MODEL Aircraft

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IN THIS ISSUE

JANUARY 1951

1'6

THE JOURNAL OF THE SOCIETY OF MODEL AERONAUTICAL ENGINEERS

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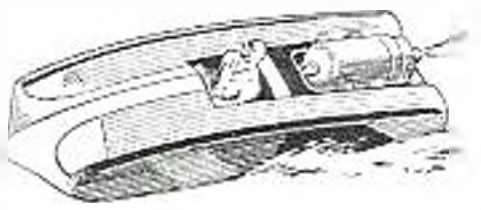

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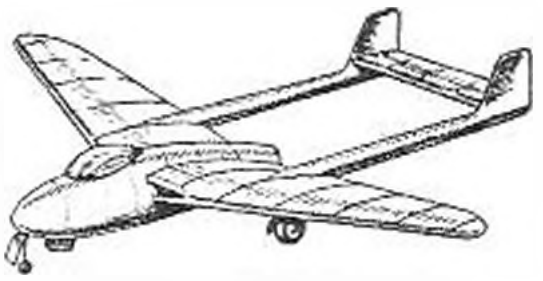

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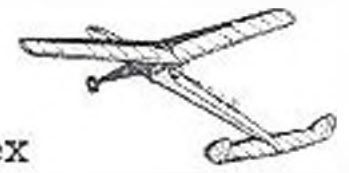

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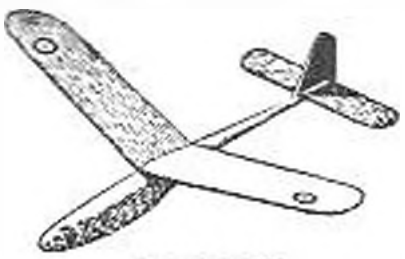

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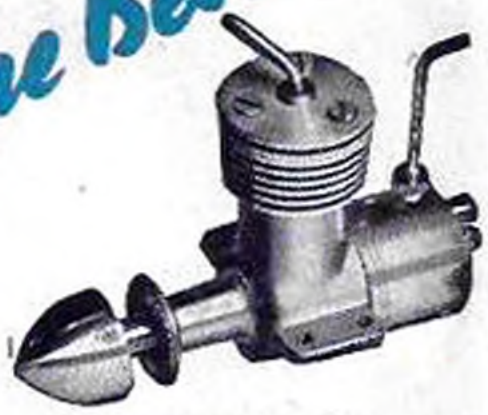

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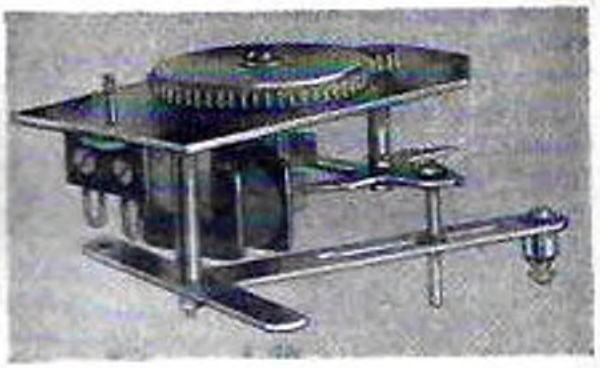

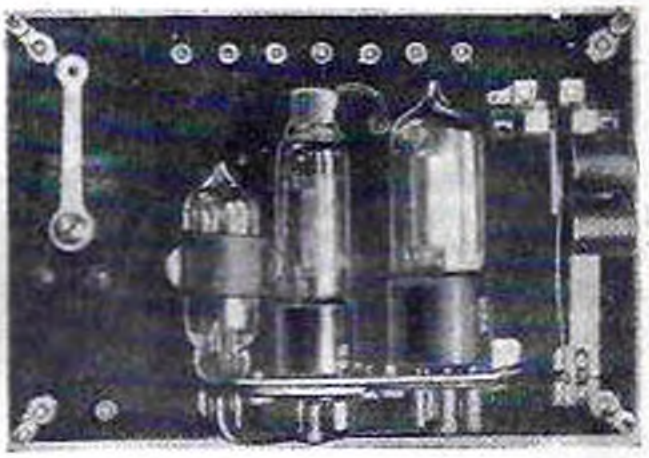

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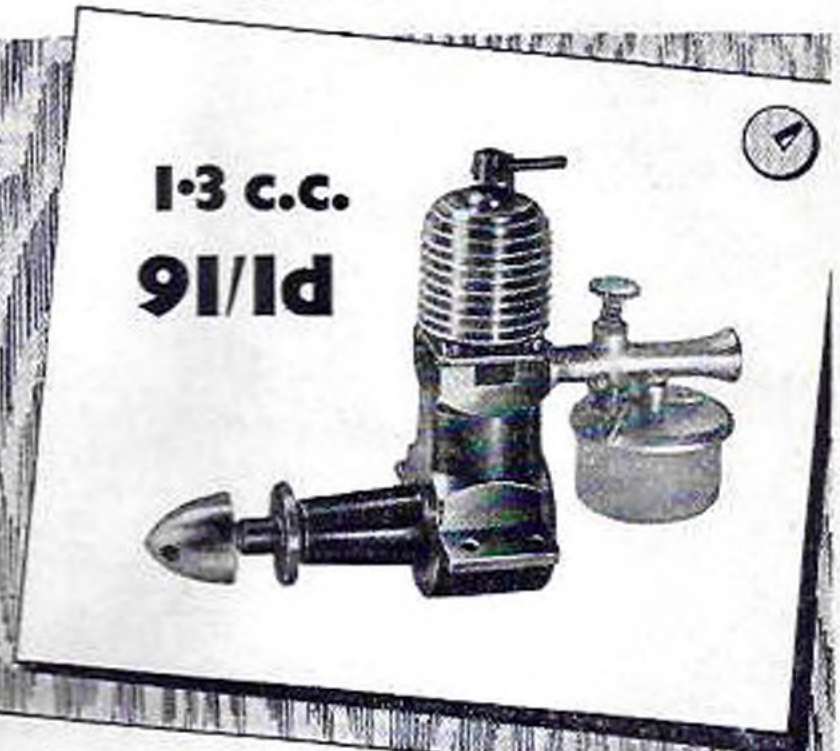

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MODEL Aircraft

THE JOURNAL OF THE SOCIETY OF MODEL AERONAUTICAL ENGINEERS

Editor : E. F. H. COSH

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JANUARY 1951 VOL. 10 No. 1

Contents

EDITORIAL

With the advent of each new year, the one just ended comes under critical review in the hope that the coming twelve months can be improved by applying to it the lessons of the last, and many aeromodellers must be considering their last flying season carefully, perhaps even ruefully, with a view to producing their "best ever" machine for the 1951 season and avoiding the mistakes of 1950.

Whatever may lie before us during the coming season at least it holds out a strong hope for better weather conditions, for it is difficult to conceive twelve consecutive months worse than those which we have just left behind us. With a distinct prospect of better flying conditions the urge is with us to spend the relatively short period which is left before the flying season starts again in repairing, rebuilding, redesigning and building new models in anticipation of happy contest days to come.

In many respects the past year has been a disappointing one, taking into account the bad weather, our inability to bring the Wakefield Cup back to this country, and our general lack of success in our international sallies ; but if it has failed to produce any outstanding results it has, nevertheless, contributed freely to our fund of experience and the lessons learnt will without doubt produce favourable and, we hope, outstanding results in the forthcoming season.

We have sufficient faith in the scope, ingenuity, and tenacity of the British aeromodeller to be quite sure that it will not be his fault if there is not better flying in 1951 than last year, whatever conditions lie ahead.

So far as this journal is concerned 1950 marked an important milestone in its development and progress—the first of our 68-page issues being published in May. Since that date the circulation of *MODEL AIRCRAFT* has made very rapid growth and we trust that conditions during the year ahead will enable this growth to be maintained at its present very satisfactory rate.

All those connected with the production of this journal take this opportunity of wishing model aircraft enthusiasts a pleasant and happy New Year and a highly successful flying season.

Cover Story

An outstanding feature of last season's Bowden Trophy Contest was the large number of biplanes which were entered. Three models of this type finished in the first four places and the attractive looking model shown on this month's cover gained second place for the entrant, F. Body, of the Portsmouth and District M.A.C.

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Here and There

THE EDITOR COMMENTS ON CURRENT TOPICS

A.G.M. COMMENT

Once again at an annual general meeting of the S.M.A.E., we have witnessed the disgraceful conduct of a few members of a well known London club, led on this occasion, as on others, by their secretary.

At previous annual general meetings, Mr. A. F. Houlberg, Mr. C. S. Rushbrooke, and other officers have been subjected to scurrilous attacks from this quarter and this year the Society's hard-working Secretary, Mr. D. A. Gordon, was the victim of their spleen.

The Council had unanimously decided to recommend his election as a Fellow of the Society in recognition of his valuable services and as a Fellow can only be elected by a unanimous vote at the annual general meeting, the four votes which were cast by the members of this club against the resolution vetoed Mr. Gordon's election and deprived him of an honour which he has so well earned.

Their spokesman's reason for opposing Mr. Gordon's election was childishly naive and fooled nobody. Other people, he said, had been overlooked by the Council. It should be pointed out here that every member of the Council who was present at the annual general meeting, knew the real reason for this action and only refrained from mentioning it to avoid further embarrassment to a retiring official.

We shall always strenuously oppose any move to stifle the free expression of opinion at the annual general meeting, or any other meeting of the society, but this is something quite different. It is the continuation of a subversive activity of which we have been well aware for some time, and is also an abuse of the privilege of free speech. The instigators of these attacks on the Society and its officials attend the annual general meeting, for the sole purpose of indulging in soap-box oratory and making themselves as big a nuisance as possible. The fact that the vast majority of those present disagree with them and view their behaviour with disgust does not worry them in the slightest, nor do they care if their proposals are overwhelmingly defeated. As long as they have been allowed to indulge in their favourite annual game of mud slinging they are well satisfied.

Have we not tolerated these insidious efforts to sabotage the work of the Society long enough? Surely the time has come for strong action to be taken against the instigator of these attacks and *his fellow travellers*? They have brought into disrepute a once respected club, the majority of whose members are decent chaps whose only fault has been that they have continued to allow this clique to besmirch the club's good name. It will be unfortunate if the many have to suffer for the actions of the few, but knowing the present strong feelings of affiliated club members in all parts of the country on this matter it seems that this may well happen.

NOTICE OF INTERNATIONAL CONTESTS

There have been a number of occasions when the S.M.A.E. has been unable to support international contests due to the lateness of promulgation of the rules which occurs in many instances.

The selection of a team to represent one's country in an international contest involves an appreciable amount of time if it is to be done fairly, by elimination contests, and the giving of two or three weeks' notice of the details of an international event is not sufficient to enable one to participate unless one utilises the "fixed circuit" type of team favoured by some countries who send the same team every year.

We are not without offence in this direction ourselves as we were very late sending out our invitations to the Bowden contest this year, but it only emphasises the importance of giving the three months' notice laid down by the F.A.I. That is to say the rules and regulations for the running of the contest must be in the hands of the National Aero Club at least three months before the advertised date of the meeting.

The S.M.A.E. found itself reluctantly unable to attend the recent first Spanish International Meeting as a result of the late receipt of the rules and conditions.

THE CONTEST JURY

An important proposition submitted by the London Area is the establishment of Contest Juries at all major S.M.A.E. contests, selected from members of the Society's competition organising committee.

The average aeromodeller is a cute individual who makes a study of rules with the object of finding any possible loopholes, and exploiting them if possible. This is quite a fair procedure but it sometimes leads to lengthy arguments on rule interpreta-

tion and it is advisable to have a panel of men on the spot who are capable of giving an unbiased interpretation and enforce the *intention* behind the rule.

All international contests are run with a panel of jurors—usually three—and it would often help the smooth running of national contests if the same procedure were adopted.

However carefully the rules of a contest are produced there is always the odd occasion when something not specified in the rules crops up and needs clarification.

An impartial jury empowered to make a final decision is the quick answer to this problem.

MODEL FLYING AT THE ROYAL ALBERT HALL At the recent Festival of Remembrance held at the Royal Albert Hall, London, and attended by their Majesties The King and Queen and other members of the Royal Family, we were particularly impressed by the series of tableaux presented by the Royal Air Force.

These depicted the life of Halton Cadets from the time that they arrive as civilians at this famous training establishment until they pass out as qualified technicians. They were shown at the workbench, in the lecture room, and indulging in sports. Hobbies were solely represented by model aircraft and six cadets were seen preparing their models for flight. Unfortunately, despite a good deal of propeller flicking, only one of the engines made a spasmodic burst into life before the tableaux ended. However, it was a good boost for aeromodelling and the announcer explained that although the models could not be flown indoors, they had all proved their flying capabilities.

This brought back to us memories of the old pre-war S.M.A.E. indoor flying meetings, which were held in the Royal Albert Hall and which were so popular with London microfilm enthusiasts. Ralph Bullock and Bob Copland were among the leading indoor fliers in those days and the latter's flight of 18 min. 52 sec. made at one of these meetings still stands as a British Indoor H.L. Stick Record.

POLISH MODEL FLYING CLUB We are very interested to learn of the formation of the Polish Air Force Association Model Aircraft Club, which has recently opened its own headquarters at 42, Emperors Gate, London, S.W.7. The Club's chairman, Mr. J. A. Ploszajski, A.F.R.Ae.S., informs us that an interesting programme of lectures have been arranged and, although the Radio-Control and Glider Sections are the most active at present, interest is also being shown in free-flight and C/L.

A cordial invitation is extended to aeromodellers of Polish nationality to join the Club and details of members may be obtained from the Secretary, Polish Air Force Association M.A.C., 14, Collingham Gardens, London, S.W.5.

THOSE 5 min. FLIGHTS! In the recent edition of the *West Essex News*, we came across the following advice for contest fliers and we have no doubt that it will amuse our readers as much as it did us—truly, is it said that "many a true word is spoken in jest!"

"*Next to the contemplation of splintered wreckage there is no more depressing sight than to see one's model borne swiftly into obscurity long before the timekeeper's watches have ticked off that precious maximum. But happily, the "wide boys" have discovered a unique way of overcoming the frustration of the 2 min. odd out-of-sighter. Like all great discoveries the basic idea is simple, but a touch of ingenuity is needed to carry the project through successfully. Here roughly is an outline of the scheme which has proven so successful this year.*

Phase One *Round up a bevy of loud-mouthed cronies and give to each a specific task, e.g., winding mechanic, fuse ignition expert, meteorological advisor (wind direction dept.), down-thrust keeper, P.R.O., and so on.*

Phase Two *Advance upon take-off area in imposing procession, with an eye to the selection of the meekest looking pair of timekeepers available.*

Phase Three *By dint of pompous utterance, etc., instil into timekeepers a proper sense of awe and respect for the Great One about to display his genius.*

Phase Four *Put into operation the elaborate winding up ceremony with that grave precision usually accorded to Great Occasions such as "The Changing of the Garter" and other Royal functions.*

Phase Five *Cronies should crouch into an expectant hush as the model takes off; and when model is safely lodged in the upper stratas, should whoop into a syncophantic rapture of: "Boy, what a take off," designed to impress the timekeepers.*

Phase Six *At this juncture the Crony Chorus should be draped tightly around Timekeepers, and sustain a regular chant of "What a height," "That's good for at least 10 minutes," "Stands out against those white clouds plain as day," and so on. By the time the model has disappeared from sight, say after two or three minutes, the timekeepers will be so mesmerised and bewildered that they will no longer believe the evidence of their own eyes and allow the clocks to tick on for a maximum."*

Alec Wilson asks . . .

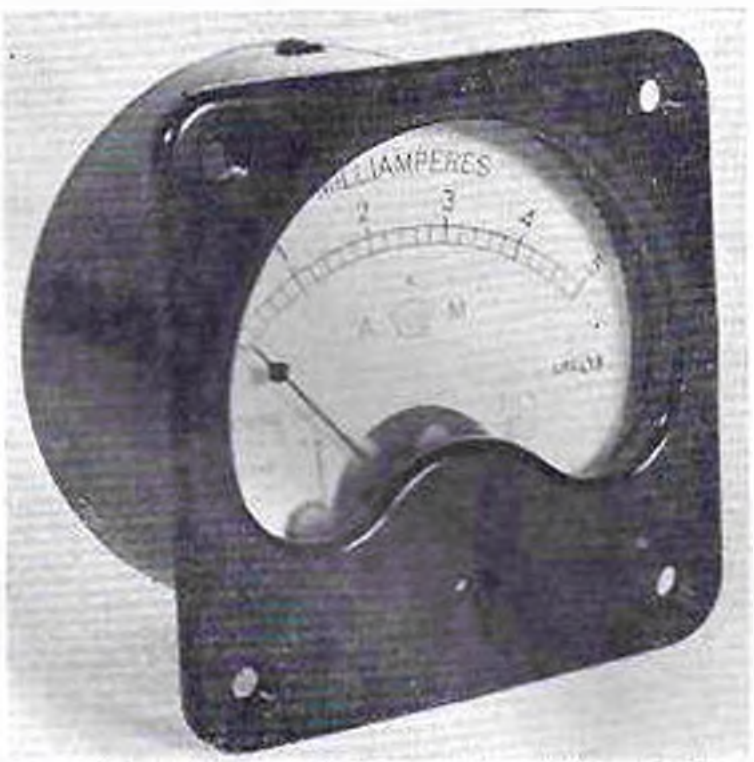
ARE YOU KEYING?

WITH R/C a well-established part of our hobby, it is now possible to get a true perspective and realise that R/C flying will now take its appointed place alongside the other types of flying in which we indulge.

R/C can be likened to an attractive girl—fascinating, alluring and entirely unpredictable! The aeromodellist who gets bitten by the R/C bug will get much pleasure, will have many happy hours, and at times, some really well worth while thrills with his R/C model. He will also be exasperated when things go wrong.

It is to be expected, however, that any electro-mechanical device such as a R/C receiver, subject to physical shocks and fed from dry batteries will need attention from time to time to keep it functioning in a 100 per cent. manner, and it is to help the newcomer with little or no electrical knowledge that this article is written.

Having purchased a relatively expensive R/C outfit, the enthusiast will be well advised to spend a few extra shillings on test gear. It will save much time and guesswork which gets nowhere. An essential will be a 0-5 M/A meter, which will cost about 5s. from a radio dealer who stocks government surplus equipment. Physical dimensions should be small, as it will be plugged into sockets to read the anode current of your receiver when *in situ* in the fuselage.



These 5 M/A Meters can be obtained for as little as 5s. from dealers in government surplus equipment.

Although this same meter could be used for reading H.T. and L.T. voltages with added resistances, the author feels that, as this meter is frequently used for various checks on the receiver, it should be kept separate and near at hand.

Testing the H.T. and L.T. voltages will not frequently be made, but in case of failure, or erratic behaviour, of the receiver, it will be essential to know what these components are doing.

Assuming, therefore, that the aeromodellist has made arrangements to beg, borrow, or steal a voltmeter to read 0-100 V and 0-5 V, we will now tackle the various parts of R/C equipment.

Transmitter

The transmitter will be surveyed first, as it can be dismissed almost without comment. The commercial transmitters are solid, well made pieces of apparatus which will give very little trouble indeed. The author has yet to hear of a transmitter valve failure, although it is possible, of course. It is much more likely to be the H.T. or L.T. supply when the transmitter fails to radiate. Tests for H.T. and L.T. are explained later and should always be made on load. A little extra attention should be given to a dry L.T. battery.

Receivers

Owing to the simple nature of receiver circuits, any failure which is in the receiver itself can be quickly located by intelligent use of the test meters.

The first test is to make certain that all supply voltages are reaching the receiver terminals. If there is a no anode current condition, the fault is most probably one of three things which are, in the order of their probability, (1) a broken connection due to a heavy landing, (2) an open circuit relay coil, or (3) an open circuit valve filament. The first test is to check H.T. on valve leg—if H.T. is there (1) and (2) are O.K., and it is possibly No. 3. If H.T. is not at valve leg, cut down H.T. on variable resistor and short out relay coil, H.T. choke and

other wiring in H.T. circuit until fault is found.

A wavering anode current condition is generally caused by the internal characteristics of the valve, and generally shows up when the valve is nearing the end of its useful life. Sometimes, however, it is due to the oscillating conditions in the receiver. Slightly moving the position of the components and wiring will sometimes effect a cure, or even altering the values of grid condenser and leak will give the valve a new lease of life. As each valve has its own individual internal conditions, no rules can be laid down for these modifications, one can only experiment. In a commercial receiver, one can only assume that the valve is failing, and have it replaced. Relays do not generally give much trouble, but can get jarred out of adjustment at times. Resetting is not difficult, but if you have not done it before, get a technical friend to show what a delicate touch is necessary. Relay contacts are best cleaned by lightly rubbing a steel "feeler" of 0.003 in. to 0.006 in. in between the contacts when they are closed. Tuning in by a lone hand is, perhaps, best accomplished by using the transmitter with no aerial attached. In this way a weak field is radiated by the transmitter. Hold the receiver as far away from the transmitter as the control cordage will allow, and tune with the receiving aerial clear of the ground. With an assistant, however, a much more reliable tune is obtained at a distance of 200 yards or more under full operating conditions.

Actuator

Here again one has a reliable well made piece of apparatus, with the dry battery supply as the main source of failure. Occasionally an escapement will tend to stick on, with disastrous results, which must be guarded against. It is due to the return spring of the armature not being strong enough to overcome the residual magnetism of the electromagnet. This tendency is easily overcome by cementing a small piece of tissue paper on to the armature or magnet pole, to prevent metallic contact. Use shellac as an adhesive.

Do not use too strong or too short a rubber drive. A single strand of $\frac{1}{8}$ in. flat will be enough for a small rudder, and one of $\frac{1}{16}$ in. flat for a larger one. The escapement will be reluctant to disengage if the motor is too strong. If you are using a stronger motor, increase supply to magnet by 1.5 V. A more even torque is generated by a long motor: 12 in. should be considered the minimum.

Dry Batteries

We now come to the last, but by no means the least important set of components in our R/C equipment, namely, the various dry batteries which supply the H.T., L.T., and escapement magnet. As dry batteries deteriorate "on the shelf" of your local shop, every effort should be made to purchase batteries as fresh as possible. Even a brand new battery, just purchased, can be suspect if the circuit in which it is used is not functioning correctly.

H.T. batteries give the least trouble and the test meter will show a voltage drop long before the battery becomes unserviceable. It seems that only an accidental short circuit will suddenly cut short

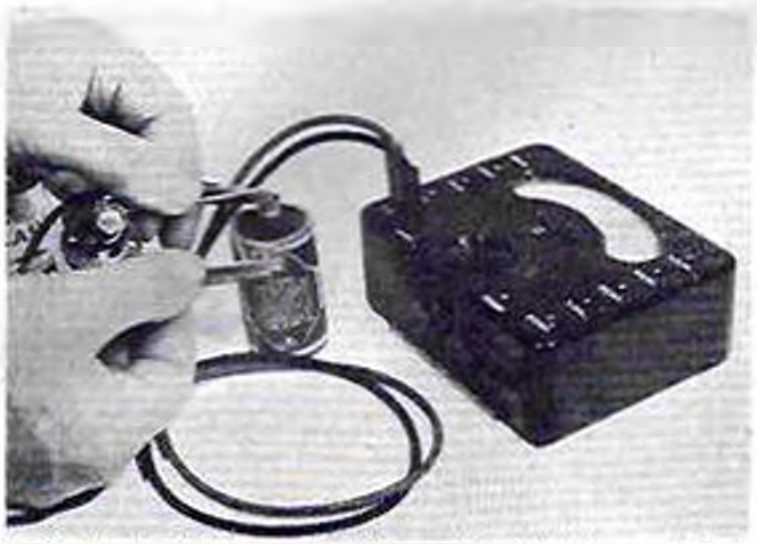
The Avo Minor Meter which is ideal for field testing.

their useful life. To assess the end of "useful life" depends to some extent on operating conditions, but the writer suggests a 10 per cent. drop from nominal voltage should be used as a "dead" line. Even if the battery still operates the receiver, it should be replaced, as it has now developed a high internal resistance which can cause complications in the receiver, especially if it is a multivalve modulated type. All voltage readings should be taken with a good, high resistance voltmeter. Incidentally, this same test applies to the transmitter H.T. battery.

L.T. Batteries

These little fellows have quite a lot of work to do, and rank high in the list of possible failures, and the author strongly advises that every care should be taken to keep this circuit beyond reproach. Battery supply, wiring, switch, and other contacts must be 100 per cent. The use of twin cells in parallel will

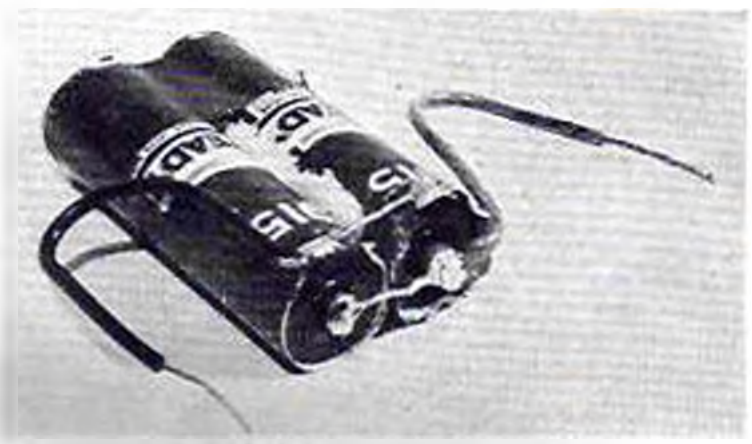
A small piece of tissue cemented to the armature or magnet pole will prevent the actuator from sticking.



A simple load test made with a 3.5 V bulb and holder.

more than double the life, and cut down the possibility of failure considerably. Most machines will carry the extra ½ oz. with ease. On the larger multi-valve receivers the filament current drain is considerable, 260 mA in fact, and heavy duty cells of the "U2" type must be used. The possibility of using miniature accumulators for heater supply on these large receivers is one that warrants consideration.

As the L.T. battery test is the same as the test for the escapement battery, it will be described later.



Two cells in parallel for longer life.

Actuator Batteries

The current drain on actuator batteries has been considerably reduced on the latest commercial escapements with the double winding current saving device. This idea has made battery failure in this circuit much less frequent, but the possibility of it happening cannot be ignored. At the slightest sign of sluggishness or failure to "pull off" this battery should be tested.

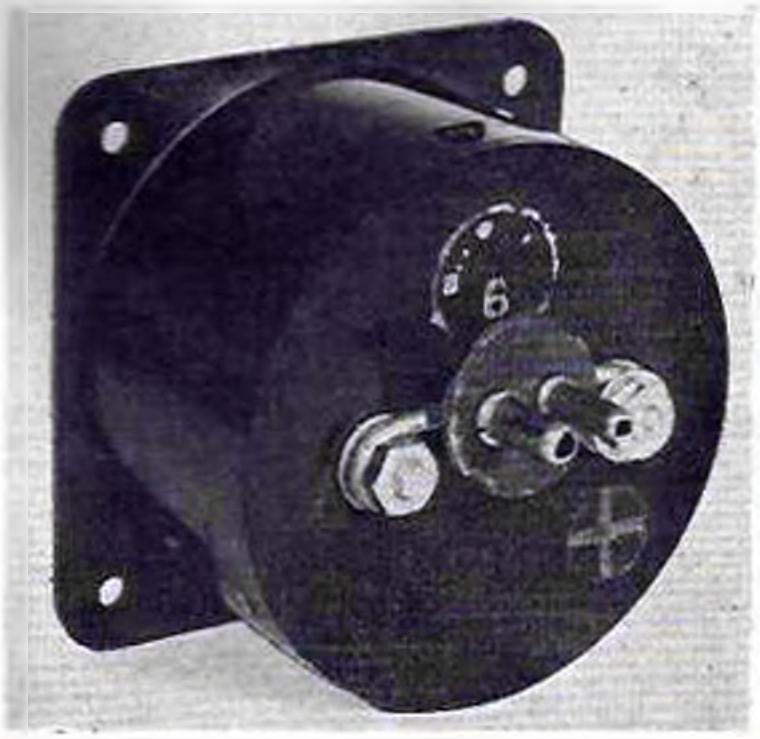
L.T. and Actuator Battery Tests

A no load voltage test of these small batteries will only serve one useful purpose, and that is, if the battery does not show full nominal voltage it should be ruthlessly scrapped as being too dangerous to use. As it is necessary to test batteries or cells for R/C use under load conditions, the writer has made up a very simple artificial load device which is well within the capabilities of anyone to make and use. It consists of a 3.5 V flash lamp bulb and holder, with two short lengths of 16 s.w.g. copper wire attached to holder as test prods. To test a single cell, clip on the voltmeter, which should read just over 1.5 V. Now press the test prods across the cell and the flash bulb will glow dully. If a good cell, voltage will now show 1.45 V or even 1.4 V is acceptable. If, however, the reading is 1.35 V or lower, the cell is on its way out, and should be replaced. The procedure is exactly the same for a 4.5 V battery and in this case 3.9 V is the lowest acceptable voltage, although the author personally throws them out when they drop to 4 V. Admittedly, these tests are of an elementary nature, but they can be made by the average modellist on the field of battle and will serve to give a relative indication of the state of his small battery supply.

And finally, please have a really hot iron when soldering, and run the solder into the joint being made. So very many "dry" joints made with semi-plastic solder, pushed on with a lukewarm iron, have been noticed.

There is also the danger of overheating adjacent components with a warm iron, as it has to be held on the joint so much longer, whereas only a quick touch is necessary with a really hot iron.

In conclusion, the writer does not want to give the impression that R/C is one long search for trouble. On a recent Sunday at Fairlop, some 16 R/C machines were flying continuously all day—two or three machines in the air at the same time—and not one radio failure or loss of control was experienced. But troubles can and do occur from time to time and although most of them are quickly located and cleared by the expert, other enthusiasts need a little help. The author can only hope that some small item in this article will help someone to keep his R/C model responding to the key.



Two pin plug fitted to M/A meter for testing anode current.

Cranwell Gala

(1) Stuart Davis, president of the Croydon and District M.A.C. (left) starts up his entry in the power event.

(2) D. F. Clark, of Lincoln, gets his pylon model away well in the power contest.

(3) One of the two entries, in the R C contest. Orton, of the Hinckley Club.

(4) The Croydon Club were present in force. Roy Yeabsley is shown launching his brothers Nordic glider.

(5) (Right) The P.O.W.A.C. Team preparing their T.R. entry for the fray.

(6) (Bottom left). The victorious St. Albans entry in the team race event.

(8) (Below) Vic Dubery, of Leeds, preparing his new Wakefield for a flight in the rubber contest.

(7) (Bottom centre) "Expectancy." The Hinckley Team waiting for the starter's signal.

MODEL REPORT

By Ron Warring

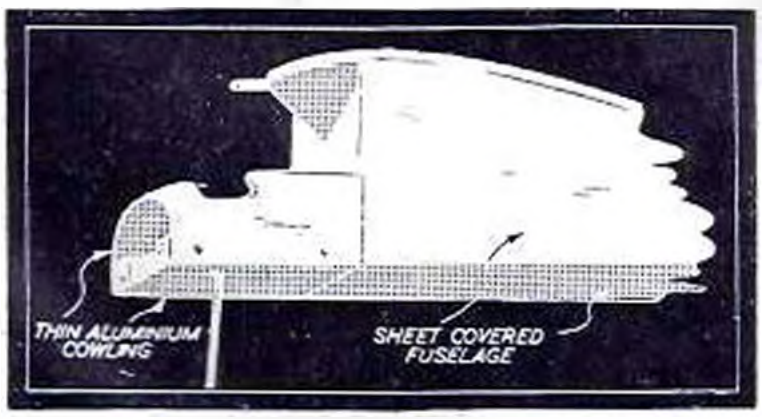
The Foote Racer

DON FOOTE, noted Californian free-flight power modeller, is best known for his *Westerner* series of designs. Although a pylon layout, the *Westerner* featured a high aspect ratio wing of characteristic planform. The outer panels had a curved taper on the leading edge only, a feature which Foote has retained on all his subsequent published models. Planform, and construction, of his latest—the *Racer*—is still almost the same as that of the original *Westerner*, with a few detail improvements.

The *Westerner* was, in many respects, an ugly machine. The same can be said of the *Racer*. In fact, in appearance, this new design differs only in having the fuselage cut off along the datum line for a flat, straight undersurface. The *Westerner* featured a deep belly fairing, sweeping back and up into the lines of the main fuselage.

It is evident, too, that the same basic method of construction has been retained which, presumably, is adequate proof of its suitability. To British eyes, at least, it appears to be a trifle on the weak side, relying almost implicitly on the sheet covering to give adequate strength and rigidity.

We had our first experience of flying with a *Westerner* some two years ago. This was the smallest version, powered with a Frog "100." Performance was every bit as good as could be expected of any Class "A" model, once a few of the initial bugs had been trimmed out. The glide in particular was really excellent, and climb was rapid in a left hand spiral. Considering that this size of *Westerner* was designed to take motors up to 3.25 c.c. capacity (American "19's"), climb with a larger motor would have been sensational—if it could have been controlled. Our own opinion was that anything over about 2 c.c. capacity would have made the design too "hot" to handle with comfort, especially a spark-ignition motor with its attendant extra weight.



The *Westerner* was definitely not happy turning to the right under power. Any degree of right turn under power, in fact, was asking for a spiral dive. This was one of the initial troubles experienced which was eventually tracked down to a wash-in warp on the port side of the tailplane. Structurally we found the tailplane very poor as regards warping. Two or three tails made off the same plan all exhibited warps, and no two exactly the same. Monospar construction on a parallel chord, low aspect ratio aerofoil does suffer from this inherent fault.

The high aspect ratio wings were more than strong enough with the ample spar sizes recommended and their only fault was that their large span made them difficult to transport. Class "C" *Westerner* wings in one piece, for example, were almost impossible to get inside a car. For this reason alone this particular model was not taken out and flown much, but the flights that it did make showed it to have very similar characteristics to it smaller brother, with an even better glide, but more moderate climb (Ohlsson 60).

For general flying the smaller *Westerner* fuselage did not prove strong enough. One spiral into the ground snapped the fuselage in half just aft of the wing mount. When one bears in mind that the plans of the Class "C" *Westerner* showed the same size longerons—only ¼ in. sq. balsa—the durability of this fuselage was more than suspect. But we were sufficiently impressed with the flight performance to look upon the design as something decidedly better than the average.

Foote's next published design was a shoulder wing model, again with that charcateristic wing planform. We have not seen any examples flying in this country and have no record of it doing anything sensational in America. The fact that it was a shoulder wing type with little or no downthrust and the c.g. rigged well aft almost certainly means that it was decidedly tricky to trim and fly. We are not surprised, therefore, that the *Racer* reverts to more or less the original layout.

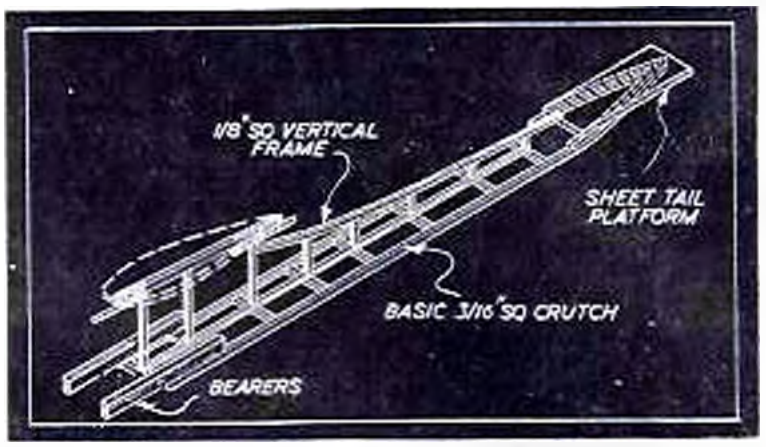
The *Racer* is typical of the modern trend to reduce pylon height. There should actually be an optimum pylon height for any particular size of model and motor, but the only way to arrive at this is by trial and error methods, at present.

The fuselage itself is very simple, reasonably strong and aerodynamically good on account of its very slim lines, although the actual entry of the front of the pylon would appear to leave much to be desired. The plans are not clear on this point. The front former offers a flat plate section, with a triangular gusset

projecting from it up to the wing platform. Just how the covering fares in this abrupt change of section is problematical. But this time a definite cowling has been produced for the motor, this made of thin aluminium or tinplate. Tinplate, incidentally, is not to be ignored as an easily-worked metal cowling material. Some examples have given excellent service on control line models over a period of a couple of years.

The motor is beam mounted, as on the original *Westerner* (which left the motor simply sticking out in front) and the undercarriage legs bound to the bearers in the absence of any ply former. This again appears to be satisfactory. But in spite of the ingenious construction we cannot credit the fuselage with enough strength to resist a crash landing. Main members have been increased in size to $\frac{3}{16}$ in. sq. and the whole fuselage sheet covered as before. The tail area is strengthened by "layer" construction, the sheet tailplane platform forming the top layer. This undoubtedly strengthens the possible weak point on the fuselage by the tailplane leading edge, but now transfers this farther forward to where there is a marked change in section between the end of the first layer and the crutch proper.

Wing construction is only slightly modified from that of the original *Westerner*. The curved outer panel leading edge is now made from two pieces of $\frac{1}{4}$ in. × $\frac{1}{8}$ in. balsa in the form of vertical laminations —a very effective method indeed of making curved edge spars. Spars at the dihedral breaks have been lap jointed, again effective and avoiding the use of spar strengtheners at these points. Normal sheet balsa spar joiners (or dihedral keepers) are employed at the centre section joint, and at leading and trailing edges at the outboard dihedral breaks. All spars of generous sizes, the two mainspars being

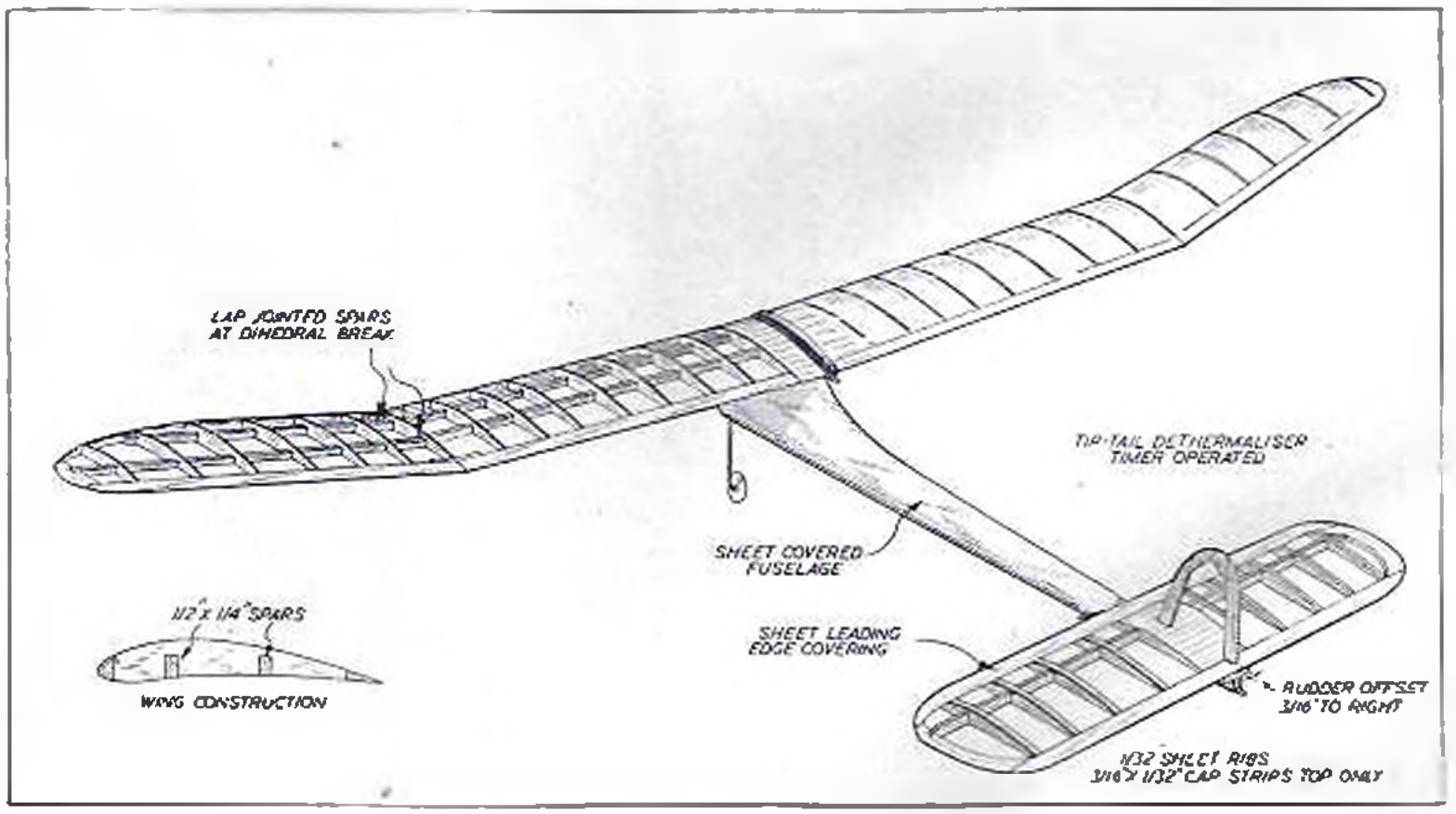


$\frac{1}{2}$ in. × $\frac{1}{4}$ in. and the leading edge the same. The trailing edge is $\frac{1}{2}$ in. × $\frac{3}{16}$ in. stock.

The tailplane structure employs 1/32 in. thick ribs—unusual on so large a size—but these are capped with $\frac{1}{16}$ in. × 1/32 in. strips, serving the dual purpose of giving the thin ribs rigidity and bringing them up to the level of the 1/32 in. leading edge capping. The leading edge proper is $\frac{3}{16}$ in. sq., set diagonally.

It would appear that the tailplane is still not fully warp-resistant and that an asymmetric twist may develop unless pinned down after water spraying and doping. The leading edge will be rigid enough with its sheet capping, but the trailing edge is still relatively free to twist. Our own attempts to build a non-warp tailplane of similar planform utilised a built-up trailing edge with sheeting extended on the top surface some 1 in. forward. This definitely adds the rigidity required, although at the expense of a certain increase in weight.

Weight distribution on the *Racer* can be critical. Total weight is not so important. Wing area quoted by designer Foote on the reduced scale plan as



originally published is 393 sq in., whereas in actual fact laid out to true dimensions the area is almost exactly 430 sq. in. Working on the assumption that for a model of this size a wing loading of not more than 6 oz. per 100 sq. in. is necessary for true " duration " performance, total weight of the model can be as much as 25.8 oz. Various all-up weights are quoted for the *Racer*, 20 oz. with a Class " A " motor and 36 oz. with a Class " B " motor being typical. These correspond to loadings of 4.65 oz. per 100 sq. in. and 8.4 oz. per 100 sq. in., respectively.

The *Racer* is essentially a Class " A " design (American Class " A," with maximum motor capacity 3.25 c.c.), and with a designer's weight figure of 20 oz. for these motors should be readily duplicated within the 25.8 oz. desirable maximum.

Where weight is likely to be critical is in affecting balance. The type of construction used, with fuselage sheeting, is going to bring the centre of gravity of the finished fuselage alone fairly well aft. The motor is mounted just in front of (and below) the leading edge of the wing and some difficulty may be found in achieving the design c.g. position (75 per cent. chord) without some additional nose ballast. The fuselage tail end, and the whole tail unit, will have to be kept as light as possible.

Size of the model should be very well suited to a good American " 19 " motor, glow-plugged to eliminate the weight of ignition components, and built to an all-up weight not exceeding 26 oz. Climb with such power should be as fast as necessary for any open power-duration competition and glide will be excellent on account of the moderate loading. Further reduction in weight will give even better climb and glide performance.

With a larger motor, the *Racer*, we are sure, will tend to be tricky to trim out. It does not need any more power than a good " 19 " to have a really first class performance. Using a larger and heavier motor will give increased rate of climb at the expense of a more difficult model to handle, and downward glide performance on account of the higher loading.

For British competition work, however, the *Racer* would appear to be an almost ideal two-class machine. Any of the good 2.5 c.c. British diesels (Elfin, Mills, E.D.) should give it a performance comparable with that of an American " 19 " to qualify for (British) Class " A " (motors up to 2.5 c.c. capacity). Any good " 19 " (3.25 c.c.) could be used to make the *Racer* a (British) Class " B " contest job (motors 2.51 to 5 c.c.).

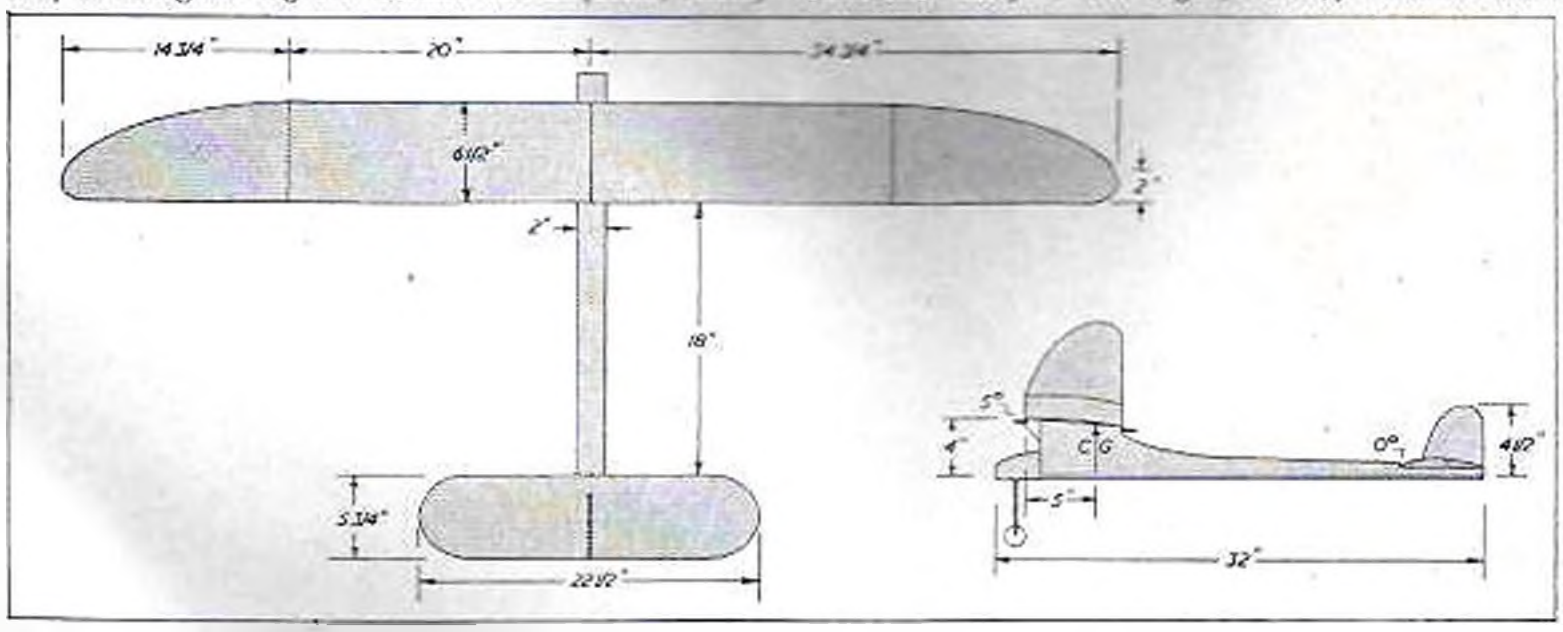
Trimming technique adopted with the *Racer* is typical of the modern way of handling pylon designs with moderate pylon heights. This is to make the model turn left under power—never right—against a slight amount of right rudder offset. This, of course, needs left sidethrust, erring on the side of too much, rather than to little motor offset.

Foote also uses wing warping in conjunction with offset thrust and right rudder to achieve trim. Wash-in is given to the port wing, so that this wing will drag on the glide and give a left hand glide circle—this against the action of rudder. Under power this warp will tend to roll the model around to the right which, together with the rudder offset, has to be overcome by sidethrust. Thus the safety of the trim relies very much on the action of sidethrust for a right turn under power is almost certain to lead to a spiral dive.

Whether this type of trim is the best to use or not is open to doubt. The use of wing warping, now frequently employed, can lead to trouble unless the action of these warps is properly appreciated. The use of opposing forces, however—e.g. thrust offset against rudder—is generally recognised as desirable.

Strangely enough, on some high pylon designs, increasing the amount of *left* sidethrust can often make the model turn even more strongly to the *right*. On high pylon models there is a definite tendency to turn right under power, almost certainly the result of slipsteam action on the pylon itself. The slipstream, rotating anti-clockwise as viewed from the front, imparts a side force on the pylon tending to roll the nose of the machine around to the right. A high pylon, therefore, can render sidethrust relatively ineffective. Hence the potential advantages of moderate pylon height.

Not so many years ago it used to be the accepted practice to let pylon models turn in their " natural " direction—i.e., to the right, usually with a small



amount of left rudder offset. Glide circle was opposite to climb circle. A left climbing turn is now recognised to be safer, achieved with sidethrust, the nose of the model having a natural tendency to come up due to gyroscopic action and thus lessen the risk of a spiral dive. At the same time, many designers feel that opposite rudder is still very necessary as an additional safeguard to keep the nose up. The only simple way to get a glide circle in the same direction then is to use wing warping or, rather better, trim tabs on the wings. Having the glide circle the same as the power-on circle enables the model to be trimmed out without that stall and dive following the motor cutting. Transition from power to glide should be smooth, especially for ratio duration contests. In the latter, without doubt, a consistent high average is best obtained by using the minimum possible motor run (10 sec.), when every foot of altitude helps in prolonging the glide. To lose a 100 ft. or so in a series of vicious stalls when the power cuts may halve the possible score on any one flight.

Trimming technique is still largely a matter of individual preference, but certain designs do definitely respond best to certain methods. The *Westerner* series, and the *Racer* represent a case in point where a left hand climbing circle is undoubtedly the only sound approach. One of the main points to remember with these or any other designs is that if wing warping is used, a power-on turn which may develop in the opposite direction to a wing with wash-in (i.e. a left hand turn in the case of a model with wash-in on the starboard wing, and vice versa) is almost bound to end up in a spiral dive. Also under power, wash-in on a wing gives more lift on that wing and a turn in the opposite direction. On the glide conditions are reversed. The wash-in produces greater drag on that wing and a turn in that direction. Where many less experienced modellers come unstuck is that under *low* power wash-in may have "glide condition" effect, changing over to the opposite action under high power. Thus a duration model trimmed out for stable flight under full power may be dangerous to fly under reduced power!

BRITISH NATIONAL RECORDS

as at October 31st, 1950

OUTDOOR
(Minimum F.A.I. Loading)

Rubber Driven				
Monoplane	Boxall, F. H.	Brighton	35	00
Biplane	Young, J. O.	Harrow	31	05.125
Wakefield	Boxall, F. H.	Brighton	35	00
Canard	Woodhouse, J.	Whitefield	2	13.1
Scale	Marcus, N. G.	Croydon	5	21.75
Tailless	Boys, H.	Rugby	1	24.5
Helicopter	Tangney, J.	U.S.A.	2	43.75
Rotorplane	Crow, S. R.	Blackheath		39.5
Floatplane	Parham, R. T.	Worcester	8	55.4
Flying Boat	Rainer, M.	North Kent	1	09
Sailplane				
Tow launch	Best, F.	Leeds	63	46
Hand launch	Field, P. E.	Belfairs	7	05.2
Tailless (H.L.)	Wilde, H. F.	Chester	3	17
Tailless (T.L.)	*Lucas, A. R.	Port Talbot	22	33.5
Nordic (T.L.)	Whittall, L.	Birmingham	29	51.7
Nordic (H.L.)	*Joyce, J. G.	Leeds	3	40
Power Driven				
A. (0-2.5 c.c.)	Springham, H. E.	Saffron Walden	25	01
B. (2.51-5 c.c.)	Dallaway, W. E.	Birmingham	20	28
C. (5.01-15 c.c.)	Lund, D. S.	Wakefield	6	46
Tailless	*Piole, W.	C.member	2	09.6
Scale	Tinker, W. T.	Ewell	1	36.5
Floatplane	Steiner, J. R.	Canterbury	2	59.4
Flying Boat	Gregory, N.	Harrow	2	08.5
Control-line Speed				
Class I	*Scott, R.	St. Helens	80.00	m.p.h.
Class II	Free, D. W.	Surbiton	80.35	"
Class III	Carter, J. G.	Croydon	89.10	"
Class IV	*Guest, F.	C.member	116.90	"
Class V	Shaw, C. A.	Zombies	118.42	"
Class VI	Taylor, N. G.	Wimbledon	132.60	"
Class VII (Jet)	Stovold, R. V.	Guildford	133.30	"

LIGHTWEIGHT
(Below F.A.I. minimum loading)

Rubber Driven				
Monoplane	*O'Donnell, J.	Whitefield	7	12
Biplane	*O'Donnell, J.	Whitefield	2	53
Sailplane				
Tow launch	Mace, J. A.	Upton	28	17.2
Hand launch	O'Donnell, J.	Whitefield	3	01
Tailless (T.L.)	Johnson, H. G.	York	10	44
Tailless (H.L.)	Faulkner, R. A.	Whitefield	1	08.5
Power Driven				
Class A.	Archer, W.	Cheadle	31	05
Class C.	Ward, R. A.	Croydon	5	33
Tailless	*Wyatt, P.	Ipswich	2	15

(*Subject to *confirmation*)

INDOOR

Free Flight				
Stick (H.L.)	Copland, R.	Northern Hts.	18	52
Stick (R.O.G.)	Mackenzie, R.	Blackheath	8	42
Fuselage (H.L.)	Parham, R. T.	Worcester	6	55
Fuselage (R.O.G.)	Parham, R. T.	Worcester	6	42
Tailless (H.L.)	Thomas, M. R.	Oldham	1	25.8
Tailless (R.O.G.)	Thomas, M. R.	Oldham	1	46.2
Rotorplane	Mawby, L.	Ealing		32.2
Round the Pole				
Class A.	Muxlow, E. C.	Sheffield	6	05
Class B.	Parham, R. T.	Worcester	4	26
Speed	Jolley, A. T.	Warrington	42.83	m.p.h.

The following list of International Records is given for comparison purposes. (F.A.I. Loading only)

Rubber Driven				
Orthodox	V. Nassonov	U.S.S.R.	76	00
Seaplane	A. I. Vassiliev	U.S.S.R.	41	00
Tailless	I. Poich	Hungary	5	47
Seaplane	L. Aszalay	Hungary	1	05
Helicopter	R. Musgrove	G.B.	1	06.8
Sailplane				
Orthodox	T. Haslach	Switzerland	141	06
*Tailless	M. Kiraly	Hungary	9	55
Power Driven				
Orthodox	G. Lioubouchkine	U.S.S.R.	228	45
Tailless	K. Babaiane	U.S.S.R.	17	36
Seaplane	G. Lioubouchkine	U.S.S.R.	78	40
Control-Line				
Class I (0-2.5)	M. Vassiltchenko	U.S.S.R.	89.938 k.h (56.21 m.p.h.)	
Class II (2.51-5)	A. Devillers	France	172.116 k.h (107.5 m.p.h.)	
Class III (5.01-10)	G. Laniez	France	201.117 k.h (125.6 m.p.h.)	
Jet	M. Vassiltchenko	U.S.S.R.	144.025 k.h (90.0 m.p.h.)	

[*Application for the Tailless Sailplane record is being made on behalf of Mr. A. R. Lucas (Port Talbot) for his flight of 22 : 33.5 on August 21st.]

In addition to the rubber-driven helicopter record shown to the credit of R. Musgrove, Great Britain holds the distance record for a power-driven tailless model for a flight by Mr. M. A. King's model on 29/10/49, distance 2.6 km.

STUNT DESIGN TRENDS

BY CLIVE BATES

AN analysis of the models used in the 1950 stunt contests reveals one outstanding fact, and that is that no single type of layout has had particular predominance, and in actual fact rather the opposite has been the case.

For instance, while Brian Hewitt's Gold Trophy winner featured a moderately long moment arm, the *Musketeer*, which won at the Brighton meet, and the *Monitor*, which came out top at the West Essex gala, are short-coupled designs. As regards detail design, while the *Stunt Queen* featured a balloon tank, both the *Monitor* and the *Musketeer* used metal tanks, though in the case of the *Musketeer* it was of the pressure-feed type.

Up to the end of the 1949 season it was quite normal to see a "barndoor" type fully-functional model come out top despite opposition in the form of streamlined models, but in the 1950 season, with the introduction of appearance points, there has been a marked trend towards more scale-like lines; the *Stunt Queen* is, for example, an exceedingly good-looking model. That good looks and maximum performance can be combined is now obvious, and perhaps the only thing that the good-looker does lack is easy accessibility, but this can be overcome to a certain extent by thoughtful design and placing of components.

Despite the fact that at the end of the 1948 season it was becoming apparent that as little as 15 deg. up and down elevator movement was needed to complete the stunt schedule, most designs still embody at least 30 deg. movement, which, although never used in stunts, is always handy in case of emergency.

Safety devices to give line-tension, offset rudders and thrust-lines, and outboard wing weight are all still employed to a degree, but it is becoming increasingly apparent that the outboard wing weight alone is often quite sufficient, provided that c.g. position is reasonably well forward. Invariably a design featuring a straight thrust-line will be faster than if the thrust-line were offset, and this extra speed helps to ensure taut lines. Most designers prefer to include a certain amount of off-set on the rudder, but this is much less than was employed at one time.

There is still much variation in the wing areas used per c.c. of motor; for instance, while the *Stunt Queen* uses 280 sq. in. with a 5 c.c. motor, the *Musketeer* uses over 300 sq. in., and many successful 5 c.c. designs are using as much as 360 sq. in. A general rule would seem to be that the larger the wing area, the shorter the moment arm employed, and the lightly-loaded, short-coupled type of design is, in fact, gaining popularity.

Drop-off undercarriages and fixed versions still remain equally popular, but where near-scale looks are desired, as with the streamlined fighter-type of model, a drop-off undercarriage is essential.

Most kit designs feature knock-off wings, and for this purpose the layout must be either high or low-wing. With a low-wing design there is a tendency for the model to "balloon" in loops and tighten up in bunts, where the thrust-line is on the centre line of the fuselage, and vice-versa with a high wing design. For evenly balanced stunts, the best layout has proved to be mid-wing, with the thrust-line level with the centre of the wing. This layout necessitates the use of a fixed wing, which is always a weak point in a crash, but with the standard of proficiency now reached by most stunt pilots, crashes should not be too frequent. The *Stunt Queen* features a mid-wing, while the *Musketeer* and *Monitor* both have a low-wing, but in the case of the latter the wing is quite close to the thrust-line, and the tendency to "balloon" is not very marked.

Generally speaking, there has been no change in the thickness of wing section used in stunt models, normal sections varying between 12 and 15 per cent. thickness, though Alan Hewitt's Radlett winner featured an experimental 18 per cent. thick section.

The value of a forward centre of pressure coupled with a short moment-arm layout has begun to be appreciated, and several popular designs belong to this school. When this is used the planform of the wing has a straight leading edge, with either a swept forward or elliptical trailing edge. Models of this type are usually found to be quite smooth in even the tightest of manoeuvres if correct elevator area and movement is used.

With the success of the *Stunt King* in the '49 Nation-

Heading photograph—The author with his Elfin 2.49 powered stunter "Jive Box." Designed by A. Brunnings of the Luton Club, it typifies small lightweight short-coupled design.

als there was a trend towards the use of small area flaps coupled with the elevator, but any advantage gained by this was doubtful, and certainly off-set by the structural complications involved. In the 1950 season there have been very few designs using flaps. Brian Hewitt himself uses no flaps on his *Stunt Queen*. A largish elevator using a small movement has been found to give similar results to a flap layout, but if too much movement is applied there will be a tendency for the model to mush, and conventional layouts appear to be capable of performing any manoeuvre.

The most popular size of stunt model during the 1950 season was undoubtedly the 5 c.c. size. With really hot 5 c.c. glow-plug motors now on the British market at reasonable prices this is not unnatural. There have, however, been a good number of the smaller diesel models entered, but these were largely eliminated by weather conditions: in fact most of the 1950 stunt contests were held in far from ideal conditions. Given calmer weather, these smaller models would certainly have been a challenge to their bigger brothers, but this type of model will always be at a disadvantage in wind. Several contestants, and notably Ron Prentice, have gone in for really big stuff in the way of stunt models and they have met with a certain amount of success. Prentice used an Atwood Champion in his model, carrying full ignition equipment, but it is only with these ultra-large models that the weight of these components can really be tolerated.

In line with the trend to build better looking stunt models there has been no tendency towards ultra-lightweight designs, and in the case of 5 c.c. models, most of them have weighed between 20 and 26 oz., heavy as compared with those in use in '49, but this weight has been no handicap to performance, and it would seem that provided adequate wing area is employed, weight is not a critical design factor, as usually the heavier model will hold out better in windy conditions than its lighter counterpart.

As regards airscrews, most fliers have now realised that to load a glow-plug motor with a high-pitch

Brian Hewitt of the South Birmingham Club, winner of the "Gold" Trophy for two successive years, with his 1950 "Stunt Queen" model which features a fixed mid-wing.

"Gig" Eiffloender of Macclesfield who came second to Hewitt in the 1950 "Gold" Trophy contest and won the Stunt event at the Knokke International C/L meeting.

propeller is fatal, where peak revs are in the 12-13,000 region, 6 in. pitch has been the general rule. An example of the difference between propellers for diesel and glow-plug motors is given by the fact that while an Amco 3.5 (diesel) is quite happy on a 9 × 8 airscrew, the Frog 500, a larger motor, behaves best on a 9 × 6.

The ideal stunt propeller is one with moderate blade area, and of thin section. The flexible types of propeller now on the market, although ideal for normal stunt work, are not in common use for competition work, and especially with fixed undercarriage layouts propeller breakages are few and far between with experienced pilots.

With glow-plug motors nitro-methane is now used almost exclusively for contest work, as opposed to straight methanol-castor mixtures, the extra power obtained being worth the extra expense entailed. Amyl nitrate is the additive usually used to "pep up" diesel fuels, 2 per cent being adequate.

In the 1950 season one usually had to be a good pilot to place among the first six, and the standard of flying was so high that often not more than a few points separated the first three places.

The glow-plug versus diesel motor for stunt flying has long been a subject for discussion among aero-modellers. Almost all of the 1950 stunt contests have been won by glow-plug powered models, however, and the fact that the diesel is better in the smaller sizes of model, and that these smaller models, as already stated, are at a disadvantage in a wind, probably has a lot to do with this triumph of the glow-plug motor.

The glow-plug motor has proved itself less temperamental in hot weather than the diesel, but when a diesel is running erratically it does not prevent the model from completing most of the stunts, whereas if a glow-plug motor so much as misses a beat there is cause for concern, and the motor is more likely than not to cut if any stunts are attempted. This does not alter the fact that if a glow-plug motor is correctly tuned its high peak revs are very useful to the stunt pilot. We in Britain must not forget that we have the best diesel engines in the world, and their

exceptional power-weight ratios in the small sizes make them ideally suited to stunt work.

Generally speaking, the constructional methods used in the 1950 season have not differed greatly from those used in '49, but the increased popularity of the streamlined type of model has tended to make fully planked or hollow log fuselages more common. One type of fuselage construction that is now very popular, owing to its relative simplicity yet ability to give good looks and strength, is the normal box-fuselage with rounded top formers and planked decking, and with thin ply added inside the sheets at the bearers this type of construction can be almost indestructible.

Wing construction, of course, depends largely on the planform of the wing. Most models now use the sheet "V" type trailing edge in preference to the solid type, and it is definitely better as regards the strength-weight ratio. If the wing is of the type with no sheeting on the leading edge, such as the *Monitor*, a single deep spar is usually employed, and this is definitely superior to the double spar layout when sheeting is not used. With a leading edge that is sheeted top and bottom the double spar is universal, and when combined with a "V" sheet trailing edge this makes a very strong wing for very little weight.

Tail units are almost all of solid sheet, the built-up type although being slightly lighter are really too weak on all but the smallest models, where light weight is important.

Most models of the '50 season have retained tissue as the covering material, although for slightly more weight lightweight parachute silk is definitely much stronger, but, of course, is much more expensive.

In conclusion it seems that the past season has seen a wide variety of stunt models in use, each with its particular advantages and disadvantages, and it appears that modellers have gone in for that which suited their own tastes and own styles, for various pilots will always have varying techniques, and that which suits one will not always suit another. One thing we can be sure of is that the technique of the average British stunt pilot is as good as his counterpart anywhere in the world.

The Mercury "Musketeer" which has a detachable low-wing. Among its 1950 successes was first place at the S.E. Control Line Championships at Brighton at Easter.

Topical Twists

MALICE IN DUNDERLAND

(Reports of model aircraft being imperiously banned from parks and commons throughout the country are on the increase.)

The Red Queen, no one could deny,
Was given to a queer fixation.
"Off with their heads," she'd loudly cry
At the slightest provocation.
A drastic measure no doubt suited
To get one's orders executed.
But not a method to apply
In a wise administration.

And it seems a thousand pities
That this complex should obtain
In most all our towns and cities—
Adverse to the model plane—
Where wailing brats and angry cries,
At their indignation voices,
The Red Queens on our Park Committees
Show little feeling—but of harm.

• • •

Slope soaring is becoming very popular. Understandably so, since it ensures "peak" performance.

• • •

WAKEFIELD TOPICS

The much coveted Wakefield Cup, being won on two successive occasions by models using a reduction gear system, has prompted certain progressive elements in this country to experiment with this old new idea. Having seen something of the elaborate gadgetry, the exhausting winding of two large, sputtering motors, and the constructional ingenuity required to keep the total weight down to a reasonable level, I can only recommend the gear system to any singular individual possessing the patience of Job, the arm of Popeye, and the inventive genius of Heath Robinson.

Of course, the gear idea has its opponents, who are apt critically to refer to the amount of "fuselage set up. This would seem to occur mainly between the winder and the helper.

Speaking of Wakefields, I recently smirked in upon a preview of a model now on the stocks of one of our leading exponents. This model, which seemed almost as solid as the Rock of Gibraltar and as streamlined as Percy Shuttle, weighed approximately 8.00001 oz. The power was to be the repeal of two strands of a quarter flat about a hundred yards long, and would accept umpteen thousand turns. It had a climb like a flying saucer just for some interstellar appointment, and would only come down when spoken to in the kindest terms.

This is in direct contrast with our own Wakefield design—filched from all the best plans. As robust as tuppenyworth of Candy Floss, with an all up weight of 14 oz., this monstrosity will only reluctantly rise a few feet under the stimulus of twenty strands of quarter, and is more given to stalling than a politician.

Still, why should I worry when I can always blame it on to "fatigued" rubber.

• • •

From the winds of the North comes again the moan that the Southern lads enjoy all the best of this climate's paltry allotment of fine weather:

Men from the clouded Northlands row
Marvelled at the sight they saw:
A huge and fiery ball on high
Above the cloudless Fawlop sky.
And there they stood and gazed in awe—
They'd never seen the sun before!

• • •

MODEL OLYMPICS

Hot on the trail of recent rumours that the next Olympics will feature certain model aircraft events, our Sporting correspondent, Al Rounder,—known as the "Man They Can't Gag," probably because of his receding chin—has managed to snoop out the proposed programme. All events will, of course, proceed from a flying start.

Javelin Throwing	*—A hand launched contest with the popular engine.*
Relay Race	*—R.C. around the circuit.*
Cross Country Marathon	*—Includes all free flight events*
Shooting the Line	*—Open event for club boffs.*
Flicking the Prop.	*—The only event which will finish at the start.*
Hop, Skip & Jump	*—Run in conjunction with previous event—best performances being obtained with a damaged finger.*

By Pylonius

WHAT'S IN A NAME?

By J. Van Hattum

ALL models, like all men and women, should have names. In the latter case one must sometimes consider the possible advantages to a child when it is baptised with the uncle's or aunt's name : however much one dislikes the label the poor thing has to live with it for its stay on this earth. Models do not give us that problem ; the father can choose whatever his fancy finds appealing.

There are, however, names and names, and I have often wondered what has brought into the world those seemingly odd and often inapplicable fantasies. Let us introduce a little system and see how names can be classified according to general affinities.

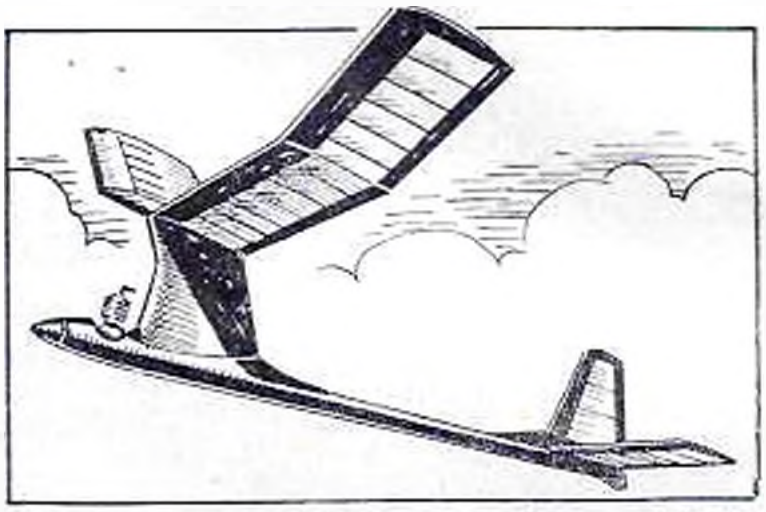
First, we must always try to find a name that suits models in general and the model in particular. Maybe it would be best to name the model after watching its peculiarities, but that is as it may be.

Names can thus be divided into the dignified and the fanciful. Each of these main groups can be sub-divided and they may fall under both headings. Let me give you an example : names of animals, for instance. Nothing funny about "Eagle," "Heron, "Stork," the various kinds of "Gulls," and so on. It is a pity that birds' names, once so popular, are so little used. Many that used to be famous could be used again now—see the reintroduction of the name "Fury" and "Firefly." No, birds' names offer no special difficulty, except that the same name may be adopted at the same moment by a bevy of designers. Go on, then, to the mammal kingdom. There was even a "Whale" once, no, not Jonah's, but an enormous model by a Mr. Baster, 1929, I believe. Good for such a dimended crate. A "Walrus" makes one think of water, not flying : neither does the "Whale" for that matter, or the "Pig." Use a book on bird-recognition and you will find many a good thing. But be sure to go off the beaten track or you will land into trouble, very likely with your best friend.

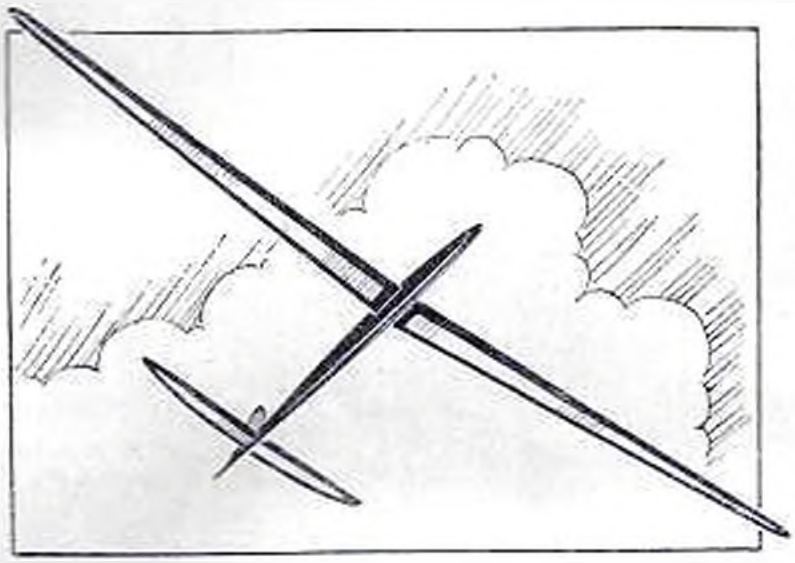
Dignified names can be longish and you could make non-biological combinations, such as the "Crested Beaver" ; reducing the chances that somebody else has likewise assaulted science. Avoid too much dignity, as in all things, for a model has to be very superior, not sag under names like "City of Liverpool." Good for a liner, air or water-borne.

Be wary also with the Misters and Misses, as they tread hackneyed ground, and the combination has a double meaning in the latter case. "Miss Evasive" and "Miss Elusive"—maybe it appeals to some, but it lacks life. Sometimes a girl's name will give away a young builder's absorption outside his model

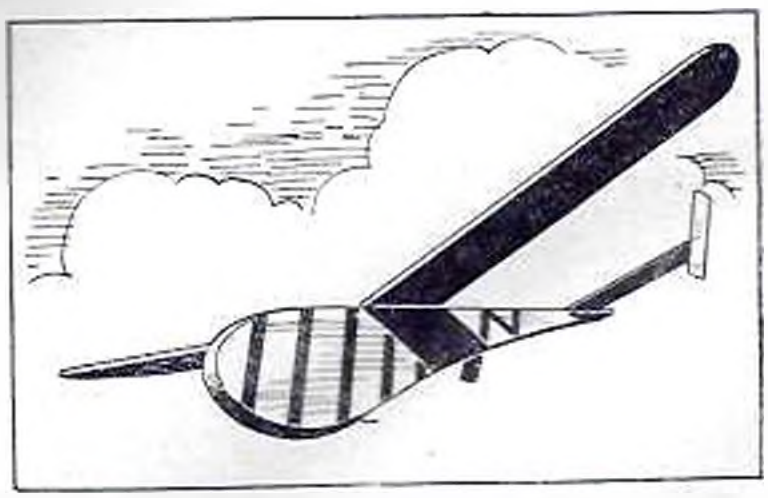
(*Continued on page 45*)



Ugly, but uncompromising, humorless, but very likely a hard hitter—Ah ! yes, VULCAN !

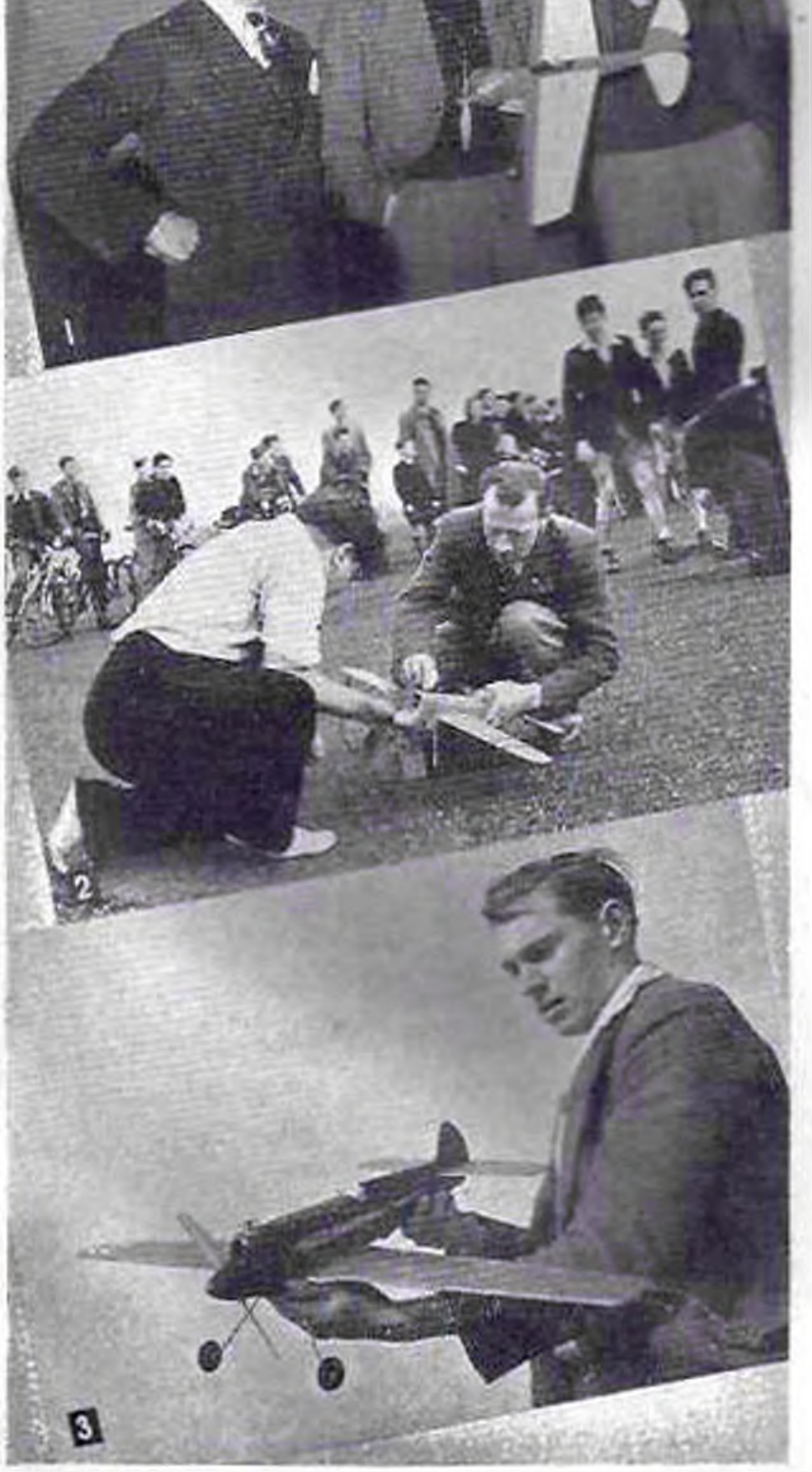


So dangerously uncompromising, so bound to meet with disaster . . . DON QUIXOTE ?



The comfortable fulness and tolerance of a JUNO—yet somewhat outsize for a VENUS.

WEST ESSEX TEAM RACE



The team race organised by the West Essex Aeromodellers at Fairlop on October 15th, 1950, was favoured by fair weather and a good entry—the largest in fact for any event of this kind yet held in this country. Competition was very keen and an exciting final resulted. In this Ken Marsh of West Essex looked to have the race " in the bag " until the elevator hinges on his model came adrift with disastrous results, and he had to be content with second place—fellow West Essex members, the Taylor brothers gaining first place. The Luton team headed by Clive Bates came third. At the tank checking it was observed that an appreciable number of models had tanks holding considerably less than the permitted maximum of 30 c.c.

The West Essex Club are to be congratulated on organising an interesting day's racing.

(1) The winning team " Fun! " and Chas. Taylor, with their helper.

(2) Johnnie Nunn and " Staw " Steward having a spot of trouble with Bill Morley's Mercury Mk. I Team Racer.

(3) A. Perkins entered his O.D. Class " A " Team Racer " Scud." Engine : Elfin 2.49. Span : 34 in. Weight 14 oz.

(4) Johnny Beer and Les Phil Smith " Long Midget " which is powered by a Kestrel 1.9 engine.

(5) " Staw " checks the tank capacity of Johnny Nunn's Class " A " model.

(6) An exciting moment during one of the heats.

(7) Charles Taylor (W. Essex) and his winning model, plans of which will shortly appear in " Model Aircraft."

(8) " Scrap Box," the Godalming team's O.D. " 350 " powered entry which was flown by T. West.

(9) The Luton Team which placed third.

(10) Ken Marsh checking the tank capacity of his model.

(11) Johnny Nunn (Barking) with his Eta " 29 " powered Class " A " team racer.

(12) " Skipper " Rowe had trouble with the Amco 3.5 in his " Red Lightning."

(13) Henry J. Nicholls, lady helper, and Ron Moulton with the latter's model.

(14) R. F. Bourne and P. Bowden of the Godalming Club getting " Scrap Box " under way.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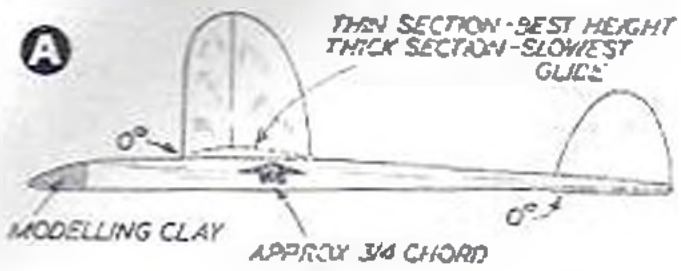
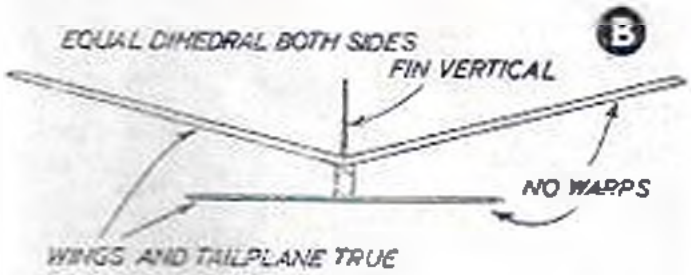
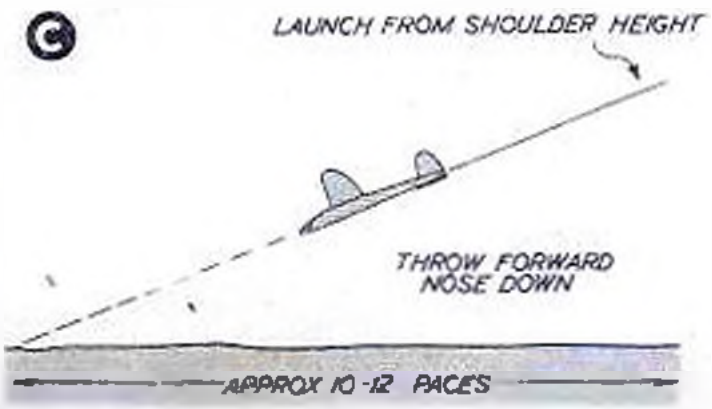
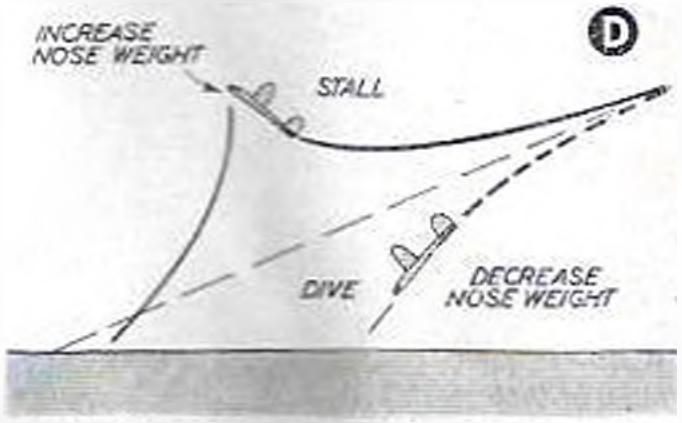
NO. 1 OF A NEW FEATURE



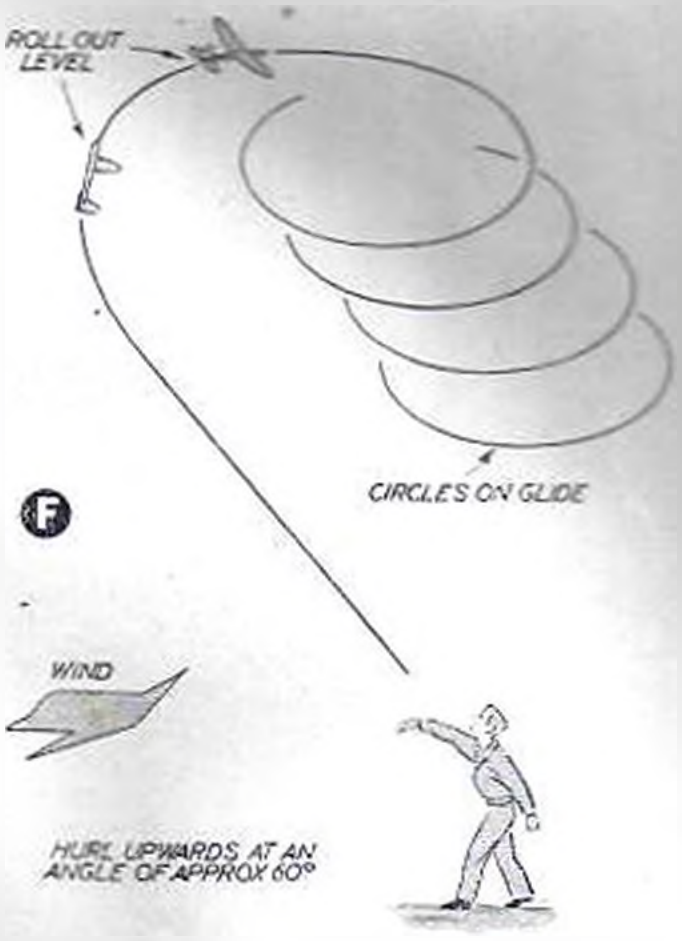


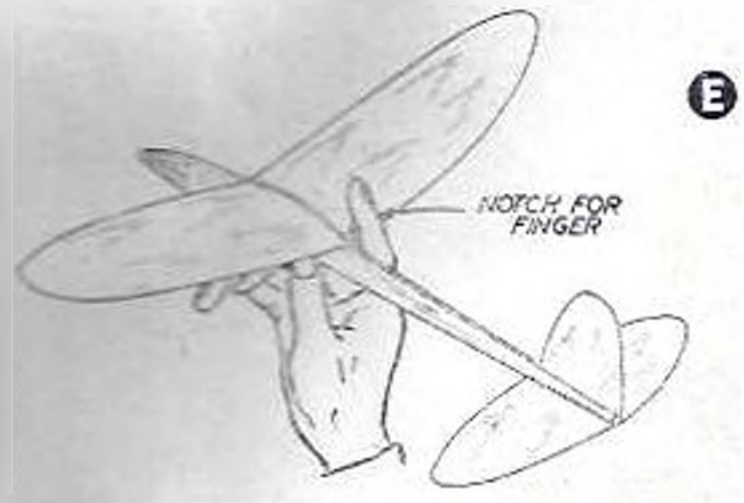
CHECK OVER RIGGING ANGLES, BALANCE AND ASSEMBLY

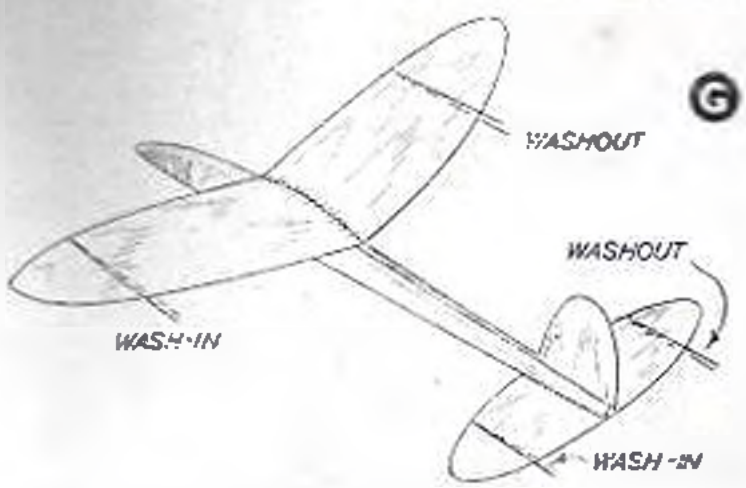




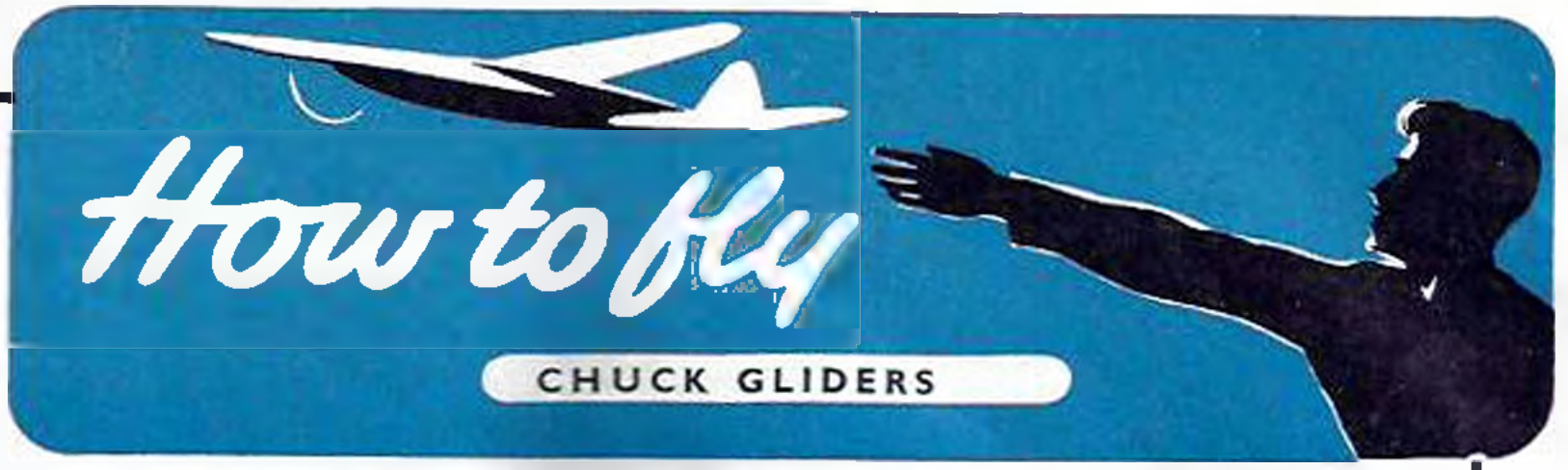
SIMPLE HAND LAUNCHED TESTS







TRIM OBTAINED BY ADJUSTING BALANCE



(A) The rigging and balance adopted for chuck gliders varies slightly with different models but as a general rule both the wings and the tailplane are set at the same incidence—0 degrees, relative to the fuselage. Wing section is generally thin with a flat under-surface. Balance point is then roughly three-quarters of the wing chord back from the leading edge.

Thin section and 0-0 rigging angles gives maximum height from the launch. In special cases, such as indoor flying under a low ceiling, some designers use a thicker section, usually with [illegible] and, possibly, fractional incidence (about half a degree) on the wings. It is very difficult to control a chuck glider from the launch when the wing has any appreciable incidence. It always tends to loop.

For balancing, modelling clay, such as Plasticine, is the best medium. This is simply wrapped around the nose of the fuselage. Some modellers prefer a more permanent job with screws, nails or small lead weights cemented in place embedded in the fuselage.

(B) To get consistent results a model which is rigged true is essential. That is, the wings and tailplane should be square with the fuselage and with one another, the fin should be vertical and there should be no warps on any of the surfaces. Although small warps—wash-in and washout—may be used later in trimming it is always best to start with a dead true model. Then you can trim with the use of warps, not trim *against* the action of unintended warps.

(C) The initial test flights simply determine the correct balance of the model. Small chuck gliders are not likely to come to much harm at this stage, but it is still as well to choose a calm day.

Simply add or reduce the nose weight until the model glides smoothly down, covering about ten to twelve paces from a hand launch at shoulder height. The model is launched slightly nose down at its approximate flying speed. A little practice will soon give the knack of this. At this stage the thing to aim for is a smooth, flat glide in a dead straight line.

(D) Any turn one way or another is almost certainly due to warps on the wings or tailplane, or an offset fin. These can be dealt with accordingly. Another possible—but unlikely—cause is that one wing is considerably heavier than the other. If there are no apparent warps, check this and if one wing is appreciably heavier, stick pins or similar small weights in the wing tip of the other wing to balance.

Provided the model is flying straight there are only two possible faults. A stall simply indicates that more weight is required on the nose; a dive or very fast, steep glide means that there is too much ballast weight and some must be removed.

(E) The grip for launching a chuck glider varies with different individuals. Basically the model is grasped with the thumb and fingers around the fuselage just under the mid point of the wings. To get the maximum throwing power behind the hand action some people cut a notch in the trailing edge of the right wing just outboard of the fuselage into which the forefinger of the right hand fits (reverse for a left-handed thrower). Other people use a similar action, but do not find a notch necessary. They simply rest their forefinger against the trailing edge. The average flier generally grips the fuselage with all the fingers and thumb under the wings.

(F) The arm action necessary to get maximum height from a hand launch is a form of "side-arm" throw—not an ordinary over-arm throw, but one with the arm kept somewhat lower and swung round in a semi-circle with the body following. It is all a matter of knack and practice and the thing to do is to try out different actions and adopt the style which gives best results.

The object of the launch is simple, merely to hurl the model upwards to the greatest height possible. The model does not climb by the lift of its wings but by the power of the throw. Hence, when launched the wings should have zero angle of attack, otherwise the speed of launch may well over-stress them and break them off. Maximum height is obtained by hurling the model upwards at this attitude with the path of the model some 60 degrees inclined to the ground.

(G) Now getting the model to go straight up, roll out at the top and go into a smooth gliding circle is tricky. The usual fault is that the chuck glider simply describes a loop and loses nearly all its height. Hence, some turn adjustment must be introduced to give the roll and glide circle.

This usually takes the form of wash-in on one wing or tailplane tip. Sometimes washout may be given to the opposite tip. The amount required can be bent in without splitting the wood, for it will only be fractional. This wash-in adjustment will now have some effect on the trim of the model on the initial part of its climb and you may have to adjust the throwing attitude to suit—releasing it with the wings banked, for example. There are no general rules—just practice and more practice until the best technique is mastered. You should then be able to get consistent flights of 45 seconds or so from almost any chuck glider and even higher times if you become something of an expert. And a well trimmed chuck glider is just as capable of finding a thermal and flying away as any other type.

Twister

A STUNT CONTROL LINE MODEL — BY C. BATES

TWISTER was designed as the result of the purchase of an Elfin 1.8 diesel and was intended for maximum stunt performance with a small "hot" engine, and yet be the possessor of not unpleasant, yet practical, lines.

To achieve the first quality a wing area that would give a fast flying speed coupled with safe stunting at the slower speeds produced by the more exacting manoeuvres was required. We decided that with the Elfin this was 150 sq. in.

Good lines and a simple airframe were more difficult to combine. It was here that strength came in. Strength, simplicity, and good lines do not usually combine on stunt models. However, I think that the *Twister* has achieved these qualities.

Building

Construction is commenced with the fuselage, an orthodox box frame of ¼ in. sq. balsa. The two sides are built, and afterwards connected with the ¼ in. sheet formers. The sides are cemented together at the rear and the remaining spacers are inserted. The two ⅛ in. sheet wing rests are now added, the space from the top of these to the top fuselage spacers being filled in with scrap sheet at each station and the wing dowels added. The front portion of the fuselage is now filled in with ⅛ in. sheet and the balloon tank box constructed. This consists of two horizontal panels of ⅛ in. sheet the starboard fuselage side forms the closed end of this box, the port side, of course, being left open. The ends are formed by the appropriate formers. The balloon is held in place by a rubber-band stretched across the open end of the box. Guide the feed pipe from the box on a level with the needle valve of the motor with two pins, one each side of this pipe. The fuselage is now entirely covered in 1/32 in. sheet and the corners can be rounded off with glasspaper. Bolt the motor to the ¼ in. ply motor mount and pre-coat the front fuselage former and the back of this mount with cement, when dry apply Durofix and join the two together allowing 24 hours to set.

Cut the tailplane from ⅛ in. sheet and sand smooth. Build the elevator on the plan. Cover these two units with Burmese tissue, giving them two coats of glider dope, and hinge together with ten nylon hinges. Slot the elevator for the dural horn and bolt this into position. Cement the whole tail unit to the fuselage and cover the fuselage with Burmese tissue, giving it two coats of glider dope. Cement the fin into position, noting the offset for line tension.

Build the wings by cementing the ribs to the bottom spar and trailing edge over the plan, packing the trailing edge up ¼ in. and notching the ribs ¼ in. into it. The trailing edge should be sanded to shape before construction. Add leading edge, tips and top spar in that order. Fit the ⅛ in. spar webs at the root and cement the ¼ in. × ¼ in. obeche bellcrank anchor block into position, complete with 6 B.A. pivot bolt. Wing construction is completed by sheeting the nose on the top only with 1/32 in. sheet and inserting ¼ oz. of lead to the outside tip spar. Cover the wing with Burmese tissue and give two coats of glider dope. Cement the lead-in-wire guide to the bottom of the appropriate rib.

Colour dope the fuselage, fin, and tailplane as desired and give the whole model a coat of fuel proofer. Complete the model by soldering the lead-in wires to the bellcrank and bending and fitting the push rod. Hold the bellcrank in position on the pivot with two lock-nuts. The push rod is held to the bellcrank by a ⅜ in. long right-angled end slipped through the bellcrank. Thus the push rod and wing can be removed for transport by unscrewing the lock-nuts on the pivot, and still allow the wing to knock-off in a bad crash.

Flying

Twister is flown on 48-50 ft. single-strand lines, according to wind strength. With an Elfin 1·8 the ideal propeller is an 8 × 8 Truflex. Fuel used on the original models was Mercury No. 3. With diesel fuel the ballon should be replaced after every flying session. Stick rigidly to this, for a balloon burst in flight can be disastrous.

Besides the Elfin 1.8, other suitable motors would be the Elfin 2.49 c.c. Frog "160," the "K" Tornado, Kestrel, or Falcon and others of similar capacity.

1/32" PLY WIRE GUIDE UNDER RIB

COVER C.S. WITH 1/32" SHT. TOP ONLY

L.E. 3/16" X 3/16"

3/16" SHT. GUSSET

1/16" SPAR WEB

RIBS 1/16" SHT.

3/8" X 3/16"

20 G. LEAD OUT

SMALL SIZE MERCURY BELLCRANK

1/2" X 1/4" OBECHI

16 G. PUSH ROD

SPAR TOP BOTTOM

1/8" X 1/8" 1/4" X 1/8"

1/2 OZ. STRIP OF SOLDER BIND & CEMENT TO SPAR

T.E. 3/4" X 3/16"

CELLULOID REINFORCEMENT STRIP NOTCH RIBS INTO T.E.

6 B.A. BOLT & NUTS

1/2" X 1/4" OBECHI

RIB

WASHER

BELLCRANK INSTALLATION

BOLT MOTOR TO PLY MOUNT & CEMENT UNIT TO BULKHEAD 1.

FUSELAGE COMPLETE BASIC STRUCTURE OF 1/8" SQ. BALSA. ADD BULKHEADS A, 1, 2 & 3. WING SUPPORTS & BALLOON BOX. COVER FUSELAGE WITH 1/32 SHT.

FIN 1/16" SHT.

MAXIMUM ELEVATOR MOVEMENT 30° UP & DOWN

A

1

2

3

BULKHEAD OF 1/8" SHT.

1/8" SHT.

3/16" DOWELS

1/4" X 1/8"

HORN BOLTED TO ELEVATOR WITH 6 B.A. BOLT

USE LINEN FOR ELEVATOR HINGES

℄ OF HOLES FOR ELEV. ENGINE MTNG.

BALLOON BOX

A

FILL IN STBD. SIDE

1/8" SHT. TAILPLANE

FILL WITH 1/8" SHT.

1/8" SHT. BOX. TOP & BOTTOM PIECES EXTEND TO WIDTH OF FUSELAGE

BASIC FUSELAGE 1/8" X 1/8" HARD

1/8" X 1/8"

6 B.A. BOLT

1/4" X 1/8"

1/8" SHT.

NO OFFSET FOR ENGINE

A

CEMENT FIN TO PORT LONGERON

1/8" PLY ENGINE MOUNTING

COVER MODEL WITH BURMESE TISSUE GIVE TWO COATS GLIDER DOPE & COLOUR DOPE AS REQUIRED

MODEL Aircraft

M.A.77

THE TWISTER

C. A. BATES

SPAN 28" LENGTH 19"

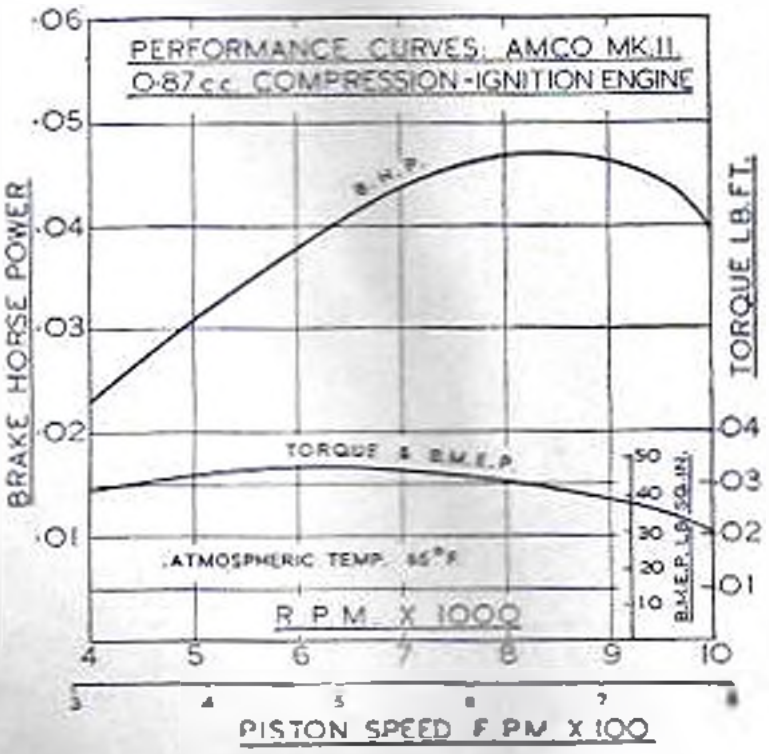
MODEL *Aircraft*

ENGINE TESTS

NO. 19 THE AMCO .87 Mk. II

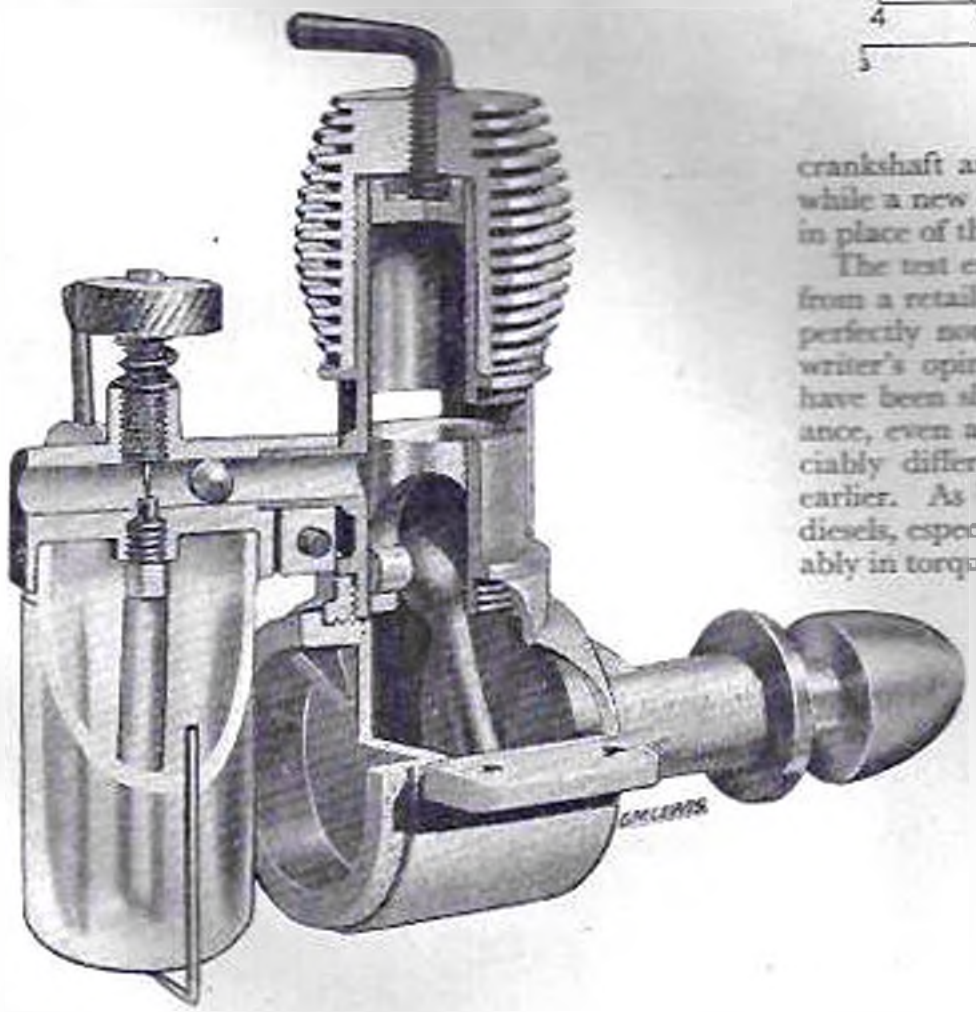
THE original Amco was probably the first really successful small diesel of under 1 c.c. to be produced in quantity. Built by the Anchor Motor Company, of Chester, a well established firm of automobile engineers, the original Mk. I was noted for good performance, light weight, easy handling and good finish. Of moderate price, the engine was supplied complete with airscrew, combination wrench and even a capsule of fuel. Its introduction was immediately followed by a number of low-price kits from leading manufacturers.

Late in 1948, a Mk. II version was introduced and it is this model which is the subject of this month's test. Principal modifications found in the Mk. II type are in the cylinder, which now features a separate finned barrel and head threaded on to a liner, with groove type transfer passages, in place of the integral turned fins and separate transfer passage of the earlier model. A slightly heavier



crankshaft and thicker cylinder walls are also used, while a new die-cast carburettor assembly is featured in place of the built up brass assembly used formerly.

The test engine was purchased in the normal way from a retail model shop and can be considered as a perfectly normal production unit—in fact, it is the writer's opinion that this particular example may have been slightly below average, since its performance, even after two hours' running, did not appreciably differ from that of a Mk. I version tested earlier. As has been emphasised before, production diesels, especially the smaller types, do vary considerably in torque developed and thus final b.h.p. figures.



Specification

Type : Single cylinder, air-cooled three-port, two-cycle, compression-ignition. Twin exhaust ports. Flat top piston.

Swept Volume : 0.854 c.c. Bore : 0.375 in. Stroke : 0.472 in.

Compression ratio : Variable. Stroke/bore ratio : 1.26 : 1.

Weight : 2 oz.

General Structural data : Pressure

die-cast crankcase and main bearing in LAC. 112 alloy. Detachable screw-in rear cover, die cast in LAC. 112. Cylinder of S.14 steel, hardened and ground, screwed to crankcase. Separate screwed on finned barrel/head. Piston and contra-piston of S.14 material, hardened and ground. Connecting rod of S.11, tempered, unbushed eyes. Die-cast one-piece carburettor body and fuel container with built-in positive action plunger type cut out. Detachable transparent fuel container. Entire assembly clamped to intake pipe and may be rotated and locked in position for inverted or side mounted operation. Beam type mounting lugs.

Test Engine Data

Total time logged prior to test : 2 hours.

Fuel used : Mercury No. 3.

Performance

The Amco 0.87 starts very easily indeed. No priming is necessary : one simply chokes the intake for a couple of flicks and the engine will then start easily from cold. The cylinder head and needle-valve adjustment are numbered for easy reference, although neither compression, nor carburettor adjustment, is in the least critical and the average power model enthusiast would have no difficulty in starting the Amco within a few flicks without prior knowledge of the precise settings.

Little readjustment of controls is necessary between starting from cold and attaining normal running temperature and, on the free-flight propeller supplied, a warm engine can be easily re-started with one choked flick, without touching either compression lever or needle-valve.

During the test, the Amco was run at speeds ranging from 3,000 to a little over 10,000 r.p.m. It behaved well at all speeds, running smoothly and holding even revolutions. The cut-out works well and needs a minimum of effort from the timer to operate it.

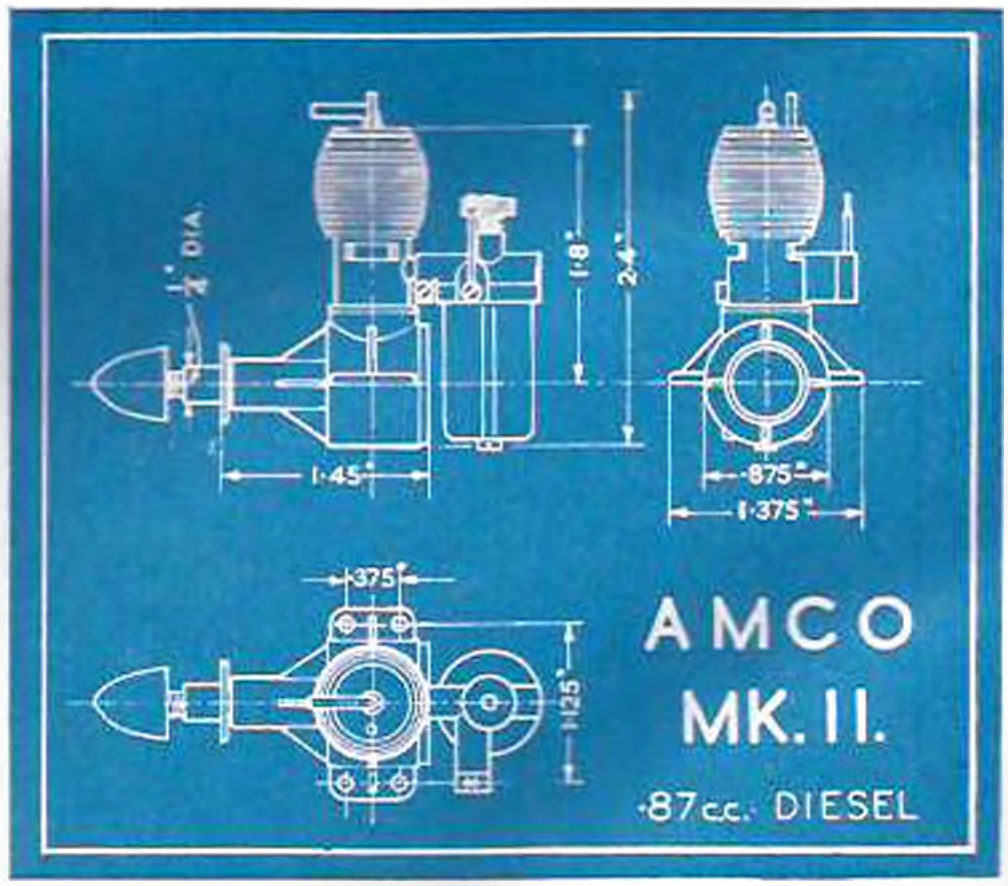
Maximum torque was found to lie at approximately 6,500 r.p.m. The decline was steady and resulted in a very flat peak to the power curve, little variation in b.h.p. being evident between 8,000 and 9,000 r.p.m. Actual output reached was 0.047 b.h.p. This compares quite closely with the figures claimed by the manufacturers for this model.

The Amco 0.87 is primarily an engine for free-flight work and, as such, is well suited to both power-duration models and scale or semi-scale types. For the former type a 4-in. pitch propeller of 7 to 8 in. diameter is favoured, the smaller diameter allowing the engine to approach its peak output and being generally suitable for small fast-climbing models, while a diameter nearer to 8 in. can be used with models of over 200 sq. in. wing area. The writer's engine has been used with success in two power duration models, one of 160 sq. in. and another of 220 sq. in. The Amco is, however, quite capable of flying a lightweight scale or semi-scale model of up to a maximum of 300 sq. in. wing area.

In general, the Amco 0.87 can be regarded as a thoroughly practical engine for general purpose or competition flying, as many contest successes show, and is also strongly recommended to the beginner acquiring his first engine.

Power/weight ratio : (As tested) 0.376 b.h.p./lb.

Power/displacement ratio : (As tested) 55 b.h.p./litre.



Prototypes Worth Modelling

No. 7. THE DEPERDUSSIN RACER

BY C. B. MAYCOCK

IN the year 1913, France captured the world speed record which was to stand officially until it was broken in 1920, with a speed of 194 m.p.h., by France again, with a *Nieuport-Delage* (Hispano-Suiza) motor piloted by Sadi-Lecointe.

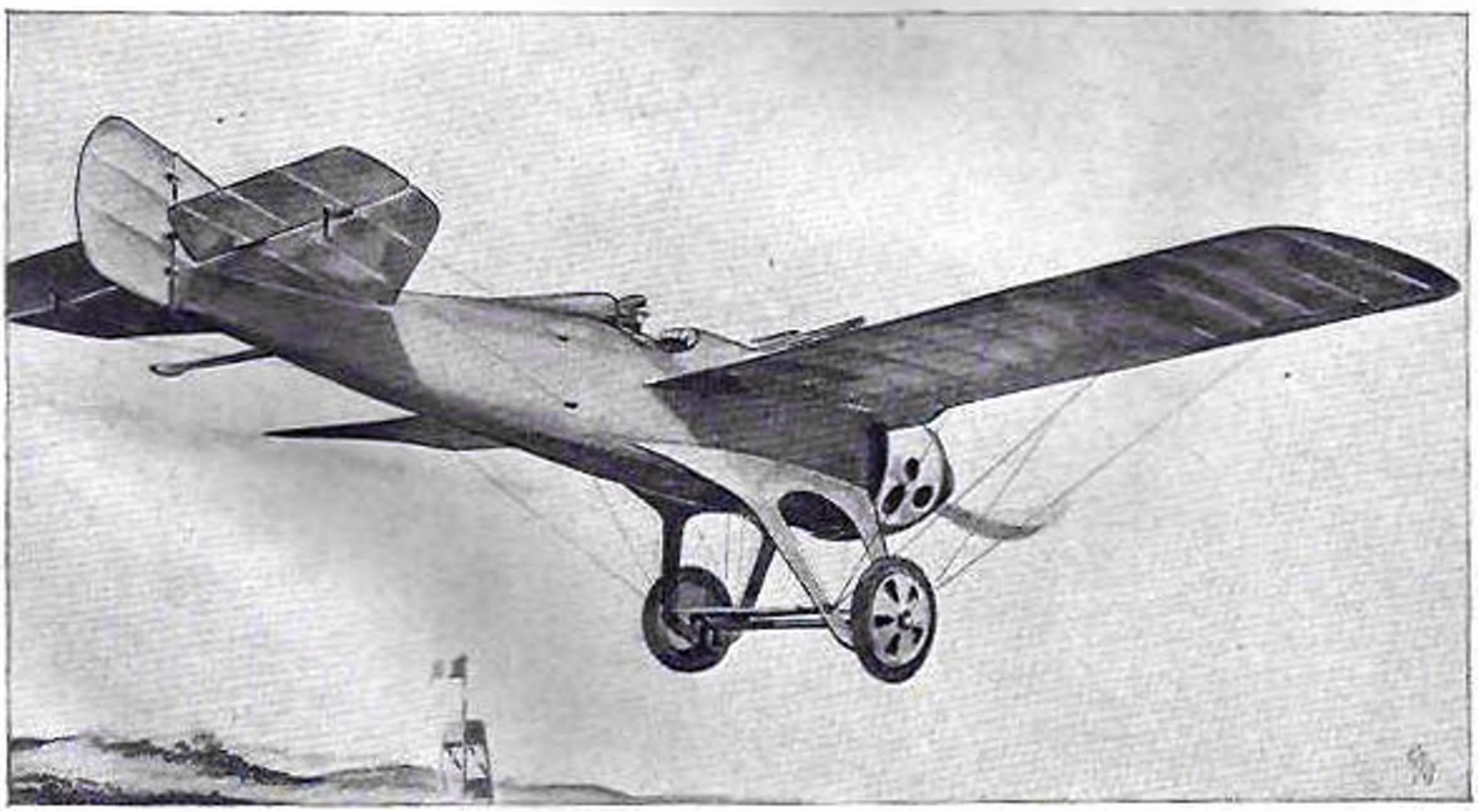
The 1913 racing *Deperdussin* (pronounced Deperdusan, not depper-dussin!) was powered with a fourteen cylinder, double row, Gnôme rotary motor, and was flown over a closed circuit by M. Prévost at a speed of 127 m.p.h. This record was achieved during the Gordon Bennett contest at Rheims on September 29th. Out of four starters three were *Deperdussins*, the fourth was a *Pornier*, a development of the *Hanriot* racer. Prévost's machine was considerably faster than the others and he covered the 20 laps in 59 min. 45 3/5 sec., having broken eight world's records in so doing. Emile Vedrines in the *Pornier* came second 1 min. 5 4/5 sec., behind. This speed was bettered by the Royal Aircraft Factory design, S.E.4, mentioned in No. 5 of this series, in 1914, namely 134 m.p.h., but as it was not observed by the F.A.I. it had to be unofficial.

The Deperdussin concern were great believers in the wooden monocoque fuselage and perhaps their neatest design was the 1913 racer illustrated. The overall length was 20 ft., and the span 21 ft. 10 in. The wing area was 104 sq. ft. and the weight fully loaded 1,350 lb.: the motor was of 160 h.p., and enclosed in an aluminium cowl in which were cut access holes of generous proportions. By comparison with modern power unit installations it will be appreciated that coupled with the large spinner they were well on the way to ducted cooling, and reflects great credit on the forsightedness of M. Béchereau, the designer who was responsible for both the 1913 Dep. and the S.P.A.D. designs which were so successful in the 1914-18 war. The fact that the 1913 machine looks modern even to present day standards is proof of this argument, and if it were flown today could show a clean pair of heels to many designs of equal horse power.

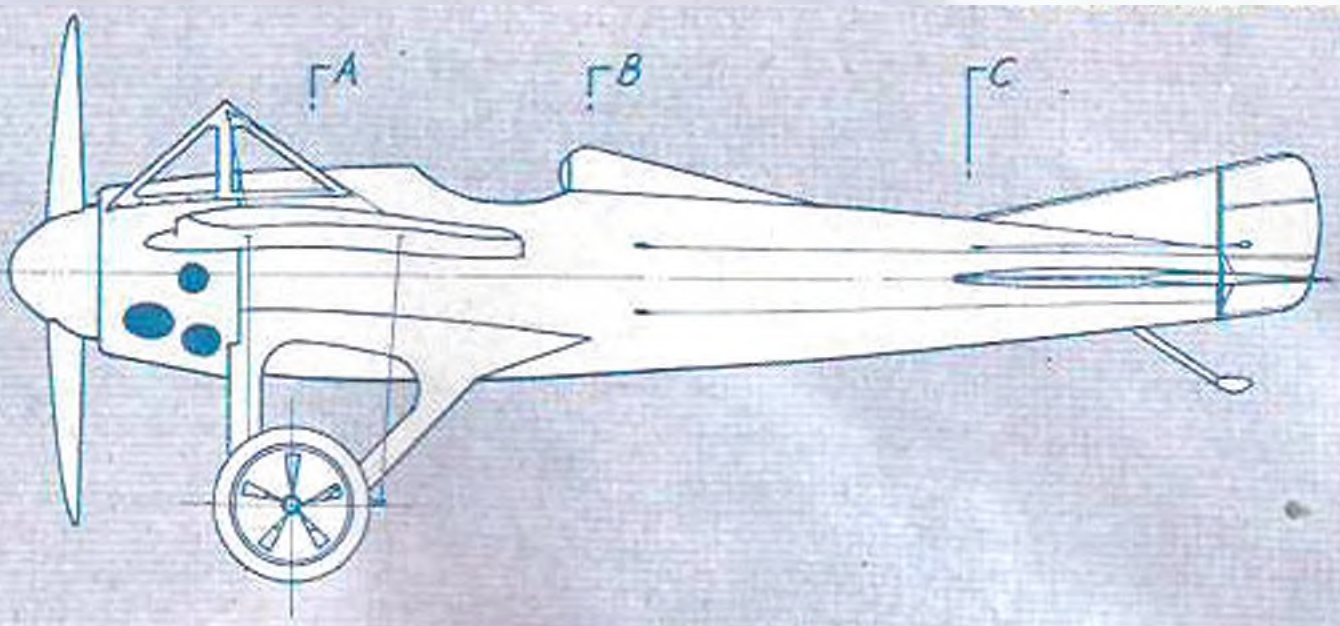
In 1914 the Deperdussin Company was bought up by Louis Blériot, and became absorbed into the S.P.A.D. concern. One can see the Dep. characteristics in most *Spad* designs, especially in the undercarriage and cowling.

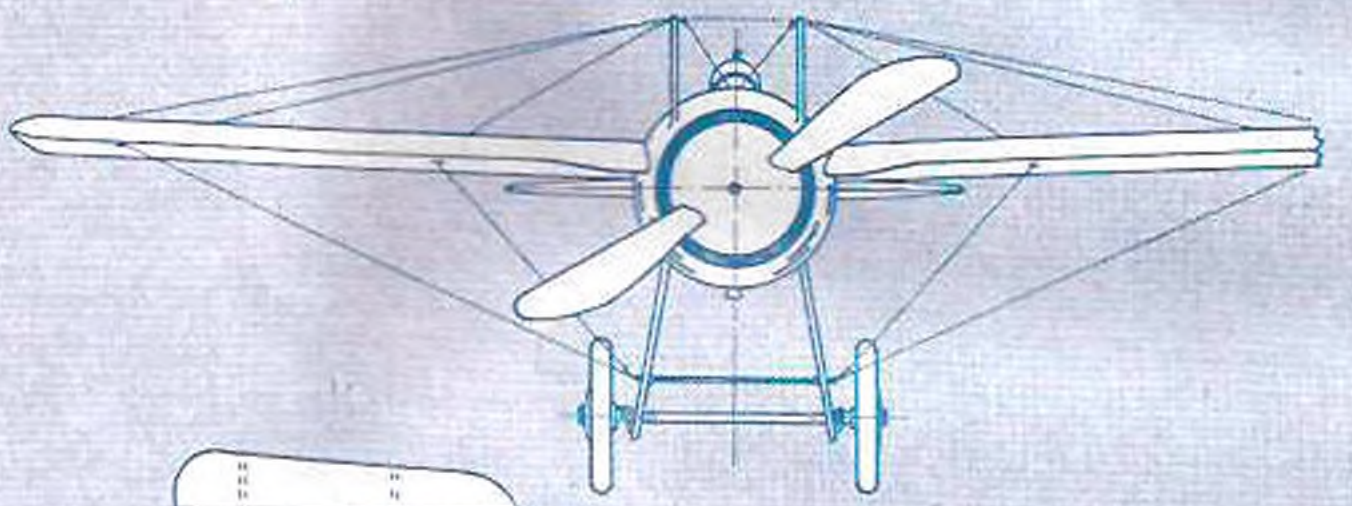
The wings and tail unit were of the usual wooden construction fabric covered. Lateral control was by the wing-warp method. The wings had 11 full ribs each, two half ribs between at the front spar. The undercarriage was neat, strong and simple, it needed to be as the Dep. landed at about 70 m.p.h. on grass—very fast for those days. The airscrew was of coarse pitch and 7 ft. 7 in. in diameter.

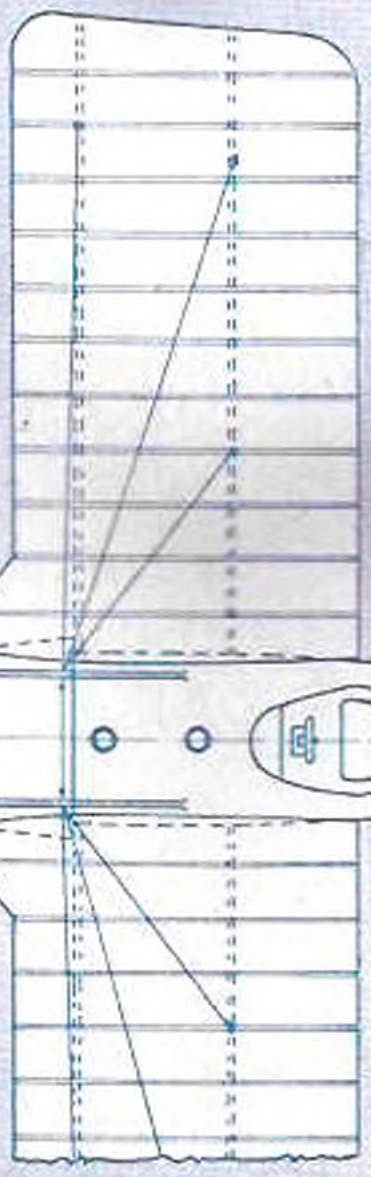
This machine would make a good C.L. scale model; there is no necessity to make a dummy rotary as the gap between the spinner and cowling is so small. The access holes would no doubt play their part in assisting last minute adjustments.

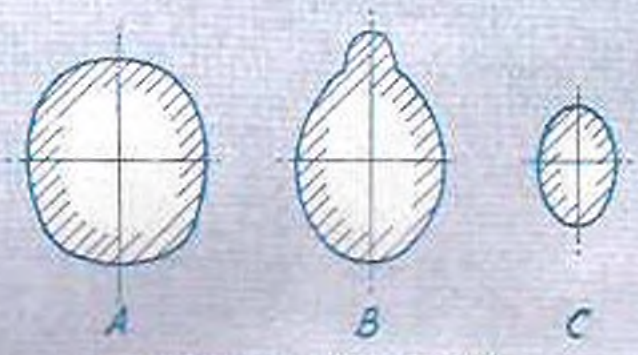


DEPERDUSSIN RACER 1913

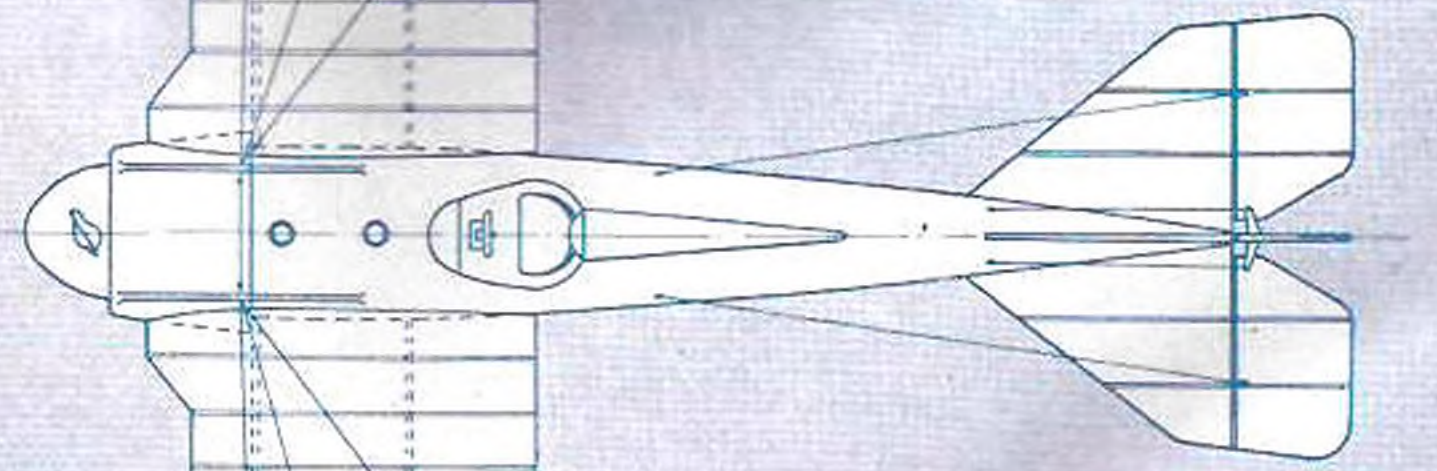








FUSELAGE SECTIONS



GM

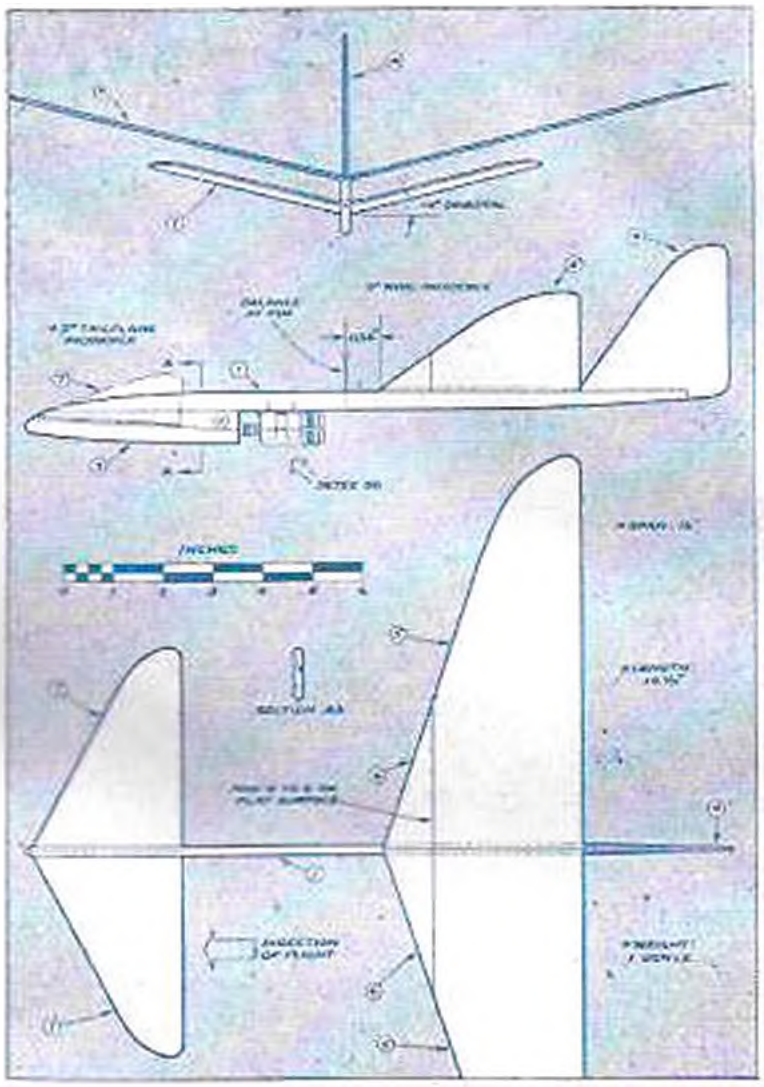
SCALE OF FEET

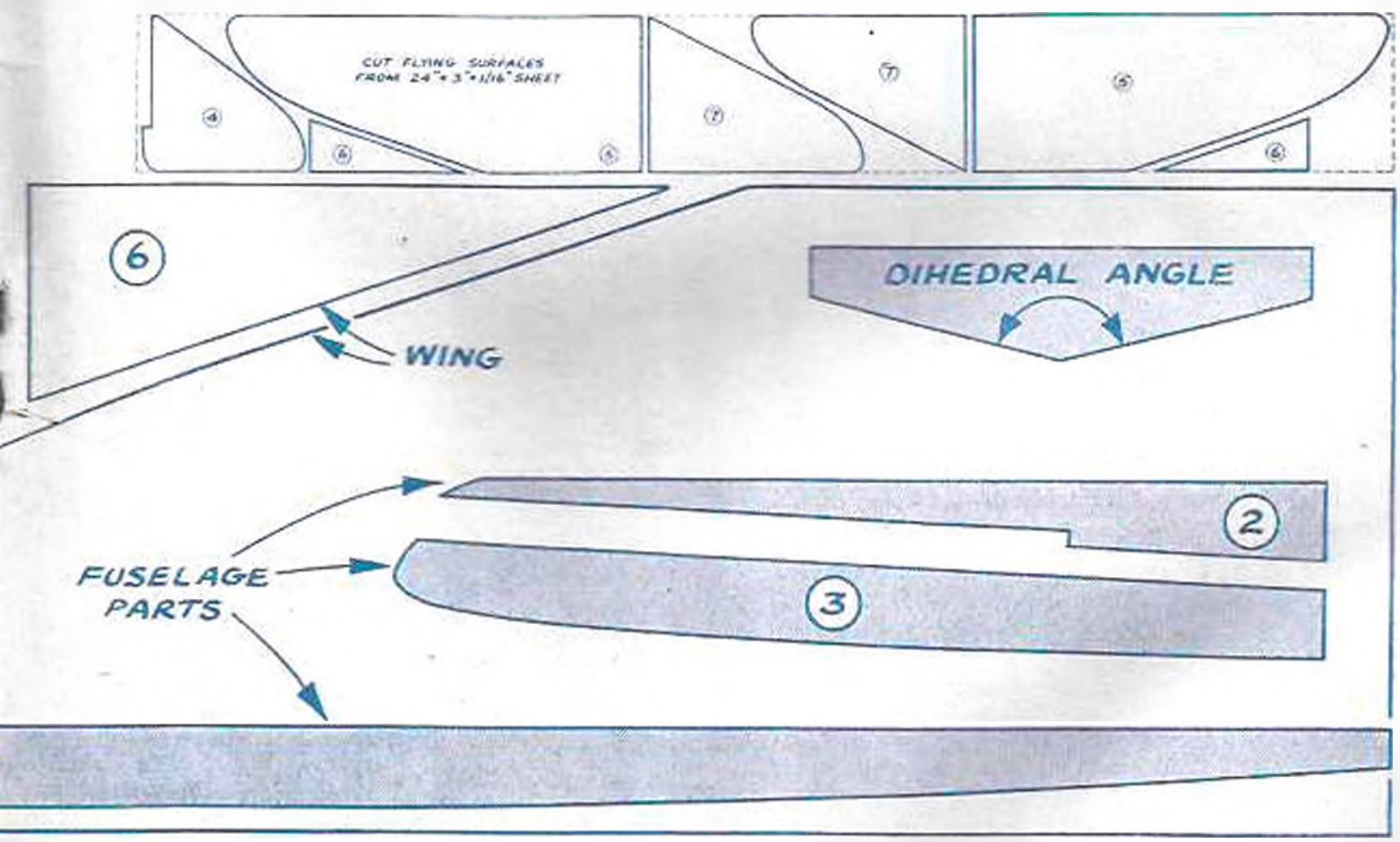
vertical. Cut a shallow "V" in the fuselage (in front of the fin) and cement the wing to it. Check that the flying surfaces line up correctly in the front and top views. Pins are useful for keeping these parts in position until the cement dries. Now cut a shallow "V" in 3 and cement it to the underside of the tailplane. Round off the edges of the fuselage (see section *AA*).

Push a modelling pin into the top of the fuselage (see plan) and attach the loaded Jetex unit (by means of screws and cement) so that the model balances level when held by the pin. The position of the unit will be similar to that shown on the plan. For a stronger attachment—especially if fairly soft wood has been used for the fuselage—cement a hardwood insert ($\frac{3}{16}$ in. square × 1$\frac{1}{2}$ in.) to 1 and screw the Jetex clip to that.

Flying

Test glide with a loaded unit in position. A slightly steeper than usual glide is desirable as the thrust pushes the nose up in the climb. Slight trimming adjustments may be made by weighting the nose, but the best method is to attach the unit in such a position that it gives the required balance. The model will most likely have a natural turn, but if this is not so—gently twist one wing tip to give the desired effect. From the point of view of trimming, treat the wing as if it were a tailplane. Tilt the wings of the model slightly in the direction of the natural turn when launching. As with all Jetex models, allow the thrust to build up for a second or two before releasing.





JETEX CANARD

By BILL DEAN

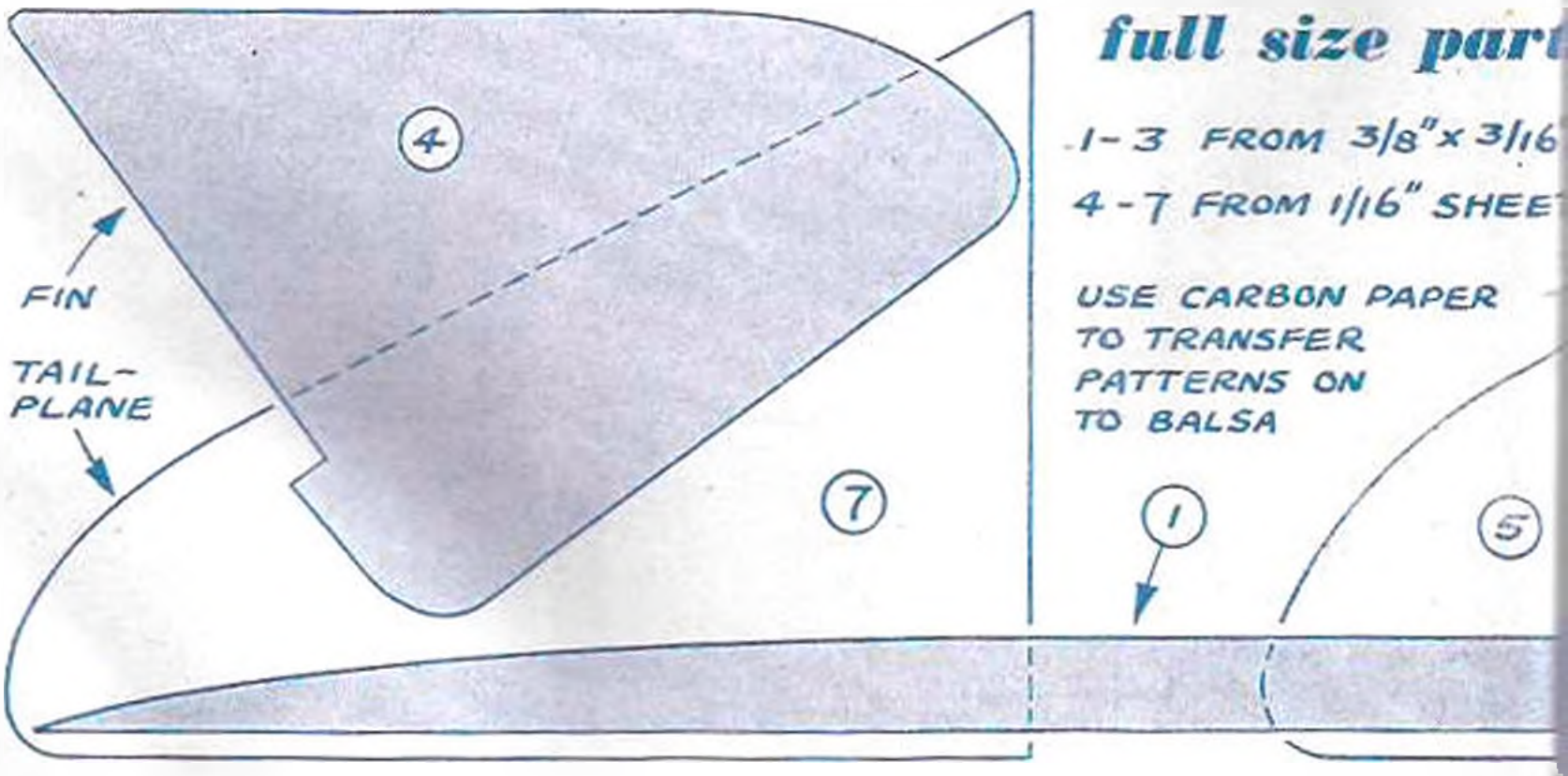
LOOKING for an out-of-the-rut Jetex model? Well, how about this "50" powered *Canard*. Construction is very simple and the performance better than most conventional all-sheet designs. It took just 2½ hours to get the original model into the air and that included 30 min. work on the plans. The Jetex unit was attached to the fuselage with "Sellotape" and slid backwards and forwards until the glide had been perfected. Then the clip was screwed into position, the motor attached and the fuse ignited for the first power flight. Conditions were perfectly calm (late evening) and the model made three tremendous loops straight ahead. One of the wing tips was twisted to correct this and the next flight was spot on—the model gaining about 150-200 ft. of altitude in wide shallow circles. Since then we have had many successful flights with this design, some of them over a minute. In spite of its unusual "which-way-does-it-go" layout, this *Canard* is graceful in flight and shows no tendency to stall when the power cuts. Brief notes on the construction follow.

Flying Surfaces

Transfer the full size patterns on to medium 1/16 in. sheet with the aid of carbon paper. Fit the parts into the sheet carefully (see sketch on right) to avoid wastage. Join the small triangles (6) to the main wing panels (5), flat on the building board. Taper the edges of the wing, tailplane (7) and fin (4) to a streamlined shape. Place the root ends of the wing and tailplane panels level with the edge of the building board and sand to the dihedral angle. Pin the left hand panels (5 and 7) flat on the plan and cement the right hand panels to them—using the template to obtain the correct dihedral angle.

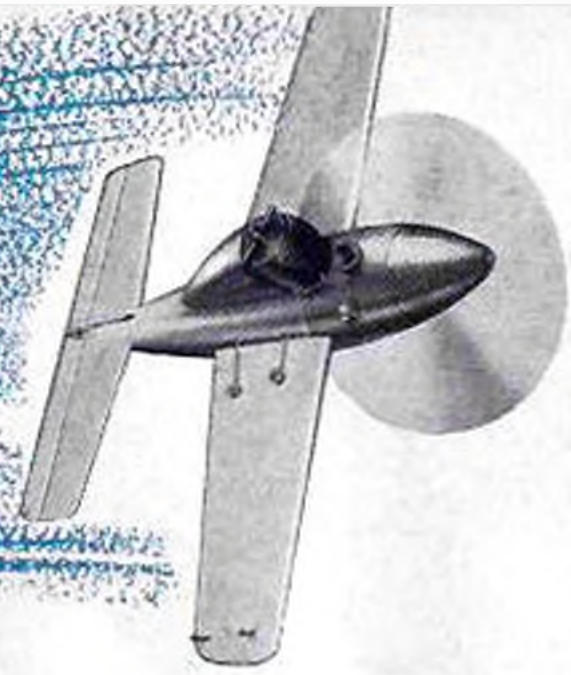
Fuselage and Assembly

The fuselage is made up from a length of medium hard strip—21 in. × ⅜ in. × ⅛ in. Transfer the patterns (1, 2 and 3) on to the balsa, cut them out and cement 1 and 2 together. Trim the recessed portion of 2 to a "V" section and cement the tailplane in position. Cement the fin (4) to the rear of the fuselage—checking that the former is quite



Tiniflyte

ROLAND SCOTT'S CLASS I RECORD HOLDER



TINIFLYTE is a development of a model with which last year I unsuccessfully made a claim for the Class I record with 72 m.p.h. The claim was not accepted due to the fact that the engine was found to be slightly oversize when checked. The model described, however, made an officially observed flight at an average speed of exactly 80 m.p.h. and now holds the British Class I speed record.

It will be noticed that a high percentage of speed merchants now fly clockwise and I believe this is a necessity to cope with the pylon in a confident manner. Of course, if you are left-handed still stick to anti-clock.

However, a few constructional notes on the *Tiniflyte* will help, so here goes :—

The crutch is shaped from two pieces of ¼ in. × ¼ in. × 6.8 in. ash. Lay side by side, mark out and saw as per plan.

Mark the engine position and after drilling, secure the engine in the usual manner. Glue the tail end with Durofix.

Whilst this is setting cut out the wing shape from ⅛ in. hard balsa. File and sand to aerofoil section leaving the undersurface flat.

The tail is cut from 3/32 in. balsa and after sanding to shape fix the tape hinges in position. After inserting the shim brass control horn the tail may be cemented to the body.

The 3/32 in. ply formers are positioned in the fuselage as per plan. The centre former has a brass plate secured to it on to which the undercart tubes are soldered.

The wing is cut out at the centre and can now be cemented in position.

The control plate is cut from ⅛ in. dural or to save time you can trim down a commercial plate if preferred. Screw to the wing in the indicated position using ¼ in. squares of ⅛ in. ply for reinforcement.

Lead out wires are 22-s.w.g. and the control rod 18-s.w.g. piano wire.

A special "tailor-made" tank is shown on the plan which squeezes in between formers 2 and 3. The plastic feed pipe just has to go on the outside of the bearer otherwise kinking troubles will arise.

Check up that everything in the fuselage is O.K. and completely plank with ⅛ in. × ½ in. strip balsa, cutting holes where necessary for the undercarriage tubes, push rod and lead-out wires. Sand the whole model to a smooth finish and apply two coats of clear dope sanding again after each coat. Colour finish in your favourite dope and the job is ready for flying.

If your flying ground is unsuitable for take-offs the model may be hand launched without difficulty, provided you "whip" a little as soon as your operator releases the model.

Recommended propeller size is 6 in. × 9 in. and if you are in a hurry any good commercial fuel will be found suitable.

N.B. This model is not by any means flat out at 80 and experiments on the following lines should yield speeds well above this figure.

We have been told that the Elfin 1.49 delivers its maximum power at 13,500 r.p.m. and therefore the engine should be running at 12,000 on the ground. A rev. indicator is a good guide in this direction and is accurate enough for early experiments. To obtain this r.p.m. reading a little propeller chipping might be necessary, but if you start with a 6 in. × 9 in. you will not be far out. If your r.p.m. reading is below 11,000 with this propeller check your engine for tight spots and remedy with the judicious use of metal polish, not forgetting to remove all traces before running.

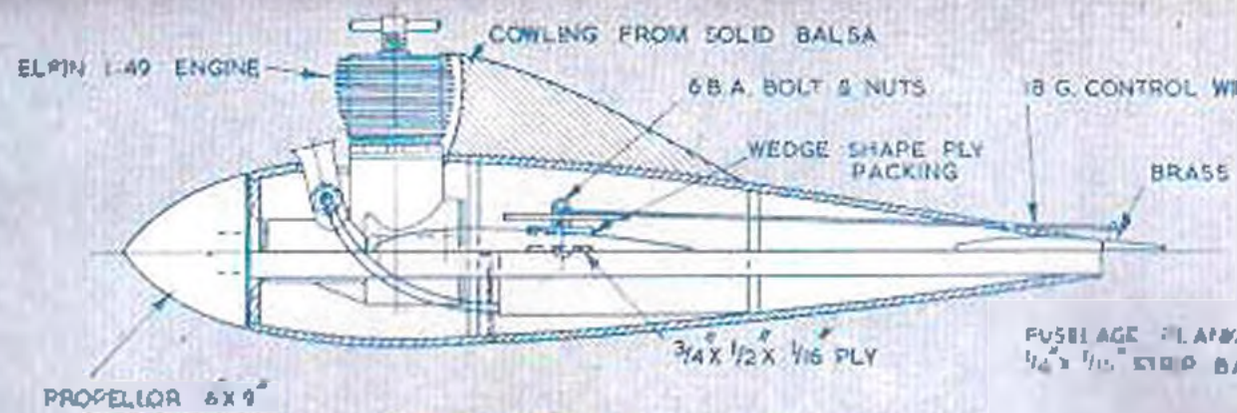
Fuels for diesel engines are not so "tricky" as glow plug fuels, but the following mixture seems to give just those few extra revs which may prove invaluable in a closely fought contest. It is :—

Diesel oil 40 per cent., Castrol R 30 per cent., pure ether 30 per cent., to which add 5 per cent. amyl nitrate.

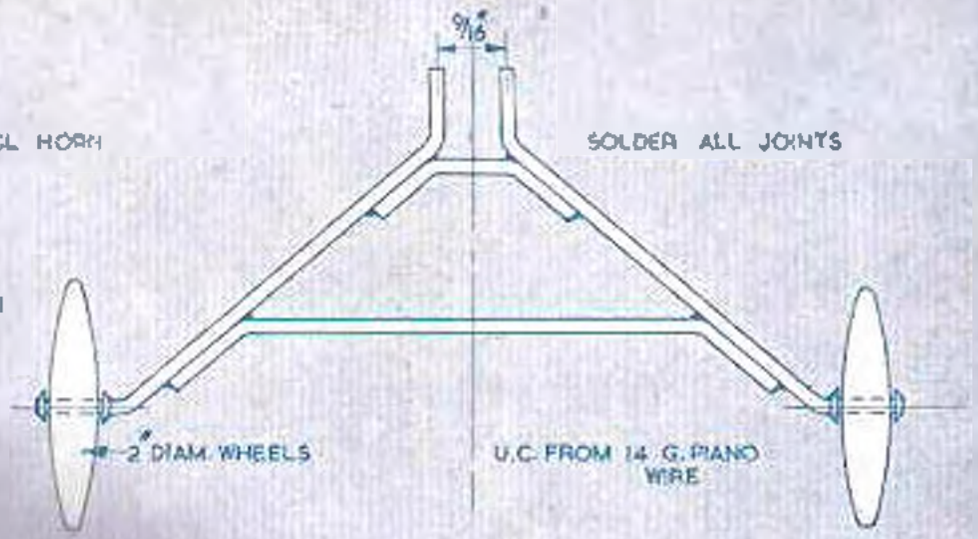
The amyl nitrate is useful in preventing "coughing" and allows the engine to run smoothly with slightly less compression than normal.

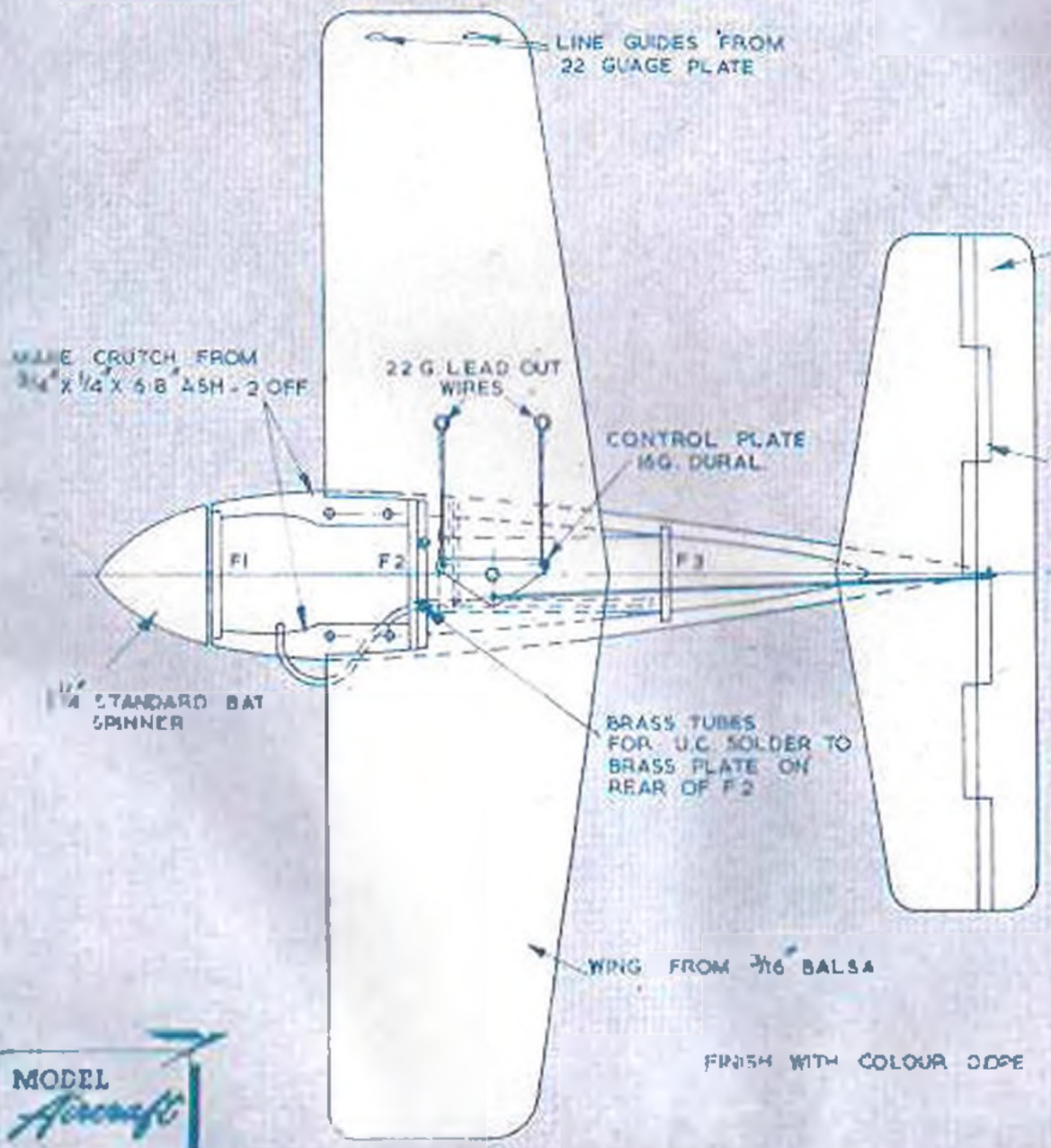
Tiniflyte has obviously not reached the lower limit in size proved by the fact that it has actually flown a full circuit with the undercart still hanging on and a further reduction in size should add a few extra m.p.h.

Finally, you will obtain faster speeds during the early part of the day due to cooler operating conditions, so in contests fly first whenever possible.

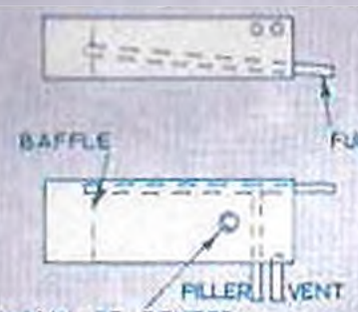


FUSELAGE PLANKED WITH 1/4" x 1/16" STRIP BALSA





FORMERS FROM 3/32" PLY



TANK FROM .010" SHIM BRASS AND 12 G TUBING

FINISH WITH COLOUR DOPE

MODEL Aircraft

TINIFLITE

BY ROLAND SCOTT

SPAN 10" LENGTH 8 3/8"
POWER ELFIN 1.49 CC.

M.A.89

The S.M.A.E. Annual Dinner and Prize-giving, which was held at The Normandie Hotel, Knightsbridge, London, W.1, on Saturday, November 4th, 1950, was one of the most successful and enjoyable of these functions yet held by the Society.

The photograph on the left shows the fine array of cups and trophies which were presented to last year's winners during the evening.

PRIZE GIVING

(Above). M. L. Hanson, of Solihull, receiving from Mrs. L. C. Nash the *Aeromodeller* Nordic A2 Challenge Cup.

(Below). Bob Copland, of the Northern Heights Club, is handed the "Model Aircraft" Trophy whilst the Editor holds another of Bob's prizes, the Caton Trophy.

Mr. L. C. Nash, of the Ministry of Civil Aviation, proposing the toast of the Society of Model Aeronautical Engineers.

R. Yeabsley and H. E. Setterfield receive the Plugge Cup on behalf of the Croydon and District M.A.C.

J. B. Knight, of the Kentish Nomads, with the Premier Shield.

Some of the Croydon Club members with the trophies which they have won during the past year. Also in the photograph are (back row, right) R. F. L. Gosling and E. F. H. Cosh. (Front row, extreme right) Bob Copland.

(Above). Mrs. Nash presenting the Farrow Shield to last year's winners, the Kentish Nomads.

(Right). Dennis Allen, of the West Essex Aeromodellers, with the Ripmax R/C Trophy.

B. A. Yeaxlea of the Portsmouth and District M.A.C., winner of the Bowden Trophy, looks pleased with himself.

The 1950 champion, J. A. Gorham, of Ipswich, with the Sir John Shelley and the Championship Cups.

C. Doughty, of Birmingham, receiving the S.M.A.E. Radio Control Trophy which he won at the 1950 Nationals.

Over the Counter

THE popularity of the Jetex power unit is underlined by the fact that all the leading kit manufacturers, with the exception of International Model Aircraft, have designed and produced appropriate models. At the time of writing there are, in fact, some twenty different kits available and more are in the course of preparation.

In competitions, the Jetex-powered duration model has shown itself capable of holding its own against most power models in open "ratio" or limited motor run events, and the majority of kit models are of this type. Undoubtedly, however, the most interesting Jetex models are the flying scale jets where the Jetex is really the only suitable commercial power plant on the market at the moment. During the war an American firm produced a whole range of flying scale jets powered by CO_2 capsules ("Sparklet" bulbs), but this was never a fully satisfactory source of jet thrust. The Jetex power unit—and we are happy to think that it is a British invention—has none of these failings.

Wilmot Mansour & Company, makers of the Jetex units, also manufacture a range of suitable kits. The first of their flying scale kits was the *Vampire* for the Jetex 50—the subject of our kit review opposite. The same design has been reproduced in a larger size and other flying scale models are following, notably the *Attacker* and the *Meteor* (twin Jetex 50). These models open up a new field of interest in sport flying. The only other manufacturer at present making a scale jet model is Model Aircraft (Bournemouth) who have produced the *Fouga Cyclone*, which again should prove a popular prototype. Veron, and several other manufacturers, have also produced designs which double as gliders and jet duration models.

Quite the most interesting in the later jet models due to appear on the 1951 market is the twin-jet helicopter design evolved by Wilmot Mansour & Co., and described in the last issue of Model Aircraft. Hinged rotors have now overcome many of the initial stability problems—and these designs have been under test for some considerable time—stable flight with quite amazing durations is now obtained consistently. From the technical point of view the jet-rotor is superior to the shaft-driven rotor since it eliminates torque—a constant source of trouble.

NEW ENGINE PRICES

The recent Purchase Tax decision has caused increases in the prices of certain engines, propellers and some accessories. The Frog and Eta range of engines have included purchase tax in their retail prices since April, 1948, and the recently announced new prices of some of the other engines are summarised below.

Allbon Javelin	Old price 51/-	New price, including tax,	68/1	Mills 0.75	Old price 50/-	New price, including tax,	60/9
Allbon Arrow	,, 55/-	,,	68/1	Mills II	,, 75/-	,,	91/1
Allbon Dart	,, 52/6	,,	65/2	Mills 2.49	,, 84/-	,,	102/-
Elfin 1.49	,, 59/6	,,	73/4	E-D Bee	,, 45/-	,,	47/6
Elfin 1.8	,, 60/-	,,	74/6	E-D Mk II	,, 55/-	,,	55/-
Elfin 2.49	,, 63/-	,,	78/-	E-D Comp. Special	,, 57/6	,,	57/6
Elfin 3.5	,, 90/6	,,	111/-	E-D III	,, 65/-	,,	65/-
Fuleti 29	,, 79/6	,,	98/8	E-D IV	,, 72/6	,,	72/6
Fuleti 49	,, 99/6	,,	123/6				

New prices for propellers and accessories are increased by approximately 21% in the shilling. A spinner originally costing 3/3 for example, now costs 4/-; a 1/6 propeller now 1/9

VAMPIRE

Flying Scale Model for Jetex "50." Manufacturers Wilmot, Mansour and Co. Ltd., Salisbury Road, Totton, Hants. Kit price 5s. 0d.

The remarkable ingenuity of this design is praiseworthy. The constructional methods adopted make the construction of this model of unorthodox layout extremely simple and positive. Building it, indeed, was, we found, a pleasure.

The fuselage is built on a central jig, the formers being cemented in their appropriate places, after which the stringers are added. Wing halves are built separately and cemented in place, additional spar bracing supplying adequate strength at the wing junction. The slot positions marked for these auxiliary spars, however, were found to be slightly in error, but this was the only mistake on the printed sheet parts.

The tail booms are built up as hollow boxes and then sanded down to section. They cement to the wings over a rib position. Sheet fins are cemented to the rear of each tail boom, between which the tailplane is cemented to complete the assembly. The complete model is, therefore, an integral unit.

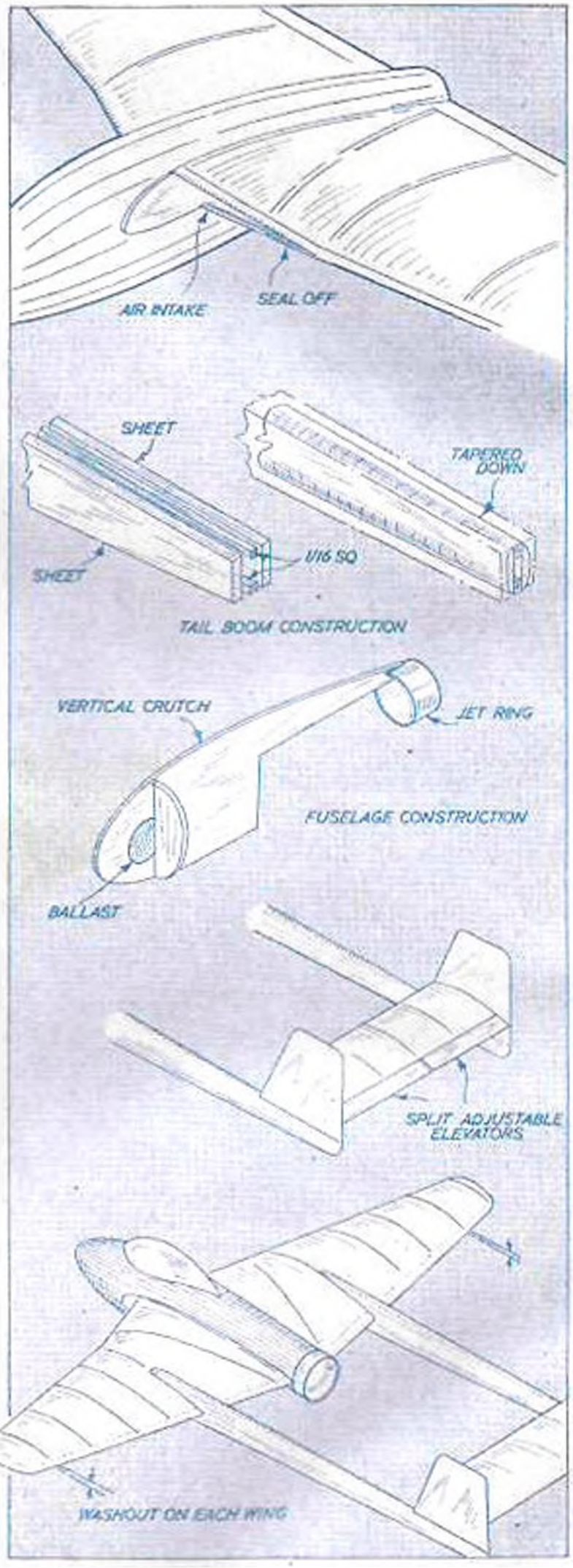
The method of forming the leading edge air intakes is delightfully simple and effective. These *do* act as air intakes, providing a flow of cooling air to the Jetex power unit. The extreme outer portions of the intake entry (outboard of the second wing rib) need sealing off, however, as air entering here would be trapped in the wing itself and cause unwanted drag.

We doubt very much if the type of construction used could be bettered for a kit model of this layout. To obtain a satisfactory fuselage covering job the formers should be scalloped or sanded away between the stringers—a point not too clear from the plan and instructions—and covering the multi-stringer fuselage will also take more time and patience than that of a simple slabsider.. The finished result, however, is worth the extra effort.

Our experience with two separate kits indicated, also, an inherent failing of integral construction. In the one kit the sheet material for the booms was light, but more than strong enough. In the other it was very heavy. The boom parts cut out, in fact, weighed almost as much as the recommended ½ oz. total weight of the complete model. To have used them would have necessitated nose-ballast to balance and excessive total weight.

Another fault of integral construction, of course, is that all trimming adjustments are built in. This can be a good thing but we do not think that the *Vampire* design has sufficient inherent stability to nullify slight inaccuracies that the average builder might accidentally introduce. The model we flew exhibited definite signs of spiral instability if even the slightest degree under-elevated. Longitudinal trim, too, was rather critical.

We feel that some trim adjustment would have been beneficial, such as a split elevator to the tailplane which could be used to control longitudinal



stability (up and down) and adjust for the degree of turn required. Noting how "touchy" our own model was in this latter respect we would say that incorporating an equal amount of washout on each wing would be extremely beneficial.

These criticisms do not in any way detract from the general high opinion we formed of this model. It is a kit model which we thoroughly enjoyed building and flying. If we experienced this when initially setting out to find possible faults, how much more will the average sports flier appreciate his *Vampire*!

The flight is extremely realistic. The best trim we found was a fast shallow climb with little or no turn. A turn starting under power tends to tighten up into a spiral drive as speed builds up and the manufacturers themselves recommend a straight climb. Washout on each wing definitely helped us to get a stable climbing turn.

Perhaps the best recommendation we could give the *Vampire* is that we shall be amongst the first in the queue for the *Attacker* and *Meteor* kits when they appear. And we are looking forward to building them!

* * *

In the model car world the Dooling—both "61" and "29"—rates supreme. Speed C.L. fans have also had it brought home to them that this is the motor that usually features amongst the winners.

We hear that Doolings are going over to very limited motor production since the bulk of their works is now engaged on rearmament work in connection with the American "war-preparedness" equipment.

scheme. There may, in fact, be no new Doolings at all until world conditions restore to normal.

* * *

Modellers who have complained of the high average density of present day balsa wood will be interested to know that a licence has now been granted by the Board of Trade for the import of balsa from dollar areas. The best type of balsa for model aircraft purposes comes from Ecuador and it is understood that the bulk of the import will be from this country.

* * *

Whilst the authorities in this country still classify model aircraft kits and accessories under "toys, games, etc.." South African modellers now find their requisites officially designated "sporting goods." Previously, South African model equipment was considered as "toys." The immediate result of the new ruling is that South Africa can now once more import American model aircraft kits and motors. Foreign "toys" still remain under an import ban.

* * *

America, home of R/C—at least, they had R/C contests long before the war—has suffered from the fact that all enthusiasts had to have an amateur transmitting licence, or operate outside the law. Things reached such a state at the 1949 Nationals that expert, but unlicensed, radio fliers had to fly with "indirect contact"—a licensed amateur actually holding the transmitter control and the (unlicensed) flier operating the control via the other person's hand! Now America has two licence-free wavebands. One is 27 megacycles, which has already led to a definite interest in standard British

JETEX POWERED KIT MODELS

Compiled to November, 1950. Whilst every effort has been made to make this list as complete as possible no responsibility can be taken for errors or omissions therein.

Span	Model	Designer	Manufacturers	Type	Power	Price
10	HOT DOG	H. Figgins	Wilmot Mansour	Parasol	Jetex 50	3/-
12	[illegible]	A. H. Dadd	A. E. Peters	Solid-Pylon	Jetex 50	2/3
—	—	W. A. Dean	E. Keil & Co.	Solid Pod & Boom	Jetex 50	—
18	SKYJET 50	W. A. Dean	E. Keil & Co.	Pod & Boom	Jetex 50	3/9
18	MIN-O-JET	P. L. Smith	Model Aircraft (Bournemouth)	Pod & Boom	Jetex 50	3/-
18	VAMPIRE	—	Wilmot Mansour	Flying Scale	Jetex 50	5/-
—	ATTACKER	—	Wilmot Mansour	Flying Scale	Jetex 50	—
20	CUB	W. A. Dean	E. Keil & Co.	Glider Jetex	Jetex 50	2/6
20	ANDY	J. Magson	Halfax Models	Rubber Glider Jetex	Jetex 50	5/-
21	MUET	—	Wilmot Mansour	Solid	Jetex 100	5/6
22	VAMPIRE	—	Wilmot Mansour	Flying Scale	Jetex 100	7/6
20	METEOR	—	Wilmot Mansour	Flying Scale	Twin Jetex 50	7/6
24	SKYJET 100	W. A. Dean	E. Keil & Co.	Pod & Boom	Jetex 100	5/6
26	CORONETTE	P. L. Smith	Model Aircraft (Bournemouth)	Glider Jetex	Jetex 50	3/3
30	FOUGA CYCLONE	P. L. Smith	Model Aircraft (Bournemouth)	Flying Scale	Jetex 50	4/6
30	AIR-O-JET	P. L. Smith	Model Aircraft (Bournemouth)	Pod & Boom	Jetex 100	7/6
30	VIPER	—	Model Shop (Newcastle)	Pod & Boom	Jetex 100 or 200	10/6
30	FLYING WING	—	Wilmot Mansour	Tailless	Jetex 50 or 100	5/-
32	SKYJET 200	W. A. Dean	E. Keil & Co.	Pod & Boom	Jetex 200	7/6
33	WIDJET	F. Dobson	Southern Junior Aircraft	High Wing	Jetex 200	6/6
35	CIRRO JET	P. L. Smith	Model Aircraft (Bournemouth)	Pod & Boom	Jetex 200	10/6
36	DURAJET	—	Wilmot Mansour	Parasol	Jetex 350	14/6
46	VEROSONIC	P. L. Smith	Model Aircraft (Bournemouth)	Glider Jetex	Jetex 100 or 200	9/6
*21	JETICOPTER	—	Wilmot Mansour	Helicopter	Twin Jetex 50	—
*35	JETICOPTER	—	Wilmot Mansour	Helicopter	Twin Jetex 100	—

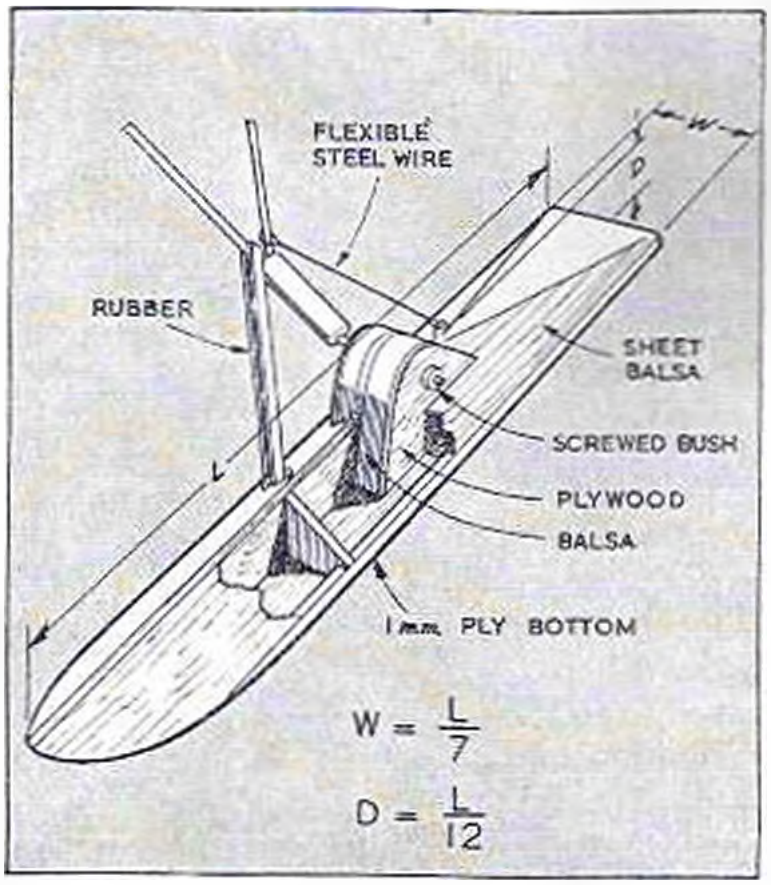
* Rotor diameter

ACCENT ON POWER

By P. G. F. Chinn

IN 1946, summer, that elusive season of the year which in this England of ours, is apt to make brief unannounced appearances now and then occurred, I believe, on a Tuesday. It was followed by a most exciting winter in which the snow lay deep and crisp and even. (See leading photograph.) Summer, 1950, also occurred on a Tuesday (though as this was in the morning, diligent pen-pushers and coal miners may not have noticed it) and this coincidence might, therefore, be an indication that snow will follow this winter. If such an eventuality can be accepted as remotely possible, a few words on winter flying, and "snow flying" in particular, may not be out of place.

There is a good deal of fun to be had from equipping a model with skis and flying over snow. Provided that the ski undercarriage is properly designed, take-offs and landings, on reasonably smooth snow, are much prettier to watch. The writer's brief experience of operation on skis relates only to free-flight, but there seems to be no reason why C.L. should not be every bit as entertaining a novelty.

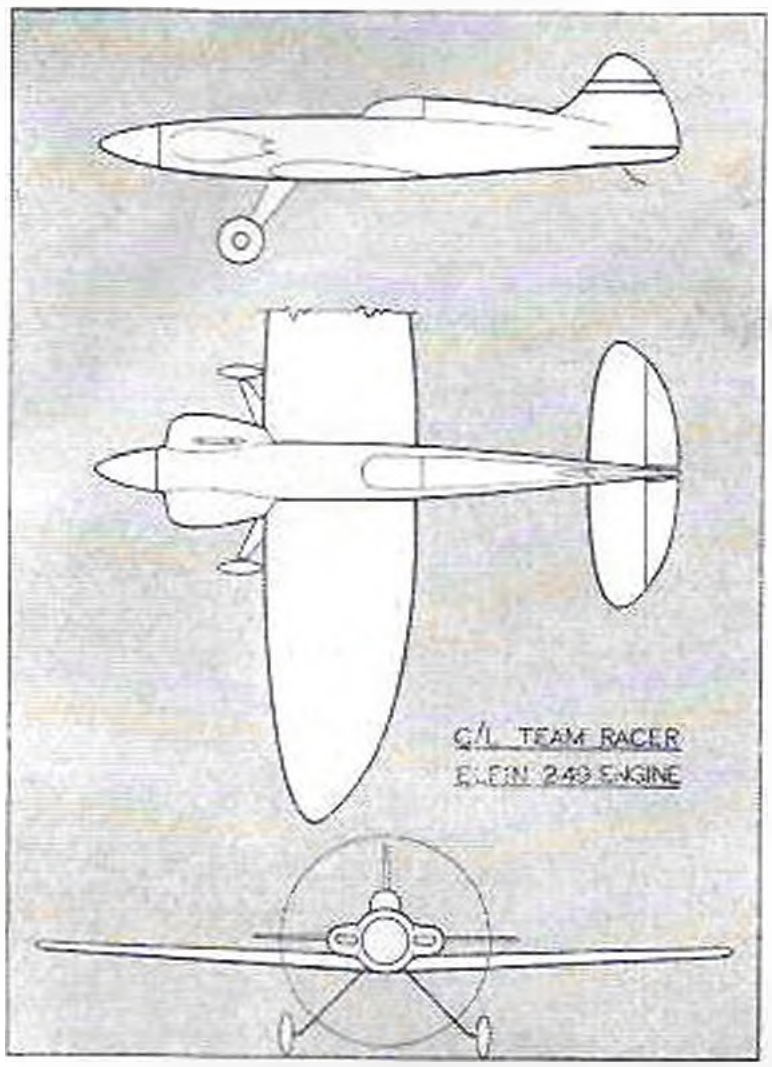


The model illustrated above was coverted to skis during the freeze-up of 1946/7. One of the old semi-scale type of power models which is now coming back into favour for R/C, it had 1 sq. ft. of wing area and spanned 5 ft. 6 in. The engine with which it is seen equipped in the photograph was a 6 c.c. Oram "Super-Tiger" diesel which the writer had picked up in Italy, but most of the flying was done with a 6 c.c. British Reeves petrol engine which proved much easier to handle in low temperatures. The model weighed approximately 3 lb. all up, giving a wing-loading of 12 oz./sq. ft.

With this initial attempt, and having no reference by which the required ski area could be established, we erred on the generous side. Each front ski had 28 sq. in. of "planing surface" and the tail runner was 9 sq. in., a total of 65 sq. in. This seemed to be about right, allowing the model to get off quickly from the softest snow and preventing any tendency to sink in on landing, but it is felt that a total area of 10 per cent. of the wing area would actually be more than sufficient for any model up to 16 oz./sq. ft. loading.

All three runners were flexibly mounted to permit them to rest flat on the snow, and ride any bumps in its surface, and rubber tension was provided to incline them at 6/8 degrees, relative to the datum line, once the model was airborne. This did have the effect of making slight readjustments to flying trim necessary but was an immense help in securing really excellent landings. Even after quite a steep approach, the touch down was invariably ironed out into a firm, smooth landing.

Construction of skis need not present any difficulties. Built up skis were used on the above model and their structure and the method of attachment in place of wheels, is shown in the accompanying sketch. The triangular cross-section results in a strong light structure, free from warping tendencies and provides a firm foundation for stunt fittings. For smaller and lighter models, however, a simpler layout could probably be used quite successfully. For all free-flight types, however, rubber tensioning



to incline the skis when the model is airborne, is regarded as essential to ensure good landings. Correctly adjusted, each ski should rest quite flat on the snow and, as the model passes over any dips or bumps in the surface, should flex to the irregularities. Excessive tension will cause the model to ride on the rear end of the skis and will result in a slow take-off and bumpy landing. However, slightly more tension can be used on the tail runner to provide a braking effect on landing, if desired. (The landing run of the original model on smooth snow was about 60 ft.)

For C/L models, fixed skis can be used as the model can be levelled off for landing, although, again, the inclined flexibly mounted unit would probably be worth while, since it should enable the model to be brought down and skimmed over the surface under power, without risk of digging in.

When fitting the skis to the model, check the axles to ensure that there is no "toe-in" or "toe-out." This would not normally be noticeable when wheels are used but, with the skis, the added length will enable an accurate check to be made. The runners must also rest flat when viewed from the front—that is, their entire width should be in contact with the surface and not resting on either inside or outside edges.

A word regarding winter flying in general.

Make sure that everything is in order before venturing out. Major adjustments amid snow or near freezing-point temperatures are conducive only to frozen hands and frayed tempers. Remember, before you blame your fuel, or glow-plug, or the motor itself, that all engines are a little more difficult to start in cooler weather than in mid-summer, and don't over-prime; a kick from the prop of one of the bigger types of motor is something to be avoided when one's fingers are chilled and infinitely more sensitive to knocks and bangs. A glove may be useful here, incidentally.

Team Racing Development

Making prophecies on the probable trend of development in any new type of model or model flying is always a risky business, but, after witnessing the reaction of spectators—both modelling and non-modelling types—to a few events held during its first season, the writer is convinced that team racing has come to stay. It was particularly noticeable at meetings where all types of events were in progress, free-flight and C/L, that team racing alone, drew the entire crowd to watch the fun. Admittedly, spectator-interest (granted even that a large proportion of them may be keen modellers) does not necessarily mean that a large section of the movement will take up team racing, but if team racing events held at galas and rallies help to draw a good "gate," then it is certain that we shall see plenty of this type of event next season. In any case, there seems ample reason to suppose that team racing is, in fact, catching on in the majority of clubs and more interest seems to be centred around team racers than any other C/L type at the present time.

One thing is certain; the progress in team racing technique, made in the course of half a dozen major events held during 1950, was considerable, and ideas have been changing rapidly.

During the past season, most placings have gone to the slower, long-range model, mainly diesel powered, but with improved detail design and handling, the fast, racing-engined model now seems to be coming into the picture. In early team races, 5 c.c. g.p. engined models were needing four and five re-fuelling stops during a 10-mile race with each stop occupying around 60 sec. Even at 65-70 m.p.h., the best speeds then attained, this proved too much of a handicap in the majority of events and some of the smaller, diesel engined models, needing only one or two stops, emerged easy winners despite their lower speed. Norman Butcher's E.D. 3.46 c.c. *Li'l Lulu* was, perhaps, the most outstandingly successful example of this latter school. With a speed in the region of 55 m.p.h., this model completed its eliminating five-mile heats non-stop and needed only one brief stop in a ten-mile final. At the East Midland Area's Gala, at Cranwell, on October 15th last, *Li'l Lulu* completed no less than 117 laps on her five-mile qualifying flight. Unfortunately, in the final (won by Ted Buxton and the St. Albans team) she was wrecked after colliding with the other finalist, when the latter left the centre of the circle to rescue his screaming *Frog 500 Mosquito Mk. I*, which, following a re-fuelling stop, had turned into the circle on take-off and appeared to break off both prop blades.

Towards the close of the season, pit crews were noticeably quicker in getting models away, the speeds of the 5 c.c. jobs were going up and range improving, and although a decisive victory by a racing-engined team-racer has yet to prove their superiority, it does seem likely that really fast models powered by engines such as the Eta " 29," will be in favour next season. A good model, so powered will do in excess of 80 m.p.h. and, as emphasised in an earlier article, should still cover a ten-mile race with three stops, i.e., 40 laps, plus, per 30 c.c. tank. If the total time lost on refuelling stops, including loss due to deceleration before, and acceleration after, the stop does not exceed 30 sec. each time, then such a model is a potential winner since only a racer which will do 54 laps at over 75 m.p.h. or 80 laps at over 70 m.p.h., will equal its performance.

If pit stops can be further speeded up, the advantage is still more in favour of the high-speed model. Thus, more and more, does the success of a team depend on good, rapid pit work.

Much of the progress recently made with fast models has been due to a better appreciation of how to make best use of the power unit. With many earlier team-racers, tank design and location was bad, and many props used were better suited to stunt models than to team-racers. Some 5 c.c. racers have been observed to do no better than 20 laps to the tank, not all of which were at an even speed, an obvious indication that not all was well with the fuel feed department.

By contrast, Ted Buxton's *Super Nova*, which took the team race event at the Cranwell Gala, covered 47 laps on its first tank of fuel. Ted's model was designed around a 1950 " sport "-type McCoy " 29 " with shaft rotary valve and it was noted that he used a tall, narrow tank, the attitude of which could be adjusted so as to ensure a " last-drop " feed. The model also had the best turn of speed of any at the meeting and, during its fastest laps, the writer timed it to be ticking off close to 57 m.p.h.

The S.M.A.E. C.L sub-committee's recent recommendations on team-racing, segregating the under 2.5 c.c. models into a class of their own, should be welcomed, and should, if they are put into effect,

Winning St. Albans T.R. team and model at the Cranwell Gala : (L. to R.) Ted Buxton, Pete Wright and George Fuller

result in further increased popularity for team racing. Just whether the proposed 2.5 limit will result in too-easy victories for certain limit capacity motors—notably the Elfin 2.49 (which has proved no mean performer in Class " B " racing) remains to be seen. There is no doubt that a 2.49 job, under the proposed rules, could be very fast and, with good pit work, should win easily but, as Bill Dean commented " . . . perhaps the 1.49 boys will stooge around the circuit while the 2.49 types crash into each other and get dizzy." Certainly 200 laps of team racing on 42 ft. lines at speeds likely to reach 70 m.p.h. *and* with the possibility of four-in-the-circle, will be quite a feat.

In the accompanying three-view drawing is shown an Elfin 2.49 powered team racer by the writer's brother. Originally intended to compete under the 1950 rules, with a 125 sq. in. wing, the model has been redesigned to comply with the proposed Class " A " rules and advantage taken of the reduced wing area and line length of this category. Judged on previous experience, the 2.49 should pull this model through a ten-mile race with three pit stops on a 15 c.c. tank.

CUT IT OUT, CLUELESS! **By Harry Stil**

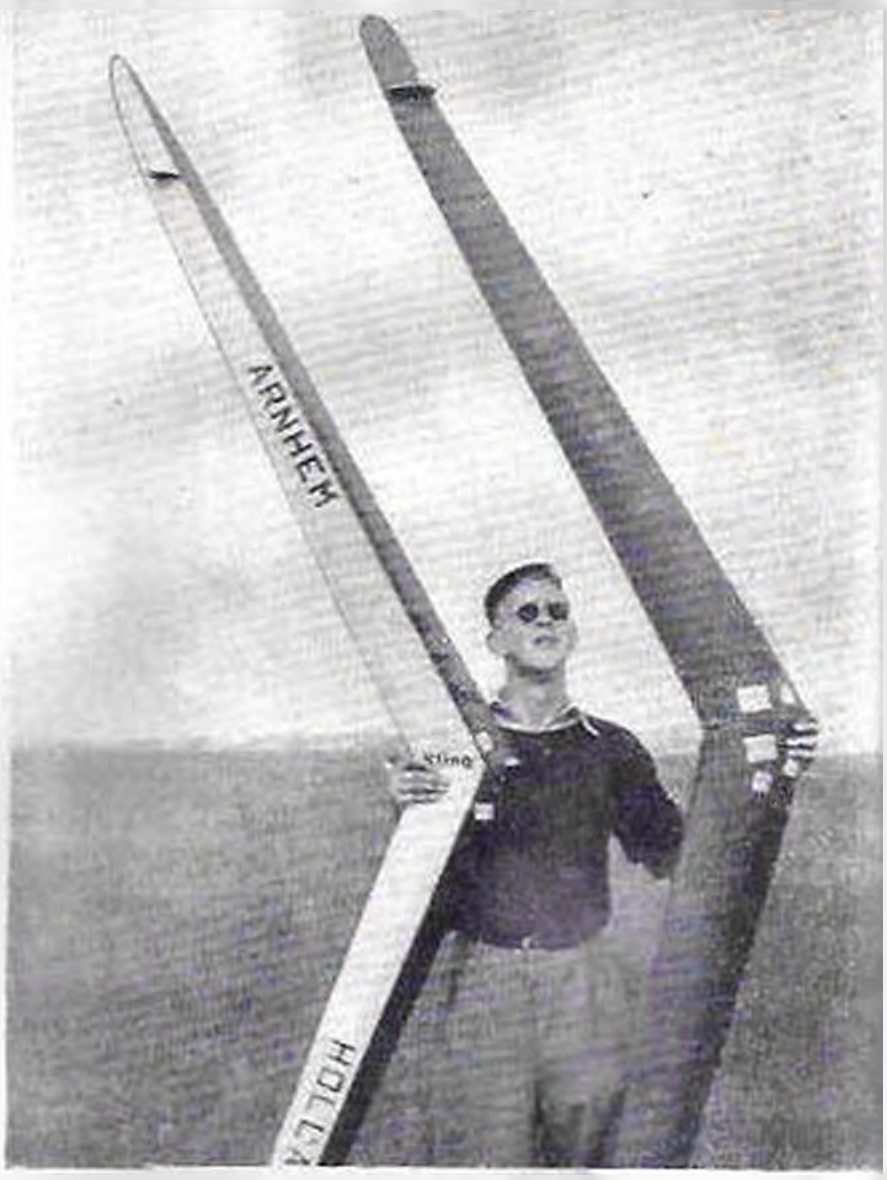
Kling

TAILLESS GLIDER

By P. C. Koorn

DUTCH designers such as J. Van Hattum, Meevis and others have since the second world war carried out a large number of experiments with concave sections on tailless models and they have been found to be very satisfactory when combined with pronounced sweep-back. Fairly small angles of washout were found to be necessary and a good many of the stability problems were thus solved. The use of small tip fins improved directional stability as the sweep-back brought them well behind the c.g. position.

Kling was one of the most successful of the number of tailless designs developed by the writer and is a thoroughly well tried and proved design. It has been flown in all types of weather conditions and has shown that it is capable of standing up to hard usage. The prototype has made many flights of long duration including flights of 2 min. 53 sec. in Lyons, 2 min. 15 sec. in the Dutch Nationals Eliminators, 3 min. 10 sec. in the Thomas Cup Contest, an important event in which it placed second, and 3 min. 43 sec. to break the Antwerp Club record, all flights being made from 150 ft. line.



The designer with two of his successful tailless gliders.

Construction

The first step is to cut out all the wing ribs from $\frac{1}{8}$ in. sheet medium balsa, except the two centre ribs which are cut from $\frac{1}{4}$ in. plywood. The mainspars are of $\frac{3}{16}$ in. sq. hard balsa and must be laminated to obtain the length required. Great care should be taken over this joint, which should be pre-cemented before finally gluing together and the splice should be approximately 2$\frac{1}{2}$ in. long. When dry the spars should be tapered to $\frac{1}{8}$ in. depth at the tips.

Slot ribs 1, 2 and 3 for the ply tongue in the port wing panel and ribs 1 and 2 for the tongue box on the starboard side. The notches for the ribs should now be filed or cut in the leading and trailing edges.

Commence building by pinning the bottom mainspar down on to the plan over the building board in the usual way and cement into place only ribs 1-18 at this stage. Now insert the top mainspar and cement the leading and trailing edges into position.

Make the laminated wing tips on the plan and cement into place *before* cementing the remaining ribs to the mainspars. The centre-section can now be made. Insert fillets where indicated on the plan and cement into position the ply tongue. Make the $\frac{1}{8}$ in. balsa tongue box a good fit on the tongue and cement into the starboard panel as shown. The ballast box can now be completed and the forward section of the wing covered with $\frac{1}{16}$ in. sheet balsa. The wire tow-hook is threaded through the ply centre rib and bound and glued into place. Glue the paper tubes and their fillets into position at rib 22.

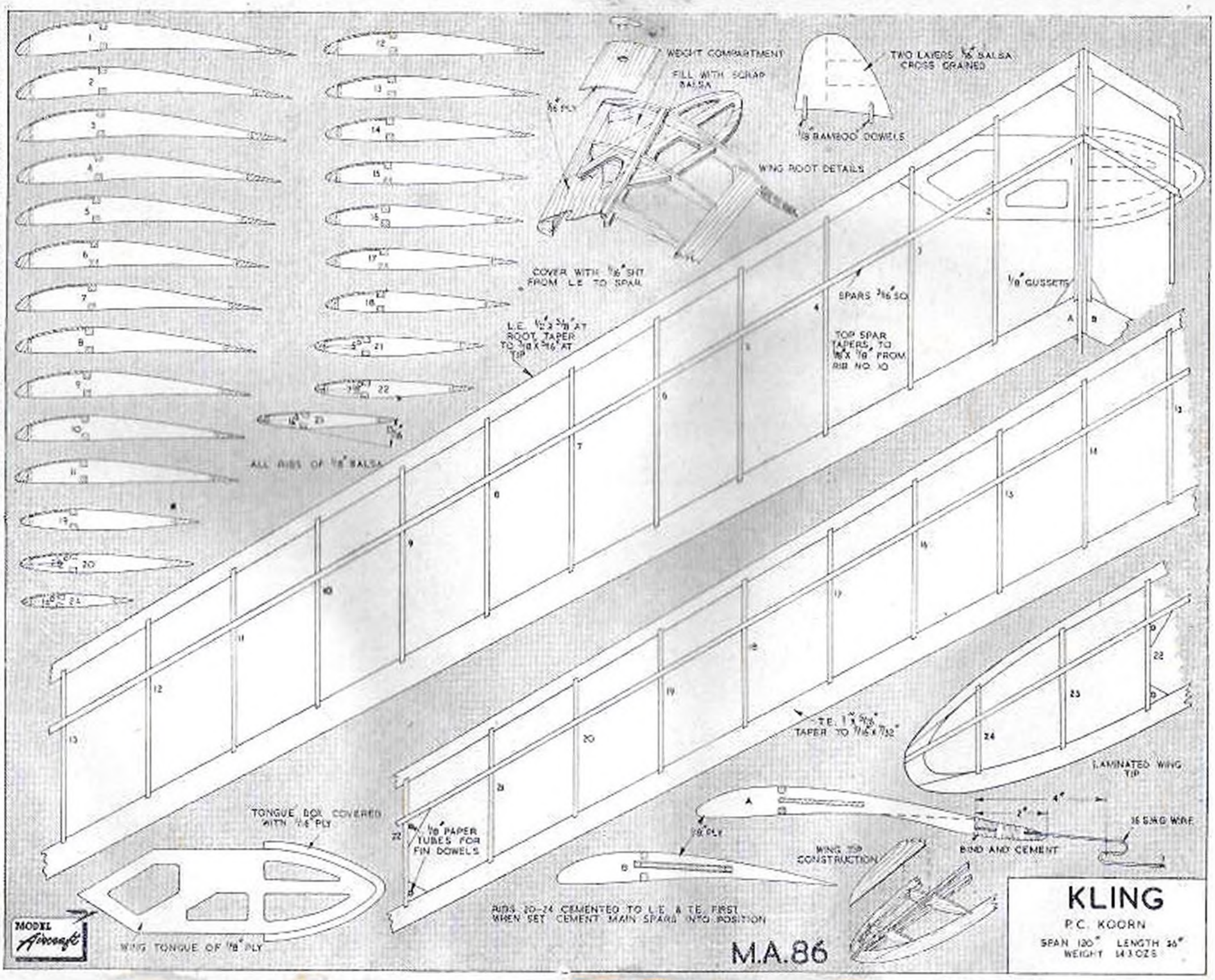
Leave the wing to dry thoroughly before sanding to a smooth finish. It is important to note at this point that the two wing halves must weigh exactly the same when completed and it is advisable to check this now and again after covering and finishing.

The leading edge sheeting should now be given two coats of clear dope, sanding between each coat, before the covering is applied. On the original, rag tissue was used for the covering, but Modelspan could be used instead if desired. The model should be given four coats of clear glider dope and pinned down whilst drying, the trailing edge being packed up from rib 20 to the tip. Two coats of coloured dope can be applied to the sheeted portions of the wing. The colour scheme of red, white and black which was used on the prototype provides a very attractive finish.

Trimming

When completed the model should balance under the trailing edge when supported under ribs 4-5. The exact c.g. position should be ascertained by hand-launching, preferably over long grass, and by adding small amounts of weight in the ballast box as necessary.

No difficulty should be experienced with tow launching *Kling* as it is a very stable model and as steady as a rock on the line. It can be tow launched quite fast and has a very steep climb.



FULL SIZE DRAWINGS ARE OBTAINABLE FROM YOUR LOCAL DEALER, OR BY POST FROM THE "MODEL AIRCRAFT" PLANS DEPARTMENT, 23, GREAT QUEEN ST., LONDON, W.C.2. 4s. 6d. POST FREE.

● IN LAST month's "Power Talk" we included a photograph of a Westland-Sikorsky helicopter "solid"—one of a batch of Westland models that Cyril Shaw was recently commissioned to spray finish. We had a look at the models when Cyril had done with them and take our word for it, the finish on them was really fab. For those who are interested in the procedure behind an exhibition paint job, the method used by this well known speed flier was as follows :—

(1) Start by brushing on two coats of car filler. (2) Allow a day to dry, then rub down with 240 grade "wet and dry" rubbing down paper. Finish off with 320 paper. (3) Spray on about six coats of car primer—rubbing down after the third coat with 240 paper and after the sixth coat with 320 paper. (4) Spray on two thinned down coats of car primer and rub down with 400 paper when dry. (5) The model is now ready for the application of the colour dope. Spray on about 15-20 coats, rubbing down after each second coat with 400 paper. Gradually thin down the dope so that the microscopic scratches made by the 400 paper are filled.

Leave the model for a few days to allow the dope to settle and become harder—then rub down lightly once more with 400 paper. Next use a rubbing compound, followed by Hendon "W" Finisher. After this, polish with 'Lifeguard' car polish and finally give the model a coat of Johnson's liquid wax. All you need now is a pair of dark glasses to avoid being dazzled!

Cyril tells us that he uses an "Aerograph" spray for small parts, such as fuselage blades and undercarriage legs—and an "A.I.D." spray gun for larger surfaces.

★ ★ ★

● IF YOU think that life is too short for the above treatment and just want to get a "good" finish on that new control-liner, try the following method.

Start by well sanding the complete framework, then give it a coat of clear dope—and that includes all block, planking and even open framework wing panels. Now cover the entire model with "Modelspan," or any similiar tissue. Tighten the tissue over any open frameworks (wings, etc.) by spraying with water in the usual way. Give the model two coats of clear dope, allow to dry—then give three coats of filling mixture—sanding in between with 400 rubbing down paper. Make up your own filler by pouring dope into an old lid and adding talcum powder until a thickish mixture results. Apply with a fairly stiff brush.

Spraying on the coloured dope is quickest and gives the best results, but an almost identical finish can be obtained with a good quality brush. About three coats will be sufficient, if brushed on. Rub down with 400 paper between coats and finally polish up with Hendon "W" Finisher. We find that a coat of wax polish gives quite a sparkle in addition to protecting the finish.

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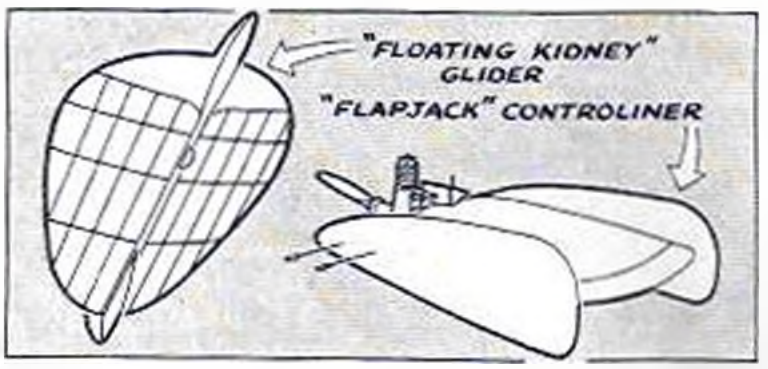
● VISITORS TO the 1950 *Model Engineer* Exhibition will certainly remember a beautiful silver biplane—fitted with floats—which was entered in the model aircraft contest. The model deservedly won a silver medal—the highest award possible in its class. We were so interested in this entry that we wrote to the builder, Mr. L. Harrison, of Fulham, for detailed information. Here is his reply :

"The idea of building this model was first conceived from a rather vague G.A. drawing of 1/72 in. scale, which I came across in a magazine. The aircraft was a proposed project of the Hawker Aircraft Company and had never progressed beyond the drawing board stage. The model I built was similar in general layout only—the actual design of the fuselage, engine installation, rudder and fin being my own, while the wings and tailplane followed the usual Hawker trend.

"Plans were drawn up to a scale of 9/72 in., which gave a wing span of 61 in. and an overall length (from the tip of the floats to the rudder t.e.) of 49 in. Over 650 hours were spent in building the model—the wings and tailplane construction following full-size practice.

"The 18-cylinder double-row Bristol Hercules engine and the cowling are both completely detailed and contain something like 3,300 pieces of material. The complete model contains approximately 13,150 separate pieces. The cockpit is also highly detailed and includes a complete range of instruments, controls, heating equipment, oxygen bottles, etc.

"Construction is entirely of balsa and as a result the weight is remarkably low for its size. Fast towing tests over water show good stability and I am confident that if a diesel were fitted, a reliable flying performance would result—although this has yet to be proved on another model of similar type, but without some of the weight and drag adding details."



● SEVERAL YEARS ago now, we sent in a small contribution to the American *Model Airplane News*. Apparently it got tucked away in the wrong file or something, because it finally appeared in the November, 1950, issue. Why do we tell you this? Well, quite a long time ago, F. G. Birden, of Leicester, sent us some interesting information about his series of *Alluring Kidney* models—which we somehow mislaid. However, it turned up again the other day and we think it is still worth including in these monthly notes—so here goes.

"The basic layout of my *Kidney* line of models was originated in 1940, in an attempt to improve on the contemporary boomerang shaped flying wings. It soon became apparent that while the 'boomerangs' lost in lift efficiency—because of their heavily washed out tips—the *Kidneys* also suffered from a large rotational vortex from the lower to upper surface—due to the low aspect ratio. In addition, the *Kidneys* also had a very poor lift/drag ratio. All the same, the stability was good and although the *Kidneys*' glide was parachute-like and the sinking speed poor, the early solid models refused to spin or stall.

"At this time and for the next few years, these designs were kept quite simple, as I was in the R.A.F. and frequent postings made aeromodelling difficult. All the same, plenty of experimenting with small gliders was carried out. After the war, larger *Kidneys* were built, and in 1946 it was one of these models that won the British Experimental Trophy. A powered version was the obvious development, and the next model was rubber driven. This model weighed 2 oz., measured [illegible] in., and a 7 in. × 6 in. airscrew was fitted. It did not perform too well, but at least it showed that torque could be controlled in spite of a low aspect ratio. Later, this design was fitted with a Jetex motor.

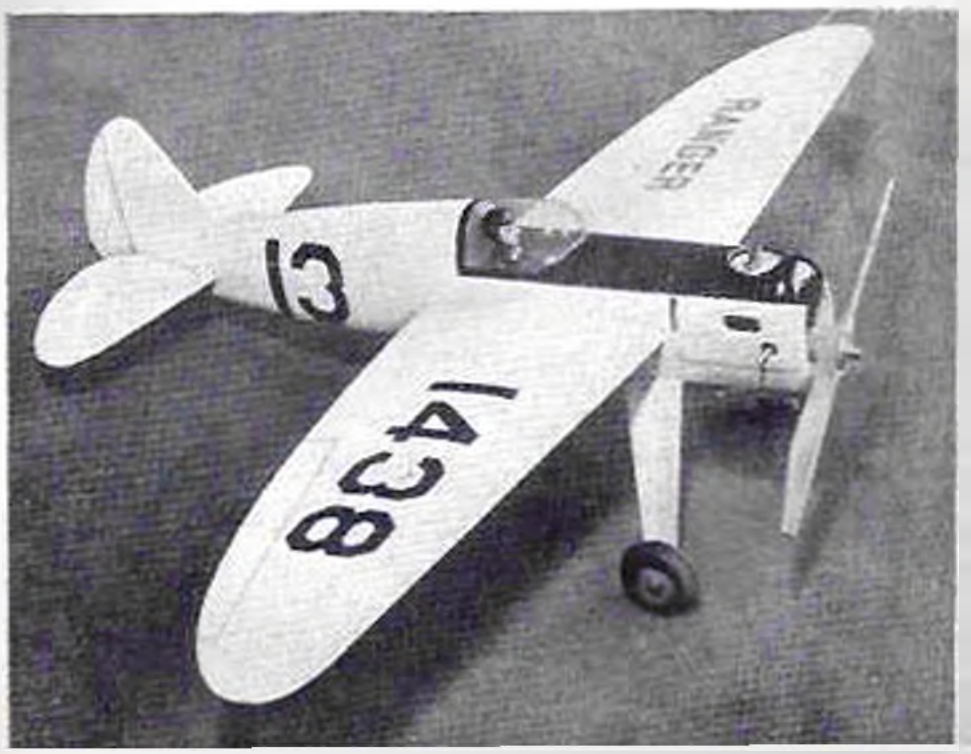
"To show the direction and approximate speed of the airflow over the airframe, an electrically powered r.t.p. model was built and fitted with many small streamers or tufts. This *Kidney* enabled some idea of the C_D/C_L figure to be calculated and provided other useful data. The next model was a free flight version (20 in. × 20 in.—[illegible] oz.), fitted with a Mills 1·3. This one flew reasonably well, but the directional stability left much to be desired. Further free-flight versions featured more fin area and were much more successful. At this point I decided to build some C/L *Kidneys*, and another long line of models followed. Some of the engines used to power these models were the Bee, Elfin, Frog 175, E.B. Comp. and the Ohlsson 23. The Elfin version appeared in kit form under the name of *Flying Flapjack*, and would do most of the stunt range. The advantages of this type for stunt work are building simplicity and good strength and power-to-weight ratios."

★ ★ ★

● FOR THE last few months I have been receiving a copy of an excellent magazine, run entirely by the members of the Huddersfield club. They are to be congratulated on a sound little job full of interesting articles and club matters. One point I particularly liked was the publication of the number of any member who was behind with his subscriptions, further non-payment resulted in the publication of his name. At least more polite if not as effective—as my half-nelson and hammer method of extraction. By the by, have you paid your subscriptions this month?

The excellent seaplane which gained a well deserved silver medal for L. Harrison of Fulham at the 1950 "Model Engineer" Exhibition. (See paragraph on opposite page.)

The author's Elfin 1.49 powered class "A" team racer. Span is 24 in., length 17½ in., and wing area 88 sq. in. Colour scheme white and black with the lettering in red.



Bill Blake test gliding his American designed "Zeek." Span is 50 in., and wing area 385 sq. in. Bill is well known for his many successful F/F scale designs.

● PETER ALLAKER, who won the 1950 Jetex contest, believes that light wing loading helps considerably to reduce the power stalling, which plagues so many Jetex models. Peter also favours a 40 per cent. tailplane to give a good pull out and he definitely prefers the low-set jet position. His recommended trim: Adjust rudder for a tight glide with enough opposite side-thrust on the motor to prevent spinning. . . . Laurie Barr passes on this tip for getting maximum power out of Jetex motors. He keeps the fuse in position on the face of the charge with a piece of ½ in. × ⅛ in. balsa. As the charge ignites, the sheet is blown back over the jet hole and the pressure builds up until the balsa is burnt through. According to Laurie, it prevents wasting power during the short waiting period while the thrust is developing. Laurie placed 2nd at the Jetex contest. His "100" powered model had a span of 20 in., chord 5 in., polyhedral wing, 40 per cent. Clark Y section and a 40 per cent. tailplane area.

★ ★ ★

● HERE IS news from the Flying Saddlers Club, of Walsall, of whom you may not have heard before, as the "Saddlers" were formed late in 1940. Total membership is only eight, but the club was represented at many of the 1950 contests. Contest placings included a 5th at the Nationals, a 2nd in Jetex (and 5th in rubber) at the *Daily Dispatch* Rally, and a 2nd in power at the Midland Area meeting at Loughborough. Club secretary, A. E. Reynolds, sends in these details and goes on to tell of a hot free flight design by another member.

"About this time last year, Dennis Braes, our competition secretary, scaled down the *Banshee* to eight-ninths full size, to suit his Elfin 1.8. He found that the model looped badly in spite of excessive downthrust, so a larger tailplane was fitted, but then the glide was poor, so he shelved the model. An American article on design gave the hint of using large wing areas with low aspect ratio and flat undersurface. I built such a model to Braes's design (350 sq. in. wing) and it took 5th at the Nationals. Dennis improved the model in various details, called it *Mile* in its final form and flew it in the Astral (at Loughborough). A test flight gave 3 : 30 on an 8 sec. run and, in the contest, the first flight was 4 : 20 o.o.s. on an 11.5 sec. run. Unfortunately, the model was lost on this flight, but the 22.65 ratio was sufficient to gain second place. The model finally landed 11½ miles away!"

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In Brief

Next time you see a character nervously glancing over his shoulder every few minutes—it's probably only a pit member of a T.R. team, with his nerves in shreds. And if he screams and throws himself down to the ground at the sound of anything resembling a model motor, that clinches it! . . . . . F. B. Wattle has built a highly successful *Flying Plank*, powered with an Allbon Javelin. The untapered wing has 4½ sq. ft. of area and the trailing edge is reflexed. Twin fins are fitted about 12 in. apart and the all up weight is 11 oz. Best flight on a 9 sec. motor run is 1 : 21. . . . In the November "Power Talk" we mentioned that ready made scale pilots would be popular with T.R. fans. C. W. Lutman, of The Model Shop, Newcastle-upon-Tyne, informs us that a plastic "pilot" is now being manufactured by his firm.

Northern Modeller Stan Russell designed this attractive semi-scale F/F model and Ernie Webster of Keilkraft was responsible for the construction and the unusual colour scheme on this version.

Correspondence

● *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*

INTERNATIONAL CONTEST RULES

DEAR SIR,—In your report of the F.N.A. contest held on September 10th at Cormeil en Vexin there occurs a suggestion that the British team could have won this contest if they had not been unlucky.

Let me be the first to state frankly that the British team caused our Dutch team the greatest worry and, of course they could have won. Warring's missing flight might have turned the tables : there is no doubt of it !

Permit me, however, to remark that there was no reason why a competitor should not have kept his spare model in readiness for the critical moment when it would be needed. The rules stated quite clearly that the use of a spare model was permitted.

I think it is up to the organisation sending a team to a contest abroad, to supply the members, or the team captain, with all relevant particulars in sufficient time to enable them to read and digest the rules and instructions. The Italians had one flight disqualified because the competitor did not himself wind his rubber motor as the rules demanded. Very few entrants, except our team were fully prepared with cardboard templates of wing, tailplane and fuselage cross-section, as the rules also demanded.

I trust you will understand that I have no intention to advertise our means of preparing our teams—we are not trying to canvass for custom outside our borders ! But it may serve as a reminder that a team is not fit to face all competition when "only" the models and owners are in A1 condition : it also needs complete knowledge of the rules.

The fact that we intend to apply for the honour of running the 1951 contest for the magnificent F.N.A. Cup may serve to remove from this letter the element of vain assurance and help to stimulate those responsible to ensure the complete preparedness of their team.

Yours faithfully,
J. VAN HATTEM.
Chairman Technical Committee,
Model Aviation Section,
Royal Netherlands Aero Club.

NO RESERVE WAKEFIELD MODELS ?

DEAR SIR,—In reply to Frank Holland's letter in your November issue, whilst I heartily endorse his objection to the forming of a Wakefield team selection committee, I do not agree that two reserve models should be allowed. Anything that might make the organisers feel justified in ever providing Fairlop again as a site for the Wakefield Eliminations is to be discouraged : but apart from this I see no justifiable need for reserve models at all—on a good flying site.

It seemed that the idea of allowing a reserve model sprang from the loss of Ron Warring's model in a built-up area adjoining Fairlop during the 1948 Trials. If so, the adoption of the rule was a noble gesture to Ron Warring but, I believe, a retrograde step for English Wakefield flying.

As no reserve models may be flown in the Finals, a team member who has won his place by having had to fly more than one model in the Trials is not fully qualified to represent his country. A long first or second flight in the Finals that results in the loss of the model can be of value to no one but the writers of dramatic contest reports. Men are needed who can make three good flights with one model, and the ability to do that should be demonstrated in the trials.

On centralising the eliminators I agree with Frank Holland, and though the scheme has obvious attendant difficulties I do not think they are insurmountable.

Yours faithfully,
Denton, Lancs. BARRY HARMAN.

MODEL FOUND

DEAR SIR,—We are advised by Mrs. Richardson, of 30, Barn Hill, Wembley Park, Middx. that a model aircraft landed on the roof and then fell into the garden on November 5th.

It bears I.M.A. Insurance No. A. 4918 but, unfortunately, we are unable to trace the name and address of the owner from this number.

We should be glad if you would include a short notice in your next issue, advising the owner to contact Mrs. Richardson.

Yours faithfully,
Morden, London, S.W.19. L. FAULK.
for International Model Aircraft Ltd.

THE S.M.A.E. ANNUAL GENERAL MEETING

DEAR SIR,—At a meeting of the Northern Heights M.F.C. held on Friday, November 10th, the action of certain members in voting against the council's recommendation that D. A. Gordon be awarded a Fellowship was regretted, inasmuch as it did not represent the true feelings of the club.

The meeting was unanimous in disassociating themselves from such action.

Yours truly,
R. COPLAND, *Hon. Chairman.*
Northern Heights M.F.C.

Whilst the above-mentioned action of the Northern Heights M.F.C., is to be welcomed, it seems unfortunate that none of the many members of the club who were present at the A.G.M., took the opportunity of expressing at that meeting, the views on which they find themselves to be unanimous.—The Editor.

TURBULATORS

DEAR SIR,—Regarding the very interesting article on "Turbulators" in the October issue of MODEL AIRCRAFT, readers may be interested to hear that when making model, and later full-size experiments with "wingsails" for yachts, I found that the wingsail with rigid surface functioned exceedingly well on all points of sailing except one. This was when just off a full blooded beat to windward, i.e. when the wingsail was at rather a coarse angle to the "relative" wind. By "relative wind" I mean the resultant of the wind's direction and the forward speed of the yacht which "bends" the wind. There was a definite "flat spot" in the drive or lift of the wingsail at this point, undoubtedly due to the air breaking away from its normal smooth flow.

At the time, I was in touch with America's leading wingsail experimenter in the full-size field, and we were comparing notes. We both found the same effect. I cured my troubles by fitting an automatically changing slot as the boat tacked. Mr. Carl got round the difficulty by the simple method of doping a ¼ diameter string along the span of his wingsail behind the leading edge. The interesting thing about all this is that model wings fly slowly, and wingsails also indulge in "slow" air speeds. Here we have practical proof backing up model work by large scale work. I propose next year to also try out a turbulator on my full-size wingsail of approximately 14 ft. in height, and see how it compares with slot assistance, for it is a very simple way of getting around a difficulty. I am also fitting a disruptor doped to an 8 ft. span R/C model aircraft, and shall note results before and after fitting. I note that Ellila found that his wing could go farther forward on his Wakefield winner when fitted with a disruptor. This must be a great advantage, not mentioned in the description, because rubber models are always tail heavy, and particularly is this so when gears at the tail are utilised. If the wing can go forward, *without adding weight to the nose* you get a long moment arm between wing and stabiliser "free of charge"!

Yours truly,

Bournemouth. C. E. BOWDEN (Lt.-Cdr.)

"DAILY DISPATCH" RALLY

DEAR SIR,—I was sorry to see in the report on the rally no mention was made of Sir Roy Dobson, although there were photographs of him presenting the prizes. You must realise that it is solely through his good offices that we are permitted the use of the aerodrome for this event.

Yours faithfully,

G. D. BARNES.
P.R.O. North West Area.

GLIDER TOW-LINES

DEAR SIR,—I was very pleased to see the letter from Mr. Heselwood re glider tow-lines published in your November issue and whilst adding my complete agreement with his remarks I had better say that whilst Mr. Heselwood is a fellow club member, I had no idea that his letter had been written.

I have, for some time, been pressing for some drastic action in this matter, and have, in fact, made myself a little unpopular at the Northern Area committee meetings by the force of my remarks. It is my opinion that no one, in view of the recent publicity on this subject, attempts to fly off with an unmeasured or cut and tied tow-line as the rules demand, unless he is deliberately evading the rules: and there should be no half measures with this type of customer. Unfortunately, the committee are not fully agreed about the drastic measures needed to stamp out this practice, but I shall press the matter until any attempt to fly with a non-standard tow-line carries with it the automatic penalty of disqualification from the contest concerned.

I can already hear the cries of "Gestapo," etc., being raised, but I would remind my critics that we are supposed to be enjoying a sport, but alas, the sporting element seems to be fast disappearing. One has only to leave one's model box unattended for a few minutes to discover that fact, and it seems to me that only firm and vigorous action will rid us of the spivs and the "bust you, I'm going to win the prize" type of competitor, and the sooner we get down to the job the better it will be for the chap who spends his time (and money) on aeromodelling for the fun he gets out of it.

York. B. A. MISSON.

DEAR SIR,—With regard to Mr. Heselwood's letter in your November issue, I do agree that something should be done about towline length checks, but to be effective it should be simple and not place too much work on the already overworked organisers.

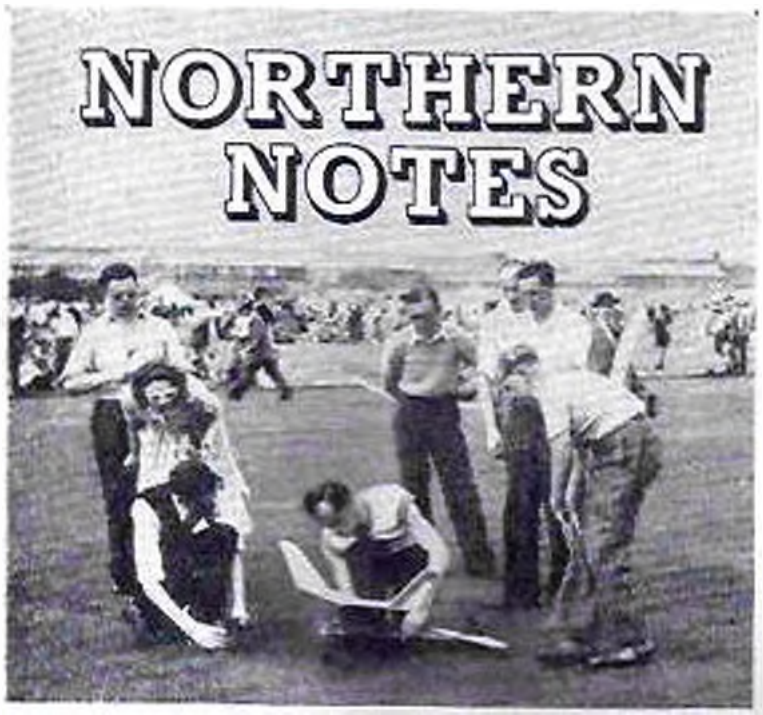
Why not use the system adopted at the Northern Heights Gala Day where the take-off area was crossed by two parallel ropes the correct line length apart. The time-keepers stand by one of these while the entrant and his helper walks out to the other one where his position is checked by a tactful patrolling steward, all that remains to be done is for the timekeepers to tie off the line at the winch by putting a half-hitch around the spool and the entrant is ready to fly.

Yours sincerely,

P. J. ASHTON.

Hitchen, Herts.

NORTHERN NOTES



★ THE A.G.M. of the Northern Area saw no Vishinskys nor experienced any vetos, backbiting, slanging, malice or iron curtains. What business had to be discussed was conducted in a quiet and friendly manner, and those people who maintain that the area scheme is a flop ought to come and see how things work out on the basis of understanding and mutual co-operation. As expected, there were some changes amongst the area officials this year. Ron Calvert moves up to chairman (dare I suggest he obtains a copy of "amendments and how to move them") with Shill Shillito as his aide-de-camp. Peter Stringer, of Huddersfield, takes over as secretary, in place of Sam Messom, who will, in future handle the cash, and Chas. Exley of Sheffield, becomes the new competition secretary. Otherwise, it is business as usual, and I daresay you will all agree when I say that the affairs of the area are in capable hands. I am told that Peter will be now able to carry his lunch in a more fitting manner, and that there will be no more badges on the neck. There was no dog in the manger act over Fellowships, decrying of secretaries or thumbing the nose at councils; we lads in the North talk, act and behave like a lot of sensible people enjoying the sport for the fun we get out of it.

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★ TURNING FROM the Lord Mayor's coach to the vehicle in the rear of the procession—"Sam! Thou'rt slipping! A Big Black Mark for not letting your fellow fliers know about the East Midland Area do at Cranwell. Did you know that some of the Leeds bods went all the way and had some difficulty in entering because you had not informed them of the pre-entry rule? Sam, Sam, pick up thy brief case. All in all, a poor do, although I understand the regulations were relaxed somewhat for the Leeds chaps, since they had travelled such a distance, and had not been acquainted with the rules and regs of the meeting, but since they didn't arrive at the ground until 11.55 a.m., and the first round ended at 12 p.m., they had to get a spurt on. Whilst fully agreeing with any rule which helps the organisers, I feel that some allowance should be made for these chaps who have to travel a considerable distance to these dos. After all, if you get up at five, to start out at six, wait for a bus to turn up, lose half an hour waiting for Charlie who forgot his tailplane, and travel 80 or 90 miles, it doesn't leave much time to get to the field, settle in, test fly and make a comp. flight, all before mid-day.

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★ I THINK it is about time that one or two people behind the scenes in the Northern Area got a bit of publicity, and following my usual policy of giving credit where credit is due (and likewise juicy raspberries, if incurred) I would like, on behalf of all in the Area, to give a pat on the back to the very industrious and hardworking P.R.O., Vic Dubery. Those of you who manage to see a copy of the Area News Sheet (and after my remarks last month that should include you) will agree that Vic, helped, I understand, by Mrs. Vic, is doing a very good job of work. The monthly edition rarely runs less than four or five foolscap pages and unlike some news sheets, does appear regularly every month. I should imagine that it takes up quite a bit of Vic's spare time, if he has much that is not filled by Wakefield building. It is always up to date and filled with news interesting to all in the Area, and without bias I should say it is probably the best news sheet in any area in the country. Have you seen it this month? If not, ask your club secretary why not? And incidentally, I know Vic would welcome news of your club; just tell him what you do and how you do it and leave the rest to him.

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★ I THINK Vic Dubery has something in his suggestion in the "News Sheet" for holding a competition in the latter part of the day, particularly in view of the conditions experienced last year in Finland, in fact, I think the Council should bear it in mind when fixing the Wakefield 100's. I understand that these will probably be held at Cranwell this year where there would be no accommodation difficulties, so why not one round late Saturday evening, say between eight and ten p.m., and the other two rounds between four and nine a.m. on the Sunday morning? Loud outcries from the blanket snugglers!! But study the idea carefully. A start at eight p.m. ought to give everyone time to get to the meet, even those who work on Saturday mornings, and since the whole affair would be over by ten a.m. on the Sunday, everyone again would have ample time to return home in comfort without spending half the night travelling. On top of this the conditions ruling between the times mentioned ought to compare with the conditions to be expected

Meet the Contributors

●

ROLAND SCOTT

●

Age 28. Married. Two daughters. Sub-postmaster and Model Shop proprietor. Ex-R.A.F. night fighter pilot.

Secretary: St. Helens M.A.C. & Merseyside Regional Council. Has built—and pranged—most types of models.

Currently interested in C/L Speed and R/C. Favourite engines: Elfin 1.49 c.c. and ETA 29.

Won Bowden Trophy Contest in 1948 and is still interested to see what the Bowden Trophy looks like!

Of the opinion that the importance of the Wakefield Contest is very much over-rated and should lose its pride of place to a more popular power duration contest. Believes Flying Scale will "top the bill" in the next few years.

in Finland, and would, therefore, be very good practice for the competition proper. I am sure the extra effort involved would more than pay for itself in the long run. Vic suggests a competition in the Area, starting at four p.m. and finishing at ten p.m. (just leaves a nice comfortable half an hour) How about it competition secretary?

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★ HAS ANYONE heard anything of the North Eastern Area lately: from what I have been told they are almost dead, but will not quite lie down. True or not, three N.E. clubs have recently teamed up with the Northern Area.

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★ THOSE OF you who couldn't be bothered to turn up at York on November 5th missed a very interesting contest, and one in which the issue was in doubt right up to the last flight. I refer, of course, to the final of the Area Trophy between Sheffield and West Yorks, and even if the weather was not of the best, the quality of the flying more than made up for the cold and wet conditions. Early in the day it looked as if the weather man was going to go all out in favour of the competitors: at 10 a.m. it was bright and sunny and with but a very mild breeze, but by noon the usual York conditions began to put in an appearance and the day turned out to be very cold with heavy showers at intervals. The conditions did not deter the competitors, however, and by midday there were present a fair representation of the two clubs concerned and a sprinkling of the N.A. officials. The usual spate of test flying was soon in progress and shortly after noon the two clubs had sorted out and decided upon the six members to represent them in this, the most important round of all. The Sheffield team consisted of, Chas. Exley, flying his O.D. nylon covered glider, Terry Poole, with an Elfin powered O.D. pylon job and Jerry Cartwright flying an 11 ft. span O.D. sailplane: whilst West Yorks relied upon Harry Preston with a Mills Mk II powered model, and Jack Hepworth and W. Farrance with their own variations of the club glider.

There was no hesitation or hanging back about the flying and the timekeepers were soon kept busy apart from the one or two short intervals due to the showers. As said before, conditions were not too good and the breeze by now had become fairly strong, with the added disadvantage of carrying the models directly into the sun, thus adding further to the difficulties of both competitors and timekeepers. In spite of this very consistent times were being recorded, Harry Preston turning in a 4 min. 19 sec. on his second flight to be topped very shortly afterwards by 4 min. 20 sec from Terry Poole. Chas. Exley seemed to be having some bother with his glider and the best he could average over his first two flights was only 1 min. 11 sec. By four o'clock, the position had crystallised thus: Sheffield were 99 sec. in hand with one flight each to make. At first sight it looked a good thing for Sheffield, but a study of the figures revealed an interesting position: Jack Hepworth, the last man to fly for West Yorks, had averaged a little over 2½ min. on his first two flights, whilst Chas. Exley had not done better than 77 sec. So it was indeed anybody's cup, and the feelings of these last two fliers can be imagined. The light was definitely poor as they went out to fly. Jack with a do-or-die spirit and Charley not a little concerned about his model's behaviour. Jack had a very good launch and a steady flight almost to the limit of visibility to record 2min. 45 sec. and the silence as Chas. prepared to tow up could be cut with a knife; he had to record but 1 sec. over his previous average and the trophy was secured, but the stability of his model on the line had not been too good so you can imagine the crossed fingers, bated breaths, muttered curses and whispered incantations circulating through teams and onlookers alike. But Charles's work on his model between flights now bore fruit, it went straight up on the line as steady as a rock, was released at just the right moment, and flew on to the accompaniment of some wag in the crowd solemnly intoning the 15 sec. intervals, to record a final flight of 1 min. 51 sec., thus securing the coveted trophy for the Sheffield lads by the narrow margin of 45 sec.

Naturally, the West Yorks boys were disappointed: it had been a very close margin, and with just a teeny bit of luck the competition could have gone

their way, as witness one flight in which their model passed behind some trees and out of sight of the time-keepers, yet was watched for almost another minute by observers at a different point: but they were good losers, and the final ended with both teams exchanging mutual congratulations on a keen and interesting contest. I would like to put it to the area that an attempt be made to award some memento to the runners-up: they certainly deserve one.

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★ THE LIST of the individual champions of the Sheffield club makes very interesting reading; the senior and junior champs respectively were G. H. Wilkins and Terry Poole, Terry incidentally being the junior champion in all three classes; Chas. Exley was the glider man of the year, F. W. Walker the top rubber performer and Ted Muxlow, who is rated one of the best rubber fliers in the area, lost his rubber championship but was power champion for the year. The shape of things to come? Congratulations to these lads, and the seven members, G. H. Wilkins, Chas. Exley, J. Cartwright, F. W. Walker, Terry Poole, Ted Muxlow and L. Sheldon, who between them carried the club to victory in the Area Trophy. What with area trophies, championship cups, electric clocks and the Rootes Trophy (if they get it) Sheffield sideboards are going to be pretty full this year.

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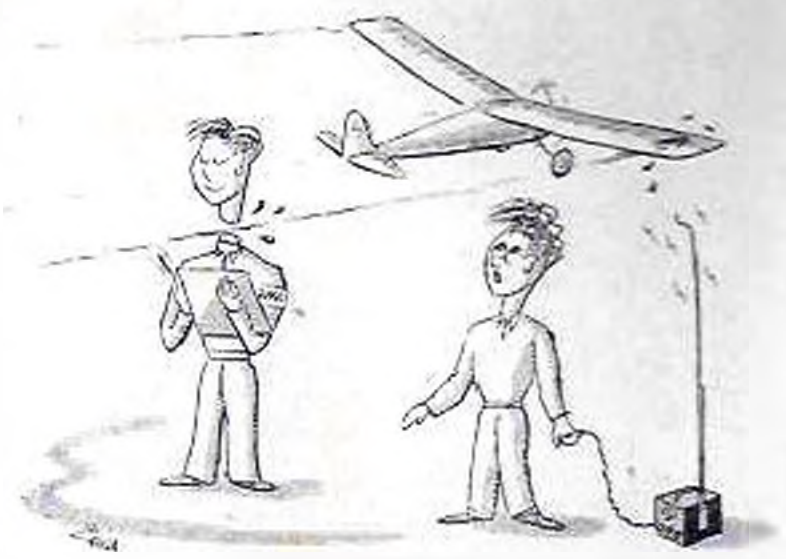
★ ON BEHALF of the boys and girls of the Northern Area, may I offer hearty congratulations to Mr. & Mrs. Harry Clegg on their recent acquisition of a new control-liner. Everyone who knows Harry & Norma, and that means everyone in the area, will want to wish them and their new son and heir the very best of luck.



Special manoeuvre.

What's in a name?

(*Continued from page 15*)

building, but that is another story. It is psychology.

Cloudland is a great domain for attractive and suitable names, but most of the inhabitants have been harnessed and the sisters "Cumulus" and "Cirrus," with their husbands "Stratus" and "Nimbus" have bred respectable offspring. Not much gold there. Stars may be better: "Jupiter," "Venus," "Procyon," etc.

Then there is the completely fanciful; the odd and amusing. "Zombie," "Banshee," "Voodoo," and we may as well include the effective and attractive names like "Zipper" and "Slicker." Going on in this way there is quite a rich grazing ground. Look into Greek and Roman mythology and you will find some obscure god or goddess or even half a one, who will be quite willing to adopt your balsa child. Old legends will serve well, too: "Merlin" is a name that even satisfied Rolls Royce, as did the "Griffon" and there is a "Black Magic" already in the running. "Fakir" could also serve a model that does the hat-trick.

Fauna and flora, cloudland, topography, stars, mythology, legends: they all provide pleasant, attractive and dignified names. But with some care you will also find plenty there that are far from that and by sheer unsuitableness will provoke a smile.

If you like the name short, what about "Scramble," "Scoot," "Scat" and "Scram," all incisive and meaning the same thing? They represent a class of names that have direct relation to the free-flight model's order to get away, high, wide and handsome. On second thoughts I will use them myself.

Other names that suit the model are a great many added to "Circus," when given to C/L models. And you can make the simple trainer the "Horse," the medium stuntplane the "Dog," and the full-stunt model the "Monkey" or "Clown."

If you build models for your own fun, nobody will mind if the name covers the fuselage from nose to end or vice versa. However, if I had to accept a model for the trade, I would insist on a name that is appealing, apposite, not too long and that stands out in conversation like a flag. That is where an out-and-out odd and unusual name gains over even a romantic one. It should come down like a blow of a hammer. "Slicker"—just like that, and the same with "Pesky," "Jinks," "Zipper," "Nipper."

I wonder if statistics would prove that a good name takes its share of the selling points of a model? Maybe the trade would be able to tell—maybe it won't. It needs a name, easy to memorise, easy to associate with the model. "Marlin" is good that way and the name "Elfin" certainly was a find.

I am sure that you will read this and call it all nonsense. But it may give you a tip when you find you are at a loss for a name. And you will understand that I could make my argument and discourse more attractive, if only I mentioned the names that I keep up my sleeve until I have built the models that will fit them—not the other way round.

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

REPORT OF THE S.M.A.E. ANNUAL GENERAL MEETING HELD AT LONDONDERRY HOUSE, PARK LANE, W.1, ON NOVEMBER 5th, 1950, at 11.30 a.m.

Mr. A. F. Houlberg occupied the chair.

Arising out of Minutes

Mr. R. A. Parker (Kentish Nomads) queried the allocation of honorariums by the Council and stated that he considered that the intention of the mover of the resolution at the last A.G.M. was that the full sum of £150 should be distributed. The chairman stated that the Council had interpreted the views of the meeting as indicating that they could allocate up to a maximum of £150, at their discretion.

Mr. G. Bruce (North Kent) enquired why the details of membership and fees paid by the clubs for re-affiliation had not been published as agreed at the last A.G.M. The treasurer explained that this information was given to all areas and should be passed on to the clubs by the area secretaries.

Income and Expenditure Account

In presenting this, the treasurer stated that the society's financial position had considerably improved. He drew attention to the fact that the sale of badges had been less than the previous year and said that the question of the reduction in the price of these and other items were to be considered by the Council.

After a number of questions arising out of the treasurer's report had been answered, this was accepted and a unanimous vote of thanks accorded to Mr. Barker.

Affiliation Fees

Proposed Mr. Barker, seconded Mr. Nicholls, "That the affiliation fees remain as at present." Carried unanimously.

Auditors

Proposed Mr. Barker, seconded Mr. Gordon, "That the auditors' fee be increased from 25 gns. to 30 gns." This was coupled with a vote of thanks to the auditors and was carried unanimously.

Chairman's Report

Mr. A. F. Houlberg, in his report, reviewed the past year's activities and commented on the improvement which had been made in the society's financial position. Other matters dealt with by the chairman were the participation of British teams in the Wakefield and other International contests; co-operation with the Ministry of Civil Aviation and the Home Office which had resulted in draft bye-laws which on the whole were not unfavourable to model flying; and the affiliation of the Royal Air Force Model Aircraft Association to the society which had brought about a much desired closer link with the Service modellers. Mr. Houlberg also paid tribute to the Society's officers for their excellent work.

Hon. Secretary's Report

The secretary, Mr. D. A. Gordon, reported on the steady increase in the number of affiliated clubs and country members. The volume of secretarial work continued to give some concern and no satisfactory solution to this problem had yet been found. He also welcomed the formation of the new Area Committees and paid tribute to the fine work done by Area officials throughout the country on the Society's behalf during the past year. In concluding, Mr. Gordon thanked the officers and members of the Council for their continued support. The secretary's report was adopted and he was accorded a unanimous vote of thanks.

Competition Secretary's Report

Mr. Turner stated that the entries in S.M.A.E. contests in 1950 were 3,547, as against 3,642 in 1949. This decrease was due mainly to a smaller Nationals entry.

Mr. Turner concluded by wishing his successor, Capt. S. D. Taylor, every success. A proposal that the competition secretary's report be accepted, and according him a vote of thanks, was carried unanimously.

Records Officer's Report

Amongst the points dealt with by Mr. Rushbrooke were the increase in the number of record applications, which had been more than double those received in the previous year. Forty per cent. of the British records were raised in 1950; 33 per cent. more "merit certificates were issued in 1950 than in the previous year.

The records officer congratulated Mr. J. A. Gorham, (Ipswich) on becoming the first holder of an International "C" Merit Certificate—the second to be issued in the world. The report was accepted and the records officer accorded a unanimous vote of thanks.

Election of Officers

Only one nomination having been received for each of the following offices, the nominees were declared elected. Competition secretary: Capt. S. D. Taylor; Records officer: C. S. Rushbrooke; P.R.O.: K. J. A. Brookes.

The chairman announced the result of the ballot for the election of the technical secretary, which was as follows: M. Coote, 630; N. Butcher, 611. Mr. Coote was declared elected.

Election of Fellows

The Council's resolution recommending that Mr. D. A. Gordon be elected a Fellow of the Society, created considerable discussion.

Mr. Bell (Northern Heights) stated that he could vote against the proposition as he considered that the eligibility of other members of the Society for election as Fellows had been overlooked.

The chairman explained the meeting that in accordance with the Articles of Association only one Fellow could be elected each year and the voting at the A.G.M. had to be unanimous.

A number of speakers pointed out that Mr. Bell's proposed action would serve no purpose other than to deprive Mr. Gordon of an honour which he had well earned.

The proposition was put to the meeting and four votes were recorded against it. The chairman declared that Mr. Gordon had not been elected.

Mr. Parker (Kentish Nomads) proposed that an extraordinary general meeting be called to discuss the alteration of the relevant paragraphs of the Articles of Association which require the voting for the election of a Fellow to be unanimous and permit only one candidate to be recommended by the Council each year. The proposition was carried, one vote being recorded against.

Wakefield Rules

Messrs. Wilson, Copland and Bell (Northern Heights) criticised the Council's action in adopting the alterations to the Wakefield Trophy specifications which had been suggested by the F.A.I. They contended that the fuselage formulae of f.2/100 should be retained.

Other speakers were in favour of the new rules and endorsed the Council's action.

A proposal "That the new Wakefield Rules as published shall stand," was carried by 34 votes to 13. After the announcement of the result, Mr. Wilson requested a poll. This request was ruled out of order by the chairman.

Re-imbursements to Officers

After a discussion a proposition was put to meeting "That in future no honorariums shall be paid to officers, but they shall be re-imbursed for their out of pocket expenses." A poll was requested and resulted in 77 votes being cast for the motion and 17 against.

A further proposal "That the up to £150 be allocated at the Council's discretion for the re-imbursement of officers for 1950," was carried.

Speed Model Trophies

Members of the East London Club urged the allocation of trophies for speed contests and it was agreed to endeavour to obtain suitable identical cups for each of the seven classes.

The meeting terminated at 5.45 p.m., with a vote of thanks to the chair.

BLACKHEATH M.F.C.

The Blackheath M.F.C. will hold its third annual Bill White competition on Sunday January 7th, 1951, at Fairlop Aerodrome, starting at 10 a.m. There will be also a glider competition and the entry fee of 1s. 6d. will cover both competitions. Replicas will be awarded to the winners. Fairlop has been chosen this year as the venue, instead of Blackheath, in response to requests received from members of other London clubs and it is hoped that a larger entry will result. All clubs who are interested and have not yet received entry forms please write to the hon. secretary. K. C. Hackman 22, Lambert House, Beckenham Hill Road, S.E.6.

LIVERPOOL M.A.S.

The ladies' trophy was held this year for the first time in really shocking weather. The top lady, Miss June Handen, finished with a total time of 43 min. for three flights. In second place came Mrs. Ethel Dillon, only 34 sec. behind. Pat Pearse was unfortunate with her glider, due to a badly soaked model and line. The three ladies are to be congratulated on their performance in very adverse weather, (it was pouring with rain on all flights) and also the top two ladies placed second and third respectively in the open rubber competition beaten only by Barry Hassman, one of the top North-Western fliers.

The men will certainly have to look to their laurels.

LEICESTER M.A.C.

The annual general meeting held on October 22nd, marked the end of the worst flying season in the history of the club. The year was worthy of note, however, for the excellent film shows during last winter, which were followed by the biggest and best exhibition ever held by the club.

The meeting, which was poorly attended, was efficiently conducted by Mr. W. Crane, in the chair, and the following officers were elected: President, Mr. C. H. Stafford; vice-presidents, Sqd. Ldr. D. J. Lyon, Mr. C. S. Rushbrooke; chairman, Mr. W. Crane; Sec.-Treasurer, Mr. R. W. Bennett, 17, Dunbar Road, Leicester; publicity secretary, Mr. J. Marsh; Competition secretaries, Mr. G. Hall, Mr. J. Marsh.

Three members of the committee are welcomed as newcomers to office and we also welcome back two old hands, Geoff Desmore and George Hall.

Winter programme. Indoor meetings to be held every third Sunday at 2.30 p.m., in the Transport Recreation Hall, Humberstonegate. Outdoor meetings to be held at Stoughton Aerodrome on all Sundays between indoor meetings.

It has been decided to revive the club colours, blue and orange. We shall see how many variations of colour schemes can members get, using these colours. Club ties in these delicate tints may soon be available.

SUNDERLAND AND DISTRICT M.A.C.

As the club had the use of R.A.F. Station, Usworth, from 5.0 p.m., the changing of the clocks has put an end to club flying there until the spring. Individual members are still flying in various places, C/L being predominant. Incidentally, the new team racing rules for the 2½ c.c. maximum engine have met with unqualified approval—they are just what the club has been working round to for some time.

At the annual general meeting in October the chairman and the secretary (Mr. J. Robson and Mr. G. Jackson) were unanimously re-elected, while Mr. Weatherhead was elected treasurer. The old system of separate committees has been abandoned, and a general purposes committee of six has been set up instead. The question of a club transfer was raised, and it was agreed to hold a competition for the best suggestion, the efforts to be considered at the next club meeting.

The R/C merchants are still predicting public relay-bashing " next year," but the only card on the table is the secretary's all-sprat R/C glider, although one or two other members have been heard using unfamiliar words which *might* be radio terms—if they aren't Esperanto! Mr. Liddle is not content with getting away with a semi-scale free-flight twin-engine flying-boat (hope the printer isn't short of hyphens!) but is now working out a scale Saro *SR/*41 flying boat fighter. Jetex powered. The *Kulpex* family still flourish under Mr. Clark's guidance, his all-sheet *Streaker* still spending most of its outdoor life airborne. Mr. Chapman's *Kalmer* powered *Dwarf* flew off into the dusk recently and despite frenzied pursuit and search it remains missing.

FLYING SADDLERS M.A.C.

Three club members attended the *Daily Dispatch* Rally at Woodford Aerodrome. D. James (known in the club as " Jetex Jim ") taking second place in the Jetex competition on one flight only. Whilst lighting up for his second flight the 350 Jetex unit back-fired, igniting his wing covering and burning off about two-thirds of the tissue, only cause for worry was that he had no fire insurance.

A. E. Reynolds, flying his *Bazooka* E.A.I. design, obtained a 5 min. maximum on his first flight, but owing to rubber bunching failed to repeat on his second flight and finally placed fifth.

There is a great interest in Wakefield models in the club, S. Pritchard and M. Gilbert specialising almost exclusively in this type of model. The " Jones Trophy," presented annually for Wakefield competition within the club was this year won by M. Gilbert with an own design model.

The most unusual Wakefield yet seen was designed and built by J. Williams, this is a *Canard* featuring Eiffel 431 section, unfortunately Williams is now in the R.A.F., but we hope to see more of this design.

The club has decided to go all out for 100 per cent. members with at least the S.M.A.E. " A " certificate, and so far gliders have been the choice in carrying out this resolution. M. Gilbert obtaining his certificate with a modified *Fugitive* and D. James his with an *Albatross*.

Hon. secretary, A. E. Reynolds, 39, Brockhurst St., Palfrey Walsall.

WESTERN AREA COMMITTEE

On October 29th the first of the area winter rallies was held at Lulsgate Aerodrome. The weather was cold, but this did not prevent several o.o.s. flights being made.

The team race attracted 11 entries and was run in two classes. It proved exciting to spectators and competitors alike. All of the engines used were diesels. Unfortunately the final heat could not be run owing to darkness, but the result of this and the other events were as follows:—Team race (2 c.c.) class, N. Blagg (Phoenix), (5 c.c. class) G. Elliott and O. Phipps (Phoenix); Rubber, 1st, Clack (Aces), agg. 688.0, 2nd, G. Woods (Bristol and West), agg. 602.7, 3rd, D. Stowe (Aces) agg. 135.0. Glider, 1st, A. Taig (Bristol and West), 2nd, A. Sutcliffe (Aces), 3rd, J. Bennett (Yeovil). Power ratio (2 flights), 1st, J. B. Mayes (S. Bristol) 11.2, 2nd, V. H. Smith (S. Bristol) 8.66, 3rd G. G. Mills (S. Bristol) 8.5:1.

STOCKTON AND DISTRICT M.F.C.

The club rubber challenge cup was flown off on October 29th, between showers in a cold fairly strong wind, which quickly blew models o.o.s.

Results

1st, A. Spurr, 409.2 sec. (*Raff V*); 2nd, C. R. Plant, 231.7 sec., *Pinocchio*; 3rd, T. B. Chambers, 187.9 sec. (own design); 4th, K. Austin, 163.8 sec. o.o.s. (*Supa Dupa*).

The most spectacular flight was made by K. Austin, who, having a broken tailplane, could have shown R/C fliers a few special manoeuvres.

Few competitions were entered in the past season but three members made the journey to Newcastle on August 13th. Some kind person pinched the engine (Elfin 2.49, No. 1245) in L. Stevens's *Highball* (Fairlop ain't the only place!) thus destroying our chances in the ratio event, but Chas. Plum managed to get second place in the stunt event with his *Musketeer*.

Tom Chambers recently raised the club r.t.p. record to 3 min. 15.5 sec. in our club room at the William Newton School, in Norton, where we meet every Friday night.

HUDDERSFIELD AIR LEAGUE M.A.C.

Two engines were found at the rally on August 23rd, A Mills Mark II and a Frog " 100." Apply to F. Gardner, 57, Woodhouse Hill, Farnown, Huddersfield, giving engine numbers.

On October 15th we held an inter club rally with the Lockwood and Hall Bower Clubs. The weather was ideal, and everyone had a good day's flying.

Results

Glider, G. Paxman (Halmac), 429; 2, D. Ford (Halmac), 381; 3, C. Easter (Hall Bower), 291. Rubber: 1, P. Stringer (Halmac), 398; 2, H. Lawrence (Halmac), 232; 3, C. Woodcock (Lockwood), 140. Power: 1, R. Steele (Lockwood), 320; 2, B. Moorhouse (Lockwood), 212. Juniors: 1, M. Roberts, 151; 2, F. Tindall, 141.

A winter programme has been drawn up and includes r.t.p. and indoor free flights, film shows, debates and quizzes. (Films are needed for the film shows, have you any on loan or do you know of anyone who can help?)

BRISTOL AND WEST M.A.C.

In conjunction with the other three Bristol clubs, the Bristol and West M.A.C. held a highly successful rally on October 29th. The meeting, which was blessed with perfect weather, was held at Lulsgate Aerodrome, and attracted competition from seven clubs.

Rubber, power, glider and team race events were held, each being run by a different club. Despite the exceedingly cold air, a number of maximum flights were recorded, and four models lost.

The team race, organised by the Phoenix Club, was split into two classes, up to 2 c.c. and 2-5 c.c. Both classes were won by Phoenix, who seemed able to get those few extra vital laps, and so cut down the pit stops. An E.D. Bee powered model in class 1 proved capable of outracing the others with larger capacity, and proved to be the winner.

Other results were: Rubber, Clack (Aces), 688.0; G. Woolls (B. & W.), 602.7; D. Stowe (Aces), 435.0. Glider: A. Taig (B. & W.), 836; A. Sutcliffe (Aces), 585; J. Bennett (Yeovil), 560. Power ratio: J. Mayes (South Bristol), 11.2 : 1; V. Smith (South Bristol), 8.66 : 1; G. Mills (South Bristol), 8.56 : 1.

★ NOTE THESE CONTEST DATES

Jan. 7th Blackheath M.F.C. Bill White Memorial Cup (Unrestricted Rubber), Fairlop Aerodrome, Essex.

Jan. 14th S.M.A.E. North Western Area Meeting, Hawarden Aerodrome, Cheshire (Power Rubber and Glider Events).

WEST OF SCOTLAND AREA COMMITTEE

The above Area has now been officially approved by the S.M.A.E., and the following officers appointed. Clubs wishing to take part in the Area activities are invited to write to the hon. secretary at the address given below.

Chairman, D. G. Hudnutt; vice-chairman, J. G. Macarthur; hon. secretary, W. D. Jardine, 22, Thomson Street, Kilmarnock, Ayrshire; hon. treasurer, Robert Burns; competition secretary, William Hunt; delegate to council, J. Taylor; publicity officer, not yet appointed.

EAST ANGLIAN AREA COMMITTEE

The annual general meeting of this area was held at G.F.S. Hall, Chelmsford, on October 28th, 1950.

Welcome visitors included Mr. and Mrs. Rushbrook and Mr. D. A. Gordon.

Officers' reports showed a very satisfactory year both from a financial and competition point of view.

Area club challenge cup won by Ipswich M.A.C.

J. A. Gotham, of Ipswich, also won the senior national award.

Election of officers for 1951 season resulted as follows:—Chairman, J. Pickett (Brentwood); vice-chairman, P. Hewitt (Halstead); hon. secretary, area delegate G. Foden (Chelmsford); hon. treasurer, R. Johnston (Chelmsford); hon. competition secretary, J. A. Gotham (Ipswich); P.R.O., R. Landymore (Brentwood).

We hope to arrange division of area into North/South for competition purposes, to save travelling and encourage more entries in contests.

SHEFFIELD S.A.

The competition season having finished for us, apart from the finals of the Area knock-out, our thoughts are turning to winter activities, and the usual social events of the season. The club's annual dinner and prize-giving is to take place at Cockayne's Restaurant on Saturday, December 2nd, and we hope to have the usual good—and hungry—crowd there. Our main preoccupation, however, will be in preparing for the second of our hobbies and crafts exhibitions, which will be taking place early next year, January 3rd to the 6th, to be precise, at the Central Technical School, Leopold Street. Our last year's exhibition there was most successful and naturally, we hope for even better things this time.

The large and very well organised rally at Woodford saw us "in the chips" to the extent of a first in rubber (Ted Muxlow with 461.2 sec.), and a second and fourth in power (Ken Marshall with 370.2 and Jerry Cartwright with 317 sec.) whilst young Terry Poole managed to collect the junior glider prize.

Everyone was glad to see the sun at Baildon Moor on September 10th. Results were quite satisfactory, once again Terry Poole took the junior glider prize (a crate of apples—some of which remained intact after the ride home) and Ted Muxlow came first in the rubber event, with 529 sec., but this time, Ken Marshall pranged his Arrow 3.5 job on his first flight, and rubber honours went to Jerry Cartwright's 399 sec. in the power event, whilst Ted Arden (1.75 glow job). We are all waiting anxiously now to find out how we have gone on in the Rootes' Trophy, combining the results in the Woodford and Baildon Rallies. We took the opportunity, whilst at Baildon, to fly off our round in the area knock-out, and eventually came out winners against Huddersfield.

This led us to the semi-final of the event, at Leconfield, where we met Scarborough. The only real winner here was the wind (28-40 m.p.h., according to the indicator in the control tower) and Scarborough suffered a write-off of all their models. As a result, we won, with just two flights, by George Wilkins' A.2, totalling 2 min. 5 sec. We shall be meeting West Yorks in the finals, and if the weather is at all kind, it should be a very interesting competition.

CROYDON AND DISTRICT M.A.C.

The competition season having been finally completed we feel we can look back on this as one of the most successful in the club's history. Not only has the Plugge Cup been regained, after its temporary loan to North Kent last year but no fewer than five other national competitions have been won by members—Roy Yeabsley and Norman Marcus doing most of the good work. To these can be added two area team cups as well as numerous gala successes and placings.

Latest of these were obtained at the East Midland Area Rally, at the R.A.F. College, Cranwell, with wins in rubber, glider and C/L stunt events. Norman Bettner had the misfortune to have his lines fouled by another competitor in the team race, the resulting prang completely writing off his well known *Lil Lulu*. He had previously amazed spectators (and himself) by doing 117 laps without refuelling in one of the eliminating heats.

The recent amendment of the Wakefield rules has been well received amongst club members, as it has been felt for a long time that this class of model has been in a big rut and the new area distribution and fuselage formula should provide a great deal more scope. A number of members have already embarked on new designs and should be put through their paces shortly.

Club competitions have been started in earnest and Roy Yeabsley almost pulled off an Autumn double in the open rubber and glider events, just being pipped into second place in the rubber by Jack North. Needless to say, Norman Marcus walked away with the Davis Power Trophy, only needing one flight to beat other competitors.

Silvio Lanfranchi (Bradford) launching his "Cumulus" at a Northern Rally held on Baildon Moor

PORT TALBOT M.F.C.

The Port Talbot M.F.C. held a dinner and dance in their club room on Saturday November 11th, in honour of Mr. A. R. Lucas, the winner of the 1950 Lady Shelley Trophy, other guests of the evening were Mr. and Mrs. Frank Holland, of Swansea, and Mr. Bob Comely, of Swansea.

Mr. F. Holland, who is a very great friend of the club, gave a very praiseworthy address on behalf of the visitors, and we would like to quote him on the "Area Shaggy Dog Story," whereby Mr. Holland arrived at Ron Lucas's house one Sunday for tea where he was greeted by Ron's Corgi puppy who had, where his tail used to be, a little white bandage, Frank was heard to say, "I say Ron, isn't this taking this tail-less business a bit too far."

The evening went off very well and everybody had an enjoyable time.

EAST ANGLIAN AREA

The area is holding a competition for R/C models on December 31st, at Chipping Ongar (Willingale) airfield, starting time 11 a.m. Rules will be as used in the Taplin Trophy Contest this year. Non members of the society may enter, but must reside in the area and be insured. The winner will receive a cup.

UPTON M.F.C.

On October 22nd, the Upton M.F.C. held the last competition of the year, which was also the deciding competition for the championship Shield. The competition was flown under the same rules as the old Hamley Trophy (1949).

A. Roberts was the winner with a well judged flight of 59.5 sec., S. Reynolds was a very close second with 60.8 sec., and Mrs. Eves third with 64 sec.

In the Championship Shield race, J. Holt was the winner with S. Reynolds close second (once more). If S. Reynolds had won this last competition he would have won the shield.

The club have arranged to decorate one of the wards at the local hospital with planes and will also during the week give demonstrations of indoor flying to the patients. Other clubs might like to follow our example in this respect.

R.A.F. ODIHAM AND DISTRICT M.A.C.

On Sunday, October 29th, the above club held a glider contest with Farnham Model Aero Club on the R.A.F. Station, Odiham. The Odiham fliers consisted of the newly instituted "Blackbirds" glider team, a group of keen glider fliers within the club. Due to various causes the start was delayed until 3.30 p.m., and in consequence the contest was reduced to two flights per member. The home club proved the eventual winners with 19 points to 17. The best flight during the contest was 156.5 sec., made by C. R. Foot (R.A.F., Odiham) and the best aggregate 260.2 sec., by R. Archer (Farnham). Due to the late start it was almost dark before all flights were completed.

Results

1st, R. Archer (Farnham), 260.2 sec., 8 points; 2nd, C. R. Foot (R.A.F., Odiham), 246.5 sec., 7 points; 3rd, C. H. Froud (R.A.F., Odiham), 246.1 sec., 6 points.

ALTON AND DISTRICT M.A.C.

The date of the 1951 North Hampshire Rally has been fixed for April 29th, that is the last Sunday in the month. The venue will be announced at a later date. Southern modellers make a note of this date, which has been published early in an endeavour to avoid clashing with other fixtures.

BUSHY PARK M.F.C.

The club has rallied together again since being reformed at the beginning of 1950.

G. Honnest-Redlich gained second place in the French A.F.A.T. R/C contest. B. Earp and O. Hemsley placing fourth and fifth respectively.

We were well represented in the S.M.A.E. team race at Chiswell by K. Stern, P. Mason, and "Prof." Nash, who between them won second place.

We are hoping to hold a club gala in May of next year (1951) details of which will be published in a later edition of MODEL AIRCRAFT.

Mr. Allbon has touched 83 m.p.h. with a Javelin powered speed job.

We are eager to increase the scope of the club and all new members will be welcomed.

KNUTSFORD AND DISTRICT M.F.C.

On August Bank Holiday the club gave a C/L demonstration at the Hartford Horticultural Society's annual show and from experience gained by demonstrations given at Peover and Knutsford the demonstration was of a high standard and thoroughly enjoyed by a very large audience. It has been found that for demonstrations stunt jobs are out, the public definitely prefer planes that fly and look like planes.

The club's visit to Woodford produced no winners but the entrants from the club maintained a very high standard that they have set in all competitions entered this season. P. Wilson flying in his first R/C contest came fifth out of 49 entrants and was the only one to take off "downwind"; a pity he did not use it as a special manoeuvre. R. A. Jackson placed sixth in the glider event, losing his glider *Sheelagh* in the process. D. Hulme placed eighth in the power event with his own design (Ehn 1.8).

The annual general meeting was held on October 21st, 1950, in conjunction with a hot pot supper and film show. The film show included a number of reels of club outings to competitions throughout the season.

At the annual general meeting, Mr. D. E. Parramore was re-elected chairman; Mr. A. Caveney, secretary; Mr. J. N. Gretsham, treasurer. Committee: Messrs. Hulme, Grainger, Gresty and Eyres (Junior).

The treasurer's wife, Mrs. J. N. Gretsham, presented a silver cup to the club to be flown for at a glider event to be held next April, the winner to hold the trophy for 12 months.

The account showed a credit balance which was considered very satisfactory by all members.

A team race event is to be held in the near future between Cheadle, Sale and ourselves and details will be published later.

RUGBY M.A.S.

Having obtained a new flying field the society looked forward at the beginning of the season to an enjoyable time. The poor weather limited the successes of most of our competitions, but despite this some new records were established. Our first competition on June 4th was blessed with a hot sun and a fair wind (the only perfect day this year) and Mr. S. Hurst's Wakefield flew away and was lost from sight after 4 min. 21 sec. One month later a new senior glider record was established with a most interesting flight of 18 min. 22 sec., the model returning to its starting point.

A new record for the junior section was set up by Mr. Milne, on the same day, with a flight of 1 min. 22 sec.

The society now looks forward to an interesting winter programme hoping that next year's weather will be more kind to our winter efforts.

BROWNING M.F.C.

Owing to the death of our president, and the retirement of the secretary, the club had to suspend its activities, but it has now been re-organised.

We would welcome any modellers who would care to come along to our headquarters at Nelson School, Trafalgar St., London, S.E.17. Meetings are held every evening from Monday-Friday, inclusive, from 7-9 p.m., and a large workshop with tools, engine test gear is available. Balsa wood and other modelling supplies are available for those who need them.

OLDHAM AND DISTRICT M.A.C.

Two first places in major events have fallen to club members of late.

The first place in the H/L glider event at Baildon, went to A. Rowley, flying a *Hawkling*.

L. Gabriels, flying a Nordic *Archangel*, took first place in the glider event at the N.W. Area Championships. This latter member, a keen cine enthusiast, is to be provided with a certain amount of cine film out of club funds, in order to record the club's activities.

The first night of the indoor flying season will be remembered by the large turnout of indoor models. The club will shortly be acquiring a large lock-up room in a youth centre, where members, juniors in particular, will be able to build six nights and days a week if they desire. A number of senior members have volunteered their services as instructors and general advisors to the younger members who make use of this room.

WHITEFIELD M.A.C.

Outdoor flying has been managed most week-ends, and flying has been good. The best flight in the past month has been B. J. Williams's 4 : 06 with a *Raff V*, on October 21st. The following day H. O'Donnell did an unofficial 4 min. with a 6 ft. *Midnie* and A. Cropper's own design glider disappeared after 3.40 o.o.s. but was later found.

The club's latest British record claim is J. O'Donnell's 2 min. 53 sec. o.o.s. for the lightweight biplane r.o.g. record. The model was a much modified *Raff V* using a Benedek B825Sb wing section.

The club has held two exhibitions recently. The first was held at Whitefield in conjunction with the local Youth Week (October 28th-November 2nd) and a good turnout resulted from a handful of members.

A similar exhibition was held at the Odeon Cinema in Prestwich for a fortnight (November 13th-25th) and much useful publicity was gained.

YORK M.A.S.

The club has recently elected a change of officers. They are: chairman, Mr. H. Johnson; vice chairman, Mr. T. Finucane; secretary: Mr. N. Williams; assistant sec./press relations, Mr. T. Heselwood; treasurer (re-elected) Mr. D. Sidebottom; comp. secretary: Mr. R. Firth. Committee members: Messrs. Sykes, Fox, Miskin, Hodgson, and Steel. Competition results:—Annual Points Comp., junior member Roy Hodgson. Pickering Trophy (open glider), Mr. E. Sykes. Clifton Nordic Cup, Mr. F. Miskin (o.d.), with Junior Mike Steel a close second with his *Norseman*. The club's free-flight power record has been bettered by Mr. R. Hope, flying a standard *Mallard*, clocking in with 3 min. 27 sec. r.o.g. (20 sec. engine run). Roy Hodgson bettered his own junior record for lightweight glider with his *Dream Rover*, clocking in with 6 min. 29 sec. o.o.s., beating his own recent Rufforth flight by 19 sec. It seems the most popular models with the boys are the free-flight power models and Nordic gliders of own designs, one of the latter built and designed by Ron Firth now holding the newly created distance record of 22 miles. The only rubber job seen nowadays is the *Keil Senator* and three or four members who have them certainly record some impressive times.

One or two o.d. F.A.I. sailplane jobs have made recent appearances, one by Mr. R. Backhouse, should fly well during the coming season. No one at least can say the York boys haven't tried very hard in the glider classes. Perhaps next year will see their luck turn for the better. The Northern weather, too, has been the vilest yet experienced. *In toto*, the York Club is doing more flying since the winter set in than in all summer put together. We expect this will apply to many a Northern club.

WEST ESSEX AEROMODELLERS

The weather man again favoured the club for their invitation team race, which was held at Fairlop on October 15th, 1950. There was a good entry and against strong opposition the Taylor Bros. gained first place, with Ken Marsh (W. Essex) second, and C. Bales (Luton) third.

The Taylor Bros. repeated their success at the London Area C/L Championships, at Chigwell, on the following Sunday.

Several Wakefields to the new rules are on the stocks and Cyril Mayes' new R/C glider is awaited with much interest. Den Allen will soon be testing his twin R/C job—twin, i.e., because it has rudder and elevator control with two receivers and two transmitters. We are all keeping our fingers crossed.

The club have recently had two very enlightening lectures on radio by well-known local "hams," Messrs. Judd and Binnings.

Latest R/C craze is glider launch from R/C power jobs—what will they think of next?

CHANGES OF SECRETARYSHIP

Northern Area Committee.—P. H. STRINGER, "Dunern," Wakefield Road, Denby Dale, Nr. Huddersfield.

Streatham District Aeromodellers.—Miss P. MAYO, 31, Langroyd Road, London, S.W.17.

Knutsford and District M.F.C.—A. CAVENEY, 51, Manor Crescent, Knutsford, Cheshire.

Hastings Aeromodellers.—L. C. BRYACH, 6, The Croft, Hastings, Sussex.

Merseyside M.A.S.—D. R. HUGHES, 62, Pensby Road, Heswall, Cheshire.

Blackburn M.A.C.—J. I. BRAITHWAITE, 11, Nottingham Street, Blackburn.

York M.A.S.—N. W. WILLIAMS, 29, Filey Terrace, York.

MODEL AIRCRAFT CONTEST CALENDAR

This popular feature, which will include the full S.M.A.E. Contest Programme, will appear in next month's issue and be continued throughout the flying season. Clubs intending to hold rallies are strongly advised to inform us of the dates of these as soon as possible in order to avoid clashing with other fixtures.

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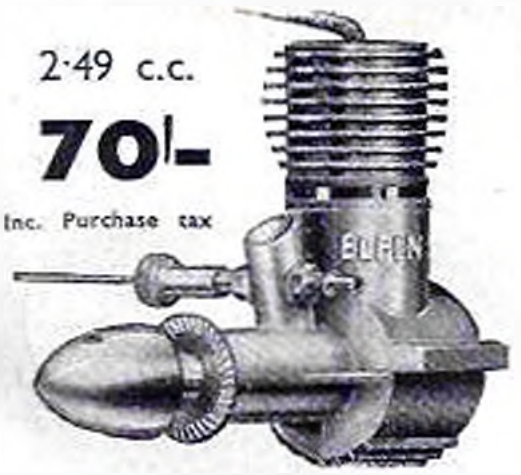

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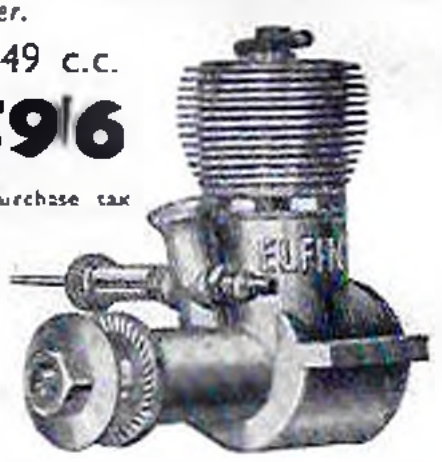

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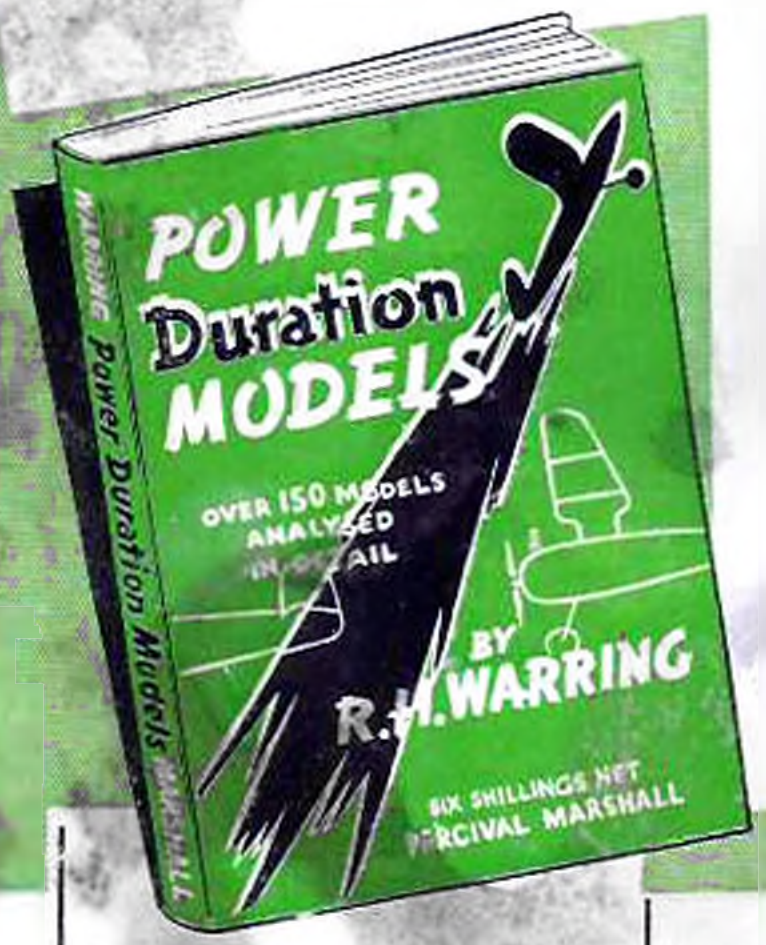

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