and Seaplanes. All are eligible, whether or not members of A.B.A. Write to Secretary, A.B.A., 28, Hanover Street, W.1, for details.

SUNDAY 21st JULY. FORMULA DAY

A special day to suit keen Competition Fans. Events will be run to well-known formulas for Rubber Duration Models, Sailplanes and Wakefield Models. Details to be announced, or write for full particulars.

SUNDAY 28th JULY.

Leighton Buzzard and District M.A.C. Gala Day £25 in prizes.

BANK HOLIDAY 3rd-5th AUG. THREE DAY GALA

Grand Gala with Contests and Special Flying Events arranged on each day. Details of contests will be announced—but this is holiday time and all will be eligible.

SUNDAY 18th AUG.—SUNDAY 25th AUG. INTERNATIONAL WEEK CONTEST FOR EUROPEAN CHAMPIONSHIP

A grand Contest in which leading aeromodellers from all over Europe will be taking part. Try your skill against them. Events will include Rubber Duration, Sailplanes, Wakefield, Petrol and Diesel—main events being staged on Sunday, 18th August and Sunday, 25th August. During the week there will be an International Camp at Eaton Bray. Come along and meet these gallant visitors.

SUNDAY 8th SEPT. FORMULA DAY

Another "Formula Sunday"—this time catering for Flying Scale and Semi-Scale Models, Petrol and Diesel Events. Simple formulas will ensure equal chances for all! If you are formula-minded this is a day for you. Full particulars to be announced, or write for advance rules now.

SUNDAY 29th SEPT. MICHAELMAS GALA

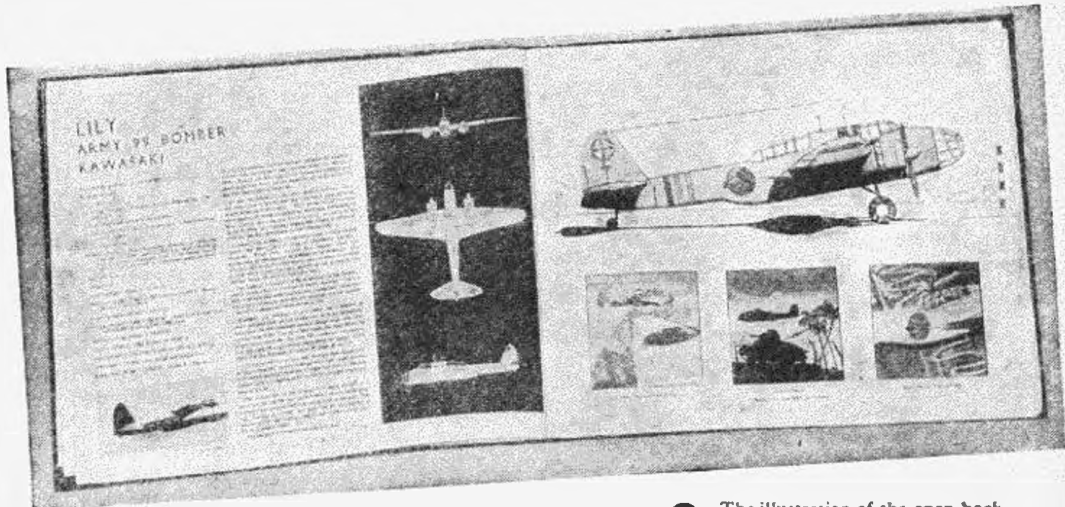
An Autumn Gala when still weather may be expected. No restrictions—contests for all—including Rubber-Driven and Sailplanes, Petrol and Diesel Events.

● **SPORTSDROME SERVICE.**—Can we help you or your club to plan an outing? We are in touch with all transport services and will quote you for a motor coach from your home town to Eaton Bray in parties of not less than fifteen. Can we arrange hotel accommodation for a day or a week? Let us help you without obligation—no charge, of course! Let us show you how to fly that RADIO CONTROLLED MODEL—Research Staff will be ready to fly in a few weeks.

LATEST RADAR MULTI-FLIGHT TIMING INSTALLED BY WHITSUN

EATON BRAY MODEL SPORTSDROME
Billington Rd., Stanbridge, Nr. Leighton Buzzard

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Out!



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The illustration of the open book shows how each of the 21 operational planes have been given two facing pages. The left-hand page has a 3-View Drawing printed in blue, a Technical Specification, and a General Description and History, with a photograph of the plane. The right-hand page illustrates the aircraft in action with four Full Colour Plates.

CONTENTS IN BRIEF

The Illustrations. In addition to the 21 illustrated double pages there are Photographs of over Fifty Different Types; a Section illustrating Second Line Aircraft; Three-View Drawings of new Japanese aeroplanes released since this work was begun, including the Piloted Flying Bomb. **Types are Classified** according to their type and duty, and sub-divided alphabetically according to their code names.

Code Names Explained. The author explains how boys' names are given to fighters and girls' to most other aircraft. **Naval or Army Aeroplanes?** The author explains the system fully of how Naval and Army planes are coded, with examples and a complete list of the code letters used. **What is KANA?** Kana is a form of Japanese ideography used by the lesser educated. It comes into JAPANESE AIRCRAFT because it is on some of the aeroplanes.

Aeronautical terms are included with their equivalent in Japanese and in the Japanese ideography. **Japanese Aircraft Manufacturers.** Short histories, with details of their aeroplanes are given. **Japanese Aero Motors** are listed with the name of the manufacturer and a translation of the Japanese names. **Map of Pacific Area** specially drawn and fully coloured. **Size, Cover, Paper and Binding.** On Art paper, size 8½ x 11 ins., utility binding and cover in red, yellow and black. **PRICE 12/6**
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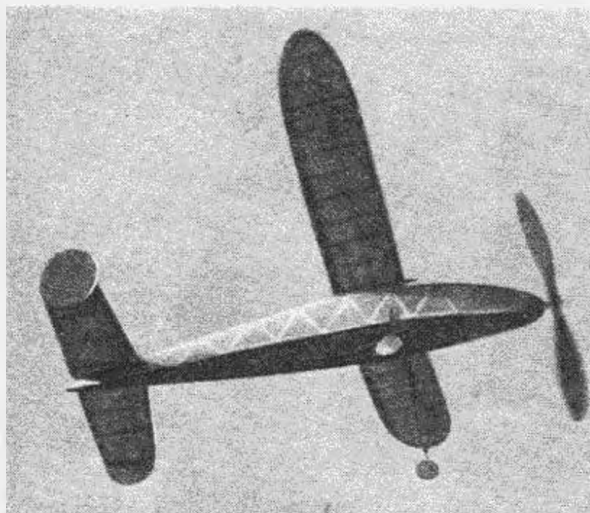
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ROCKETEER

A 36 INCH SPAN
LIFTING FUSELAGE
DURATION MODEL
BY R · A · PARKER

ROCKETEER has an average duration of 2½ minutes on 900 turns, and though not an ultra lightweight, has caught thermals whenever they have been about.

As may be seen, the model is simple in construction and yet employs most of those features considered desirable in a duration model. The lifting fuselage is built on Warren Girder lines which make for maximum strength at lowest weight.

The simple undercarriage plugs into paper tubes, while incidence of main wing and tailplane is built in. Wing ribs should be tackled carefully—properly made, they are stronger and lighter than cut-out ribs. To ensure that undercamber is built in, packing pieces must be inserted under the ribs when constructing the wing over the plan; leading and trailing edges are then fixed; mainspar and supporting pieces added; and finally the upper capping strips put in place. The built-up prop conserves balsa stocks and makes a really practical unit—though there is no reason why a conventional type should not be employed with equal success if so desired.

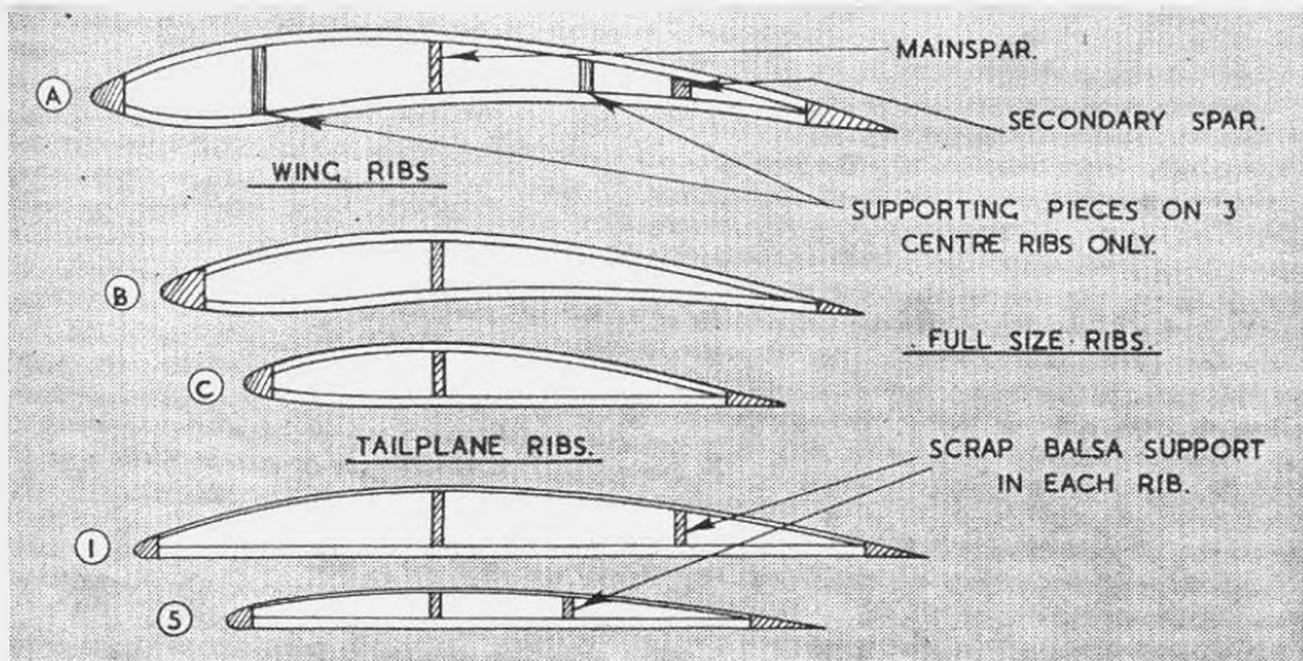
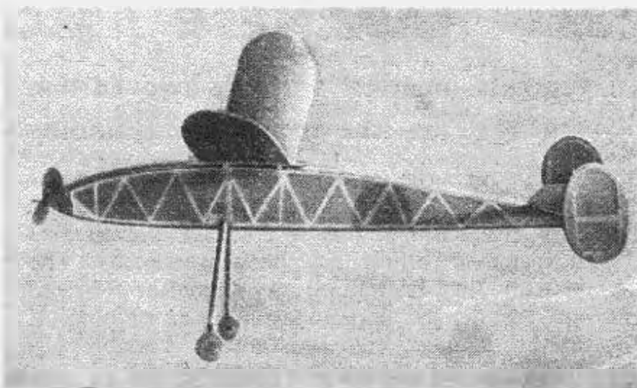
Trimming is a little out of the ordinary, the right-hand wing tip having extra incidence which permits plenty of side thrust to ensure a steep spiral climb to the right. Contrary to general belief, this does not have an adverse effect on the glide, which is exceptionally flat.

Total weight ready for flying is 4.85 ozs. A final word of advice—an extra hour or two spent on such details as pre-cementing joints will result in a stronger, lighter and more efficient model.

Full-size plans are available from Aeromodeller Plans Service, Ltd., Allen House, Newarke Street, Leicester, price 2/6, post free.

(Left) Rocketeer levels out at the end of the power run and begins to glide.

(Below.) The model coming in to land. In both these pictures the simple yet graceful lines can be appreciated.



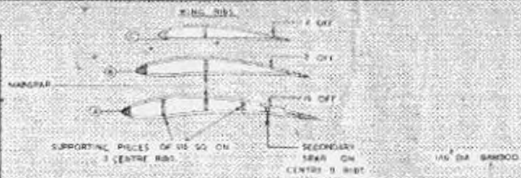
ROCKETEER



DESIGNED BY
R. A. PARKER

2/6

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THE AEROMODELLER PLANS SERVICE LTD
ALLEN HOUSE, HENRIK STREET, LEICESTER



RIBS
CUT PLY TEMPLATE TO THE OUTLINE OF THE TOP & BOTTOM OF RIB, PLACE ON A SHEET OF 1/8\"/>

1/8\"/>



MATERIALS REQUIRED	
1 SHEET 1/8\"/>	1 SHEET BANBUO 1/4\"/>
1 1/2\"/>	1 1/2\"/>
1 1/2\"/>	1 1/2\"/>
1 1/2\"/>	1 1/2\"/>
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BANBUO 1/4\"/>

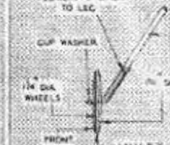
NOSEBLOCK 4 LAYS OF 1/8\"/>



EXPLODED VIEW OF NOSEBLOCK ASSEMBLY

SAND TO OVAL SECTION

CEMENT & SAND TO LEG



1/4\"/>

1/4\"/>

BALD WING IN ONE PIECE & THEN CRACK AT C & SET UP CHORDAL

3/16\"/>

3/16\"/>

1/8\"/>

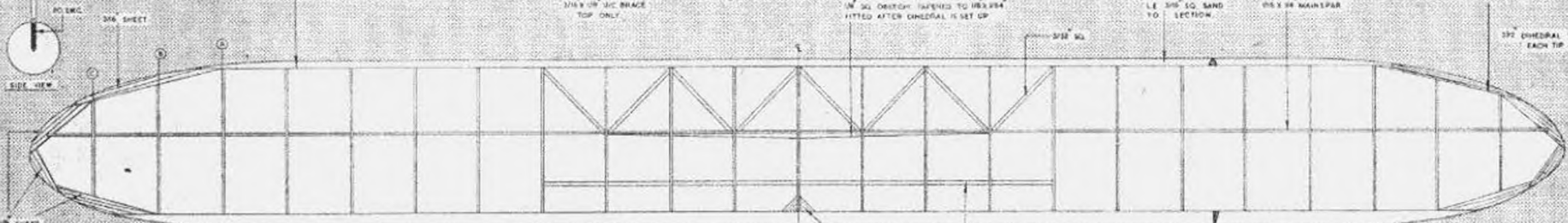
1/8\"/>

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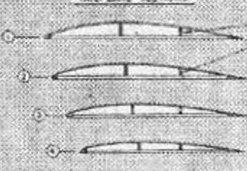
APPROX 2\"/>

WING TIP ONLY (MAKING 5\"/>

3/16\"/>



TAILPLANE SECTIONS



1/8\"/>

1/8\"/>

SPRING
12 STRANDS OF 3/16\"/>

ALL WOOD USED UNLESS OTHERWISE STATED IS Balsa

CARD TEMPLATE



TOP SURFACE USE 1/8\"/>

BOTTOM USE 1/8\"/>

MAINSPAR USE 1/4\"/>



PROP SHAFT

WASHER

BUSH WITH 1/8\"/>

USE BALL RACE BETWEEN PROP & NOSEBLOCK

BIND WITH SILK THREAD & GLUE

1/8\"/>

SKETCH OF PROPELLER

TEST WITH TEMPLATE HERE

1/8\"/>

1/8\"/>

1/8\"/>

NOT TO SCALE

PLUG BLADES TOGETHER WITH AN 1/8\"/>

USE TEMPLATE TO GET CORRECT FITCH WHEN YOU FIT A SLEEVE OF 1/8\"/>

SHEET Balsa WRAPPED ROUND & BOUND



A.T.P. Photo.

CIVIL
AIRCRAFT
No. 31

THE DH 82A TIGER MOTH

BY E. J. RIDING

SINCE January 1st 1946, when the ban on private flying was lifted, one or two of the pre-war flying clubs and schools have started operations again, and it is significant that the first two to do so have both chosen the Tiger Moth in which to give primary instruction. The Marshall School at Cambridge already had a Tiger Moth to hand—G-ACDG—which had somehow or other escaped impressment at the beginning of the war, and on January 1st this machine made the first post-war civil instructional flight in Great Britain. Since then, Marshalls have acquired four reconditioned Tigers—G-AGYU, G-AGYV, G-AGYW and G-AGZY, one of which is depicted in the heading photograph, flying near its home aerodrome.

At Luton, the Hunting group of firms have re-opened the Luton Flying Club and are using two re-conditioned Tiger Moths—G-AIIDD and G-AHDE, and hope to add two others to the fleet in the near future.

Before the war, the Tiger Moth was the standard training equipment of twenty-five schools and clubs in Great Britain alone, not to mention countless others abroad. A line-up of machines belonging to the Bristol Aeroplane Company's Reserve Training School at Yatesbury in August, 1937, is shown below.

Construction.

Departing from the usual D.H. practice, the fuselage

of the Tiger was built up from assemblies of steel tube bolted together with plywood decking around and aft of the cockpits. The fabric covering was laid over light spruce stringers running down the sides and belly. The wings employ two "I"-section spruce spars and were internally braced with steel wire and compression tubes. Normal "T"-section spruce ribs are used and the wings and tail surfaces are all fabric covered.

The anti-spin fins fitted to the rear fuselage decking are a war-time innovation. The main differences between the Tiger and its predecessor the Moth lie in the swept-back, non-folding, heavily staggered wings and the layout of the two cockpits, which for easy exit are placed aft of the centre section struts.

Colouring.

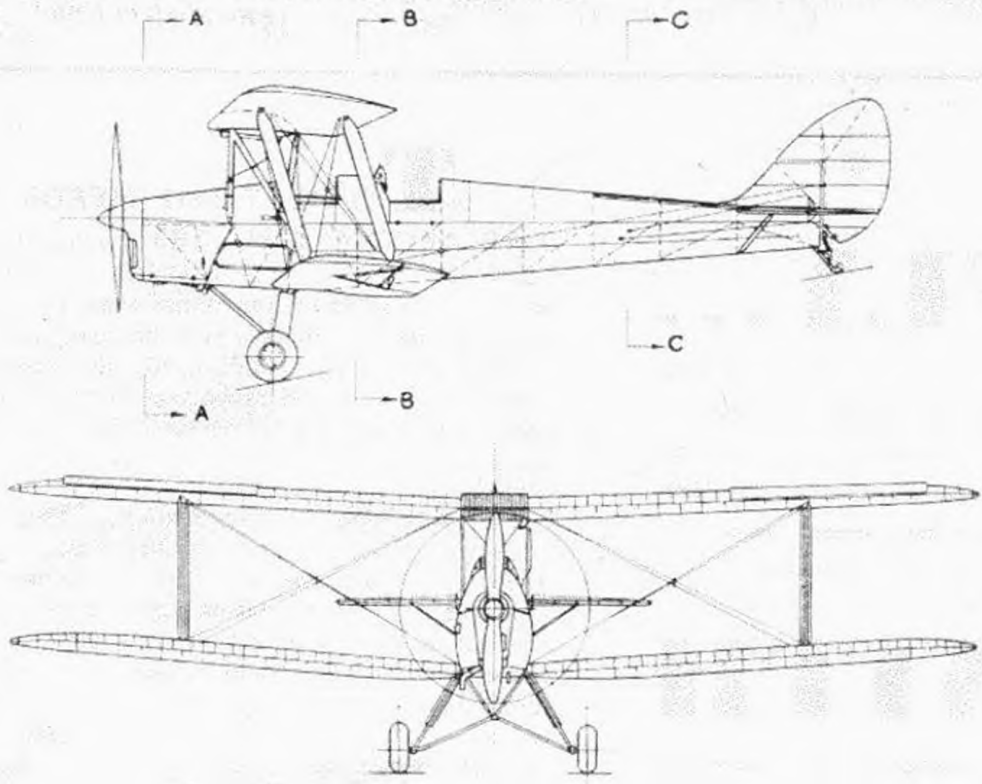
The machine in the heading photograph, G-AGYV, is painted aluminium all over with turquoise blue registration letters outlined in dark blue on the fuselage and wings. It will be noted that the registration letters are considerably smaller than the standard factory-produced civil Tiger Moths of the pre-war era. The letters Marshall Cambridge are painted in the same colour as the registration letters and appear on the port side of the fuselage only.

The machines in the lower photograph were finished in the following scheme: Fuselage, dark purple and black with white letters, wings and tail surfaces yellow with black letters. The machine number was painted in white on the nose of each aircraft.

Photo by E. J. Riding.



Specification. Length, 23 ft. 11 in.; span, 29 ft. 4 in.; height, 8 ft. 10 in.; empty weight, 1,115 lb.; loaded weight, 1,825 lb.; max. speed, 110 m.p.h.; cruising speed, 90 m.p.h.; landing speed, 40 m.p.h.; ceiling, 18,000 ft.; range, 300 miles; fuel, 19 gallons in centre section tank; power, one 130 h.p. inverted 4-in-line air-cooled D.H. Gipsy Major engine.



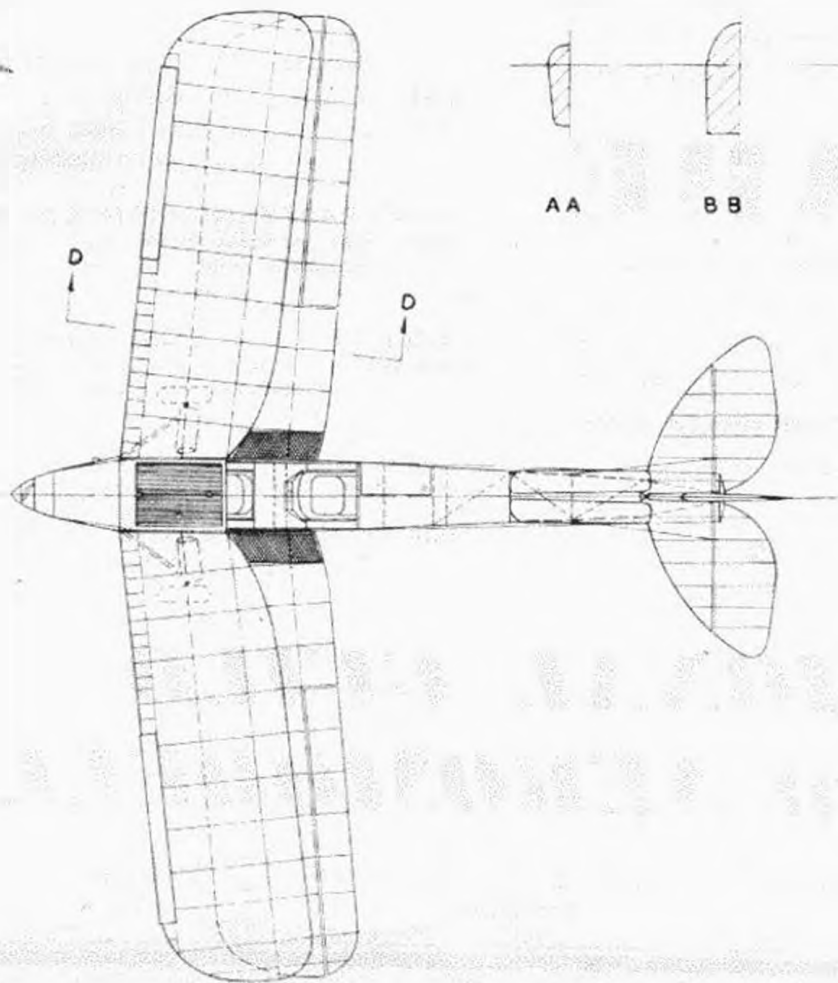
DD



AA

BB

CC



FLY...

as carefully as you will, there is always the possibility of your model injuring a bystander or damaging property. Are you in a position to meet any Third Party Claim that may be preferred against you?

IF NOT—WHY NOT?

WITH

current developments on such projects as jet propelled units, rocket drives, and other types of reaction propulsion, the necessity for a full safeguard against the unforeseen accident becomes even more urgent.

CARE

in the flying of all types of model aircraft is a natural incumbent upon all flyers, but the most careful enthusiast will agree that once the model has left his hands, the degree of exact control is extremely problematical.

TO MEET THE NEEDS OF THE AEROMODELLERS of Great Britain and Northern Ireland, the NATIONAL GUILD OF AEROMODELLISTS was formed some years ago, and now numbers thousands of prudent members on the registers. The ridiculously low premium required is out of all proportion to the benefits gained, and is attractive to even the shallowest pocket.

IN ADDITION to Third Party Insurance, a new type of cover has been introduced ensuring an owner against total loss of his model through the increasingly prevalent 'out of sight' flight. The efficiency of the model aircraft of today is unquestioned, and as the aeromodeller gains experience and skill, the probability of loss increases. We ask you, therefore, to study carefully the advantages of such a means of insuring yourself against the loss of your aircraft. (The Underwriter's liability in this scheme of Insurance is limited to £2 in respect of any one model.)

CAN YOU AFFORD TO RUN THE RISK OF A CLAIM MADE AGAINST YOU? Check against the premiums noted below, and send in your application for membership today.

THIRD PARTY INSURANCE for Rubber-Driven models, Gliders and Sailplanes, 6d. ; for Petrol-Driven Models, 2/6 ; for Jet, Rocket or other Reaction Propelled models, 5/- per annum.

'OUT OF SIGHT' LOSS for Rubber-driven models, Gliders and Sailplanes, 2/- ; for Jet, Rocket or other Reaction Propelled models, 4/- per model.

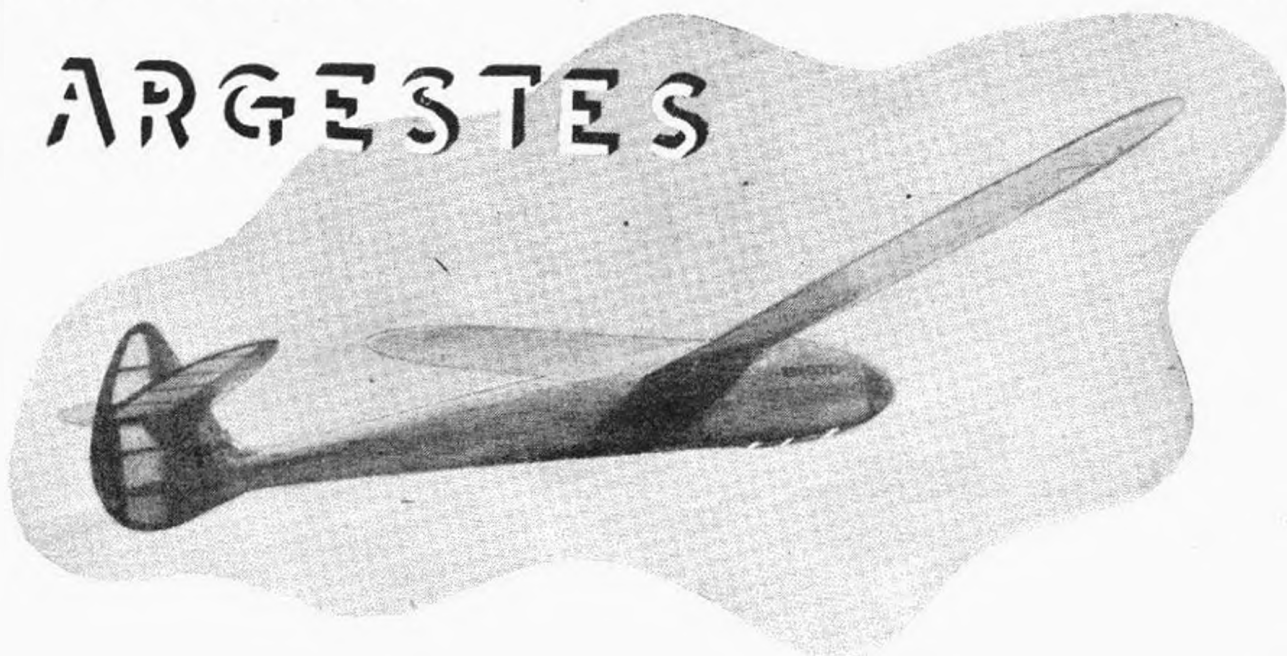
Attractive water-slide transfers in Black and Gold are available in two sizes for affixing to your models, price (large) 1d., and (small) ½d. each.

Make your flying secure NOW. Send off the form on page 463 without delay!

NATIONAL GUILD of AEROMODELLISTS

ALLEN HOUSE · NEWARKE STREET · LEICESTER

ARGESTES



A 60 - IN. SPAN HIGH - PERFORMANCE HEAVYWEIGHT SAILPLANE

BY N. GREGORY

THE design of the model is almost semi-scale in appearance, indeed, a moulded cockpit cover might well have been incorporated. The weight of all models increases with time and this is no exception! Its present weight, $13\frac{1}{2}$ ozs., gives a wing loading of 6.8 ozs. per sq. ft., which is heavy for a model of its size and its fine glide is due to efficient flying and not featherweight floating. It will be noticed that over $4\frac{1}{2}$ ozs. of the model is dead weight in the nose. This might have been avoided by building a longer nose or by putting the wing further back. The answer to this criticism is that I wanted to build a model with its wing right on top of its nose. Mick Farthing and others have used this layout with good results in the lightweight class. The model gets out of a stall after a very few pheugoids, for although the total weight is increased the moment of inertia about the C.G. is small and the momentum is still there. Unlike the lightweight class, I have taken advantage of the long tail moment arm to reduce the tailplane area to a minimum. Notice the novel crashproof positive fitting on the tailplane. It uses no rubber bands and works very well. In my particular model, the planking at the rear was left unnecessarily thick; removing a little weight here might well result in an ounce or more off from the nose. In the Thurston Cup on Epsom Downs the model put up a flight of 410 secs. o.o.s. which lost me the model, but it was fortunately found and returned later in the week.

Order of Construction.

Make the tongues and boxes first. There should be 2 in. between the working parts of the tongue to allow for fuselage width. Build the wings around the boxes, the bottom spar will need slight cutting away and the top spar packing up to fit on to the box. Do not forget to pack up the trailing edge at the tips to give the required washout. The bottom sheet should be fitted and glued

first, then fit the top sheet, and cement while the wing is pinned down with washout incorporated. The tongue should now be boiled in water for a few minutes and then bent at the centre to an excessive dihedral angle and clamped. When dry (overnight), the tongue should be flattened out until the wing has 4 in. dihedral at the tips. Two dihedral retaining pieces from scrap balsa should be glued on the bottom until the tongue is ready to be incorporated into the fuselage.

Make the tailplane next. This has the same dihedral angle as the wings, and the tongue should be used as a dihedral board when setting this. Make full depth fuselage keel. Incorporate towing hooks and glue in tongue, adding bulkheads four and five. Make tailplane box and tongue. Cement latter into main spar, adding rib F.3, trailing edge, and underfin. Cement on to rear fuselage keels and complete fin. Cut out bulkheads and cement into place.

Cement the halves of fuselage together and plank. Leave a space between bulkheads 1 and 2 for a trap door for ballast. Complete by sheeting in front of fin. Sand smooth, sanding thinner at back. Fill with banana oil, sanding between each coat. The nose block is carved from hardwood, hollowed and filled with lead and glued on. Complete by cementing box on to tailplane and adding upper fin.

Flying surfaces are covered with tissue. The wing has one coat of water, two of glider dope, two of banana oil. The tail unit one coat of water, one of shrinking dope, two of banana oil. The fuselage was left natural with many coats of banana oil.

Trimming.

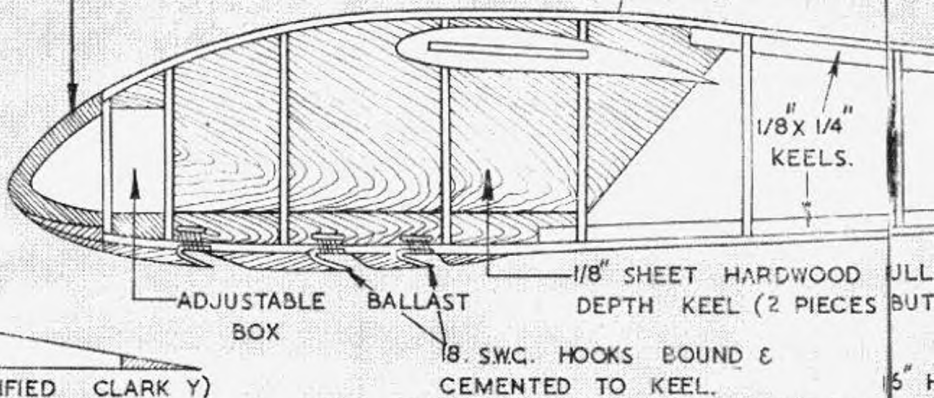
Start with C.G. near one-third of the chord from the leading edge and move back till stall just not present. Then increased tail incidence position can be used in windy weather.

ARGESTES

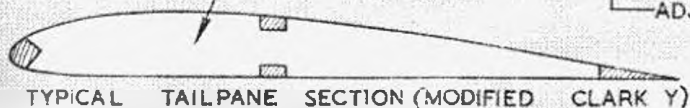
DESIGNED BY
N. GREGORY

PLANK FUSELAGE WITH 1/8" SHEET BAC
FIN M.S. SAND DOWN WELL AT TL

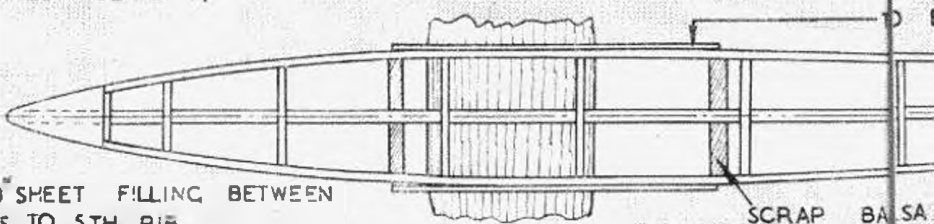
HARDWOOD NOSEBLOCK
& FILLED WITH LEAD. HOLLOWED



TAILPLANE RIBS OF 1/16" SHEET.



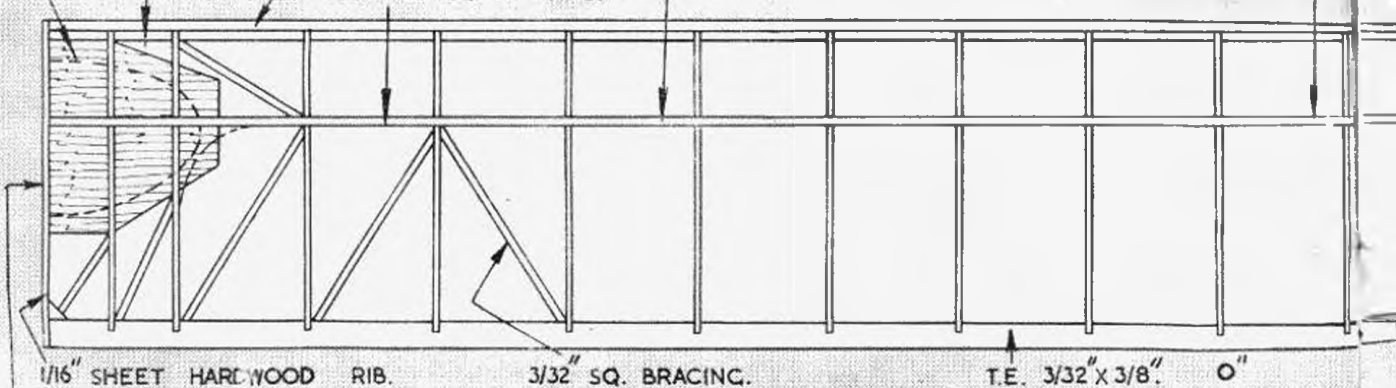
1/16" SHEET COVERING TOP & BOTTOM FROM L.E. TO MAINSPAR ALSO LET IN FIRST 3 RIBS.



1/16" SHEET FILLING FROM 5TH TO 7TH RIB

BIND BOXES WITH THREAD.

1/4" SQ. L.E. TAPERED TO 1/8" SQ. AT TIPS.

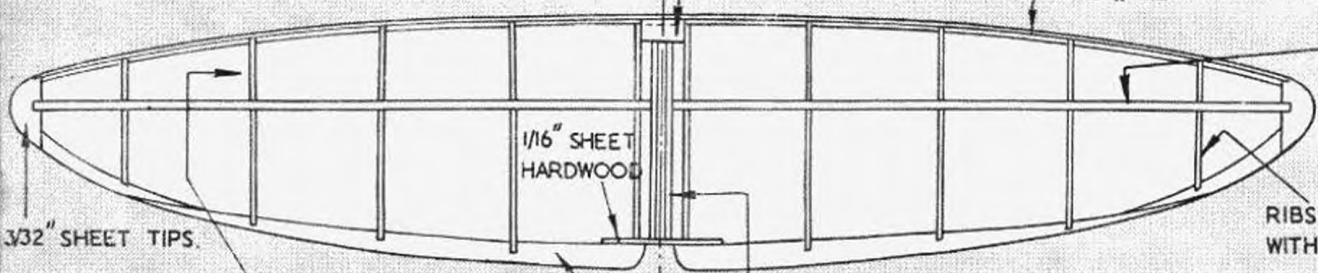


TONGUE & SIDES OF 3/32" SHEET HARDWOOD
TOP & BOTTOM OF BOX 1/16" SHEET HARDWOOD

SCRAP BLOCK FILLET.

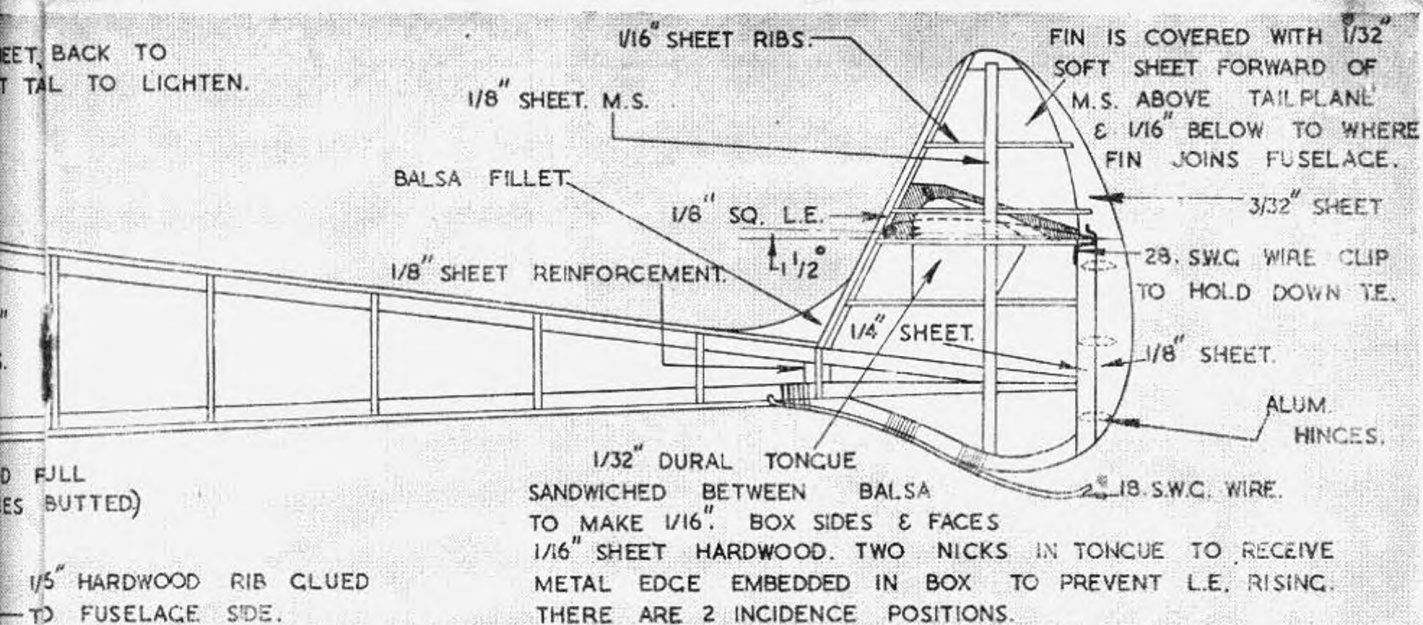
3/32" SQ. L.E.

1/8" X 1/4" KEELS & BOT



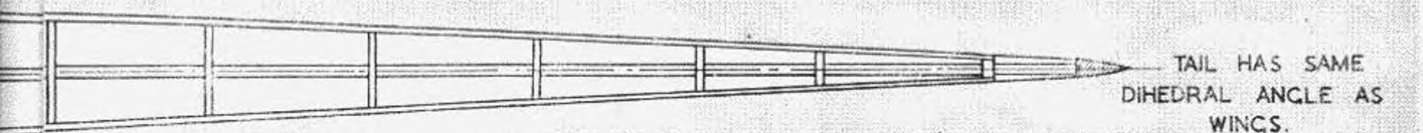
COVER FROM L.E. TO MAINSPAR WITH 1/64" SHEET OR THIN GLOSSY WRITING PAPER.

SHEET, BACK TO
TAIL TO LIGHTEN.



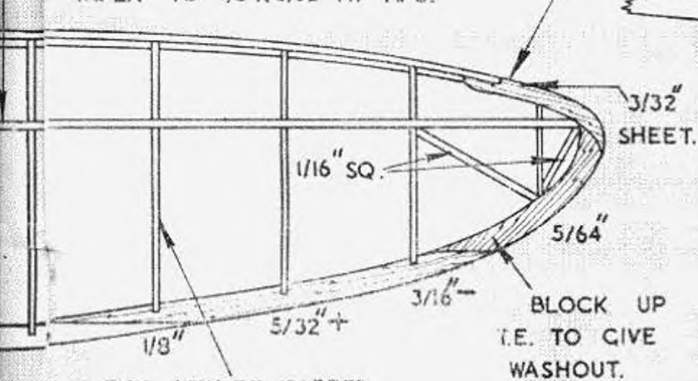
D FULL
ES BUTTED)

1/5\"/>



BALSA REINFORCEMENTS.

1/8\"/>



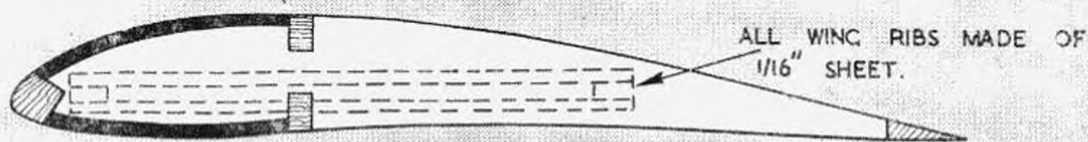
RIBS MAY BE CAPPED
WITH 1/64\"/>

1/8\"/>

1/3 ACTUAL SIZE

MAY BE CAPPED
64\"/>

COTTINCEN 602 THICKENED TO
12% THICKNESS/CHORD RATIO.



FULL SIZE WING SECTION.

FIN IS COVERED WITH 1/32\"/>

3/32\"/>

28 S.W.G. WIRE CLIP
TO HOLD DOWN T.E.

1/8\"/>

ALUM.
HINGES.

2# 18 S.W.G. WIRE.

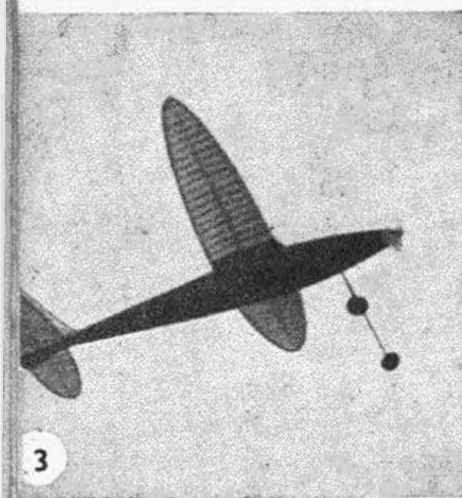
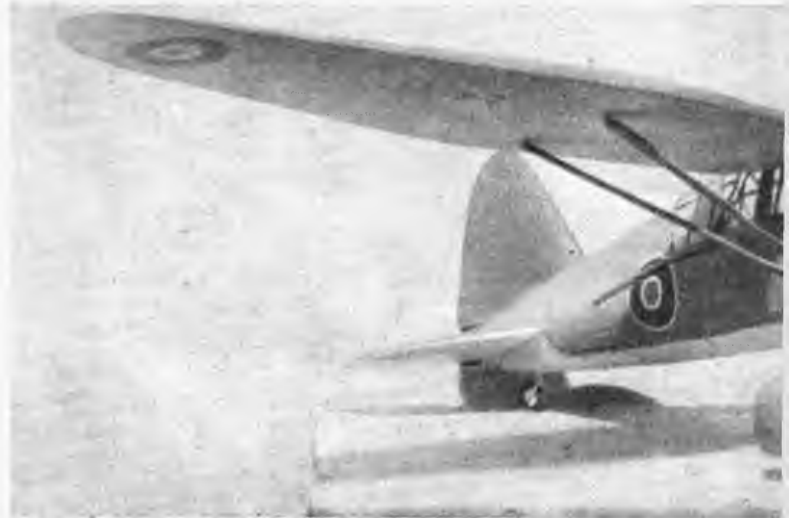
1/32\"/>

TAIL HAS SAME
DIHEDRAL ANGLE AS
WINGS.

ALL FORMERS ARE
TRUE ELLIPSES. CUT
FROM 3/32\"/>

SECTION OF WING
FIXING. (FULL SIZE)

WING AREA 278.5 SQ. INS.
WING LOADING 6.2 OZS/SQ. FT.
TAILPLANE AREA 59 SQ. INS.
ASPECT RATIO 12.9.
WEIGHT 12.25 OZS.



NO rest for the wicked, and Fliar Phil, very worn and weary, but nicely tanned from his contact with Ol' Man Sunshine at Eaton Bray, picks up his well-chewed pencil for a review of the snaps his faithful supporters have dished out.

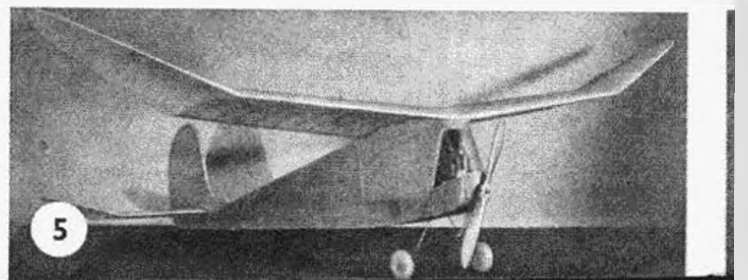
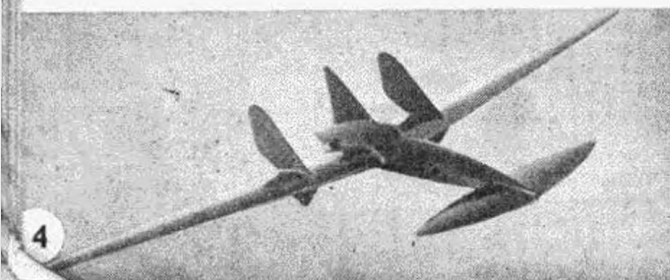
Our Model of the Month, above, is another one of the many prize winners at Dorland Hall, this time the First Prize in the Petrol Driven Flying Scale section. B. C. Gunter of Middlesex was the builder, and as the photo shows, he certainly earned his money. Note in particular the very fine finish of all surfaces, something that is not at all easy to obtain on a large flying model where the surfaces are not rigidly planked.

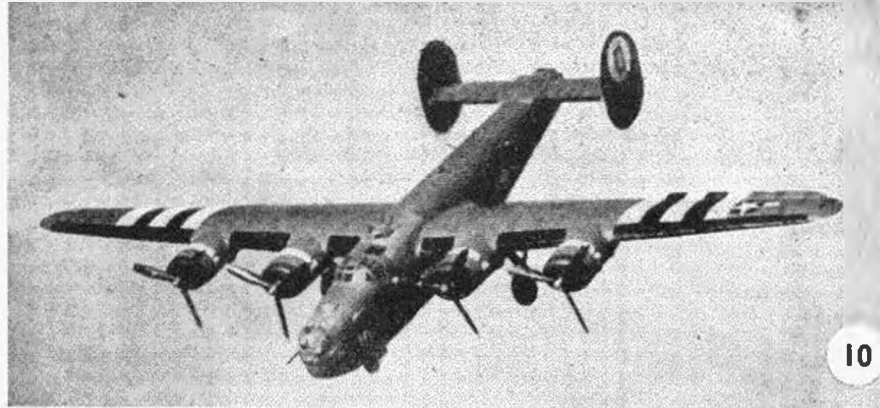
Our collection of runners-up starts with Photo No. 1, which is an excellent shot of a duration model taking off. The model is a 45 in. span slabsider by N. W. Cranfield, of Forest Row, Sussex. This is the kind of "action picture" which we all like to see.

Many famous Model Maestros were to be seen at Epsom on Gamage Cup Day, and Fliar Phil did not miss his chance of getting a shot of the Lightweight King in action. In Photo No. 2, Mick Farthing is seen launching his latest lightweight model; note the "undercarriage"! This is merely a hinged wire which folds up alongside the fuselage as soon as the weight of the retaining hand is removed from the fuselage, and the model goes straight up in the true Mick Farthing manner.

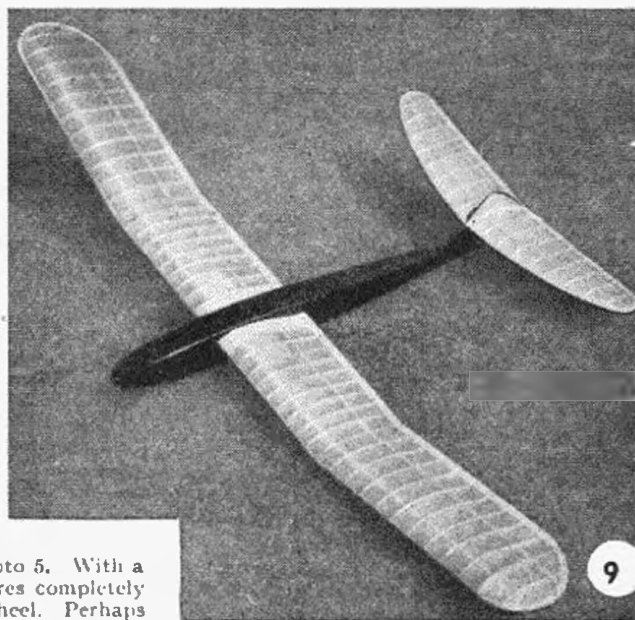
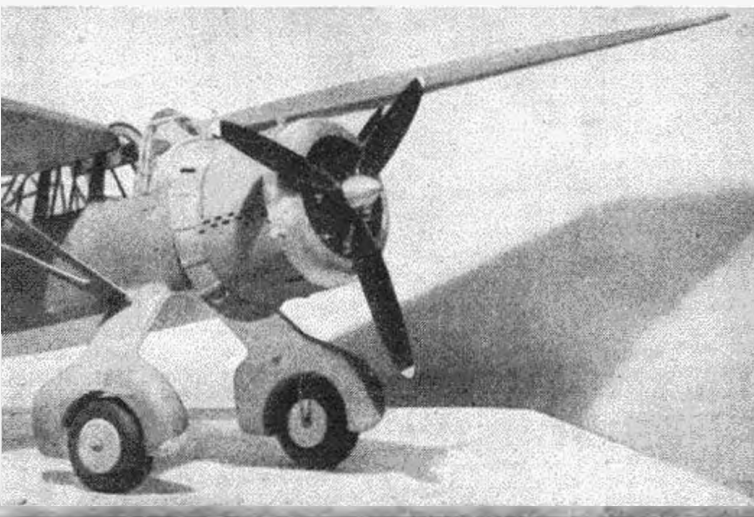
We have been receiving several photos recently from J. A. Marrett, of Morden, which have been outstanding examples of model photography, one of these being shown in Photo 3. This is a fine snap of H. Simmonds' Wakefield model in flight. Another example of Mr. Marrett's photographic craft is shown in Figure 5, but this time it is a photo of a 56 in. span petrol model built by R. J. North, of Blackheath, powered with an Ohlson 10 engine, ingeniously cowled. Despite its appearance it has proved a very satisfactory model, with a fast steep climb and a very flat glide.

In many foreign countries during the war there has been much research into unorthodox aircraft layouts, and models have played a very large part in the programme. The model in Photo 4 is a highly-polished wooden scale wind-tunnel model of an Italian project.





10



9

A fine piece of craftsmanship in the flying scale line can be seen in Photo 5. With a span of 55½ in., this model, built by F. J. Keen, of Cheltenham, features completely detailed cockpit, movable controls, folding wings and fully sprung tail-wheel. Perhaps the most remarkable thing is that with all this detail the model still flies! Mr. Keen also has a very interesting Autogyro, of which we hope to have details later.

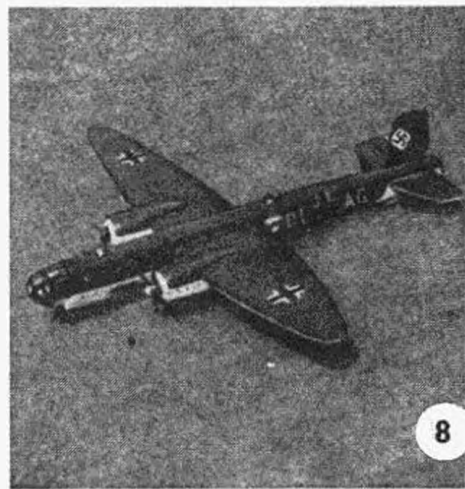
The investigation of less popular aircraft layouts is interesting a large number of people. J. G. Brown, of Leeds, is one of these, and Photo 7 shows a 24 in. span pusher of his own design. The model as yet has only been tested R.T.P., but free flight tests are due to take place shortly and we wish him the best of luck in his project.

A model of a failure comes from R. Doughty, of Selby, and appears in Photo 8. A nice little model of a Heinkel 177; the photo would have been better if the model had been placed against a less mottled background.

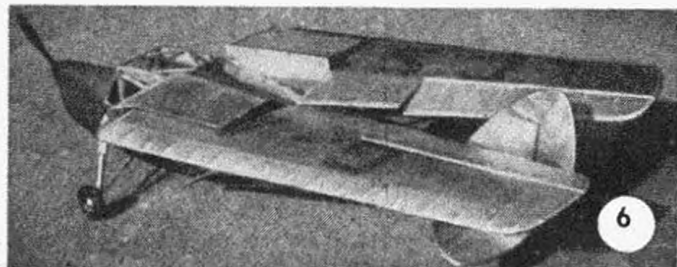
A simple but elegant sailplane is shown in Photo 9, being the work of A. O. Sutcliffe, of Chester. The span is 40 in. and the fuselage was constructed out of 1/16 in. sheet hardwood with sides covered with 1/32nd. Mr. Sutcliffe is of the opinion that the more freakish Grant "bird sections" do not live up to the high praise often given them. Like Fliar Phil, he is waiting until he can build a model incorporating one of the new L.S.A.R.A. sections. Details of these *have* been circulated amongst Members of the Association, Mr. Sutcliffe, but a published report on them is appearing in the pages of the **AEROMODELLER** very shortly.

The last of our photos this month is of another Dorland Hall prize winner this time in the solid section. Photo 10 shows the 1/72nd Liberator built by R. Stevens, of Slough, and once again the justice professional photography does a fine model is well brought out in this excellent photo.

All for now, so carry on with the good work until July when Fliar Phil returns with another selection of (he hopes) *newsy* photographs. Meanwhile, send in your photos, and if you've anything to suggest, your comments.



8



6



7

AEROMODELLING AROUND THE WORLD



Line-up of competitors
and their models

RHODESIA

BY OUR SPECIAL CORRESPONDENT

IT'S a long way from the Dominion of Canada, even in a straight line, to the heart of Africa—to Rhodesia next calling point on our round-the-world itinerary. Both territories, however, have this in common, that American influence on aeromodelling is very marked. True it is that modellers in Rhodesia find much to admire in British design, particularly in the rubber-driven and glider categories. In fact, a correspondent informs us that they regard such designs as leading the field. But greatest interest is shown in petrol-engined models, and it is in this sphere that American influence is seen. Not to put too fine a point upon it, they prefer American "gas jobs"; most of the models in the principal club in Rhodesia, the Thornhill Model Flying Club, are American

designs, and even the few free lance designs show American influence.

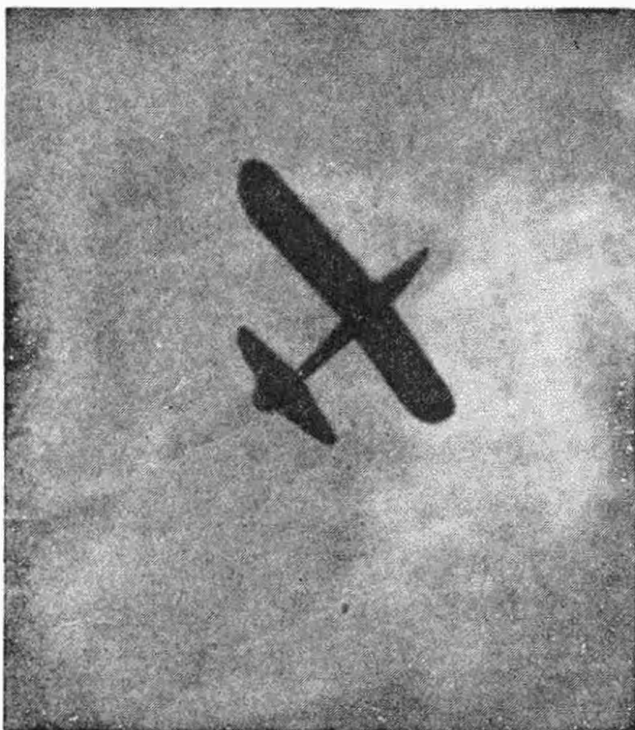
To get back to Rhodesian aeromodelling, however, it is hardly necessary to make the point that wartime shortages have made themselves felt there, as elsewhere. As far as balsa wood is concerned, it long ago became a case of "Thanks for the memory." But the adaptability and resourcefulness of the aeromodelling community has shown itself in an extensive use of local timbers for construction, in the use of ordinary silk bought from native dealers—or, failing that, wrapping paper!—for covering, and the contriving of cement from clear dope and scrap celluloid.

Our correspondent sends us an interesting account of



(Left.) The Mercury III with its designer and builder, Mick Smith. (Right.) A close-up of the nose of the machine. This model, of very impressive lines and excellent finish, is typical of the true "semi-scale" type which so few designers achieve successfully.





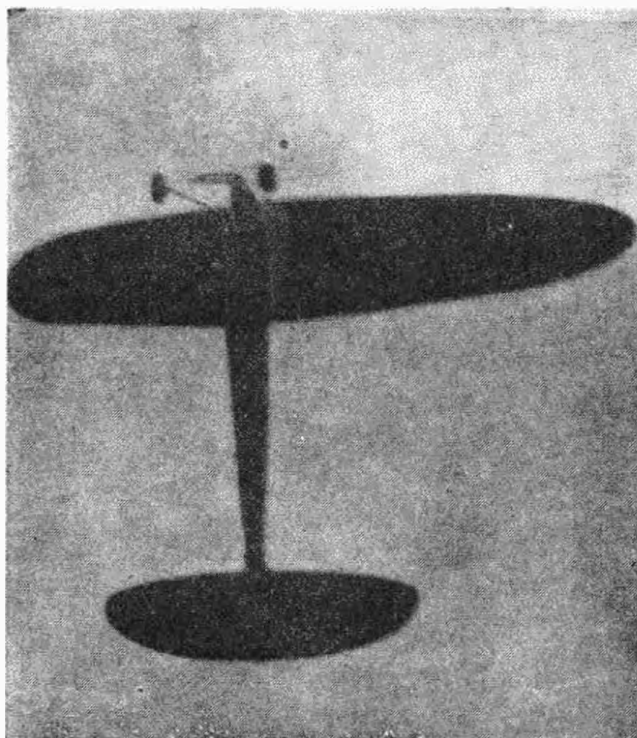
the most ambitious rally yet held by the Thornhill Club. The club gliding record was broken by a modified Ivory Gull, scaled up to twice the standard size, which, from a launch by 250 ft. towline, turned in a flight of 4 mins. 7 secs. This model had previously achieved a night flying record of 1 min. 47 secs. with electric bulbs fitted for the occasion, the battery for them forming part of the nose ballast. Our first illustration shows this machine going up on the towline.

Chief interest, however, was focussed on a duration contest for petrol models, and this was won by a slab-sided cabin job with a flight of 4 mins. 32 secs. on the 22 secs. motor run allowed. The same modeller secured second place with "Mercury III," a large semi-scale design of his own, which was the most impressive machine at the rally. Latest news of this model is that its owner is fitting radio control, and we hope, in due course, to be able to publish some details of the model and the experiments made with it. The model is shown in two of our illustrations.

The contest was not without its hectic moments, and one of the models concerned is depicted in the illustration at the top of this page. The machine, a Goldberg "Sailplane" with "O.K. Special" motor, was built in ten days by two members of the club, and, possibly as a result of hurry, the wiring suffered. Eventually, the motor barked away, seemingly satisfactory, and up went the model at its customary climbing angle of a few degrees short of the vertical. Click! went a bystander's camera, and a split second later, with the model about 20 ft. up, the motor stalled. Down came the model, but the photographer, dropping his camera, dashed over and caught the model, saving a very nasty smash. From the crowd long and lusty cheers, and from the joint owners of the model two prodigious sighs of relief!

With one or two exceptions, it is interesting to note, all the petrol models at the rally were powered by the Ohlsson 60 motor.

So much interest was shown in the rally that a still



(Left.) A twice-size modified "Ivory Gull," built by Roy Wallis, going up on the towline. This glider later turned in the record flight of 4 mins. 7 secs. (Right.) The "Sailplane," built by Peter Orchard and Roy Williams, demonstrates its vertical climb. As mentioned in the text this photo was taken just before the engine stalled!

more ambitious effort is being planned for the coming season. More substantial prizes, and a greater number of prizes, will be provided, and it is confidently anticipated that support for the venture will be forthcoming from modellers all over Rhodesia.

To my way of thinking, the interest shown in aeromodelling in these distant parts, and the tireless efforts to achieve results, notwithstanding all the handicaps resulting from the very attenuated lines of communication, often shame us at home, whose facilities are so incomparably better. It would seem that the better the facilities, the less they are appreciated. Give fellows a comfortable clubroom, the company of numerous like-minded enthusiasts, supplies of materials which, if restricted, do at any rate exist, organise the movement for them, arrange contests—and as likely as not, they will respond only spasmodically. But, by jingo, fail to arrange the fixtures on the plea that they are not supported anyway, and see what sort of a caning they will give you! The official's job, seemingly, is "not to reason why," but to provide the usual—whereupon the members will proceed to pay the appropriate dues and reserve the right to forego any or all of the facilities provided. Their outlook seems to be that they have paid for the facilities, and if they don't feel disposed to join in the fun, that is their business.

Of course, everyone knows that club officials are there to be kicked, and in time, maybe, they will come to like it. But the point your humble wishes to make is that our movement would gain immeasurably if more people at home showed the zeal and enthusiasm of those who in the less conveniently situated parts of the earth contrive to keep the flag of aeromodelling flying.



BEST IN
EVERY
DIRECTION

DUNLOP

Readers' Letters

The Editor does not hold himself responsible for the views expressed by correspondents. The names and addresses of the writers, not necessarily for publication, must in all cases accompany letters.

DEAR SIR,

May I offer my congratulations to you for the best Christmas number of the AEROMODELLER you have yet published. I received my copy to-day with the January and February issues, and I was at once impressed with the pre-war atmosphere of our paper. The "Panto" by Jamieson was really good, and I believe he is making up for the loss of Job and Amos. By the way, what has happened to these gentlemen? No information has been published, to my knowledge, regarding their whereabouts.

May I offer a suggestion? I would like to see some more articles on the "historical" side of aeromodelling, for example, something on the lines of Mr. Rushbrooke's article in the Christmas, 1941, issue. What are the opinions of readers?

Cairo. TFR. WESTERBY.

We also miss Job and Amos, and would like to hear from Arthur Mountstephens if he is still in circulation.—[ED.]

DEAR SIR,

There are one or two points in L. A. Walker's interesting and long overdue article on "The Model Aero-engine Ignition System" which require comment beyond your valiant attempt on page 313 to support me.

Firstly he quite erroneously implies that I am an Electrical Engineer!!!! I should have thought it was painfully obvious to any of my some-time readers that I am NO SORT of an engineer, but a pure and very slipshod amateur balsa-buster and engine-tinker.

Secondly, in fairness to L. A. Walker, I cannot avail myself of the protection of your editorial insert in his article (page 313 1.19) as I most certainly *have* mentioned in print, my abuse of coils with 6 volts. I have never claimed, however, that coils don't get hot on 5 volts!! They certainly do, and many simply will not stand it.

My difficulty has always been that when one uses a 4-volt mini-accumulator, one needs a 6-volt booster for charging it. Similarly, when using a 2-volt mini-accumulator, one needs a 4-volt charger. Whether one runs the engine while charging must depend on whether the coil used will stand excess voltage for short periods of time without suffering. Some makes are remarkably versatile, especially the vacuum impregnated coils using shellac. Any form of wax impregnation is, of course, hopeless, as it at once melts with heat and "boils" as described by Walker.

Until recently, none of the old coils would function on 2 volts reliably, even when drawn from a large accumulator, and so, during my early experiments with home-made mini-accumulators, I had to use double celled (i.e., 4 volt) mini-accumulators. During the early part of the war, however, the Americans at last produced several makes of really lightweight coils which function on a single pen-like battery of 3 volts (comprising two of the smallest size 1½-volt cells in series). These will work on 2 volts from a mini-accumulator, because, as Walker states, the *current* output from these is not limited by the internal resistance of a dry battery.

Nevertheless, there are still snags. Walker asks, "Is your booster really necessary?" Well, naturally this depends entirely upon how much flying you intend to do. Provided your mini-accumulator is a good one, still fairly new, and retains its charge all day, and you only want to make two or three flights and have no troubles starting, O.K., but if you want to guard against unforeseen troubles, then I still advocate a booster to re-charge between every two or three flights, and who wants to waste time charging? If the coil will stand the excess voltage, one can do the starting up while still charging up to the last moment of take-off.

The really interesting and amusing side to all this is that Col. Bowden and myself long ago reached all L. A. Walker's conclusions, including the desirability of prolonged contact of the points, with a consequent drain on dry batteries which, owing to polarisation, they are unable to maintain; hence

the use of large cells or mini-accumulators. And all without the pain and misery of those fearsome formulae!

However, the days of the acid accumulator are, I think, numbered, and most of this hard-earned experience is superseded with the coming of light NIFE Alkali accumulators. Still, it is comforting to have results confirmed by theory, and the reasons for them clearly elucidated.

Porlock.

J. F. P. FORSTER

DEAR SIR,

Re Mr. Walker's excellent article on the ignition system in the April AEROMODELLER, I should like to make a suggestion as to the reason for boosting.

The term itself is, I think, rather misleading. As I see it, the "booster" serves one very useful purpose and that is this: it relieves the small flight batteries of the load which might arise should starting trouble be encountered, and the points be left closed for any length of time. Such an occurrence I have found plays havoc with the ordinary pocket-torch battery.

This is not a declaration of war by practice against theory.

To boost or not to boost, that is the question.

If you'll take my advice use this suggestion:

If starting trouble may arise,

To use a booster would be wise;

But if the engine starts without,

The booster cell should be left out.

London.

J. H. MICHAELS

DEAR SIR,

Your news item reporting the Italian suggestion that model flying should be included in the Olympics raises an interesting point, to which I have, from time to time, given a considerable amount of thought. However, I have always come to the opposite conclusion to that reached by the Italian, for the following reasons.

Sports in general may be divided into four broad classes.

1. Tests of human muscle, stamina, skill, brain, etc., e.g., running, football, boxing, darts, rowing, golf.

2. Man-plus-machine, or man-plus-animal contests, e.g., motor racing, horse racing. Control-line model flying might also be included in this class.

3. Man-versus-animal sports, e.g., hunting, bull fighting.

4. Contests in which machine or animals compete, more or less uncontrolled by man, e.g., most forms of model flying, model yachting, greyhound racing.

There are, of course, some exceptions and border-line cases. For example, radio-controlled model flying and sheep dog trials fall somewhere between 2 and 4, being remotely man-controlled.

Now all the Olympic sports are of the class 1 type, and when an implement (such as a discus) is required, it is standardised, so that all competitors are on an equal footing. This is true also of Olympic gliding, for the sailplanes used are all of a standard type (the "Olympia"), and the competition is solely one of piloting skill.

The only form of model flying which might be suitable for the Olympics is Chuck Gliding, which, as I have mentioned previously in this journal, is a combination of athleticism and aeromodelling. If a standard glider were used, the duration achieved would be a fair measure of the thrower's strength and skill. However, taken to this extreme, Chuck Gliding would be all athleticism and no aeromodelling, and although it might conceivably attract the sporting public it would have little appeal for aeromodellers.

Some duration model flyers display commendable prowess as cross-country runners, but that is rather a different story.

My conclusion, therefore, is that none of the present forms of model flying are really suitable for inclusion in the Olympic Games.

Bristol, 6.

J. H. MAXWELL.

JAPANESE AIRCRAFT COMPETITION RESULTS

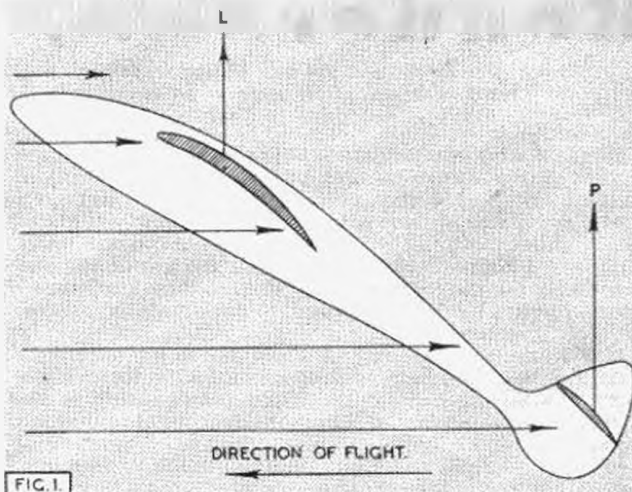
Several thousand entries were received and a total of 139 recognition enthusiasts provided correct solutions.

The £100 prize money is being divided between the winners, who have already received a cheque for 15/—, together with a list of successful entrants. To save space we are not publishing the above list in the "Aeromodeller," a copy may be obtained on receipt of a 1d. stamp from the Harborough Publishing Company, Allen House, Newark Street, Leicester. This list can also be inspected at the "Aeromodeller" Editorial Offices at Leicester and at the Aerodrome, Billington Road, Stanbridge.

- | | |
|---------------------------------|---------------------------------|
| 1. Mitsubishi Navy 1 Betty | 2. Nakajima Army 100 Helen |
| 3. Tatikawa Army 95-3 | 4. Nakajima Army 1 Oscar |
| 5. Yokosuka Navy Suisel (Judy) | 6. Mitsubishi Navy 0 Zeke 3-2 |
| 7. Aichi Army 93 | 8. Mitsubishi Navy 0 Pete |
| 9. Kawasaki Army 98 Mary | 10. Yokosuka Navy Suisel (Judy) |
| 11. Mitsubishi Navy 2 Rufe | 12. Kawasaki Army 99 Lily |
| 13. Mitsubishi Navy 96 Nell | 14. Nakajima Navy 97 Kate |
| 15. Mitsubishi Navy 1 Betty | 16. Nakajima-Douglas DC-2 |
| 17. Mitsubishi Navy 2 Rufe | 18. Nakajima Army 100 Helen |
| 19. Aichi Navy 0 Jake | 20. Mitsubishi Navy 96 Nell |
| 21. Nakajima Army 97 Nate | 22. Nakajima Army 2 Tojo |
| 23. Nakajima Army 1 Oscar | 24. Mitsubishi Navy 2 Rufe |
| 25. Kawasaki Army 99 Lily | 26. Aichi Navy 99 Val |
| 27. Mitsubishi Navy 0 Zeke | 28. T. R. 1 Light Transport |
| 29. Mitsubishi Navy 0 Zeke 3-2 | 30. Mitsubishi Army 97 Sally |
| 31. Aichi Navy 99 Val | 32. Nakajima Navy 97 Kate |
| 33. Nakajima-Fokker Universal | 34. Kawasaki Army 2 Nick |
| 35. Aichi Navy 99 Val | 36. Kawasaki Army 3 Tony |
| 37. Aichi Navy 0 Jake | 38. Tatikawa Army 95-1 |
| 39. Mitsubishi Army 100 Dinah | 40. Kawanishi Navy 2 Emily |
| 41. Mitsubishi Army 97 Sally | 42. Nakajima Army 1 Oscar |
| 43. Kawanishi Navy 2 Emily | 44. Mitsubishi M.C.20 Topsy |
| 45. Kawasaki Army 99 Lily | 46. Nakajima Army 100 Helen |
| 47. Kawanishi Navy 97 Mavis | 48. Mitsubishi Navy 96 Nell |
| 49. Aichi Navy 0 Jake | 50. Nakajima Army 2 Tojo |
| 51. Kawasaki Army 3 Tony | 52. Mitsubishi M.C. 21 |
| 53. Mitsubishi Army 100 Dinah | 54. Mitsubishi M.C. 21 |
| 55. Mitsubishi Army 97 Sally | 56. Mitsubishi Navy 0 Zeke 2-1 |
| 57. Nakajima Army 100 Helen | 58. Nakajima Navy JIII (Tenzan) |
| 59. Kawasaki Army 3 Tony | 60. Kawasaki Army 3 Tony |
| 61. Mitsubishi Navy 2 Rufe | 62. Kawanishi Navy 2 Emily |
| 63. Nakajima Army 1 Oscar | 64. Tsubame VII (Swallow) |
| 65. Nakajima Navy Tenzan (JIII) | 66. Mitsubishi Navy 0 Pete |
| 67. Mitsubishi Navy 96 Nell | 68. Mitsubishi Navy 2 Rufe |
| 69. Mitsubishi Navy 1 Betty | 70. Kawanishi Navy 97 Mavis |
| 71. Chidori-go (Plover) | 72. Mitsubishi Army 100 Dinah |
| 73. Nakajima Army 2 Tojo | 74. Mitsubishi Navy 0 Zeke 3-2 |
| 75. Mitsubishi M.C. 21 | 76. Aichi Navy 99 Val |
| 77. Nakajima Navy JIII (Tenzan) | 78. Kawasaki Army 2 Nick |
| 79. Mitsubishi Army 97 Sally | 80. Nakajima Navy Tenzan (JIII) |
| 81. Mitsubishi Navy 0 Pete | 82. Tatikawa 95-1 |
| 83. Mitsubishi Navy 0 Pete | 84. Mitsubishi Army 100 Dinah |
| 85. Yokosuka Navy Suisel (Judy) | 86. Mitsubishi Navy 1 Betty |
| 87. Nakajima Army 2 Tojo | 88. Mitsubishi Navy 2 Rufe |
| 89. Mitsubishi Navy 1 Betty | 90. Nakajima Army 2 Tojo |
| 91. Mitsubishi Navy 1 Betty | 92. Kawasaki Army 3 Tony |
| 93. Mitsubishi Navy 0 Zeke | 94. Yokosuka Navy Suisel (Judy) |
| 95. Mitsubishi Army 97 Sally | 96. Nakajima Navy 97 Kate |
| 97. Kawanishi Navy 90 | 98. Nakajima Navy 95 |
| 99. Kawasaki Army 88 | 100. Mitsubishi Otori (Stork) |

In the judging, sole consideration was given to correct identification of the aircraft depicted. Entrants were not penalised for an adequate short description in lieu of the full designation.

As published in the March issue, clue 19 was misprinted as 61, and transposition of correct entries for these numbers was not penalised.



ELEMENTARY AERODYNAMIC DESIGN

SAILPLANES Part V

BY · J · HALIFAX

LAST month we saw how to determine the angle of incidence and area of a tailplane to enable a machine to fly with its wing at the required angle of attack, and we discovered that this was governed by the position of the centre of gravity. I mentioned that the C.G. position was in turn constrained within certain limits by considerations of stability, and it is with this aspect that we are concerned this month.

Longitudinal Stability.

More has been written about longitudinal stability than perhaps any other one subject in model aeronautics, and yet until recently we knew next to nothing about it. The following generalisations have been known for some time, however, and give us a very good idea of how to approach the problem in our projected design.

For maximum static stability the following points should be observed as far as possible.

1. The C.G. of the machine should be close to the centre of pressure of the wing in normal flight.

2. The tailplane area should be as large as possible (limited to 33 per cent. by F.A.I. regulations, of course).

3. The moment arm of the tailplane (see Part IV) should be as long as possible.

4. The angle of attack of the tailplane should be two degrees to six degrees less than that of the wing. (The difference in the angles of the two planes is known as longitudinal dihedral, by the way.)

If a machine is disturbed from its normal flight attitude, as in Fig. 1, it is statically stable if it returns to its original attitude, and it is obvious that this must be accomplished by the tailplane exerting a correcting force. The issue is complicated, however, by the fact that the centre of pressure of the wing moves forward, due to its temporarily increased angle of attack, and provides an upsetting moment. Thus a more accurate definition of a stable model is that for all angles of displacement, both negative and positive, the restoring moment of the

1	2	3	4	5	6	7	8	9	10	11	12	13	14
C_L wing	α AR=infinity	α Induced.	α AR=4.	C.P. % of Chord	C.P. ins. from L.R.	x''	C_L w $\times x$	Downwash Angle ϵ°	θ° Tailplane.	α Tailplane.	C_L tail.	$C_L^T \times y$	$C_L^T y \times K$

tailplane is greater than the upsetting moment of the wing.

These moments were dealt with last month when we discussed longitudinal balance, and I will not reiterate what I said then. Suffice to say that for balance in normal flight the tail moment (Py) must be equal and opposite to that of the wing (Lx), both moments being taken about the C.G., of course. Expressing this mathematically, the condition for equilibrium is

$$Lx + Py = 0$$

Now since Py must exceed Lx when the machine is displaced, it can be proved that the value of the total moment ($Lx + Py$) must vary indirectly as the angle of displacement. In other words, if we plot the total moment against angle of displacement, we shall get a curve with a negative slope, as shown by the continuous line in Fig. 2. If, however, the machine is unstable, we shall get a positive slope, as shown by the dotted line in the same figure.

The calculation of the total moment is very easy, as we saw last month, but as we have considerably more figures to regiment this time, it is advisable to tabulate them to avoid confusion. The appropriate column headings are shown at the top of the page. Arbitrary values of C_L are chosen, and the appropriate angle of attack for the model's wing calculated in column 4 (in this case the Aspect Ratio is 4, as the model is the one we have been using in this series as an example). The distance of the centre of pressure of the wing from the C.G. (x ins.) is determined as in last month's work, and this multiplied to the C_L of the wing gives us the wing moment in column 8.

The downwash angle is next found from the formula :

$$\epsilon = \frac{35C_L}{AR}$$

and entered in column 9. The angle of attack of the tailplane can now be computed, and with it the C_L from the data graph for the tailplane section. This multiplied by

the moment arm gives us the tailplane moment in column 13. Before it can be compared with that for the wing, however, we must multiply it by a correction factor K , where

$$K = \frac{\text{tailplane area}}{\text{wing area}}$$

Remember that owing to the convention of moments, when the tailplane C_L is positive, its moment is negative, and vice versa. Columns 14 and 18 are then added together and plotted against column 4. The amount of negative slope of the curve is a measure of the degree of stability of the machine.

The continuous line in Fig. 3 shows the result of this calculation for the machine discussed last month—over most of the range it is stable, albeit only slightly so, whilst over a small range of negative angles it is definitely unstable, although this is not very serious. With the tailplane area increased to 66 sq. ins., and its angle of attack reduced to 1.7 degrees, the result was as shown by the dotted line—a very great improvement.

Dynamic Stability. If a model possesses only a small degree of static stability it may be found to be dynamically unstable in flight. The observed result of this is a series of phugoidal oscillations growing in amplitude until the machine hits something. It is due to the angular momentum of the model—when the force on the tailplane lifts it up to correct a stall, for instance, its momentum carries it well beyond the position for normal flight and a dive is started; the procedure is reversed, and we have a first-rate oscillation.

The solution is to keep the moment of inertia of the model about the lateral axis as low as possible. For people like you and me this simply means we should keep the tail as light as possible, consistent with reasonable structural strength. As a point of interest here, research so far reveals the flat plate as being the most efficient tailplane section for small and medium-sized models, and this, of course, results in a very light tailplane.

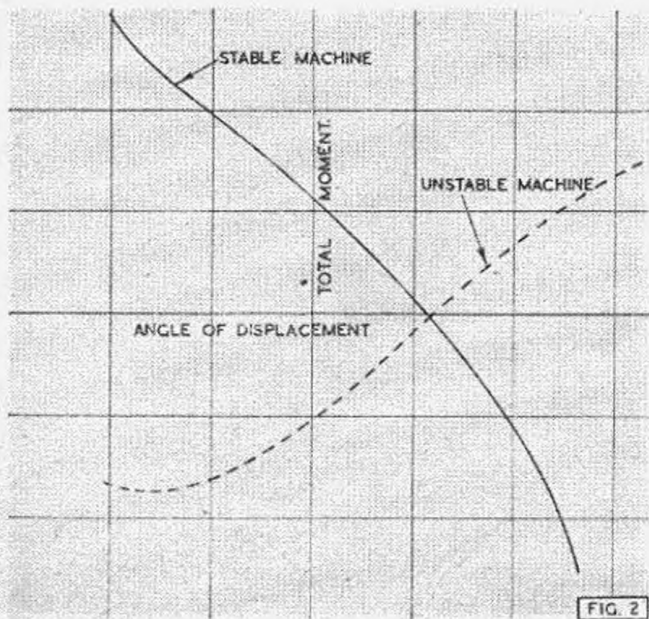


FIG. 2

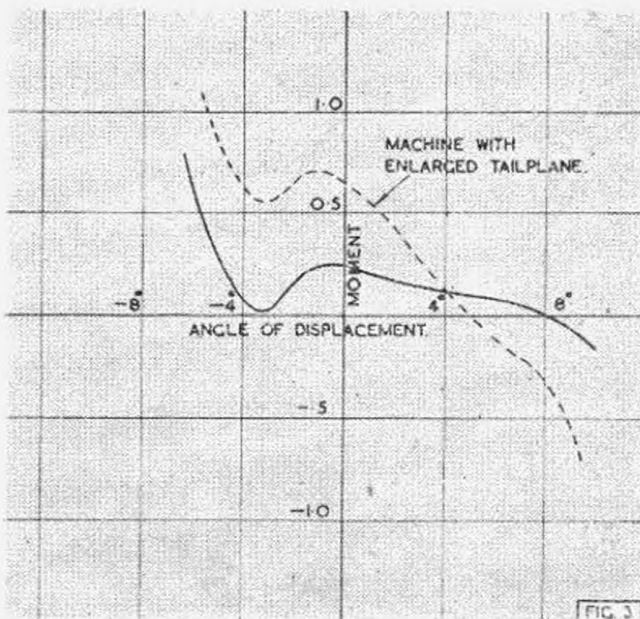


FIG. 3



'Tis said that the Boffin is flapping out East
To recline on a charpoy, drink, dance and feast,
And regale local bods,
With tales of his mods
Each telling with times O.O.S. much increased.

ITEMS of interest from East of Suez continue to come in to lighten the Boffin's task and so with true Oriental indolence he proposes to sit back and let his correspondents take up the tale.

India Rubber.

Corporal Rosser, with the R.A.F. in India, writes of his latest model:—" . . . It's all Balsa, obtained from the salvage of 'certain aircraft'—the tissue was obtained from the local inhabitants who are as keen as mustard and help no end in making runways and other such jobs such as retrieving, etc. The cement situation was overcome by melting celluloid in clear dope. I have only come upon one serious setback—that is rubber. At the moment I am using 1/32 in. discarded parachute releases. This type of motor will stand only two hundred turns, nevertheless the best R.O.G. time is 36 secs. while a regular 30 secs. is possible with a hand-launch. The weather here is the dream of every aeromodeller . . . blue sky . . . temperature of one hundred to one hundred and twenty in the shade."

Old Mancunian.

Our correspondent in Baroda, Mr. G. M. Jadhav, mentions that Old Boys from Manchester Grammar School, where he used to teach twenty-five years ago, have looked him up. He speaks of his flying and model-making there as long ago as 1909. Still an enthusiast, he is building up a Club interest in Baroda. Many people

Members of the Mauripur Club with some of their models which include Ivory Gull, Rigel and Invader.



have never seen a model aeroplane before and stop our friend just to touch his model. He gives news of the development of the A.T.C. over there. There are now twenty-eight A.T.C. centres in India.

Stone-Age Modellers in Malaya.

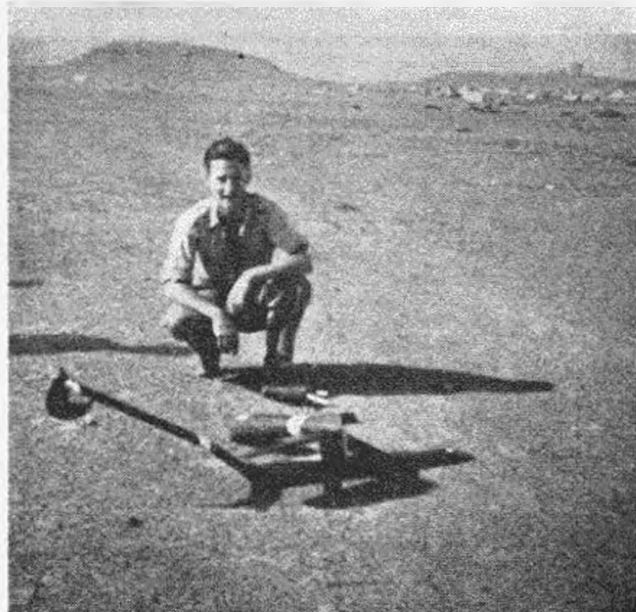
A/C Jones finds time for modelling in Malaya, assisted by a Chinese carpenter, who is proving a somewhat slow pupil. The Boffin appreciates the difficulty of explaining how to make a dowel in Pidgin English. Lack of sandpaper is another problem, solved with pieces of glass and stone.

Indian Lyric.

Old Leeds M.F.C. member W/O Kirkness, who has roved all over India from Karachi to Colombo, gives a stirring account of his Flight's modelling activities. ". . . The first model I made out here was an Ajax and was very successful, until the rubber which I had brought out here gave out. Due to the humidity and the heat this did not take long and the Ajax then became a glider. However, after about six months this model was lost in a cu. nimbus cloud during the monsoon.

Events for a time then prevented me making any flying models, but after a lapse of another six months I attempted to make a Stothers Glider from bamboo, millimetre ply, casein glue and toilet paper. Again humidity was a big bugbear and the joints were constantly coming adrift—resulting in much cussing on

Not a rocket project—but the result of over hard contact with a piece of Oriental Eaton Bray.



the part of the squadron 'chippy' and myself. From then on I made solids which were used for aircraft recognition. This state of affairs continued until last November, when things looked up. I determined to try again to build a glider from hardwoods as the unit had moved across India and was now stationed at Mauripur, Karachi, on Air-Sea Rescue Work. I had by this time infected the rest of the crew and we designed three models, all gliders, which were to be built on our return to Mauripur. We intended using spruce, etc., from wrecked gliders in the 'graveyard.'

However, we were extremely lucky on visiting said 'graveyard' and found two Mosquito fuselages which were waiting to be burned. Before the morning was over we had a shed full of balsa planks measuring roughly 6 in. by 30 in. by 1 in. A stripper was made, tools obtained from stores, and a very flourishing Club started.

At first we were stumped for cement, but celluloid and clear dope proved a very good substitute, until the ground crew 'chiefy' discovered that the models were consuming more clear dope than the Liberators! That caused us to commence using red adhesive dope, which is excellent but makes a rather messy-looking framework.

Much interest has been aroused by the club, and glider competitions held every Sunday, each entrant applying one rupee entrance fee and the winner collecting the lot.

One point of interest out here is the fact that thermals can be seen, in the shape of columns of kite hawks hanging in the sky."

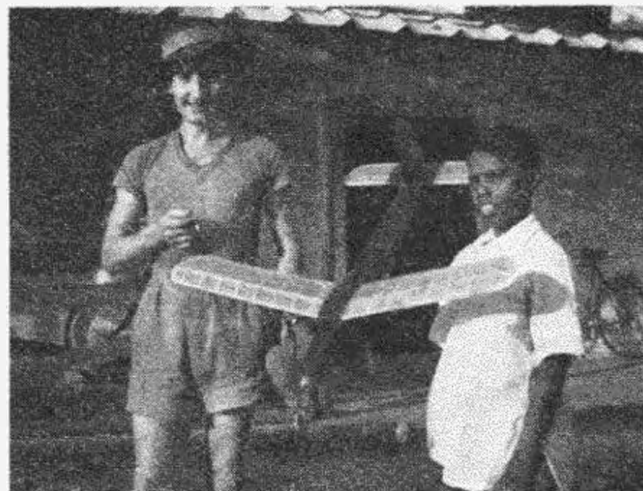
Wonggadas at Work.

An Australian reader, Phil Devenish, writes from Perth of a visit to the Wonggada nomads in search of authentic gen on boomerangs. The wood used is mulga, almost the only timber available, and they are made for both left and right-hand throwing. Neighbouring tribes have profited by civilisation to the extent that their boomerangs are now made from hoop-iron, hammered to an airfoil section. The average age of his instructors in the gentle art of throwing them is not much more than five years!

Dr. Piatelli's "Bipe" sailplane, built at the Experimental Centre for Aeromodelling at Tel Aviv



A/C Jones with his Chasteneuf Glider, built with the assistance of his Chinese carpenter friend.



Corpl. Rosser with one of his Indian "retrievers" ready to help. (Below.) W/O Kirkness, of the Mauripur Club with "Girl Pat II."

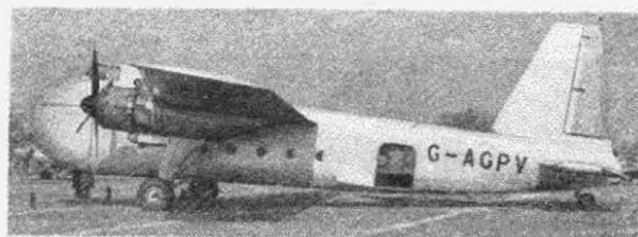


M O N T H L Y B Y O - G



Somerset Spectre. Descended from Widgeon I of 1924, this Widgeon IIIA, G-AAGH, first built in 1929, has recently been revived by Westland and is seen here being tested by Mr. H. J. Penrose, Senior Experimental Test Pilot.

A.T.P. Photo.



Many Cargoes. The Bristol 170 Freighter, photographed at the Heath Row Display of Civil Aircraft on 25th March.

A.T.P. Photo.



Oh! Jack. One of the many Auster J-1 aircraft now being exported. Here is OO-JAQ at Rearsby, destined for Belgium.

A.T.P. Photo.

Striking. U.S. Navy's latest dive-bomber, the Martin BTM Mauler, scheduled for Midway class carriers. The Mauler reaches over 350 m.p.h., dives at 500 m.p.h. and carries torpedo or 4,000 lb. of bombs and rockets. Range is 1,700 miles.

Glenn L. Martin Photo



Avro Tudor II. First tested at Woodford early in March, the first prototype Avro 689 Tudor II, G-AGSU, is now undergoing extensive trials and promises to make an outstanding contribution on world air routes within the next few years. It is expected that the Tudor II will be in service in numbers on B.O.A.C. routes by the end of the year.

The Tudor II is powered by four Rolls Royce Merlin 102A liquid-cooled motors rated at 1,770 h.p. each and has a maximum speed of 325 m.p.h. at 20,500 ft. and cruising speeds from 200 m.p.h. to 250 m.p.h. Accommodation is provided for 60 passengers (maximum) or 40 passengers convertible to 22-berth night sleeper. Wing span is 120 ft. (same as Tudor I) but the fuselage has been lengthened to 105 ft. 7 in., the Tudor I being 80 ft. long. The standard 40-seater Tudor II has a range of 1,850 miles at 230 m.p.h. at 20,000 ft. Provision has been made for cabin pressurisation. As a freighter the Tudor II has ample room for nine tons of cargo which can be carried for 1,100 miles at 200 m.p.h. at 10,000 ft.

Production of the Tudor II is to commence in Australia and Canada as well as at Avro's parent factory, and it is estimated that 40 to 50 aircraft will have been built by the end of 1946.

Fighter Squadrons in Europe. Students of R.A.F. squadron equipment will be interested in the following list of units comprising the famous 83 Group, 2nd Tactical Air Force, which provided fighter support for the Allied armies during the last phases of the war.

Squadron	Aircraft	Wing	Service
No. 3 (F)	Tempest V	No. 122	R.A.F.
No. 11 (F)	Spitfire XIV	No. 125	R.A.F.
No. 56 (F)	Tempest V	No. 122	R.A.F.
No. 80 (F)	Tempest V	No. 122	R.A.F.
No. 130 (F)	Spitfire XIV	No. 125	R.A.F.
No. 137 (F)	Typhoon RP	No. 124	R.A.F.
No. 175 (F)	Typhoon RP	No. 121	R.A.F.
No. 181 (F)	Typhoon RP	No. 124	R.A.F.
No. 182 (F)	Typhoon RP	No. 124	R.A.F.
No. 184 (F)	Typhoon RP	No. 121	R.A.F.
No. 245 (F)	Typhoon RP	No. 121	R.A.F.
No. 247 (F)	Typhoon RP	No. 121	R.A.F.
No. 350 (F)	Spitfire XIV	No. 125	Belgian.
No. 400 (F)	Spitfire XII	No. 39R	R.C.A.F.
No. 401 (F)	Spitfire IX and XVI	No. 126	R.C.A.F.
No. 402 (F)	Spitfire IX and XVI	No. 126	R.C.A.F.
No. 403 (F)	Spitfire IX and XVI	No. 127	R.C.A.F.
No. 411 (F)	Spitfire IX and XVI	No. 126	R.C.A.F.
No. 412 (F)	Spitfire IX and XVI	No. 126	R.C.A.F.
No. 413 (F)	Spitfire XII	No. 39R	R.C.A.F.
No. 416 (F)	Spitfire IX and XVI	No. 127	R.C.A.F.
No. 421 (F)	Spitfire IX and XVI	No. 127	R.C.A.F.
No. 430 (F)	Spitfire XII	No. 39R	R.C.A.F.
No. 433 (F)	Typhoon FB	No. 143	R.C.A.F.
No. 439 (F)	Typhoon FB	No. 143	R.C.A.F.
No. 440 (F)	Typhoon FB	No. 143	R.C.A.F.
No. 445 (F)	Spitfire IX and XVI	No. 127	R.C.A.F.
No. 486 (F)	Tempest V	No. 122	R.N.Z.A.F.

MEMORANDA T H E T F O R D

Lancaster Production. Figures have been released giving the total numbers of Avro Lancaster bombers of all Marks produced throughout the war. They are: (Lancaster I): 896 by Avro at Manchester and Yeoman; 919 by Armstrong-Whitworth at Coventry; 300 by Vickers at Castle Bromwich and 235 by Vickers at Chester; 944 by Metro-Vickers at Trafford Park; 150 by Austins at Birmingham. (Lancaster II): 300 by Armstrong-Whitworth at Coventry. (Lancaster III): 2,744 by Avro at Manchester and Yeoman; 110 by Armstrong-Whitworth at Coventry; 136 by Metro-Vickers at Trafford Park. (Lancaster VII): 180 by Austins at Birmingham. (Lancaster X): 422 by Victory Aircraft in Canada.

Auster Production. It can now be announced that a total of 1,604 Auster light monoplanes was built by Auster Aircraft Ltd. during the recent war. This grand total was comprised of 100 Mk. I, 2 Mk. II, 467 Mk. III, 255 Mk. IV and 780 Mk. V Austers.

Additionally, the Auster factories repaired and sent back into service 50 Mk. I, 1 Mk. II, 125 Mk. III, 72 Mk. IV and 41 Mk. V Auster aircraft. Auster Aircraft also repaired other types of Service aircraft, including 360 Hurricanes, 281 Typhoons and 339 Tiger Moths.

R.A.F. Flashbacks—19. A contemporary of the Siskin, the Gloster Grebe single-seat fighter formed the equipment of Nos. 25, 29, 32, 56 and 111 (F) Squadrons of the R.A.F. during the twenties. Grebes were ultimately replaced by Gamecocks and Bulldogs. Two-seater dual-control Grebes were supplied to the R.N.Z.A.F. and to the R.A.F. Flying Training Schools.

The Grebe was of all-wooden construction with fabric covering—the last standard R.A.F. fighter to be built in this fashion. Fitted with a 396 h.p. Siddeley Jaguar two-row radial, the Grebe had a top speed of 152 m.p.h., a climb to 20,000 ft. in 24 mins. and an absolute ceiling of 23,000 ft. The Grebe had a span of 29 ft. and a loaded weight of 2,614 lb. Production Grebes were numbered J 7394, J 7400, etc.

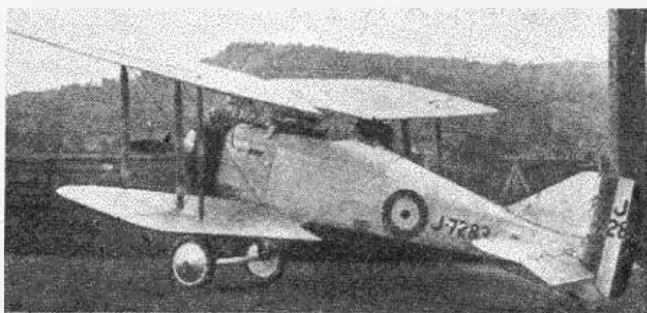


Photo: Gloster.
The Folland Signature. Last wooden fighter in the R.A.F., the Gloster Grebe has many signs of its S.E.5 ancestry. See R.A.F. Flashbacks on this page.



Photo: Bristol.
Turkish Delight. A rare picture of one of the Bristol Blenheim IV bombers exported to Turkey in 1939. The aircraft were allocated temporarily with British registration letters.



Photo: Vickers.
Wot! Another Variant! This Spitfire II with long-range tank beneath the port wing was standard equipment with Nos. 66, 118 and 152 (F) Squadrons of Fighter Command in 1941.

Superplanes by Avro. The Avro Tudor II, G-AGSU, photographed on its test flight last March. About forty Tudor II's are expected in service by December.

Photo: Barratt's.



AEROPLANES DESCRIBED XXXIX

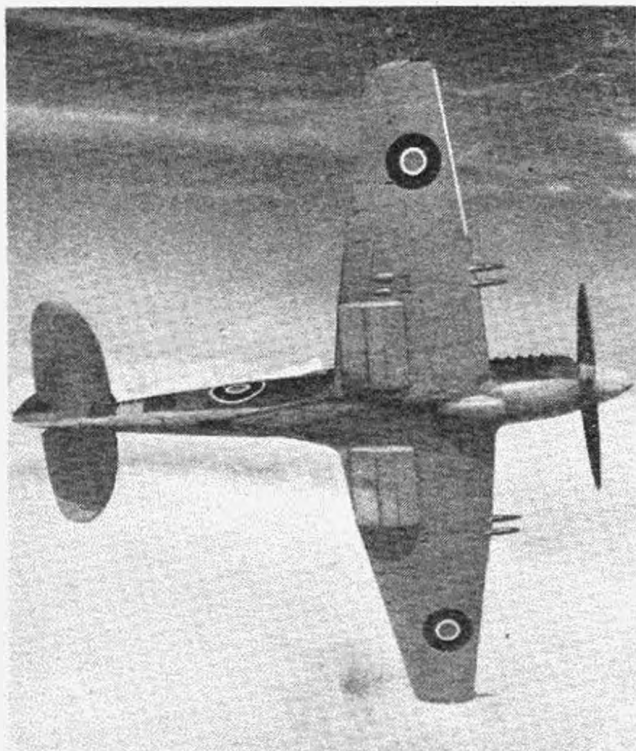
The Vickers- Armstrongs SPITEFUL XIV



MAINAINING the honoured tradition of the Supermarine stable, the Spiteful bids fair to rival its distinguished relative, the Spitfire. The Spiteful is a conventional stressed-skin, low-wing monoplane, and conforms to the most modern standards of piston-engined fighters. Two marks of this aeroplane have been released to date, the Mark XIV fitted with a Rolls Royce Griffon 65 series motor, and the Mark XV which has a Griffon 85, and contra-rotating airscrews.

Built in 1944 and flown in June of that year, the Spiteful is a contemporary of the Spitfire 20 series, and although based largely on that masterpiece of aerodynamic beauty it is an entirely new design.

The passing of the Spitfire curve in the design of the wing will be noted with sorrow by all who admired it. The new wing has a severe angular appearance, and is built round a laminar flow section, supported by a massive single spar, at about 10 degrees of the chord. The skin is preformed, giving a mirror finish which has few equals.



A secondary spar carries the bending and drag loads of the flaps and ailerons. The latter are of the shrouded Frise type, of long chord and are fitted with trimming and balance tabs. The normal armament comprises four short-barrelled 20 mm. British Hispano cannons. The ammunition is fed to the guns from tanks mounted beside them in the wings.

Another new departure from Spitfire practice is the inward-retracting undercarriage. The main units are accommodated ahead of the main spar, and are faired by doors giving a smooth under-surface when retracted. In the Spitfire, the leg is internally splined to prevent it rotating, whereas in the Spiteful there are the more conventional scissor torque links. The legs are supported against side loads by knuckle-jointed struts.

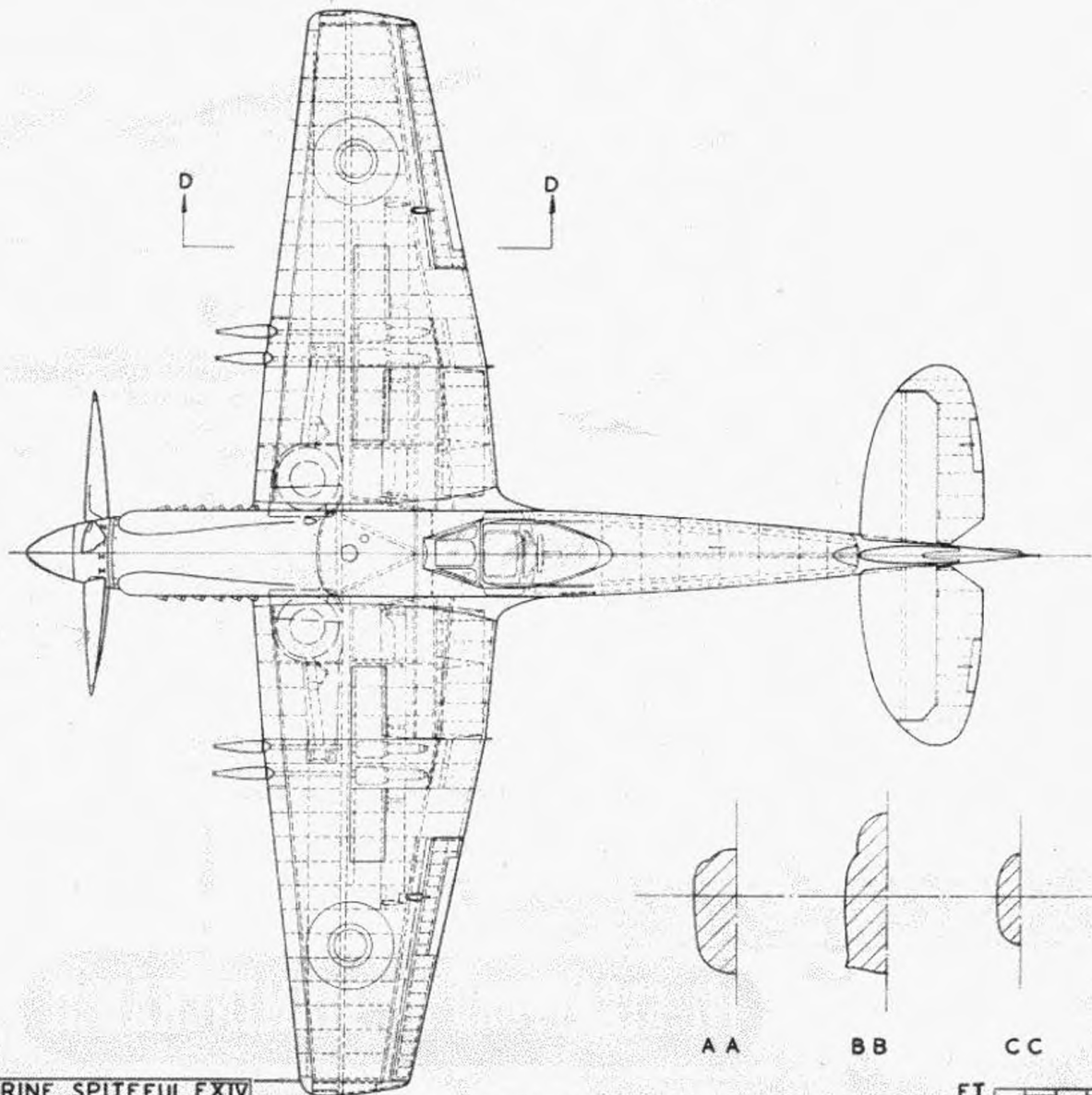
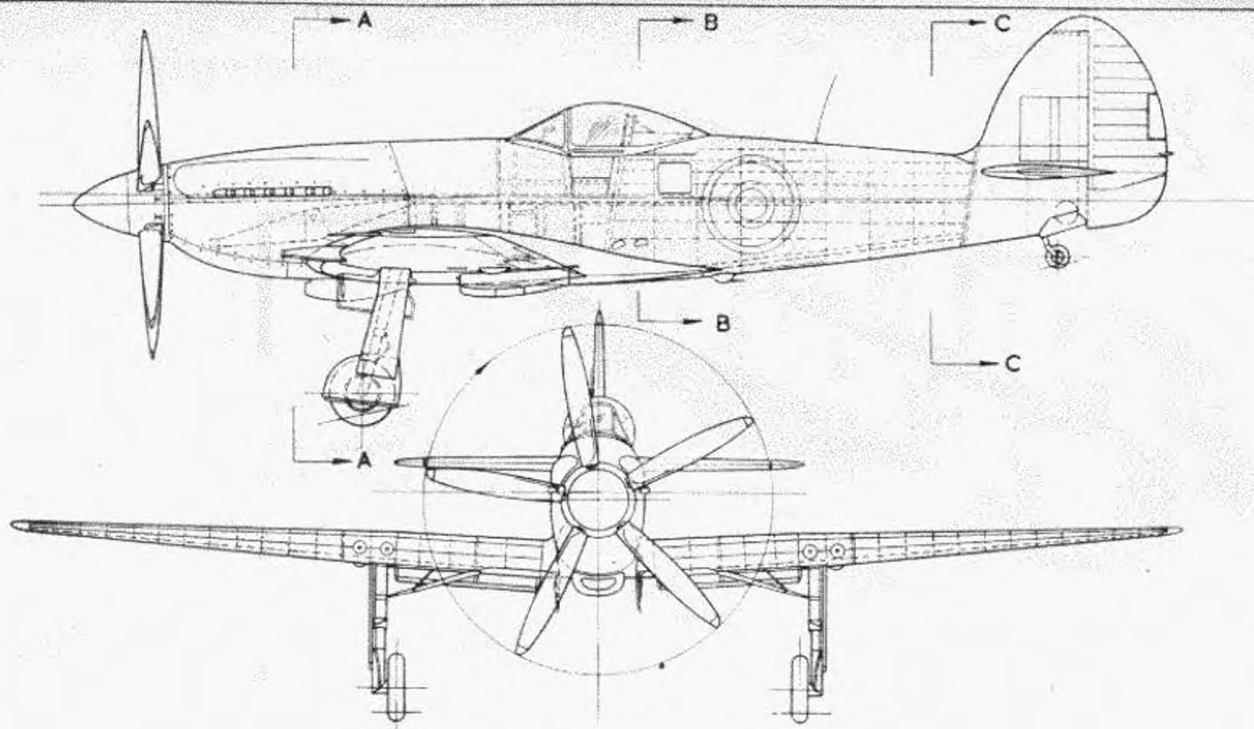
Instead of the long, slim fuselage of its predecessor, the Spiteful has a considerably altered side-elevation. To assist the pilot taxiing, his seat has been raised several inches, improving the view forward over the nose. The resulting extra side-area ahead of the centre of gravity is the reason for the greatly enlarged fin.

Similar to German practice, the motor is mounted on a semi-cantilever beam. Unlike the German method, however, the beam is a built-up box, using flat sheet and angle plates as in the Mustang III. The Griffon 65 or 85 is installed as a quickly detachable power plant. There is a short air intake mounted below the cowling incorporating a tropical filter. One early prototype, NN667, had a deeper nose with the air intake mounted directly behind the spinner, also like the Mustang. A Rotax five-blade airscrew is fitted on the Mark XIV. The main fuel intakes are situated in the fuselage.

The two coolant radiators are of the shallow, boundary-layer type and are designed to use the low speed air close to the surface of the wing, causing less drag than the deeper type.

Except for the prototype NN664, which was silver, all production Spitefuls recently photographed have standard camouflage. Serial numbers are RB515, RB516, RB517, RB518, etc. RB523 is similar to NN667.

Specification: Single-seat low-wing monoplane fighter. All-metal construction including tail-surfaces. Power-plant: One Rolls Royce Griffon 65, 69 or 85 of approximately 2,375 h.p. Span: 35 ft. 6 ins. Length: 32 ft. 4 ins. Height: 13 ft 0 ins. Wing area: 210 sq. ft. Wing loading: 42.85 lb./sq. ft. Weight loaded: 9,000 lb. approx. Speed at 25,000 ft.: 460 m.p.h. approx. Armament: Four fixed 20 mm. cannon, and adaptable for bombs or rockets.



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141. STRATFORD RD. BIRMINGHAM, 11.

At the Gamage Cup with the Blackpool and Fylde M.A.C. Presumably the gent on the left with a cigar had a successful day.



BY CLUBMAN

THE Gamage Cup event seems determined to outlive its past unenviable reputation—you all remember the tag of "Damage Cup" this event got burdened with! Once again the weather seems to have been right on the top line for the opening contest of the official calendar, and from reports received, it would appear that almost ideal conditions prevailed over practically the whole of the country.

The winner had, I understand, two flights of over 20 minutes each, though unfortunately the individual flights are not detailed in the official results, and from the times set up by the first dozen place men, the thermal greulins were doing overtime. Second place winner was J. R. Millar, flying his "Dusty VIII" (detailed in the April, 1946, issue of this magazine), and the claims made in that article have been well confirmed by the performance of this design in the contest. He had two fine thermal flights of 19:59 and 10:35, both o.o.s., and finished up with a flight of 2:54 to make his total aggregate of 2,008 points.

The only other report giving information of high-place Gamage Cup flights is from the Walthamstow club, who notify that the ninth man, M. King, had a flight of 19:50 o.o.s., this one flight being enough to bring him into the top dozen. (That's the snag of these "out-of-sight" flights—it is a common occurrence to lose the model, and without completing the three allowable flights, be put down the list.) Strangely enough, the winner—a strong supporter of the de-thermaliser, and author of a booklet on the subject—was employing one of these gadgets on his model, and (I am told on reliable information) when the mechanism came into operation the model actually *increased* its rate of climb! They're mighty strong thermals down Epsom way!!

Anyway, let us hope that this fine-weather opening of the 1946 season will continue, and for once in a while not wreck all the new and old models with strong winds and heavy rains. Oh to live somewhere where one could arrange a competition day with some measure of assurance that the conditions would at least be reasonable.

conditions over there. To quote from his letter . . .

"During German occupation I joined a secret and underground gliding and aeromodelling club here in Antwerp, and held meetings, built models, and even started building full size gliders for after the war!

"After the Liberation, I joined the Belgian Air Force in England, was demobbed, and went back to take up my job as an aeronautical instructor. Some weeks later I was informed that the club officials had decided that . . . 'every club member who was earning wages through any work or trade connected with aeromodelling had to give up 50 per cent. of those wages to the club' !!!!!!"

Wow!—I wonder what the reaction would be over here if any club or organisation tried that stunt on! There would be some real sorting out, I reckon, as it is my experience that invariably the "trade bloke" is the backbone of the local clubs, and the sport as a whole would be the loser if any move came into force on the lines stated above.

And now to a very vexed question! I have viewed with dismay of recent months the increasing complication of the contest side of our hobby, and have expressed the opinion that the whole thing is getting top-heavy. It was with a great deal of interest, therefore, that I read the views of the S.M.A.E. Records Officer, Mr. R. V. Bentley, in the current issue of the Blackpool & Fylde club magazine, and he expresses my own feelings so well, I quote him *verbatim*:

"The competition problem is getting completely out of hand, with the S.M.A.E. programme and the three Areas in addition, all combining, without due collaboration, to jam the whole of the season full of contests. This policy is all wrong, and if left to operate much longer, will result in the choking of active expansion over the whole country.

"The real kick in aeromodelling comes in meeting fellow enthusiasts from various places, and the way to do it is NOT to organise a multitude of petty, one-contest, one-day meetings on each and every Sunday throughout the season. Clubs want time to fly for sport on their own grounds, where they can thoroughly test and develop their contest models without the constant thought that by doing so they are missing a contest which it is their duty, as an affiliated club, to attend.

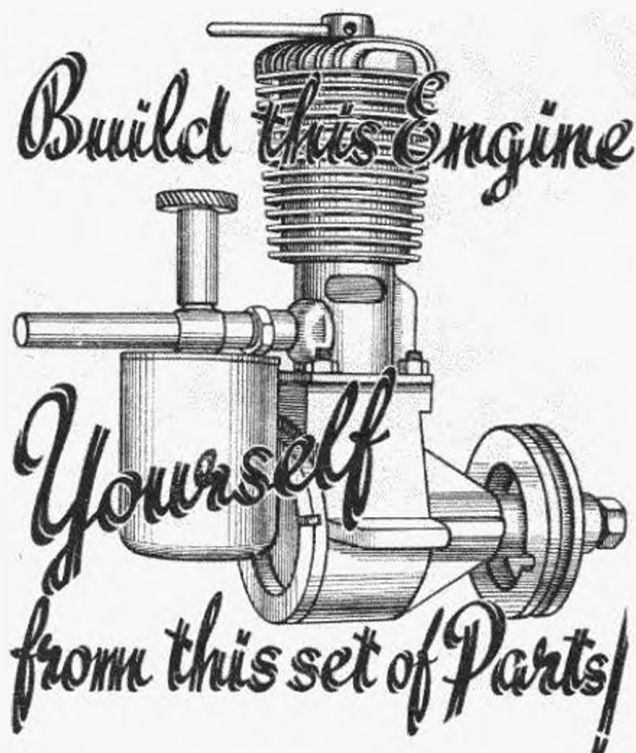
"It is time, too, that the London Area clubs realised the distances to be travelled by a provincial club to attend a contest, together with the cost of fares to do so, and tried to

1946 GAMAGE CUP RESULTS
(Decentralised Contest, April 14th, 1946)

1. Warring, R. H.	Zombies	Aggregate	2004.7
2. Millar, J. R.	Northern Heights	..	2008
3. Brockman, D. A.	Zombies	..	1438.85
4. Pitcher, J. L.	Croydon	..	1314.9
5. Taylor, J. F.	Rhyl	..	1287.5
6. Kelsey, S.	Cheam	..	1251.1
7. Farthing, M.	Croydon	..	1237
8. Watkins, J.	Croydon	..	1231.2
9. King, M.	Walthamstow	..	1190
10. Armes, A. C.	Pharos	..	1161
11. Calvert, E. R.	Bradford	..	1148.75
12. Lewis, E. H.	Blackheath	..	1082.4

(Approximately 200 entries.)

An interesting letter to hand from a Belgian friend, Paul de Moeyer, gives an insight into some very unusual



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assist in the formation of a more generally satisfactory contest programme. Or would it be more correct to say that it is time that the S.M.A.E. Council appreciated the conditions, and introduced what the Northern Area suggested many, many months ago, namely, not an E.G.M. for the discussion of contests, but a conference of club delegates, each with representative voting powers, to arrange the contests—ALL THE CONTESTS—Areas included, the dates for which would be put forward by the Areas in good time and for which the Conference of Delegates would give its sanction.

The E.G.M. is the old-fashioned, stick-in-the-mud British style, and it is high time that some more modern, more satisfactory, and more revolutionary methods were introduced. A General Meeting must necessarily be swayed by the preponderance of local attendance, while the Delegate Conference would ensure even distribution of the voting power, and thus be a true record of the feelings of the whole movement. We have had enough of paltry decentralised contests, and semi-centralisation is going to do little more than increase the expenses of contesting members.

"We want big, multi-contest, two-day (or more) meetings, really worth making efforts to attend, and capable of repaying those efforts by affording everybody a really good time. There is no necessity for more than three such contests per year in each Area, and practically all the present S.M.A.E. trophies could be competed for at them.

"We repeat, the present method is no good, and it is going to choke provincial development. There is only one way out for the Provincial Areas if they want to thrive, and that way is easy to see. Let those concerned open their eyes and observe!"

Well, there is something to get your teeth into, and I for one could not agree more. Vic knows what he is talking about, and voices my own feelings in the matter—feelings I have had and expressed for many years. Years ago I advocated the institution of a two- or three-day National Meeting, on similar lines to the American meetings we know so well, where for one trip and one expense, provincial modellers could have a darn good time, meet all the keen types in their own hobby, and compete for all the main trophies.

Bentley's remarks re "the preponderance of local attendance" is something that wants very careful consideration. I have always argued that the conduct of some meetings is reprehensible in this direction—and, quite frankly, I would compare some recent important gatherings to a collection of sheep. Individuals have not voted as they really think (if think they do), but automatically put their hands up when instructed or led by the club secretary or other leading light. Much voting is quite unthinking, and it is high time that our house was put in order. I back Bentley to the hilt in his drive to get better conditions, and will be pleased to receive views from those of you who think more of the hobby than individual thermal chasing.

And now for this month's batch of reports.

The ISLINGTON M.A.C. turned out in force on the 14th April for an informal flying meeting. Weather was almost perfect, haze being the main snag. Best flight of the day was made by Mr. McCarthy with his 50-in span lightweight sailplane, weight 4 1/2 oz. Winch-launched from a 250 ft. towline, the model went for good on its third flight, time when lost to sight being 10:21.

BRISTOL & WEST M.A.C. have secured the use of Lulsgate Aerodrome for competition flying this year, and regular monthly clubroom meetings are being conducted on the third Monday of each month at the Haymarket

Tavern, Horsefair, from 7.30 p.m. onwards, all interested modellers in the district being welcomed. After a very quiet winter, when members should have been building and trimming models, the Gamage came along and caught many unprepared! A. H. Lee brought out an untrimmed Wakefield, and did very well to aggregate 6:09 with three very consistent flights. M. Garnet, who was also flying a Wakefield, managed to hit a thermal on his first flight, and had an aggregate of 7:26.5. Both these models were shoulder-wing types, with two-blade non-folding props, Lee's of elliptical section fuselage, and Garnet's octagonal, and stability wallahs may be interested to know that both jobs are extremely stable and reliable. R. A. Foster, the club's helicopter expert, is having fair success, though having trouble with pendulum type instability. His latest job, while gliding nicely, will only fly *backwards* under power!!

Interest in the WALTHAM & ENFIELD M.A.C. is more than ever centred on petrol models, favourites being the "Bowden Contest," "Vagabond" and "Dude." Many o.o.s. flights have been made recently, J. Warren putting up 6:10 with his "Icarus" glider, and a flight of 5:03 with a lightweight glider, the joint effort of M/s. Parker and Revett.

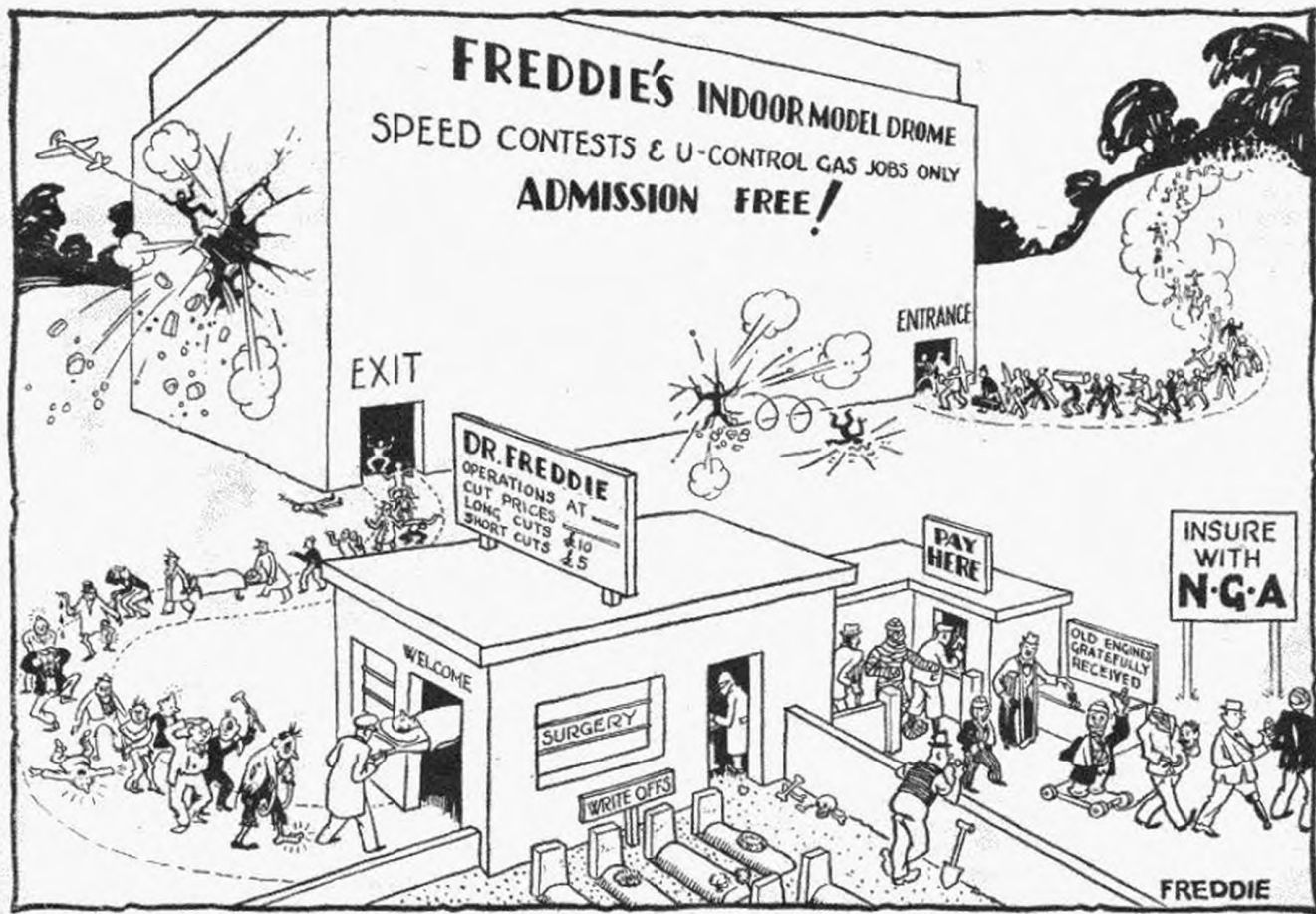
Birmingham clubs are making good use of Hockley Heath aerodrome, a few miles from the city. The EAST BIRMINGHAM M.A.C. lads turned up in full force for the Gamage Cup event, but the hot weather was too much for their hard-worked pre-war rubber, and every motor went for a Burton! Hard-luck, blokes—

and it would happen when the finest weather for ages comes along.

The summery weather tempted the members of the LEEDS M.F.C. from their winter hibernation on the 31st March, and a good turn-out was experienced. "Mick Farthing Gliders" are very much in evidence here, and H. Tubb's version flew away after a flip of 10 minutes. F. C. Anderson, also flying a "Mick," lost his job after 7:30 o.o.s. D. Coveny had a flight of 2:40 with the powered version of this highly successful design, while Anderson had another flyaway a fortnight later.

A few enthusiasts in the R.N.A.S. have formed the HOOD M.A.C., and the initial flying meeting saw bags of thermals in evidence, with fine—if costly—flying in consequence. In the sailplane event, D. Baxter's "Ivory Gull" clocked 8:25 o.o.s. and was then lost for good on the second flight after 13:50. D. Malone's "Vanda" was lost first flight after being officially timed for 6 minutes o.o.s., though onlookers with binoculars kept the job in sight for a total of 25 minutes. In the rubber-powered event, G. Malyon's diamond fuselage model clocked a consistent 1:05 and took first place. A good start for a new club, and I hope they get plenty of new members following this notice. (Full details in the "New Clubs" section at the end of these columns.)

I am called to order by the CHEADLE & D.M.A.S. for my reference to them as "an enthusiastic bunch of youngsters," they pointing out that the average age of the members is sixteen, ages ranging from 14-21. Sorry, blokes, but from my increasing white hairs and greying



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beard I still reckon I'd like to be known as a youngster!! Anyway, what matters the age if the enthusiasm is there? Only three members could be roped in for the club effort in the Gamage Cup, but these all made good flights, not one being under the minute. Moulson's "Mick Parthing" broke the club record with times of 1:46 H.L. and 3:51 R.O.G., one flight finishing only twenty yards from the point of launching. That's the way I like to fly my models now my poor old pins are displaying increasing instability!

K. F. Brown, of "Headlands," Mears Ashby, Northants, would welcome news of his "Tern" sailplane, last seen on the afternoon of the 19th April, heading towards Kettering.

After lying dormant, the CHESTER M.F.C. have restarted activities, a noteworthy feature being the return of many of the pre-war members. Mr. F. Wilde is again secretary, with a change of address as noted in the "Changes" section.

T. Johnson, of the HENLEY M.F.C., raised the club H.L. record with a flight of 2:45 o.o.s. This club have acquired a Diesel engine, and members are now working hard preparing a model for same.

NORTHERN HEIGHTS M.F.C. continue with their commendable series of lectures to members, while outdoor activities, of course, continue to be well supported. The rubber gremlins plagued everyone but J. R. Millar on Gamage day, he being the only one not to break a motor. Copland was second best in this club, a first flight of 12:57 being followed by rubber trouble, and his aggregate being 957. June 30th is the date for the first post-war Gala Day, the venue being Langley Aerodrome, near Slough. Gliders, rubber and engine-powered machines, scale and unorthodox models will all be catered for, and (weather permitting), the Hawker Aircraft Co. have promised to give a display of flying with full size aircraft, so all are ensured of an interesting day. Full details can be obtained from the secretary at 61, Avonell Road, Highbury, N.5.

The NEWCASTLE-UPON-TYNE M.A.C. is just finding its feet again after six years of hibernation, and already some good times are being put up. The results of their latest glider contest speak for themselves:—

J. Fisher	12:30 o.o.s. (Junior record)
P. Arnot	12:25 aggregate
W. N. Armstrong	7:24 aggregate
S. C. Fairless	6:32 aggregate
J. R. Davidson	6:25 aggregate
L. Carnston	2:51 aggregate
J. Alder	2:43 aggregate

Club membership is now over the 80 mark. Good luck, Newcastle.

The CROYDON & D.M.A.C. have arranged their annual Gala Day for July 28th, and I expect further details later. A team of four was sent to the Surbiton Gala Day and placed second, individual aggregates being: B. P. Chandler 501.2, J. Eldridge 928.6, N. Marcus 669.9, and Yeabsley 472, a total of 2,571.7 secs. On the same day N. Standing broke the club tail-less record with 1:25, and Eldridge holds the current glider record with a flight of 7:18.

The ARNOLD M.A.C. has passed through some patchy periods since its inauguration last August, chiefly due to members being called to the Forces, and certain A.T.C. members forming their own club. However, membership is piling up, and some good flying has been experienced. R. Bailey set up a record of 1:40 with his "Thermic 50," this, however, being short-lived, as junior member B. Cooper, flying a beautifully constructed "Tern,"

clocked a fine flip of 2:15 o.o.s. This club would welcome inter-club contests with other clubs within a 20-mile radius, so will those interested please contact A. Parks, at 39, Norbett Road, Arnold, Notts.

The first annual Exhibition and Competition of the SCOTTISH AEROMODELLERS' ASSOCIATION was a great success, and the large number of visitors were presented with an impressive display of models of all types, demonstrations of petrol engines and indoor flying, and many constructional shows. Prizewinners were:—

Solid Scale.	J. S. DUTHIE (Dundee)	"Avro 504K"
	D. SKEOCH (Junior) (Stewarton)	"Thunderbolt"
Built-up Scale.	D. HODINOTT (Ayr)	"Tiger Moth"
	D. GREEN (Junior) (Edinburgh)	"Tomahawk"
Flying Scale.	R. BURNS (Stewarton)	"Hawker Demon"
Duration.	D. WHITLEY (Dundee)	"Rocket" Wakefield
	W. FURST (Junior) (Glasgow)	"Achilles"
Petrol Models.	COATBRIDGE M.A.C.	"1.7th scale Spitfire"
Gliders	J. ADAM (Glasgow)	"Zeke"
	W. GRAHAM (Junior) (Paisley)	"Stoehrs"

Don't forget the long list of contests, both static and flying, to be held by the EBBW VALE M.F.C. on August the 17th. Full details can be obtained from Mr. A. W. R. Martin, of 22, Alfred Street, Ebbw Vale.

A number of well-known clubs in the days before the big "upset" are making their appearance once again, four notifying their return to active work this month. The BOURNEMOUTH M.A.S., under the chairmanship of Lt.-Col. Bowden, have fixed up a very comprehensive programme, flying taking place at Somerford Aerodrome. A clubroom, consisting of one large and two smaller rooms, has been provided by the local Education Committee at 896, Christchurch Road, Boscombe, and full particulars of meetings, etc., can be obtained from the secretary, Mr. B. L. D. Beckett, 91a, Belle Vue Road, Southbourne.

The MACCLESFIELD M.A.S.—a club to be reckoned with in Northern contests in pre-war days—has recommenced activities under the secretaryship of C. Eiffaender, Field Bank, Chester Road, Macclesfield.

The third to re-enter the field is the SALISBURY & D.M.E.S. Various improvements have been made to the existing workshop, and flying has already started. Those interested please contact Mr. R. A. Read, 89, Roman Road, Salisbury.

Fourth is the PORTSMOUTH & D.M.A.C., which already has 56 members, and is operating under the guidance of lady secretary Miss P. B. Thayne, 10, Kingston Road, Portsmouth. Welcome back all the old gang, and let's be hearing of your activities as in days of old.

The EAST LIVERPOOL M.A.C., although only opened at the end of last year, now has over 60 members and new ones are still enrolling steadily. Main interest is in sailplanes, though petrol jobs are now making themselves heard!

STOP PRESS

Results of the M. E. No. 2 Cup

1. R. COPLAND (Northern Heights)	821.3
2. G. HAWKINS (Rhyl & Prestatyn)	806.5
3. J. M. HARDMAN (" ")	497.0
4. J. WATKINS, Jr (Croydon)	451.4
5. F. D. WARD (Ashton)	435.2
6. W. G. MARCUS (Croydon)	426.5

Plugge Cup Points

1. Croydon	286.84	4. Northern Heights	267.54
2. Rhyl & Prestatyn	284.8	5. Merseyside	258.77
3. Zombies	269.17	6. Ashton	228.95

During the recent spell of fine weather, CHINGFORD M.F.C. have turned out in full force, together with the usual large crowd of general spectators always to be found at their popular flying field. Best flight of the season so far was the sailplane flight by P. Russell of 4:12 o.o.s. Although pleased, the proud owner was heard to refer to three or more models lost in a similar fashion, all bearing his name and address, but heard of no more!

At Eaton Bray on Easter Monday, R. E. Bowyer, of the CAMBRIDGE M.A.S., flying his original "King Falcon," clocked 30 minutes o.o.s. on his first flight, the model being recovered from Dunstable after a flight of over three hours. At an earlier meeting on the club ground at Stourbridge Common, P. Firman's "Thermic 50" clocked 30:05 before disappearing via Histon towards Bedford. "Codger" Wood, whose model has been consistently clocking 3-4 minutes, lost the job after a flight of 10:59 o.o.s. Seem to be some good thermals round the banks of the Cam.

An inter-club meeting staged with the Merlin club by the SKYRANGERS M.A.C., resulted in a comfortable win by the Rangers, mainly by virtue of a flight of 16:05 by Mr. Steel's sailplane, other flights averaging around the two-minute mark.

The KINGSBURY M.F.C. seem to have a whole flock of tame thermals in their kit—many o.o.s. flights being recorded in recent weeks. Briefly, these are as follows:—

R. Monks	10:00	7:01	5:03
J. Bowerman	10:00	5:10	9:35
R. Miles	7:55	6:58.2	r.o.g.

(New club record.)

A stray of another type is the 40 in. span duration model owned by Bowerman. This model, black diamond fuselage, polyhedral wing, red pylon and tailplane with twin fins, was STOLEN from Hounslow Heath on April 14th. Any information regarding this model should be forwarded to J. Bowerman, at 40, Crundale Avenue, Kingsbury, Middlesex.

An indoor rally was staged by the DONCASTER & D.M.F.C. in conjunction with the Oswyn Avenue lads, the Doncaster lads carrying off the honours. Mick Hetherington struck the first thermal of the year when his medium weight glider, launched from a 100-ft. towline, went careering away after a flight of 9:30, setting up a new record for the class. One member—who shall be unnamed—flew a petrol model minus timer, and in consequence the job went buzzing along for a 3½-minute engine run, and disappeared into the blue. The job was recovered from a roof top, the model having suffered extensive damage. I should say he is lucky not to have a possible third-party claim up against him! When will chaps learn to abide by the rules?

F. E. J. Wintle, of the WEST COVENTRY M.A.C., broke his own club glider record recently with a flight of 2:59 o.o.s., his model being the well-known "Buzzard." The lightweight record was also broken by R. Gunn with a model of his own design, time 1:16.

Another club to indulge in a spate of record breaking was the PAISLEY & D.M.A.C. E. Morrison set up a time of 2:09 with his glider, only to have G. Fudge raise it to 2:45. Such competition is the keynote of successful flying, in my opinion.

And so, here's hoping the good start to the season continues, and—who knows?—perhaps even I may be tempted to get a model out from under the dust and cobwebs. Till next month, cheerio and bags of thermals.

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J. D. Woradale, 10, Burnaby Road, Southend-on-Sea, Essex.
- BOURNEMOUTH M.A.S.
B. E. D. Beckett, 91a, Belle Vue Road, Southbourne, Bournemouth.
- SALISBURY & D.M.E.S.
R. A. Read, 89, Roman Road, Salisbury.
- MACCLESFIELD M.A.S.
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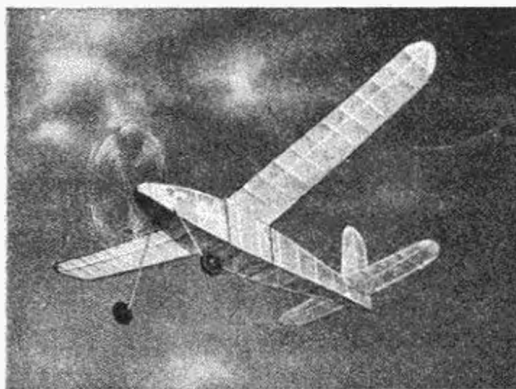
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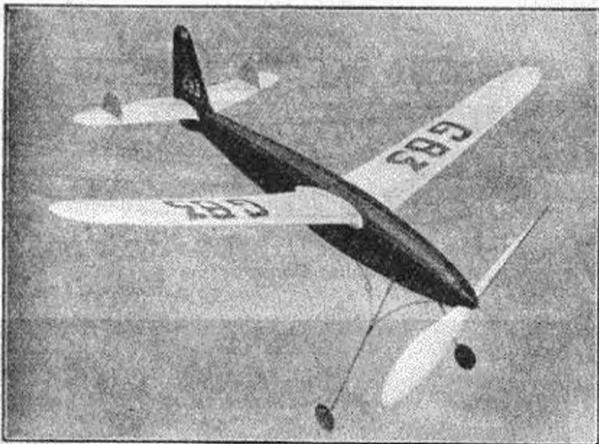


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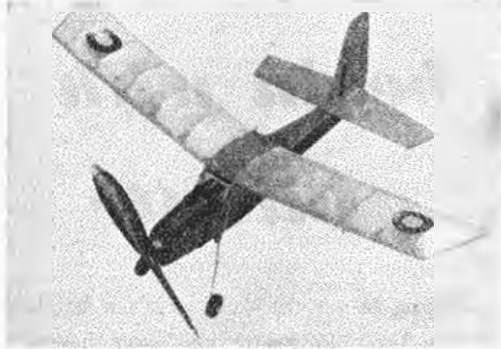
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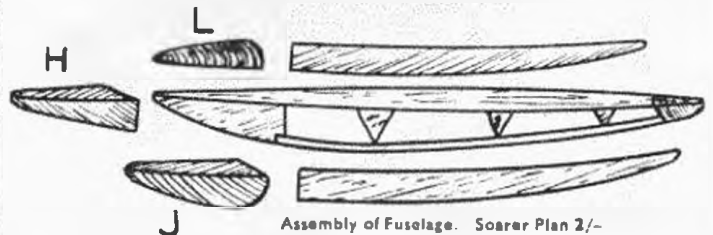
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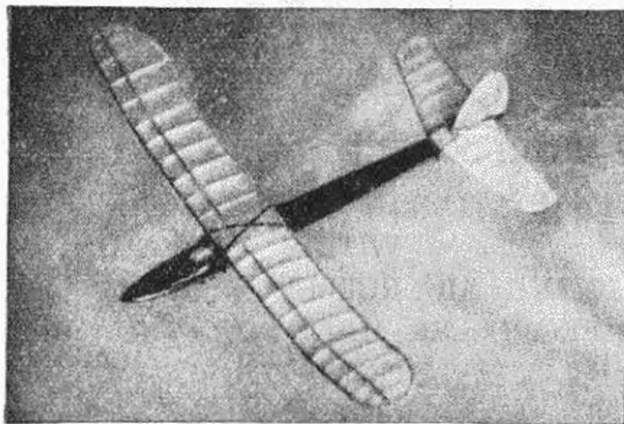
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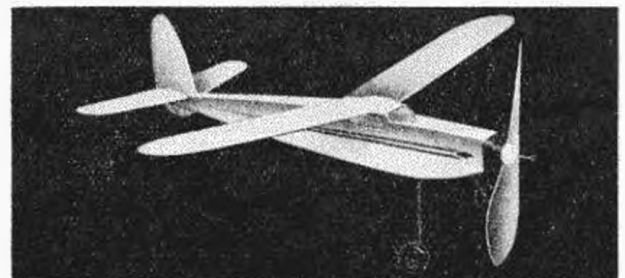
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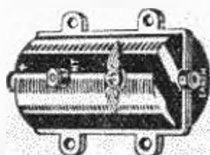


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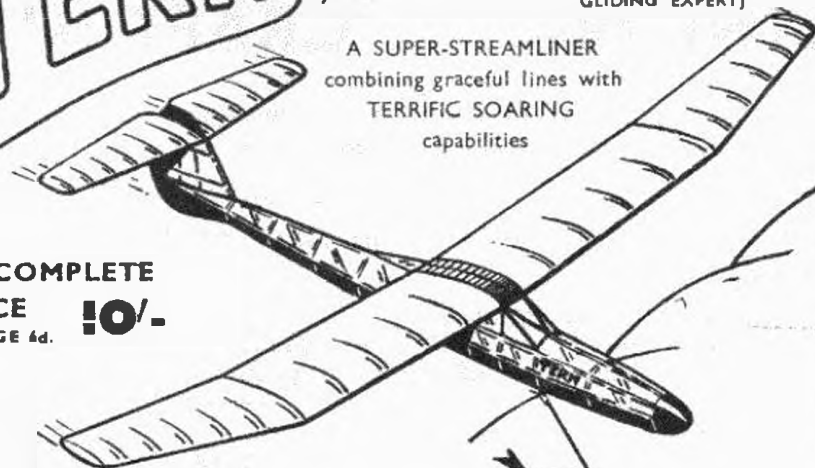
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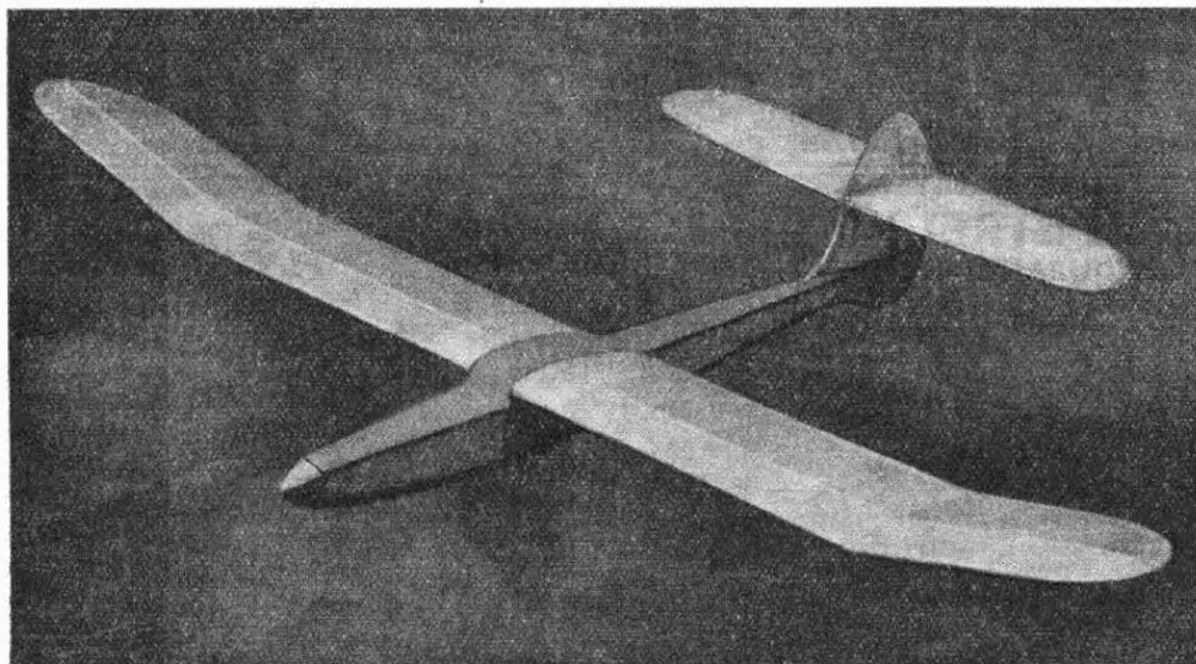
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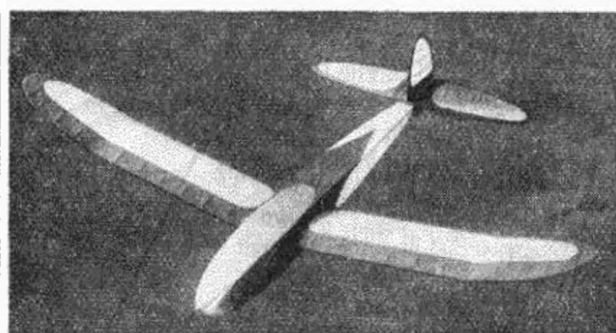
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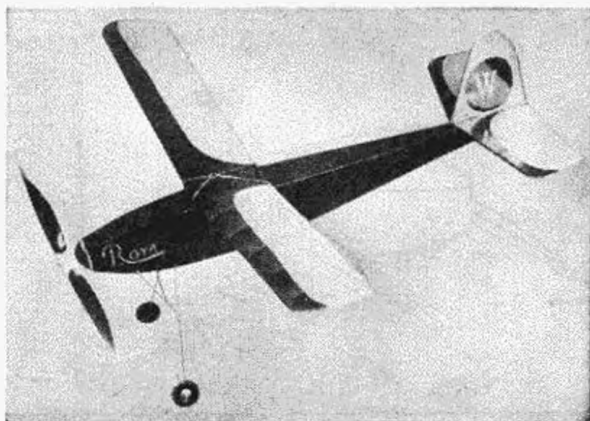
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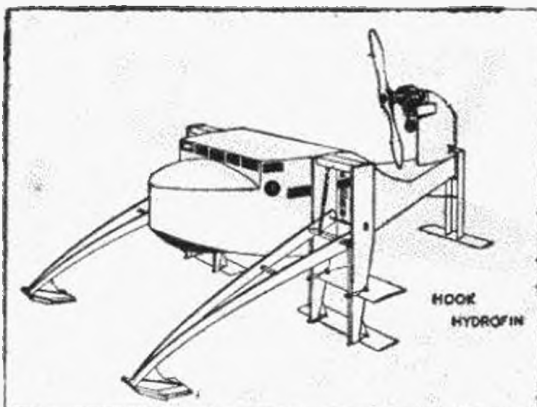
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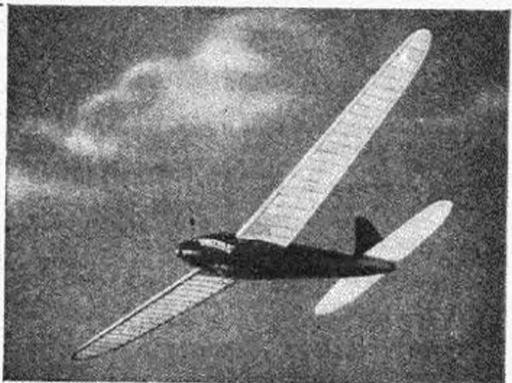
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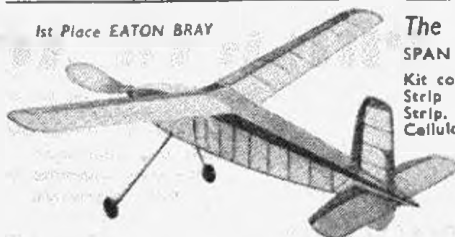
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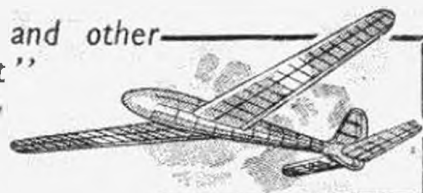
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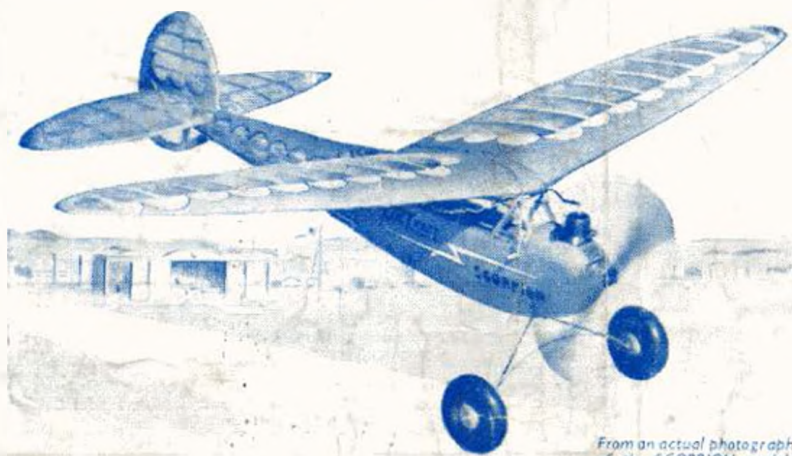
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