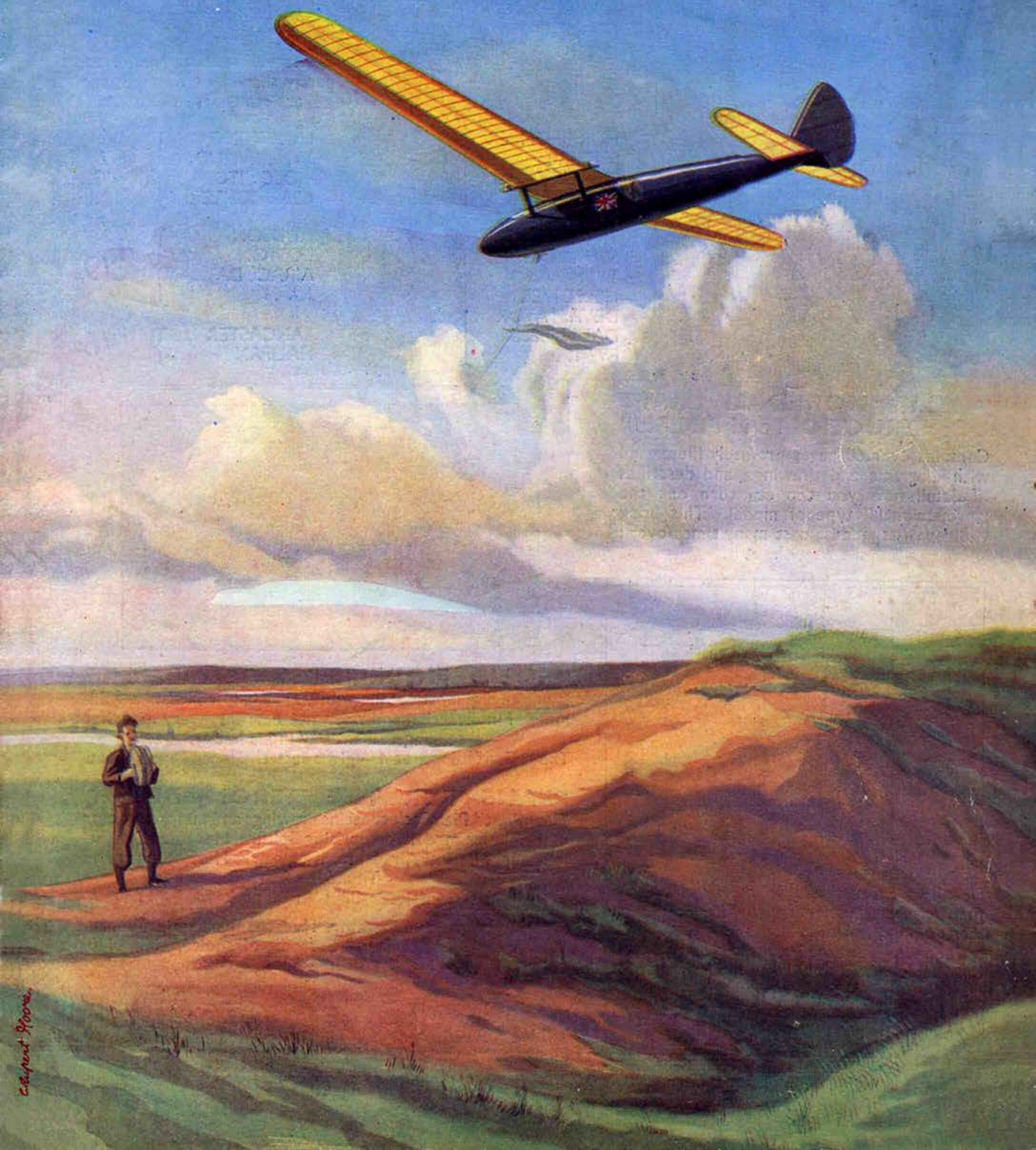


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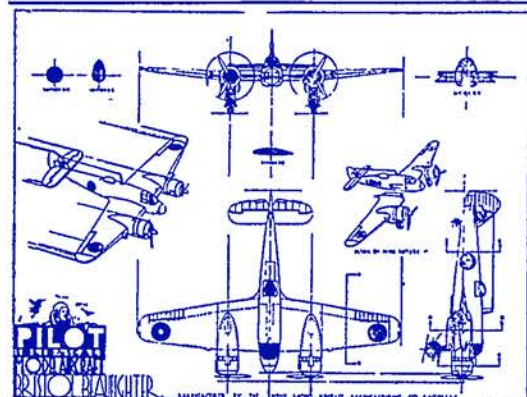
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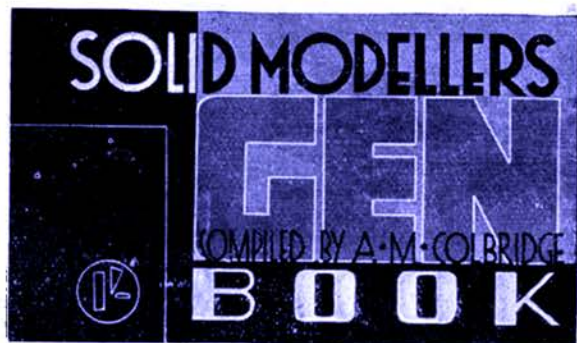
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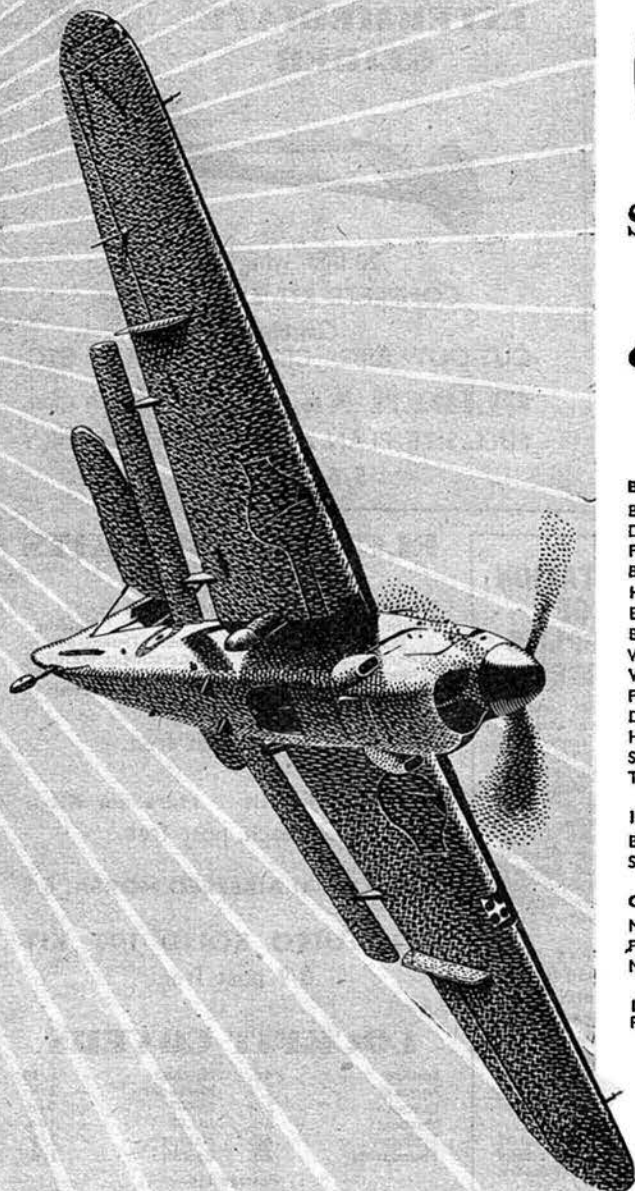
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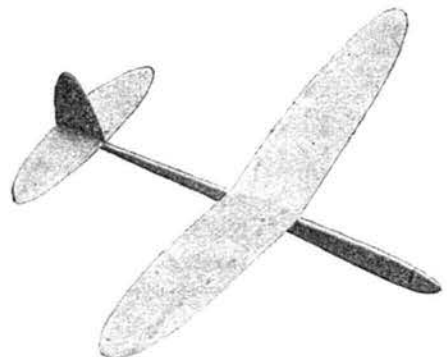
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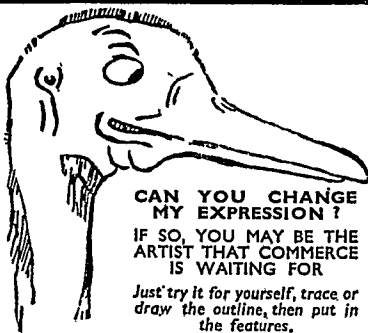
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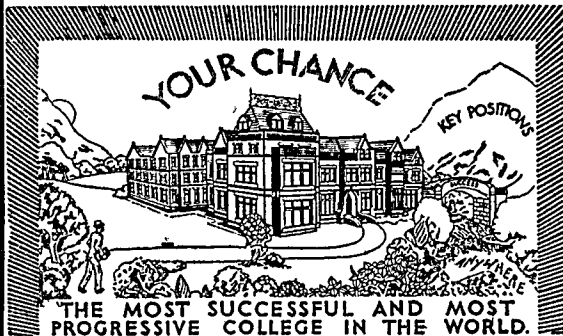
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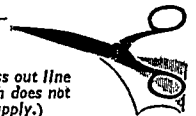
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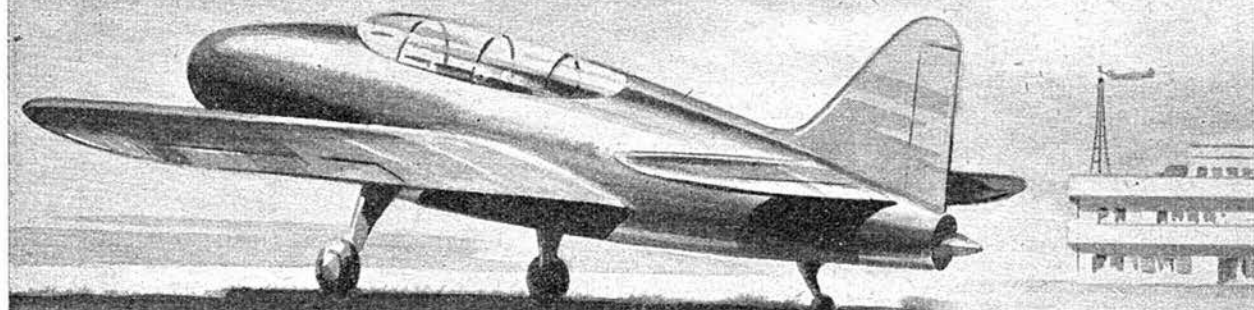
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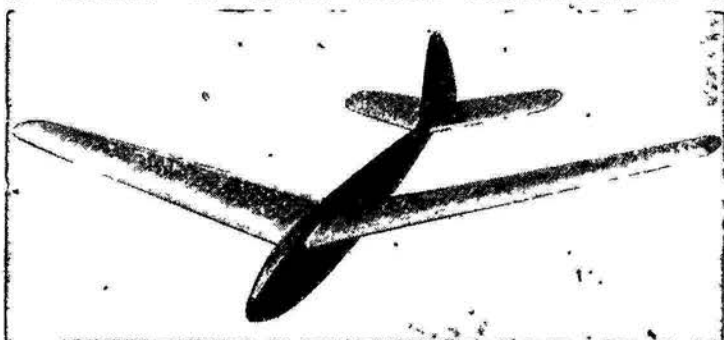
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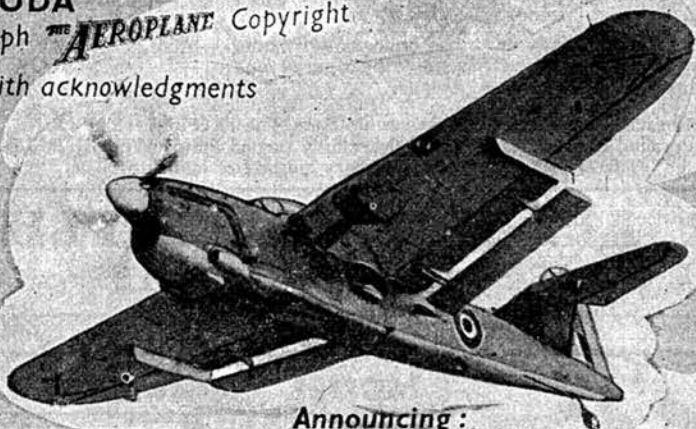
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VOL. X No. 110

JANUARY 25th, 1945

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THE "AEROMODELLER" EXHIBITION

In view of its importance, we again refer to the AEROMODELLER Exhibition at the beginning of our Editorial Notes for the first issue of the year 1945.

Already we have promised a considerable number of models for exhibition and entry to the wide range of competitions, full particulars of which were given on page 16 of last month's issue, and which have been notified to Clubs throughout the country.

For the benefit of those readers who may have missed noting down the dates, we repeat that the Exhibition opens at 11 a.m. on Friday, January 5th, and will thereafter be open daily (with the exception of Sunday, January 7th) until it closes on Saturday, January 13th,

at 9 p.m. Each day the Exhibition will open at 11 a.m. and close at 9 p.m.

All models for exhibition or entry to the competitions should be despatched so as to arrive at the AEROMODELLER "Receiving Centre," c/o Aircraft (Technical) Publications, Ltd., No. 7, Hanover Court, W.1, as near as possible to January 1st, 1945. Models should be strongly boxed, and, where packed in any elaborate way, instructions should be placed just inside the lid, detailing how the model may be unpacked. Competent members of the AEROMODELLER staff will be at the "Receiving Centre," and readers may rest assured that every care and attention will be given to the safe handling of their models during the time they are in our care.

Volume V. "Aircraft of the Fighting Powers"

We are pleased to announce, on behalf of the Harborough Publishing Co., Ltd., that delivery of Volume V of "Aircraft of the Fighting Powers" commenced in the last week of November, and that all those customers who placed individual orders should have received their copies by the end of the first week in December. Volume V is unique in that it contains, amongst other features, a page chart of 24 "colour standards" issued by the Ministry of Aircraft Production. These "colour standards" are, of course, the references by which aircraft manufacturers are guided when painting their products. There are 24 colours represented each by a panel approximately 2 ins. square. The colours are:—*Sky Grey; Ocean Grey; Light Earth; Red (Roundels); Dark Sea Grey; Dark Green; Dark Earth; Middle Stone; Dark Slate Grey; Medium Sea Grey; Light*

Green; Yellow (Trainers; Roundels); Extra Dark Sea Grey; Grey Green; Light Slate Grey; Sky; Deep Sky Blue; P.R.U. Blue; Extra Dark Sea Green; Sky Blue; Blue (Roundels); Mediterranean Dark Blue; Mediterranean Light Blue; Azure Blue.

On behalf of the publishers, we take this opportunity of gratefully acknowledging the courtesy of the Ministry of Aircraft Production in allowing them to reproduce these colours, said reproduction being, we think, the first "general release" to the public.

For the benefit of those many aeromodellers who may wish to use the colour guide apart from the book, individual sheets have been run off and are available through Aeromodeller Plans Service, price 2s. each, securely packed and post free. These charts are approximately 11 by 8½ ins., and contain the 24 colour panels, each approximately 2 ins. square, as noted above.

Staff Vacancies

Vacancies exist for the under-noted categories at the AEROMODELLER Head Office in North London:—

1. Photographic Assistants;
2. Draughtsmen;
3. Model Builders (solid models only).

Vacancies also exist in the Showrooms of Aircraft (Technical) Publications, Ltd., Hanover Square, London, W.1, for assistants with a knowledge of models and a liking for, or experience in, bookselling.

Each of these vacancies may be filled by juniors in the 17/18 age group, or by adults, ex-Service men, or those able to leave their present positions with the approval of the Ministry of Labour and National Service. All applications will be treated in confidence, and should

be addressed to the Managing Editor, The AEROMODELLER, Allen House, Newarke Street, Leicester, the envelopes being marked in the top left-hand corner with the word "Application."

N.G.A. Subscription Renewals

We would remind all members of the N.G.A. that their subscriptions are due for renewal as from 1st February, 1945, and that, in our February issue, published towards the end of January, the appropriate membership renewal forms will be published.

Once again—we make no apology—and later on it will be "once again" again—we stress the need for Third Party Insurance cover being secured by all aeromodellers. For an annual subscription of 6d. members receive virtually unlimited cover throughout the year, on an A1 policy underwritten by Lloyds. Members



Rochester, well-known comedian, is also a well-known aeromodeller in the U.S.A. He is shown "testing" his R.T.P. speed model in the Boeing Aircraft Corporation world-famous Wind Tunnel.

and upon it depends production of all the types of machines in service. It is pretty safe to say that all the aircraft designers who have been responsible for our wartime machines were first aeromodelling enthusiasts, and the designers of the passenger and freight-carrying planes in peace will doubtless be just as keen on making and flying models as were their famous predecessors. There is a grand career in aircraft designing, and it should appeal to all aeromodellers, many of whom already design their own models and make them fly with great success.

How to run a Club.

There is an even greater tendency these days for aeromodellers to form themselves into local clubs. It is definitely a move in the right direction, and one that should be welcomed and encouraged. We have just received for review a copy of "How to Organise a Club for Aeromodellers," published by the Association of British Aeromodellers "as part of a planned programme for the purpose of helping aeromodellers everywhere to build up a strong, active, healthy local club and organisation, and to further the interests of model aviation."

One thing seems certain, that it is a clear and easy-to-understand guide, useful to those who run clubs and to those who are thinking of doing so. There is an encouraging message from Mr. Charles A. Rippon, the Chairman of the A.B.A., and then each successive phase in club formation, and management, is set out in detail under the appropriate headings. There are a number of appendices to help the secretary and the treasurer to keep their records and accounts in proper order. Copies can be obtained from the leading newsagents and booksellers, model shops or direct from the Secretary of the A.B.A., Mr. Arthur Lodge, 28, Hanover Street, London, W.1. Price 1s., post free.

receive also a membership card. Members who fly petrol engine-driven model aircraft may obtain similar insurance cover for an additional 2s. 6d.

We are pleased to announce that N.G.A. badges are again available. These are of the type suitable for inserting in lapel buttonholes, and cost 1s. 3d. each. Orders, with cash, should be sent to N.G.A., c/o AEROMODELLER Offices, Allen House, Newarke St., Leicester.

Serious Shortage of Designers

In a covering letter enclosed with a copy of the Report of the Interdepartmental Committee on the establishment of a College of Aeronautics (reviewed in pages 82 and 83), Mr. E. L. Baddeley, Press Officer of the Ministry of Aircraft Production, makes this interesting observation:—

"Quite apart from the report itself, you are no doubt aware that there is a very serious shortage of personnel trained in aircraft design, and there is a likelihood that this shortage will continue until public interest is stimulated in aircraft design as a career."

Few branches of aeronautics compare with aircraft designing in attractiveness or national importance. In fact, it is the most essential branch of the industry,

A Game of Patience—So What?

We noted a few days ago a paragraph in a daily newspaper to the effect that Mr. "Doug" Gilbert, a Folkestone member of the Royal Observer Corps, played 51,000 games of patience—of which 1,400 "came out," and in the course of which he used up 74 packs of cards—in off-duty spells during nearly four year's service. Fifty-one thousand games in four years equals 12,750 games per annum, equals 245 games per week, equals 35 games per day. On the basis of each game lasting on an average as little as ten minutes, it would seem that the worthy Mr. Gilbert devoted approximately six hours per day, seven days a week, fifty-two weeks a year, and all that for four years, to the playing of patience! Some war effort!

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PETROL VAPOUR

BY
LT · COL · C · E · BOWDEN

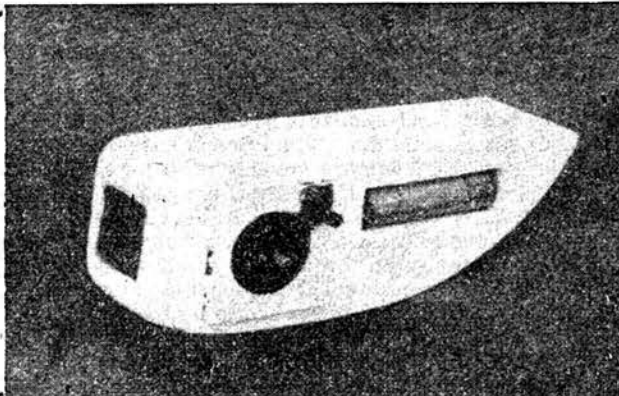


FIG. 1.

A Sound Time Switch is Essential.

We can now fly petrol models again. This is splendid news for those fortunate enough to possess an engine and the time to do it.

Anyway, it means that some people can get busy and prepare the way for the large scale post-war petrol 'plane flying that will inevitably take place, provided that we petrol model enthusiasts do not get our activities cut short by legislation, due to stupid actions by irresponsible people.

I hope that in the new found freedom of the air to the petrol man, everyone will realise his responsibility by being very careful not to have uncontrolled flyaways.

It is so easy to build a petrol model, and in the keenness to get flying, to try out the "crate" without fixing up a really reliable time switch. This item is usually the last to be constructed, whereas it should be the first. The model perhaps stays up far longer than was intended, and if it is well designed it then soars away. A large model landing in a crowded place can do considerable damage either physically or to the dignity of the pedestrian, and the sensation-seeking reporter may quickly raise an outcry against "the menace of these new doodle-bugs".

I have tried out all sorts of methods of mounting the

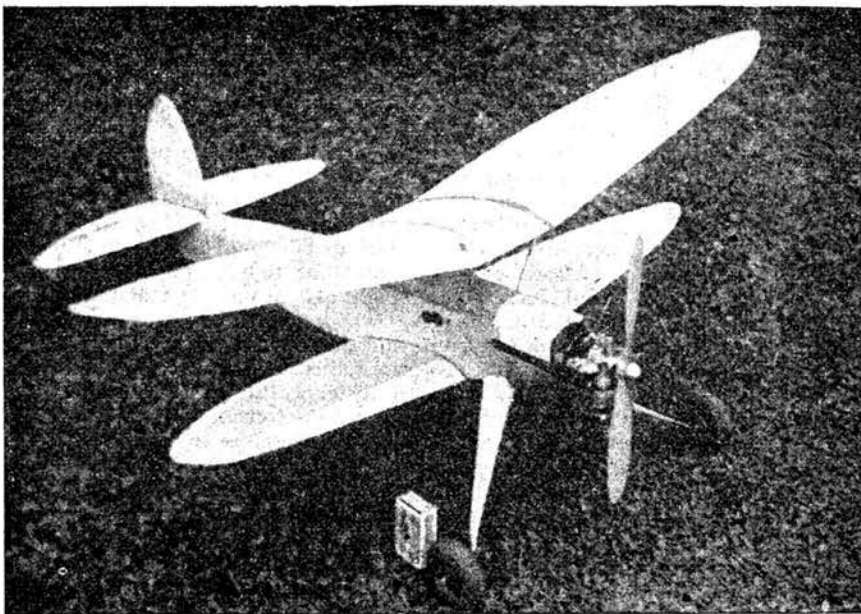
flight battery and the time switch, as well as all sorts of switches. This short article, unfortunately, does not permit of a review of time switches, but on the whole one must admit that for fairly large models, a good reliable type of clock switch is the best. It is more accurate for exact timing of the flight than the dash-pot type of switch which relies upon an air leak.

Reliable clock-time switches imported from America have been obtainable in the past. I am not too keen on home altered clock mechanisms as I have seen so many "flyaways", due to their failure, including one exciting flyaway into the Bristol Channel in which the "Flying Doctor" lost a beautiful new Baby Cyclone engine!

I once went to a clockmaker in Birmingham and he altered a clock to my requirements to give me times up to 6 minutes! This clock-timer has now functioned for over 10 years and is still going strong.

I mount it in a detachable dummy radiator of the "Lamblin" type, which I have mentioned in a previous article, but which I think might be explained in more detail now that actual flying is upon us again; for it is such a simple idea, although one that saves such a lot of trouble. I have not seen the idea adopted by anyone else. This carrier can be seen fitted to my low-wing model in a photograph published on page 357 of the June issue of AEROMODELLER.

FIG. 2.



Behind the clock I drop in my flight flashlamp battery, or my baby accumulator. The battery compartment is now lined with sheet celluloid to prevent any spilled acid from an accumulator damaging the "radiator". I therefore have one of those streamline radiators one sees protruding below so many low-wing aircraft. In this dummy radiator, which has a grill in front for show purposes, I have a detachable unit that can be changed from one model to another. If it is a high-wing model I make a little platform behind the engine and on the bottom of the fuselage for the detachable radiator, and if it is a low-wing model I provide a platform on the underside of the low-wing.

In either case I sling this battery-cum-clock container to the model by short elastic bands from the carrier to the model.

The " radiator " can be moved until the C.G. is right. Small wire hooks are then made permanent fixtures from the fuselage for the rubber bands.

Besides the saving in time switches if one builds several models—and what enthusiastic aeromodelist will not continue to build models of different sizes and shapes and designs?—the battery can always be got at quickly for change or checking up the leads between the flights, the weights of the battery and clock are kept low, which is a good point, and in the event of a crash, the weight of the battery does not go on through the bulkheads when the model stops suddenly! The detachable carrier either bursts its elastic bands or the shock is absorbed by the elastic bands.

Incidentally the radiator often improves the appearance of the model, for every full-sized liquid-cooled aeroplane has some sort of visible radiator. See Fig. 1.

The Dihedralled Tailplane.

Many readers will have noticed the modern tendency to use sharply dihedralled tailplanes on twin-engined

FIG. 31



fighter bombers and flying boats of this war. The " Beaufighter " was one of the first aircraft to blossom out with a changed tailplane of this nature. As is well known, this was done to counteract swing during the take-off when two outboard engines are fitted. It is not always realised, however, why the dihedralled tailplane does prevent swing.

For structural reasons, and reasons of weight and convenience, fuselages are often rather short and fins not very large on this type of aircraft. At flying speeds (fast flight) the fin with its comparatively short moment arm is perfectly effective due to the high speed of the air reacting upon it, but at the initial low speed of the take-off the slower speed of the air on the small fin at the end of its short fuselage is not very effective. The aircraft is then prone to swing about. This is also true of some aircraft during flight when flaps are lowered and the speed is vastly reduced.

The answer, of course, is to build a longer fuselage and thereby give the fin a more powerful moment arm at low speeds, or alternatively build a larger fin. In practice neither of these expedients may be suitable, partly because it would completely alter production of an existing machine and partly because it would alter the C.G. position and introduce many other changes.

Another practical answer is very simply arrived at by giving the tailplane a sharp dihedral angle. Weights and dimensions of fin and tail and also fuselage are all the same *and yet we add to the side area shown aft*. This added side area keeps the machine steady directionally during the slow speed part of the take-off or during the very slow " flapped " flight.

The question arises, " Is the dihedralled tailplane of any real value on the model ? "

The answer is " Yes ", under certain circumstances, but these circumstances are rather different from those of a full-sized aircraft.

Our general-purpose model does not have a great variation in speed. It takes off, and also flies, slowly, we hope! We also keep our fuselage long, if we are wise, to give us a good moment arm, as we are not hampered with considerations of design other than reliable, stable and *slow* flight.

On a rubber duration model, unless we use a weight in the nose, we may sometimes find the mainplane set rather far back, on certain designs, which may give us a small moment arm.

Here we can *keep a small, light fin* by adding dihedral to our tailplane.

Last year I built a 52 in. span rubber model that was not as stable as was expected. I decided that it required a larger fin, as I found that the mainplane had to come rather far back and my shape of the fuselage was rather deep up forward. I decided I would try an experiment, however, as I did not want to fit a larger fin which would increase the weight aft. I put a considerable lump of lead in the nose, which moved the mainplane well forward, but I naturally feared that the increased weight might ruin the performance. In actual fact the performance was above my expectations. The model was now extremely stable, and the considerable weight in the nose acted as it does on a sailplane when gliding, as it gave the model momentum. This would not have been so successful, of course, on a baby model.

My next step was to cut down the size of the fin, even smaller than the original, and to dihedral my tailplane. In this I saved weight, and the wing went forward a shade more. I now had a hefty moment arm, and the

model has surprised myself and spectators in its long soaring flights, in spite of its robust construction and size. The fuselage is covered with 1/16 in. sheet balsa and the wings, etc., with silk. The wings are elliptical in shape and this gives a good large surface for the span. It was designed to stand up to hard wear.

Well, that is one way of using a dihedralled tailplane!

The second is on a low-wing 'plane. Even when the tail is set high on a low-wing, it often operates in disturbed air, and in certain attitudes of climb is somewhat blanketed.

I have, therefore, always advocated a longer fuselage for a low-wing model, and have found this to be one of the important factors in low-wing model design. Incidentally that is why careful filleting or streamlining of the low-wing into the fuselage is carried out in full-sized machines to reduce this disturbance as much as possible.

Now a model low-wing usually has a fairly large dihedral angle on the mainplane. In other words the mainplane rises fairly sharply from the root. As a result it will be realised that the airflow disturbance of the mainplane also rises at a fairly large angle.

It is therefore obvious if we have a short fuselage on a model low-wing, the tailplane tips will be in more disturbed air than the root of the tailplane, which is fairly free due to its being set high. We can therefore either increase the length of the fuselage to get the tail as far away from the mainplane disturbance as possible, or we can dihedral the tailplane to keep the tips as free from disturbed air as the roots. Perhaps a combination of both is the best answer.

Finally, if one uses twin fins on a petrol model flying boat, as I now do, with the fins set looking slightly outwards in order to get a slight *drogue* effect to keep the boat's nose into wind during the vital take off the water, a dihedralled tailplane will permit the twin fins to be quite small and very light, as quite a considerable amount of side area aft is shown by the dihedralled tailplane.

Thus we may summarise by saying that the dihedralled tailplane can give us a percentage of our side area aft, without adding any extra weight due to a larger fin.

Perhaps I should add that the tailplane itself must not be too small or dihedralled it will rob it of its lifting virtue if it is of the lifting type. One should never fit a small tailplane on a model anyway!

As a matter of interest, it is of course quite possible to fly a model with a *large sharply dihedralled tailplane* by itself and without any other fin.

A Baby Model.

Some time ago I was on sick leave in my home village of Porlock, where Dr. Forster also lives, and we had a 1½ c.c. "Mighty Atom" engine to try out. So one evening I designed a simple midget petrol biplane with elliptical cantilever wings; top wing span 32 in., centre chord 8 in., with 5 in. wing tip slots. As all my materials were in store, Dr. Forster agreed to build the model.

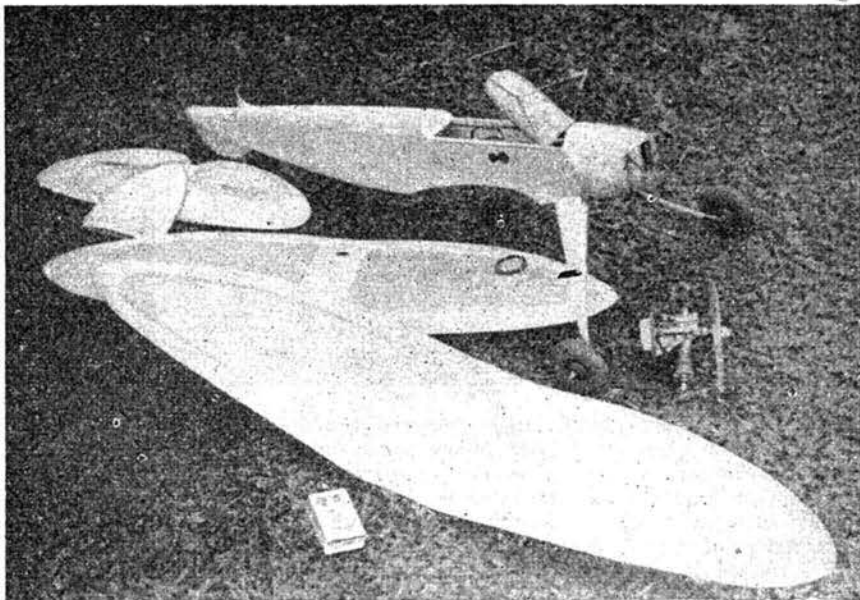


FIG. 4.

The result is shown in Figs. 2, 3 and 4.

"Kangette" is completely detachable and packs up in a small suitcase with lunch and two bottles of beer!

This little model has the same set up of the wings (i.e., the top flies at a greater angle than the bottom, which also has considerable negative stagger), as my original old record holder "Kanga."

We have only had a few flights under power, during which it shows signs of considerable promise for such a small model and such midget power! The model has a tendency, however, to wander slightly, rather like the rubber-driven model I have mentioned. It undoubtedly required a larger fin, or better still a sharp dihedral angle to the tailplane, as we must keep the very short fuselage for portability. It will be appreciated that there is a considerable side area shown forward by the two elliptical wings with their large central chords. I am now building myself an improved "Kangette" of slightly larger proportions, to be powered by 3 c.c. engines. I heard from Dr. Forster the other day, and he says that he is also building a larger model of "Kangette." When all three models have been flown I will give you the low-down on the subject. Perhaps there may be some interesting developments.

The "Mighty Atom" engine of only 1½ c.c. is the smallest and lightest model gas engine on the market. It has very good power output, and is fitted with a microscopic fixed jet which is inclined to become blocked unless one filters the petrol mixture very carefully.

YOU HAVE BEEN WARNED!

Never to fly your model aircraft without being covered against third party claims by **N.G.A. Insurance** see Editorial.

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ONE of the greatest blunders between the wars was the neglect on the part of successive Governments to recognise the paramount importance of providing and inspiring adequate technical and scientific training in aeronautics so that the results could either be stored against any contingency or handed over to Civil Aviation for the benefit of the industry and the nation.

Aeromodellers are well aware of the nation's need for properly directed education and research into aeronautical science, and for Government recognition of all that is being done throughout the country by those who construct and fly model aircraft in an effort to put this country on a parallel with other nations. So far that recognition has been lacking; in fact, every possible obstacle has been put in the way of those who have patriotically striven to build up the model aeronautical movement in this country during the war years.

However, there now seems to be some prospect of partial recognition of the real value of aviation in the post-war period, and in one particular direction to avoid the mistakes made at the close of the last conflict.

Plans have now been laid before the Government, which, if adopted and not tucked away in some departmental pigeon-hole, will see the establishment of a £2,600,000 College of Aeronautics within a radius of 50 miles from London.

Just over a year ago the present Minister of Aircraft Production, Sir Stafford Cripps, set up an Interdepartmental Committee, whose terms of reference were:—

"To prepare and submit to the Minister of Aircraft Production detailed proposals for the establishment of a School of Aeronautical Science within the general framework of the recommendations made by the Aeronautical Research Committee in their Report of the 10th August, 1943, to the Minister."

The following members constituted the Committee:—

Sir A. H. Roy Fedden, Chairman; Sir Alan Barlow, of the Treasury; Commodore M. S. Slattery, R.N., of the Admiralty; Mr. W. P. Hildred, of the Air Ministry; Air Marshal Sir Ralph Sorley, of the Ministry of Aircraft Production; Sir John Stephenson, of the Dominions Office; Dr. W. Abbott, of the Ministry of Education; Sir Charles Darwin, of the Department of Scientific and Industrial Research; Sir B. Melvill Jones, of the Aeronautical Research Committee; Sir Walter H. Moberley, of the University Grants Committee.

Air Commodore H. Gordon-Dean, Director of Technical Training, attended the later meetings of the Committee

as an additional Air Ministry representative on technical questions.

In addition, there were also seven alternative members of the Committee drawn from each of the departments represented on the main Committee.

At an early stage it was decided to invite representatives of the Dominions to attend, and give advice.

A mass of technical advice was also given by departmental authorities on Aerodynamics; Aircraft Structures, Engineering and Design; Engines and Systems of Propulsion; Aircraft Equipment; Production and Maintenance; and Flight and Operations.

The Committee also obtained and took into account much information on the comparable American institutions, such as the Massachusetts Institute of Technology and the Daniel Guggenheim School of Aeronautics of the California Institute of Technology, Pasadena. One of the alternative members who happened to be in the United States toured some of the institutions and was able to provide first-hand information of great value to the Committee.

The Society of British Aircraft Constructors and the Royal Aeronautical Society submitted memoranda, while a number of American authorities also gave valuable assistance.

Oral evidence was also taken from representatives of the Services, the aircraft industry, certain associated industries, the British Overseas Airways Corporation, and experts on particular subjects.

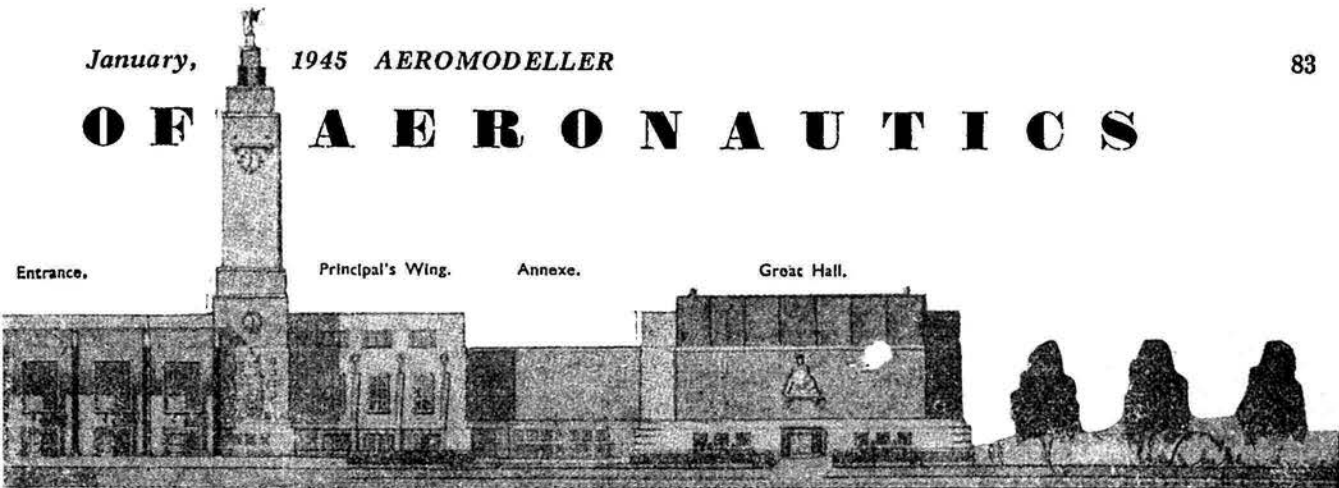
The thoroughness with which the Committee under so able a chairman as Sir Roy Fedden has done its job, is evidence of the importance of the subject and the need for something to be done as soon as possible to set the College working. In fact, the Committee's final recommendation suggests that the establishment of the College is a "matter of urgency."

Summary of Recommendations.

There are in all fifteen recommendations which are summarised as follows:

- i. The primary purpose of the College should be to provide a high-grade engineering, technical and scientific training in aeronautics to fit students for leadership in the aircraft industry, civil aviation, the Services, education and research.
- ii. The College should provide shorter courses for specialists in particular subjects, refresher courses and a general "staff course" aimed at giving a broad knowledge of aeronautics. These courses, especially, should cater for students from industries associated with the aircraft industry as well as for those from that industry, the Services and the other fields referred to above:

OF AERONAUTICS



- iii. The College should be planned on the basis of an entry of 50 students annually on a two-years' course and 200 students at any one time on shorter courses, *i.e.*, a total of 300 students at any one time. It should be started, however, on a smaller scale (as to numbers of students, staff, equipment, etc.).
- iv. The instruction should be at post-graduate level or its equivalent, research should be undertaken by staff and selected students, and attention should be paid to the technology as well as the science of aeronautics.
- v. The College should not be affiliated to any one university but should collaborate closely with the universities, technical colleges, research establishments and industry.
- vi. There should be five main subjects: (a) Aerodynamics, (b) Aircraft Structures, Engineering and Design, (c) Aircraft Equipment, (d) Engines and Systems of Propulsion, (e) Production, Administration and Maintenance, and there should be a department concerned with flight and operations, including full-scale experimental work and flight testing. Adequate provision should also be made for ancillary subjects.
- vii. The conditions of service of the tutorial staff should be comparable with those of university staffs. Some should hold permanent appointments, others appointments for three to five years.
- viii. The ultimate responsibility for the College should rest with the Minister of Education, but the control should not be meticulous. The College should have a governing body of its own, representative of all the interests concerned.
- ix. The institution should be called "The College of Aeronautics."
- x. The College should be situated close to its own airfield and within reasonable distance of London and the principal aeronautical research establishment. The most suitable permanent site is Aldermaston, Berkshire.
- xi. If it is impracticable otherwise to ensure an early start, the adaptation of existing buildings at an R.A.F. station is recommended. The most suitable station is Abingdon, Berkshire.
- xii. Lay-out plans for the permanent buildings and memoranda on the equipment of the department are submitted. (*An elevation plan of the College reproduced from the Interdepartmental report is published at the top of this article.—EDITOR.*)
- xiii. The scale of the equipment lies between that appropriate to a university and that for a major research establishment.
- xiv. The estimated capital cost of the permanent College is £2,610,000. The net annual expenditure to be met by the Exchequer is £380,000. The capital cost of the temporary scheme is £400,000, and the net annual expenditure £200,000.
- xv. The establishment of the College is a matter of urgency.

No examinations will be held for entry to the College, and it will not be necessary to hold a degree, entrance being entirely on merit. The tutorial staff will be recruited from men who are recognised leaders in various branches of science, aeronautics, mathematics, chemistry, administration and industry. There will be a total staff of 70, which will include five heads of departments, 19 senior lecturers and 26 junior; one chief chemist; two experimental assistants; one radiographer; five test pilots; three flight test technicians and three pilot instructors, in addition to a number of mechanics, draughtsmen, demonstrators, computers, electricians and storekeepers, etc., bringing the grand total up to, perhaps, 80.

The College will be so planned to include a students' assembly hall, dining hall, lounge, swimming pool, dressing rooms, squash courts and gymnasium, recreation and reading rooms, and other amenities.

The total cost of the actual equipment of the College will be £1,210,000, and the estimated cost of the essential services is placed at £20,000.

Conclusion.

In the concluding paragraphs, the Committee still stresses the urgency for such a College.

One final sentence can be quoted from the Report which will strike a responsive chord in the minds of all aeromodellers. It is:—

"THE COLLEGE CANNOT FLOURISH AS IT SHOULD UNLESS THERE IS A GENERAL IMPROVEMENT IN AERONAUTICAL EDUCATION."

Now that the Government has accepted in principle that a College should be established to provide higher aeronautical education, it is reasonable to suggest that the time will not be long before the Government also recognise the existence in this country of more than 500,000 active aeromodellers—men, women and youths—who are not only making it their hobby, but are also hoping to make it their career. It is a movement that is forging ahead in all countries—the U.S., Soviet Russia, the Dominions, Sweden, Norway, Denmark, Germany and the South American States. But in all those places Government help is given and is likely to be given more freely and practically in the post-war period.

The model aircraft movement could doubtless supply a reservoir of students for the College. It is a pity, therefore, that the expenditure is not twice or thrice as great and the building planned to cater for a like proportion of students.

COVERING WITH DAMP TISSUE

BY D · S · WALKER

WHEN my brother (N. K. Walker) and I first took up serious aeromodelling in 1936 we endeavoured to discover the best method of covering. We started with a few cardboard frames and covered these, using the following methods:—

- (a) Dry covering and doped;
- (b) Dry covering, steamed and doped;
- (c) Damp covering, doped when dry;
- (d) Damp covering doped when damp.

Of these only two were successful, (b) and (c), and (c) was by far the tighter, and more evenly stretched.

The pre-war Japanese tissue is most suitable for damp covering as it is much stronger than the new war-time tissue, and since many people seem able to obtain it, or, at least, a passable imitation, I will deal with this material first and indicate later how the procedure must be modified for the newer material. There are two sizes to Jap tissue, one rougher than the other, which is quite shiny and should be the outer surface. This tissue also has a definite grain, which is very important. When tissue splits it usually does so along the grain, so the grain should run in the direction of maximum strain, and this is generally along the longest dimension of the component, while the supports for the covering should run across the grain to localise damage. It is a great advantage of damp covering that these conditions can generally be satisfied, since the damp tissue can be pulled much tighter along the grain, which tends to neutralise the greater contraction across the grain as it dries. For instance, wings are covered with the grain running span-wise and the tissue is stuck to every rib. In the case of a tear the tissue is easily mended and the rest does not slacken as the hole is trimmed. With dry covering the grain runs parallel to the ribs and a tear will spread from the leading edge right across to the trailing edge.

Where great strength is required, triple covering, cross-grained and doped with good glider dope, is used. This will stand up to an 8 oz. glider landing in stubble.

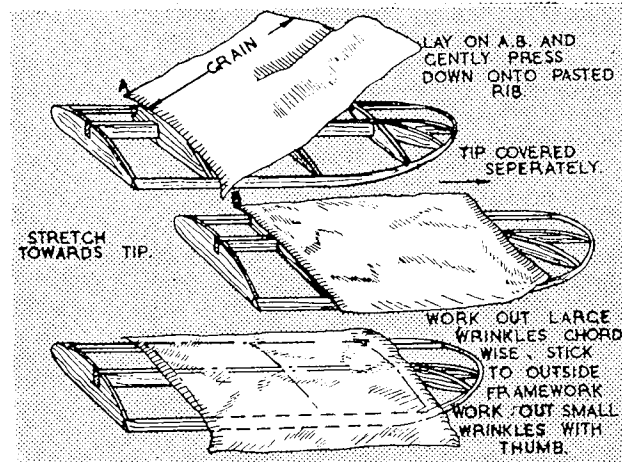
To start covering: roughly judge the size and shapes of the area to be covered and leave a good margin, but not too much, say, $\frac{3}{4}$ in. all round. Our first method was to press tissue between damp cloths with a hot iron, like a pair of flannel trousers; this is especially good for old

crumpled tissue as it takes out the creases, also the tissue is never too wet and, being warm, it dried quickly. Nowadays, we damp the tissue between the folds of a wet newspaper or on an enamel table or glass plate. The newspaper is held under a running tap until the inner pages are evenly wet all through and then is folded in half and put on a tray. Place the tissue in the fold and press the paper together firmly all over, keeping a jar of water handy to re-wet the paper when several pieces are to be damped. It is essential to wet the tissue evenly or it will not tighten evenly and will produce wrinkles and loose patches.

The other and in some ways more convenient method is to wet evenly an enamel-topped table, sheet of glass or polished metal and lay the tissue on it, pressing it down with a damp cloth till wet. This is quicker and handier for small patches, etc., and is better in the long run, as after some time a newspaper starts to wear and pieces stick to the tissue. There is, however, one drawback; the tissue is more likely to be unevenly damped and great care is needed to see that patches are not left drier than others. The degree of dampness used depends largely on the skill of the modeller and on the job to be done, since very damp tissue is much more difficult to handle than tissue just lightly damped. Tissue paste is the most satisfactory adhesive and should be applied evenly and fairly thin. Wings are best stuck at each rib as it adds to the torsional strength.

To get the tissue from the enamel, or newspaper, gently raise one corner and lift evenly, supporting the other end as it leaves the pad. No draughts should be allowed, as if the wet tissue folds and sticks the piece nearly always has to be scrapped. Now decide upon a set edge and lay the tissue gently on, stretch gently and lay it down, pull out the other sides and the weight of the tissue will hold it in place. Very carefully work out all the wrinkles, lifting up one whole side or corner if necessary, and press the tissue down on the frame when all the wrinkles are out. If the tissue is of the correct dampness it can sometimes be slid over the spar, etc., without lifting. All inside framework need not be pasted, unless the tissue is liable to split, in which case the split will stop as it reaches the spar to which the tissue is stuck. Slab-sided fuselages can be covered in whole sides, and are by far the easiest job to undertake; all beginners should start on a slab-sided fuselage. When covering wings, it is usual to have grain running along the length of the wing and to start covering on the end rib; that is, to lay the first edge down on the end rib is generally easiest, though where a sheet leading edge or wide trailing edge have been employed, these can also be used.

Tissue is first tightened span-wise along the centre of the ribs and then pulled tight chordwise. The heavily undercambered wing presents rather a difficulty and the tissue should be pressed down well on to the ribs and spars as it is tightened. If it pulls away while drying pins can be used to hold the tissue on, if carefully put in; and when the tissue is nearly dry, a little cement can be pushed under the ribs when the tissue has lifted away, and then held down until stuck. Fillets can be quite simply covered if the tissue is put on fairly wet, and provided ample paste has been applied any reasonable shape is obtainable. Two dimensional curves as at

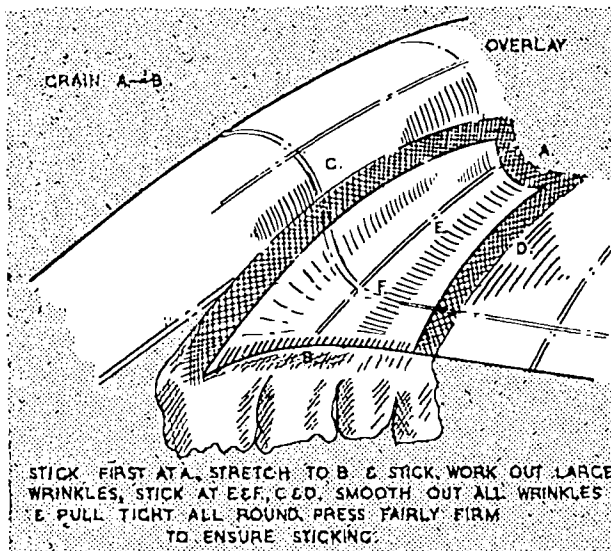


wing tips are easily covered and all wrinkles pulled out, with the great advantage that you do not have to wait until it is dry to see if all wrinkles disappear. Leave the wet tissue until really dry, and dope evenly and thinly—remembering that two thin coats are far better than one thick one. When the first coat is dry trim off any tissue round the edges. This method of covering is very liable to warp any weak construction, and for weak structures the tissue should only be slightly damp.

The new war-time tissue is rather more difficult to use: its chief peculiarity is the complete absence of any definite grain. It is very weak in tension and it is easily torn when stretching out the wrinkles.

Certain brands do not adhere easily to tissue paste, so put plenty of paste on the frame and press the tissue well down. The tissue may be used either very wet or only just limp; personally we prefer the latter as the tissue is stronger, dries quicker and adheres better.

A last warning! Don't try to speed up the drying by holding the covered job near the fire or over a gas ring. It dries and shrinks very rapidly, and nine times out of ten you will get it too dry and the tissue will expand again when it cools, forming permanent wrinkles



HINTS ON COMPETITION FLYING

BY W. JONES

IT has been said by "Clubman" several times in his report in recent months, that it is obvious that a big percentage of aeromodellers in the country, and in Scotland for that matter, must suffer from inferiority complex when it comes to entering competitions. It really does make one wonder if this is the case. Of all the thousands of aeromodellers throughout the country, you get a paltry entry of say 100 to 200 in some of the competitions. Whether it is lack of encouragement by the senior members I am not prepared to say. With this in mind, I was prompted to write this article more so to the boys of 12 to 16 years of age, who do not think it worth while entering the competitions against their more experienced elders.

Power and Prop.

Fuselage length.	Wing span.	Weight without rubber.	Folding prop.	Rubber.	Length.	Max. turns.
20 in.	30 in.	2 oz.	13 in.	8 strand 1/2 x 24 in.	30 in.	840
25 in.	36 in.	3 oz.	14 in.	10 strand 1/2 x 24 in.	36 in.	000
28 in.	40 in.	4 oz.	16 in.	12 strand 1/2 x 24 in.	40 in.	020

The above table gives you an idea of the size of prop. and motors that are required for competition work. I have models of the above wing span but the most popular sizes I think are 36 in. to 40 in. span: let me say at once that it is useless relying on the prop. and power alone, the model which you make or will shortly make for next season (yes, I think a certain amount of rubber will be released), must be well made, be true, must not have any unwanted warps in the mainplane or tail, etc., and above all must be trimmed to give you the flattest glide that is possible because this is where you get at least 75 per cent. of your duration from (without thermals). The motors given in the table above, when they are thoroughly lubricated and run in, will give you a terrific climb, and the model should in still air attain a height of approximately 420 ft. in about 60 secs., that means a climb of

7 ft. per sec.: average; the props. used should, if possible, be of the folding type with a fairly large area and coarse pitch, the blades folding at the peak of the climb; the glide should approximately be twice that of the motor run giving you an average duration of 180 secs. or 540 secs. for the three flights. (This, as a matter of fact, was my duration in this year's "Gamage" without the aid of thermals.)

Making the most of Thermals.

One has a lot to learn about thermals and in competition work one is at a disadvantage if one gets a fly-away on his first timed flight of say 5 mins. o.o.s., in the afternoon, and is unable to retrieve his model in time to get his other two flights in. Although your aggregate is 300 secs. and will place you fairly high in the competition, it would not be high enough to win the competition. This season we have had days with strong thermals in evidence. In my opinion the morning is the best time to have at least two of your flights. On several occasions this year our members have gone down to the flying field (which is only 300 yds. away for some of us), at 8 a.m. just when the mist is rising; between 9 and 10 a.m., we found thermals in evidence, strong enough to give us flights of between 3 and 4 mins. with only 50 per cent. turns on the rubber motor. About mid-day when the sun is much stronger and the rising currents can be seen from the local housetops, or rising from the railway lines as we see them, then is the time to have your third flight. The model may be timed from between 5 and 10 mins. o.o.s.—our club members have lost o.o.s. 17 of their models this season and have had all but three returned. (We have our names and addresses on the models.) Even on the day of the last competition (the S.M.A.E.), myself and a junior member had flights of 13 mins. and 17 mins. at mid-day in the same thermal, this time with gliders. So to you boys who suffer from this so-called inferiority complex, get down to it in the future competitions and let's see your name amongst the winners; you have just as much chance of winning as the rest of us.

AERONAUTICS IN 1901

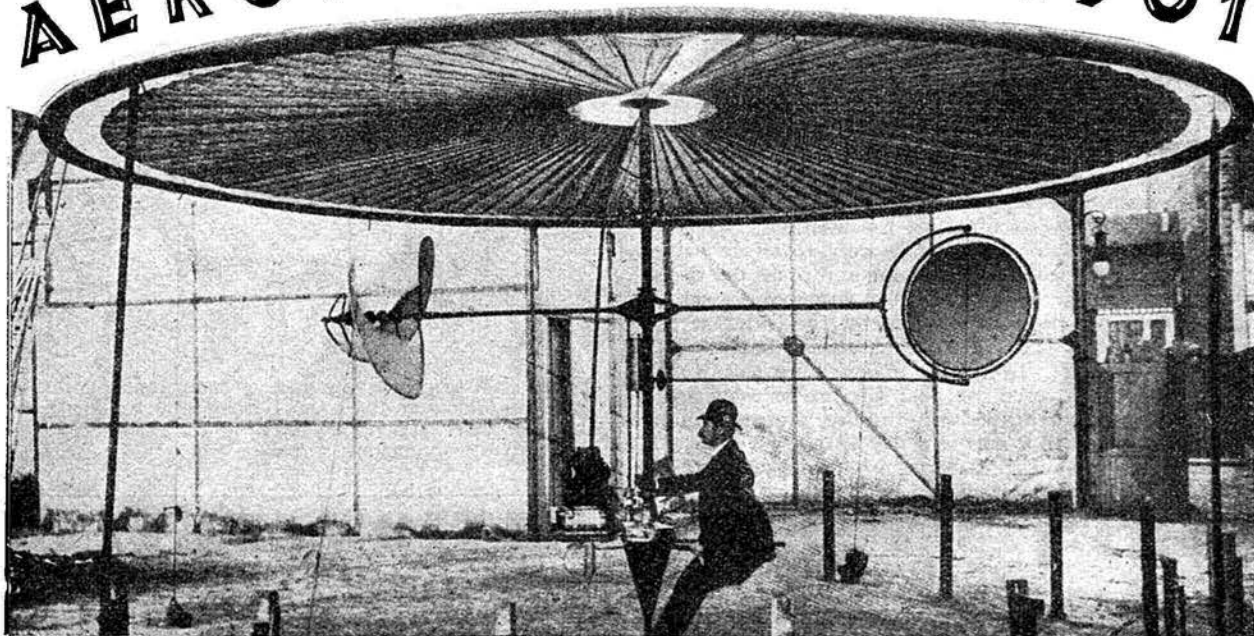


Photo by courtesy of "Flight."

BY R · S WELFORD

RECENTLY, during one of my prowls round the local library, I had the good fortune to come across an old bound volume of a magazine dealing with matters aeronautical. It was very much of an antique as flying magazines go, the first number having been published in 1901. Naturally, I seized upon it with interest, and my subsequent perusal of it at my leisure interested me so much that I feel sure readers of the *AEROMODELLER* will be equally interested, and occasionally amused, by a description of its contents.

The magazine is entitled "Flying," and incorporates three other publications—"The Flyer," "The Flying Machine" and the "Aeronaut." It was published quarterly by Messrs. Iliffe & Sons, who have very kindly granted permission to reproduce from its pages some of the most interesting photographs and illustrations which it contains.

Now, a volume such as the one described is one not to be read through haphazardly or in pell-mell fashion. Rather should it be read with the due appreciation one should give to anything old and rare, and to appreciate it to the full it is really necessary to have in one's mind a broad outline of the historical background against which this volume stands out in relief. Readers will therefore doubtless excuse me if I remind them that at the time of publication, 1901, no man had ever succeeded in sustained flight in a heavier-than-air machine. Lillienthal, Pilcher, Chanute and others had already usefully demonstrated the possibilities of gliders in short flights, but the day was yet to come when the world, in 1903, acclaimed the successful efforts of the Wright Brothers in America to fly in a powered heavier-than-air machine. Free balloon flights (paradoxically, you had to pay for them!) were a commonplace, but flights other than these, by dirigibles, were still a matter for marvelling. Santos Dumont had just shortly before,

Mon. Villard's apparatus combining "the principles of the cone, the fan and the gyroscope." Note the bowler hat, for improved aerodynamical efficiency!

in 1900, won the Henry Deutsch prize of £4,000 for navigating his dirigible round the Eiffel Tower, and the world was still discussing this feat in voices of wonder and admiration. No other flyer had then equalled Mons. Dumont's feat, despite the fact that his prize-winning flight had only been carried out under the best possible circumstances of wind and weather.

Such, then, was the position at the time the magazine mentioned was offered to the public, so that it is little to be wondered at that some of the opinions expressed by contributors are, in the light of our present knowledge, rather amusing, and the "flying machines" illustrated in many cases a cause for hearty laughter. One thing does stand out from a perusal of the volume. It is the complete confidence of each inventor of a "flying machine" that his machine would fly perfectly and that he alone had found the secret to safe and successful flight. This confidence was only exceeded by the courage with which such men risked their lives in their frail, under-powered and more often than not entirely unorthodox craft. As an illustration of this confidence and courage I cite the case of a Mon. Demouveau, who showed a flying machine of his own design in an aeronautical exhibition in Paris in November, 1901. This gentleman was quite prepared to leap from the top of the high grandstand in the exhibition grounds with his machine, but was finally persuaded to make a trial flight first from the edge of the banking of the cycle track in the same grounds. It was well that he listened to his advisers. The trial disclosed the complete inability of the machine to maintain a man in the air, but with no other unhappy result than that the "aeronaut" skidded down to the foot of the banking unhurt. Had his previous intentions been carried out he could hardly have failed to sustain serious injury at least, if not the loss of his life.

Mr. Monck Mason's aerial machine, 1843. The gas envelope was 44 feet in length and the machine travelled at 5 miles per hour along the Royal Adelaide Gallery, Strand, where it was exhibited. Even in those days pedestrians' lives must have been fraught with danger, judging by the fearsome grapnel hanging underneath!

Another exhibitor at the same exhibition, a Mon. Villard, was just as confident, but also considerably piqued because the French war authorities refused him permission to fly around the Paris fortifications in his machine, which prior to that time had never even undergone any trials! When I say that this machine was described as "combining the principles of the cone, the fan and the gyroscope" and, as can be seen from the photograph, resembled nothing so much as a huge umbrella with an engine driving a "windmill" propeller attached to the handle of the "brolly" and a seat for the "driver" behind it, one can only wonder open-mouthed at its inventor's confidence.

A humorous note is struck unconsciously by the commentator upon these two machines just mentioned when comparing the latter with the one designed by Mon. Demouveau. He describes it as being "of a much more serious character," presumably meaning thereby that it was far more likely to be successful than the invention of the gentleman above-named.

However, whilst we now smile at the efforts of these early experimenters, we must never forget that the world owes a big debt to them for their courage and efforts in exploring what was to them an unknown world. Remember that what seem to us to have been the most ridiculous machines and experiments, at the very least had the effect of demonstrating, on their being tried out, the impracticability of the inventors' theories or designs and helped to narrow down the field of experiment to what were more practicable methods.

Aerial tragedies were by no means uncommon in those days. As instances I quote the deaths of Senor Severo and Baron de Bradsky in separate dirigible accidents, full accounts of which are given in the magazine. It is probable that neither of these gentlemen would have been killed if his confidence had not led him to overstep the bounds of prudence and carry out the trials of the dirigibles at height. There is good reason for believing that the death of Baron de Bradsky was made the more regrettable by the fact that after the death of Senor Severo he had reconstructed the Severo machine, "giving special attention to remedying the defects which (had) led to its destruction," and that it was in this machine that he met his death.

I made reference to Santos Dumont earlier. This gentleman, the foremost aeronaut of his day, seems to have conducted his trials and flights, considerable for those days, on more prudent and

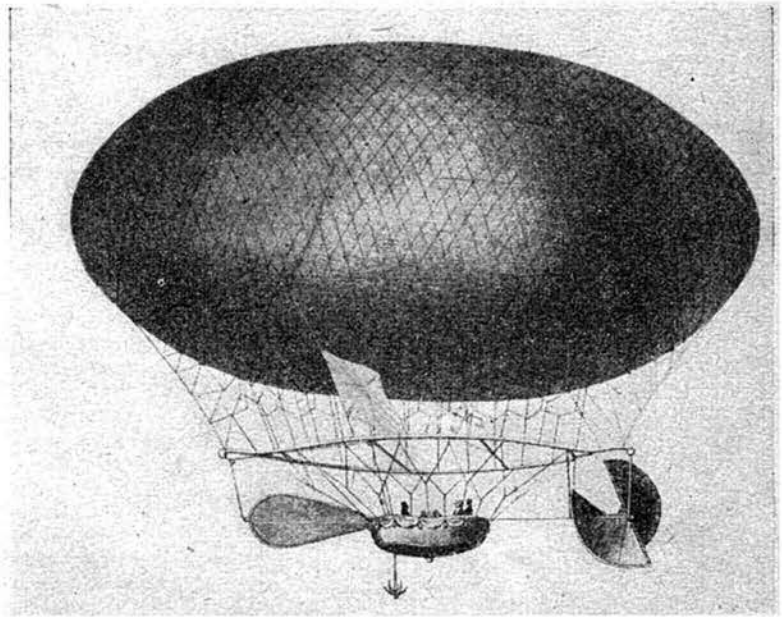
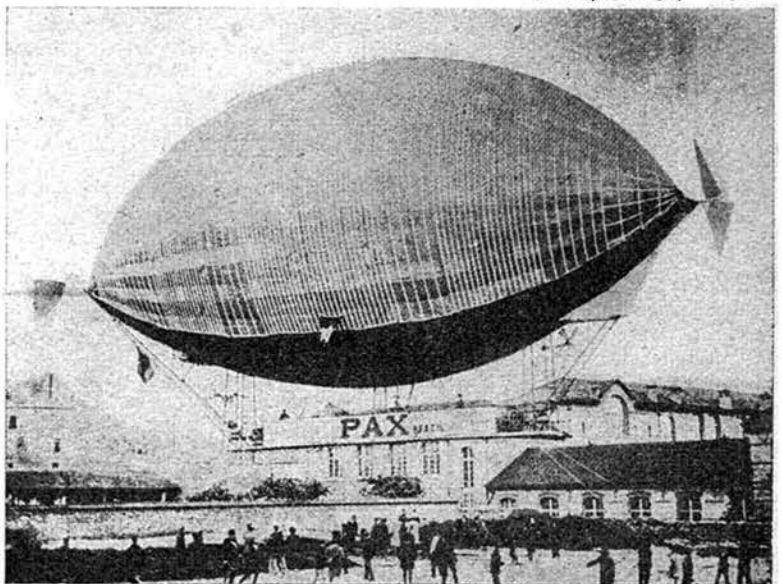


Photo by courtesy of "Flight."

practical lines, which was probably the reason for his success, though even he had his narrow escapes from what would have been certain death had prudent precautions not been taken. In one instance, whilst flying over the Bay of Monaco in an attempt to fly to the island of Corsica, the sun suddenly came out and in course of time heated the hydrogen in the gas-bag of his dirigible, causing it to expand. The expansion of the gas was not equal over the whole of the gas-bag, so that one end of it became distended and consequently that end had more lift than the other. This caused the "aerostat," or gas-bag, to tilt in the air, and as a consequence the rudder fouled the propeller, with the result that the former was destroyed and the latter damaged, so that Dumont had to stop the engine, leaving the airship uncontrollable. To avoid an explosion gas had

Photo by courtesy of "Flight."



Senor Severo's dirigible "PAX." The start of the disastrous flight of May 12th, 1902, which resulted in the deaths of Severo and his mechanic Sacho.

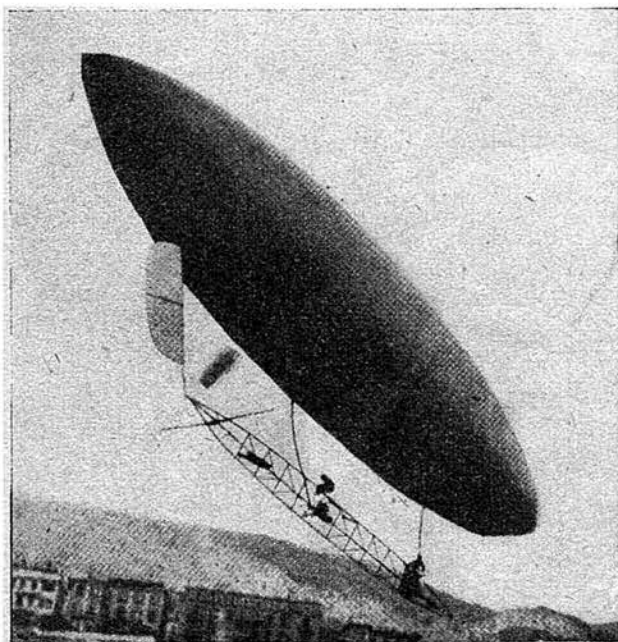


Photo by courtesy of "Flight."

to be released from the distended envelope, and on the valves being opened to effect this the gas-bag quickly lost its shape. The airship consequently fell into the sea, but what would have been a fatal accident had the dirigible been at any considerable altitude was prevented by the fact that a drag rope had been employed to trail in the sea and prevent the airship reaching a greater height than approximately 30 feet. A steam yacht was shepherding Dumont on this flight, was quickly on the scene and picked him out of the water unharmed.

We have it on the authority of Sir Hiram Maxim that no one prior to Dumont had succeeded in navigating a dirigible back to its original point of departure when contending with even a slight wind. This Dumont had succeeded in doing on the occasion when he won the Deutsch prize and on later occasions, but, even so, there seems to have been one section of the public which decried his efforts and alleged that he had done nothing to advance aerial navigation beyond the point reached by the Reynaud brothers in their dirigible "La France" in 1880 or 1881, twenty years before him. This criticism reached its climax at a meeting of the French Society of Civil Engineers, when, we learn, "the supporters and opponents of the Brazilian aeronaut tried to argue out the matter all at once to such effect that the meeting broke up in confusion." The report is headed "An Uproarious Meeting."

Two contributors go to great lengths to show that the bicycle is particularly suitable for development as a flying machine, owing to the ease with which one could attain flying speed by pedalling, and suggest the fitting of multi "aero-curves" (*i.e.*, planes of airfoil shape) to a standard bicycle. Their article is illustrated with diagrams of suggested arrangements of "aero-curves," and is fittingly entitled "The Bicycle as an Accessory to True Flight." The writers expressed their opinion that they would live to see developments along the lines they then suggested!

To turn now to other matters of historical interest. Did you know that what is now the Royal Aero Club originated through the suggestion of a woman? And

Going up? Or going down? Mon. Santos Dumont's dirigible No. 6 (the Henry Deutsch prize winner) in flight over the Bay of Monaco, January 1902 in trials preparatory to an attempted flight to Corsica.

that its first member was not a native of our isles but a Brazilian? Yes, both statements are true. Miss Vera Butler suggested the formation of an aero club to her father, Mr. Frank Butler, and the Hon. C. S. Rolls (later of Rolls-Royce fame) during a balloon flight, and the result was the formation of the English Aero Club, which later became the Royal Aero Club. The first member was Mons. Santos Dumont, who was given the honour of the first election in recognition of his aerial achievements. Interesting, don't you think?

Here is another interesting tit-bit with reference to that liquid which you apply to model aeroplane wings to warp them out of shape! Yes, I mean dope! Did you know that Mr. O. Chanute, one of the early experimenters with gliders and box kites, was probably responsible for its introduction into the aeronautical world? He built a box-kite on the "multi aero-curve" principle and applied to the silk covering of it "a thick coating of gun-cotton solution or celluloid, giving the aero-curves the consistency of thin sheets of horn." Yes, dope was therefore used as far back as 1900 or earlier.

As regards engines and materials for building aircraft, I have unearthed some interesting items. The editorial in Number 1 of the magazine (published December, 1901) comments in favourable terms upon the fact that an engine of 70 brake horse-power was available in this country "which only weighs 10 lbs. per horse-power." Compare that with the modern Merlin's 1 lb. or less per horse-power!

The power of some of the engines fitted into dirigibles, or proposed to be fitted, makes us smile to-day on account of the complete insufficiency of the engine for the work it was intended to do. As an instance, can you imagine a dirigible with a gas-bag of 108 feet in length and a largest diameter of nearly 20 feet being driven at even the modest designed speed of 12 miles per hour by an engine of only 3 horse-power! Yet such was the optimistic hope of the designer.

As regards constructional materials for gliders, aeroplanes, etc., those principally used at the time of which I write were bamboo, canvas, silk and wire, but I find that even then attempts had been made to alloy aluminium to give it greater strength. A paragraph states that the addition of a small percentage of magnesium to pure aluminium had produced an alloy "with the tensile strength and stiffness of wrought iron," but it is very doubtful whether this material ever became procurable by the average flying-machine builder, though the keel of one dirigible is described as being built of aluminium tubes.

Earlier I mentioned that some of the opinions expressed on aeronautical matters read amusingly now. Well, no less a person than Sir Hiram Maxim, referring to dirigibles, is quoted as giving his opinion that "it would not be possible to improve greatly on what Santos Dumont had achieved. He (Dumont) had come very near the boundary beyond which it would be impossible to go." When we consider that Dumont's prize-winning flight was over a total distance of only eight miles, that during it the wind blew with no greater velocity than eighteen or twenty miles per hour, and that his average speed was probably less than twelve miles per hour, surely we can, in the light of the achievements of the R 100 of our own R.A.F., of the Zeppelins and other airships of later years, indulge ourselves in a slight smile at the fact that one of the great pundits could be so far adrift in his prophecy.

THE D.H.71 TIGER MOTH



Photo by courtesy of "Flight."

B Y E · J · R I D I N G

IT will come as a surprise to many people to know that the original de Havilland Tiger Moth was a low-wing racing monoplane. Known as the D.H.71, this machine was designed by Capt. de Havilland in 1927 for the purpose of carrying out experiments in high speed flight at the minimum of expense.

Two D.H.71s were built under conditions of secrecy at the old factory at Stag Lane, Edgware, and test flights on the first machine were made with a standard A.D.C. Cirrus II engine of the type which was then being fitted to production Moths. The preliminary trials were considered highly successful and the machine was taken back to the factory for various adjustments and the installation of a new 130 h.p. four-cylinder in-line air-cooled engine designed by Major J. B. Halford, which was the forerunner of the famous 100 h.p. D.H. Gipsy I.

Practically an unknown quantity, the second machine, G-EBRV, was entered in the King's Cup Air Race of 1927, piloted by Hubert Broad, but owing to appalling weather conditions he was forced to retire soon after the start. Apparently every time the machine hit a bump Broad's hand was jerked on the control column and so sensitive were the controls that the machine was put either into a climb or a dive.

On August 24th, 1927, Broad established a World's Record for light aircraft weighing over 441 lb. by reaching a speed of 186.4 m.p.h. over a closed circuit of 100 kilometres, and five days later he reached an altitude of 19,191 ft. in the space of 17 minutes. Since

there were no oxygen facilities available, Broad decided to descend, although the machine was still climbing' at the rate of 1,000 ft./min. and seemed good for a further 9,000 ft. before reaching its ceiling. Later on the cockpit was fitted with an enclosed hood, a light oxygen outfit installed and a modified airscrew fitted.

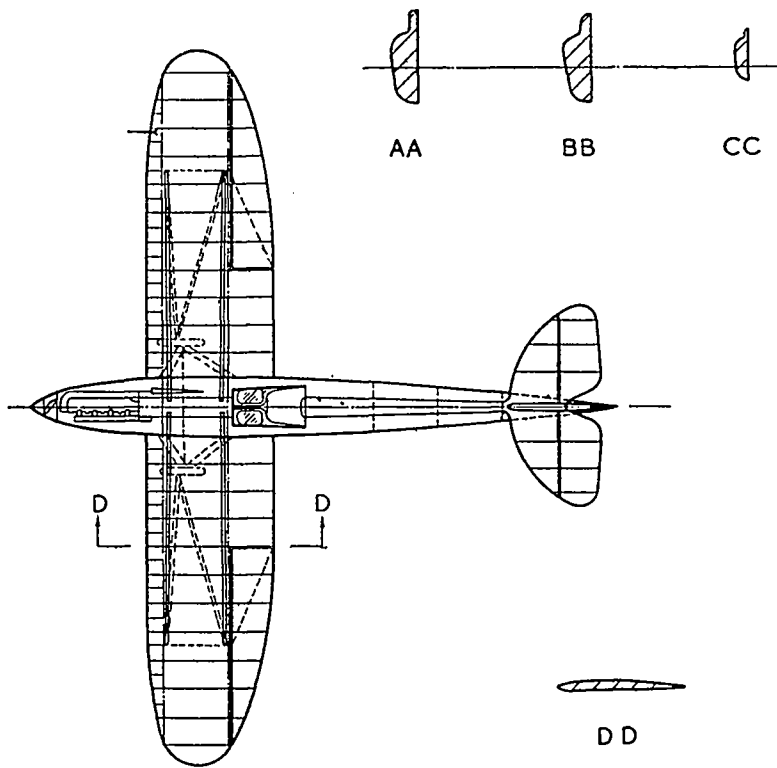
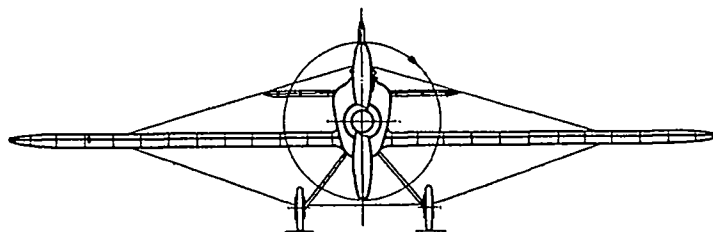
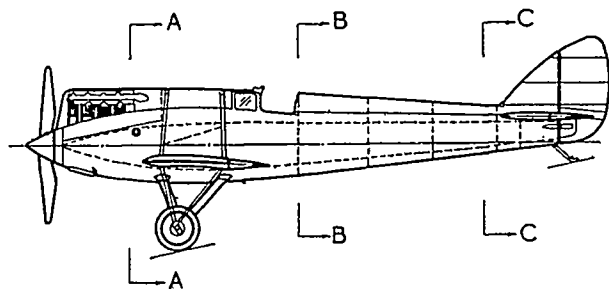
The first machine was registered G-EBQU and was taken out to Australia in 1930, where it was re-registered VH-UNH. Its later history is unknown. The other machine, G-EBRV, was cancelled from the British Civil Register in 1932, but for some time afterwards it could be seen perched upon the roof of the Stag Lane factory, after which it was transferred to Hatfield, being destroyed by enemy action during the 1940 bombing.

The D.H.71 was a minute wire-braced low-wing monoplane of all-wooden construction, the fuselage being plywood covered with outward sloping sides and a rounded belly. It is reputed that the shape of the fuselage cross section was arrived at by seating Broad against a wall and drawing round his head, shoulders and body. The wing was built in two halves, each with "I" section spars, girder pattern ribs and fabric covering. The duplicated streamlined flying wires were anchored to the wheel hubs which incorporated a neat form of internal springing, and instead of the usual steel tubular axle, a single streamlined wire connected the two undercarriage vees.

SPECIFICATION: Span, 22 ft. 6 ins.; length, 18 ft. 7 ins.; tare weight, 618 lb.; loaded weight, 905 lb.; max. speed, 197 m.p.h.; landing speed, 60 m.p.h.



Photo by courtesy of "Flight."



WAY BACK IN TENNESSEE

BY F · W · P · CARTER (PUBLICITY OFFICER TO THE A · B · A ·)

THEY do things on a grand scale in the state of Tennessee, and some of the things they do are worthy of consideration by the authorities in this and other countries.

Since 1923, the state of Tennessee has been developing airmindedness among its population to a remarkable degree, and with equally remarkable results. In that year the local legislature passed a general Aviation Act, and six years later created an eight-member Aviation Commission. This Commission started on a programme that has made the state a leader among all other states in this field of activity.

Planning went ahead until 1937, when the Act actually became law, and so started a fine record of aviation education, airport improvement, air marking and many other programmes to help the people of the state to live in the Air Age.

A system of petrol taxation was imposed within the state to provide the money with which to carry out its aviation programmes. Seven cents a gallon is charged, and half of this sum is set aside for a fund which the State Bureau of Aeronautics uses throughout the state, the other half going to the city or town in which the tax is collected for the upkeep, building and improvement of local airfields, etc.

As a result of the money collected in this somewhat novel manner, the state has been able to give free aviation training to its boys and girls. It was the first to do so, and, in fact, was two years ahead of the Federal Government of the United States in giving such free training.

In 1938, five large ground schools were started, and some 500 high-school boys and girls in various cities and towns in conjunction with the public school were taught the subjects necessary to obtain a pilot's licence.

The schools were open to any citizen over 16 years of age and the classes were held at night. Fifteen graduates from each school who completed the ground school course each year were taught to fly by the state.

There were about 7,500 boys and girls in these classes. Thus, 150 future flyers of Tennessee were started on their way as fully qualified aviators. Later, the boys joined the Air Force of the United States, and several of the girls went on with their training, became instructors, and taught boys how to fly so that they, too, became war-time pilots.

For younger boys and girls, the state provided a text book, complete with the story of the model airplane, tips for beginners, official aircraft regulations, facts on what makes an airplane fly, opportunities for aviators, and weather lore. The state also bought and distributed 30,000 models which the youngsters were taught to build and fly in their special training classes held through the Tennessee Department of Education.

In 1942, the state recognised the value of women in aviation and started to train them to take positions as instructors in flight schools. The Tennessee Women's Instructor Research Programme was set up in the capital, at Nashville, and ten girls were graduated from this school as flight and ground-school instructors. They all found good jobs in less than a week after they graduated. So enthusiastic were the girls and so good the service they gave that other states throughout America were

urged to do the same. A film entitled "A State Grows Wings" was made to tell the full story of this particular training programme.

That briefly is the story of aviation in the state of Tennessee.

It is told in "Facts on Aviation for the Future Flyers of Tennessee", now in its second edition, and published by the Bureau of Aeronautics.

The book, which is excellently illustrated and informative, is issued "as part of a planned programme for the purpose of teaching the school children of our state how to build and fly model airplanes, as well as to instruct them in the fundamentals of aviation and in the theory of flight".

There is an inspiring message to the school children of the state from Prentice Cooper, the Governor, in which he says:—

"Because your futures are bound to be concerned with airplanes and because I know you are interested in them, I am happy through the Aviation Department of our state government to place this book in the primary schools of Tennessee. I believe in all probability that you will not only enjoy learning about airplanes but that you will also find that a knowledge of how to make and fly them will be most useful to you.

"The airplane operators, as well as the airplane builders of the future, will come from your group and it is believed that this programme, giving you early practical knowledge of the construction and operation of airplanes, will be of service to you, the state and our nation, and I hope you are going to enjoy it . . ."

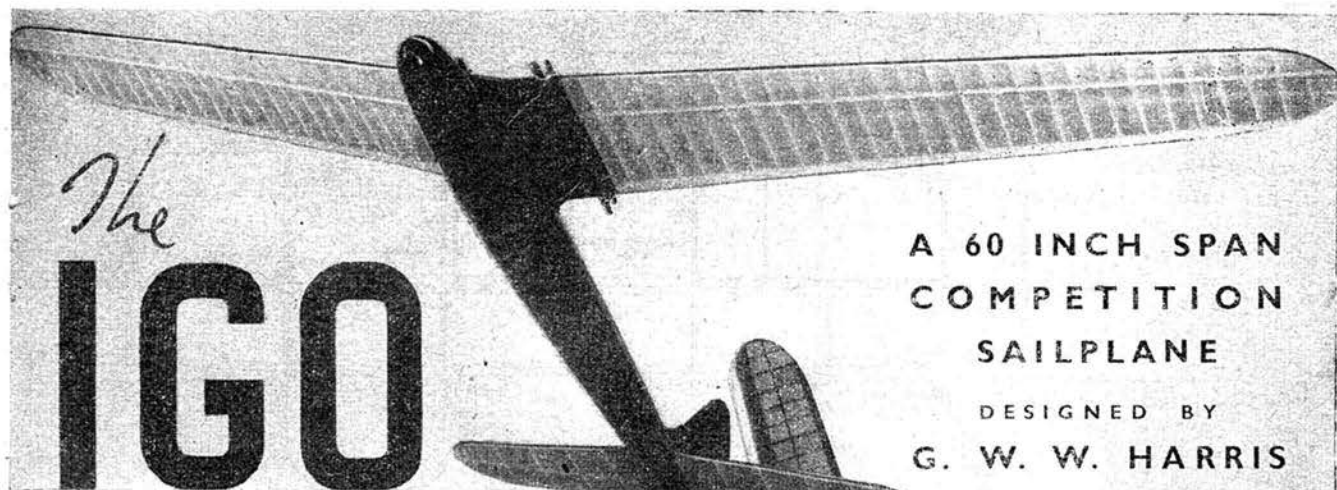
Thus, aviation and all that leads up to it is a vital part of the scheme of things in this go-ahead state of America. The programme first planned here has been copied by many other states under the Federal Government of the U.S.A., and model aviation in America to-day is regarded as one of the principal studies in all public and high schools.

With the formation of the Association of British Aeromodellers there should be no reason whatever why this country should lag behind Tennessee or any other state. The Association's programme has been planned in such a manner that any British county can emulate Tennessee, and, in fact, go a long way ahead.

Aeromodellers in this country can enjoy the same privileges as their cousins on the other side of the Atlantic. They have the advantage of a virile organisation behind them, plenty of easy to follow and up-to-date literature and books, access to materials supplied by reputable firms who have succeeded in maintaining outfits in spite of war-time scarcity and difficulties, and facilities no less well-planned than those enjoyed in other countries.

Tennessee is looking ahead.

Surely the same can be said of any locality in the British Isles? The fundamental fact remains that if "To-morrow we Fly," we must *learn how to do so to-day*, and that knowledge can best come through the medium of the model, and through the banding of youth of both sexes together in one great nation-wide organisation that will "promote, encourage, develop, organise and protect the model aeroplane movement throughout the country".



A 60 INCH SPAN
COMPETITION
SAILPLANE

DESIGNED BY
G. W. W. HARRIS

THE MODEL FEATURED ON THE COVER
BUILDING INSTRUCTIONS.

Fuselage.

Operation 1.—Trace the formers on to pieces of 1/16 in. thick birch three-ply wood. Be sure to mark off the major and minor axis of each former and its number.

Operation 2.—Drill a 1/4 in. dia. hole in each former at the intersection of the major and minor axes, now develop each hole with a square file until the formers will slide on to the 1/4 in. by 1/4 in. balsa boom.

Operation 3.—Lay the boom on the drawing and mark off the former stations, then slide the formers on into their respective stations. Cement No. 6 in place first and allow to dry, then apply slow drying glue to the nose block and the remaining formers and line them up carefully with No. 6, fit the top and bottom stringers, check the alignment, if O.K. fit stringers A and B. Rubber bands will assist this operation. The job should now be put aside until the glue has set hard.

Operation 4.—Fit the tow hooks and front and rear mainplane support struts.

Operation 5.—Fit ballast as directed on drawing.

Operation 6.—Fit the remaining stringers. Cut the aft ends of the stringers to length and cement the stern block (or should we call it stern post?) in position; it will be necessary to narrow down some of the stringer extremities in order to find room for them.

Operation 7.—Drill a hole in the stern block for the fin spar and complete fin to drawing.

Operation 8.—Give the fuselage a good sandpapering all over, make sure there are no projections or sharp edges, then cover with silk. It is possible to cover it with one piece of silk if it's well damped, but it's easier to do the job with two strips, i.e. with joints or overlaps on the top and bottom stringers.

Finish to Fuselage.

Operation 9.—Apply two coats of clear dope and one or two coats of black cellulose enamel.

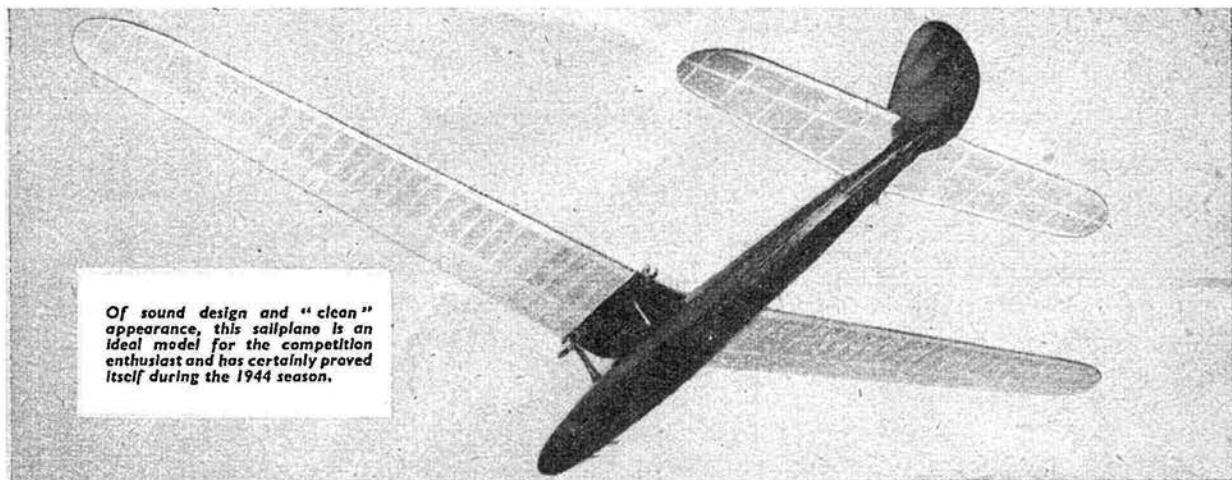
Tailplane.

Operation 10.—The tailplane is very simple to make and needs no special instructions, but I would stress that care is taken in shaping and fitting the fairing and packing blocks.

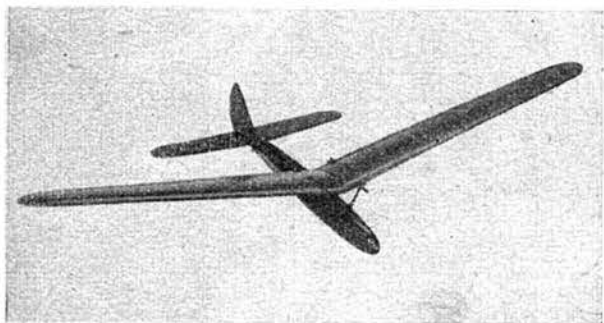
Operation 11.—Ensure that the tailplane lines up with the fuselage datum line and is at right-angles to the fin.

Operation 12.—Cover with yellow tissue. The grain should run chord-wise. Apply one coat of clear dope.





Of sound design and "clean" appearance, this sailplane is an ideal model for the competition enthusiast and has certainly proved itself during the 1944 season.



Mainplanes.

Operation 13.—These are of orthodox construction but the following points should be noted by the less expert builders.

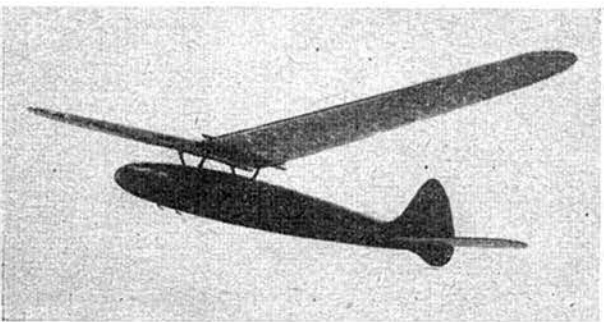
Trace ribs 1 and 28 on to 1/16 in. thick plywood and with some stout pins clamp 26 rectangular pieces of 1/32 in. thick sheet balsa and two pieces of 3/32 in. thick sheet balsa Nos. 1 and 28. Repeat process for opposite plane.

Operation 14.—Shape the pack up carefully with a sharp penknife and finish off with sandpaper. Mark off and cut the slots for the spars and leading edge. Note.—The spars are swept back a little so the slots should be on the large size.

Operation 15.—When fitting the wing attachment dowels apply a fillet of cement around them where they emerge from the leading and trailing edges.

Operation 16.—When fitting the leading edge covering it is well worth pre-coating the surfaces to be mated with cement.

Operation 17.—When the mainplanes have been assembled, sandpaper the whole job lightly, using No. 00 grade. Cover with tissue (yellow) and apply one coat of clear dope. By the way, the grain should run chord-wise.



Fin.

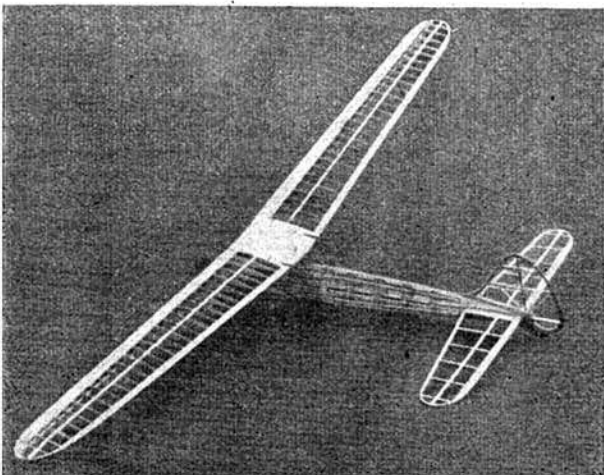
Operation 18.—Cover with yellow or black tissue, the grain running chord-wise. Apply one coat of dope. Fit trimming tab last.

Finishing Off and Rigging.

Operation 19.—With slow-drying glue fix the bamboo wing runners to the wire supports, fit the tailplane and lay the mainplanes in position, now sight down the fuselage and check the alignment of the mainplanes and the tailplane, correct by adjusting the runners as required and allow glue to set hard.

Operation 20.—Fit the strut fairing and paint them black.

Operation 21.—Assemble the glider, fixing the mainplanes with small rubber bands—see detail (M) on drawing—and a couple of rubber bands over the tail are hooked on the dowels provided. Balance the model on two fingers placed under the bamboo runners at about 50 per cent. of the wing chord. If necessary add some thin rods of lead; these can be pushed into the plasticine, the small holes can be patched.



JET PROPULSION BY G · W · W · HARRIS

AS a result of the interest aroused by my article on jet propulsion, I have, at the Editor's suggestion, written these further notes on the subject.

The tests carried out on the Mk. II were, unfortunately, inconclusive, due to a combination of difficulties. I would like to point out that since this unit was nothing more than a stab in the dark—so to speak—I did not expect to get any positive results beyond some indication as to what was required. My first consideration was the injection system, for this problem, it seemed, was the key to obtaining good combustion, and once good combustion had been achieved, then I would have a basis on which to design a reasonable unit. Quite likely, I was completely wrong with my line of thoughts, but I had to start somewhere!

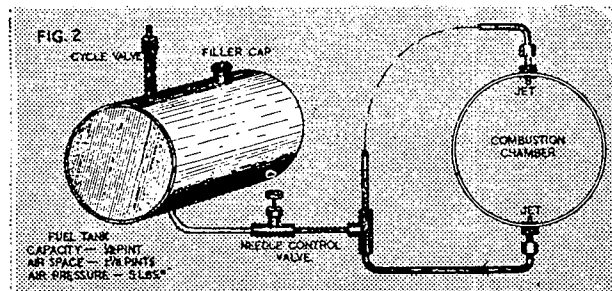
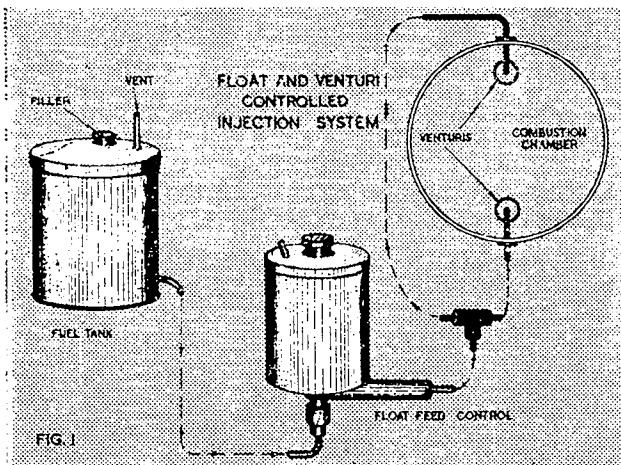
This is what happened when the unit was tested. I tried the venturi controlled injectors first, see Fig. 1, the electric starter was connected up to the compressor and then number one snag appeared. The motor would not achieve any more than about 6,000 r.p.m., so a consultation followed, and I decided to try gearing up the electric starter, since it had plenty of power. Eventually I bolted a pulley on the compressor spinner and drove the compressor *via* a belt run over a larger pulley fitted to the starter. I don't know what the ultimate revs. were, but the unit certainly licked round! Then snag two presented itself. The J.P. unit was badly out of balance despite my initial efforts to make it run smoothly. Now, although the blades of the turbine had been brazed in, I had taken the trouble to skim the brazed portions in a lathe and balance the completed job on a knife-edge. I was puzzled. The compressor had also been balanced. I tried re-positioning the relative positions of the turbine and compressor on the shaft. This proved fairly successful. So another attempt was made, this time, as soon as the starter had reached its maximum speed, my friend turned on the fuel and I stood by with the igniter (made from a small magneto and an insulated screwdriver, the magneto was earthed to the J.P. unit, and the live wire was connected to the extremity of the screwdriver blade). As soon as I detected the presence of fuel I wound the hand-driven magneto furiously and held the screwdriver blade close to the unit. A sheet of

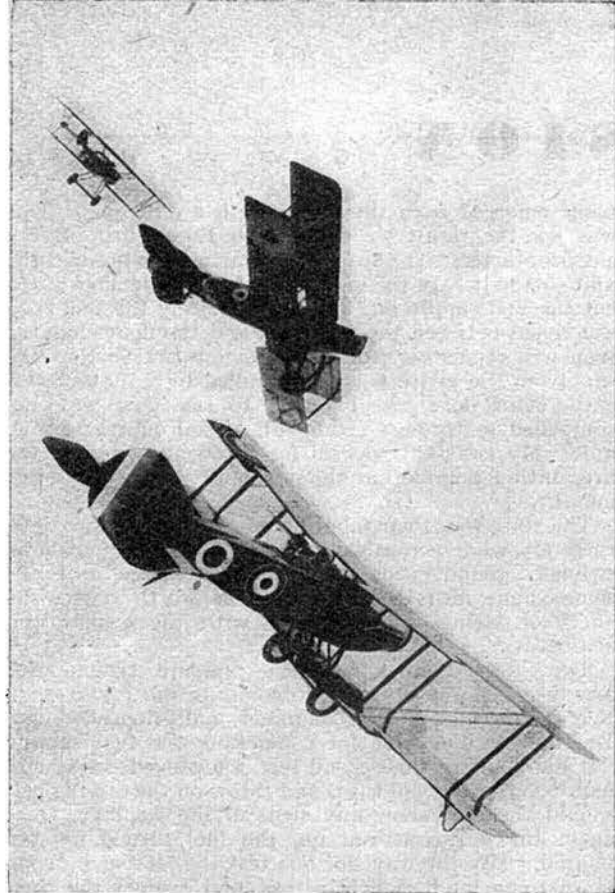
flame emerged from the nozzle with a dull roar. This was *not* the result we desired, so I switched off the electric starter. The drag of the starter soon brought the unit to a halt. In the meantime, I was endeavouring to cut the fuel supply off, but unfortunately the fuel cock was fitted between the fuel tank and the float chamber (you will remember from the previous article that the supply to the venturis was controlled by a motor cycle carburettor float), so I regret to say that we were compelled to throw a spade full of soil on the blazing unit. My assistant was all for throwing water on the fire, until I pointed out the effects of water on red hot metal.

The unit was then rebuilt and fitted with two jets, these jets were bent at right angles so that they could be swivelled round inside the combustion space, as I had some vague ideas that it would be worth trying the effect of facing the jets both with the airflow and against it.

The sketch shows how the pressure system was arranged. I was not able to compute the jet sizes, so they were drilled 1/64 in. diameter, and I depended on a sensitive needle valve for controlling the fuel supply. See Fig. 2. For this second test, I arranged the starter motor so that I could tilt it and throw off the driving belt should the unit show any signs of functioning. Once again the unit was run up, the fuel turned on and ignited. (By the way, for *this* test the jets were facing downstream and slightly across, and against the compressor vortex.) Once again the unit gave forth a flame and a roar resembling one of those huge blowlamps used by post office engineers. But this time I had a control, namely, the needle valve. However, it merely changed the colour of the flame and the tempo of the roar. Next the starter was disengaged, whether the unit then actually ran under its own power or not for a few seconds I am not prepared to say, but it continued to turn for a brief space until, without warning, flames burst forth from both ends of the unit. This resulted in a good "flare up." In my excitement to reach the flames that were greedily devouring the next door neighbour's fence, I quite forgot the fuel control valve.

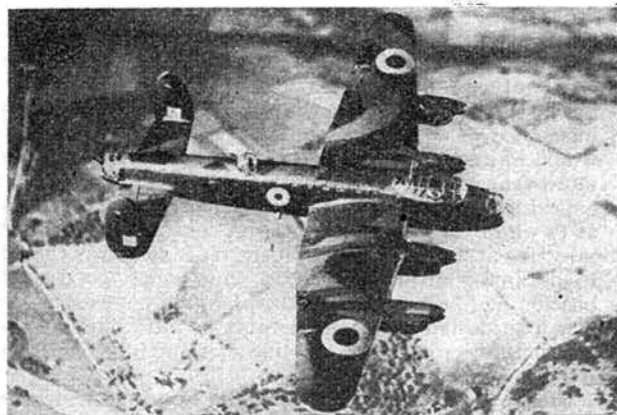
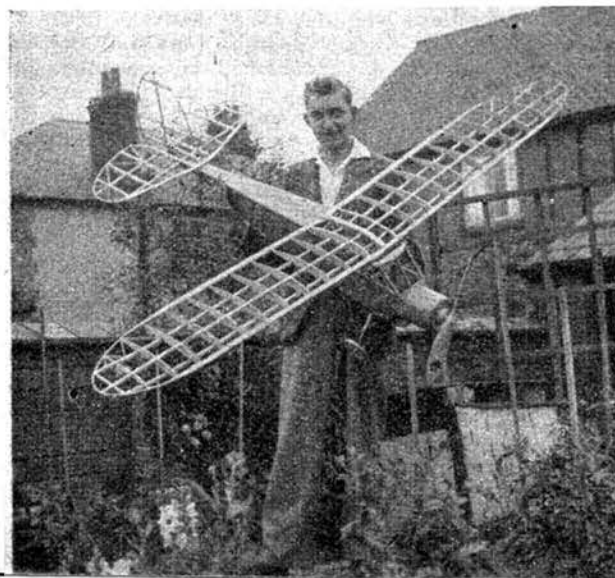
So that was the end of J.P. unit Mk. II. However, some lessons had been learnt and experience gained, which I hope one day to turn to good account. I would point out for those who may throw severe criticism on these efforts, that these J.P. units were built for the purpose of collecting data, and I had no serious thoughts to fit them direct in an aircraft though, of course, that is the ultimate idea when a unit has been sufficiently developed. But let's have your views and ideas by all means.





Dogfight Corner and back to the "good old days" as a Fokker D 7 hurtles down on the tail of a Bristol Fighter, while the gunner in the accompanying "Brisfit" lines the Hun up in his sights. Almost smell the castor oil from the engine, can't you? Mr. M. Crisp of Sidcup deserves congratulations for his well-made and well-posed models. They feature built-up scale construction and all controls are workable from the cockpit. Scale is 1/24 in. and no bought parts were used. This is the kind of modelling we'd like to see more of.

A. G. Pearson of Rugby and his hefty model hope that's not the flying ground!



Berlin bound—and believe it or not, this is not a real Lancaster. The photograph shows just what can be achieved by the careful posing of a well-made model. Made by J. Ware of Kenwood, it has fully detailed cockpit and turrets and was hung over a relief model for the photograph, which was taken by A. E. Alkeman of Southgate.

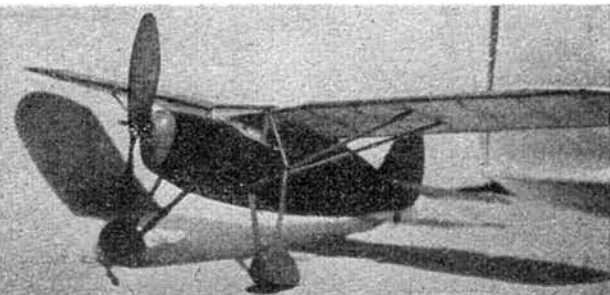


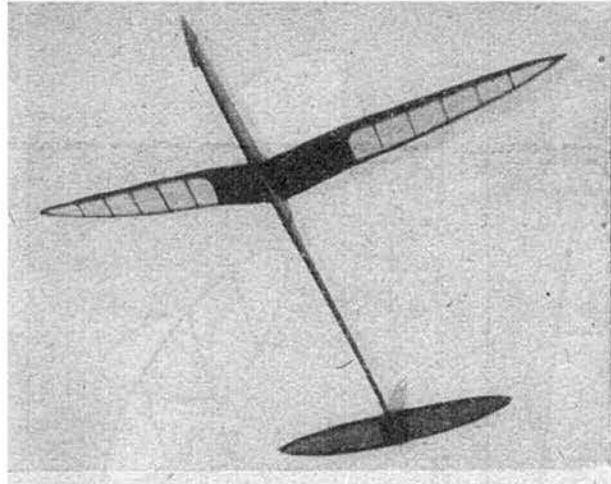
A 1/72nd scale Beaufighter by Ronald Coleman. It is well to remember that transparent cockpit covers, etc., are always to be preferred to painted ones.



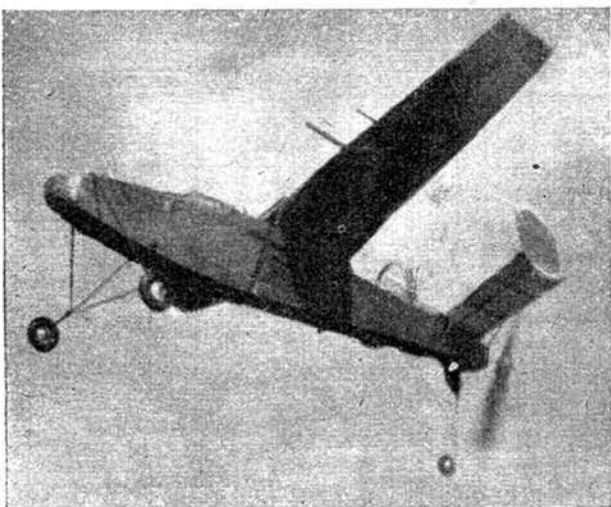
Another win for Aeromodelling! A 1/72nd scale Lancaster by F. W. B. Seaton of Loscoe, who turned to aeromodelling while convalescing. He vows that his recovery from a nervous breakdown is entirely due to the mental relaxation afforded him by his new hobby.

A 24-in span flying scale Fairchild 24 in. by F. Wilde of Hundbridge, Chester, which has clocked 64 secs. from a hand-launch.



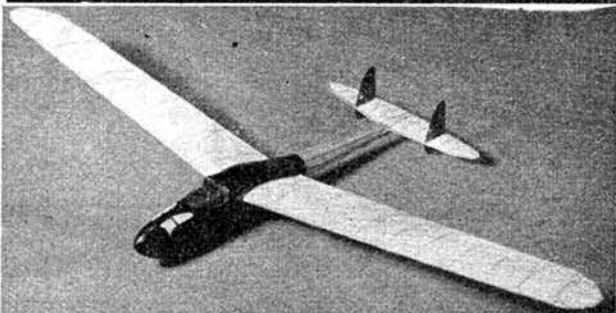
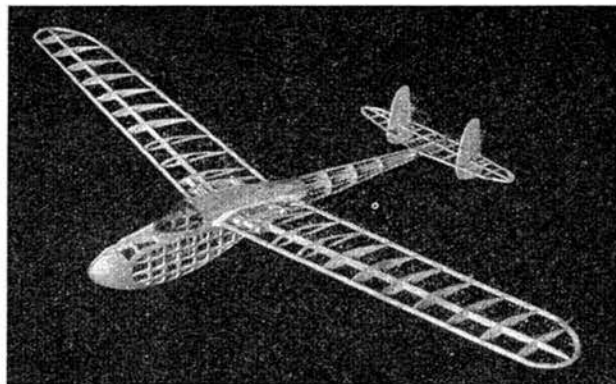
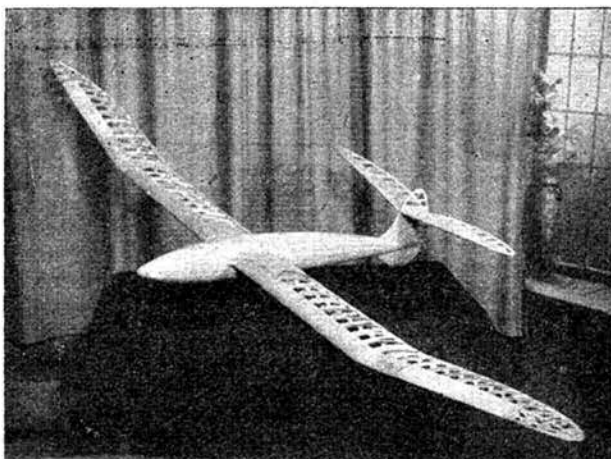


Above is shown an experimental high-wing glider designed and constructed by P. Guilmont of Southampton. It features a stick-type fuselage, elliptical gull wings, and elliptical tail surfaces.



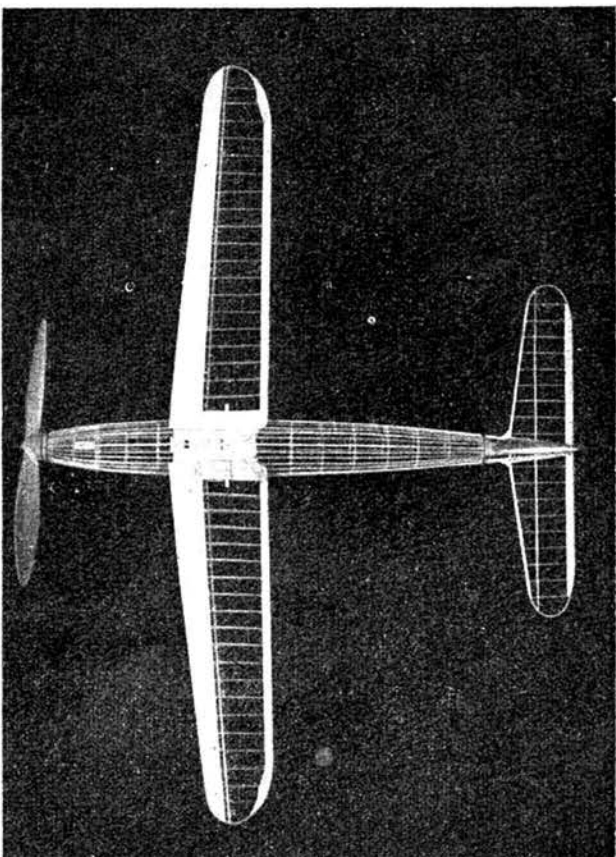
An unusual pusher type model, designed by J. D. Burton of Bromsgrove School. The all-up weight is 10-ozs., although the span is only 30 ins. We should hate to guess the speed resulting from so high a wing-loading, but bystanders are advised not to obstruct the model in any way !!!

Beauty unadorned—the naked framework of a good-looking 7-ft. span sailplane designed by L. J. Morrison of Slough. The owner kept the weight down to 18 ozs. although substitute woods were used in the construction.



Before and after !
Showing the painstaking construction and pleasing appearance of this "Curlew" glider, built from AEROMODELLER PLANS SERVICE Plans by J. M. Bottomley of Bradford, at the age of fifteen, and since modified to incorporate automatic glider control. Note the "solid" fuselage pod, which was made from a piece of soft yellow pine; much patient work must have gone into the carving.

Clean lines and fine construction characterise this 1944 Wakefield model by our old friend G. W. W. Harris of Farnborough. It weighs 8.2 ozs. and incorporates a retracting undercart.



20" & 12" SPAN MICROFILM • MODELS •

DESIGNED BY
MICK FARTHING

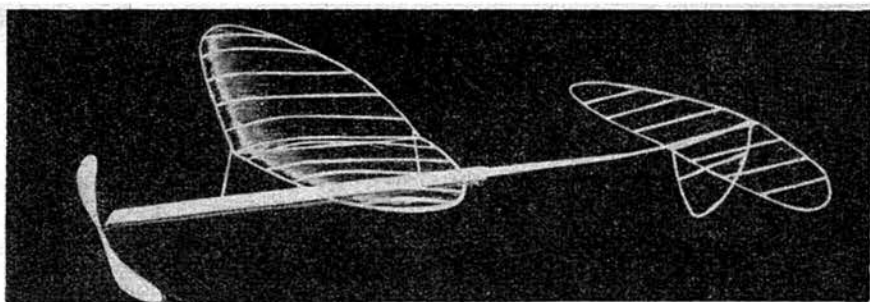


Photo above shows the 20" span model.

BUILDING instructions for these models are unnecessary, as the construction is straightforward and simple. The only snag is the microfilm covering, a method of which is detailed below.

Microfilm.

Making microfilm has always been one of the "bugbears" of indoor aeromodelling and I suppose that it is due to this that not many microfilm models are seen in this country. However, microfilm is easily made the following way: The solution is first made up and consists of ordinary dope with castor oil added—consistency about 2 oz. dope to one teaspoonful of castor oil. The film is then made in the bath. The bath is thoroughly cleaned, freed from soap and two-thirds filled with lukewarm water—about 60° F. The taps are stopped up to prevent dripping and the water left until it has settled. The frame for collecting the film is bent out of galvanised iron wire and is rectangular in shape, 24 in. by 12 in. A handle is made from the two ends which are twisted together to complete the rectangle.

About half a teaspoonful of the solution is taken and held about ¼ in. off the water surface. It is poured in a continuous stream on to the water, gradually moving the hand down the length of the bath. The film spreads out all over the bath and sets.

Now comes the tricky part. Hold the frame on the surface of the film. With one hand gather excess film to the edge of the frame. (N.B.—Damp hand or film will adhere to it.) Gently submerge each edge of frame in turn, thus lapping the film over the wire. Then submerge one edge slowly and let water run on top of the film. Keep turning frame until the film is vertical and

nearly wholly submerged. Then lift film out of water. Stand vertically near a fire to dry. Film is then ready.

Covering.

The frameworks are licked round the edges and laid on to the film, which adheres to them. They are then cut out with a hot wire (about ¼ in. from the frame).

N.B.—Always touch wings, etc., on the wood frame and never on the film. Film is stronger after it has been applied for three days or so.

It is easier to completely re-cover a wing which is holed than to patch it with microfilm. At a competition, however, holes can be temporarily patched with tissue which is cut to size, damped and dropped over the hole.

Flying.

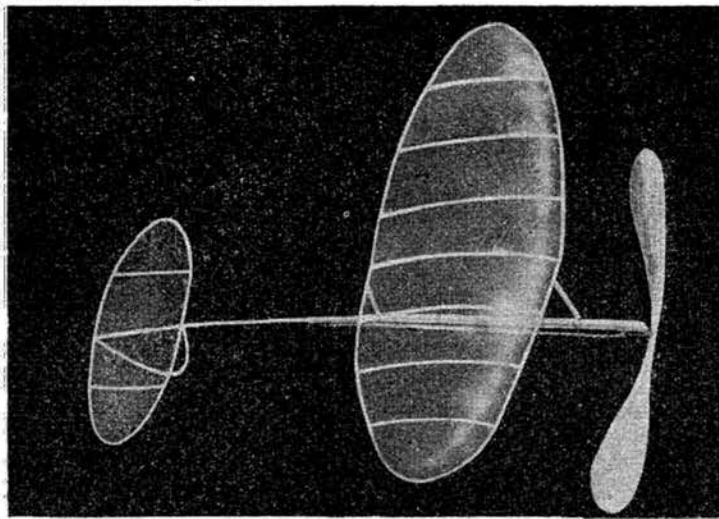
Model is first adjusted for glide (although this is not really important, as length of flight depends on motor run, it gives some idea of the wing position). Then model is tried under power. Incidence is given to tail until model climbs slowly on about 100 turns, turning in 20 ft. circles. Then wing mounts are cemented to the stick and tailboom is cemented in until after flying has finished. On about 1,000 turns model should climb at 45° to about 75 ft. As the torque dies the circle will become tighter.

When flying ensure that all doors, windows, ventilation, etc., are closed as even slight draught upsets the model.

Performance Details of the 12 in. Model.

1st Harrow Indoor Gala, 1943 (up to 12 in. span). Time, 350 plus secs. 2nd Harrow Indoor Gala, 1943 (Open Class). (Model hung up on last flight after 90 secs.—good for 3½ mins.) Best time, 3 mins. 9 secs. on 750 turns. (Low ceiling prevented full turns.)

Below is shown the 12" span model.



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Readers' Letters

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

DEAR SIR,

The excellent article by Dr. Forster on the aims and objects of the Association of British Aeromodellers, and for the reasons of its existence, prompts me, another Member of the Council, to add my small voice to his appeal for support.

It may seem from the fact of my being another Founder Member of the A.B.A. that I may have some personal axe to grind, yet I feel that a few words about my own reasons for co-operating with the A.B.A. may be so much on a parallel with those of a host of other aeromodellers as to make them worth while.

For some years past, many modellers whose interests did not lie entirely with the rubber-driven duration machine, were perturbed by the almost entire neglect, of all other aeromodelling activities by the S.M.A.E., and felt that we were drifting into an isolated and unprotected position. Particularly was this so in the case of the petrol model enthusiast—which branch of aeromodelling holds my chief interest.

In view of this position, Mr. C. A. Rippon approached me towards the end of 1943, with a view to my becoming a Founder Member of a National Power Model Aeroplane Society, whose aim was to band together all interested persons, so that we might have a united body to repel any possible attacks upon our particular branch of the pastime. We realised, only too well, that the existing S.M.A.E., while doing a good job for the rubber-driven, competition side of the sport, was not particularly interested in our case. Acting as individuals we were open to unjust restrictions and unfair legislation; in fact, our petrol models might easily have been banned altogether without any but ourselves being greatly concerned.

Pursuing this matter further, it was soon realised that the precarious position of the model petrol plane was shared by many other branches of the pastime. Scale models, for instance, were almost entirely neglected; flying boats and model petrol engine design might hardly have existed; while the countless number of solid-scale model makers were barely considered to be aeromodellers at all! Here was a sorry position!

It was, therefore, borne upon us that nothing would fit the case but to form an entirely new society in which all branches of aeromodelling should be equally represented, helped and protected. That these objects might rest upon a fair and sound foundation, the co-operation was sought of many well-known aeromodellers who were acknowledged experts in these various branches of model making. Hence the birth of the Association of British Aeromodellers.

I am well aware that for the past few war years appeals to the "public spirit" and "self-sacrifice for the public good" have been the horses upon which all reformers, politicians and organisers have ridden, and that these steeds are at last somewhat saddle-sore and broken-kneed. Nevertheless, apart from the direct, individual benefits which may be gained, I would ask all loyal aeromodellers to join with us in the swelling ranks of the Association of British Aeromodellers, so that we may be strong to help and guard the pastime which we love.

LAWRENCE H. SPAREY.

DEAR SIR,

I have been reading the AEROMODELLER for some time now and find it very interesting, educative and inspiring. Model airplane building in Canada is on American lines as a whole. The high degree of perfection of the American duration gas model type is also present in Canada. Rubber powered duration and glider models are also on American lines, although some British designs are present.

The quality of most Canadian kits is very poor. Structural design is weak, and on top of that, cardboard is used. Most imported English and American kits are better by far,

although there are some just as bad. There are a fair number of clubs here, except in the French-speaking districts.

What we need is a magazine like the AEROMODELLER in both English and French, as well as a certain amount of instruction in schools.

There should be a section in the AEROMODELLER each month devoted to activities in other countries. I would very much like to know about model building in Sweden and Russia.

Canada.

C. B. FALCONAR.

We hope to publish articles on Aeromodelling in other countries in the near future. Readers will appreciate that information is definitely difficult to obtain under wartime conditions, which has curtailed the publishing of such articles in recent years. [Ed.]

DEAR SIR,

Your article "An Alternative Source of Power," by P. E. N. Gwynne, has brought forward a very novel idea, and for this the author deserves credit; his calculations fail, however, in that they contain two glaring errors, for (1) torque is measured not in lbs. but in lbs.-ft.; (2) Newton's Second Law as quoted does not apply to radial motion.

By making these mistakes Mr. Gwynne has reached false conclusions, as I will show. Before doing so it must be pointed out that the time is not ripe for a detailed investigation until it has been shown by rough survey whether or not the scheme is practicable. Mr. Gwynne has rightly used average figures (e.g., for h.p., thrust and torque, which vary continuously) and ignored these variations.

All right, then: using the same hypothetical aircraft, we will assume that the airscrew has to give an average thrust of .1425 lbs. (2.28 ozs.) and that probably a torque of .0416 lbs.-ft. (8 ozs.-ins.) corresponds. (Notice that torque cannot be expressed as a percentage of thrust.) Considering the radial motion of the weighted airscrew, we see that the moment of inertia is the crux of the matter, in fact the system resembles the inertia engine starter and might very well be named the "inertiascrew". The change in angular momentum gives the equation of motion: $Qt = IN/g$, where Q = torque in lbs. ft., t = motor-run in seconds, N = initial rotational velocity in radians per sec., I = moment of inertia of system (weights plus blades) in lbs.-ft., and $g = 32$ ft. per sec. The blades weigh say .25 ozs. and the weights 1.5 ozs. each; $I = MK^2$, here $M = .219$ lbs. (3.5 ozs.), $K = 71$ ft. (8.5 ins.), so we have $t = .219 \times (.71)^2 \times N / .0416 \times g$. Suppose we let N equal $2\pi \times 32.7$ radians per sec. (Mr. Gwynne's result.) We obtain $t = 17$ secs.; clearly N must be increased, say N equals $2\pi \times 100$ radians per sec.; we now obtain the result $t = 52$ secs. This means that the initial r.p.m. would have to be greater than 6000 in order that the motor-run should be nearly a minute. I do not consider this can be done with a winder, possibly a very short thick rubber motor would solve the problem, the system "freewheeling" when the required R.P.M. has been attained.

The idea calls to mind the little "jumping gyro" of 1938, in which the horizontal blades were revved up in fine pitch, suddenly changed to coarse and up she went! So why not a model "jumping gyro" with inertia operated upper blades started up by rubber motor, or belt and pulley, with normal airscrew "in front"! Worth trying?

Before closing I should like to applaud Mr. Gwynne and others who bring out ideas and conduct theoretical investigations in the pages of AEROMODELLER. In reply to your correspondent W. J. Gould, I would say that the "mathematical geniuses" are too seldom rewarded with the lucky thermal that wins so many contests. Would Mr. Gould have us build our aircraft without any sound mathematical basis to each point in the design? By all means let us have articles from the winners, but please keep the "geniuses" jiving those slide-rules; we need them.

Kent.

P. J. IVENS.



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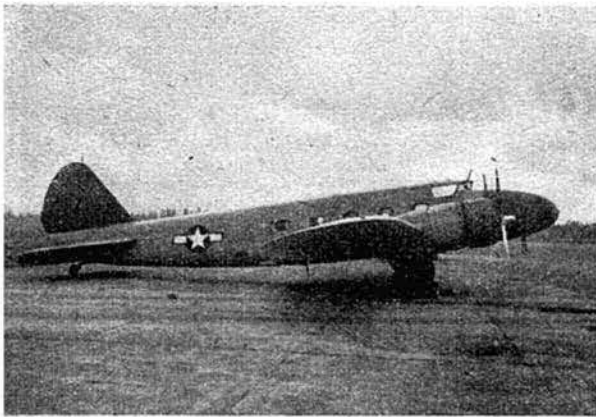


Photo by Peter M. Bowers.

Hawker Tempest Markings.

Successor of the Hurricane and Typhoon, the Tempest fighter monoplane came into operational service with the R.A.F. in time to play a major part in defeating the German flying-bomb offensive in the summer of 1944. The current operational version, the Tempest V with the Napier Sabre IIa motor, is generally similar to the Typhoon. The new wing shape and section, the fillet to the fin and the buried cannon are features now well-known to spotters. Not so familiar is the fact that the fuselage has been increased in length to accommodate an extra petrol tank.

The prototype Tempest was given the serial number HM 595. It carried normal fighter camouflage and the yellow "P" on the rear fuselage. The first production Tempest was serially numbered JN 729 and subsequent machines were numbered consecutively to JN 802. Other production batches have been numbered EJ 555, EJ 556, EJ 557, etc., and EJ 608, EJ 609, EJ 610, etc.

One of the squadrons equipped with the Tempest V carries the code letters "SD" on its aircraft. Tempest SD-P is numbered EJ 608; SD-X is JN 763 and SD-Y EJ 555.

Tempests with this squadron carry normal fighter camouflage with the light coloured band round the rear fuselage, but the black and white stripes do not appear beneath the wings.

British Camouflage Changes.

In the traditional British spirit of compromise a concession to the modern trend of increasing speed at the expense of camouflage has recently been made in British paint finishes. Instead of abandoning camouflage altogether as on U.S.A.A.F. types, British machines are now camouflaged in the normal colours and pattern but the original rough surface has been replaced by a smooth, glossy finish. This explains the high lights seen on the camouflaged surface of British types in recently-published photographs.

Many Coastal Command aeroplanes are now painted white all over instead of white on underneath and vertical surfaces as before. Machines painted all white at present include the various VLR Liberators, the Armstrong-Whitworth Whitley VII, the Vickers-Armstrongs Wellington XI torpedo-bomber, and Air-Sea Rescue Warwick and the Boeing Fortress II and IIA general-reconnaissance bombers.

New Fleet Fighter.

The Fairey Aviation Company's long line of types for the Fleet Air Arm has recently been perpetuated by the

MONTHLY MEMORANDA

BY O · G · THETFORD

Firefly two-seat reconnaissance-fighter monoplane. A detailed description will appear next month, but, in general, the Firefly is similar in layout to its predecessor, the Fulmar. Outstanding features include the installation of the Rolls-Royce Griffon motor, the elliptical wings (folding) and the heavy armament of four cannon. At a demonstration to the Press on November 1, 1944, the Firefly gave evidence of a very high performance, but no details are yet available.

The prototype Firefly carried the serial number Z 1825 on the rear fuselage beneath the words "Royal Navy." It was finished in standard Fleet Air Arm camouflage and had the letter "P" painted inside a yellow circle aft of the roundel. Details of operational markings are to be featured in a later issue. One of the Firefly's ancestors, the Flycatcher, is featured in the "R.A.F. Flashback" this month.

Civil Anson.

The Avro Anson seems destined for the longevity of its famous relative, the Avro 504. No less than ten main models have now been produced and the latest is the Avro Type XIX with twin 425 h.p. Cheetah XV radials, a civil light transport suited for operation on internal airlines and "feeder lines" after the war. Modifications include cabin with increased head-room, constant-speed Rotol airscrews and smooth cowling rings. One of the civil Ansons at present in service is doped silver all over and has the registration letters G-AGLB. These are underlined on the wings and fuselage by three bands of red, white and blue. The standard fin "flash" appears on the tail assembly.

R.A.F. Flashbacks—2.

As mentioned above, the old-timer this month is the Fairey Flycatcher Fleet Fighter biplane of the nineteen-twenties. The Flycatcher was replaced on the aircraft-carriers by the Hawker Nimrod during the early 'thirties. Flycatchers had the reputation of being the noisiest aeroplanes ever built. They flew either as landplanes from carriers, as seaplanes from warships' catapults or as amphibians.

Flycatchers (Siddeley Jaguar) equipped Nos. 401, 402, 403, 404, 405, 406 and 407 Flights of the F.A.A., and had a top speed of 138 m.p.h. at 10,000 ft. The machine in the picture, S 1275, bears the red fuselage band denoting H.M.S. *Glorious*. All the Flycatchers were, of course, doped silver all over and various coloured fuselage bands indicated the different carriers. Note that at the period the Flycatchers were in service the roundels overlapped the ailerons on the wings and the stripes on the rudder were painted with the blue foremost and the red aft.

Brevities.

The heading photograph this month is of the Boeing 247 airliner wearing the markings of the U.S.A.A.F. The militarised version is known as the C-73 and this is the first picture of the military model to be published, in this country.

A captured Messerschmitt Me 410 has been flying in this country bearing standard British fighter camouflage and roundels. It is serially numbered TF 209.

PHOTO NEWS



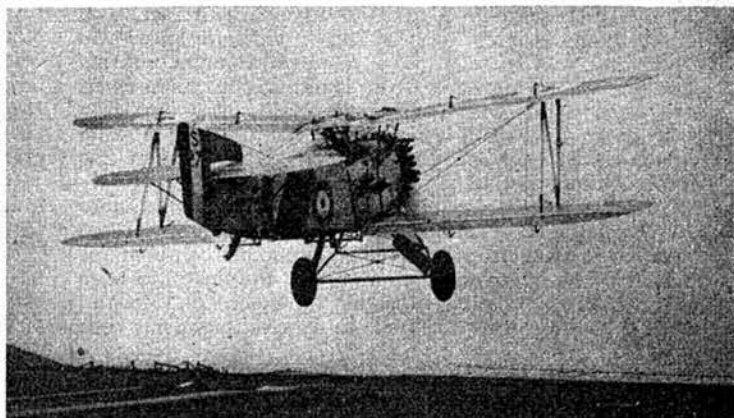
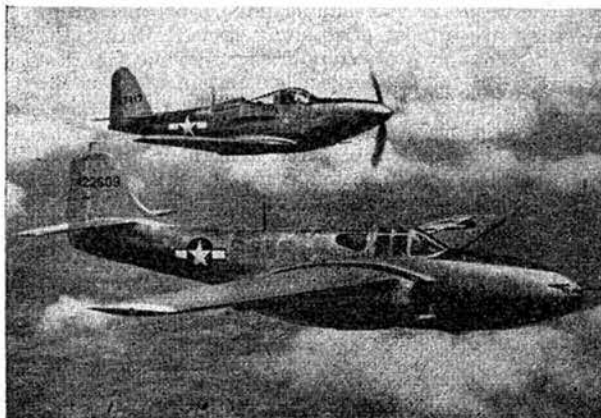
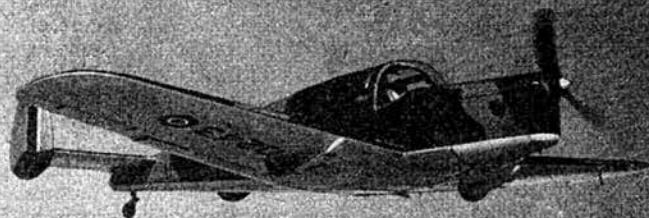
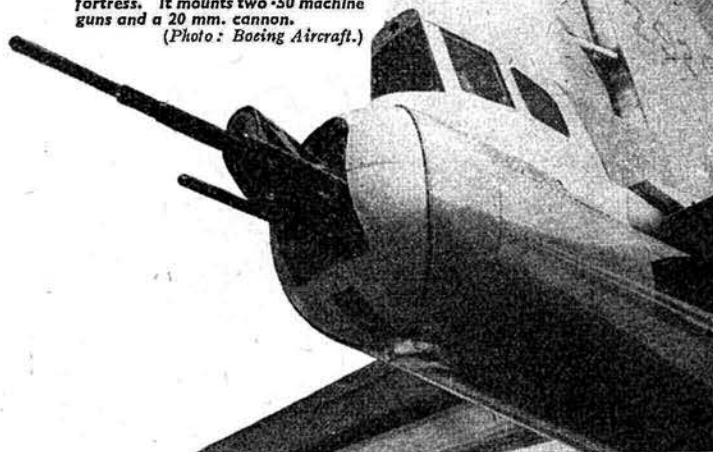
The photograph above, by the Aeromodeller Staff Photographer, shows a Halifax III with Hercules XVI motors. This is one of the first pictures to be published showing the rounded wing-tips.

Right is a new picture, also by the Aeromodeller Photographer, of the Miles M-28. This version has modified flaps and a Gipsy Major Ila motor, and is known as the Mk. IV.

The picture below shows a Bell P-63 King Cobra (upper), flying with a jet-propelled P-59a Alracomet, also produced by Bell. In the lower picture the short undercarriage of the P-59a, made possible by the absence of airscrews, is well shown. (Photos: Bell Aircraft.)

Below, right, an old Fairey Flycatcher takes off from the deck of H.M.A.C. "Glorious". See "R.A.F. Flashbacks" on the opposite page. ("Flight" Photo.)

The tall turret of the B-29 Superfortress. It mounts two .50 machine guns and a 20 mm. cannon. (Photo: Boeing Aircraft.)





THE Tempest single-seat fighter is one of the most successful aeroplanes produced in this country. A logical development of the Typhoon, it has been in action for many months, and is known mostly for its success in shooting down a large number of V 1 aircraft. It had, in fact, been in service for a long time prior to the V 1 attacks, but was not released to the public until October last, when its "bag" of flying bombs totalled over 600. Tempests are still in service in this country shooting down flying bombs released from Heinkel He 111s at night or in suitable weather, and are also engaged at the Front Line in attacking every form of ground target in addition to enemy aircraft.

At home their "doodle-bug" victories are still mounting, and the sight of a Tempest at night pouring flaming shells into a V 1 is something to remember. If you can imagine several sheets of corrugated iron being torn across and a high-pitched ship's siren blowing at the same time you have some idea of what an attacking Tempest sounds like.

Although similar in many respects to its forerunner the Typhoon, the Tempest is in fact a new design, and uses only a small proportion of the Typhoon's components. The fuselage is generally similar, but the nose has been lengthened to provide extra fuel tankage. The fin and rudder have been re-designed, and the tailplane has been

THE HAWKER TEMPEST V

NEXT MONTH:—THE FAIREY FIREFLY I.

increased in area. The main difference from the Typhoon, however, lies in the wing. The Typhoon wing has been abandoned on the new aircraft, and instead a semi-elliptical wing of high-speed section has been used. It is much thinner than the Typhoon's, and in plan is not unlike a clipped Spitfire's. The centre-section has no anhedral angle, but there is a dihedral of $5\frac{1}{2}$ degrees on the outer panels.

The wing is built up on the normal two-spar principle, the rear spar being swept forward in the centre-section and cranked out to the tip to provide the necessary clearance for the undercarriage when retracted. The wing is much thinner than the Typhoon's, and in consequence the fuselage tank already mentioned is incorporated.

The whole wing, including the flaps and ailerons, is covered with a stressed skin. The tail unit is similarly constructed, but the rudder has a fabric covering.

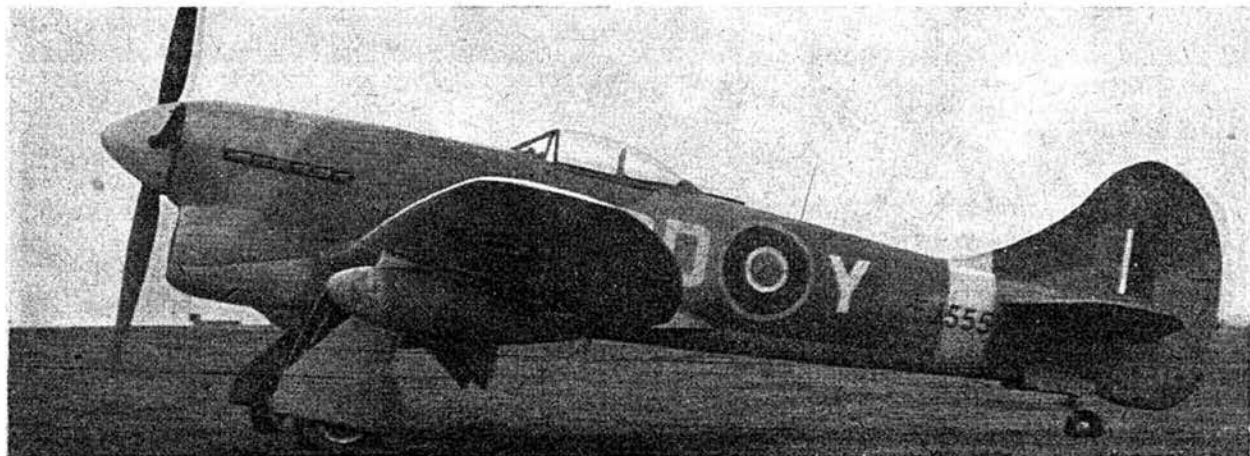
The motor of the Tempest V is a Napier Sabre IIA 24-cylinder "H" mounted on its side as on the Typhoon and develops 2,200 h.p. at 5,000 ft. A four-bladed de Havilland constant-speed airscrew is fitted.

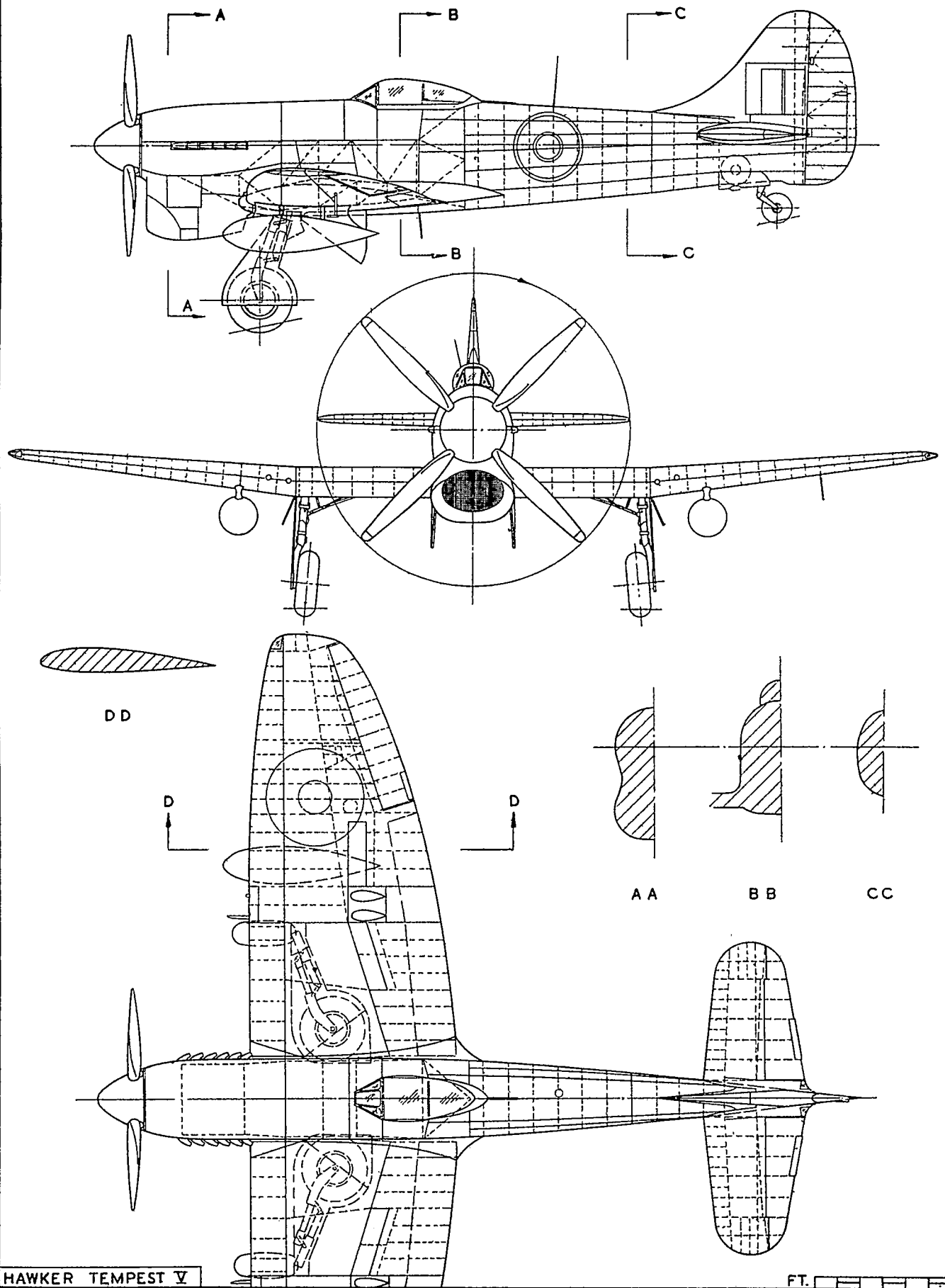
The armament on the Tempest consists of four 20 mm. Hispano cannons mounted in the wing outer panels, two on each side. On the first versions the cannons projected in front of the leading edge, but on current models they are almost completely housed within the wings. There has as yet been no mention of the Tempest being fitted with rocket-projectiles, but in view of the success of the Hurricane and Typhoon with this particularly lethal form of offensive armament, it seems inevitable that the Tempest will be fitted with them.

Some Tempests now in action are fitted with droppable long-range fuel tanks mounted on racks below the outer wings, and their range is consequently much increased.

Main dimensions of the Tempest are: Span, 41 ft. 0 in., length, 33 ft. 8 ins.; height (tail up), 14 ft. 10 ins.; tail-plane span, 13 ft. 9 ins.; track, 14 ft. 10½ ins.; airscrew diameter, 14 ft. 0 in.

A.T.P. photographs.



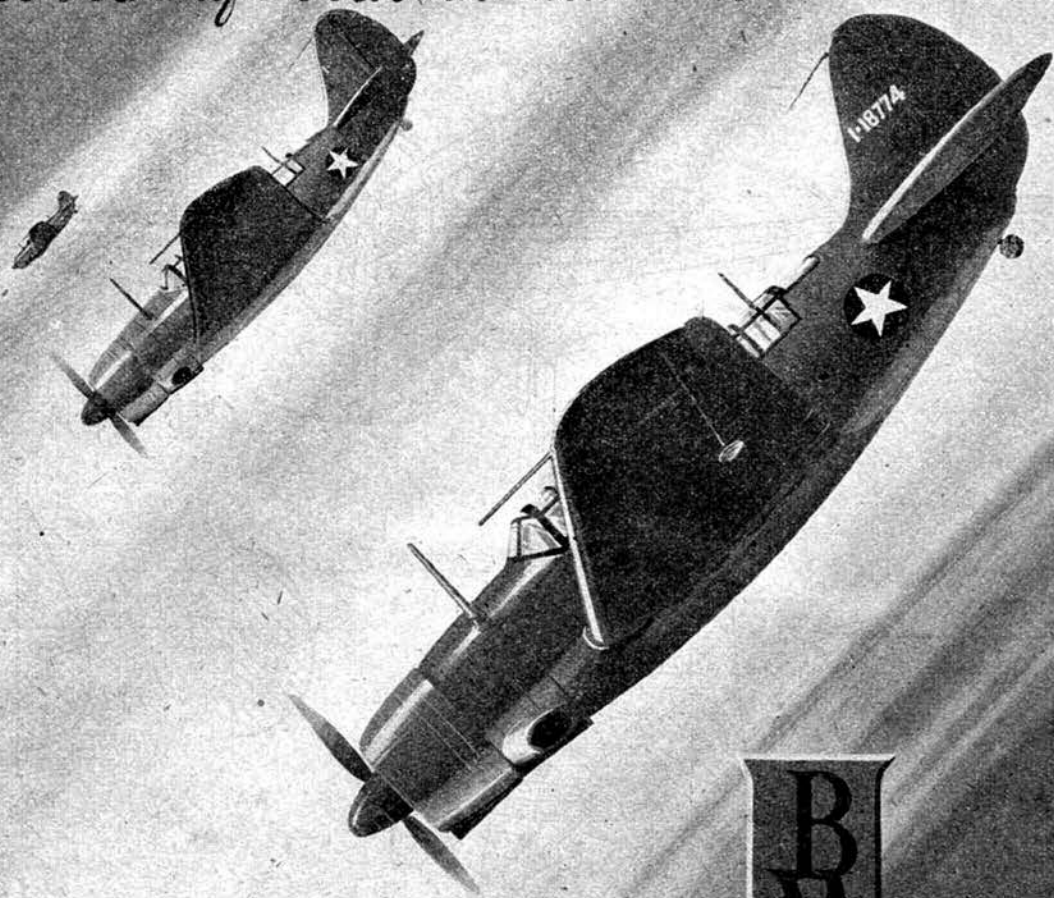


HAWKER TEMPEST V

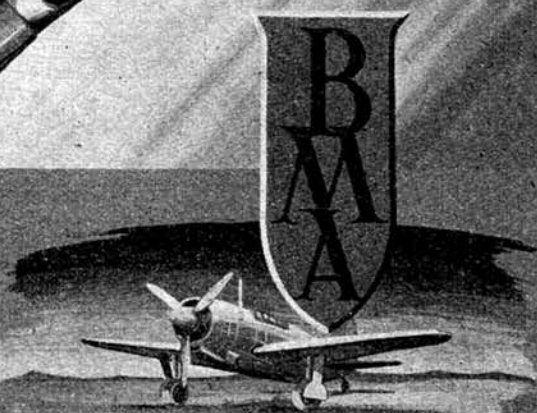
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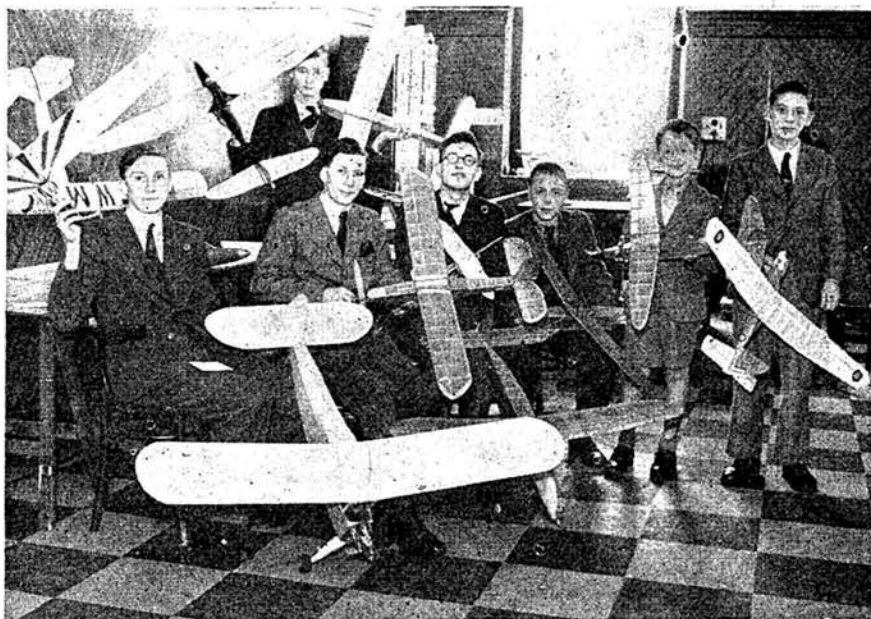
Club News

by Clubman

HAD an unexpected piece of news during the past few weeks which will particularly interest those enthusiasts who used to journey for a hectic week-end at Flers—shades of "pidgin French," seasickness, buckshee champagne, and a little model flying! All my readers will I am sure be delighted to hear that Father Amiard (the "Amiable") is still alive and apparently well. I only got this news somewhat fourth-hand, but it is the first indication we have had since the fall of France of this enthusiast. Any further news will be reported in these columns in due course.

Curiously enough, during the past month I have had word from one of that happy band of travellers to Flers who is now a prisoner of war in Germany. Flight-Sergeant S. A. C. Smith (formerly of the Bromley Club) writes from Kriegsgefangenenlager der Luftwaffe Nr. 3 giving the news that a model club is flourishing in that camp, despite the obvious difficulties of materials and tools. Gliders are of course in the majority, though most phases of aeromodelling find their supporters. Smithy wishes to be remembered to all the old "Flers-ites," and we in return wish him a speedy return to old England.

The Plugge Cup Contest finished up a very close fight between Pharos and Aylestone, as noted in the full official list printed on page 57 of the Xmas issue, and it is no surprise to find that the Individual Championships have been fought out principally between members of



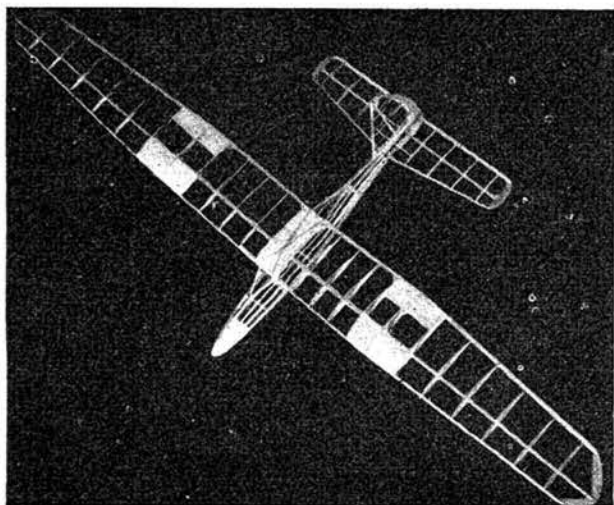
these two enthusiastic clubs. Congratulations to the winner, and those who so closely followed him in the battle for the 1944 season honours. The Junior Championships provided a fairly big margin of points for the winner, and P. Jones is to be especially congratulated on a fine showing throughout the season. It will be noted that the generally bad weather conditions obtaining in the majority of contests affected the Northern clubs, for, in spite of many fine models and fliers up that end of the country, most of the honours stayed down South. This is of course inevitable in decentralised events, and I look forward to the days when we can again stage centralised contests, when a true comparison can be made between North and South.

Readers who are members of the N.G.A. (and who isn't?) will be pleased to know that badges are once again available. Supplies have been unobtainable for some months, and although the new types are of Utility standard, members will I am sure avail themselves of these attractive indications of membership.

An interesting letter comes this month from Cpl. R. McDougall, now serving with the Royal Signals in the African desert, who writes:—

"It's almost five years since I've seen a copy of the AEROMODELLER, so you may guess what a pleasure it was when two copies arrived the other day, through the good graces of the one-time secretary of my old club—the Lancaster and Morecambe M.A.C. I suppose, like myself, most of my old friends of that club are far away from the old flying field. However, it's good to see the club is still going strong and I hope all present members will have had a successful season.

"Looking through 'Clubman's' notes I was pleased to see such names as Blackheath, Northern Heights, Bushy Park, etc.—they bring back happy memories. But what has happened to the Lancashire M.A.S., and Halifax? I can find no mention of either of these, and I've had some good



The heading photograph shows some of the members of the Tunbridge Wells M.A.C. at their recent exhibition in aid of the R.A.F. Benevolent Fund. On the left is shown a 50 in. span Beauglider built by L.A.C. R. E. Taogood, of Weston-super-Mare.



George and his Dragon ! George Junkin, a 16 years old part-time worker at the El Segundo plant of the Douglas Aircraft Company, with his control-line "Gas Job" of typical American design.

common out here. I've known it as high as 140° F. ! Even now it's 98° and we think that cool ! We see very little rain, for which God be thanked, for when it does rain, we're up to our knees in mud. Don't you believe what they tell you in geography books about the desert being made of sand—it ain't.

"The only vegetation we've got is palm trees—and you can go for miles without seeing any—the wood is as hard as iron and very coarse-grained and is in no way suited for model making. Besides, the natives would take a very poor view of it, if they saw one of their trees flying around. Dates are about their only source of income."

The following letter will amuse you, and I thank Flt./Lt. E. F. H. Cosh for passing this priceless piece of English on to me. Apparently the writer is a boy scout, and wishes to try for his airmanship badge, and . . . but anyway, read it for yourself.

Saint Peters School,
P.O. Box 177,

Dear Sir,

Kumasi.

I am with much pleasure and respect to ask your pardon to let me have a book on the frame work and a model engine which will let it fly on fuselage. I beg your pardon we want to pass our airmanship badge but we have not got any idea of a flying machine and let me also have the price of an air screw and the Springs and Elastic.

I remain yours truly and obedient servant,

Peter E. A. Vandyke.

fun at both these clubs, on their 'open' days ! I hope they haven't been abandoned—they'll be a big loss to the North if they have.

"If only some of you chaps could get some of our weather—what fun you would have, I'm sure the 'Wakefield Cup' would never leave England ! Granted, we get an occasional sandstorm, but we can more or less guarantee that 28 days in every 30 will be dead calm—with thermals galore ! from sunrise to sunset—and nothing in the way to smash up your job—unless of course you do a power dive—in which case you've 'had it' wherever you are. The only bugbear is the intense heat, and I know it's hard to believe, but temperatures of 130° F. in the shade are quite

S.M.A.E.

Individual Championship (Senior)

		Points.
1. Buckeridge, J. P.	Pharos	1669
2. Jones, W.	Aylestone	1636
3. Butler, D.	Surbiton	1587
4. Alexander, A. W. F.	Pharos	1520
5. Jones, P.	Aylestone	1518
6. Rock, R.	Streatham	1463
7. Pitcher, J.	Croydon	1445
8. Jones, G.	Aylestone	1376
9. Wilson, F. E.	Northern	1345
	Heights	
10. Harris, G. W. W.	Croydon	1337
11. Buckeridge, Mrs. A. M.	Pharos	1329
12. Armes, A.	Pharos	1319

Individual Championship (Junior)

		Points.
1. Jones, P.	Aylestone	1518
2. Jones, A.	Aylestone	1376
3. Armes, A.	Pharos	1319

General club reports are noticeable this month for their scarcity, probably a result of the usual period of changeover from outdoor to indoor activity. I expect to find plenty of reports from now on of r.t.p. flying, and trust that next month will see plenty of information from all parts of the country.

Since the HALSTEAD (Essex) & D.M.F.C. glider record was broken in August, E. W. Bult has twice passed the old figure flying his "Aegeus," which has proved remarkably consistent during the past season. The record now stands at 1 : 53.2. In place of the club magazine "Wings," printing of which has been discontinued until happier times, the club now regularly circulates a "news letter" to all members, including those serving in the Forces. The letter travels to all in turn, members adding their own comments, articles, etc., etc., before passing on to the next in order. In this way the members can keep in touch with the club as a whole, and the idea is passed on to other clubs who might like to try the scheme out.

The BLACKPOOL & FYLDE M.A.C. are putting out some very keen publicity at the moment, and their home magazine is a fine effort. From the inside dope, however, it would appear that there is a slackness among the Blackpoolites, and the regular stalwarts of the club are having a big drive to get them into line. (It is a pity the way the work and major portion of club affairs—including flying—always seem to be left to a small nucleus of keen types, but unfortunately this seems to be a general state of affairs in all clubs, large or small.)

As announced in last month's issue, NORTHERN HEIGHTS M.F.C. won the London District Inter-Club

Challenge Cup, and the following details of machines and flights might be of interest. F. E. Wilson flew first for the N.H. team, clocking 2:21.8 with a streamlined shoulder-wing Wakefield model. R. Teasle, flying a glider, made a good first flight of 2:23, while on the second flight the model climbed rapidly and was lost to sight after 3 minutes. R. Copland—who lost his streamlined Wakefield in the previous round after a flight of 7 minutes—was flying a shoulder-wing light-weight, and obtained a total of 258 seconds. J. Davall, who was also flying a glider, totalled 292.4, his flying throughout the season having been very consistent.

After a slow start, the BRENTFORD & D.M.F.C. have completed their best outdoor season to date. S. Ford won the Thurston Glider Cup with a model of his own design embodying a planked fuselage, highly french polished. Two members are dabbling with jet propulsion, and we look forward to further news of these experiments in due course.

AYLESTONE M.F.C. has now started indoor flying after a very successful outdoor season, in which P. Jones won the Junior Individual Championship, W. Jones placed second in the Senior Championship, and the club came second in the Plugge Cup, only a few points behind the winners. Many members are turning out new indoor model designs, and the results obtained from most of them are quite promising.

D. Halliwell of the DONCASTER & D.F.M.C. had a bit of luck when he lost his "Korda" model recently after a flight of 2:15.5, said model choosing the garden

of our artist C. Rupert Moore as its final resting place. Wise bird!! Scale models are all the rage with this club at the moment, M. Hetherington having a 1 in. scale Stosser "made of paper," from which regular flights of .45 seconds are obtained.

The AGRICOLA M.A.C. held a special meeting at which trophies for the past season were distributed, J. Owen winning the Individual Championship Cup, the Uttley Glider Trophy going to A. T. Telford, while the Secretary's Cup was won by J. Cantwell. Records of this club are as follows:—

Rubber.

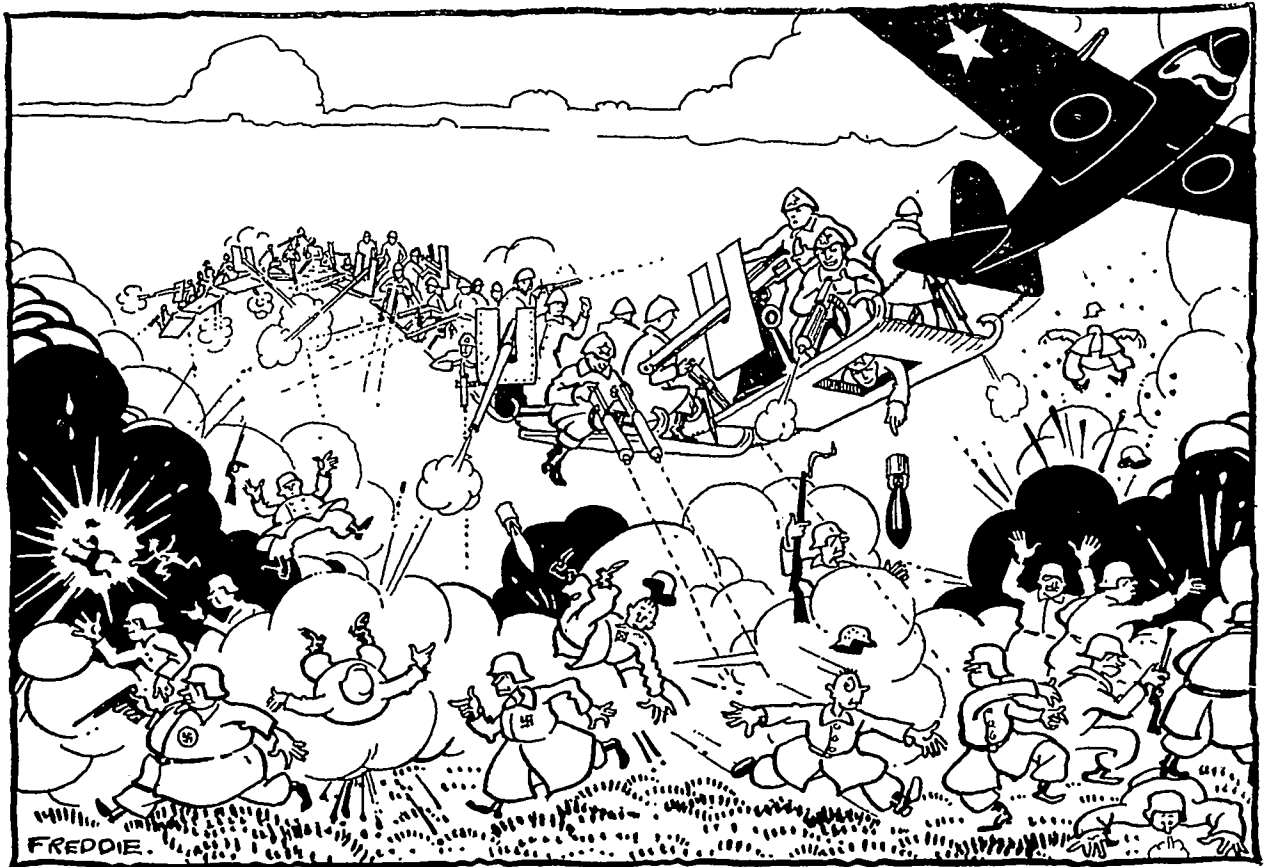
R.O.G.	Senior	J. Owen	3:31
	Junior	E. N. Johnson	1:20
H.L.	Senior	J. Cantwell	6:43.4

Glider.

Winch launch	Senior	P. Uttley	1:01
	Junior	E. N. Johnson	2:05
Tow launch	Senior	J. Owen	1:25
	Junior	A. T. Telford	1:39

K. Lloyd of the LEEDS M.F.C. has been doing some good glider flying lately, breaking two club records and setting up best aggregate in the club effort for the Northern Area Glider Contest with a total of 9:30. The records held are the Winch launch at 2:18.5 and H.L. 0:54.

The RIPON M.F.C. send in their full list of club records, which may be of interest to other readers for comparison with their own efforts:—



WHEN THE RUSSIANS GO "SLAYGHING" . . . ! !



A 1/24th flying scale Mosquito built by J. W. Gates of Rainham. The peculiar construction seems rather pointless as apparently the fuselage is to be planked.

Indoor (free flying).

H.L.	W. S. Elliot	52.8 secs.
R.O.G.	W. S. Elliot	28.5 "
Microfilm	W. S. Elliot	60.0 "

Indoor (R.T.P.).

Under 18 in.	W. S. Elliot	57.0 "
Over 18 in.	D. G. Birdsall	61.0 "
Biplane	K. Benson	55.0 "
Speed	W. S. Elliot	23 m.p.h.

Outdoor.

Under 30 in. R.O.G.	W. S. Elliot	96.0 secs.
Under 30 in. H.L.	W. S. Elliot	190.0 "
Over 30 in. H.L.	D. G. Birdsall	60.0 "
Biplane	K. Benson	22.0 "
Glider under 45 in.	J. Vandeveldé	165.0 "
Glider over 45 in.	E. Kullah	249.0 "

D. Whittamore of Rosedale, Tauxton, Cambridge, wishes to start a club in the Harston district, and wishes

other modellers in that area to contact him.

Well, that's the lot for this month—a very poor number of reports, but perhaps to be expected at the end of the outdoor season, and we must await the indoor session to get really under way. Buck up with those reports for next month, and start off the 1945 season with a bang. All the best for the New Year, and may we see at long last the end of hostilities, and a speedy return to our old cheery meetings, particularly the centralised affairs where we all got together and nattered on this and that, and occasionally did a spot of flying!

THE CLUBMAN.

NEW CLUBS

MILES TECHNICAL SCHOOL M.F.C.

P. B. Landray, Miles Aircraft, Ltd., The Aerodrome, Reading, Berks.

CHEADLE & D.M.A.S.

A. S. Bailey, 6, Stockport Road, Cheadle, Cheshire.

SECRETARIAL CHANGES

OHINGFORD M.F.C.

K. Green, 67, Dale View Crescent, Ohingford, E.4.

S.M.A.E. REPORT.



Mr. A. F. Houlberg occupied the Chair at the S.M.A.E. Council meeting held on the 19th of November, 1944, at the Royal Aero Club. The Minutes of the previous Council Meeting were read and adopted on a proposal by Mr. H. W. Hills, seconded by Mr. L. J. Hawkins.

Correspondence was dealt with next, and since the last meeting of the Council further information has been received from Leicester re the flying of petrol-driven model aircraft on the Leicester M.A.C.'s ground. A short discussion showed that the Council favoured the use of the Club's ground for the purpose, and Mr. H. J. Towner, the Comp. Secretary of the Society, would notify the Leicester M.A.C. of the decision.

A letter from Mr. M. W. White (Blackheath M.F.C.) was read. He deplored the statements being made against the Society and urged the Council to give the matter their early attention. The Hon. Sec. replied pointing out that the Council had the matter under constant review and measures were being taken which it was hoped would result in ending this distasteful episode.

The Comp. Sec. was invited to enquire into Mr. J. March's claim for the 1944 Caton Trophy. This gentleman had made a flight of 781.5 secs. in the Gamage Cup, and his effort was brought to the Hon. Sec.'s notice by Mr. M. A. Wright of the Bushy Park M.F.C. It should be noted, however, that Mr. J. March's figures are not so good as those of Mr. J. L. Pitcher (Croydon and Dist. M.F.C.), who has claimed the Trophy for a flight of 883.4 secs. made on the 17th September, 1944.

The Hon. Sec. brought to the notice of the Council the efforts of Mr. H. A. C. Hassell (Birmingham M.A.C.) in trying to obtain accommodation for the next Delegate Meeting in Birmingham. Mr. Hassell had not been successful in obtaining a Sunday date, but could arrange the hiring of a hall for a Saturday. The Council appreciated the efforts of Mr. Hassell, but felt that a Saturday would not meet with the requirements of those delegates compelled to travel long distances. The Hon. Sec. was instructed to make enquiries enabling the delegates to meet in London.

The Council was offered a selection of cover designs for the Society's Journal by the Chairman, Mr. Houlberg. The choice of the Council would first appear with the Christmas issue. Mr. Houlberg was congratulated by the Council for his very fine work on behalf of the Society.

Mr. R. H. Warring, Technical Secretary of the Society, presented to the Council a very complete survey of the Records Chart and his recommendations in this direction. His efforts were designed to simplify the existing classifications. "Absolute Records," for instance, would be limited to six or about that number. It was interesting for many reasons, not the least being the inclusion of a Distance Record. The eagerness of the Council to go thoroughly into this matter encouraged the suggestion that the meeting be adjourned for two weeks.

The Bathgate and Dist. M.F.C. and the Keswick and Dist. M.A.C. were granted affiliation to the Society.

The S.M.A.E. Council's proposals for next season's contests are now ready for placing before the A.G.M., and it will be found that many of the pro-war contests have now been reinstated and several entirely new contests, which should create even more interest and open a wider field for the model aircraft engineer, are under consideration. The S.M.A.E. Winter Programme of R.T.P. flying is well under way and has been received enthusiastically by the Clubs, many of whom are recording consistently high figures.

The same enthusiasm has been shown towards the Solids Contests, and readers are reminded that the second S.M.A.E. Exhibition of model aircraft is being held in the showrooms of the Bristol Aeroplane Co. in Piccadilly, W.1, from January 22nd to February 3rd inclusive.

The Area Scheme still continues to prosper, and the S.M.A.E. Midland Regional Council has now been formed by Clubs in the Birmingham area and include Leicester, Coventry, etc. This Council will function in a similar manner to those already set up in London and the North.

Clubs and country members should now be receiving the S.M.A.E. Journal and News regularly each month, and all communications regarding these should be addressed to Mr. F. E. Wilson, 34, Babington Road, Hendon, N.W.4.

Model aircraft clubs can become affiliated to the S.M.A.E. at a cost of 1s. per member per annum, with a minimum fee of 21s. 0d. for any club, and they can enter for all the Society's outdoor and indoor contests throughout the seasons. Among the many facilities offered by the Society are: Insurance against Third Party Claims up to £5,000; the S.M.A.E. Journal "Model Aircraft" and News, which gives up-to-the-minute information on all events of interest to the model aeronautical enthusiast; club cards, transfers, badges, arm-bands, etc., etc., are all available upon application.

Lone Hands are catered for by the Society's Country Membership for an annual subscription of 7s. 6d. Country members may enter for all the Society's competitions at the usual entrance fees, and they are entitled to attend and take part in meetings with full voting power. A copy of the S.M.A.E. Journal "Model Aircraft" and News is sent each month free of charge. Associate membership at 1s. per annum is designed for the "Sold" enthusiast, and requests for details or application for membership should be addressed to the Hon. Sec., Mr. A. G. Bell, 70, Nelson Road, Hornsey, N.8.

The first Dinner to be held by the S.M.A.E. London Area Council was certainly very popular, over 120 people attending. Mr. A. F. Houlberg occupied the Chair, and after the toast "The King" had been proposed, Mr. Costenbarder proposed the toast "Guests and Absent Friends" coupled with "The Ladies."

He regretted that war conditions made it impossible for many of our old friends to be present, but mentioned among other guests of the evening Mr. Houlberg, Chairman of the S.M.A.E., Mr. Towner, Competition Secretary of the S.M.A.E., who had travelled from Eastbourne to attend, Mr. Silvio, winner of the Sir John Shelley Trophy, and Mr. J. T. London, both from the Bradford M.A.C., Mr. O. Birchall, another old friend who never failed to miss one of these events. Two guests of the evening were the Brothers Watkins from the U.S.A., both of whom were keen aeromodellers. Another very welcome guest was Mr. E. F. H. Cosh, accompanied by his wife.

Mr. J. T. London of Bradford responded to the toast, and thanked the L.A.C. on behalf of all those present, and said he was sure that

all members at present serving their country and were unable to attend would send their best wishes.

Mr. F. E. Wilson proposed the toast "The Press," and he thanked them for their co-operation in the past, saying that he believed the Society would play a prominent part in the development of aviation in the future, and he hoped that with this progress so would relationship with the Press become even more cordial. Mr. Ryder, of "Flight," responded with a very short but humorous speech, in which he told the story of Sir A. V. Roe experimenting with models in his youth.

The toast "The S.M.A.E. and the London Area Council" was proposed by Mr. L. J. Hawkins, who said that he firmly believed that the Area Councils would do good in encouraging clubs to keep in contact with each other and so foster a spirit of rivalry and good fellowship. The L.A.C. was to be congratulated on the progress which had been made in the short time since its inception.

Mr. A. G. Bell, Secretary of the S.M.A.E., replied, and thanked everyone present for making the Dinner such an outstanding success. He said he was pleased to see both Mr. Houlberg and Mr. Hawkins present; both of them were real enthusiasts, and their services to the movement could not be overrated. He also mentioned Mr. M. W. White and Mr. F. E. Wilson, both of whom had worked hard to make the evening a success. Mr. Bell said that in the past there had been a friendly press and also a not so friendly press, but advised patience, however. The Society had enjoyed a record year and it was hoped that next year would be even more successful. The L.A.C. has a membership of about 20 Clubs and has already organised its first R.T.P. Contest, and he hoped that it would be possible for the S.M.A.E. to provide a Trophy for Indoor Flying shortly. R.T.P. Speed and Solid Contests were also being catered for.

Mrs. M. Wilson, of Northern Heights, presented a bouquet to Mrs. Houlberg, who presented the cups and in a charming speech, thanked everyone for a delightful evening.

WANTS, DISPOSALS AND EXCHANGE.

This service is free to our readers and the enormous popularity of this column has made it necessary for us to put forward these Regulations, both for readers' convenience and our own. Those desirous of making an insertion should send in their requirements at least two months before the required date of publication. The date of publication cannot be guaranteed as all items are treated in strict rotation and are published whenever space allows. Below is given the list of Regulations:—

1. The reader's name and address must be clearly printed.
2. It must be definitely stated whether the article is a "Want" "Disposal" or an "Exchange."
3. The number of words must not exceed thirty-five, excluding the address.
4. The exact requirements must be precisely stated with no extra trimmings.
5. Items for inclusion in any section must have some connection with aeromodelling.
6. Items are accepted for one insertion only.

WANTS.

(1) .22 rifle or pistol, will pay or exchange plans, aeronautical books or materials.—579505 A/A. Boyman, R. S., 13-4 "B" Sqdn., 1 Wing, R.A.F., Halton, Bucks. (2) 5 c.c. and 10 c.c. engines, also airwheels. B.A. Germany, 39, Stretton Road, Leicester. (3) 4 c.c. to 6 c.c. engine.—I. J. Scott, 3, London Terrace, Glasgow, W.2. (4) Certain "Skybirds" and "Frog" 1/72nd scale models or kits.—D. Bradley-Watson, Brant House, Brantfell Terrace, Bowness-on-Windermere, Westmorland. (5) 8 yds. $\frac{1}{2}$ in. by 1/30 in. rubber strip.—T/147633G7, Dvr. Watkins, G., c/o 71, London Road, Worcester. (6) 5 c.c. to 10 c.c. engine with coil, condenser, etc.—1892101 Sgt. Fletcher B., Sgts. Mess, R.A.F., Chedburgh, nr. Bury St. Edmunds, Suffolk. (7) Plan of American "Comet Zipper" petrol model.—J. Piercy, 29, Bishopthorpe Road, York. (8) 10 c.c. petrol engine with accessories.—L. C. Caroy, The Gables, Berry Lane, Langdon Hills, Essex. (9) 6 c.c. petrol engine with coil, condenser, etc.—G. Allen, Rose Cottage, Wickham Skeith, nr. Eye, Suffolk.

DISPOSALS.

(1) 3 ft. span half-finished flying scale Auster, with plan and prop.; 5 doz. real aeroplane photos.—H. Alsop, Old Schoolhouse, Wartle, Aberdeenshire. (2) Modified "Aeolus," Halifax "Commando" and "Air Cadet," complete with rubber, will sell or exchange for complete crystal receiving set.—B. Fisher, Prospect Square, Skelmanthorpe, Huddersfield, Yorks. (3) 6 c.c. model "F" Baby Cyclone, complete with many accessories, best offer over £8. Details from N. H. Sawyer, 31, Queen's Avenue, King's Lynn, Norfolk. (4) 20 plans and quantity of material, all new. Will sell or exchange with cash for petrol engine, details from V. Knapp, 46, Furlong Road, Westcott, nr. Dorking, Surrey. (5) AEROMODELLERS April, 1940-October, 1944. "Aeroplane Spotter," Vol. III, No. 58 onwards.—L. A. Bird, 59, Canning Road, E. Croydon, Surrey.

EXCHANGE.

(1) Unused 1944 model 10 c.c. G.H.Q. petrol engine with coil, plug, condenser, cast aluminium prop. and flywheel, for 2-3 c.c. engine, with or without cash adjustment.—F. S. Thomson, 3, Brampton Road, Huntingdon.

A.B.A. NEWS.



Applications for entry forms for the National Competitions are being received in great numbers and in many events entrants are proposing to compete with more than one effort. Those who have their models already made, or whose plans are finished, should send them in now to avoid a rush towards the end of March. There is no need to keep the completed entry form until the closing date, and much overwork at the nearby sorting office and in these headquarters will be saved if the results arrive over a more widespread period.

Will those who have not yet applied for entry forms and rules of competition, state in their letters of application the number and class of the events in which they are interested and please enclose a stamped addressed envelope.

The new A.B.A. brochure, with its many illustrations of aeromodelling activities and accompanying write-up, has been well received, and has been useful for passing to parents and friends who have not as yet seen the importance and value of aeromodelling. If you have not yet obtained a copy, or if you want a supply for passing on to others, please write to the Secretary stating the number required: A.B.A. Headquarters, 28, Hanover Street, London, W.1. Any aeromodeller in the vicinity of these Headquarters is invited to call in and have a chat and a look round. Many have already done so and have expressed their pleasure at what they have seen.

A luncheon party was held at Scott's Restaurant, Piccadilly, London, W.1, on November 16th, when matters of considerable interest to the model aircraft movement were discussed.

Mr. Louis Gabe, LL.B., Vice-Chairman of the Association of British Aeromodellers, presided. Those present were Sir Robert Bird, Bart., M.P., J.P., President; Air Commodore Sir J. Adrian Chamier, O.B., C.M.G., D.S.O., O.B.E.; Air Commodore Oswald Gayford, C.R.E., D.F.C., A.F.C.; and Air Commodore A. W. Glenny M.C., D.F.C., Vice-Presidents of the A.B.A.; Mr. Charles A. Rippon, Chairman of the A.B.A.; Mr. D. A. Russell, M.I.Mech.E., Honorary Trustee and Treasurer of the A.B.A.; Mr. F. W. P. Cartor, Press and Public Relations Secretary of the A.B.A.; Mr. Arthur Lodge, Secretary of the A.B.A.; Air Marshal Sir Leslie Gossage, K.C.B., C.V.O., D.S.O., M.C., Chief Commandant and Director-General of Air Training Corps; Major J. M. Henderson, Commissioner for Air Scouts; Major H. J. G. Collis, Army Cadet Force; Mr. Leonard Taylor, Editor, A.T.C. Gazette; Commander H. T. Bishop, R.N. (Rtd.), Secretary of the Navy League; Mr. C. T. Bird, representing the Association of Heads of London Men's Institutes (L.C.C.).

There have, perhaps, been few occasions when so many influential and important leaders of youth organisations have gathered round a luncheon table for an informal talk on a subject of general interest to all, certainly no occasion when men of such standing in national affairs have been drawn together to consider the best means by which the aeromodelling movement in this country can be usefully extended.

Brief speeches were made by Mr. Gabe, Sir Robert Bird, Mr. Rippon, Mr. Russell, Sir Leslie Gossage and Sir Adrian Chamier.

The general tone of the gathering was one of explanation and exploration, the members of the A.B.A. detailing the work of the Association, what it has so far accomplished and plans to achieve in the future, and those representing other organisations outlining the necessity for their members to join up with the A.B.A., either through the medium of affiliation or as individuals. All were agreed that steps should be taken to support the movement, so that we in this country could march forward and in step with other countries like the United States, Russia, France, Norway, Sweden and the South American Republics, where aeromodelling has for a number of years been encouraged officially and has made very rapid strides.

It is likely as a result of this gathering that big news will be forthcoming in the not too distant future, and that greater impetus will be given to the whole movement along more expansive lines.

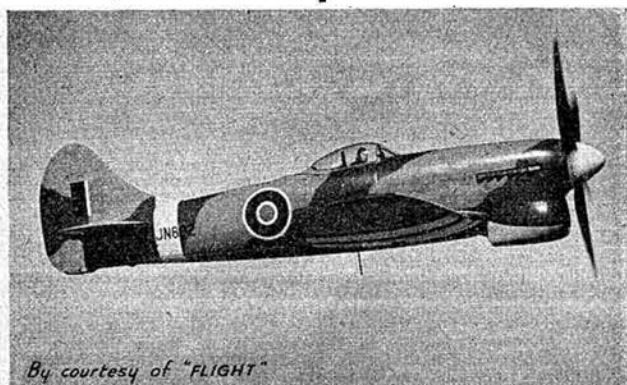
The Council of the Association of British Aeromodellers announce that Lady MacRobert has consented to become the first and only woman Vice-President of the Association. This news will give a great deal of pleasure to everyone connected with the movement, and particularly to the growing number of women and girls throughout the country who are now taking an active interest in model aircraft construction and flying. The steady growth of women's interest in aeromodelling has not been fully realised in the past, but with the expansion of the movement through the A.B.A., and the keenness displayed by girls and women in the Services and Defence units, they have come much more prominently to the forefront and are likely to become progressively so in future.

Lady MacRobert, as everyone knows, is one of Britain's most distinguished women, who, in addition to her many other activities, has done a very great deal in helping forward aviation in this country.

It will be recalled that in 1941 she presented a £25,000 Stirling bomber to the Royal Air Force as a memorial to her three gallant sons, Alasdair, Roderic and Iain, and named it "MacRoberts' Reply." When the last of her sons had gone, Lady MacRobert said: "For Britain I am proud to bear this sacrifice."

A year later, Lady MacRobert presented four Hurricane fighters to the Middle East Command, and expressed a wish that they should be employed in operations to help Russia. In a number of other ways, the new Vice-President of the A.B.A. has given her money and influence to the help of aviation and aviators generally. Her beautiful historic home at Domeside, Aberdeenshire, has been lent as a rest home for R.A.F. bomber and fighter pilots to help them to recover their health and to enjoy a well-deserved respite.

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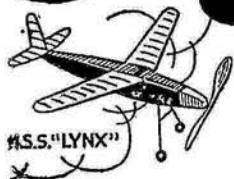


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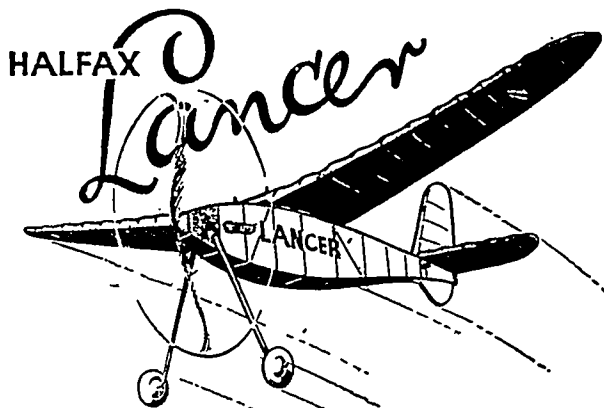
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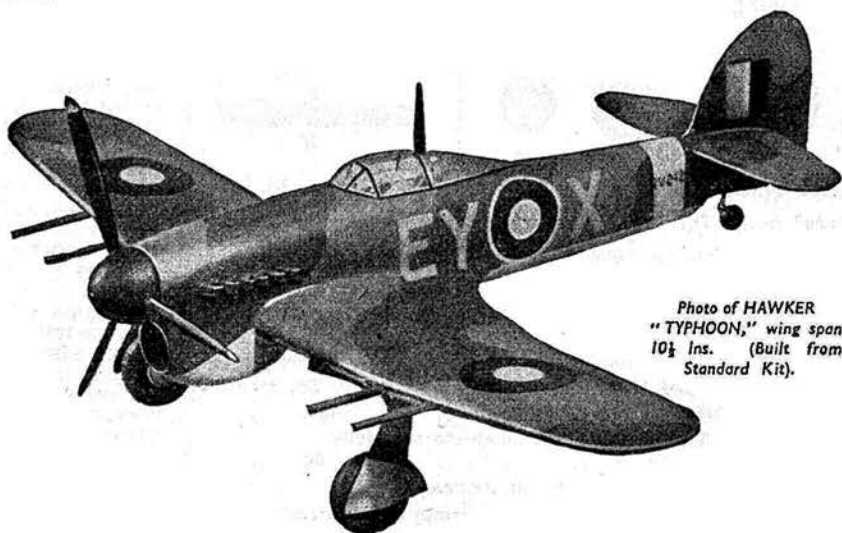


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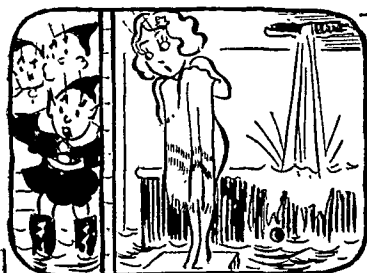
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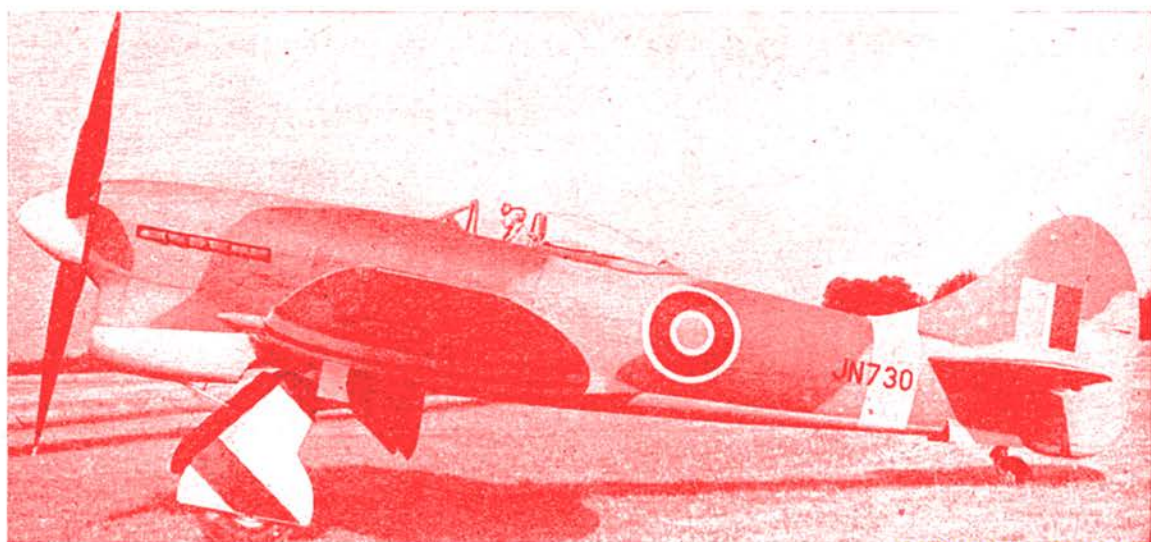
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