MODEL AIRCRAFT

IN THIS ISSUE

OCTOBER 1952

1'6

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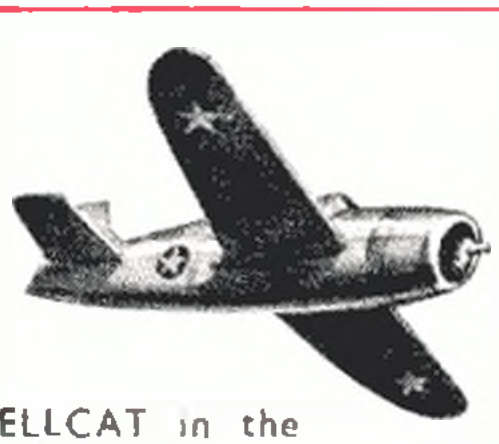

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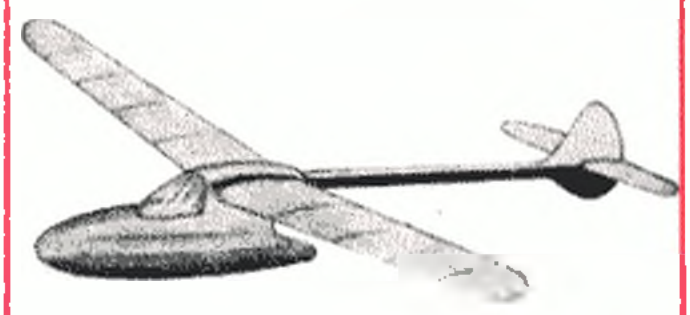

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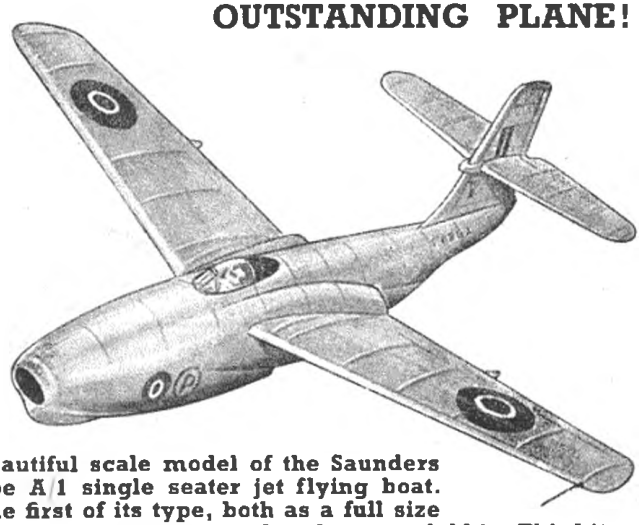

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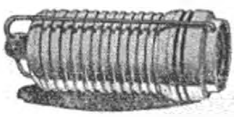

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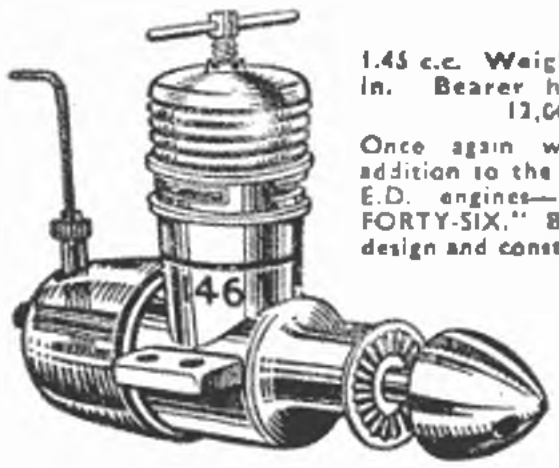

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Span 37 in., length 34 in. Designed for use with Diesel or Glow Plug motors from .5 c.c. up to .87 c.c. such as the Allbon "Dart" .5 c.c., Frog 50, Elfin .5, Mills .75 and the Amco .87. The complete kit contains stage by stage plan, READY MADE IMPELLER and STARTING PULLEY. Graded strip and sheet, quality printed woods, and all the materials including moulded cockpit cover, as well as a wonderful photographically illustrated instruction leaflet showing every stage of construction, also hints and tips on starting and flying.

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Power : Six strands of ¼ in. x 1/30 in. x 30 in. long.

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The Exhibition opens at 11 a.m. (except on opening day when it will be 12 noon) and closes at 9 p.m. Admission 3s. 1s. 6d. for under 14's.

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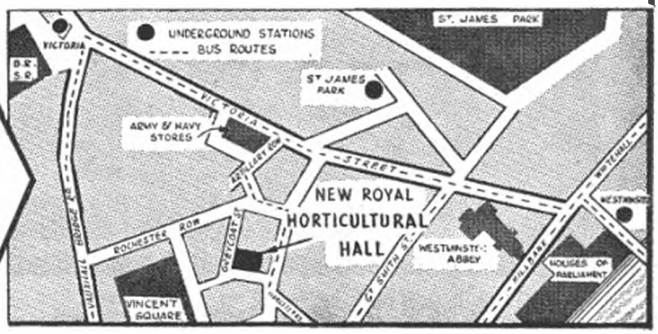

HIGH WIND IN GOSPORT

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Last week-end I went over to Gosport to the British Nationals. I am almost ashamed to confess that it was the first time I had attended a Meeting, so it was unfortunate that there should have been such a high wind. It took years off my life to see beautiful planes diving to the ground in the stunt flying, despite the fact that one competitor could still laugh sufficiently to suggest that it was "good for business"!

One of the things that interested me most, however, was a long talk I had with an aeromodeller and his wife, to whom I gave a lift. He actually confessed to reading my letters, but he also said that he often wondered how much of what I said was true.

I do assure you that anything I write in any advertisement - and that really is what this is - is factual. Here I begin to feel rather like Brett Hart's famous character of "Table Mountain" who, some of you will remember, called himself "Truthful James", but we do believe that we enjoy a really good reputation in the trade.

This has led me to feel that it might be of interest to Model Clubs for me to visit them and to talk to them about Balsa Wood. It would certainly interest me and I really think I can claim to know at least as much about Balsa wood, from the time it starts to grow to its ultimate use, as anybody in the country. Will you take this as an offer to any Club who cares to write in.

Finally, we are getting a very encouraging number of replies to our questionnaire and as far as we have dealt with these they are taking a very distinct pattern. We can already formulate very clear ideas as to what is required, but of this I shall have to tell you more next month.

Yours faithfully,
PLANTATION WOOD (LANCING) LIMITED
J. K. Paterson
MANAGING DIRECTOR.

A VERY ENCOURAGING NUMBER OF REPLIES

MODEL AIRCRAFT

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Consulting Editor
A. F. HOULBERG, A.F.R.Ae.S.

Advertisement Manager
J. V. FORBES-BUCKINGHAM

OCTOBER 1952 VOL II No. 10

Contents

EDITORIAL

London Aera Model Flying Clubs may soon be faced with a serious flying ground problem, for there is a distinct possibility that recent developments in connection with Fairlop Aerodrome will result in its loss to model fliers.

We are informed by the Ministry of Civil Aviation that the aerodrome is to be de-requisitioned in the very near future and handed over to the City of London Corporation. What effect on the future of Fairlop this move will have, no one can say at present. It may become a housing estate, farming land, or possibly an open space for recreation, though this latter is unlikely. It will almost certainly never be used again as an aerodrome.

The London Area is very poorly provided with open spaces large enough for model flying, and the loss of Fairlop would be a really serious blow to the London clubs on whose behalf an agreement was only recently concluded with the Ministry of Civil Aviation, allowing some 50 clubs to be granted flying facilities. The S.M.A.E. have therefore enquired from the City of London Corporation whether they would be prepared to enter into a similar agreement to allow model flying to continue at Fairlop for as long as possible, and their reply is anxiously awaited.

It may take some months before a decision is made regarding the future of the aerodrome, but the warning has been given, and clubs would therefore be well advised to start searching now for alternative flying grounds in their particular locality.

Cover Story

Blue skies and white clouds blessed this year's Nationals at Gosport, but only at the expense of continuous high wind. E. Arnold, of Wellingborough was only one of many stunt fliers in the Gold Trophy who found aerobatic flying more than usually hazardous, and that all one's skill was required to keep the model in one piece by the end.

THE JOURNAL OF THE SOCIETY OF MODEL AERONAUTICAL ENGINEERS

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23, GREAT QUEEN STREET, LONDON, W.C.2. Tel: Chancery 6681-4 Annual Subscription 20s. 0d. post paid.

Here and There

COMMENTS ON CURRENT TOPICS

HOLES IN THE WING MAY HELP

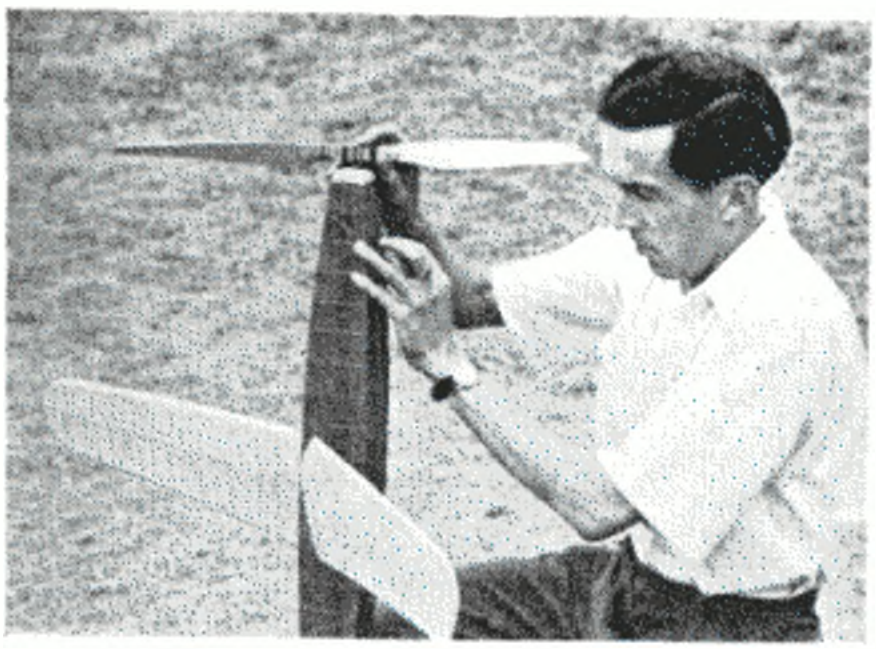
According to the latest ideas on full size sailplane practice, punching a large number of holes in the covering of the wings and then sucking the air out gently from inside each wing, can reduce wing drag to one quarter of its normal value. What actually happens is that separation of the airflow is delayed and the wake consequently reduced.

On this basis, perhaps torn covering on model wings may even be helpful—but only if some means of sucking the air out of the wings is applied at the same time!

BIG PROPS.

One of the few features of outstanding technical interest at the 1952 Wakefield contest in Sweden was the use of large diameter propellers. Joe Bilgri, for example, most successful member of the American team, was using one of 24 in. diameter. That it proved both effective and efficient is borne out by the fact that several observers confirm that Bilgri's model pretty definitely had a potential "still air" performance in excess of five minutes.

Now large propellers for Wakefields are not new. Early this season that outstanding Croydon flier, Jack North, was using a 24 in. diameter propeller with a 1.3 : 1 pitch : diameter ratio. Other modellers have used 20 in. diameter props. Evans used a 22 in. diameter folder on his single skein Wakefield. Not until we saw Bilgri's model perform, however, was any outstanding difference in performance noted from the employment of such oversize airscrews.



Ron Warring with an experimental 24 in. diameter propeller fitted to one of his Wakefields

Funnily enough, all the wind tunnel tests which have been made on model propellers—and a lot of propeller tests have been made by "full scale" engineers using propellers of approximately model size and at model speeds—seem to indicate that whatever the shape or form of the propeller the actual efficiency is not likely to vary much. Oversize diameters, however, may prove the exception to the rule.

The photograph shows a 24 in. diameter, 24 in. pitch propeller on test on one of Ron Warring's Wakefields—the direct result of watching Bilgri's model perform. He says it changes the normal flight pattern of that model quite appreciably and seems, in preliminary tests, at least, to get the model higher under power. He promises us some further data when more tests have been concluded.

THINKING OF EMIGRATING?

A recent letter from a South African modeller included the following: "... At present we are in winter. Conditions are perfect and definitely of the still-air type. It is possible to go flying at 8 a.m. and fly non-stop until 6 p.m. Have not seen a thermal flight for three months and have almost forgotten what they are!"

No comment needed!

TWIN MOTORS FOR SAFETY

One "grown up" lightplane enthusiast wanted a twin-engined aircraft. Against all the advice of people who should know he strapped two *Piper Cub* fuselages together, coupled up the tailplanes, fitted a new centre section and used normal outboard wing panels. To get clearance the propellers overlapped one another by a few inches.

No matter what the experts predicted, it flew so well that this enthusiast has built a similar lightplane—one wide fuselage this time—again with twin "staggered" props. That also flies remarkably well.

If a modeller tried this sort of thing, most other enthusiasts would think him crazy. Yet, if it comes to the point that old adage "truth is stranger than fiction" could well be re-written, with reference to our hobby—"full size aircraft design practice is stranger than model design." Footnote.—One well-known American modeller (Frank Cummings) *did* enter a twin-fuselage Wakefield in their Trials. Who knows, but some of these so-called crazy ideas may not revolutionise model design?

DUE FOR A SHOCK

We heard recently of an unusual accident that befell a 15-year-old Bristol modeller. While flying a control-line model, he received a severe shock and was taken to hospital. This came about due to the model striking an overhead power cable and the current being conducted to earth via the lines—and the pilot! However this is not the first time such an accident has happened. On two previous occasions—once in England and once in America—a similar thing occurred but in both those instances there were fatal results. The Bristol chap was just very lucky.

This is just another reminder to have a good look around before flying any model, and really make sure there is nothing—no-one—even liable to be in the way when it is launched. You can't be too careful. Accidents happen all too easily, but in most cases could have been avoided if a little elementary caution had been used before that new model was launched on its way.

READERS CAN WRITE!

It seems that there may exist in the minds of some of our readers a misapprehension as to the sources from which we receive the articles and plans that are published in MODEL AIRCRAFT. A reader recently sent in an article for our consideration, and in his letter he suggested that as we no doubt had a regular team of writers, we would probably not be interested in material submitted by a casual contributor.

Well, this is just not the case. It is true that the work of certain writers appears quite frequently in our pages, but we still rely largely on the "solo" writer for our feature material. We are always ready to consider articles, plans, photographs and cartoons, and of course anything published will be paid for at our usual rates. Working drawings need not be finished, but provided they are clear and accurate, our draughtsmen can prepare finished tracings from pencil originals. In connection with plans, we like to have photographs as additional illustration, and prefer to reproduce from enlargements about 6 in. × 4 in., but we can make our own enlargements from the contributor's negatives if no suitable prints are available.

Now the contest season is nearly over, our pages will be less occupied by contest photographs, so now is the time to think about next season's projects and theories—and get them down on paper.

"M.A." OVERSEAS

Model aviation is truly one of the international hobbies, and a great many friendships have been founded between modellers thousands of miles apart in all corners of the globe. Many enthusiasts abroad, we know, receive MODEL AIRCRAFT from their friends in this country, while many others would like to be able to obtain a copy regularly, but find difficulty in arranging a subscription. If any of our readers care to send us the names and addresses of their friends overseas, we will be glad to post them a free copy of MODEL AIRCRAFT, together with details of subscription arrangements in their country

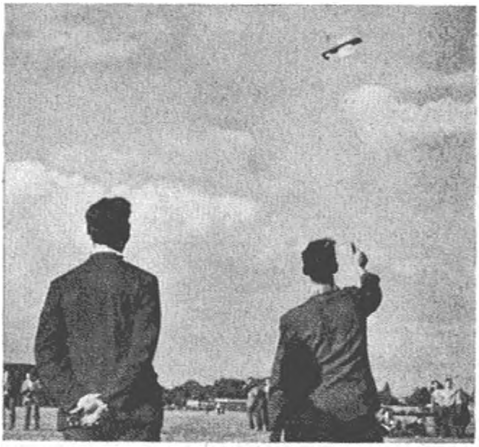
IT'S AN ILL WIND . . .

Although the continuous high wind at the Nationals dashed many competitors' hopes (and their models) to the ground, it did make possible the innovation of a new class of flying—C/L Stunt (Powerless)!

Ken Muscutt of West Essex had been flying his stunt model normally, but when the motor stopped, he found that the wind pressure was strong enough to keep the lines taut on the downwind side of the circle. Turning this to good account, he found that provided he kept the model downwind, it would maintain forward speed and full control. He then continued with a display of loops, bunts and horizontal eights *for a full five minutes, with a dead engine*!

This amazing performance really had the crowd goggle-eyed, and when Ken eventually glided the model in, he was roundly applauded. He then removed the spinner and prop., and Len Steward hand-launched the model into a further five minutes of first-class flying. Alas—after successfully executing a vertical eight, a misjudgment on a second attempt ended in disaster and a complete write-off.

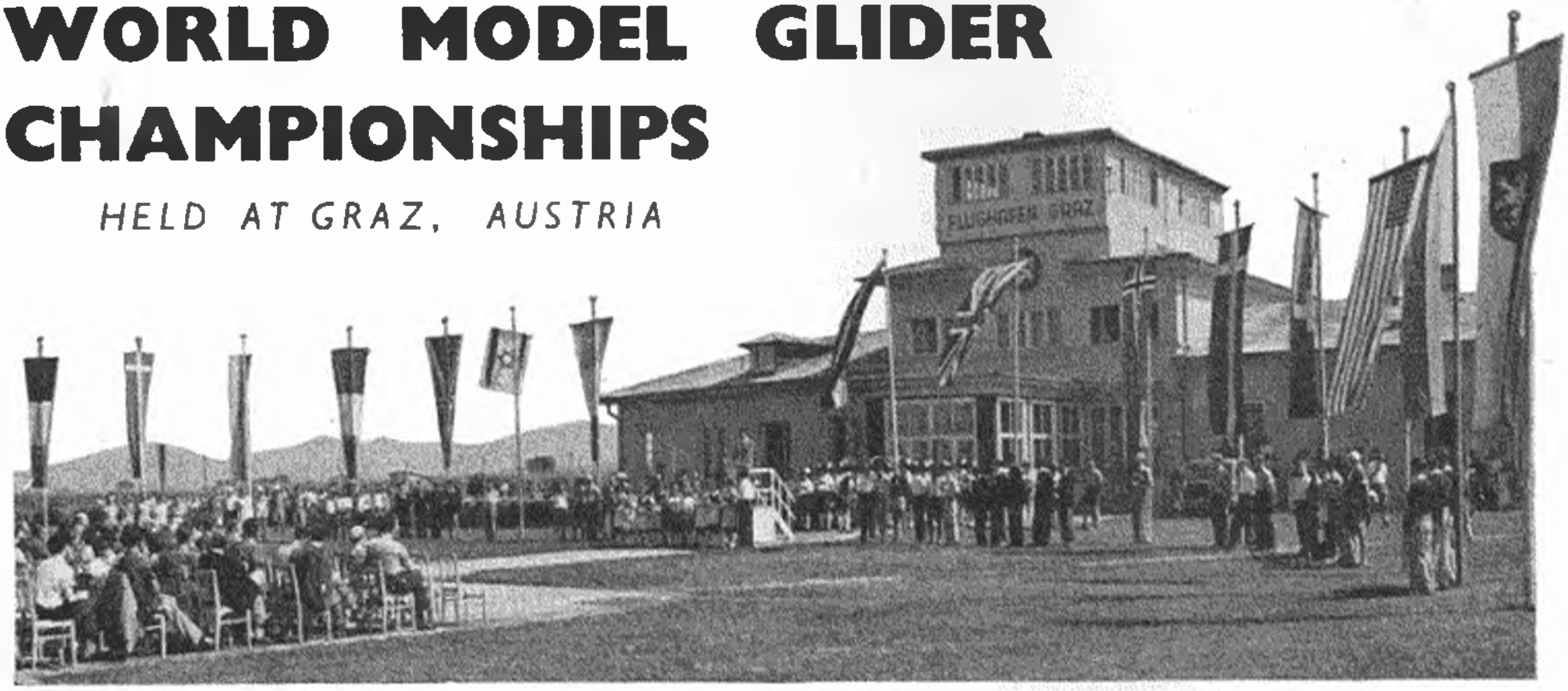
However, it was almost incredible to see an advanced stunt performance in almost complete silence, the model merely swishing through the air. Whipping was not resorted to, for control appeared to be quite normal. It seems that here is an answer to the problem of what to fly on a really windy day—or perhaps, if a contest was elaborately organised for this type of model, who knows—the weather on the day would probably be ideal for orthodox flying!



Ken Muscutt during his powerless C/L demonstrction at the Nationals. Chas. Taylor is beside him

WORLD MODEL GLIDER CHAMPIONSHIPS

HELD AT GRAZ, AUSTRIA



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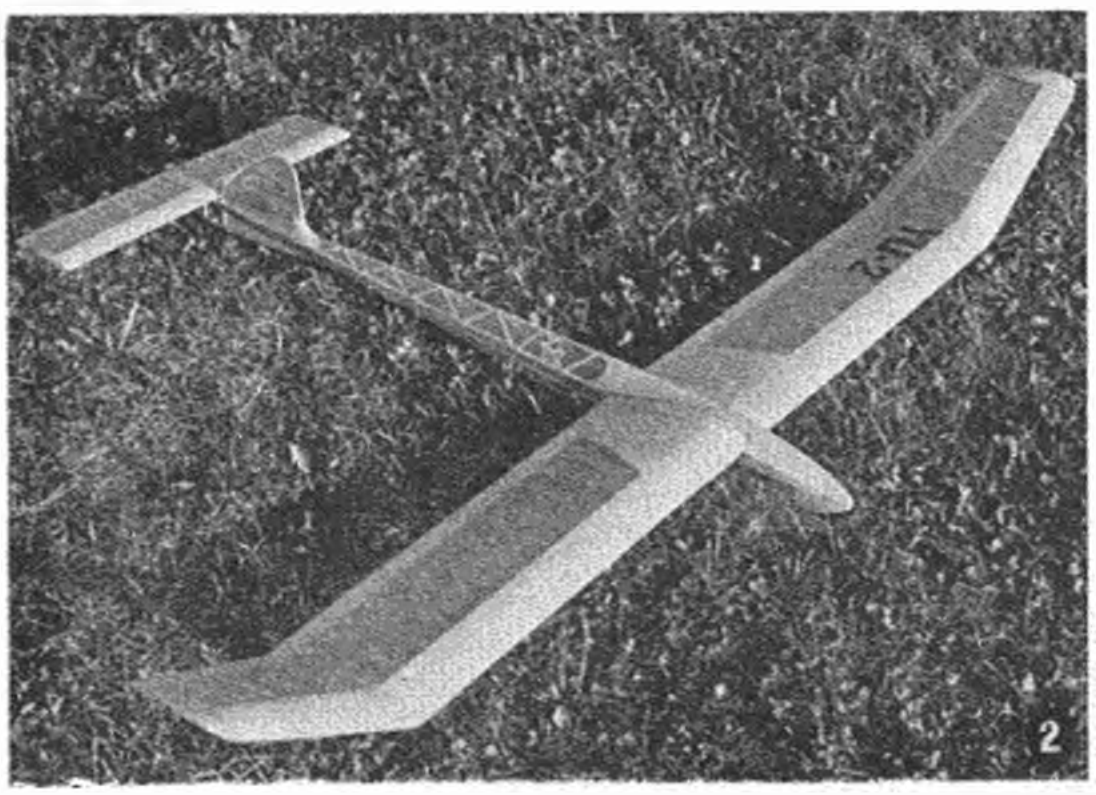


Heading picture. The opening ceremony at the Thalerhof aerodrome, Graz, where the contest was held.

1. *The victorious winner, Bora Gunic, is shouldered by his delighted Jugoslavian team mates.*
2. *Gunic's winning model, a well proportioned clean design, features a short nose.*
3. *The Jugoslavian team with Guttman of Israel (2nd from right bottom row) and Honig of Austria (standing, left).*

UNLIKE the Wakefield Contest which was flown under thermal conditions, the Swedish Cup—or the World Glider Flying Championships as the Austrians called it—was largely flown under that elusive condition of the atmosphere known as still air. This had its expected impact on the results, in fact, only two countries from Northern Europe (where still air is difficult to find) placed in the first ten. Although, had it not been for a certain amount of ill fortune in the third round, Byrd and Farrance of Great Britain would also have been in the first ten.

The story of the British team starts at 10 o'clock on Tuesday, August, 12th at Victoria station, when British team members Bill Farrance, Max Byrd, Mike King Peter Royle and team manager R. F. L. Gosling, boarded the Golden Arrow bound for Dover, together with the writer and the New Zealand proxy team—Harry Hundleby (*Aeromodeller*) team manager, John Lamble, Dave Waters and Ernie Farrance. On the train a large bundle which the Farrances had brought from Yorkshire was unwrapped, and the contents proved to be dark blue blazers, one for each team member. Silvio Lanfranchi was responsible for the suggestion and the initial purchase of the blazers, which the lads themselves bought, and I must say that they were a complete success, the teams looking smart and distinctive the whole time.

The crossing on the boat was absolutely ideal, with a calm sea and a blue sky. Of the train journey across the continent, perhaps the least said the better. The train was crowded and the weather hot, in fact the further south we went the hotter it became. On the platform at Munich we saw people with model boxes and, waving to them to come and join us, made the acquaintance of the German team.

We arrived at Graz station after nearly 30 hours in the train, and were met by a cheerful interpreter who conducted us to a waiting coach, which drove us to the hotel where all the contestants were staying. This smooth transition was our first taste of the excellent organisation that was a hallmark of the whole contest. The

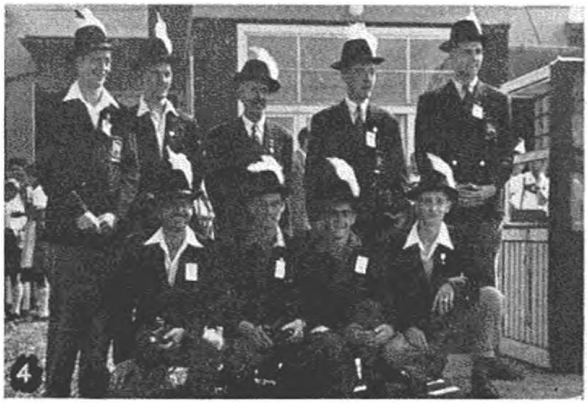
cost per man (roughly £7 charged as an entrance fee) seemed high on the face of it, but as we soon realised, this covered everything from first class hotel accommodation and all meals (complete with beer), to transport and a trip up a nearby mountain on the cable railway to see the opening of a new sailplane club.

Further evidence of the superb organisation was contained in the envelope given to each man. Upon opening our envelopes, we found two badges—one specially struck for the event, invitations to the opening and prize-giving ceremonies, literature on Graz and a book of tickets. These tickets, printed in various colours, were for all the meals both at the aerodrome and the hotel, for accommodation and for travel. In fact, one could tell the date and the time of the day to the nearest meal by glancing at the next ticket!

After a night's sleep, the teams were out at five in the morning test flying and trimming, on the Thalerhof Aerodrome where the meeting was to be held. The aerodrome is situated in flat country about 20 mins. coach ride from Graz; distant mountains fringe the horizon on two sides. The surface of the aerodrome is for the most part mown grass, providing a good launching area, although towards the edges it is somewhat rougher. Graz itself is a pleasant town in the S.E. corner of Austria, and stands on a fast flowing river.

At ten o'clock that morning, outside the buildings on the aerodrome, the opening ceremony began. Flags of all the nations competing were arranged in a semicircle from a centre dais, in front stood Austrian school children in their attractive national costume, and behind the Graz Tramway band. The competing teams stood beneath their respective flags, which hung limply in the hot air, while several speeches welcoming the competitors and opening the competition were made by members of the Government and officials of the Aero Club. These were translated by the interpreters into several languages. Finally, the oath was taken, and whilst the children sung, an edelweiss was handed to each competitor as a lasting symbol of the occasion. Then, to the accompaniment of the band, we adjourned to the garden restaurant where a reception was held.

In the afternoon after lunch, the processing took place smoothly, in spite of the very hot weather. We had now discovered that Austria was indulging in a heatwave with temperatures over the 100 deg. F. mark.



1. *R. F. L. Gosling gets some help to sew on his badge from Tonia Bern, a West End cabaret singer.*
2. *On the boat Harry Hundleby and Max Byrd watch the approach of the Belgian coast.*
3. *Official of the Austrian Aero Club, Dr. Josef Gaisbacher, shakes hands with British team member Mike King, during the opening ceremony.*
4. *The British team and the N. Zealand proxy fliers borrow hats from the band.*
5. *Austrian school children singing at the opening ceremony.*
6. *Col. N. Bullock of the British consulate (representing the High Commissioner, Sir Harold Caccia) chats with King and Byrd.*
7. *A. Degen (Swiss Aero Club) addresses the meeting.*

THE FIRST AND SECOND ROUNDS—5 to 7 a.m. August 15th

With a call at 3 a.m. and breakfast at 3.30 to catch a bus to the flying field at four, the atmosphere seemed a trifle unreal, enhanced when we arrived in the cold pre-sunrise light by thin veils of mist which floated across the field. Four control points had been established in the middle of the field about 200 yards apart in a square. Each control had a line check, and a pair of scales to weigh each model before it flew. The teams were divided roughly into language groups, complete with interpreters, and drew for the control from which they flew. The start was delayed a little by the mist, but at 5.05 the sun rose and in five minutes the field was clear. Bill Farrance made the first flight for the British contingent and clocked 3 : 47, but a little before this, Christensen of Denmark found a little rising air, and boosted his flight to a maximum, the only one in the first round. Max Byrd was off next, and made a poor start, the model veering off on tow ; however, he carefully played it right back to the ground, so that it counted only as an attempt. Second try he got well away and recorded 3 : 31. Meanwhile at the control point where Danish, Swedish and Yugoslavian teams were flying, both Arne and Borge Hansen of Denmark, Gunic and Fresl of Yugoslavia and Odenmann of Sweden, had put in good flights of around the 4 min. mark. At the Austrian, German and Swiss take-off point, Sämann and Hacklinger (Germany) were doing well with over 4 min. each, and Schnabel put up the best Swiss flight.

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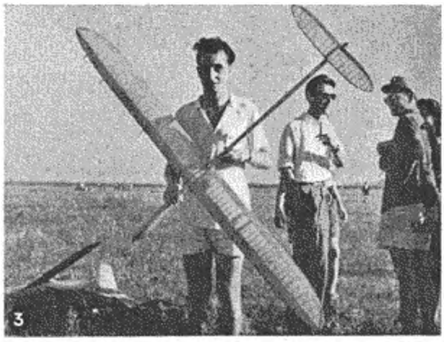
1. *Italian "camp" with Franchetti, Kanneworf (proxy) and Oskar.*
2. *Team manager Gosling launches Max Byrd's model.*
3. *A. Hanson of Denmark launches for Haug, proxy for Norway.*
4. *Ossi Czepa (Austria) with his "toothpick" model.*
5. *Sunrise at the start of the first round.*
6. *The German team hold conference at the end of the 1st round.*
7. *Launch by Meixner for Kannewarf proxy for Lustrati of Italy.*
8. *Frau Samann with her husband's model, and Hansjorg Pegel.*

The Austrians weren't in such a happy position, for last year's winner Czepa had made an indifferent stalling flight with his latest "toothpick" model for only 1 : 14. Then Stelzmuller recorded a good flight of 4 : 20 putting Austrians in the running again. The first round finished a little before six, with Christensen and Arne Hansen of Denmark in the first two places, Gunic and Fresl of Yugoslavia in the next two and Sämann and Hacklinger of Germany fifth and sixth. Farrante (8th) and Byrd (10th) represented the leading British fliers.

The groups of contestants then exchanged flying positions and the order to commence the second round was given over the loud-speaker system at 6 o'clock. The wind was still negligible and models were towed up in opposite directions at the same time. The air was still with only the merest suspicion of lift here and there, enough perhaps to give a good model a few seconds longer in the air. In spite of the fact that the take-off points were grouped in the middle of the field, very few models went to the boundary of the 'drome, and retrieving problems were reduced to a minimum. It became

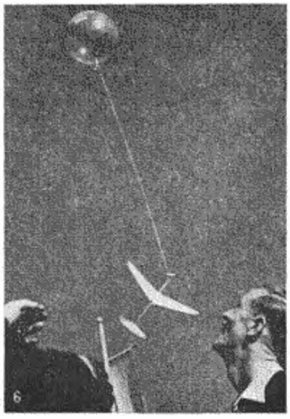


evident during the second round that under these critical air conditions the majority of the models were returning times very close to their actual still air duration. The thermal assistance available did no more than reduce the sinking rate slightly. Of the top ten at the end of the first round, nine returned similar times in the second, only the leader Christensen dropping back with a poor flight of 1 : 38. Of the British lads flying proxy for New Zealand, Lamble with Johnson's model was doing best. The N.Z. models had, as far as this meeting was concerned, similar faults to the British ones. The models were chosen by eliminators flown under windy conditions, resulting in a choice of gliders that were well suited for such weather, but not for competing with models designed for still air.

The second round finished early at about a quarter to seven, and whilst the teams waited for their second breakfast, a tremendous amount of discussion went on about the first two rounds. There was some grumbling about the effects on the models caused by the drastic change in the air conditions, from very hot and dry on the previous afternoon, to the damp mistiness of early morning. Many failures were attributed to this, including Czepa's. He said that his very long fuselage, which was made of paper and plugged on to the wing, had warped overnight, putting the model out of trim. Hacklinger of Germany in second place, was flying an interesting model with a turbulator (made of thin elastic) mounted about an inch in front of the mainplane.

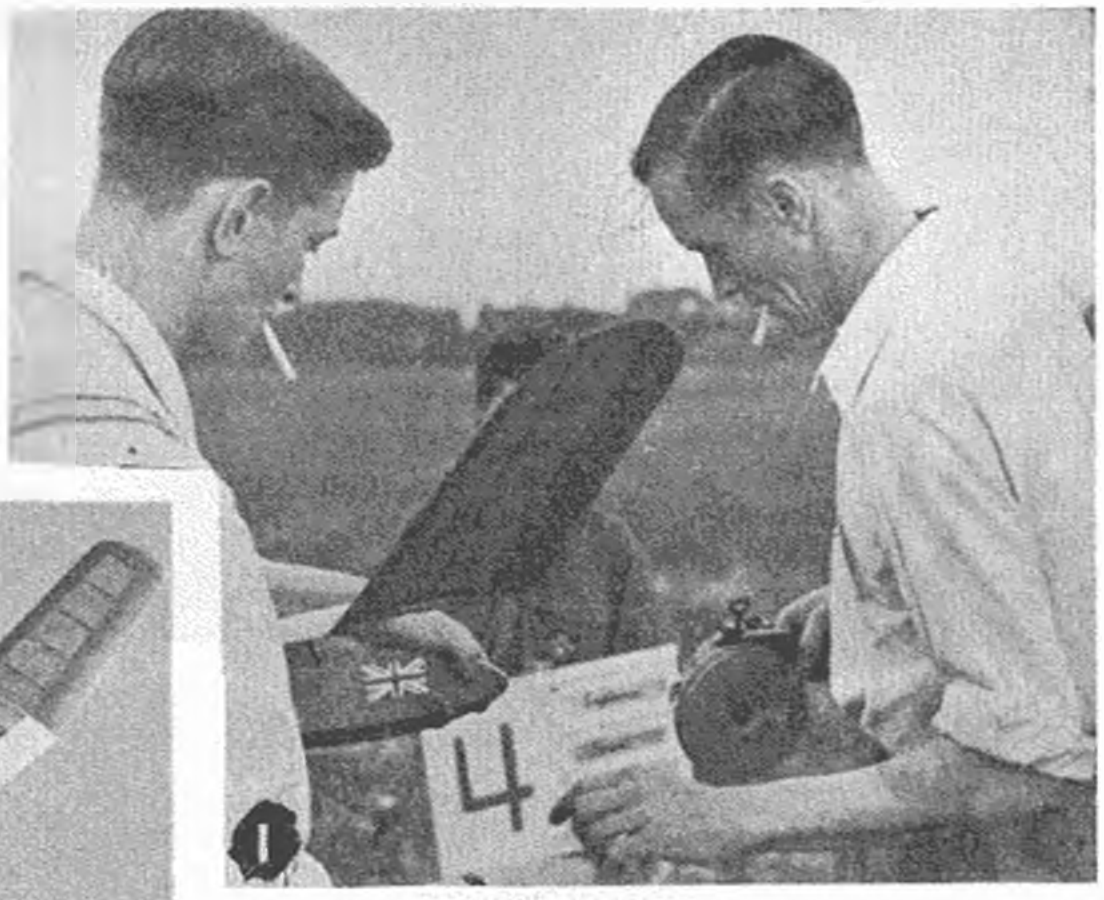
During the morning the aerodrome was opened to the public and a good crowd gathered to see a full-size glider flying display. Whilst this was in progress, balloons with postcards attached were being sent off and the British lads, forever showing their ingenuity, built small chuck gliders and attached them to balloons with D.T. fuse, and lighting the fuses, sent them aloft. The air was so still that on many occasions they were able to catch the gliders before they landed from several hundred feet.

1. *Arne Hanson of Denmark, with his model.*
2. *Pierre Templier launches for Pierre Mokry both in the French Team.*
3. *Max Hacklinger, Bavarian Champion, features a turbulator in front of the wing of his model.*
4. *The scoreboard at the end of the second round.*
5. *Rune Anderson launches for Ragnar Odenmann of Sweden.*
6. *A chuck glider soars skyward watched by Bill Farrance.*
7. *Walter Schoder top Swiss team member chats at the end of the second round.*



THE THIRD ROUND.—5 a.m. August 16th

Following the same routine as the previous day, the teams arrived at the flying ground before sunrise and were ready to start to fly at 5 o'clock. This time there was a difference in the weather—there was no mist, and warm puffs of air blew intermittently. Although we did not know it at the time, this was the beginning of a widespread disturbance which afflicted most of Europe the following day. Farrance was the first British man off and had the bad luck to fall headlong over a bicycle, which a boy scout (there for retrieving purposes) had laid on the ground immediately behind him. He was rather shaken up by this, and on his second attempt had the misfortune to break a wing towing up. This reduced



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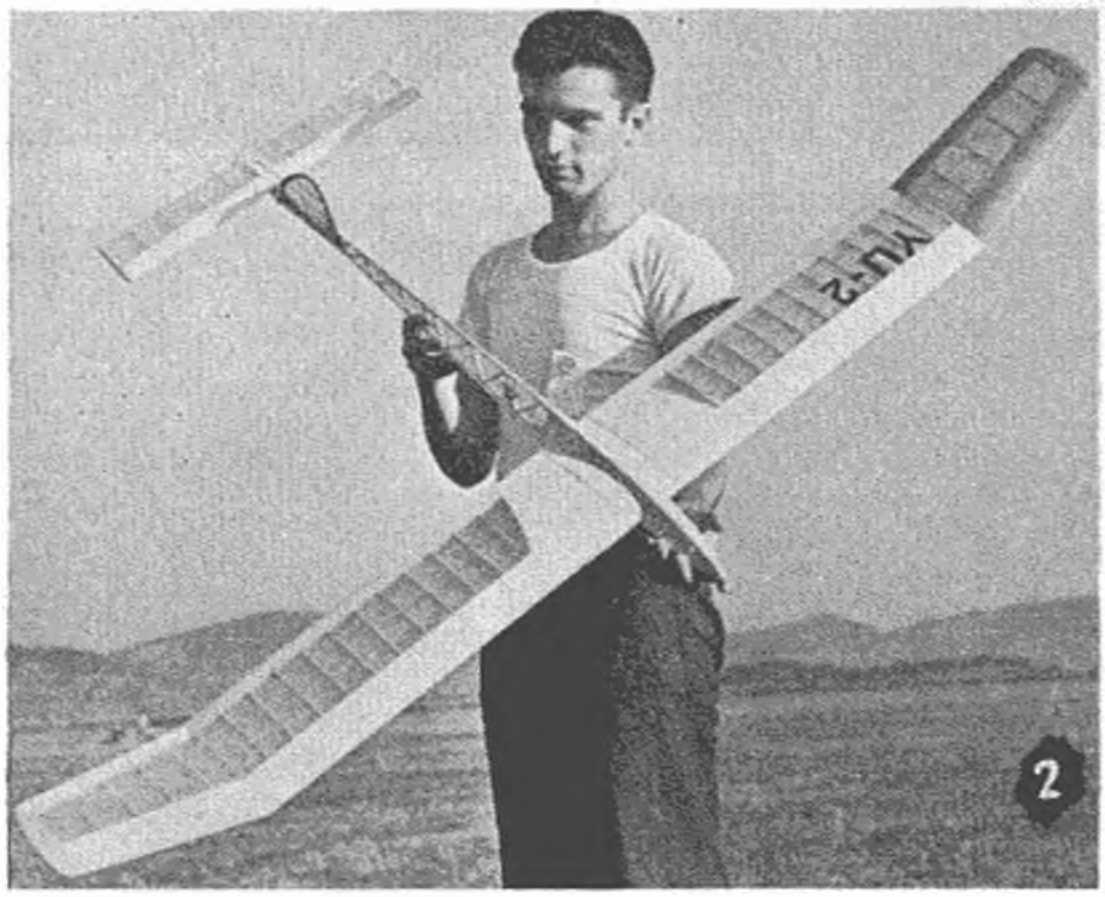

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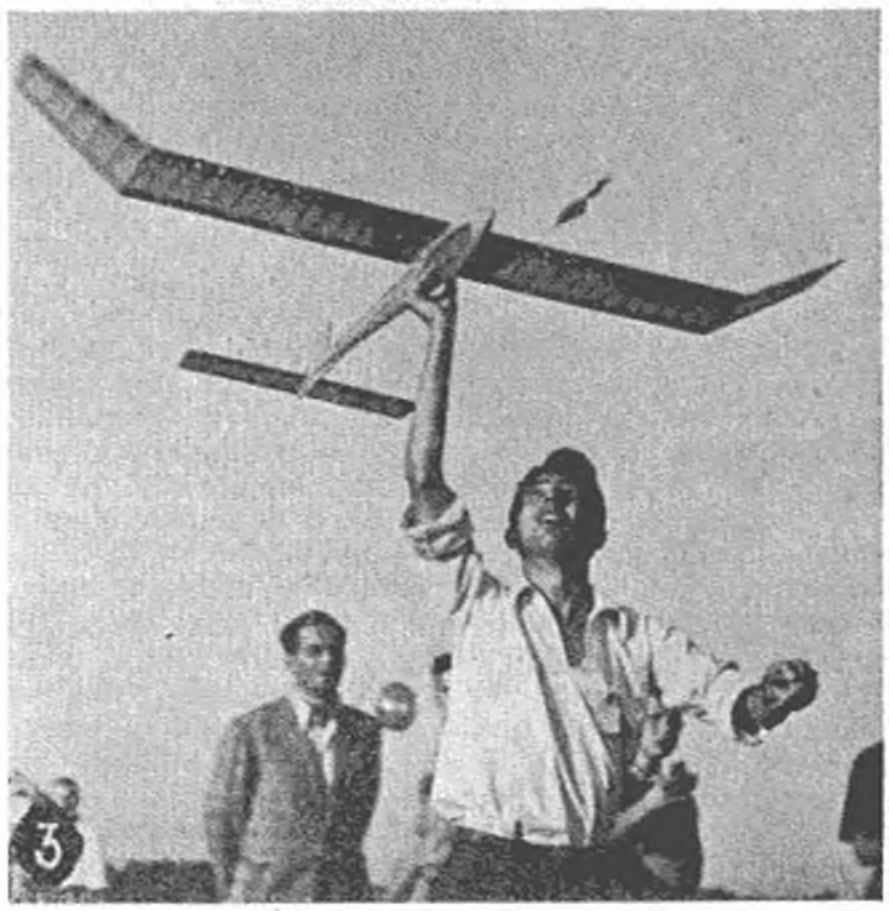

3

FINAL RESULTS

			Round 1	2	3	Total
1.	Gunic, B.	Yugoslavia	4 : 24	4 : 45	5 : 00	14 : 08
2.	Hacklinger, M.	Germany	4 : 07	5 : 00	4 : 23	13 : 30
3.	Samann, G.	Germany	4 : 12	4 : 11	5 : 00	13 : 23
4.	Hansen, B.	Denmark	3 : 59	4 : 19	4 : 29	12 : 47
5.	Stelzmuller, J.	Austria	4 : 20	3 : 40	4 : 12	12 : 12
6.	Fresl, E.	Yugoslavia	4 : 18	3 : 40	3 : 30	11 : 28
7.	Templier, P.	France	3 : 28	2 : 43	5 : 00	11 : 11
8.	Odenmann, R.	Sweden	3 : 39	3 : 36	3 : 48	11 : 03
9.	Schoder, W.	Switzerland	3 : 20	3 : 39	4 : 00	10 : 59
10.	Tasic, T.	Yugoslavia	2 : 23	3 : 33	4 : 52	10 : 48
11.	Byrd, M.	Gt. Britain	3 : 31	4 : 07	2 : 29	10 : 37
12.	Hansen, A.	Denmark	4 : 31	4 : 13	1 : 36	10 : 20
13.	Pegel, H.	Germany	2 : 42	2 : 25	5 : 00	10 : 07
14.	Christensen, O.	Denmark	5 : 00	1 : 39	3 : 26	10 : 05
15.	Schnabel, H.	Switzerland	3 : 28	3 : 37	2 : 45	9 : 50
16.	Choy, W. (P) Lamble, J.	N. Zealand	2 : 09	2 : 26	4 : 58	9 : 33
17.	Sandberg, K.	Sweden	3 : 30	3 : 30	2 : 29	9 : 29
18.	Skalla, G.	Austria	1 : 54	5 : 00	2 : 22	9 : 16
19.	Farrance, W.	Gt. Britain	3 : 47	3 : 35	1 : 26	8 : 48
20.	Schober, J.	Austria	4 : 20	2 : 30	1 : 36	8 : 26
21.	Lustrati, S. (P) Kanneworf, L.	Italy	2 : 29	2 : 28	1 : 22	8 : 19
22.	Denzin, K.	Germany	2 : 20	2 : 38	3 : 16	8 : 14
23.	Schenker, R.	Switzerland	1 : 38	2 : 43	3 : 17	7 : 38
24.	Lapierre, B.	France	1 : 29	2 : 57	3 : 07	7 : 33
25.	Boscarol, C. (P) Piccini, O.	Italy	2 : 10	1 : 01	4 : 18	7 : 29
26.	Andersen, R.	Sweden	2 : 03	2 : 02	3 : 22	7 : 27
27.	Mokry, P.	France	3 : 03	2 : 52	1 : 29	7 : 24
28.	Czapa, O.	Austria	1 : 14	1 : 38	4 : 29	7 : 21
29.	Johnson, R. (P) Walters, D.	N. Zealand	2 : 36	2 : 54	1 : 28	6 : 58
30.	O'Brien, J. (P) Farrance, E.	N. Zealand	2 : 15	2 : 14	2 : 18	6 : 47
31.	Cavatera, O. (P) Meixner, A.	Italy	1 : 25	2 : 48	1 : 56	6 : 09
32.	King, M.	Gt. Britain	2 : 04	3 : 13	: 50	6 : 07
33.	Christensen, V.	Denmark	: 35	: 32	4 : 20	5 : 27
34.	Mayer, A.	Switzerland	1 : 33	2 : 23	1 : 26	5 : 22
35.	Piazza, P.	Italy	2 : 11	: 41	2 : 25	5 : 17
36.	Royle, P.	Gt. Britain	1 : 34	2 : 20	1 : 15	5 : 09
37.	Maug, E. (P) Neumann, F.	Norway	2 : 05	1 : 23	: 47	4 : 15
38.	Cheurlot, M.	France	1 : 34	2 : 00	: 30	4 : 04
39.	Nesic, L.	Yugoslavia	1 : 23	1 : 29	0 : 00	2 : 52
40.	Penikett, J. (P) Hundleby, H.	N. Zealand	: 27	: 35	1 : 31	2 : 33
41.	Guttmann, A.	Israel	0 : 00	1 : 15	: 45	2 : 00

(P) indicates proxy flown.

him to his reserve model, which was not as good as the broken one. Byrd was our next man and he also shared the bad luck. After some little difficulty towing up owing to the peculiar cross winds and gusts, his model went away well, and finding some rising air, seemed all set for a good flight. However, after nearly three minutes, the model hit a gust, stalled and spiralled straight down from a hundred feet or so. The model was trimmed with the c.g. well aft, which gave it a good glide in the still air of the first two rounds, but proved to have insufficient recovery powers to deal with gusty weather. Meanwhile at the other take-off points two German models had collected maximums for their owners, Pegel and Sämann. The German boys had a bright idea to tackle the trouble of the varying gusts of wind. They procured the remaining balloons left over from the previous day and let these go at intervals to ascertain the wind direction. Templier of France also put up a five minute flight about this time, which brought him up to 7th place. Gunic of Yugoslavia, who was top man of the first two rounds, flew late in this round, put up a maximum and was promptly acclaimed the winner. Hacklinger and Sämann, both of Germany placed second and third respectively.

1. *The Farrance brothers, preparing Bill's model.*
2. *Bora Gunic with his winning model.*
3. *Gunic's model, launched by Gradmir for its winning flight.*

During the afternoon, after the contest was over, we were taken up a nearby mountain via a cable railway to witness the opening of a new sailplane flying base constructed by members of the Austrian Aero Club.

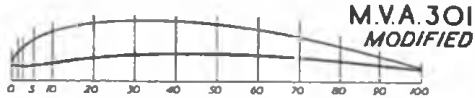
In the evening we had an invitation from Josef Krainer, the Provincial Governor, to attend a reception and prize giving ceremony. The building stood in its own grounds and the outside, decorated with banners, was flood-lit. Several hundred people attended and sat on chairs arranged on the lawn to watch the prize giving. In addition to prizes for the first three competitors, each team member was given a souvenir plaque decorated with the badge of the Austrian Aero Club and bearing the words 1952 Segelmodellflug Weltmeisterschaft (World Glider Flying Championships). After the prizes were awarded, we adjourned to the reception rooms inside the building.

There were two outstanding things about the meeting —firstly the organisation—which was superb. With this meeting the Austrian Aero Club has set a standard which will be hard to follow. From the attention to small details, to the munificence of the final reception, every point was carefully watched and no unpleasant incidents occurred. The second thing was the weather ; the still air flying conditions have to be experienced to be appreciated fully. It can truthfully be said that the modellers from the southern parts of Europe rarely fly under fierce windy conditions and consequently, rarely break or lose their models flying them. Therefore, they put a much higher finish on their models which considerably improves their performance. These facts clearly indicate that if we are interested in placing amongst the winners in this sort of competition, we must re-organise the method of team selection, so that some people with international contest experience are allowed to develop models of a comparable standard, and do not have to spend their time battling through wet and windy trials. As a pointer, the Yugoslavs said that next year's competition would be held as far as possible under similar conditions.

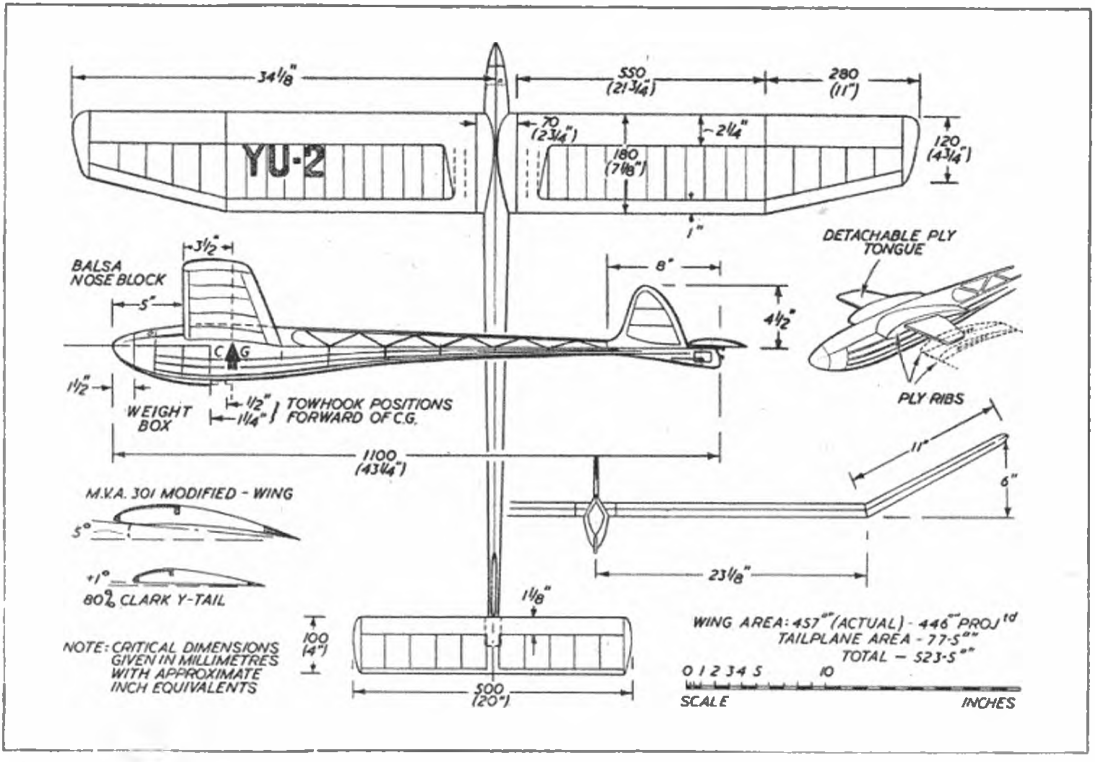
Josef Krainer, the Provincial Governor, shares a joke with the British team at the prize giving reception.

THE WINNING MODEL

The general layout of Gunic's winning model is extremely sound, and the finish is excellent. The detail design is also good, and of note are the wing and tailplane mountings. The wings have three 2 mm. three-ply ribs built into the root end ; four similar ribs are spaced in the centre section, and all the ribs have accurately made slots in them to take the detachable 3/16-ply tongue. The tailplane is hinged at the leading edge with a Perspex and wire hinge, and the rear end fixing is a conventional wire hook, rubber band and D/T fuse arrangement. The fuselage is made from 2 mm. ply formers, with eighth square stringers cemented to the outside. The nose is a soft balsa block, and the weight box is formed immediately behind it. The wing section used is a modified M.V.A. 301, the undercamber being increased by 20 per cent.



STATION	0	1·25	2·5	5	10	20	30	40	50	60	70	80	90	100
UPPER	4·3	7·0	8·3	9·9	12·0	14·2	14·9	14·7	13·9	12·5	10·8	8·6	6·2	3·5
LOWER	4·3	3·6	3·5	3·9	4·4	5·3	6·2	6·5	6·3	6·2	5·9	5·1	4·5	3·3



Vultee Viqilant

BY
J. BRIDGEWOOD

A U.S. Army spotting aircraft is the prototype of this free-flight scale model for ·75–1 c.c. motors.

THIS is my seventh scale powered model within three years and it has proved to be the best, being most stable and least difficult to trim.

Providing the weight is kept down to 18 oz., any engine from .75 c.c. should supply ample power.

Commence by building the tailplane, as this is needed before the fuselage can be completed. Elevators are made separately and lightly cemented together after the tailplane has been fixed to the fuselage and covered. This gives more scale detail as well as making it possible to crack the cement joint and adjust the elevators for trimming.

Fuselage

After building the crutch, attach the top half formers F4, 9, 10, 11 and 12, add the top stringer from F9 to 12, then window frame stringers from F4, F9 down to 12. Now fix eight $\frac{1}{4}$ in. × $\frac{1}{8}$ in. strips between these and the crutch. The remaining six stringers can be fixed after notching the formers. The tailplane can be cemented in position and the end of the stringer cut to correct length and fixed.

When thoroughly dry, add all bottom half formers and stringers, not forgetting to bind and cement all tubing for the undercarriage.

F1 and 2 can be fixed along with the engine bearers. Fill in with $\frac{1}{8}$ in. sheet where shown and plank with $\frac{1}{16}$ in. sheet from F1 to 4.

The two $\frac{1}{8}$ in. sheet ribs of the cabin are faced with celluloid to give extra strength. The entire greenhouse is covered with seven separate panels of celluloid.

Fin and Rudder

These are built as the tailplane, the fin being covered before cementing on the rudder.

Wings

These are fairly straightforward except for the rear spar which has to be notched and the ailerons which have to be built up of $\frac{1}{16}$ in. sheet. It is worth this trouble, as they give the model more scale appearance and are useful for trimming the glide.

Undercarriage

This consists of a 16 g. main leg and 18 g. rear leg, bound together with fuse wire and soldered. The main and supporting legs are covered with $\frac{1}{16}$ in. sheet to form a fairing, the rear leg being covered with fuel tubing so that a certain amount of shock can be taken on landing.

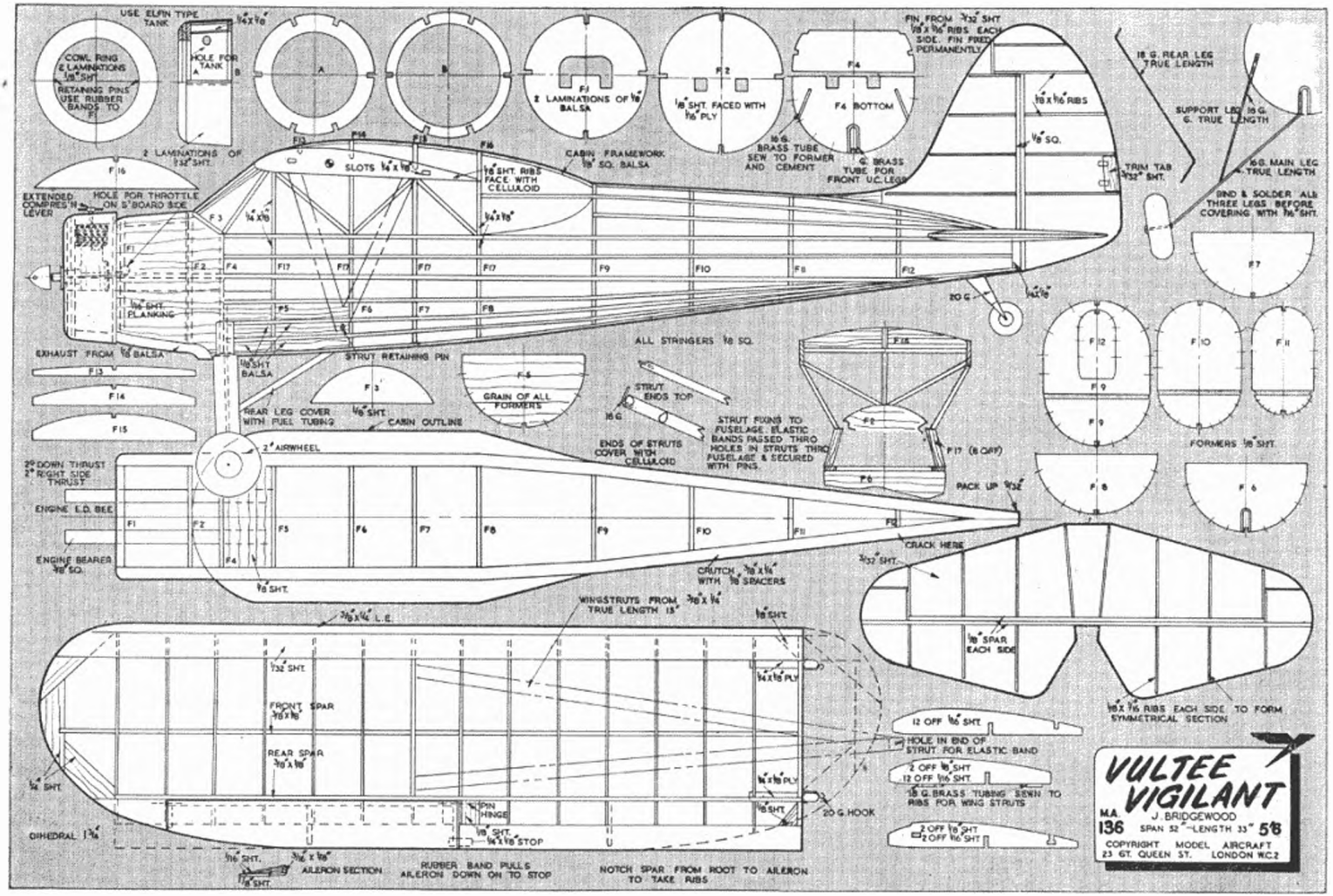
The Engine Cowl is made of two rings of $\frac{1}{4}$ sheet spaced with $\frac{1}{4}$ × $\frac{1}{4}$ strips and covered with two laminations of 1/32 in. sheet before cementing on the cowl ring. It is held in position by two rubber bands attached to F1. The old type compression lever of the E.D. " Bee " had to be extended to come through the top of the cowl. The needle valve is set horizontally, and an Elfin type tank was used. Not liking too many holes in the model, I choke my engine by blowing down the tank.

Finishing

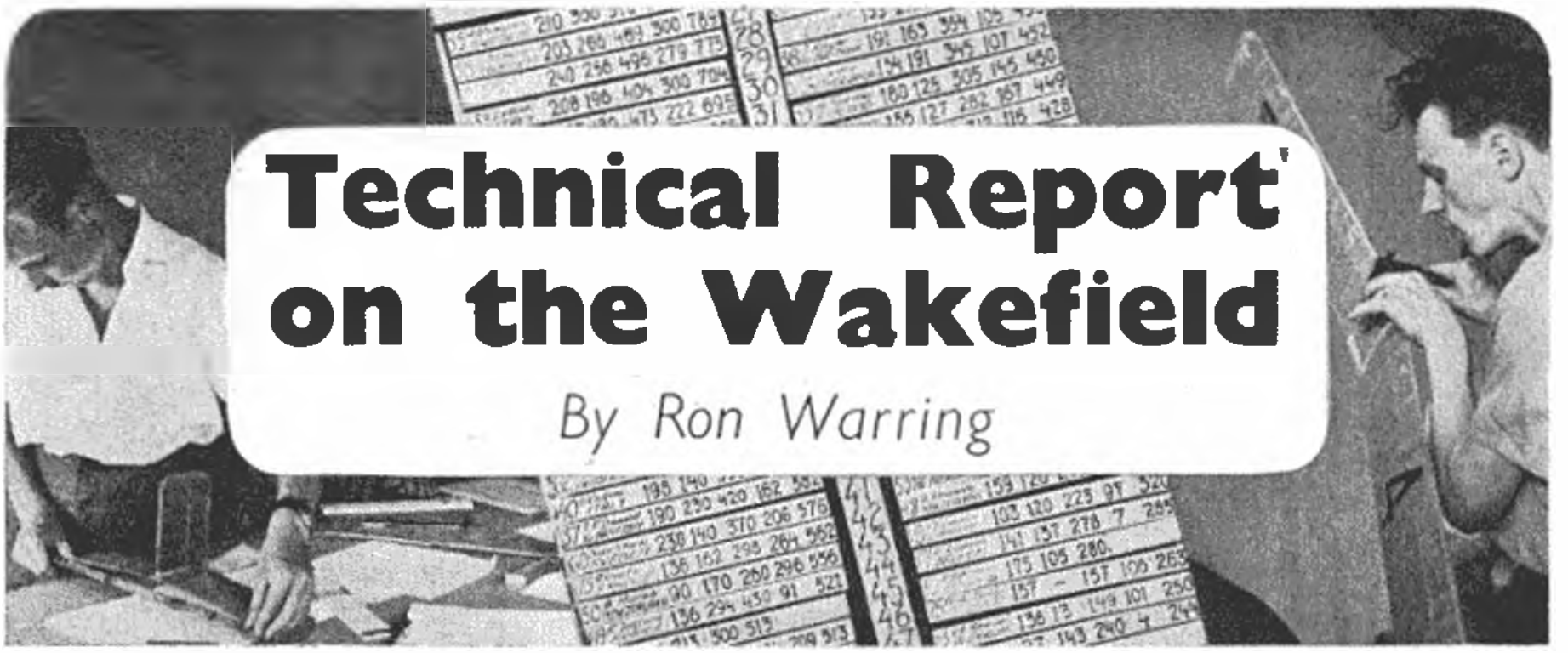
The entire model was covered with Jap tissue, but lightweight Modelspan will do. Give two coats of thin dope, one of banana oil and two of silver, the latter being very thin to avoid brush marks. R.A.F. roundels can be used, but whichever markings are decided upon, they will have to be self-made. 2 in. black letters are used for the words U.S. ARMY under the wings. $\frac{3}{4}$ in. black numerals are on both sides of fin.

Flying

Check all surfaces carefully for warps. With the c.g. in the position marked on the plan, it might seem a little nose-heavy from a hand launch, but it is better for it to fly down, than to climb in a series of stalls which will prove disastrous in the end. For turning under power, use the rudder trim tab, and use the ailerons for the glide. If the latter is steep with no turn, lower the starboard aileron, providing the turn under power was in fairly large left hand circles. Circling both under power and on the glide should be to the left, with the power turn tighter to avoid a stall as the engine cuts.



FULL SIZE WORKING DRAWINGS ARE OBTAINABLE FROM YOUR LOCAL DEALER, OR BY POST FROM THE "MODEL AIRCRAFT" PLANS DEPARTMENT 23, GREAT QUEEN STREET, LONDON, W.C.2, 5s. 6d., POST FREE.



Technical Report on the Wakefield

By Ron Warring

THIS year's Wakefield has brought up a number of questions which, in the main, cannot be answered, or at least cannot be answered with absolute finality. Firstly, how to account for the comparative failure of the British team?

The team itself was, on the face of it, a very strong one. Evans and myself both had, pretty definitely, "four minute plus" models. My own, I know, is consistently capable of 4 min. 20 sec. to 4 min. 30 sec. using 1,450 of a possible 1,600 maximum turns—in evening air. Evans's models were at least directly comparable, with a faster rate of climb, shorter power run, but better glide. O'Donnell has, without doubt, done more Wakefield flying over the past twelve months than any of the other team members—recorded a "treble maximum" in one of the eliminating rounds—and evolved a design which is a potential winner in any ordinary contest. Royle—well, any model which records three maximums in the Wakefield Trials must be in the top class. It takes more than luck to achieve that. Nicole—with a good, fast-climbing model and excellent glide characteristics—has the excuse that his model was lost on the first flight and not returned in time for the second round. He could, and should, have placed much higher but for that stroke of ill luck. Yet it was Nicole who had the only piece of luck "awarded" the British team—some thermal assistance on his last round flight. Dunkley—a man who has hitherto this season achieved something like a four minute flight average under a variety of conditions, now unaccountably drops down to nearly one half this figure in Sweden. None of the models was out of trim. All checked out perfectly in test flying before the contest. All flew a normal flight pattern during the contest itself, except that most of their second and third round flights appeared to have been made in air that was sinking at anything up to 3 to 4 feet per second!

One thing is certain, however. It is just about impossible to fix a date for any contest and, by arranging to fly early in the morning or late in the evening, ensure "still air" conditions. And by "still air" we really mean air that has no vertical movement (i.e. up or down), rather than horizontal drift. It may be possible in some parts of the world, but not in this country, Finland—or Sweden. Look at our own attempts to run a "still air" Trials in 1951. Look at the 1951 Wakefield itself in Finland. And in the 1952 Wakefield the vertical velocity of the air during rounds two and three, after the sun had risen, was probably more marked, and more variable, than during a normal day or normal afternoon.

The first round of this year's Wakefield was started at 2.30 a.m. before the sun had risen. It was quite light. There was a fresh, cold wind with an average drift of ten to fifteen m.p.h. and the ground and air itself was pretty damp after heavy, continual rain the night before (which had led to the postponement of the first round fixed for 8.30 p.m. on the previous evening). It was not nice flying weather, but at least the air had no appreciable vertical velocity. All of the long flights lost between twenty and thirty seconds flight duration in coming down behind a belt of trees on the downwind horizon, higher than the level of the airfield itself. Taking this into consideration the majority of first round flight times then worked out very much as a competent "handicapper" would have assessed individual still air performance.

Now take the top sixteen performances and see how the flight times either shoot up or down on the second and third rounds. Lift was rather meagrely distributed on the second round, but pretty certainly a lot of people ran into downdraughts. On the third round we get more lift, and more marked downdraughts. Models of such a high standard as those in present day Wakefield contests are not as erratic as the official flight times would have us believe! Any one of the first thirty models was a potential winner, given the right conditions. These "conditions," as it worked out, were two thermal flights out of three.

The only truly *consistent* performance was that of Ellila's—4 : 00, 4 : 16 and 4 : 39, the last flight helped somewhat by the conditions. Maybe he was lucky, or had that extra knowledge of early morning flying, in avoiding any downdraughts, but I personally would plump for the fact that Ellila rates top as a Wakefield flier. Two firsts and a third in four consecutive Wakefield contests speaks for itself. The only apparent luck Ellila had which measurably helped his position was in getting away with a couple of "dicey" take-offs.

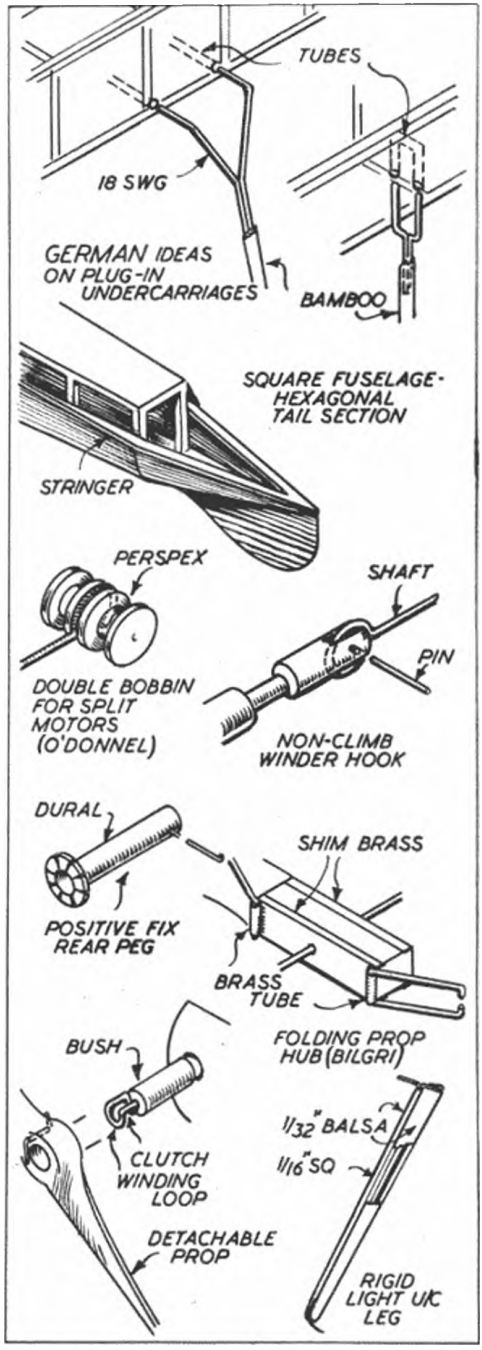
After a lot of deep thought it can only be concluded that the 1952 Wakefield was won by a good model plus good luck. Make no mistake about it. These slabsided Scandinavian geared models *are* good. Given just that bit of luck as well, they were, as they proved, unbeatable. The mention of luck in no way detracts from their performance. But if that particular element were omitted, why should Stark, last year's winner, not have placed up with them?

If anyone has been frightened off Wakefield contest flying by the emphasis that has been placed on "still air durations" and the number of four-minute-plus models which have been developed during the past couple of years, now is the time to forget it. Development of models capable of long flights in non-lifting air has undoubtedly improved the breed but no more guaranteed consistent contest successes than anything else. The model with the best "still air" performance in Sweden—Joe Bilgri's—placed only fifth. His second flight was a relatively poor one. Joe himself, extremely modest over his achievements, blamed the fact that on take-off his hand hit the propeller, and bent the shaft out of line. Other observers just say he flew into a downdraught. He lost valuable time on his last flight by flying when the wind was very gusty, and the model was carried out of sight whilst still well up. Both the models he flew were, without doubt, capable of *consistent* flights of *over* five minutes in still air.

Perhaps the most significant fact of all is that nine of the first twelve models were geared. The first three models were quite conventional—normal proportions, fixed twin-wheel undercarriages and relatively small diameter free-wheeling propellers. Design layouts were all similar—like Ellila's 1950 winner or Stark's 1951 winner. Both Blomgren and Ellila's models tended to be unstable under maximum turns—the type of take-off where the model chases around near the ground for the first two or three circles, but once properly away pled upwards smoothly and surely for a motor run of approximately two minutes. The one take-off I watched of Jan Nilborn was superb—straight and nosing up into a steep, sustained climb with very little circle. He was spoken of as a youngster of great promise before the contest, and will again be a strong contender for top honours next year. It will almost certainly, too, be the same type of model representing the Scandinavian countries.

Fourth place man, Lustrati of Italy, also flew a geared model with a very high rate of climb. During the test flying periods before the contest he got as high as anyone, probably by using a finer pitch propeller than most other geared jobs. Kannerwolf of Italy, in sixth place, also flew a geared model of similar proportions. Again fuselage length was orthodox—accommodating a total motor length of something like 60 inches.

Bilgri flew two models—a geared machine for the first flight, which was lost in the forest, and a long-fuselage "still air" model for the other two rounds. He was a bit doubtful as to whether the "still air" model would stand up to the conditions, but this it did very successfully. Both models had



one feature in common—and something which, from the technical viewpoint, was probably the most interesting feature of the contest. The propellers used were 24 in. diameter, folding on the glide.

The Americans, it seems, are always willing to try something different—and make it work. These 24 in. propellers certainly did. Using parallel chord blades with an aspect ratio of about six, speed of rotation was maintained at a reasonable rate, but the thrust developed certainly seemed in excess of that produced by a normal propeller. This enabled the model to assume a high angle of climb, fly slowly, but continue to gain height in a very positive manner. The result is that at the end of the power run the model is very appreciably higher than any other type of Wakefield flying in the same conditions. The geared model then glided in fastish, tight circles with prop. folded ; the single skein model slower and straighter. Glide in both cases was good without being outstanding, but even with a poor glide a high flight time would have been inevitable from the height reached.

Both Bilgri's models, incidentally, were overweight. Even with airframe weight reduced to about 3 ounces, the six ounce motors used to power the giant " fans " were regarded as a minimum. We thus have a practical exposition of a theoretical ideal once advanced that " rubber weight for optimum performance should be two thirds of the total weight of the model."

Another model which followed the same formula was that of Ted Evans. Again rubber weight was in the region of six ounces on both his single skein and geared machines. Even reducing structural weight down to a practical minimum—as Evans can do probably better than any other builder—total weight must inevitably come over the eight ounce minimum. If this trend is followed, in fact, the eight ounce Wakefield will become a rarity. The Scandanavian models, by comparison, were near minimum weight —using that much less weight of rubber.

Both of Evans's models, too, featured large diameter propellers, 20 in. on his geared model (which feathered for glide) and a 22 in. diameter folder on the single skein model. The most marked difference was that Evans used higher pitch angles than Bilgri. A typical American 24 in. diameter propeller has a 24 in. pitch.

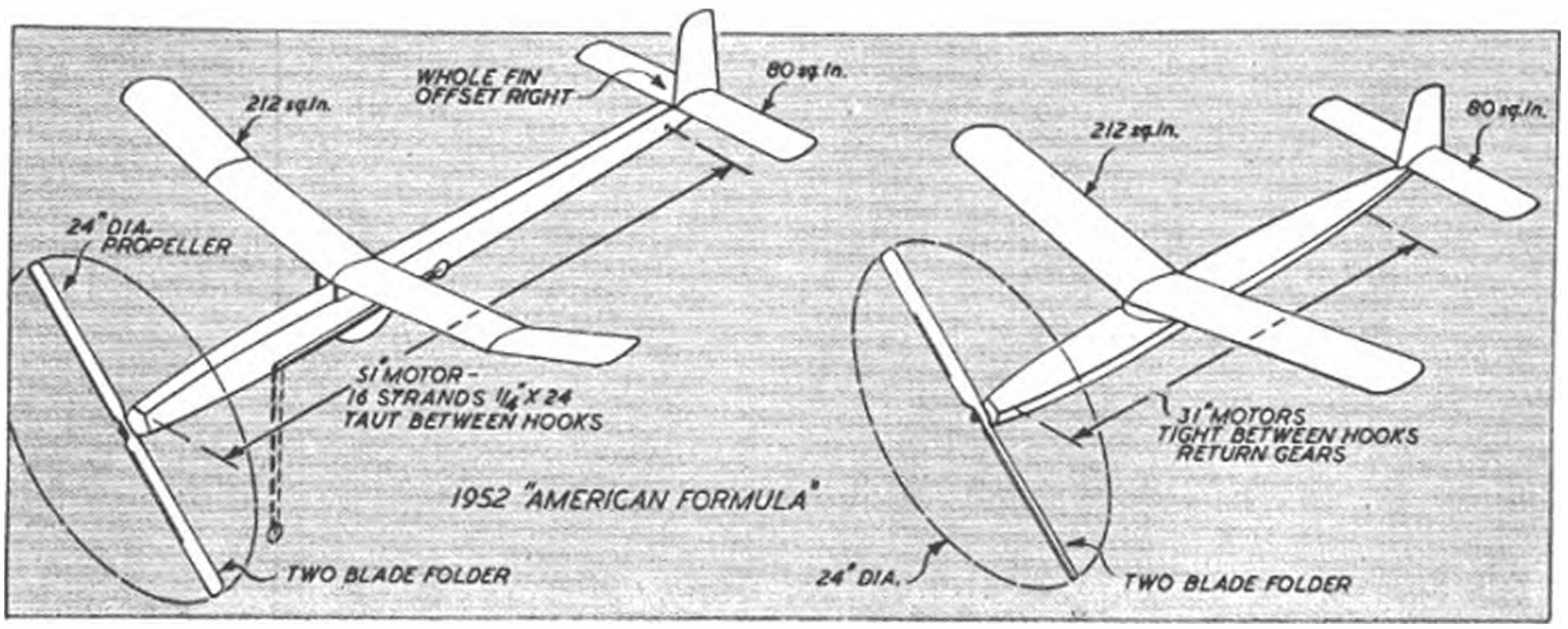
The possible advantages with a large diameter propeller bring with them potential disadvantages. It seems almost certain for example, that these propellers will have to be folded for the glide Possibly feathering may work satisfactorily up to 20 or even 22 in. diameter, but above that " side area " troubles may be experienced. Free-wheeling seems out of the question as drag would undoubtedly be high with the relatively low pitches used.

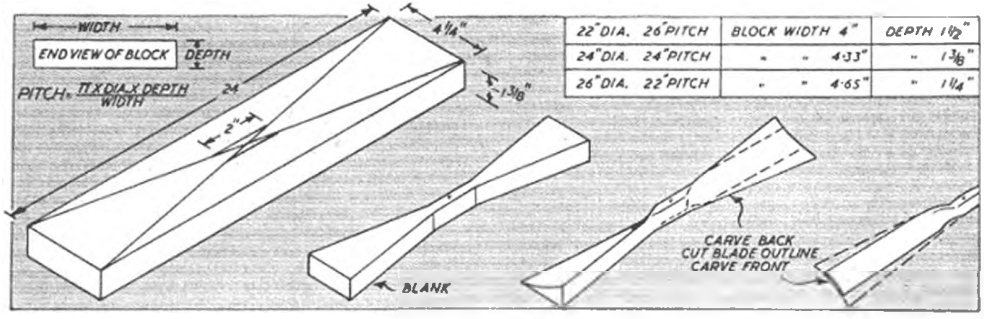
With a folding propeller, and remembering that the motor cross section is somewhat higher than average—tensioning the motor in a positive way then becomes a matter of extreme importance. If the motor does not tension properly—slight bunching at one end—the glide trim will be upset. Most folding prop. models are particularly sensitive on this score. In fact, inconsistent glide performance with a folding prop. model is more often due to motor bunching trouble than all the other causes put together.

The direct way to avoid such troubles is to use motors taut between hooks—gears or a long fuselage. Or you can use a fairly long fuselage and pre-tension the motor in some way. Pre-tensioning the motor in a short fuselage is not so satisfactory.

Again Evans came up with what is probably the best solution to date for pre-tensioning. He was using a fairly long fuselage on his single skein model and a normal corded motor. Motor ran out in the usual way and the propeller disengaged from the shaft and started to freewheel. In less than one revolution, however the disengaged clutch picked up on a stop on the noseblock and locked the propeller in the desired position, when the blades immediately folded. In folding, incidentally, one blade tripped a mechanism releasing the single leg undercarriage " down " lock, enabling this to snap up into the retracted position.

This method of using a freewheel-type clutch on a folding propeller is not new, but Evans's method of utilising the system was certainly foolproof and worthy of note. The method does seem a direct





22" DIA. 26" PITCH	BLOCK WIDTH 4"		DEPTH 1½"
24" DIA. 24" PITCH	" " 4·33"		" 1⅜"
26" DIA. 22" PITCH	" " 4·65"		" 1¼"

answer to motor bunching troubles with single skein motors and folding propellers where the hook distance is less than the motor length.

Joe Bilgri, on the other hand, was not content to use just taut motors with his folding propellers. A normal spring-type tensioner was fitted to the nose-block adjusted to stop the propeller when the power output had died off to the level where the model was no longer climbing. In other words he cut out the "cruise" part towards the end of the power run where many folding prop. models have a tendency to nose down and pick up speed. His airframes were also worked down to a minimum of weight—to a point, in fact, where the wings were definitely flexible in the wind. Yet they were strong enough to meet all flight load conditions—even a loop under full power which his geared model had achieved in one of the American trials. Getting the model back to the flying area intact after a flight in a high wind, however, might well be another problem.

The only other American model to place high was a long fuselage job by Montplaisir. This had a beautifully built airframe, again down to a very low weight. The Americans, undoubtedly have a natural advantage where wood selection is concerned. The quality of wood they can get—although they, too, have to search for it—is superior to anything that reaches our own model shops.

The strength of this light, long fuselage with Warren girder construction was demonstrated by an incident which occurred well downwind during the course of the second round flights. Returning with my own model, Montplaisir's long fuselage Wakefield was identified gliding in over the top of a row of trees. The air was extremely turbulent and reared the model up into a stall. From a height of over one hundred feet it then put its nose down and came straight in in a vertical dive, and a crash, it seemed, that could be heard all over Sweden—a remarkable demonstration of the poor stall-recovery characteristics of models with the centre of gravity aft of the trailing edge! Changing direction to pick up the remains, I was more than surprised to find that the only damage resulting was that the wing pylon had sheared off the fuselage. The fuselage structure itself was virtually undamaged and the model was soon repaired and completed its third round flight. Long fuselages, it seemed, need not be weak. And certainly this particular long fuselage was light enough.

With the 1952 Wakefield over, however, the main thing is—what have we learnt to improve our models for 1953? This report has mentioned only a few models and placed stress on weather conditions, rather than technical development, affecting results. In fact, apart from the use of large diameter propellers there was nothing very new in design development. Novel detail design improvements there were in some number, but it was still the conventional model that more than held its own. Gears certainly carried the day, but they have won every Wakefield since 1949.

Unless the next Wakefield is flown in true "still air" conditions—and that seems most unlikely—the main requirement seems to be a team of models all capable of a four minute "still air" average and capable of getting really high under power. At least one should then get the necessary breaks to approach three maximums.

The type of model to do this need not be any different from those which formed the 1952 team—or so nearly made the team at Digby. But since we feel it obligatory to "improve" our designs each year, then the most obvious suggestions are, increasing the weight of rubber motor (even if this brings the total weight to 9 ounces or more) and experimenting with larger diameter airscrews. The writer check-flew both his models on returning from Sweden, just as they were, and recorded 4 min. 20 and 4 min. 23 on 80 per cent. turns in evening air; checked the trim by departing from the original settings and got correspondingly reduced performance; and then tried one with a 24 in. diameter folding propeller and single skein motor of increased cross section (same weight of rubber). The large propeller appeared to be worth at least another hundred feet of height under power on proportionately less turns (about 75 per cent. maximum). More rubber and an even bigger propeller—and who knows? After all, the Americans have tried a 30 in. diameter propeller. Main trouble here, according to reports, is getting out of the way of it when the model is released! If you are satisfied with your original model, then remember that the last four machines to win the Wakefield have been

(*Continued on page* 474).

The SH Receiver

By E. C. Sills

THIS receiver is the result of some six months' work in an endeavour to produce, without too much regard to cost, an extremely reliable and long-range equipment. Since some features of the complete unit do not follow present day practice, it may be instructive and interesting to examine existing types of R/C apparatus in order to see where this new receiver fits into the picture.

In general receivers fall naturally into one of two categories depending on the method adopted for signalling information.

1. Interrupting (i.e. keying) a continuous wave.
2. Interrupting the modulation on a continuous wave.

A simple analogy may emphasise the difference.

Mode 1 may be likened to signalling with a lamp by switching the light on and off. Mode 2 is different in that the light remains on continuously but the brightness is varied in some way in accordance with an agreed code. This permits easy multichannel control, since various codes can be sent simultaneously, and simple electrical, or electro-mechanical methods used to sort them out. Apparatus using Mode 2, however, is very expensive, since at least three valves must be used in the receiver and the transmitter must be capable of sending the desired code.

Advantages and disadvantages of Single-valve Receivers

Advantages are three-fold, viz.:

(*a*) Low initial cost.
(*b*) Low all-up weight.
(*c*) Simplicity.

Against these desirable attributes there is a formidable list of disadvantages viz.:

(*a*) High quiescent anode current, (from 2 to 5 milliamperes) resulting in short battery life.
(*b*) Comparatively small change of anode current on receipt of a signal, necessitating a heavy relay if reliability is to be assured.
(*c*) Under practical conditions, a limited range.
(*d*) Operating conditions dependent on state of low tension battery.
(*e*) In the case of a gas-filled valve, short life and expensive replacement.

It is to be noted that the present use of self-neutralising escapements has largely come about because of the inherent unreliability of the small single valve receiver.

Multivalve Receivers

When the model to be flown is fairly large, say 6 ft. or more in span, the multivalve, multichannel receiver comes into its own. The only disadvantages here are high initial cost, and the extra complication of the additional control surface actuators.

The receiver to be described will operate with any Mode 1 transmitter, but will only give control on one channel. It uses two valves, both normal " hard " types and weighs somewhat more than the single valve type, but is ideal for a model of say, 5 to 6 feet span, when the extra range provided is an additional asset.

The major advantages of the S.H. receiver are as follows :

(*a*) Low quiescent anode current (of the order of a half milliampere).
(*b*) Extremely long range, easily reducible if necessary.
(*c*) Due to the use of a pulse-operated escapement, negligible actuator battery drain.
(*d*) Very large anode current change on receipt of a signal, the implication being that an insensitive relay may be used with complete reliability.

It may be thought by some readers that a return to multivalve receivers and pulse-operated escapements is a retrograde step, but the author's defence is that many hours of completely reliable operation have been obtained, as members of the local club will verify.

Description of S.H. Circuit

At the risk of going over ground which has already been adequately covered by other writers, it is intended to give a brief technical description of the S.H. receiver circuit which appears on page 457.

V_1 is a normal self-quenched super-regenerative detector, with the grid leak, R_1, returned to a positive potential, in this case the anode of V_2. On receipt of a signal from the transmitter the anode current of V_1 will decrease slightly. In the normal receiver, this small dip in current would cause the sensitive relay to open, and operate the escapement. In the circuit above, however, the anode current of V_1 flows through a resistor of high value, R_2. When the transmitter is quiescent, the steady current drawn by V_1 causes about 20 V to be dropped in R_2, so that roughly 40 V appears at the anode of V_1. When the transmitter is keyed on, however, the anode current of V_1 drops slightly, so that less voltage is dropped across R_2 and the anode potential of V_1 rises by a few volts. If the rise lasts for a short time only (i.e. a quick press on the transmitter button) the rise at V_1 anode will be passed almost

without loss of amplitude via C_5 and R_4 to the control grid of V_2. In order to see what happens next we must consider the operating conditions of V_2. The anode and screen grid are both returned to HT+ (an essential condition for the flow of anode current), but the control grid, on the other hand, is connected via R_3, the grid leak, to a few volts negative, adjustable by P_1. When the control grid is made sufficiently negative, electrons leaving the filament do not reach the anode because they are repelled by the negative charge on the control grid. (Electrons carry negative charge, and like poles repel, remember?) In fact, we do not cut the anode current off entirely, but allow a small current to flow, which is quite inadequate to operate the relay.

When considering V_1 we have got to the point where, when the transmitter is pulsed, a rise of voltage is passed to the control grid of V_2. This overcomes to a large extent the inhibiting bias we have applied from P_1, and the anode current of V_2 accordingly increases. At the same time, the anode voltage of V_2 drops, due to the resistance of the relay. Since the grid of V_1 is connected to the anode of V_2, the anode current of V_1 drops further, which again causes V_2 to take more anode current. This state of affairs is called a cumulative action, and V_2 is rapidly driven to a very high anode current. The relay now closes, and operates the escapement. At the end of the pulse, which may last for say $\frac{1}{4}$ sec. the reverse action takes place, and V_2 is rapidly cut off, so that the relay has no option but to fall out.

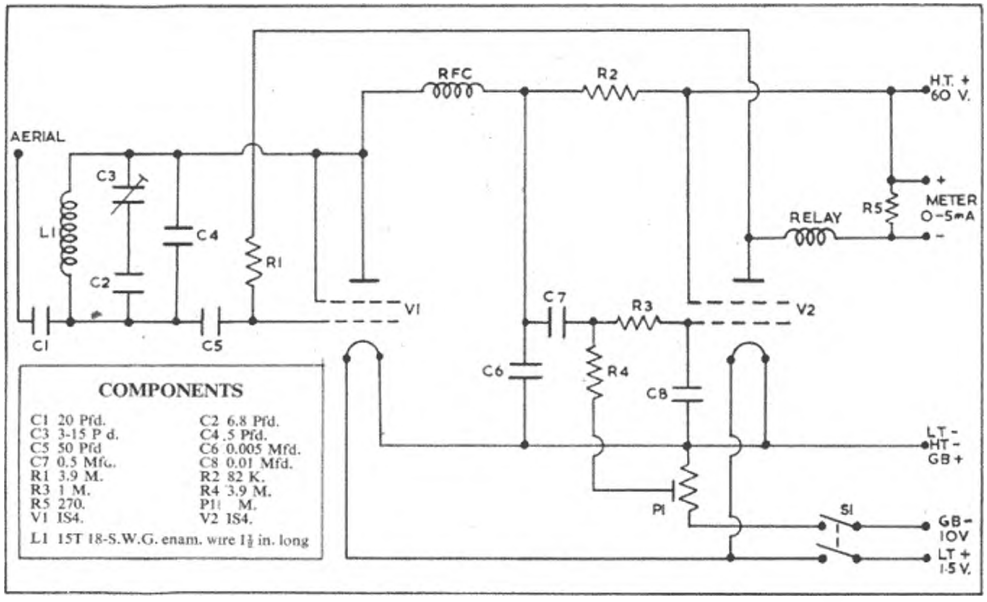
General Instructions and Setting Up

Construction can follow along established lines, since the layout is in no way critical. The main difficulty lies in obtaining physically small components. In the case of P_1, it is a good idea to dismantle an ordinary carbon potentiometer, and mount the carbon element with two small screws or rivets straight on to the paxolin receiver base. A simple wiper can be made from a thin piece of brass, or better, phosphor-bronze, soldered to a 6-B.A. screw which can be arranged to pivot in a bush made from a 2-B.A. screw. The relay can be any type of from 2,000-5,000 ohms resistance, and capable of pulling in at 5 to 2 mA respectively.

In order to save weight, the bias battery can be made from a section of a discarded layer-built H.T. battery. Most discarded batteries will be quite good enough for this service since the current drawn by P_1 is practically nil.

Tuning is easy once the knack has been obtained. A good way is to switch the transmitter on and then *rapidly* swing the tuning capacitor C_3 to and fro. When on tune, V_2 anode current will kick up. Having done this, adjust P_1 to give a standing anode current of say $\frac{1}{2}$ milliampere, and you are ready to go. One word of warning: If you do not pulse the transmitter, but press the key and hold it down, the relay will close, but after a second or so, will fall out again and the receiver will be insensitive to a further pulse for a second or two after the key is released. Therefore, key the transmitter with brief pulses, and use, for preference, a three-way actuator, then you will not have to remember a sequence.

Finally, if any reader gets into difficulties the writer will be pleased to answer any queries, but please don't forget a stamped, addressed envelope!



COMPONENTS

C1 20 Pfd.	C2 6.8 Pfd.
C3 3-15 P.d.	C4 .5 Pfd.
C5 50 Pfd.	C6 0.005 Mfd.
C7 0.5 Mfd.	C8 0.01 Mfd.
R1 3.9 M.	R2 82 K.
R3 1 M.	R4 3.9 M.
R5 270.	P1 M.
V1 IS4.	V2 IS4.

L1 15T 18-S.W.G. enam. wire $1\frac{1}{2}$ in. long

HOW IT WORKS

Quite the majority of model aircraft have parallel chord wings. These are the simplest type to make, for all the ribs are the same size to start with, spars do not require tapering and, provided the tips are rounded, the finished wing looks " right." The few who have apparently been impressed by the theoretical advantage of elliptic wing planforms, and have often gone to great pains to produce such a wing shape, seldom gain any practical advantage. Their models fly no better and, more often than not, warp more readily. So why bother about the plan shape of the wing at all?

Well, appearance comes into it, for one thing. Some people prefer a " pretty " model and are more concerned with actual outline shapes than pure performance characteristics. At the same time the simple facts concerning the relative efficiencies of different wing shapes are quite readily understood, so there is no reason why " eye appeal " and good aerodynamic characteristics should not be combined.

Most wings, whatever their shape, are capable of producing much the same lift per unit area, with similar sections. Only if the wings are tapered off very sharply so that the resultant chord is small (say, 3 inches or less) does efficiency appreciably fall off. What is rather more important is the actual *shape* of the tip.

Modern full-size aircraft design is tending to standardise on wings with blunt tips. But these aircraft are designed for quite different operating conditions to models. They are designed for high-speed flight, and one of the characteristics of high speed flight is that the wings are operating at a low angle of attack. With models, best performance, and particularly a good glide, only comes from operating the wing at a *high* angle of attack. For the best glide, this angle of attack is only just below the stalling angle of the wing.

At such high angles of attack a square tip shape is relatively poor. Rounding the tip reduces the air disturbance, and thus saves drag; whilst a more elliptic tip gives even smoother airflow conditions, as indicated in the first line of diagrams. Broadly speaking, then, irrespective of wing *shape*, a rounded tip is to be preferred to a square one.

The same does not apply to the tailplane tip shape. This is always operating at a lower angle of attack than the wings and so tip shape is not so critical. It is quite all right, in fact, to use blunt tips on most tailplanes without producing any marked increase in drag. The only thing is, that for the sake of appearance the tailplane tip shape is generally made similar to that of the wing. A wing with elliptic tips does not really look right with a square tipped tailplane.

Tapered wings and parallel-chord wings differ in one way. With a parallel-chord wing, if it is a " true " wing with all parts at the same incidence, the centre section of the wing will stall before the tips. This can be used as a stabilising factor. If the wing is given sweepback, the centre part will stall first with the tips still lifting strongly. The result is that the point of overall lift (now reduced in value) will move back and thus tend to correct the stall.

This property of swept, parallel chord wings means, logically, that a smaller tailplane could be used on such designs, if desired. The actual wing correction is small, compared with the action of the tailplane, but it does exist. Another property of a sweptback wing is that it requires less dihedral. Sweepback has a similar effect to dihedral—ten degrees of sweepback being equivalent to about one degree of dihedral, in effect. Hence it is common on all aircraft using swept wings, model or full size, to use smaller dihedral angles than usual. In full-size practice it is often found necessary to use negative dihedral with heavily swept wings, although this is not likely to apply to models. Dihedral angles used on models are always higher than full scale figures.

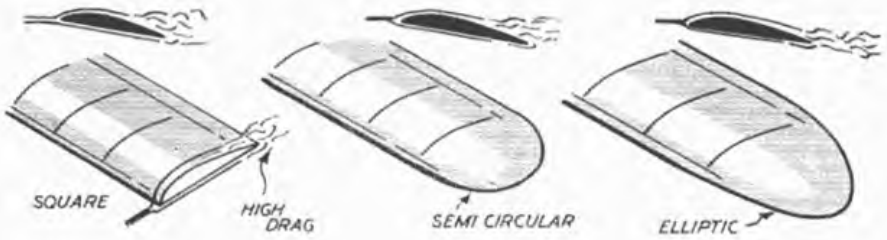
The tapered wing stalls first at the tips and thus has not got the same stabilising action as a parallel chord wing, if swept back in planform. A model with tapered wings may, in fact, tend to be unstable at high angles of attack due to the tips persistently stalling, perhaps one before the other.

The cure, however, is simple. The incidence of the tips is reduced or, to give it its proper name, washout, is incorporated. This delays the stall of the tips, as required. The fact that washout is incorporated does not mean that the tips are operating at lower lift values. Airflow conditions over a tapered wing tend automatically to give the tip sections a higher angle of attack. Moderate washout simply brings conditions back to where the whole wing is operating at the same angle of attack. Only if the washout is excessive will there be any loss of lift.

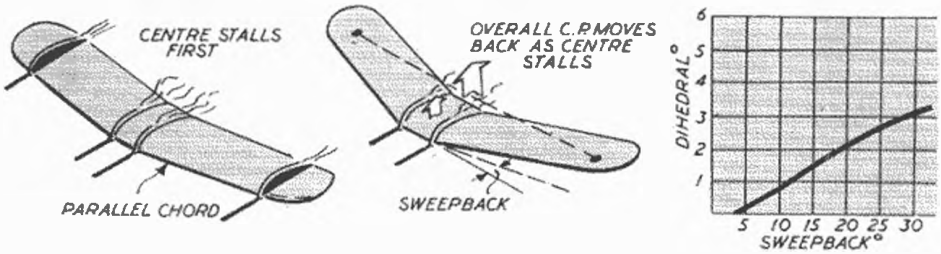
The one thing to avoid on tapered wings is overdoing the taper. A tip chord no smaller than about two-thirds of the root chord is a good rule to adopt. Sharp tapers promote early stalls and add drag.

Many designers using tapered wings quite unwittingly incorporate sweepback (or sweepforward) in their planform. If all the taper is on the trailing edge, for example, the centre of pressure line of the wing is actually swept forward. If the taper is all on the leading edge we have, in effect, a sweptback wing.

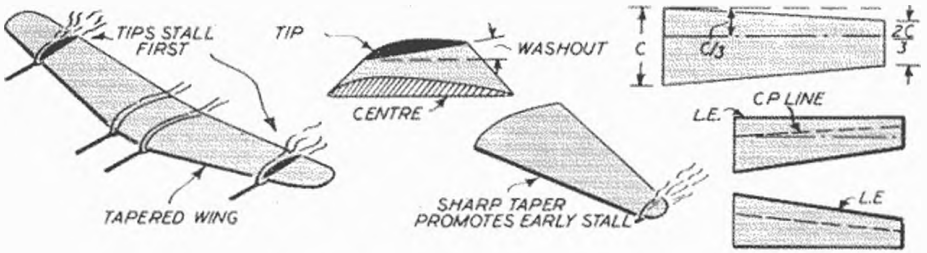
The final diagrams show how closely a straight tapered wing can approach the theoretical ideal of an elliptic planform. The straight tapered wing is very much stronger and less likely to warp, since the main outline members extend virtually from root to tip. Only the tip itself is of curved outline and is, in fact, the weakest point. This is a strong argument in favour of the " practical " blunt tip, which can be made much more rigid.



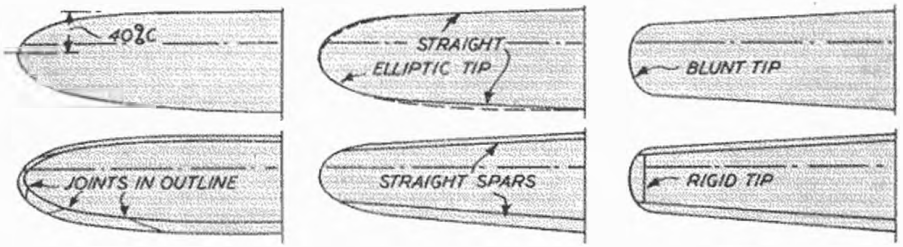
HIGH DRAG FROM SQUARE TIPS AT HIGH ANGLES OF ATTACK



PARALLEL CHORD WINGS STALL FIRST AT THE CENTRE



TAPERED WINGS STALL FIRST AT THE TIPS



PRACTICAL WING SHAPES AVOID CURVED OUTLINES

WING SHAPES

MODEL AIRCRAFT

ENGINE TESTS

No. 40. The Reeves "Goblin" 2.49 c.c.

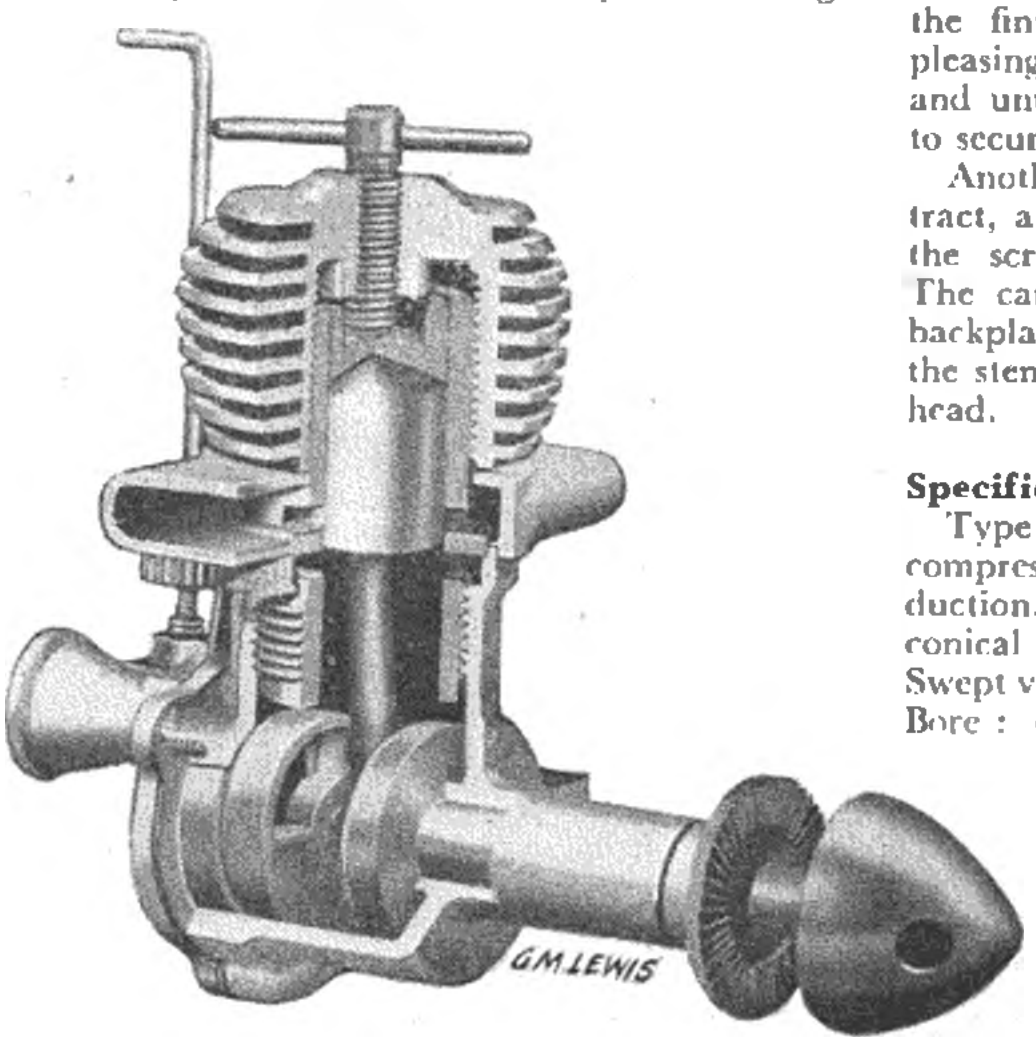
IN conducting this test of the Reeves Goblin diesel, we formed the opinion that our particular example was somewhat sub-standard in several respects. It is necessary to make this clear at the outset to account for subsequent remarks, from which it might be judged that we were being unduly critical.

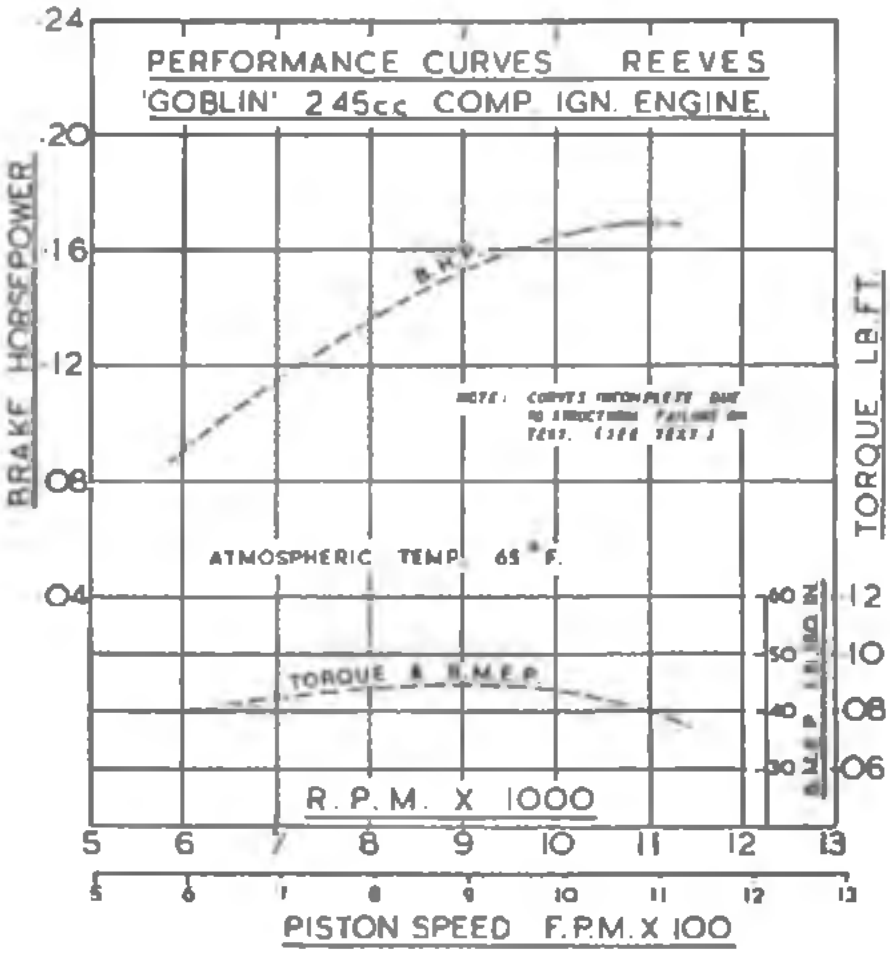
The Goblin is not a very well-known engine and our judgment could not, therefore, be based upon previous experience of this particular type, although the marque has figured in the writer's earlier experiences in the shape of the old Reeves 6 c.c. model, a sound and likeable spark-ignition engine. Nor were we able, at short notice, to get hold of a second example against which to test our findings.

It is, of course, our usual practice to give manufacturers the opportunity to comment on any unusual developments during tests, but this has not been possible in the case of the Goblin due to our inability to establish contact with the manufacturer.

The test engine was obtained from the stock of a retail model shop. It is reasonably priced at 70s. inclusive of purchase-tax, and is supplied with an instruction leaflet and is guaranteed for a period of sixty days against defects of material or workmanship.

Externally, the crankcase is cleanly cast although





the finned aluminium cylinder barrel is of less pleasing finish. The engine is of the disc-valve type and unusual is the use of countersunk head screws to secure the crankcase backplate.

Another unusual feature is the double exhaust tract, a separate casting which is clamped between the screw-on cylinder-barrel and the crankcase. The carburettor intake is integrally cast with the backplate and the needle-valve is mounted vertically, the stem extending above and behind the cylinder-head.

Specification

Type : Single-cylinder, air-cooled, two-cycle, compression-ignition. Disc type rotary-valve induction. Annular exhaust and transfer porting with conical psiton crown.

Swept volume : 2.45 c.c. (0.1495 cu. in.)

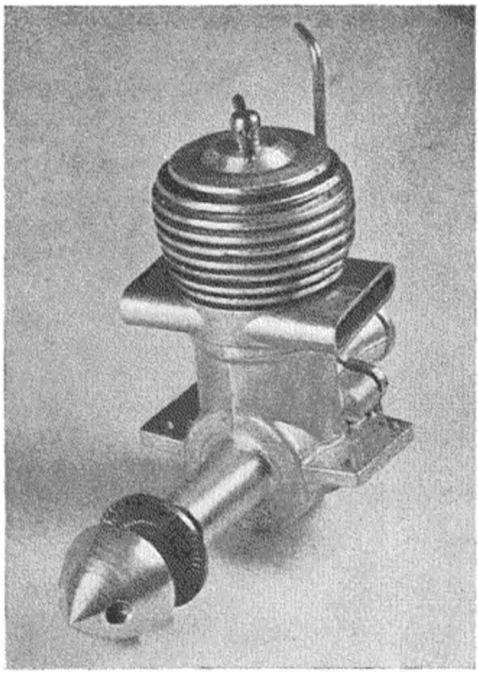
Bore : 0.566 in. Stroke : 0.594 in.

Stroke Bore Ratio : 1.049 : 1.

Compression Ratio : Variable.

Weight : 4.1 oz.

General Structural data : Die-cast aluminium alloy crankcase, rear-cover, valve-rotor, exhaust-tract and cylinder-barrel. Hardened steel hollow crankshaft run-



ning in plain bearing. Hardened steel cylinder-liner, flanged and threaded to crankcase. Piston and contra-piston of hardened steel. Connecting-rod of hardened steel with plain eyes. Spray-bar type needle-valve assembly with ratchet needle adjustment. Beam type mounting lugs.

Test Engine Data

Total time logged : 1 hour.

Fuel used : (Recommended mixture) equal parts of ether, kerosene and S.A.E. 60 lubricating oil.

Performance

The Reeves is fairly easy to start, although, in the test engine, this was not assisted by the fit of the contra-piston, which was very much on the slack side—so much so, in fact, that, if equipped with a large prop to hold the revs. down which, of course, entails slackening off the compression) the contra-piston was actually sucked down the bore fractionally every time the prop was flicked over. When running at these speeds the contra piston was, presumably, agitated somewhat, with the expected result : the engine would not hold its compression adjustment and the compression-screw rapidly spun back from its setting.

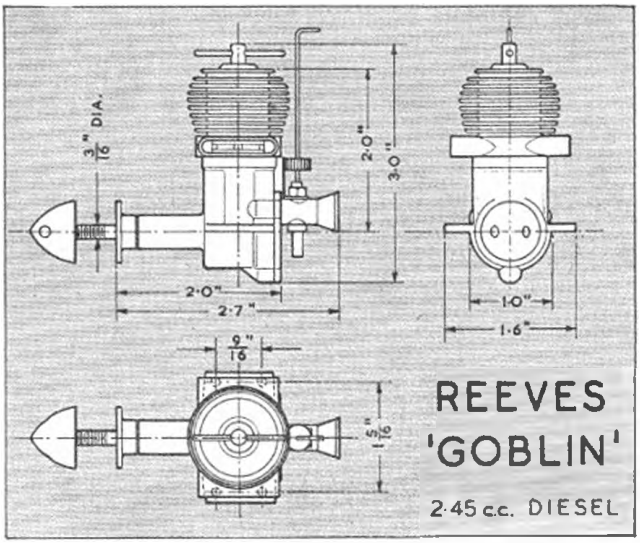
On lighter loads and, thus, at higher speeds, this tendency for the contra-piston to move disappeared, possibly due to its becoming a better fit when in its lower positions.

There was not quite the power available, however, that one might reasonably expect from a 2.5 c.c. unit of generally modern design, although this was by no means inadequate and due to the light weight of the unit, the power-to-weight factor is still quite good.

Neither control was at all critical and the needle-valve held its setting firmly at all speeds tested, aided by the ratchet fitted. It was not necessary to readjust the needle between starting and running settings (3½ turns open) but when starting, it was found advantageous to prime through the exhaust port in addition to the recommended three or four choked flicks. The exhaust tract was particularly effective in keeping residual oil away from the engine and its immediate vicinity.

There was a slight loss of power after warming up from cold, but this was not abnormal and the engine held even speeds for prolonged periods after the nominal one-hour running-in period. Unfortunately, however, it was not possible to carry the torque tests through to completion for, when running at a little over 11,000 r.p.m., the engine sheared its crankshaft close to the web, and thus precluded a re-check on the performance figures thus far obtained as well as further tests at higher speeds. Because of this it is not possible to say with certainty where the peak performance is realised, although it appears that the power curve was flattening at 11,000 r.p.m. where approximately .17 b.h.p. was shown.

(*Continued on page 470*)



1. Bill Tickner launching Sid. Sutherland's machine in the R C event.

2. J. Hancock (Surbiton) launching for Pete Wyatt of Ipswich.

3. Mike Green (Men of Kent) who came third in the rubber contest.

4. A. Satchfield starts up his model for the power contest.

5. Ron Warring who took second place, flying his Wakefield after it had been retrieved from the sea.

6. Ken Muscutt of West Essex, with the Godalming Trophy after winning the Class " B " team race.

7. Piacentini of Salisbury starting R. Tutte's Class " I " speed model.

8. E. Rogers launches his huge model, " Sizzling Shadow," in the power event.

9. W. Edmond (Belfast Phoenix) surrounded by his compatriots before flying his rubber model.

10. A clean launch by D. Ingledon of West Middlesex.

11. A Gosport club combined effort. Built by C. Sawyer (left), this sleek model was sprayed red by D. Tanner.

"BRITISH NATIONALS"

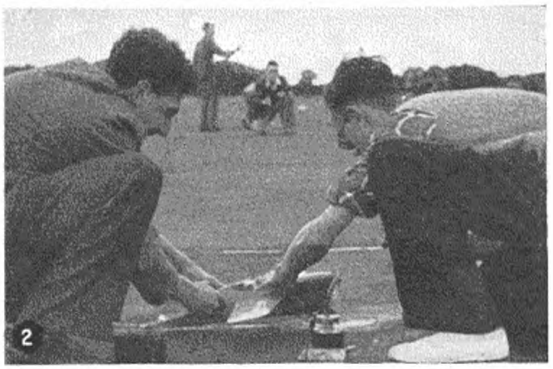
HELD AT GOSPORT

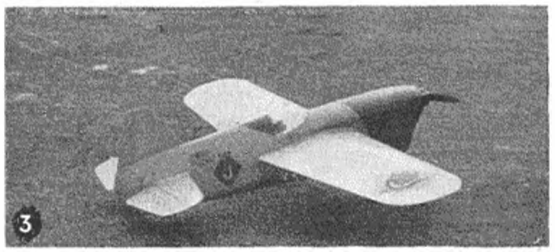
HELD this year at the Royal Naval Air Station, Gosport, Hants, the 1952 British Nationals were blessed with a pleasant, attractive airfield, good organisation and warm, sunny weather—all factors making for enjoyable flying, but once again with the usual Nationals bugbear—a high wind. As a result many free-flight models came to grief through no fault of their own, blown back into the ground shortly after take-off. Even control-line was adversely affected by the wind. Model after model in the stunt event came to grief on the first day as gusts slackened off the lines or delayed the pull-out at the bottom of a dive. Yet putting disappointments aside, most modellers seemed thoroughly to enjoy the almost restful atmosphere prevailing in certainly beautiful surroundings.

Undoubtedly this was John O'Donnell's Nationals. He achieved the "impossible" in winning both the rubber and glider events on the first day, when the wind was at its strongest. To add a further touch of drama, last year's winners in both these events were close runners up this time. The Gold Trophy for stunt control-line went, as we have come to expect, to Alan Hewitt again, whilst well-known names were liberally distributed amongst the top places in all the other events. Entries were not as numerous as they could have been, which was a pity. If the Whitefield club can journey down from Manchester—and there were other modellers from much farther afield, even Wales, Scotland and Eire—surely more "local" support could have been forthcoming from, say, the London area and the Midlands. London undoubtedly provided the greatest proportion of entrants, and each competition had its fair share of expert entries, but there should have been more "willing to have a go."

As to the flying itself, the first day brought a freshening wind threatening to carry models right on the peninsula into Portsmouth harbour. Several long glider flights did, in fact, terminate in the water. O'Donnell's model used up just about all the land available on a 4 min. 20 sec. first flight, whilst Warring's model disappeared upwards in 3 : 45 later to land in the Solent off Southsea pier! Gliders making long flights at this time also disappeared high up and it became evident that getting models back for a second flight was to be a major problem. Fortunately, however, in few cases were models lost entirely.

Top times were closest in the glider event. Two or three good first flights and models irretrievably lost left these unfortunate, but hopeful, fliers at the top of the list until late on in the afternoon. Then as more models came back and more two-flight totals were computed,

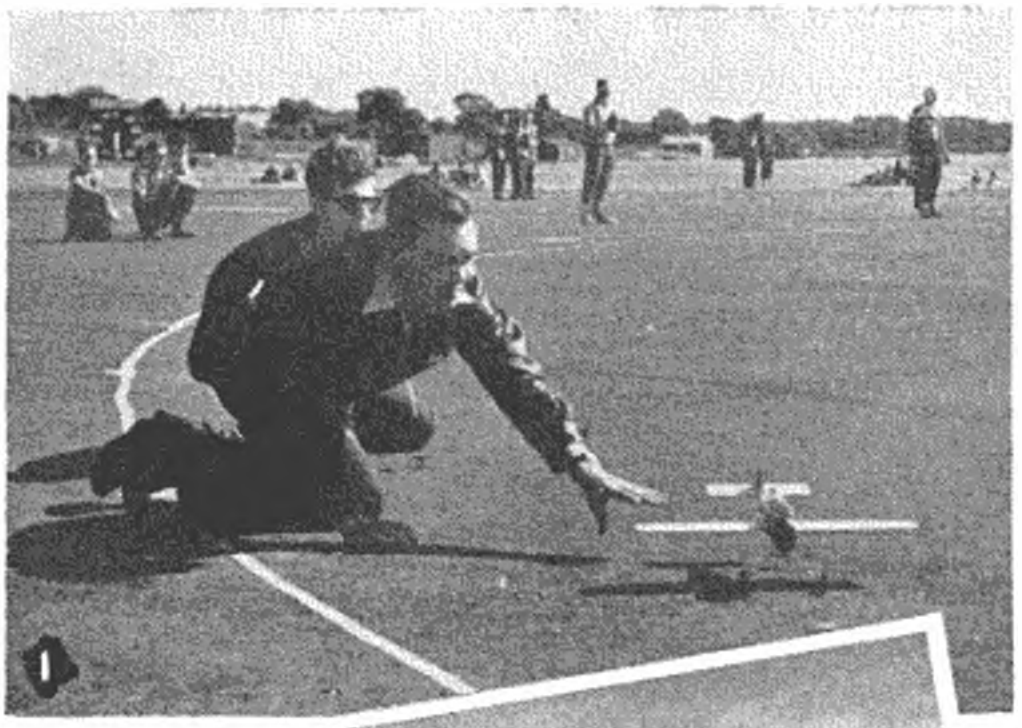


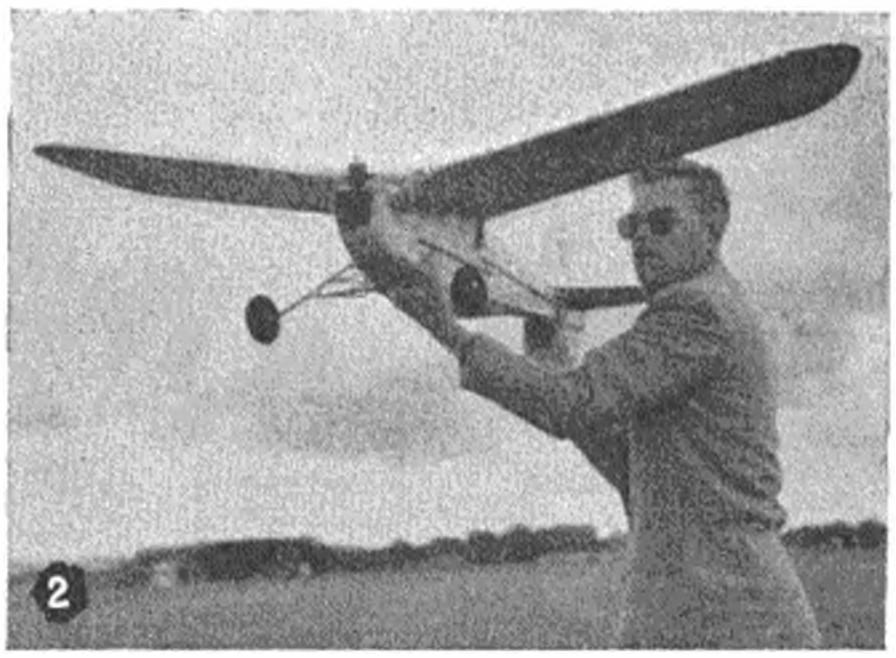


1. John O'Donnell of Whitefield, who won both the Thurston Cup and the "Model Aircraft" Trophy.

2. Den Allen and Ken Muscutt with the latter's winning model in the Class "B" team race. Chas. Taylor has the handle.

3. The model itself—a dumpy, sturdy design.





down they dropped in the results. Nobody looked like overhauling the two top rubber men once they had completed their flights—both, incidentally, flying the Wakefields they flew in Sweden.

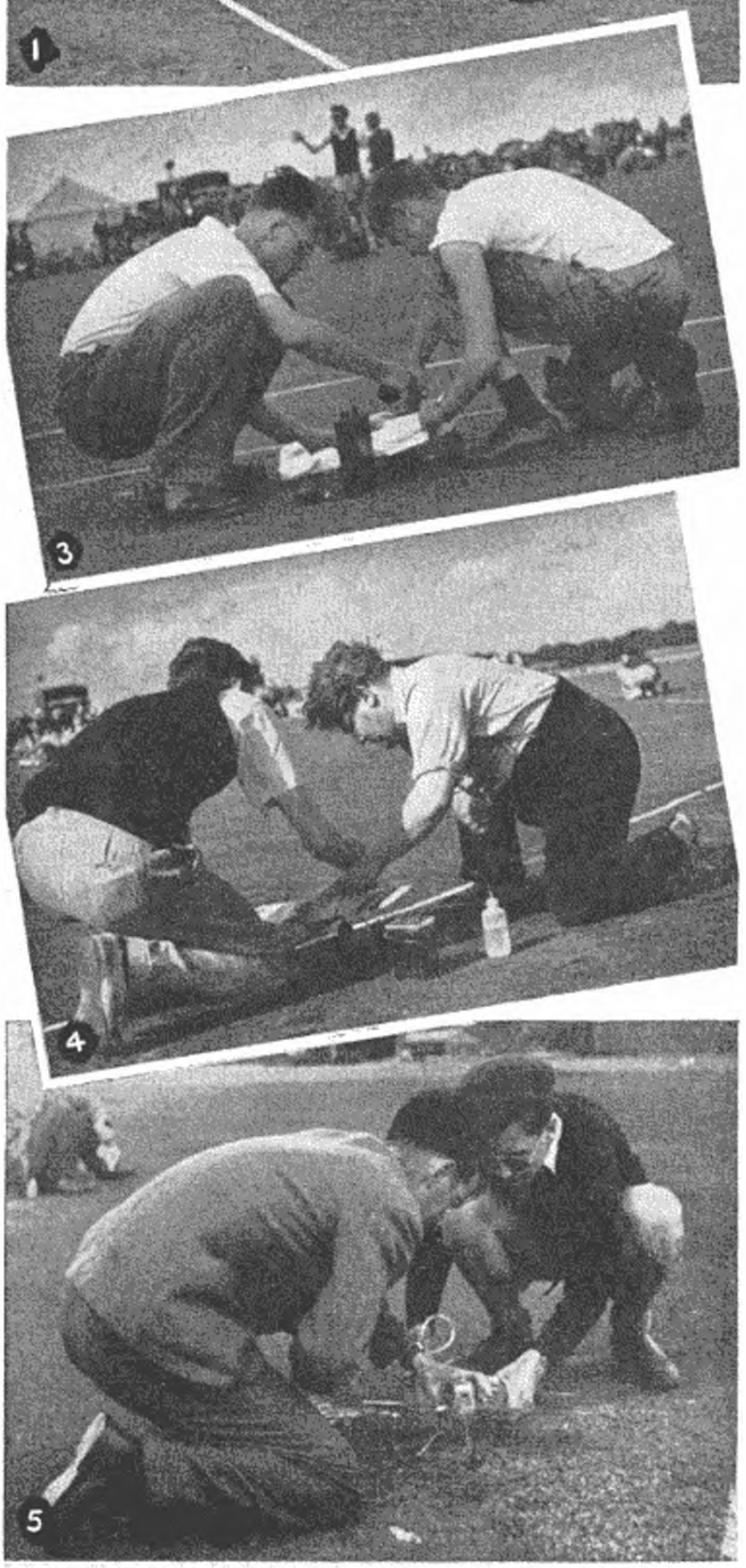
Free-flight power on the second day produced higher aggregate times since the drift had lessened. It became largely a matter of who, amongst the top men after the first round, would record the highest "in sight" flight time on their second attempts. Anyone who made a mistake at all was automatically eliminated. Under the conditions the times of the first five were outstanding.

Radio control was most disappointing. Having missed seeing the winning model in action, we can only say of the others that not one, once airborne, appeared to have any chance of doing anything but lose ground downwind. We saw better radio flying, in fact, in higher wind, at the York Nationals two years ago.

Meantime on both days the other control-line events continued to run with creditable smoothness. The team race events produced their usual moments of excitement whilst the speed classes, although not particularly well supported, did result in one new record—104 m.p.h. in Class II by Pete Wright of St. Albans. A fine performance, this, in view of the weather, and the first time in this country that the Class II record has been boosted past the "century" mark.

If conclusions are to be drawn we would say that the free-flight duration events (rubber, glider and power) provided the mainstay of the meeting. Here, whatever the conditions, you always get a hard core of expert entries guaranteeing top class competition. Control-line has its lesser number of expert entries. Stunt no longer seems to be a close fight for the top places as so many previous stunt experts seem to have deserted that cause. Team racing is undoubtedly the most popular type of control-line contest and one which should have a very bright future. Speed was most disappointing. We have all too few people keen to specialise in this field, as specialise they must to obtain consistent, good results. Hence, we get the peculiar situation of the lowest number of National "class" entries competing for the greatest number of individual awards! It is not fair, above all, to the speed fliers themselves.

Our final word on the subject of the Nationals is to congratulate the organisers on a thoroughly competent effort, and to thank the Navy for their invaluable help and co-operation.



1. The High Wycombe team, winners of Class "A" team race.
2. Off on its winning flight goes the model entered by E. G. Sallis of Cambridge in the R C contest.
3. Skinner and Crowe of Harrow with the latter's Class "B" team racer.
4. Chas. Taylor and "Stoo" restart Bill Morley's third place Class "B" model.
5. Norman Butcher's Croydon team, who came third in the Class "A"

NATIONALS RESULTS

THURSTON CUP (Glider)

1. J. O'Donnell	Whitefield		5 : 49
2. J. Lamble	Wayfarers		5 : 16
3. E. Mason	Sevenoaks		5 : 00
4. N. Neve	Brighton		4 : 26
5. R. Law	W. Middx.		4 : 14
6. P. Wyatt	R.A.F. Felixstowe		4 : 11

"MODEL AIRCRAFT" TROPHY (Rubber)

1. I. O'Donnell	Whitefield	7 : 24
2. R. Warring	Zombies	6 : 51
3. M. Green	Men of Kent	5 : 30
4. A. Bennett	Whitefield	4 : 36
5. A. Meechan	Dublin Phoenix	
6. P. Buskell	Surbiton	

GOLD TROPHY (Stunt C/L)

1. A. Hewitt	South Birmingham	348
2. P. Smith	Chingford	332
3. A. Piacentini	Salisbury	241
4. C. Plant	Stockton	205

EASTBOURNE TROPHY (T/R.A.)

1. Edmunds	High Wycombe
2. Tutte	Salisbury
3. N. Butcher	Croydon

S.M.A.E. R/C TROPHY

1. C. Sallis	Cambridge	211
2. O. Hemsley	Bushey Park	134
3. S. Sutherland	West Essex	100
4. W. Tickner	West Essex	100

GOLDALMING TROPHY (T/R.B.)

1. K. Muscutt	West Essex
2. Greenwood	Worthing
3. W. Morley	West Essex

SIR JOHN SHELLY (Power)

1. A. Brooks	Grange	8 : 46
2. L. Barr	W. Middx.	7 : 47
3. B. Wheeler	Birmingham	7 : 11
4. A. Bennett	Whitefield	7 : 06
5. W. Dallaway	Birmingham	6 : 43
6. P. Buskell	Surbiton	5 : 48

SPEED

I. W. Dilly	Croydon	126 k.p.h.	80 m.p.h.
II. P. Wright	St. Albans	167 k.p.h. (new record)	104 m.p.h.
IV. H. Timms	Harrow	176 k.p.h.	110 m.p.h.

Speed results are provisional—subject to check by Comp. Secretary.

1. The Godalming lap-counting clocks were used throughout the team-racing.

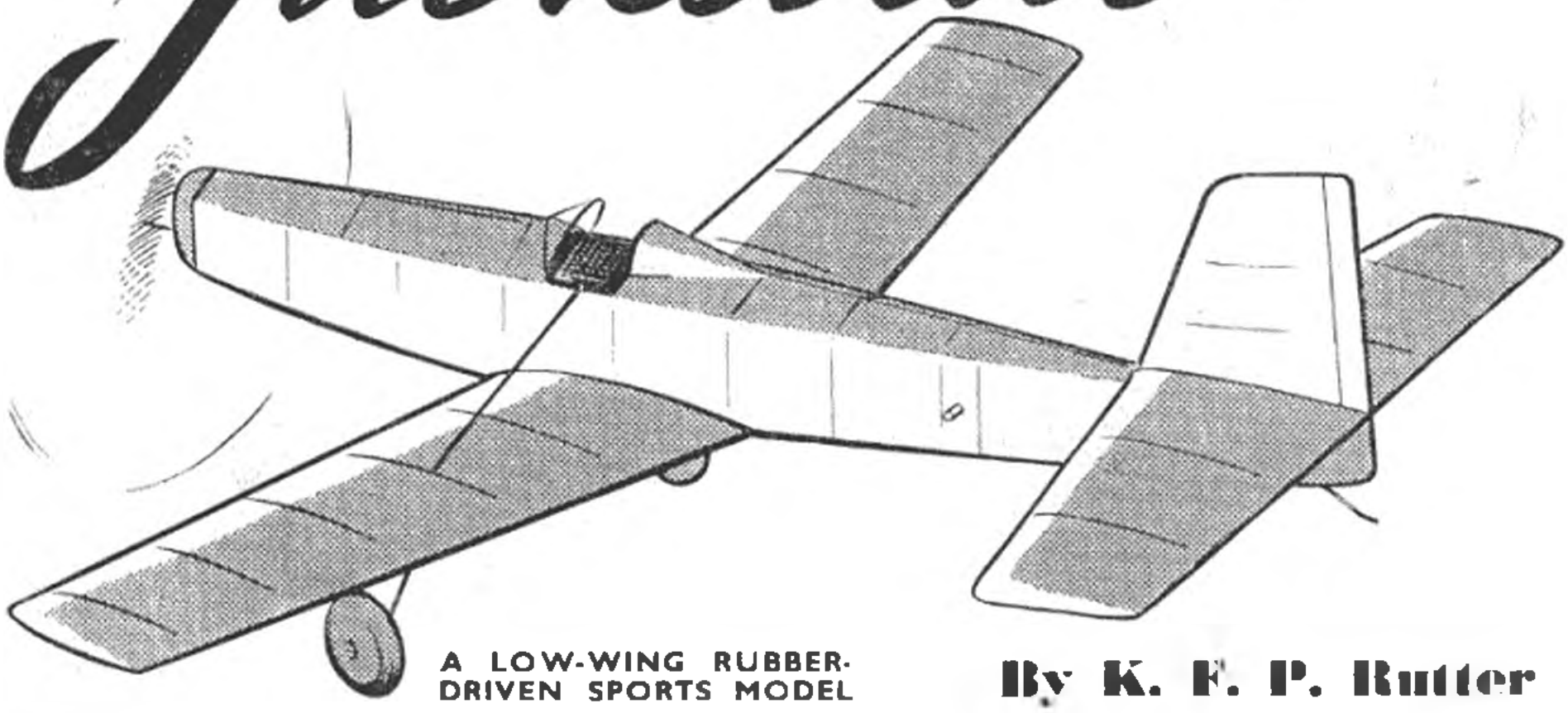
2. "Stoo" launching Ken Muscutt's stunt model for one of its powerless flights. (See "Here and There.")

3. Bill Dean starts up his power entry assisted by a young lady and watched by Laurie Barr.

4. R. Harris (Victoria) sustained a cracked spar in the high wind.

5. Roger Clark launching Sid Allen's radio model watched by two Naval types with a "walkie-talkie" radio.

Jackdaw



A LOW-WING RUBBER-DRIVEN SPORTS MODEL

By K. F. P. Rutter

THIS model was designed just for fun, without any contest aspirations to worry about, and is ideal for sports flying in small fields, or if you ever get tired of chasing Wakefields and A.2's for miles across country. Construction is robust, with knock-off wings, and the original has survived many contacts with obstacles, so far without damage.

Build the fuselage as a simple slabsider in the usual way, then add the top formers and spine. Add the sheeting on top of the nose and around the cockpit. Make up the undercarriage of 18-S.W.G. wire, with the wheels, and bind with thread to the inside of the lower longerons. Smear the binding with cement. Add the $\frac{1}{8}$-in. sheet fairing at the extreme rear of the fuselage and sand to a knife edge. Finally bind and cement the two $\frac{3}{16}$ in. long pieces of 20-S.W.G. brass tubing to the longerons at the cockpit.

The wings are built flat on the plan. Use the angle template to ensure that the root ribs are inclined from the vertical at the dihedral angle. Make up the struts from 20-S.W.G. wire and be certain that these are the exact size and shape shown on the plan, or the dihedral will be wrong. Bind the loop of each strut to the wing and add the gussetts. Then add the $\frac{1}{8}$ in. square "tongues" to the root ribs, making sure that they are in the same position on each rib. Insert the hooks—bent pins—through tongues and ribs and cement well.

The tail and fin are built flat on the plan in the usual way. It is better to cover first, then assemble the rudder to the fin, and the fin to the tail.

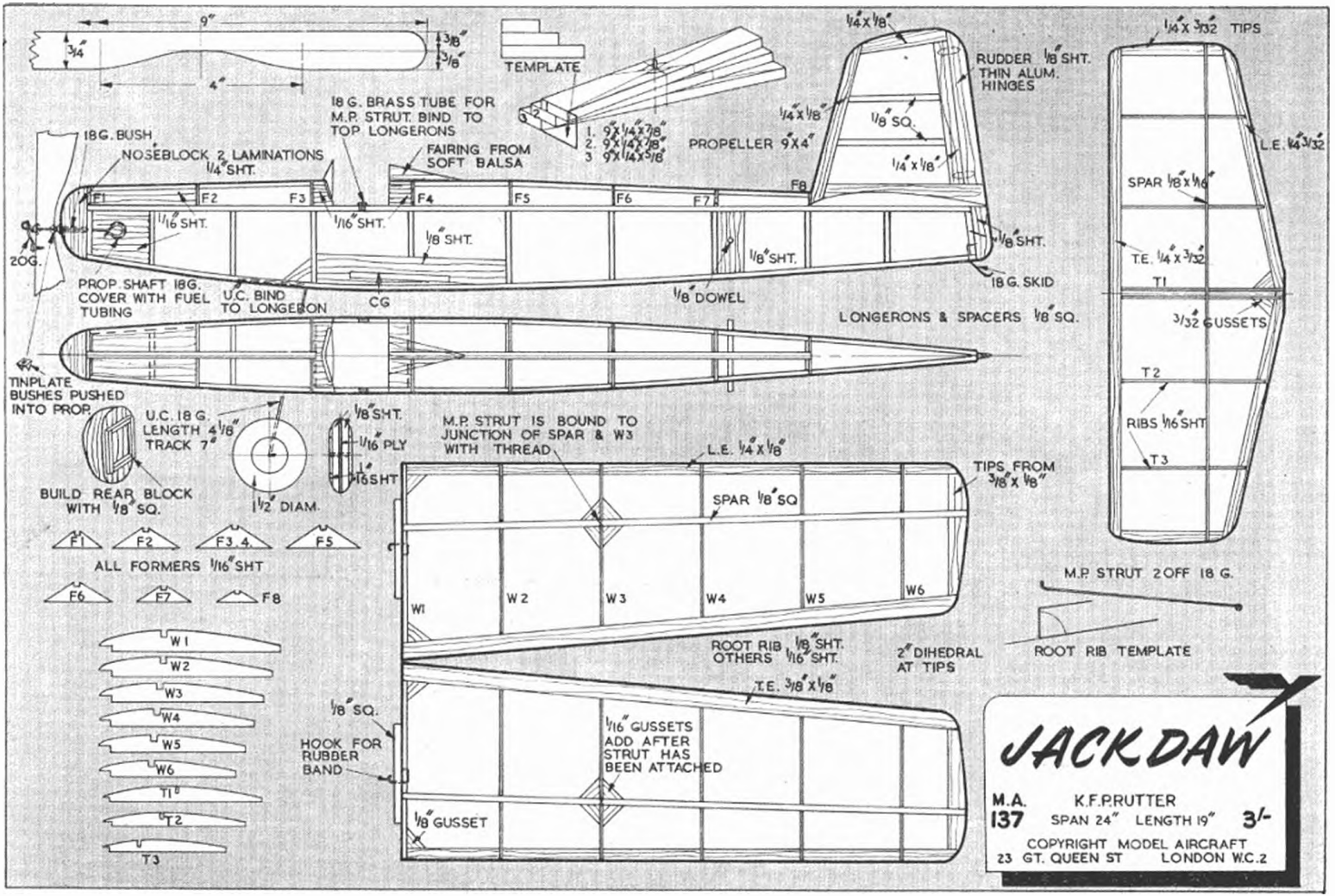
The propeller construction is shown on the plan but if you prefer it a normal block 9 × $1\frac{1}{2}$ × $\frac{3}{4}$ in. can be used. There is a $\frac{3}{16}$ in. diameter hole through the propeller, with pieces of tin, drilled with 18-S.W.G. wire, set in at back and front to give a bearing. The noseblock can be carved from block or laminated as shown, with an 18-S.W.G. brass bush. To make the shaft, bend the front winding hook first, slip on the washer, propeller, more washers and the nose block, and finally bend the motor hook and cover it with plastic or cycle valve tubing.

The whole model is covered with lightweight Modelspan, and if you want it to fly don't plaster it with coloured dope. When the covering is complete add the windscreen and head fairing and the key of $\frac{1}{8}$-in. sheet under the tailplane.

The motor is four strands of $\frac{3}{16}$-in. × 1/24-in. rubber, 15 in. long, tensioned with 50 turns on each half, and lubricated with castor oil. The model should weigh about $1\frac{3}{4}$ ounces ready to fly.

Before flying, remove any warps that inferior dope, tissue or climatic conditions may have caused (it couldn't be you, of course) with the aid of steam. Check that the model balances at the point shown on the plan. If it doesn't, up to $\frac{3}{4}$ in. each way can be trimmed out without trouble. If it is more than that off balance try changing the wheels, or ballast at nose or tail with modelling clay. Then test glide in still air on to long grass. Fore and aft trim is not very sensitive and the best glide position will easily be found by packing up the L.E. or T.E. of the tail.

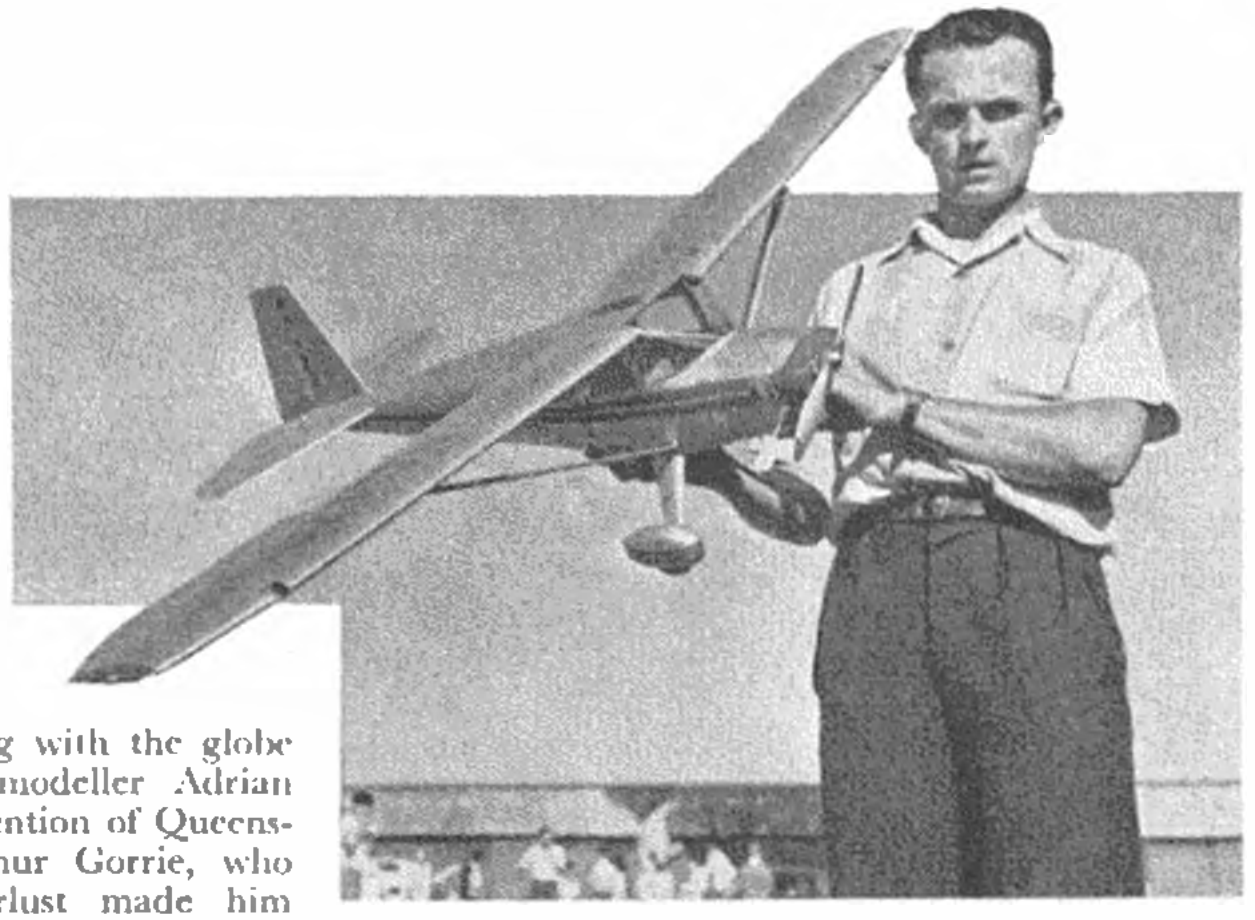
It will be observed that a certain amount of upthrust is built in. The model may need a little sidethrust and rudder to make it turn, but the rudder is sensitive and should be adjusted a little at a time. It will be found that the layout is very stable under power, with less than the usual stalling tendency under the initial burst. R.O.G. is foolproof and a still air run of about 12 ft. is required on 500 turns. The motor will take about 650/750 turns but for sports flying a motor will last indefinitely if the turns are kept down to 500. On this, duration is about 50-60 seconds.



FULL SIZE WORKING DRAWINGS ARE OBTAINABLE FROM YOUR LOCAL DEALER, OR BY POST FROM THE "MODEL AIRCRAFT" PLANS DEPARTMENT, 23, GREAT QUEEN STREET, LONDON, W.C.2, 3s. 0d., POST FREE.

MODEL talk

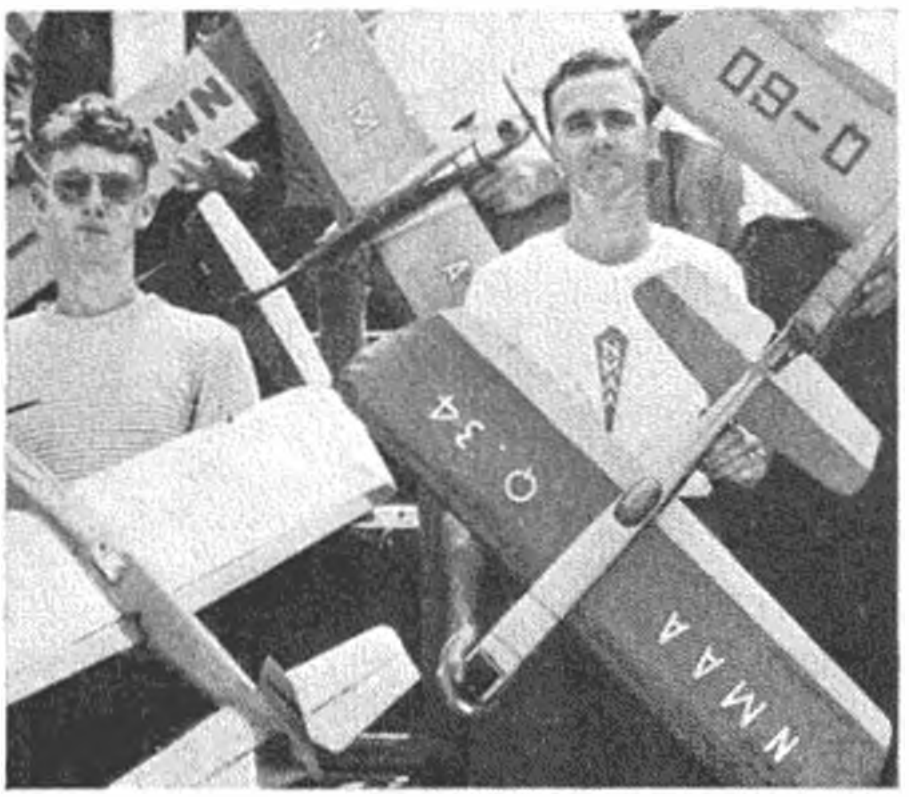
By Bill Dean



Z. Datkiewicz of the Polish Air Force Model Association—and his superb F/F scale Luscombe Silvaire, which was described in the September issue.

● THAT BRIEF paragraph dealing with the globe trotting activities of Australian modeller Adrian Bryant (July issue) caught the attention of Queensland hobby shop proprietor Arthur Gorrie, who knew Adrian before the wanderlust made him leave the model shop he ran in Lismore. After seeing that photograph we used as an illustration, Arthur swears that Adrian was wearing the same blazer and pullover the last time he went flying at Hickies Paddock, Stafford, Brisbane—which is the place the local lads get together at weekends. At the time, Adrian casually mentioned that he was taking a trip to Britain—as if it was just around the corner!

Arthur Gorrie is secretary of the Newton Model Aeronautical Association—one of the largest individual model organisations in Australia. At the moment their elimination contests for the 6th Australian Nationals (December 29th) are in full swing—competition being keen as the top six modellers will have their expenses paid or at least subsidised. These eliminations are spread over the entire year, which means that it is the all-rounder, rather than the specialist in one type of flying, who comes out on top. In fact, all team members are expected to compete in three or more events at the Nationals.



Seen at the 1952 National C/L Championships at Brisbane, Australia, are Col. Somers and Arthur Gorrie, mentioned above.

Leading the field by the middle of the year, were Col. Somers, Arthur Gorrie, Des Slattery, Leo Phillips, Ron Crick, and Burton Searle—in that order. The recent Queensland Championships were a great success—with an Air Force Station being used for the free flight contests. Events for just about everything were included—even chuck glider, Jetex and F/F scale.

Arthur goes on to tell of the difficulties experienced by Australian modellers since their government clamped down on imports of British kits and engines. Apparently Jetex flying is virtually at a stop, since supplies of fuel pellets dried up some time ago. Also very much missed are diesels like the E.D., Mills, Frog and Elfin, which all enjoy a high reputation "down under." Arthur's own interests cover speed, team racing (he swears by the E.D. 2.46), stunt, F/F power, sailplanes and chuck gliders (wot—no rubber or R/C!). Free-flight scale interest is awakening out there, but as yet shows no sign of becoming a craze like it has in this country and the U.S.A. We enjoyed looking through the latest edition of the monthly "Gorrie Newsletter"—an obvious labour of love, consisting of fifteen pages of concentrated news, gen. and gossip about Australian model matters, with only a modest little trade blurb on the very last page.

★ ★ ★

● IF YOUR club manages to persuade the editor of the local paper to send along a reporter to your annual model gala, make sure that a reliable member of the club sticks close by him to explain just what it is all about. After all, it is a far cry from the vicarage garden party to a full blooded model meeting—as Miss Featherspoon of the *Puddlethorpe Clarion* was heard to remark, as she watched her parasol disappearing into the blue on the end of a glider towline! Ignore our warning and the report of the event in the local paper might well read something like the following 'orrible example—which

dealt with an actual club Jetex contest *last* June. We quote :

" These jets have been in the development stage for nearly five years and only now are they ready for general release and view to the public . . . power is provided by small tablets similar to those used by Victorian ladies for heating hair tongs, or jungle fighters for boiling billycans. This pill fits in a small aluminium chamber, which is then clipped to the plane's undercarriage. Refuelling, an operation taking about 5 min., is carried out with the aid of a pair of scissors and a bent pin. After launching, the plane will soar and mount and turn until cutting out it glides till landing . . . Sometimes, after an initial climb of forty feet, a blockage will occur and one can imagine the pilot feeling anxiously for his ejector seat. Though the meeting was primarily for jets, there were also some old fashioned diesel and petrol driven ' prams ' on the field."

So help us, we haven't altered a word—and in case you think there is a misprint in the last line above, the word in question really is " prams." Anyway, let this serve as a grim reminder to *your* club. If a reporter visits your next meeting, throw a cordon round the airfield and don't let him leave until you've given his note book the once-over. Mind you, this particular account is pretty meaty stuff and no doubt the most colourful report of a Jetex contest ever published. Just imagine how this same writer could go to town after seeing a radio or jet C/L event. . . .

★ ★ ★

● A READER writes in to ask if we know of a sound book which covers all the fundamentals and theoretical aspects of flying, without becoming too deeply involved in the mathematical side of the subject. A title which quickly springs to mind is " The Science of Flight," by O. G. Sutton—published in the Penguin Series at the modest price of half-a-crown. In some 200 pages, Mr. Sutton covers practically everything likely to be of interest to the layman (or average aeromodeller !)—starting off with a fascinating account of the earliest experiments in aerodynamics by Leonardo da Vinci, Otto Lilienthal, Professor Langley and other pioneers.

The main body of the book deals with the problems of air resistance, turbulence, aerofoils, stability and like subjects—all written in easy-to-understand language with recourse to simple mathematical formulae only when it becomes absolutely necessary. The final chapter is devoted to a discussion about the ultimate developments in aircraft design, and touches on rockets, jet propulsion and interplanetary travel. Anyone who scoffs at the idea that aerodynamics can be really exciting, will soon change his tune after reading this useful and instructive book.

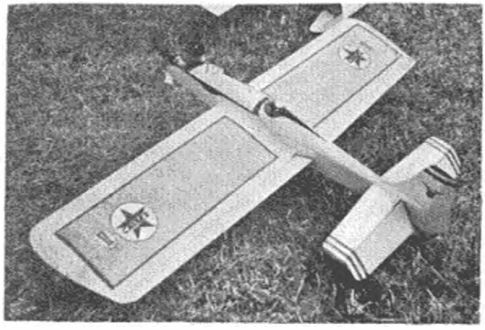
★ ★ ★

● WE CERTAINLY stirred up something with that suggestion for the introduction of 1/2 A team racers some time ago—letters on the subject still continuing to reach us. Latest news is that the Cambridge club

A. G. Albone (Croydon), who qualified for the '52 Wakefield team, with his 3-finned original design.

have drawn up a set of rules for this type of model and will hold a contest this month. Wing area and tank size are as we suggested (35 sq. in. min. and .75 c.c. max. respectively), but line length has been cut to 20 ft. (42 laps to mile) and the maximum permissible motor capacity raised to 0.99 c.c. Should be real " circus stuff " with four-in-a-circle on these lines ! Other requirements are that models should be scale or semi-scale, have a moment arm (wing T.E. to tailplane L.E.) of at least one chord and that the fuselage depth at cockpit should not be less than the height of the powerplant. Where relevant, general S.M.A.E. T/R rules apply.

Coventry reader, A. J. Ashby, writes in to say that he likes the idea of small team racers, but hopes that designs will not degenerate into the same " anything-but-scale " types that predominate at most of the *A* and *B* contests nowadays. He suggests that many of the low priced scale kits on the market are perfect subjects for small T/R conversion and has himself modified a 20 in. span *Chipmunk* (rubber powered) to take an inverted Frog " 50." L.A.C. Dumble, of R.A.F., Debden, believes that small team racers will catch on as more and more of the



Beautiful stunt model entered in the N.H. Gala Concours (builder unknown). Powered by a Pacemaker " 60."

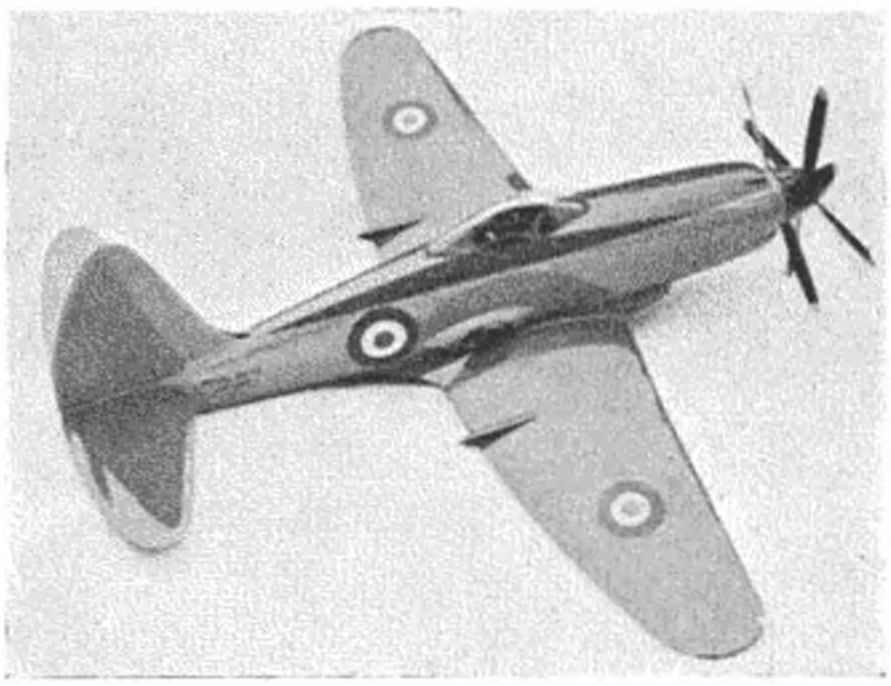
midget motors get into circulation. This modeller is beating a drum for his Dart, which continues to give good service after being lost in a cornfield for a month.

R. Venner, of Dunfermline, thinks that F/R minimum wing areas in general should be increased to give slower and more manageable models. Like many others he deplores the present non-scale trend in team racing design. But then who is to say when a model deviates from the semi-scale rule? One solution is to hold separate races for scale types—or, perhaps, the judges could handicap those models which bear little resemblance to full size aircraft. However, when one considers that nowadays quite a number of "real" aircraft look rather like large model planes, just how can anyone enforce such a vague specification as "semi-scale" anyway?

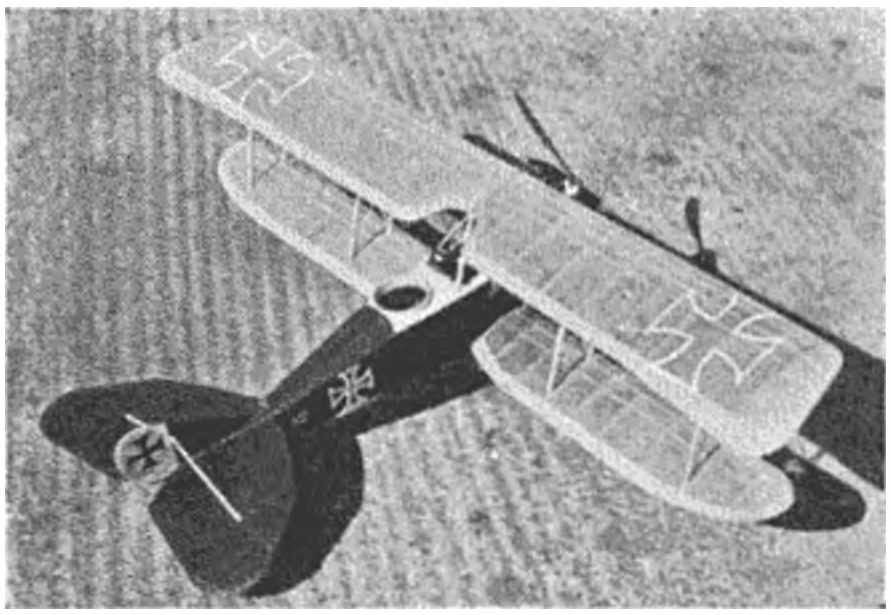
★ ★ ★

● OUR EFFORTS to hitch-hike from London Airport to Sweden for the "you-know-which" contest were all to no avail, so it was a pleasant surprise to receive a duplicated copy of the results and a brief report just a few days after the contest. Man responsible was Ron Warring—who sent these out to all Zombie club members. Wonder if any other British team members did the same with their respective clubs? Ron reported that conditions were typically English (strong and at times gusty wind, with average air temperature). First three models were all typical Scandinavian types—all characterised by "dicey" take-offs. Best still-air model was probably Joe Bilgri's, while most consistent flying was put up by Arne Ellila.

On the eve of leaving for Sweden, Ron threw a small party for the American team—a film record of the proceedings being taken by Zombie member, George Gower. Food and drink were forgotten when Eric Hook turned up with his electronic rev. counter and the R.H.W. drawing room was turned over exclusively to rubber motor testing! Efforts to sabotage the American team with a potent brew may or may not have had something to do with the



An outstanding "solid" of the Westland Wyvern, built by the parent firm for display.



K. J. A. Strowger (Belfairs) built this colourful Rumpler—rubber powered, with a F/W prop.

fact that Ed Lidgard (who replenished his glass several times) placed 28th down the list—while Joe Bilgri (who waved the stuff aside on seeing the way it hissed and bubbled) managed to get 5th place!

★ ★ ★

In Brief

Met Pete Westbrook and his wife at a recent model contest and it was good to see him with one of those lovely scale control-liners again (he dropped out of modelling for a time after getting married last year). Later in the day we heard that said model had well and truly dug its nose into the dirt and Pete was swearing that he had half a mind to take up fishing instead! . . . Talking of scale—P. Donovour-Hickie's latest is a Dynajet powered *Sabre*. Mind the MiGs don't catch up with you Pete . . .

MODEL AIRCRAFT

Engine Tests

(*Continued from page* 461)

This, the fortieth of the M.A. "Engine Tests" series, is the first occasion on which a structural failure has occurred and since the maximum operational r.p.m. for the Goblin is given by the makers as 14,500, it would seem that the breakage must be attributed to a material defect in the particular shaft in question.

As mentioned at the beinning of this report, it would appear that the test engine was definitely a much below average example. However, despite these unfortunate faults, the engine's good points should not be overlooked: its general ease of handling, moderate weight and particularly good flexibility.

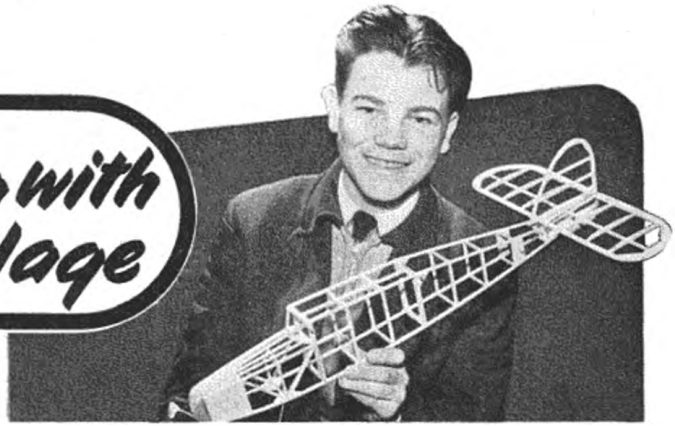
Recommended propellers given in the maker's leaflet are 9 × 6 for free-flight, 9 × 6 or 8 × 8 for stunt and 9 × 9 for speed, but on the test example it was necessary to reduce these sizes somewhat to allow the engine to approach nearer to its peak output.

Power/weight ratio* : .663 b.h.p./lb.

Power displacement ratio* : 69 b.h.p./litre.

* Based on a b.h.p. of .17 shown at 11,000 r.p.m.

Starting with the fuselage



LAST month we mentioned two highly suitable beginners' kit models: The *Magpie* and the *Gnome*. We are therefore basing these notes on these two models, dealing with the construction of them concurrently.

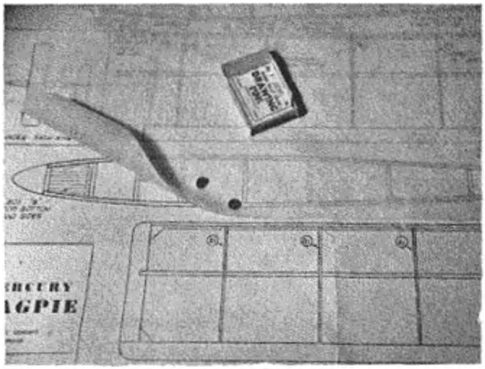
Usual practice is to start off with the fuselage. Pin out the plan, leaving sufficient room on your building board for a cutting surface—otherwise you will find yourself slicing holes in the plan. To prevent the framework from sticking to the plan where the cement joints are made, that section on which you are working (e.g., fuselage panels) can be covered with a piece of transparent waxed paper, as recommended in the instruction leaflet, or you can rub a thin protective film on the drawing with a piece of household soap as shown.

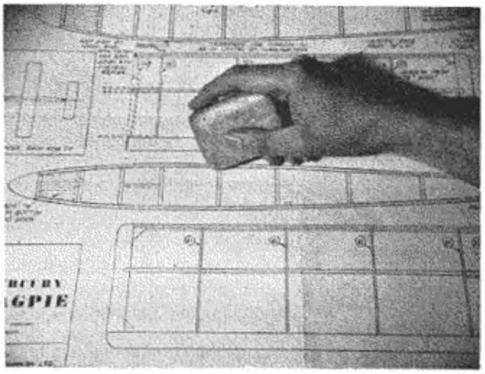
The MA Beginners Course Part III

One disadvantage of mass-produced model kits is that the quality of the balsa wood supplied varies considerably. Thus, in our *Magpie* kit, the $\frac{1}{8}$ in. square strips supplied for the fuselage structure, and for certain wing and tail unit parts, were of varying hardness and stiffness. Before making a start, therefore, sort out the strips, allocating the stronger wood where it is needed most. On the *Magpie*, for example, the two hardest strips should be reserved for the wing leading-edge spars. Medium-hard strips will be needed for the fuselage longerons and tailplane leading-edge and centre-spar. The softer wood can be used up on the fin and for those spacers situated near the tail end of the fuselage.

Another thing to watch when selecting fuselage material is that the strips are of equal thickness, for, although $\frac{1}{8}$ in. sq. strip should, of course, be $\frac{1}{8}$ in. × $\frac{1}{4}$ in., this is not always the case; there can be fractional differences between the thicknesses of nominally identical sizes. If longerons of different thicknesses are used for the two fuselage sides, for example, one side will be slightly smaller all round than the other when the spacers are fitted, and small errors such as this tend to build up into larger ones, in the finished model, unless checked at the outset.

The method of setting the longerons on the plan is to position them with pins either side of each strip. If your longerons are hard and difficulty is experienced in bending them to the curves required, they can be steamed to shape. In the case of a lower

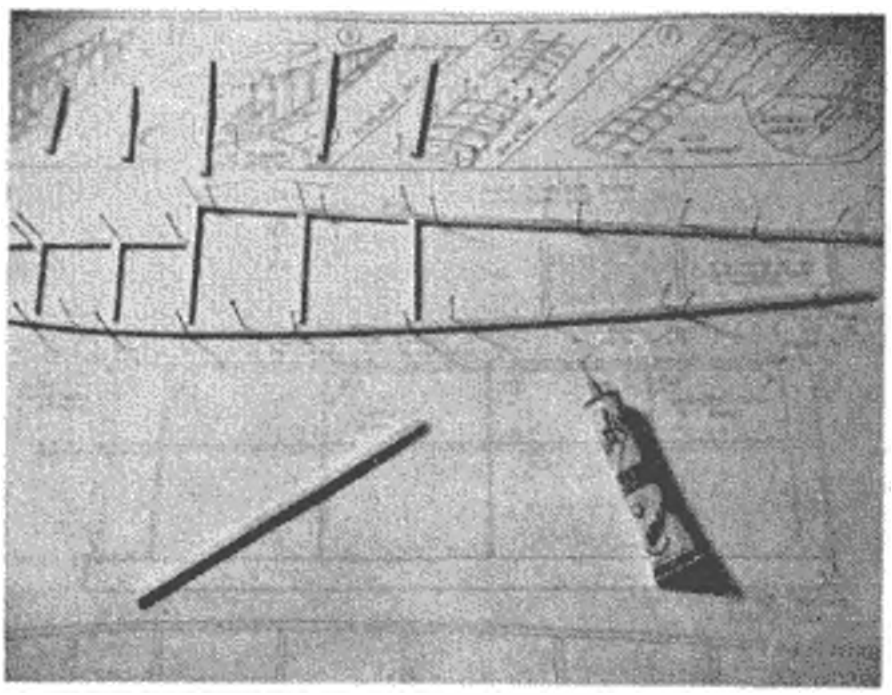




Two methods of stopping the structure adhering to the plan—left, covering with wax paper. Right, rubbing with soap.

longeron being required to conform to any sharp bends, for example, take both lower longerons, bind them together lightly with cotton and steam them over a kettle, gently bending the curves where needed.

When making the fuselage spacers, which are invariably butt-jointed to the longerons, cut these in pairs, so that an identical set is ready for the second fuselage side. For the actual cutting, there is nothing better than the ordinary steel-backed single-edge razor-blade. It is better than most modelling knives because you can judge more accurately the precise angle when you are making your cut. The accepted method is to hold a length of strip across the longerons in the required position for the spacer and make shallow preliminary cuts with the razor-blade held at the desired angle, then to slice through vertically on the building board. After checking the fit of the new spacer, a duplicate is cut, using it as a pattern.

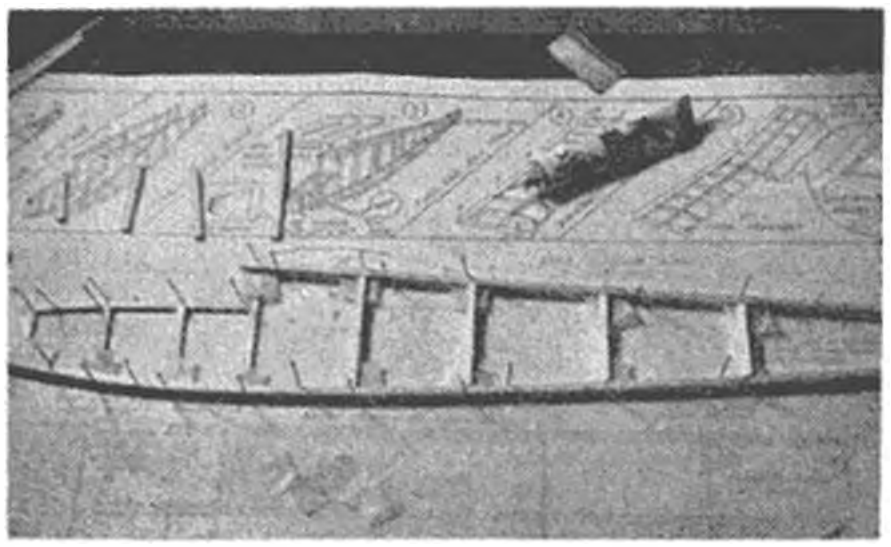


Fitting the upright spacers, with the fuselage longerons pinned in position.

You can now either cement in your spacer or make all the remaining spacers first. The latter is probably the quicker method of working. When making a cellulose-cement joint, it is in the interests of strength to " pre-cement " the surfaces to be joined. When fitting the spacers, therefore, cement the ends and apply them to the longerons so that some cement is rubbed on to the spot where the spacer will be fitted, but do not fit them in place. When the cement is dry (this only takes a minute or two, even with the slowest-drying cements) apply more cement and fit in position.

When all spacers are in position forming the fuselage side, do not remove it, or the pins, from the plan. Instead, build the second side on top of it. Lay the longerons of your second side between the pins and cut some small pieces of waxed paper to slip between the longerons where the spacer joints occur. Make sure that the second longerons are well pressed down into position before cementing in the spacers and, if necessary, give the pins another tap to make them firm.

It is preferable to leave the two completed fuselage



Building the second fuselage side over the first, with small pieces of waxed paper inserted at the joints.

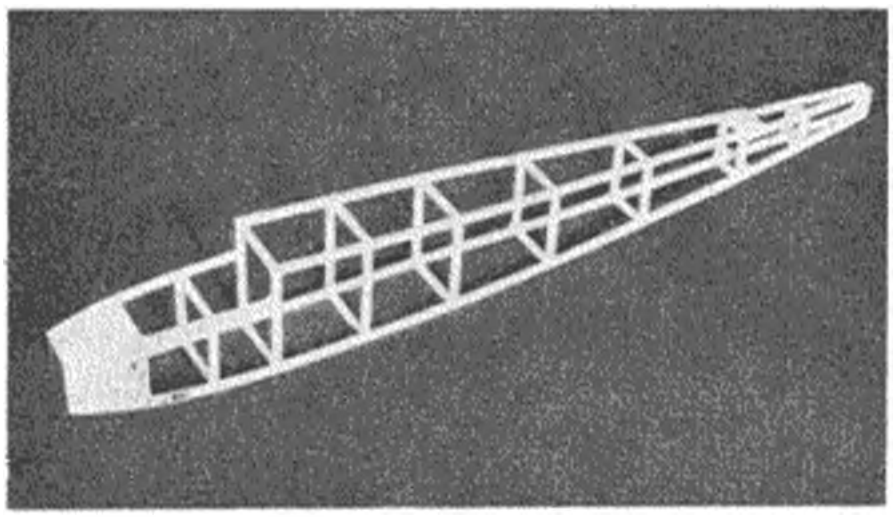
panels pinned down for half-an-hour or so, to let the whole assembly set hard. In the meantime, both sets of upper and lower spacers can be cut, using the plan view of the fuselage to obtain the correct lengths. When the fuselage sides are eventually removed from the plan, withdraw the pins carefully with a pair of pliers, at the same time placing a finger either side on the longerons to avoid possible damage through lifting.

Now follows a most important stage and it will pay to work without haste and to constantly check your assembly for accuracy.

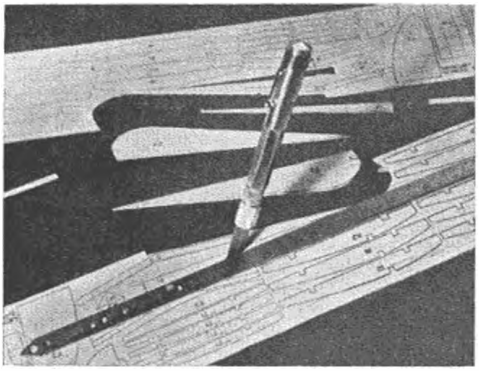
With some simple slab-sided fuselages, the top (or, occasionally, the bottom) is quite flat and this simplifies assembly by allowing the two sides to be erected directly over the plan view, one pair of longerons being pinned down to the correct shape for the greater part of their length.

With the *Magpie*, this is not possible, due to the angle of the tail platform, but the two sides can, however, be erected vertically in position on the plan, with drawing pins, at the widest point, with a suitable block (or a small book will do) packing up the tail end to ensure correct alignment.

The four widest spacers (i.e., two top and two bottom) are now fitted, after pre-cementing, of course. At the same time, two long rubber bands are stretched across the two frames at these points and pinned down on either side about 6¼ in. apart. By carefully adjusting the tension of the rubber bands it will now be possible, with the aid of a set-



The simple fuselage framework after fitting the sides together with top and bottom spacers.



Using a metal straight-edge to ensure clean edges on cut-out parts.

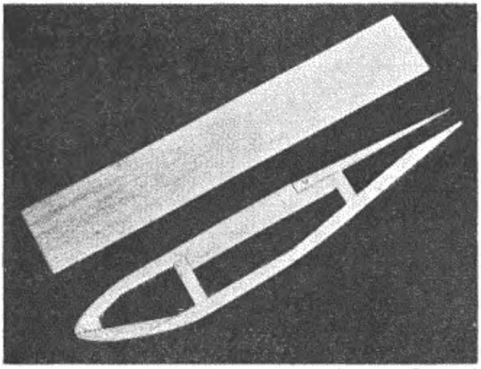
square, to get the two sides absolutely upright and true.

Use plenty of cement around the vital joints at this point, allowing ample time for the whole assembly to set, and you will greatly simplify the process of getting the fuselage true.

Now cement the tail end together and then insert the other spacers working towards the tail. The nose section, being the most tricky, is left until last. The nose is more difficult because it has to be drawn in more sharply and so the rest of the structure is stiffened up as much as possible first.

When cementing in the nose spacers, start from the widest point and work forward, using rubber bands around the fuselage to hold the sides in position.

Once the basic framework is complete, the tow-hook, and the piece of $\frac{1}{8}$-in. sq. balsa to which it is bound and cemented, can be added, also the $\frac{1}{8}$-in. balsa sheet filling-in to the nose section (ballast box) the small piece of similar material at the tail and the celluloid windscreen. When making the latter, first cut the celluloid to the depth required, then



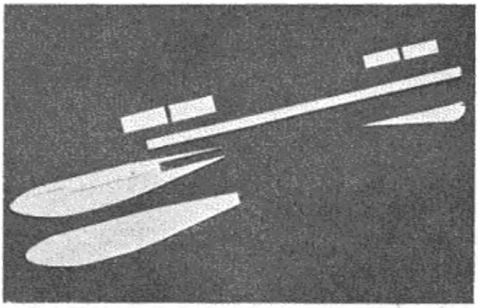
The simple pod type fuselage frame of the "Gnome" glider, showing one of the sheet balsa sides to which it is cemented.

mark off the widths, as indicated by the fuselage width at the top and bottom, and then bend to shape over a sharp edge. Do not scribe the celluloid to facilitate bending as this will in all probability cause it to split. The windscreen is simply attached with balsa cement.

Finally, the noseblock is fitted and, after scribing a guide line to the approximate outline (a cheap ball pen is useful for marking balsa, incidentally) it is roughly cut to shape, then finished off with glasspaper. Use a glasspaper block for this about 4 in. by $2\frac{1}{2}$ in. The framework itself can also be rubbed over with fine glasspaper, the edges of the longerons being rounded off.

Although we have dealt first with the orthodox built-up slabsided type fuselage, this being the most widely used, the all-balsa pod-and-boom type fuselage featured by the larger *Gnome* model is even simpler to construct.

The basic pod structure of the *Gnome* consists solely of a $\frac{1}{8}$ in. thick outline, built up over the plan from $\frac{1}{8}$ in. × $\frac{3}{8}$ in. strip balsa. There is no need here to pin on each side of the wood; this material is



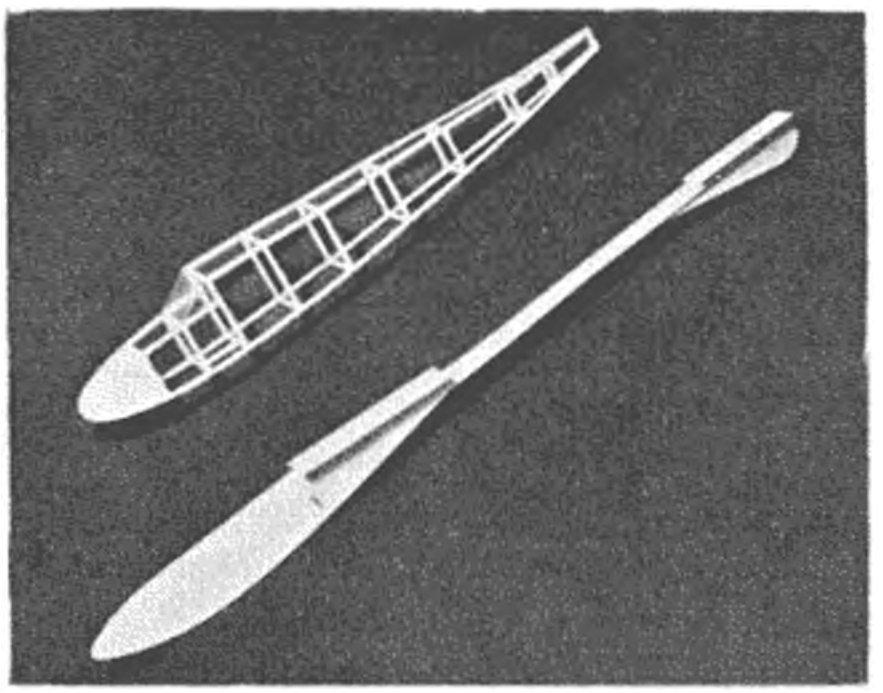
The "Gnome" fuselage parts ready for final assembly.

wide enough to allow pinning straight through the wood directly on to the plan.

The frame consists simply of ten pieces of $\frac{1}{8}$ in. × $\frac{1}{4}$ in. stock and a double thickness of $\frac{1}{16}$ in. sheet (forming the base of the wing-platform) cut from the printed sheets. When cutting out the latter (as with any other sheet parts having straight edges) use a metal straight-edge with your modelling knife or razor blade. Once again, the steel backed razor blade will be found invaluable when cutting off the $\frac{1}{8}$ in. wide strips at the required angles.

When complete, the pod frame is removed from the plan and cemented to a piece of $\frac{1}{8}$ in. sheet balsa. Because of the comparatively large sections of balsa that have to be cemented together, the *Gnome* will consume at least twice as much cement as the *Magpie* and you are therefore advised to invest in a large tube of cement for its construction.

The $\frac{1}{8}$ in. sheet is then trimmed to shape, the rear slot for the boom being carefully cut out. The tow-hook, bent to shape, is recessed into the centre of the $\frac{1}{8}$ in. frame thickness and plenty of cement used to hold it firmly. At this juncture, the ballast-box



The completed "Magpie" and "Gnome" fuselages, the former with noseblock, towhook and windscreen fitted and the latter ready for finishing.

access hole is made by cutting a slot in the basic frame and the wing-dowel hole is drilled in position, after which the second side can be added and trimmed to shape when dry and the dowel hole carried through.

The boom consists of a piece of ⅜ in. × ¼ in. hard balsa and must be tapered down to ⅛ in. square at the tail. Scribe a guide line, using a straight-edge or rule, from just behind the pod to the tail, on the lower side of the boom, and work accurately to this, using coarse, then fine, glass-paper. When the boom is cemented into its slot in the pod, use adequate cement and make quite sure that the two are accurately aligned with one another.

The structure is completed by adding the wing and tail platforms, and underfin, all of which are cut from the printed sheets, and the ⅛ in. diameter wing dowel. Note that the wing and tail platforms are printed so that the grain of the wood runs across them. This makes for a stronger platform which does not split, in the event of the wing being knocked, as would occur if the grain ran longitudinally. Intelligent use of the grain direction, in model aircraft construction, in addition to the selection of balsa grades to suit individual requirements, can result in considerable gains in serviceability and in weight reduction.

To complete the *Gnome* fuselage structure, it only remains to sandpaper it, rounding off the edges of both the pod and boom.

Finally, a word about fuselage structures in general. Remember that it is the fuselage that holds practically all the other components together. Therefore it is essential that it is strongly built and, perhaps, more important, accurately built, for, if the fuselage is in any way out of alignment, it is likely to throw the flying surfaces, i.e., wing and tail, out of the proper line-up for satisfactory flight.

Technical Report on the Wakefield (Continued from page 455)

"old-fashioned" by modern standards.

However, do not lose sight of the fact that the standard of flying in the Wakefield itself is now higher than it has ever been. In other words, anything much under four minutes flight time in *any* round is almost certain to eliminate you as a potential winner, whatever lucky patches you may strike in the other two rounds. Your model has to be that good for a start. And if by any chance the air is "dead," then every second you can add above this minimum, will be invaluable. A good "still air" model can also be a good "thermal" model for rougher conditions. Or, of course, you can have two models with quite distinct trims for varying conditions. Both are checked and processed and you can fly either, at will.

ANALYSIS OF FLIGHT TIMES

			ROUND 1		ROUND 2	ROUND 3
			Still Air		Variable Conditions	
Place	Contestant	Country	Flight Time	Nominal Time*	Flight Time	Flight Time
1	Arne Blomgren	Sweden	3 : 30	4-4½	5 : 00 ↑	5 : 00 ↑
2	Jan Nilborn	,,	3 : 23	4	4 : 46 ↑	5 : 00 ↑
3	Arne Ellila	Finland	4 : 00	4½-4½	4 : 16	4 : 39 ↑†
4	Silvano Lustrati	Italy	3 : 28	3½-4	3 : 16	5 : 00 ↑
5	Joseph Bilgri	U.S.A.	4 : 53	5½-6	3 : 00 ↓	3 : 42 †
6	Louis Kanneworff	Italy	3 : 49	4-4½	2 : 48 ↓	4 : 49 ↑†
7	Emile Gerland	France	3 : 08	3½-3½	5 : 00 ↑	3 : 00
8	Jacques Moriset	,,	3 : 03	3½-3½	4 : 34 ↑	2 : 55
9	Edward W. Evans	Gt. Britain	3 : 50	4½-4½	3 : 47 ↓	2 : 44 ↓
10	Clifford M. Montplaisir	U.S.A.	3 : 23	3½-4½	4 : 21 ↑	2 : 33 ↓
11	Piero Gilg	France	2 : 18	2½-3	2 : 53	5 : 00 ↑
12	Ronald H. Warring	Gt. Britain	4 : 02	4½-4½	3 : 25 ↓	2 : 22 ↓
13	Traugott Haslach	Switzerland	3 : 52	4½	3 : 34 ↓	2 : 20 ↓
14	Giobatta Cellini	Italy	3 : 18		2 : 20 ↑	4 : 06 ↑
15	John O'Donnell	Gt. Britain	3 : 10	3½-3½	3 : 50	2 : 42 ↓
16	Sune Stark	Sweden	3 : 50	4½	2 : 20 ↓	3 : 26 ↓

* Assessment of "Still Air" performances

Key : ↑ Thermal Assistance
↓ Downdraught
† Timed O.O.S.

Topical Twists

Tight Spots

Once again, we hear that the model checking system at the Trials was abandoned ere it began. However, we are slyly informed that spot checking was carried on throughout the day's flying. This at least was something, although it might have been more desirable to have checked models rather than spots.

The spots referred to, of course, were those which persisted before the eyes of certain officials who were suffering the after-effects of the customary pre-contest beano.

Though the spots were in the order of the first magnitude during the earlier stages of the contests, subsequent checks revealed that they had been eliminated after the third round of aspirin.

● ● ●

The March of Time

The dream of the ancient alchemists to transform lead into gold finds a sort of modern realisation in the national P.A.A. load event where the prize stakes took the form of magnificent gold watches.

Such munificence is surely a far cry from those not-so-distant days when this typical snatch of conversation might have been overheard :

Comp. Winner : "What a frost! Same rotten old glider kit."

Official : "Well, what d'you expect for 1s. 6d.? A gold watch?"

Speaking of the P.A.A. load event, there appears to have been a noticeable predominance of "crowbars." Obviously just the thing to use for a good prize.

● ● ●

High Finance

This year the S.M.A.E., has declared a balance of 4s. 5d. Next year it is hoped to raise this amount to 5s., thus enabling the Society to purchase that informative little publication : "How to Succeed in Business."

● ● ●

The "L" of it

Other pursuits might admit of varying degrees of skill, but apparently in the model world you are either one of two extremes : beginner or expert. Since I have never yet met a modeller who was anything but a self-professed expert, I think I can safely assume, without any fear of contradiction, that I am perhaps the most experienced beginner in the model game today. A status which, I feel, specially qualifies me to give a few words of advice to beginners, which they will not find in any of those learned articles prepared for them by experts.

The usual instruction to beginners is to build a model aircraft, but let me say at once that this is now considered to be quite an unnecessary hardship. Indeed, in most modern clubs it would be regarded as nothing short of sheer ostentation. However, do not get the impression that the average model club will willingly welcome any newcomer who is not prepared to participate in its principal activity, so it is more or less essential that you acquire a motor-cycle. Some clubs are very particular, but generally any sort of machine will suffice, although it is well to remember that your future success as a modeller will depend on the quality and capacity of your machine. For the really ambitious, a change-over to a new and more powerful machine every few months or so is a sure means of achieving success and popularity as a clubman.

If you are really a glutton for punishment and determined to build model aircraft, I can only suggest that you join a motor-cycling club.

● ● ●

Sum Hopes!

Despite the confusions, arguments and agonies of mental torture that even the simple arithmetical processes of our present time-keeping system give rise to, certain undaunted types are breezily confident that the contest arena would be the happier for the introduction of a little higher maths.

One suggested idea, aimed at making everybody happy, except perhaps the bloke with the icepack and blunt pencil, entails juggling with the times in such a way as to give all competitors the same average duration. Yet another relies upon reducing all the times to an unknown quantity by the use of logs. (Can't I make just one little pun on logs, Editor? Not even the one about twigonometry?)

It may quite well be that all this mathematical agitation is responsible for the clot system which is so widely practised nowadays. The first step in the working out of contest results by the use of clots is to reduce everything to the *n*th degree of clottery. The next phase is for the timekeeper, who is usually termed *BF+*, to take his stop-watch reading in the usual clot-wise direction, i.e. 2 min. 10 secs. is recorded as 210 secs. If in the absence of any corrective anti-clot factor the 0 is immediately cancelled (being equal to the intelligence quotient of the score-keeper) and the final result, 21 secs., related to an indecipherable variant under Blotscratch's law of human density.

At this point the equation, o.o.s. = 300 or else, is introduced by the competitor, who seeks to resolve the problem by the use of the special symbols, **!%+*?!*, or, alternatively, by the raising of the first two digits to the powers that be.

● ● ●

The Premier Hobby

Upon reading that somebody or other had said that anyone who could please aeromodellers at all should be Prime Minister, it struck me what jolly fun it would be to have an aeromodeller in that high office. Just think of some of the happy consequences : All aerodromes and large open spaces requisitioned for exclusive model use. Obstructive land owners denounced as enemies of the state. Removal of purchase tax on model supplies, which will then be government subsidised. Capital penalty for anyone referring to model aircraft as toys.

● ● ●

Veteran Quiz

"What, in your opinion, is the most noticeable difference between pre-war and present day Wakefield flying?"

"Well, I suppose the chief difference is that Bob Copland now uses a car for retrieving his models."

Pylonius

OVER THE COUNTER

Almost every American kit is now virtually completely pre-fabricated, as far as sheet parts are concerned. Printed sheet is obsolete. Die-cut sheet is used where the parts do not have to be touched with a knife or razor blade but simply press out. In some instances sheets are both die cut and printed. It looks like printed sheet but literally "comes to pieces" in your hand!

Until recently the only British kit firm to adopt die cutting as standard for balsa and ply sheet parts has been International Model Aircraft. Now Keilkraft are also using die-cut sheets in many of their new kits. Perhaps by 1953 printed sheet may also be obsolete in Britain.

* * *

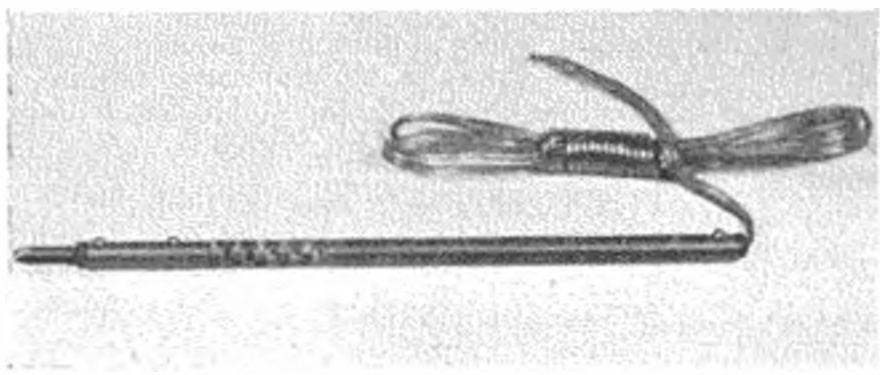
The American Aero-Trol R/C unit has been redesigned for the 27-megacycle band. In its new form the transmitter is crystal-controlled. On March 24th, 27 mcs. became a "free" band for American R/C modellers, as it is in this country. It has taken United States modellers something like ten years to receive the same "freedom of the air" with which we started R/C flying!

* * *

For field soldering repairs—and this should be particularly attractive to R/C fliers—a new pencil-type soldering iron is available which can be worked off a six-volt car battery. (Illustrated below.)

Soldering irons of this type are not entirely new—there are already several on the market, for example—but since this was designed originally by a modeller for "field use" the NEWOW pencil iron should have a special attraction. The prototype was produced by G. Honnest-Redlich, 52, Rosemont Road, Richmond, Surrey, to whom trade enquiries should be sent. Price of the iron, complete, is 14s. 6d. It can be adapted to work off normal mains voltages by incorporating a radio filament transformer in the leads—this type of transformer costing about 4s. 6d.

Technical details of the NEWOW pencil iron are: operating voltage—6; current drain—2 amps (nominal wattage 12); time to heat up—35 sec.



THE MODEL STADIUM

5, VILLAGE WAY EAST, RAYNERS LANE, HARROW, MIDDLESEX.

Under the management of K. S. Reid, the Model Stadium is a meeting place for modelling enthusiasts from far and near. A large stock of all supplies is carried and there is an extensive hire-purchase business.

Well known to visitors are J. R. Smith, Jnr., who attends to customers' modelling needs, and is also a keen amateur conjurer, and Thunder, the huge canine shop-assistant with the friendly paw-shake for everyone.

The Warneford *Wasp*, mentioned in our last issue was, by inference, erroneously given the status of a new design. Actually this is one of the older Warneford designs which has now gone out of production. The remainder of the statement (that Warnefords are still active in the model aircraft trade) holds good.

* * *

Almost as far back as we can remember, an older friend of ours, who is not a modeller, has persistently said: "Why don't you build a model like the paper darts we used to make at school?" This comment is advanced every time we venture on to the subject of the failings of certain of our model aircraft.

Perhaps, after all, there is something in it. Certainly the full size designers have achieved remarkable success with the delta wing layout and the ordinary paper dart is one of the most stable types of "model glider" we have ever come across.

We can, pretty certainly, expect to see more "delta wing" kits on the market shortly. At least two freelance designs of this type are on the American market. In this country we have, of course, the Jetex flying scale Avro 707B.

* * *

Eighty per cent. of the Ohlsson and Rice factory is now devoted to military productions. To maintain engine output during 1952 they have been assembling motors from parts normally carried in stock as replacements. It has been easier to get a new Ohlsson engine than many Ohlsson spares!

Irwin Ohlsson, incidentally, has now severed all connection with this firm. Sole proprietor is now Harry Rice. The name of the firm remains the same, however, and a complete new range of motors is expected shortly.

OVER THE COUNTER——————KIT REVIEW

VERON *Lavochkin 17*

Phil Smith's ducted fan method of propulsion was fully described in the June issue of MODEL AIRCRAFT. That this bold experiment in enclosing a standard miniature aero-motor in a duct and replacing the normal propeller with a fan or impeller was successful is proved by the appearance of the world's first commercial model of this type—the Veron *Lavochkin* 17. Anyone who has seen the prototype of this flying scale model in action—and fly it most certainly does—cannot fail to be impressed with the possibilities of ducted fan propulsion for scale model work. The whole motor unit is completely hidden within the fuselage. The model looks, and sounds, like a true "jet" in flight.

One of the problems of ducted fan propulsion is that, for maximum efficiency and thus maximum thrust, the entry area of the duct should be twice the throat area. Obviously such a shape will not fit in a normal scale outline. Hence a compromise has to be reached. Again, minimum clearance between the duct and fan is important, calling for a circular duct section.

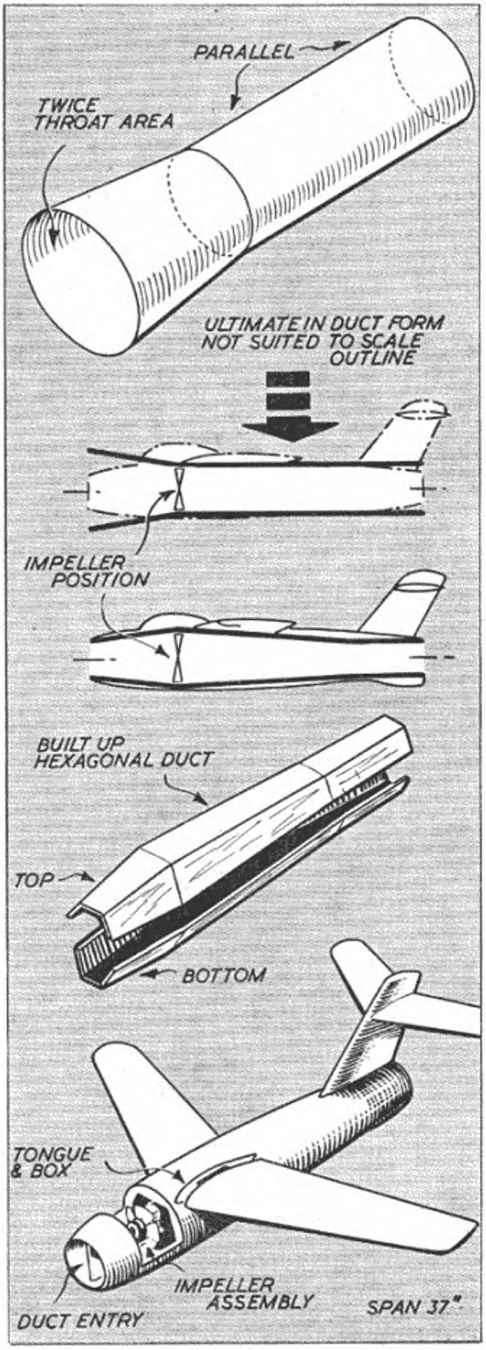
These problems have been cleverly solved in the *Lavochkin* model. Although not a beginner's model, the kit design remains basically straightforward. The duct is built up in two halves from sheet into a hexagonal section. The fuselage is then completed around this duct, now acting as a jig. The swept wings are assembled to the fuselage by tongue-and-box, considered essential for crash-proofness.

The kit itself is up to the usual Veron high standard of quality. The wood itself is clean and beautifully cut. Clearly printed-out sheets (there are twelve of them) and adequate supplies of all other necessary materials (except cement) are included. Accessories include a pre-fabricated impeller (only needing bending to pitch) and a starting pulley.

The plan leaves nothing to the imagination. It is exceptionally well detailed with plenty of constructional sketches and numerous useful notes. Every stage of construction and installation of the power unit is fully covered. There is also a separate 8-page leaflet with photographic illustrations for good measure.

Trimming for flight may be a little tricky since, as the designer states, it is impossible to adjust the thrust line. If built and balanced according to the plan, however, good results will almost certainly be obtained right away.

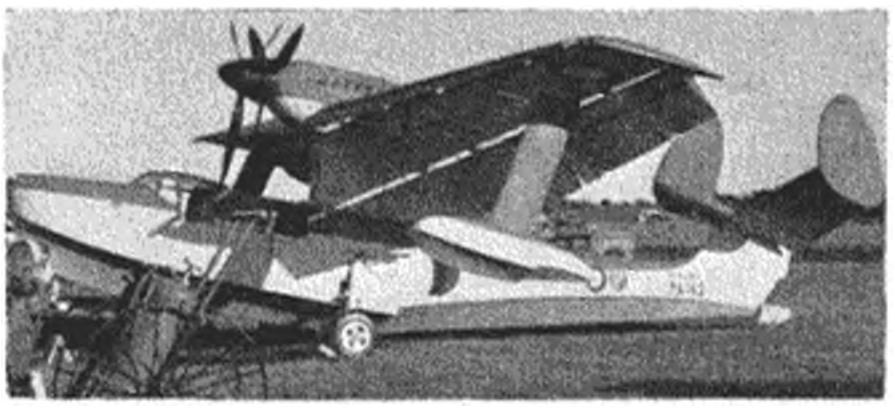
Ducted fan propulsion gives proportionately *less* power than might be expected from the same motor with a conventional propeller. Hence there will be no power to spare on the *Lavochkin*. This means keeping the total weight down to a minimum figure (reducing colour doping to a minimum, for example), and making sure that the motor chosen is already developing maximum power.



No. 26. THE SUPERMARINE "SEAGULL" . . . . by C. B. MAYCOCK

THE Supermarine *Seagull* is a very clean amphibian monoplane with a remarkable speed range. This is effected by the variable incidence wing, successfully tried out in the Supermarine Type 322 *Dumbo* which first flew in 1943. The *Seagull* replaces the *Sea Otter* biplane tractor amphibian, which in turn replaced the *Walrus* amphibian. The original type name of the latter aircraft was *Seagull*, so the wheel has turned full circle. The present *Seagull* is designated type No. 381, and conforms to Naval Specification 14/44. Two prototypes have been built; one of these, AM No. PA 147 and racing No. 54, finished fourth in the Air League Cup Race at Sherburn-in-Elmet on July 22nd, 1950. In this race it regained for Great Britain the 100 Km. (62 miles) closed circuit record for amphibians. It was piloted by C. R. Colquhoun, G.M., D.F.C., D.F.M., who achieved a speed of 241.9 m.p.h. After the deck landing trials on H.M.S. *Illustrious*, in 1949, a central fin and dorsal extension was added and the rear coaming of the engine mounting was extended rearwards.

The wings have an incidence range from 2½ to 12½ deg. The wing section is N.A.C.A. 23108 at the roots and N.A.C.A. 3410 at the tips. The wings are all-metal, flush-riveted, with full span leading edge slots interconnected with the slotted flaps. For take-off the wing is set at the maximum angle and is adjusted in level flight to suit the loading conditions, the incidence gear being operated electrically. The outer flap sections carry the slotted ailerons. Wooden wing tips are fitted to cut down interference to the radar search devices.



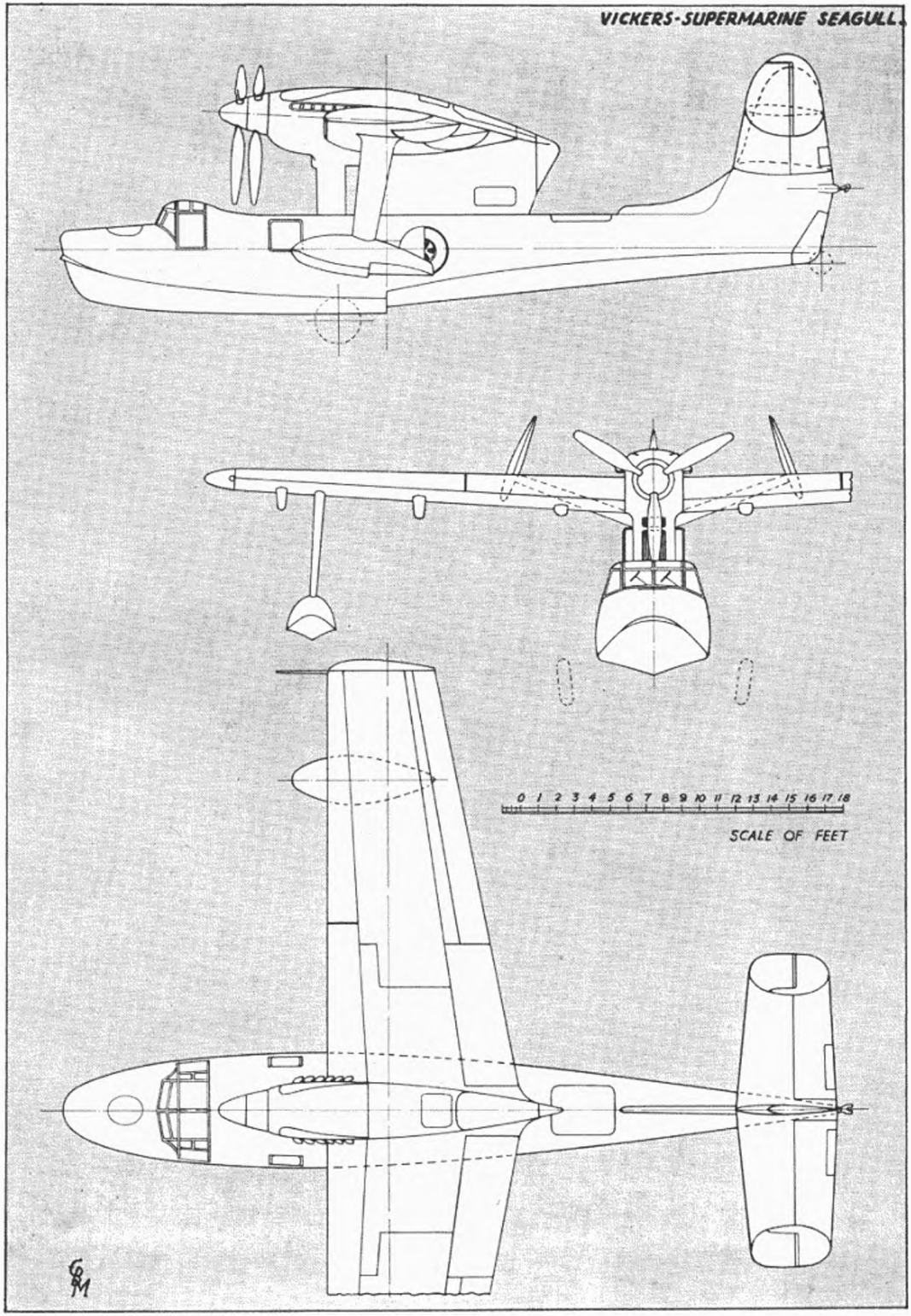
The heading picture shows the prototype in flight, and the picture above shows the same aircraft before the addition of the central fin, and with slots open, and flaps and wheels lowered.

The hull is of all metal construction with a single step terminating in a sweep-up to the dihedral tailplane. The outer fins and rudders are at right-angles to the 20 deg. dihedral of the tailplane. The wheels retract into the hull and turn through 180 deg. by means of rack and pinion gear. The single oleo legs have hinged doors to fair them into the hull sides. Above the combined tail wheel and water rudder is the "sting"-type arrestor hook which is extended by spring gear. The enclosed cockpit houses conventional flying controls, with the pilot on the port side and a folding seat for the second pilot or pupil on the starboard side. There is full provision for dual control. The navigator sits abaft the pilot and a passage runs aft between the wheel wells to the rear compartment. A removable derrick is hinged to the afterside of the centre section trunk for loading the rear compartment.

The engine is a Rolls-Royce Griffon RG 30/SM 12-cylinder Vee liquid-cooled motor of 2,055 h.p. rated at 2,250 ft. and 1,680 h.p. at 6,500 ft. It drives a six-blade Rotol counter-rotating airscrew of 10 ft. 3 in. diameter.

The colour scheme follows the usual practice for Naval aircraft, viz., duck egg green for undersurfaces and the hull, up to the level of the deck. The upper surfaces are dark slate grey and medium sea grey in large irregular patches. It carries the usual red, white and blue roundels and fin flashes. The words "Royal Navy" and PA 143 are in black near the rear end of the hull. There are two vertical red lines in way of the propeller blades behind the cockpit access doors with the words "Danger, Propeller" in red between them in line with the lower edge of the window. Airscrew blades are black, yellow tipped and the spinner black.

The main dimensions are as follows. Span 52 ft. 6 in. (folded 23 ft. 6 in.). Length, 44 ft. 1½ in. Height (tail down) (airscrew in Y position) 15 ft. 10½ in. Weight empty, 10,510 lb. Max. speed at 11,300 ft. is 260 m.p.h. Rate of climb 1,140 ft. per min. Normal range 875 miles. Take off from water 16 sec. Take off from deck in 31 m.p.h. wind 317 ft. Service ceiling 23,700 ft.


VICKERS-SUPERMARINE SEAGULL
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SCALE OF FEET
GBM

Let's fix a formula

Peter Chinn, George Davey and John Blunt chat about model matters at the King's Lynn Rally.

ACCENT ON POWER
By
P. G. F. CHINN

THE question has recently come up for discussion as to whether it is desirable to have a strict formula for the F.A.I. international class power model and, if so, what that formula should be.

It has been said that, as both international rubber and international glider have their respective formula models, viz. the Wakefield and the Nordic A.2, stricter rules should also be enforced in power-duration, rather than the present system, which merely applies a minimum surface loading and power loading, a 2.5 c.c. maximum engine swept volume and a fuselage cross-section rule.

The main argument usually advanced in favour of more closely defined rules, for any contest, is that they simplify processing. A fixed total area, with a few square inches tolerance either side, should be easier to check, as is a fixed minimum cross-section rule, than making precise calculations of wing and tail areas to ensure compliance with a wing-loading rate, or making cross-section calculations to see that they agree with that automatically fixed by the area check.

Unfortunately, it does not always work out that way. The original idea behind fixed areas—for example, the 200 sq. in. for the Wakefield with a 5 per cent. tolerance either side, was that everyone should aim at the basic (200 sq. in.) figure. The 10 sq. in. " error " allowed was simply to obviate the necessity of disqualifying a model which the processing officials' measurements had shown to be only minutely inaccurate— and, possibly, to avoid the recrimination that would inevitably be piled upon officials' heads by slight errors incurred in, for instance, calculating the area of some irregularly shaped wing-tip. It is obvious that in every case, some degree of tolerance either side of a basic figure is essential. But, of course, no one now bothers about the " basic " figures. Instead, we all aim to use the rules to our best advantage and if it is to our advantage to use the 10 sq. in. " tolerance," we are apt to take 9.99 sq. in. of it, which does nothing to relieve the burden on the processing officials. The Nordic rules call for 33 sq. decimetres with a 1 sq. dm. tolerance either side, i.e. 511 sq. in. with 15 sq. in. tolerance, and, as F.A.I. rules are based on " projected " areas, a few more square inches can be added to the actual areas. And these few extra inches —quite legally gained—are certainly worth having, as witness Ossi Czepa's Swedish Cup winning *Toothpick* which totalled 536 sq. in.

Another argument for the fixed formula, however, is that it does tend to improve the breed. By which is meant that, with closely defined model specification rules, whether such rules are good or bad, everyone is given a basis on which to work, certain minimum standards of performance are quickly established and success depends on improvements over and above these standards, which, themselves, are steadily raised as the class develops. This has occurred, of course, in Wakefields but, perhaps, is even more pronounced in the A.2 class.

Against this can be placed the fact that, where design tends to become standardised, so does the luck element tend to gain a firmer foothold. In no class of contest flying is this more clearly demonstrated than in A.2 gliders—hence the " might as well toss for it " suggestions heard in reference to thermal-bound A.2 trials. Likewise the remark passed to the writer by one who had done three regular 4-minutes-plus flights in an Area contest, only to be beaten by a score, from another area, of 16½ minutes—" three thermals and a still-air flight ! " It could, of course, have been " three thermals and a downdraught flight," but the fact remains that the element of chance was obviously well to the fore.

In power flying, however, there is rather more scope for improvement because we have two flight conditions on which to improve. In gliders, so long as the model will tow right up to the top of the regulation 328 ft. line (and it is no good in modern international competition if it will not) there is only the glide that can be improved. In power models, on the other hand, there is also the climb to be considered, which can give much greater rewards and demands greater skill. Therefore, provided that rules do not severely limit engine power, the more skilful modeller has a better chance of reaping his just rewards.

Actually, the only rule which the present F.A.I. International power class lacks to make it a definite formula and bring it in line with rubber and glider, is one defining upper and lower limits on flying surface areas. As is generally known, the present international class calls for a power unit of not more than 2.5 c.c. and a minimum power loading of 200 grammes (7.06 oz.) per c.c. The model must also conform to the general F.A.I. rules in that it must have a horizontal surface loading of 12 grammes per square decimetre (3.93 oz./sq. ft.) and a minimum cross-sectional area of 1/80 of the total horizontal surface area.

These rules have, in fact, been sufficient to produce an identifiable "International" model. In this, the trend has been to adopt the 17¾ oz. minimum (power-loading) weight with a 2.5 c.c. engine and to then work fairly close to the maximum (horizontal surface loading) figure for this weight, i.e., up to about 650 sq. in.

It is not necessarily agreed that this produces the best performing model under the present rules. Some reduction in areas (to around 550 sq. in.) can, in the writer's opinion, produce just that much faster climb that will more than outweigh any slight increase in sinking speed due to higher wing loading. Therefore, we might expect to see 100 sq. in. or so variation in the size of international 2.5 c.c. engined models and, since any engine *under* 2.5 c.c. is permitted, smaller, lighter models are also eligible.

If a definite formula is to be devised for the international power class, however, we do feel that the whole question should be reviewed by the F.A.I. in the light of actual international requirements. In particular, we have in mind possible American participation—which, of course, is essential to a truly international contest. At the moment the U.S. (and other countries which employ the cubic-inch measurement for classification and use engines to these displacement limits) are virtually limited to the .099 cu. in. (1.62 c.c.) engine for international work, since their next standard size is the .199

40-in. span Luscombe "Silvaire" built by John Vaughan from a K-K kit. Model flies excellently and is powered by an Allbon "Dart" diesel.

C. G. Sallis of Littleport, Cambridge, starts his R/C "Junior 60." Engine is an E.D. 2.46. Receiver: E.C.C. 951A hardvalve.

(3.26 c.c.) and no suitable intermediate displacement engine is available. Even in the .099 category, only one model is now manufactured (the Herkimer-O.K. "Cub" .099) since the emphasis is on the two class limits above and below this: .094 and .199 cu. in.

One might suggest that the way out of this problem is for the American A.M.A. (and other similarly affected organisations) to bring their class limits into line with the F.A.I. metric system, but any reluctance on their part to do this must surely be understood in view of the fact that it would render as obsolete, vast numbers of model engines owned by model enthusiasts.

The obvious solution would seem to be for the F.A.I. to raise the international class limit to 3.5 c.c. so as to include the popular American .19 cu. in. motors such as the K. & B. .19 (3.27 c.c.) and McCoy .19 (3.20 c.c.) as well as European models coming in the .19 cu. in. and 3.5 c.c. classes. The only objection would seem to be that, so far as Europe is concerned, the popularity of the 3.5 c.c. engine has lately declined in favour of the 2.5, but the more powerful 2.5's, such as the Elfin and E.D. 2.46, would not necessarily be outclassed by the .19's and the standardisation of the 3.5 c.c. limit would, no doubt, stimulate the popularity of this type.

As for the remaining rules to complete our International Power Model Formula, we would suggest something along the following lines:

Suggested F.A.I. International Power Model Formula

Engine	Any type or capacity up to a maximum of 3.5 c.c. (.213 cu. in.).
Weight	600 grammes (21.2 oz.) minimum.
Total Horizontal-Surface Area	40 sq. decimetres (620 sq. in.) with 2 per cent. plus or minus tolerance, i.e. 12.4 sq. in.
Fuselage Cross-section	50 sq. cm. (7.75 sq. in.) minimum.
Motor-run ...	15 seconds maximum, with 30 seconds penalty for every second, or part of a second, excess motor-run.

Compared with the present F.A.I. international

limits, these rules would permit a model having a somewhat heavier wing-loading but slightly lighter power-loading, both these, in any case, being automatically required for larger models. The general maximum dimensions have not been increased since it is thought that too large a model would not be popular. Weight, however, has been increased slightly and could go higher, but should, at the figure suggested, give a reasonably robust model while allowing a brisk climb on which the expert can exercise his trimming skill, without too much floating in the glide. Using the full 3.5 c.c. the power-loading, in fact, comes out at the current 100 oz./cu. in. A.M.A. figure and should, therefore, prove eminently acceptable to transatlantic entrants.

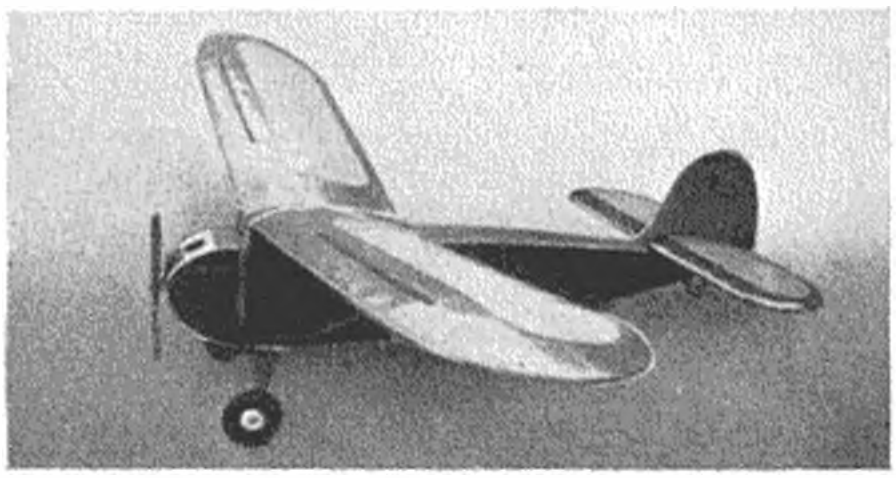
A motor run limit of 15 seconds should be quite adequate with such models and should tend to contain flights within the 5-minute maximum rule, while a sufficiently severe penalty for exceeding the limit should be imposed to discourage advantages of height (and thus increased chances of thermal assistance) being gained.

R C in Australia

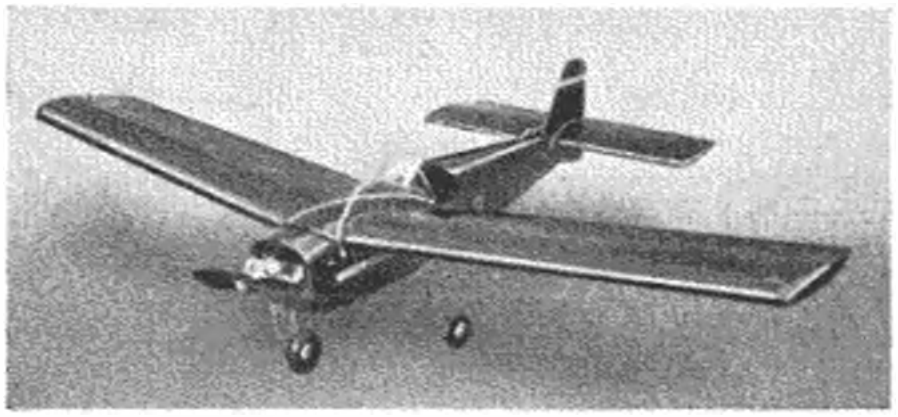
Readers of the June "A on P" may recall a description of an interesting 9-ft. version of Foxworthy's *Hoosier Hot-Shot* by D. C. Adams of Queensland, in which two receivers, operating on the two frequencies allocated to Australian modellers, were used to actuate rudder and throttle control.

From the owner of this model we have now received some further details of it and, also, of another, smaller R C job, together with a number of photographs. These were accompanied by an extremely interesting account of activities in Australia, which should be of interest to modellers at home, and from which we propose to quote. Our correspondent begins with the *Hot-Shot* and says :

"Basically, this machine is a 1½-size *Hoosier Hot-Shot*. Power is a Forster 99. As you can see from the photographs, the original twin-rudder layout was followed. This, no doubt, was good aerodynamically, but linkage trouble became a bit annoying when too much backlash developed. This could have been overcome, but a single fin and rudder was reverted to and did away with all such problems. The monostrut u c was also altered to the affair shown, built up of $\frac{3}{16}$ in. spring steel brazed together and pivoted about the top of the back leg. The airwheels are 6 in. Z.N. (I had these air-freighted out and the cost was astronomical). The whole model is nylon covered. The initial radio set-up had an E.D. Mk. I receiver working a Mk. I clockwork escapement converted to rubber drive, and a home-made Hivac receiver on 40.66 m/cs. in the two-speed ignition circuit. (High speed = signal on.)



16 c.c. Forster-powered R/C heavyweight by D. C. Adams of Queensland. Design is based on Foxworthy's "Hoosier Hot-Shot," scaled up to 9 ft. span.



Another Australian R/C model, also by D. C. Adams. Powered by a Frog 150, this model is 54 in. span and weighs 40 oz.

"The all-up weight is 16½ lb. This is very heavy, but the wing-loading works out at about 18 oz. which is not too bad for a model this size. The model is very stable and docile, as you would expect from the design. . . . It can be hand glided and hand-launched under power, but it's hard work. However, as I have to handle everything myself, there being no other modellers about, and most others doubting my sanity, this model is too much trouble and I have temporarily given up flying it. After checking everything and getting it airborne, I'm in such a state of nervous exhaustion that there's no enjoyment in flying it.

"The other model is rather like Cyril Shaw's *Fledgeling* but the span is 54 in. and it has a *Rudderbug* type wing. Power is a Frog '150' driving a 'Truflex' 9 × 4. All up weight 40 oz. Receiver is home made Hivac circuit. Escapement is E.D. lightweight modified so that current is only used going from one position to next, (still two-position self-neutralising). Nosewheel is sprung with coil springs in tension. Incidentally, I have been flying a 6 lb. *Rudderbug* for 2½ years with this type nosewheel with no sign of failure in this assembly. . . ."

Mr. Adams mentions that his best receiver is the Bolton No. 2 design, using a 3A5, and goes on to say :

"Current rise, close up, is 4.2 ma.; at half-mile, 2.5 ma. This receiver is most stable ; it can be shaken about, aerial can be practically any length, and tuning done with a potentiometer mounted independently of the receiver. These results were on the 27 m/cs frequency using a 'Flight-Control' two-valve transmitter.

"A friend of mine in Brisbane has a 16-ft. original design sailplane which is a most impressive model. This model is often flown at night and has navigation lights and tailplane tip lights, port and starboard, which light as the corresponding rudder is applied. It also has a large spotlight in the nose. I think the weight is 15-16 lb."

(*Continued on page* 483)

Letters to the Editor

● **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.**

R.T.P. IN AUSTRALIA

DEAR SIR,—After several members of our club had read about r.t.p. flying in your March edition of MODEL AIRCRAFT, we thought you might like to hear what we are doing in this respect.

One of our members, G. Barron, consistently puts up a speed of 75 m.p.h. with a Jetex 350. This model is flown on a 6 ft. line owing to the restricted space.

The model has a span of 5 in., wing area of 3½ sq. in., and a length of 10 in. It has a dihedral tailplane and all up weight is 3 oz. Incidentally, the Jetex is completely uncowled.

We would like to hear from any club in the United Kingdom which has had experience in r.t.p. flying of this nature.

Yours faithfully,

9, Deacon Avenue, Marleston. South Australia.

V. TULETT, *Hon. Sec.*, Glenelg M.F.C.

1914-18 PROTOTYPES FOR FLYING SCALE

DEAR SIR,—Since there seems to be a certain amount of correspondence concerning my models (namely the *Camel* and Fokker *Triplane*), I feel a few points of view of my own would not come amiss.

Firstly, Mr. Garry has assumed from Mr. Savage's letter that my models cavort about the sky at scale *Spitfire* speed.

Large numbers of people, including pilots, who have flown, or seen in flight or been associated with the full size aircraft, have on numerous occasions spoken to me and assured me how extremely realistically these models behave in the air, both under power and in the glide, and how nostalgic memories are awakened by them. This has been the case not only with the *Camel* and *Triplane*, but also my *S.E.5's*, Hawker *Fury*, *Bulldogs*, *Gamecocks*, etc.

Mr. Garry will no doubt be puzzled by this possible lack of spectacular speed, but I think that one or two elementary facts may help to explain. Mr. Garry states that his own ½ scale 1914-18 models weigh around 1½ lb. A *Camel* of this scale has 3 2/3 sq. ft. wing area, giving a loading of about 6 to 7 oz. per sq. ft. and the *Triplane* would be about 4½ to 5 oz. per sq. ft. The scale propeller diameter would be from 13 to 14 inches.

Even with such extremely light wing-loadings and low flying speeds, I should be very interested to know how Mr. Garry persuades engines of from 1 c.c. to 1½ c.c. to drive propellers of this diameter—or perhaps he departs from scale here and puts on those tiny screaming props. which are so out of keeping with the large, comparatively slow moving props. of the World War I fighters, and which to my mind, were so much part of those machines.

For my own part, I always use as near scale diameter propellers as possible, and in fact my ½ *Camel* has a 13½ in. diameter fitted. Perhaps this helps to explain the need for this so-called overpowering of my machines. Again with such light wing loading as Mr. Garry uses, I think that any forward speed in the glide in all but extremely calm conditions must be well-nigh impossible, whereas I flew my *Camel* and *Triplane* at Fairlop during the Whitsun meetings and most people know how the wind blew then!

The last point is Mr. Garry's mention of the ability to make a barn door glide. I would say that it needs considerably more skill, patience and perseverance to bring about this phenomenon, than to cover a very light frame of wood with tissue paper, and achieve a slow delayed descent to earth.

Finally, I would rather that Mr. Garry reserves his criticisms of my models and their performances until he has actually witnessed them in flight.

I would like to endorse Mr. Savage's remarks about the *Albatros D.III* machine as used by Richthofen and his Circus. I have beside me my copy of the *Red Knight of Germany* in which there is a photograph of a line up of *D.III's* (identifiable by their straight-trailing-edged rudders) taken during the first World War.

Yours faithfully,

Banstead, Surrey. P. E. NORMAN.

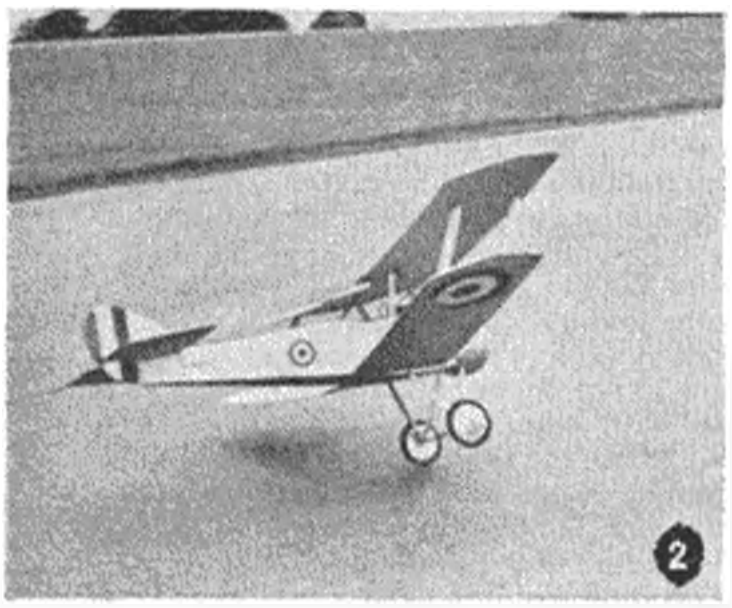
Accent on Power

(Continued from previous page)

Our correspondent concludes: "I was at Camden, near Sydney (1,000 miles from here) early this year and judged the R/C event in our last Nationals. This is another story in itself, but *Rudderbugs* came first and second. The most interesting model had bad luck, in that time was up before the three flights were in. It was a 9-ft. *Valkyrie*-type, Forster '99' powered. It had three-channel gear; right and left rudder and motor cut-out. Its flying was a joy to watch, but it floated a great deal, making judging approaches difficult. Weight was only 7 lb. . . ."

The recent imposition, by the Australian Government, of restrictions on the importation of goods from the United Kingdom, is bound to affect model supplies, including engines, most of which have to come from England. Some interesting Australian-made engines have, however, appeared from time to time and, although there seems to be only two or three types currently manufactured in any numbers, there will, undoubtedly, now be an added incentive to Australian manufacturers to expand their production in this field.

Photonews



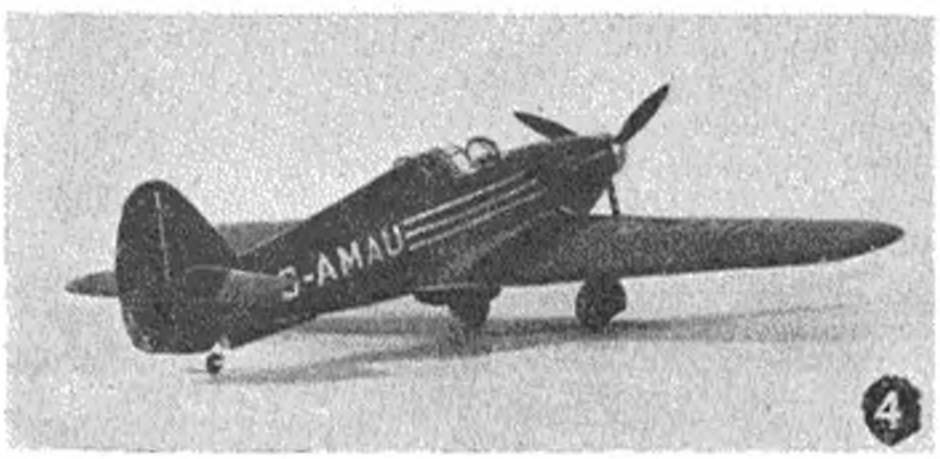
IF the two characters up in the corner never take any good pictures, the same cannot be said of our contributors this month, for they have sent in a bumper crop for Photonews.

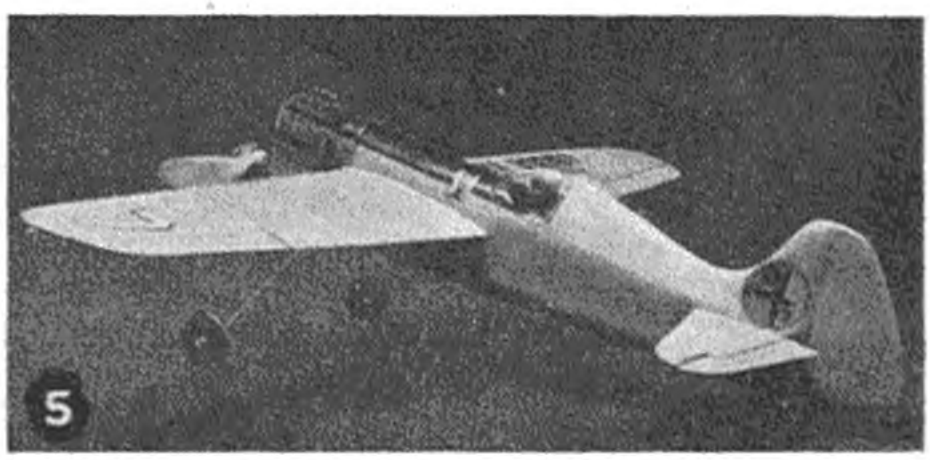
Our **No. 1** this month is by L. J. Neal, of West Middlesex. Club member Jim Plank is seen with his O.K. Cub-powered F/F model—a change from the *Vikings* he normally deals with in his post of Landing Control Officer at Northolt Airport.

Going from landings to take-offs, we have a very dicey example caught by J. L. Genlloud, of Lowestoft. The model in picture **No. 2** is a fine scale Sopwith *Pup* powered by a Frog 100 and built by K. Dean, of Brentwood M.A.C.

However, if No. 2 got away with a spot of erratic flying, **No. 3** certainly did *not*! Fred Dunn, of Inglewood, California, entered his payload model in the American Nationals, and it seems something went wrong with the spiral stability. Certainly it caused a minor panic, and as usual there's a bod in the middle who can't make up his mind which way to jump. Frankly, we wonder what happened to the photographer!

P. L. Gray, of Luton, specialises in 1/72 scale solids, and his latest is seen in **No. 4.** It is a model of the "Last of the Many," the last production *Hurricane*, preserved by Hawkers as a flying museum piece. The colour scheme is Sopwith blue with gold lettering and trim, and the actual aircraft, entered by Princess





Margaret, nearly won the 1950 King's Cup Air Race. It was also used, re-camouflaged, in the recent Battle of Britain film, "Angels One Five." The photograph is by Ken Wingrove.

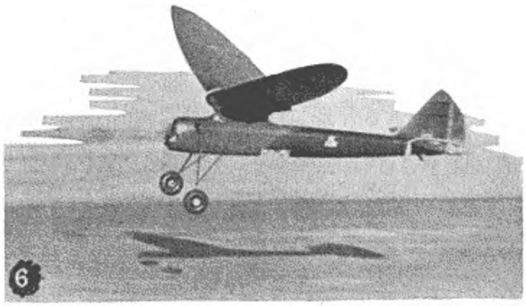
Bridget McCann, of Worksop, is well known to team-racers, and one of her class A models is seen in **No. 5.** It is known for some reason as *Fast Cat*, and powered by an E.D. 3.46, it does 35 laps to the tankful at around 68 m.p.h. Maybe there's something in a name after all.

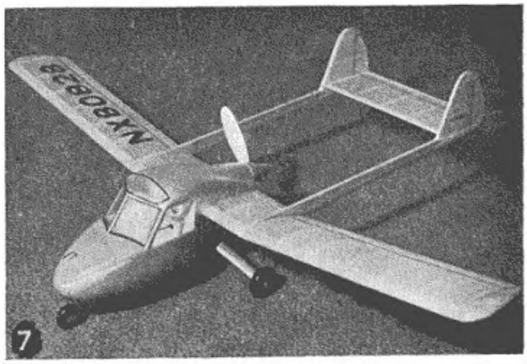
No. 6 came from Australia, where it seems that radio-control is not backward in coming forward. Gil Miles, of the Western Suburbs M.A.C., Croydon, New South Wales (Croydon?—the word seems familiar!) has made over 60 successful flights with this 9-ft. span model. Built some 10 years ago by Desmond Belot, of the Preston M.F.C., Melbourne, and adapted for radio by Gil, the model recently gave a demonstration at Bankstown aerodrome during Air Force Week, spot-landing after an impressive 15-minute flight. In addition to the usual rudder control, Gil has incorporated an engine cutout, held in by a control tone from the transmitter. Thus he can stop the motor at will, or in the event of the transmitter failing or the model going out of range, the motor will cut of its own accord.

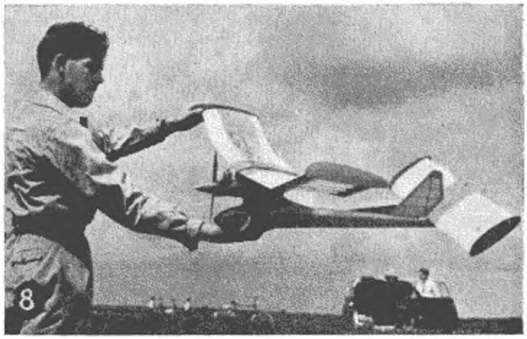
Carbon dioxide motors have never enjoyed any great popularity among modellers, so it is all the more interesting when one appears. J. H. Maxwell, the microfilm expert built the model in **No. 7.** It is a 1/20 scale model of the Anderson Greenwood 14, an American lightplane, and an American Campus A-100 CO_2 motor has been used to power it. Wing span is 20¼ in. and the model flies very well indeed.

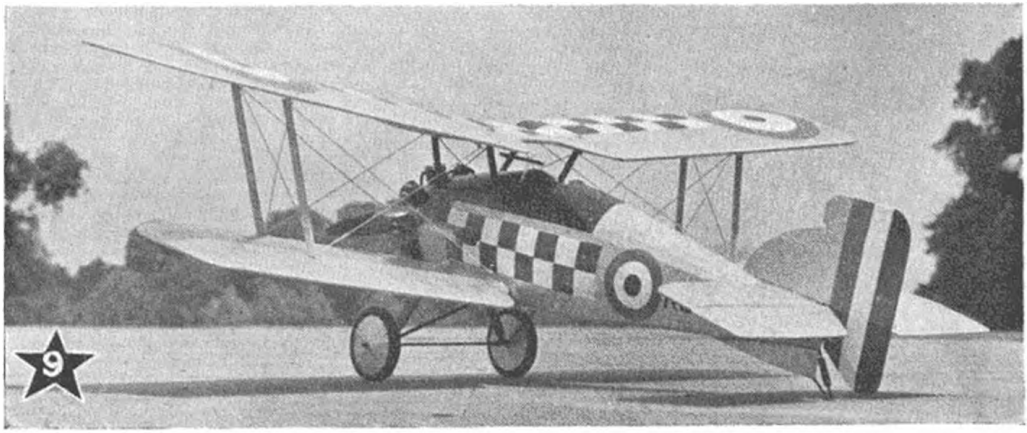
Another design out of the rut is seen in **No. 8,** a picture from J. van Hattum. Taken at the Dutch Nationals, it shows C. Kempen, who is the 1952 Dutch power champion, with the model he has been developing over the past few years. Power is provided by a Dutch Veenhoven 2.5 c.c. diesel.

Last, but by no means least, is this month's Star model, **No. 9.** A Gloster *Gamebock*, beautifully made by F. Green, of Garston, near Watford, it has been very realistically photographed by A. Boothroyd, of St. Albans.









Northern Notes

Another budding Farrance menace—Jean Baker, fiance of Ernest, winding up in the Women's Cup event. Bill has a word to say about cameramen !

★ THE BEST thing that can be said about the last Area Centralised meeting is that it was a nice day from the weather angle, and that's about all that can be said about it ; in fact it was hardly worth the while of the Area committee's time. Considering that there was a competition arranged for every type of model, the turn out was a complete let down, there being not more than four clubs present. It's not hard to understand though, fliers today just haven't the cash to pay for coach seats Sunday after Sunday, and after the first three Area meetings with their eliminators, centralised meetings of almost any kind have just about had it. The Council would do well to remember this fact when arranging next year's competition programme, and not allow themselves to be rushed into five meetings again. Three will be ample, and it may be well worth while considering the suggestion that one meeting, complete with an eliminator of some kind be placed toward the end of the year, thus preventing the three important eliminators being held one on top of the other during the early, and often unfavourable, part of the season.

★ FROM THE flying point of view, the meet on July 20th wasn't at all bad. Of course, there was the usual high wind now associated with Rufforth, but at least the sun was shining and the breeze was steady. As already mentioned, the Team event only attracted four clubs, and York had little difficulty finishing at the top of the list. Practically everybody was flying Wakefields, one of the notable exceptions being Arthur Wharrie, of York, whose *Senator* performed steadily and successfully all day. Eric North seemed to be having a bit of an off day, first piling in his Jetex job, and then, a few minutes later his Wakefield. George Cameron, of Leeds, also had some bad luck on his first take off, necessitating his spending some couple of hours on repairs, but to a good purpose, since he finished well up the list in the end. Speaking as an impartial observer, I would doubt that all the models in the Ladies' event were constructed by the entrants, one or two were seen who had but a rudimentary idea of flying, let alone building, and there were one or two anxious helpers whose fingers seemed to be itching to catch hold of the tow line. Miss M. Clayton, of West Yorks, performed most creditably in this event, to finish top with a time of 12.22 a time which many of her male companions would have been pleased to record. One most peculiar aspect of the Ladies' event was the number of gentlemen helpers who were willing to accompany the girls on their long and stern chase after the models, and the time spent in dual recovery during the afternoon was quite remarkable.

More at home with gliders, Ernest is seen launching Bill's model

★ SINCE MANY Areas are now imposing an Area subscription upon their members, no doubt the problem now facing the Northern Area will be a common one. That is the case of the club which, whilst carefully affiliating every year, does not, cannot, or will not pay the Area subs. I think it is now pretty well recognised that Areas cannot function efficiently on their proportion of affiliation fees, even when they get them, and are more and more dependent upon the members of the Area themselves for financial security; the cost of printing news sheets and minutes alone usually swallows up the small subscription and those Areas who cannot make their competitions pay must have a very thin time financially. But what can be done about the clubs who will not support their Area ? Obvious things, like the loss of voting power and stoppage of news sheets, etc., are not difficult to think about, but what about the club one never sees or hears from except at Area competition meetings ? If they are properly affiliated their competition entries cannot be refused, or can they ? Yet it hardly seems fair that the drones can tap into the efforts of the harder working clubs just like that. Maybe the Council could throw some light on this subject too, it certainly is another matter needing urgent consideration.

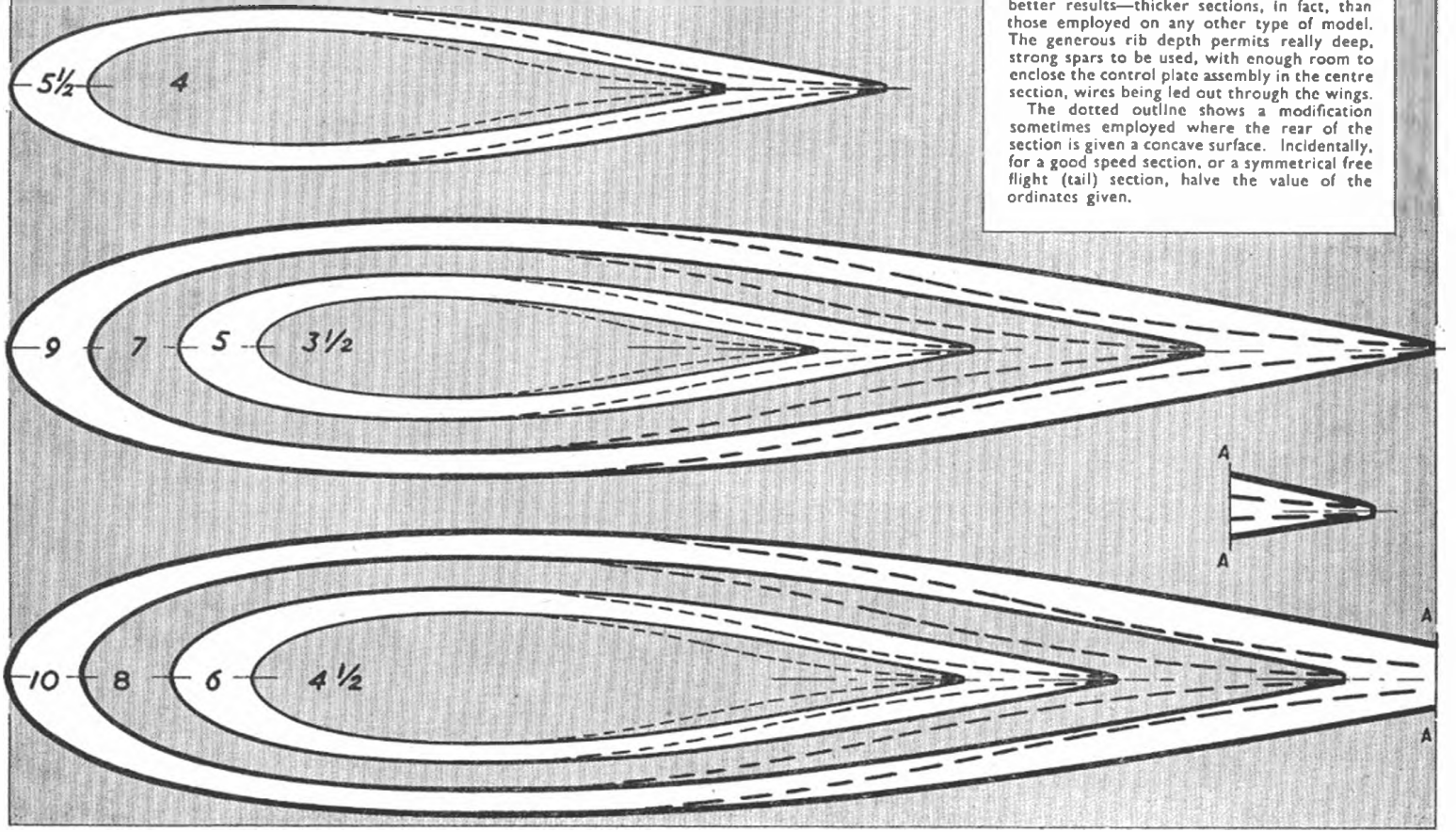
★ BY THE time you read this, we shall be almost at the end of another competition season, with only one Area meeting and one centralised meeting left on the programme. The Area meeting should raise a little more interest than the last one, most areas agreeing that the attraction was almost nil. It is hoped too, that the second Butlins meeting will attract much more attention than the first, the amount of the prize money offered justifies a really first class entry. And after October 12th, what ? Longer nights and more building time, and much more time to think up new complaints, or ideas to improve the game ? May I leave you with the thought that it is you, and you alone, who makes the sport worth while, and the more you leave things to the other bod the more causes you will find for grumbling. Sort out the things that you want next year, and then do something about it, don't sit back and expect them to happen.

STATION	0	1·25	2·5	5	10	20	30	40	50	60	70	80	90	100
UPPER & LOWER	0	2·84	3·92	5·34	7·02	8·61	9·00	8·70	8·05	6·09	5·51	3·93	2·18	0·03

NACA 0018

This is, purely and simply, a control line stunt section. Many early stunt models featured thin almost flat plate sections but it was soon found that much thicker symmetrical sections gave better results—thicker sections, in fact, than those employed on any other type of model. The generous rib depth permits really deep, strong spars to be used, with enough room to enclose the control plate assembly in the centre section, wires being led out through the wings.

The dotted outline shows a modification sometimes employed where the rear of the section is given a concave surface. Incidentally, for a good speed section, or a symmetrical free flight (tail) section, halve the value of the ordinates given.



From the S.M.A.E. and the CLUBS

IRISH NATIONALS

The 12th Irish Nationals, held at Baldonnel Aerodrome on July 5-6th, was a two day affair extended to include events for the neglected glider and C/L enthusiasts.

On Saturday the 5th the first event got under way in near ideal conditions; fair wind, no rain, and thermals for those who could find them. The majority of the models were of the Nordic or A.2 class and quite a few maximums were chalked up in the first round with them, but in the end it was Denis Browne of the Drimnagh A.M. who came out on top with his Scandinavian design *Upat*. The sole British competitor G. Jackson of the Littleover club had hard luck to lose his model on the second flight and so finished second.

The C/L Stunt event held on the same day was poorly supported with only ten starters, but on the whole the standard of flying was good and the only manoeuvres omitted were the square loops. The winner of this was J. J. Carroll of the Dublin Model Engineers.

Sunday morning found Wakefield and Power competitors marooned in a hangar by torrential rain, but after two hours postponement the Wakefield even got started. Unfortunately though the rain stopped the wind did not and r.o.g was very tricky. Many of the models met disaster on the take-off including that of Jackson, who was flying a model similar to that used by Royle in the Wakefield Trials. Alex Gordon of the Phoenix A.C. persevered to collect a terrific second and o.o.s. flight which brought him the honour of being the first Irishman to win the trophy for Wakefield models. Thompson of the Model Engineers, flying his *Zendik* into third place behind Des Woods, demonstrated a power-job-like climb with much flapping of loose strands of rubber.

The Power event was held in between and during three torrential downpours. Thunder and lightning made an impressive background to the screaming of engines. Sammy Wells of the Dublin M.F.C. flying an Amco 3.5 c.c. version of *Pizonia* made three very consistent flights to win the magnificent "Aer Rianta Trophy." Noonan of Shankill and one of the favourites was unfortunate enough to lose his *Mallard* on a 21½ sec. motor run, just over the stipulated 20 sec.

Later in the evening a most enjoyable dinner was held at Dublin Airport. The prizes were presented by Mrs. Kelly-Rogers, wife of the president of the MACI. Among the many distinguished guests present were Mr. J. Dempsey, general manager of Aer Rianta, Col. J. Fitzmaurice of trans-atlantic fame and Col. P. Quinn, officer commanding Air Corps. The informal proceedings were enjoyed by all and, as is traditional, Doc Charles made the shortest and wittiest speech of the evening.

NORTH-EASTERN AREA

Display at National Air Races, Newcastle Airport July 11th/12th

Although sunny, a stiff, gusty breeze on Friday evening wrecked many hopes and quite a few models, causing sad hearts among the Sunderland and Tynemouth lads who did the flying. King's Cup day was even worse, but about fifty C/L fliers and assistants converged on Newcastle Airport, determined to fly—or else!

We had 45 minutes to play with, and it is to the credit of the lads from Blaydon, Seaham, Tynemouth and Sunderland clubs that they kept 'em flying for that period—although the prangery was dreadful at times. While the sun shone and the cold wind blew we noticed Ken Mole of Tynemouth doing well with his stunt jobs until an extra strong gust made a bunt go some three inches lower than it should have done! Ken's four foot *Mosquito* (2 × Elfin 2.49) was on display, but wisely he made no attempt to fly it. The veteran Tynemouth "B" Team Racer *Snorty* snorted his way to a most dramatic finish by landing downwind, turning over and shivering into fragments which were whirled away across the field. Sunderland bods Tate and Stewart both flew *Junior Monitors* with E.D. 2.46's, and raised many a gasp by their unexpected (and sometimes unintended!) manoeuvres. The Sunderland "B" Team Racer, a modified *Lazy Daisy* (Amco 3.5) built by Area Secretary Phil McAlroy, had been hurriedly re-rigged with engine off-set, fin off-set and low pitch prop., and in the capable hands of Norman Revell managed to keep its lines more or less tight at all times—although its down wind speed was frightening! Pete Kelly of Blaydon put up a polished stunt show right in front of the main enclosure, while some more adventurous bods actually flew a couple of "flying saucer" control-liners—they had some rough treatment, but kept going. To sum up, if it had been a normal club day we would not have flown at all, but having promised, it was a case of "death or glory—or both"!

—AEROBODS OF NOTE—

No. 7
P. DONAVOUR-HICKIE

A leading exponent of C/L scale models. Has "scaled" the heights of perfection with this type of model.

WEST OF SCOTLAND AREA

Our Area held their Gala Day on June 27th. This unfortunately clashed with the holiday period and resulted in a small attendance, most of the boys being away. The weather was pretty poor again, with some heavy showers and the wind was in a most unfavourable direction taking the models to a large belt of trees, J. McMaster and W. Chrystal being only two of the unfortunate people who got "landed." J. McArthur (S.A.S.) was extremly unlucky in the glider event when after one of his flights his model was "retrieved" by a cow with disastrous results. In the rubber event R. Taylor had burst the nose of his model on its second flight, but he had a go at repairing it, and the model proceeded to fly better on its third flight and took 2nd place for Robin. The team race event was very disappointing for all the models were eliminated with the exception of J. Cochrane's. The meeting ended with the prizewinners hunting for the area treasurer who had gone to give W. Meechan a hand to look for his glider. David was quite indignant when someone whispered rather loudly that they thought that he had absconded with the money.

Results:

Power.—1. T. Gilroy, 5 : 30 : 0. 2. W. Chrystal, 5 : 00 : 6. 3. D. McConnell, 2 : 56 : 1.

Glider.—1. B. Harris, 7 : 27 : 0. 2. J. Nicol, 6 : 16 : 0. 3. J. McArthur, 6 : 01 : 1.

Rubber.—1 P. Kimantis, 4 : 41 : 5. 2. R. Taylor, 4 : 18 : 0. 3. W. Shanks, 2 : 44 :7.

Team Race.—T. Cochrane (Glasgow Barnstormers).

EAST ANGLIAN AREA

Gala Day

The conditions for this event, which was held at R.A.F. Station, Debden on Sunday July 20th, were excellent the only feature not quite to the liking of some, being a fair wind. As an experiment it was decided to have a 3½ min. maximum in the glider, rubber and power, with 15 sec. engine run for power and a 150 ft. line for gliders. It is interesting to note that only one person, Miss P. R. Healy (Belfairs) secured a double maximum, mainly due to a lack of thermals.

Glider (Open) 150 ft. line.

1st. *Miss* P. R. Healy (Belfairs) : 3 : 30 3 : 30, total 7 min. 00 sec.

2nd. A. Longstaffe (Belfairs) : 1 : 01 3 : 30, Total 4 min. 31 sec.

3rd. M. A. King (Belfairs) : 1 : 18 3 : 00, total 4 min. 18 sec.

Rubber.

1st. J. Gorham (Ipswich) : 3:30 2 : 35, total 6 min. 05 sec.

2nd. D. Willmott (Belfairs) : 2 : 45 2 : 15 total 5 min. 00 sec.

3rd. J. Walker (Belfairs) : 2 : 26 1 : 43, total 4 in. 09 sec.

Power, 15 sec. max. engine run.

1st. P. Wyatt (Ipswich) : 3 : 30 2 : 43, total 6 min. 13 sec.

2nd J. Gorham (Ipswich) : 3 : 30 2 : 05, total 5 min. 35 sec.

3rd. D. Willmott (Belfairs) : 3 : 25 0 : 48, total 4 min. 13 sec.

Scale Power.

1st. K. Dean (Brentwood) : 117 points.

2nd. R. Landymore (Brentwood) : 82 points.

3rd. J. Pickett (Brentwood) : 79 points.

Rally Champion.

D. Willmott (Belfairs) : 2nd Rubber, 3rd Power, 6th Glider.

Runner up J. Gorham (Ipswich) : 1st Rubber, 2nd Power, 11th Glider.

Club Champions

Belfairs 55 points, Ipswich 41 points, Southend Senior 18 points.

In the S.M.A.E. Contests which were run concurrently with the above, Miss P. Healy once again excelled herself with her A.2

and aggregated 11 mins. 1 sec. in the Woman's Challenge Cup. Her model is a replica of the one flown by M. A. King when gaining a place in the A.2 Team this year. D. Liscombe (Cambridge) flying an interesting Jetex "200" model in the Jetex Challenge Cup, aggregated 34.1 ratio. The model featured a floating aileron tab.

MEN OF KENT AEROMODELLERS

Considering its small membership the club has had a fair amount of success in the competition field this year.

Mike Green won the Bill White Cup and placed 3rd in the Model Aircraft Trophy, and along with H. Brodie qualified for the Wakefield 100.

Accent this season has been on Wakefields, though younger members have been working on A.2's.

The manpower problem having become acute we are having a drive for new members. Would all interested aeromodellers in the Maidstone area please contact H. Brodie, 153, South Park Road, Maidstone.

TYNEMOUTH M.A.C.

A club gala day was held on Sunday July 20th at the Town Moor, Newcastle. Competitions run off during the day were Open Glider, Open Rubber and Jetex for the Tweedy Trophy, Rubber Shield and Jetex Cup respectively. Unfortunately the weather was not very kind, being rather windy and this caused turbulent conditions. Patches of air could be found where rising currents existed, but there was mainly downdraught. R. Nichols won all three competitions, but some of the other competitors seemed below par.

HUDDERSFIELD DISTRICT M.A.C.

After our successful Rally the C/L contingent of our club have come into the picture with a very entertaining display at our local "Holidays at Home" exhibitions held in the town's main park. The display was watched by a very appreciative crowd who definitely preferred the model planes to the band which was also playing. If any club wants to advertise itself give a C/L display and you're all set.

Since the display we have had a visit to the clubroom by a reporter of the local newspaper which gave us a three column article with photographs of the club activities. Before long we shall be granted the freedom of the Borough and be able to walk through the town with propellers turning!

SOLIHULL M.F.C.

"Ups and Downs" is the only term which can be applied to the year which has slipped by. Both J. Rogers and M. Hanson won their way into the A.2 finals, placing well up in the elims. On the day of the finals however, luck simply galloped away from them. Most annoying was the fact that on trimming flights that same morning, lift was caught frequently. Favourite remark was of course: "Perhaps next year." Ellis and Frank Sprason made a brotherly effort, and won through to the international power finals. As with the glider boys though, luck ran out when they reached Fairlop. Anyway they both tried hard, and no one can do more than that (some have more luck). The club visited Cranwell for the East Midlands Rally and enjoyed a pleasant day with lots of sun. Denis Averill placed 3rd in the power, while W. Reed and Maurice Hanson bought out their new Wakefields. This day was not theirs, however, the Wakefield models had to wait until Farrow Shield day. This was another really hot day and our first competition at the new flying ground of Long Marston. Hanson really flew well and placed 2nd in the Midland Area. 1st was Frank Sprason, 7th Ken Lloyd, 13th G. Wheeler. These were our team whose combined times brought them into first place of the area. The whole club was a team on this day, those who were not flying being very helpful in all ways. Two members' wives flew their gliders in the women's event. Chris Lloyd and Mavis Averill, and both made perfect launches, slap into thermals. What some fellers would have given! Christine also placed in the open glider and J. Rogers also placed. The Farrow was very close with our times neck and neck with Northampton, but Ken Lloyd, who had damaged his model, made good the job and pulled our times right up.

WHITEFIELD M.A.C.

Many hopes were disappointed when the results of the Wakefield Contest at Norrkoping were known. J. O'Donnell made a below-average showing to place 15th in the contest and 3rd in the British team. Flights of 3 : 10, 3 : 50 and 2 : 42 were hardly a true indication of the model's performance.

The club did well at the area meeting on July 20th, considering the conditions. Fair wind and very low cloud gave a good percentage of o.o.s. flights, but not one maximum! Team total was 40 : 18, members being A. D. Bennett (top individual in N.W. Area with 12 : 39), P. Ashton (9 : 59), A. Wrigley (8 : 57) and J. O'Donnell (8 : 43 —two flights only). Unlucky were G. Lamb and Bob Woodhouse whose Wakefields climbed o.o.s. into cloud after just over the minute.

First and second in the N.W. Area in the Jetex Contest were H. and J. O'Donnell with agg. ratios of 19.35 and 18.35 respectively. Top in the Woman's Cup was

Brian Harper (Outlaws, Cannock) receiving the "Chairman" Cup from the Mayor of Stourbridge after winning the class "B" T/R at the Stourbridge club's C/L Rally

Mrs. E. M. Bennett with 5 : 40 for two flights flying a lightweight rubber model.

Despite everything, the club did well in the contests. In the Rubber event we had three out of the top six places: J. O'Donnell being 1st with 7 : 24, A. D. Bennett fourth with 4 : 36, and H. O'Donnell sixth and top junior with 4 : 07 for one flight. All three models were diamond pylon Wakefields complete with feathering props. J. O'Donnell then completed a double success by winning the Thurston Cup with 5 : 49, flying a 9 ft. club design glider.

On the following day A. D. Bennett placed 4th in the Power with 7 : 06, flying and losing an Amco 3.5 job, while A. Wrigley placed 8th with 4 : 51 using an Elfin 1.8. All told the club lost two Wakefields and a power job, all feared to be in the sea. A. D. Bennett has now had four fourths in S.M.A.E. contests this season and won the Keil Trophy.

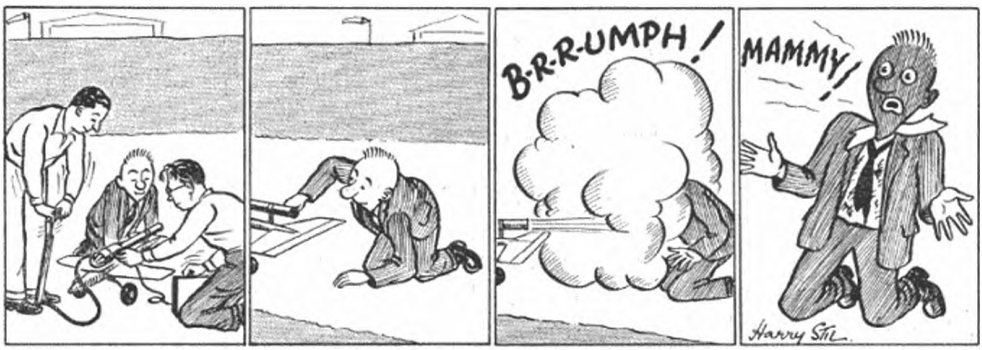
SOUTH BRISTOL M.A.C.

Members had a good time at the Nats. this year and still more friends were made including the Gloster Gleyum Club who ran a coach in which several Bristol chaps enjoyed a highly amusing trip home.

Terry Moor with his *Red Spinner* glider

CLUELESS COON

By Harry Stil



did 20 mins. o.o.s., but unfortunately was not officially timed so could not be recorded as a club record.

The club has turned out its first ¼A team racer (Colin Smith); it flies well, at over 40 m.p.h. and numerous laps. We hope to see more ¼A's from other clubs, they should prove very popular as they can be built quickly and cost only 2s. 6d. for materials.

FLYING SADDLERS M.A.C.

The club competition for F.A.I. power duration was flown in conjunction with the Hamley Trophy. The winner was Brian Day flying his own-design Elfin 2.49 powered model and second was Dennis Braes flying a *Skylon*.

At the area meeting held at Long Marston the club only managed to aggregate 13 min. in the Farrow Shield, top man being Malcolm Gilbert who totalled 5.25 with his three-year old *Kerdite*, second was Junior Ken Habley flying a *Senator*.

At the Walsall M.A.C. C/L rally on August Monday, our two entrants, Arthur Reynolds and Dennis Braes put up a very good show. Arthur took third place in the Class 2 speed event clocking 75 m.p.h. with his E.D. 2.46 powered team-racer. In the Class "A" team race, Dennis placed second with his Elfin 2.49 powered model, whilst Arthur came in third.

CHEADLE AND DIST. M.A.S.

Three members attended the Butlin's contest at Pwllheli, with satisfying results as follows:

1st Rubber—B. Faulkner.
1st Power—P. D. A. Foulkes.
1st Glider—G. Evans.

Each member received a well-deserved and substantial cash prize.

A packed coach visited Gosport for the Nats., but although no spectacular results were achieved, a good time was had by all.

Control-line speed is for the first time becoming apparent, with such ambitious

MODEL AIRCRAFT CONTEST CALENDAR

Sept. 21st **Butlin's Contests.** Filey, Ayr, Pwllheli and Skegness. All classes of events.
" 21st **Southern Counties Rally.** Thorney Island, Hants.
" 28th **" THE MODEL ENGINEER " CUP.** Team Glider. Area.
" 28th **" FROG " SENIOR CUP.** 1.5 c.c. Power Duration. Area.
" 28th **South Midland Area Rally.** Halton Aerodrome, Bucks.
Oct. 12th **RIPMAX TROPHY.** Radio Control.
" 12th **DAVIES TROPHY.** Team Race.
" 12th **CONTROL-LINE SPEED CONTESTS.** Centralised—Venue to be announced.

S.M.A.E. CONTESTS IN CAPITALS

efforts as Nordec, McCoy and Dooling "29" powered models showing their paces.

FORESTERS (NOTTINGHAM) M.F.C.

Team racing is on the up and up in the Foresters M.F.C., and the latest success occurred at Walsall C/L rally where we won both team race events. Doug. Bolton and Jim Weston assisted by Johnny Hales won the "A" with their lightweight Elfin 2.49 job, but Mike Crawforth's Cranwell winner *High Society* was wrecked when some oaf attempted a wing-over on take-off. Mike was winning his heat hands down mechanic'ed by the two John Howards, and had only 10 more laps to go. This team had much better luck in Class "B" however, with John's Mk. 1 Eta "29"-powered *Hiawatha* in a thrilling finish against Doug. Bolton's E.D. IV plane. It was nearly a case of the "hare and tortoise" due to atmospheric conditions affecting the Eta's touchy throttle, and with 60 laps to go Doug. had only 4 laps to complete when his lines fouled the prop. during an engine-on landing. With Jimmie and Johnny frantically untangling yards of line, the Eta suddenly decided to go places and *Hiawatha* covered the last 60 laps in about as many seconds, giving the poor lap-counter severe "Wimbledon neck."

EDINBURGH M.F.C.

Following the successful C/L demonstrations at the "Festival of Sport" exhibitions, held in the city in both 1951 and 1952, the club was invited by the Edinburgh Charities Committee to give a performance at the annual football match arranged by them. Before a crowd of almost 40,000 spectators on August 2nd, three C/L circles gave a display which provoked nearly as great enthusiasm as the two teams—Edinburgh Select and Portsmouth—aroused some brief time afterward. This, and previous demonstrations, must have produced towards 150,000 people who have seen C/L flying by club members. Interest has been aroused to great extent among public and civic organisations, and the club look forward to close future co-operation with these bodies.

G. Blair, a junior yet, has proved the outstanding modeller in the competitions so far held this season. At the Lanark Power event, a single flight ratio of 24 : 1 was enough to gain him 2nd place. Lost on this flight, the model was later returned, to score a ratio of 21 : 1 on his first flight in the power section of the Scottish Aero-modellers' Association's Caledonia Shield event at Balado. Blair gained top place in the competition with a total ratio of 35 : 1. Flying his A.2 in the glider event at Bathgate, a two flight aggregate of 8 : 20 won Blair the top honours there—in shocking weather

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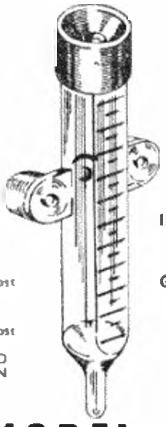

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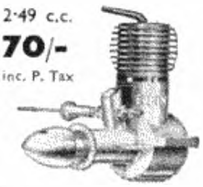

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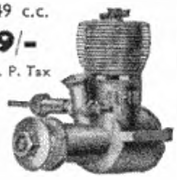

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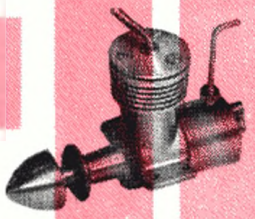

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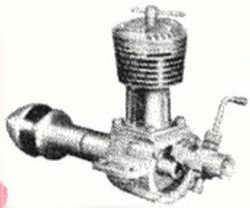

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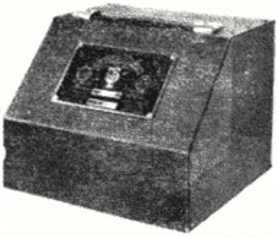

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