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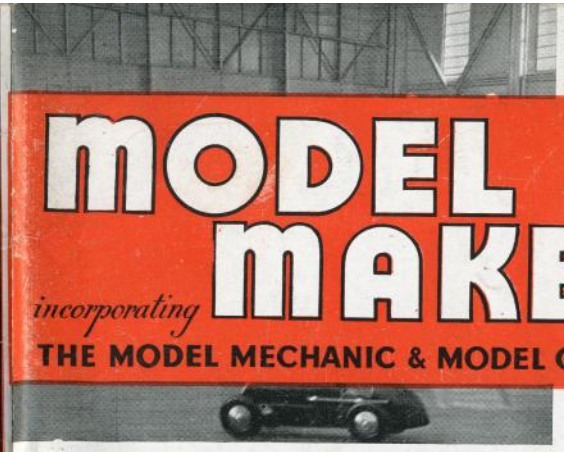

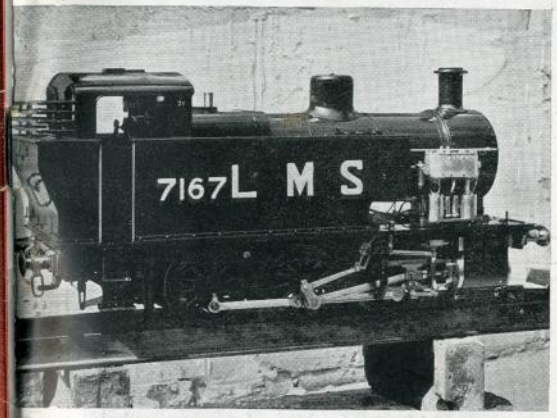

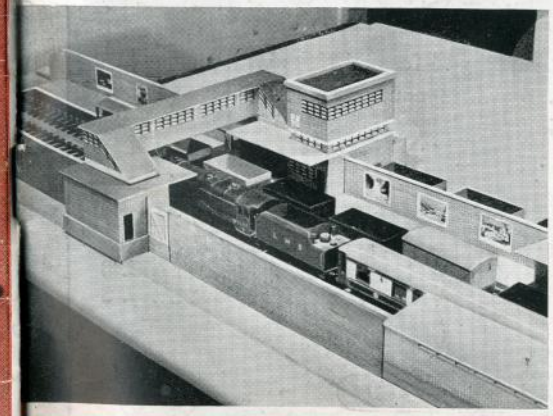

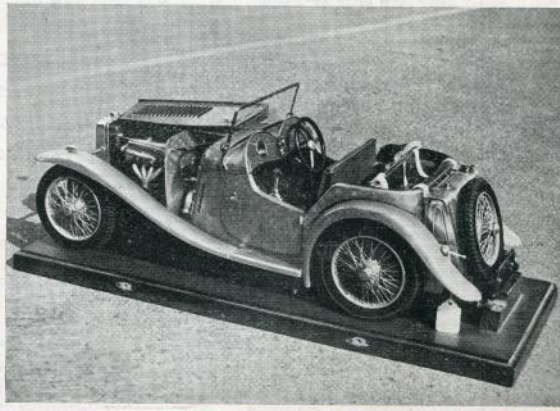

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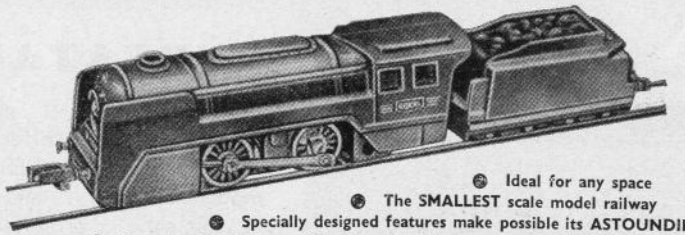

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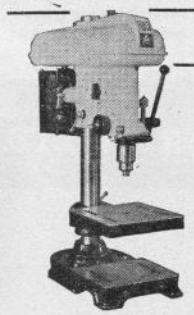

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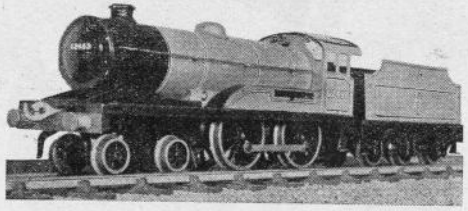

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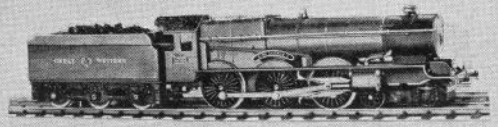

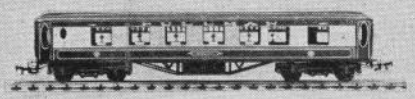

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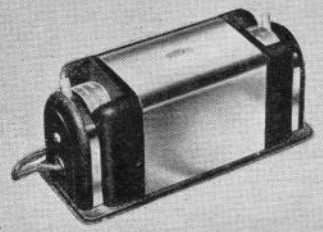

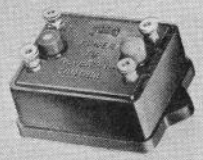

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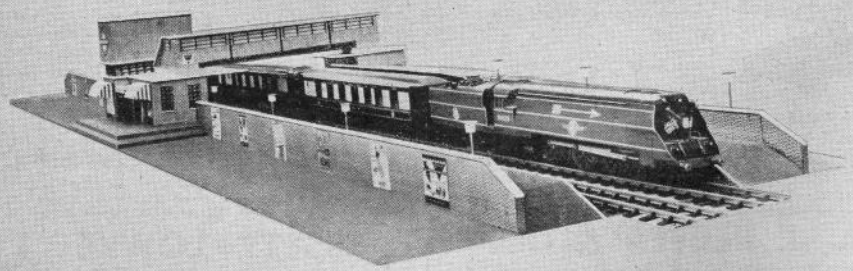

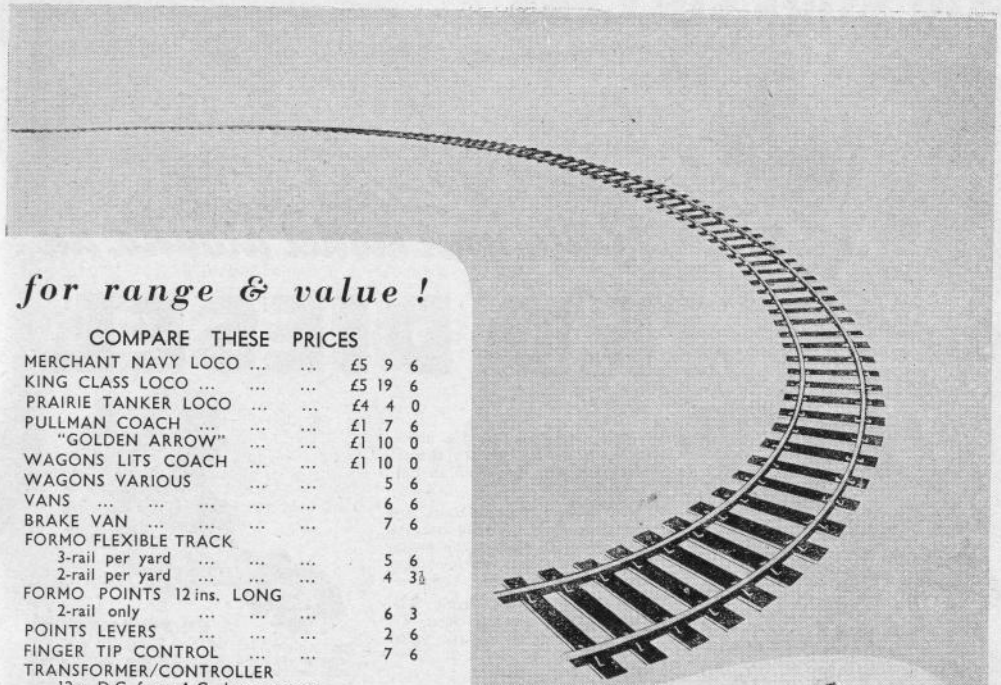

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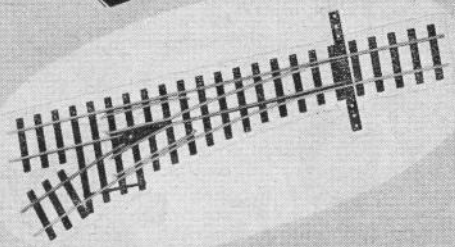

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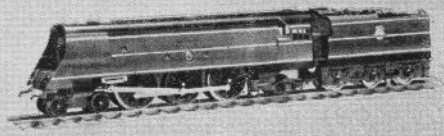

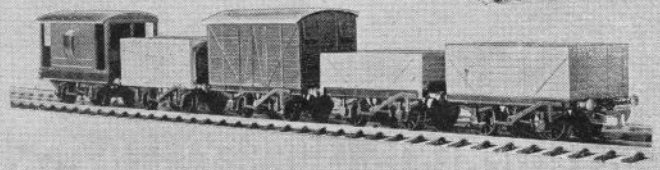

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Contents

VOLUME I No. 12 (New Series) NOVEMBER 1951

". . . OF MAKING OF MANY BOOKS . . ."

OUR old Headmaster, a depressingly long time ago, was wont to quote ". . . of making of many books there is no end. . . ." We do not remember now exactly which Prophet was being quoted, but, with the completion of our first volume of *Model Maker* in its present guise it was a tag that leapt inevitably to mind. We are rather proud to be able to slip this fairly substantial bound volume into our bookshelf, and look back with reminiscent pleasure on the work entailed in producing each number.

They have been happy months, thanks to our friendly mail, and to the grand response that readers have given to our constant demand for more and more contributions. It is a healthy sign when the editorial shelves are bulging with material and we can select something here and something there to provide a balanced mixture. Of course, we have not succeeded in pleasing everybody all the time—that would be a miracle indeed—but we do feel that we have achieved in part our aim to give everyone at least one article in every issue that is right on their particular branch of the model maker's craft.

In one department, though, we are conscious that we have given less than full measure. We refer to model boats and model yachting in particular. This is truly unfortunate for the model yachtsman is perhaps the least catered for of all model makers amongst contemporary journals. But we must plead the extenuating circumstance of absence of good contributions on the subject. It is not an activity that can be written upon glibly by any but the expert, and even his efforts are liable to be seized upon and torn in pieces by other equally expert readers of contrary opinions.

During the next twelve issues we trust that these experts will do their very best to provide such a wealth of material that no vestige of reproach can possibly be levelled at us on the occasions when we appear, camera and notebook in hand, to report regattas and national class races—one type of yacht article that we *can* manage without expert assistance!

As a final thought on Volume I of *Model Maker* we are happy to announce that an Index will shortly be available for those intending to bind their copies. This will be sent free of charge on receipt of a stamped addressed envelope from readers requiring it.

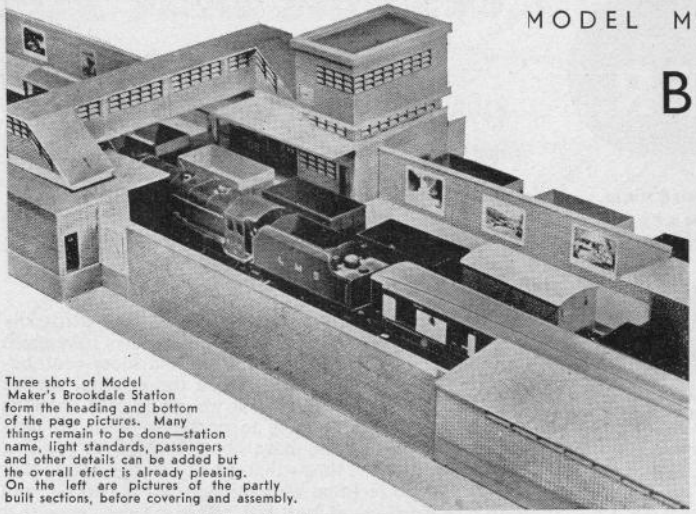
ON THE COVER . . .

Top right : One of Victor Sutton's collection of model fire engines — typical E.T.U. in use during the war. Centre left : 5 in. gauge model of L.M.S. 2F 0-6-0 dock shunter by E. R. Uphill of Harrow & Wembley S.M.E. Centre right : Radio controlled model lifeboat — "Abdy Beauclerk" 1 in. scale replica of the Aldeburgh No. 1 boat by C. W. Morley of London (Photo Contest Entry). Bottom left : Model Maker's version of Graham Farish's new "Brookdale" Station. Bottom right : Unfinished super detailed model of P-Type M.G. Midget by F. H. Buckley, seen at the Staines Exhibition.

Photos (1), (4), (5) by Model Maker; (2) Norman Dyer; (3) C. W. Morley.

MODEL MAKER BUILDS THE NEW GRAHAM FARISH KIT

BROOKDALE STATION



Three shots of Model Maker's Brookdale Station form the heading and bottom of the page pictures. Many things remain to be done—station name, light standards, passengers and other details can be added but the overall effect is already pleasing. On the left are pictures of the partly built sections, before covering and assembly.

Model Maker Photos.

General

SOME sort of a station is a "must" for every 00 layout, but presents problems of design to those enthusiasts with limited inventive powers, or little knack in translating what they have seen of full-size practice into a suitably simplified model design.

Graham Farish's new Brookdale Station — the first of a projected series—provides the simple, cheap and complete solution. The kit comprises comprehensive instructions, mainly in the form of clear sketches, and a precise cutting list. There are no "plans" which so often baffle the less experienced model maker, but just a series of understandable diagrams. In addition there are sheets of brick and roofing paper and a selection of coloured lithographic sheets providing complete window, door and shop front details that require only to be cut out and stuck in place.

The absence of fixed plans, but only detail suggestions will enable any builder to vary his station slightly and rightly claim an "all my own work" design.

The builder will require three sheets of 3 in. x $\frac{1}{8}$ in. balsa, balsa cement, and a few scrapbox oddments (see materials list) to complete his model.

Our model took a week's spare time work, and cost, including the 5/- kit, under 10/- to construct. By way of a change we detail the work as a diary, just as it was carried out.

Friday : Card Parts ($1\frac{1}{2}$ hours)

This started as true armchair modelling, with our $3\frac{1}{2}$ ft. x 9 in. building board across the arms of the chair, and accompanied by a symphony concert. The adjacent drop-front desk of the bureau provided an extra tool table.

Card used was from old photographic mounts, just the right thickness and of splendid surface. Cutting was done with a Mercury balsa knife holding Swann Morton type surgical blades. All cutting was against a steel straight-edge after marking out shapes from cutting list with a hard 2H pencil. There is only one small curve required, and this was roughly cut by knife and finished with old glasspaper. (Yes—you can sandpaper cardboard!)

Saturday : Balsa Parts ($4\frac{1}{2}$ hours)

Saturday was very wet and no feelings of guilt in dodging weekend gardening arose.

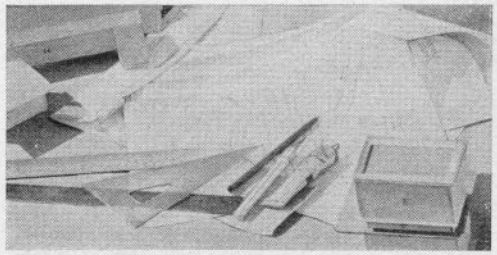
A move was made to the kitchen which boasts a flat $4\frac{1}{2}$ ft. x 2 ft. table.

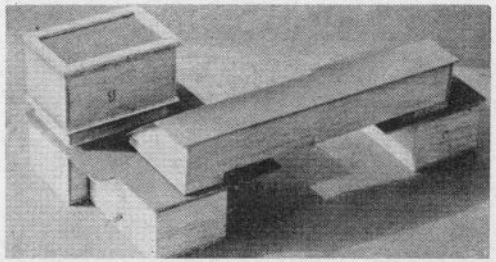
Again using our building board—all the wood parts were marked out from the cutting list with a Biro ink pencil which marks so well on balsa.

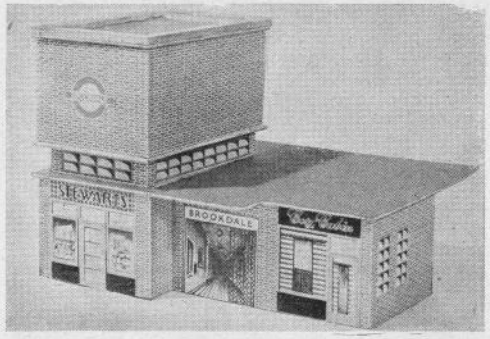
Basically the parts consist of four identical sets of six pieces which make up into simple boxes, two sets to make up into open-ended rectangles for platform shelters and a similar large open-ended rectangle for the overbridge. A few other small pieces complete the cutting.

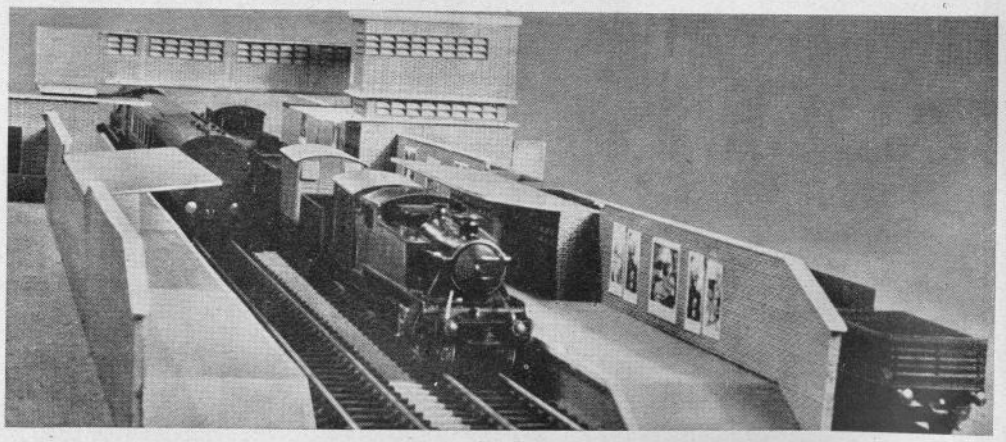
All parts were cut out and stacked in appropriate piles. The boxes were stuck together first, pinning two sides to form a right angle, adding the base before cement had dried and then the final two sides, again ready pinned as a right angle. All four boxes were thus completed and the tops added only after balsa had dried. The shelter and overbridge rectangles were similarly completed.

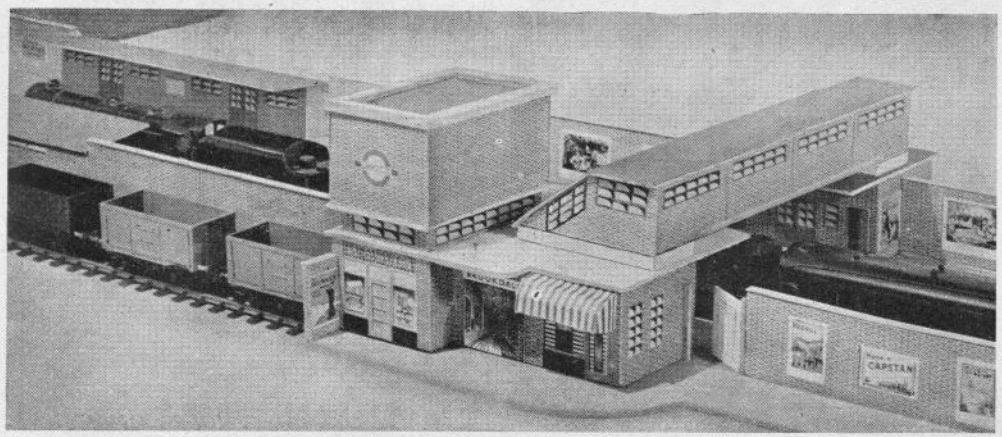
Lunch provided a suitable drying interval. Next step was to join together two boxes—the short side of one against the long side of another, making a T-shaped ground floor for the main station building. A flat card roof comes next over the two boxes, then the first floor is added directly over one of the boxes —with a spacing rectangle interposed. This dis-











posed of the third box. The fourth box is simply roofed with its appropriate card to make the Platform II building and support for the overbridge.

Roofs complete the platform shelters, and very little more is needed to finish the overbridge main structure.

Sunday : Covering with Brick Paper, etc. (3 hours)

Another armchair session, with radio accompaniment. Cutting all brickpaper and features was done with a thin razor blade—being keener than the balsa knife—and superior to cutting with scissors where a really straight line is hard to achieve. Instead of conventional paste or gum we used Cow Rubber Gum as our adhesive. This is largely used in studios for mounting photographs. It is spread on lightly with a finger tip or artist's palette knife. It has the advantage that any getting on the pattern side can be brushed off when dry without leaving marks, and remains tacky long enough for careful placing. Having no water content the paper loses no strength when coated so that handling is easier. It has one failing, however—it tends slightly to take the colouring from brick paper, though to our mind a good fault as it gives a more weathered appearance. There is no need to wait for drying with this mountant, as soon as the basic brick covering was done, we proceeded to add doors, windows, shop fronts and other features.

A series of wall-by-wall views are provided to assist the builder in arrangement of suitable windows and doors, but there is room for adequate personal variation to suit one's own layout. This job did not take very long, and the evening's work was completed by drawing out to scale our two 4 ft. long platforms and arranging buildings thereon. This enabled us to assess lengths of station wall required before making the platform, but the builder anxious to avoid paperwork can mount his station buildings and then measure off for walls on the actual structure.

Monday : Cutting Out Station Walls (2 hours)

We located our main station block about one-third of the way along the platforms, and the two shelters another third along. This left six lengths of wall to be made, two level pieces, and four with slopes to match the sloping ends of the two platforms. We trusted our drawings and went straight ahead.

To cap the walls, we decided against the thick card used for roofing and used Bristol board, about $\frac{1}{32}$ in. thick—which gives a scale thickness of nearly 1 in. This was again cut to $\frac{3}{16}$ in. width with a razor blade and straight edge, and was affixed before papering.

As a personal extra we added two little gates, made from three thicknesses of Bristol board — the two outer pieces being cut out to represent the gate framework and diagonal crosspieces.

Walls were then papered and, by dint of careful "pinching", our stock of brick paper just lasted out —leaving a little for the strips later required to finish off the platforms.

MATERIALS REQUIRED

Graham Farish Brookdale Station Kit ...	5 0
Card and Bristol Board from scrap ...	—
3 Sheets Balsa (3in. x $\frac{1}{8}$in. x 3ft.) for Station ...	3 $1\frac{1}{2}$
Balsa scrap for walls	—
Balsa Cement — 2 tubes	1 8
Poster colours — decoration, etc.	—
Rubber cement (or other adhesive)... ...	—
Baseboard and platforms from scrap wood...	—
Additional "Wills" posters (2 sheets) ...	—

Note : If "Scrapbox" empty, extra cost of items shown as "nil" should not amount to more than 5/8d.

Tuesday : Platforms ($1\frac{3}{4}$ hours)

Unlike our readers, our play is our work so that we had no shame in producing the platforms at work, where were more facilities for woodwork. A strip of packing case wood was ripped up to provide two strips 2 in. x 4 ft. When planed up it looked so smooth we decided again covering it with emery paper as suggested in G.F.'s instructions.

Instead we screwed it direct to a strip of hardboard, recovered from an old notice board in the storeroom. Screwing was done from underneath to avoid marking platform surface, care being taken to align the platforms $3\frac{3}{4}$ in. apart. Here the help of a colleague was enlisted to hold them steady while drilling the screw holes.

When fitted $\frac{1}{8}$ in. square balsa was cemented to the platform edges for the overhang.

Wednesday : Painting Platform ($\frac{1}{2}$ hour)

The whole was then brush painted with grey cellulose wood stopper to give a neutral matt finish which would take poster colour without soaking into the wood. A white line was finally added to the platform edged in poster colour. The edge of the balsa strip served as an excellent brush guide—but the super careful could achieve a better result by doing this job with a ruling pen and straight edge.

Thursday : Mounting Station Buildings and Finishing Touches ($1\frac{1}{2}$ hours)

Station buildings were stuck in place where arranged—marking their location with pencil outlines and checking fit of walls before final fixup. Care should be taken here to see that roof overhangs are flush with the platform edges. When fixing overbridge in place check that main wall lines continue in an upright fashion in the two parts.

Walls should be checked with a set square to avoid tilting them, and held in place for a minute or two until balsa cement takes hold.

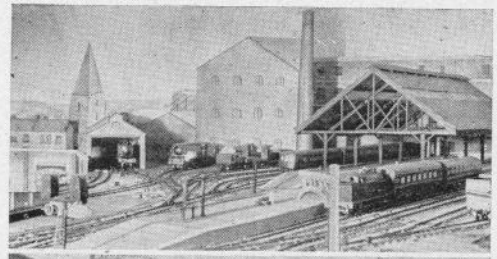
Posters, and other wall decorations can now be added. Nor should the attractive striped shop awning be forgotten. There will be a number of features left over—do not be tempted to cram them in somewhere, or the final effect may be too much of an "all bar the kitchen sink" picture.

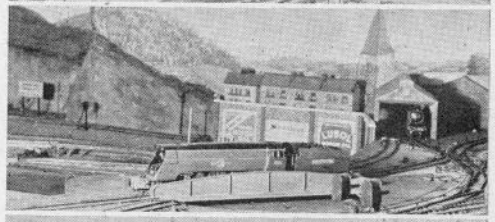
On the Right Track

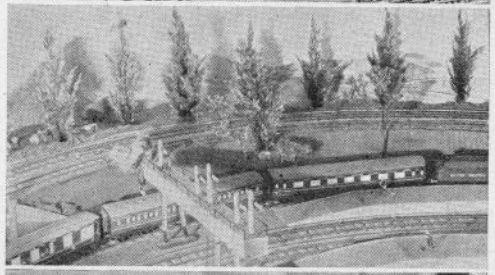
A REGULAR FEATURE FOR ALL '00' ENTHUSIASTS

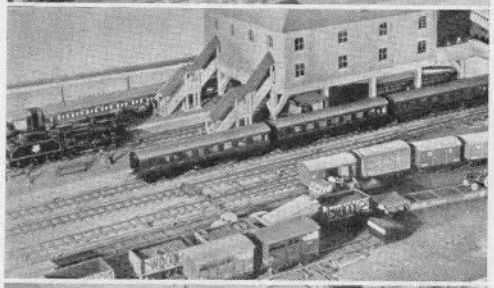
BY R. WATKINS-PITCHFORD

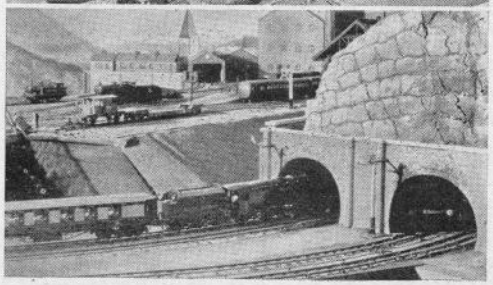
"THE PARTING OF THE WAYS"











These shots of C. Lockwood's layout at Maidstone, taken by M. Jones of Gillingham should encourage the 00 enthusiast. The layout is standard 00 scale outside third rail, with curves of an average radius of only 2 ft. In spite of this the line's converted Hornby "Duchess" is able to pull a five coach train at full speed without mishap.

IT'S strange how some folks are prepared to be unduly sensitive about their model railway being called a toy. After all, any railway that does not exist and have its being for the purpose of carrying fare-paying passengers and goods is a toy, no matter whether it is a steam roller wheeled clockwork affair running round a 10 in. circle, or whether it has coal-fired locos hauling guests round a ducal estate.

What determines whether a railway is a "toy" (in the disparaging sense of the word) is not the gauge and scale, nor the scale accuracy of the components, so much as the approach of the owner to his hobby.

If he is content to buy every item of equipment ready-made, lay down a track circuit to a ready-made design and then operate the trains in a desultory manner without any regard for railway practice; if, in short, his own ingenuity and skill is not called into play at any point, then his railway is to him no more than an excuse for idle amusement and, in this sense, it is a toy. Although even here, if a man finds in this aimless operating an escape from some tyranny or uncongenial occupation, surely he has all the justification needed.

But, fortunately for our hobby, the great majority find this relaxation in embarking on an adventure, in pitting our own ingenuity and wit, our powers of observation and the skill of our hands against the difficulties of the road. We fail and we make lots of mistakes, but, mercifully, we meet with success here and there and, maybe, in some particular direction such as designing and making station buildings, or making up a convincing bit of scenery from scrapbox items, we discover in ourselves a quite unexpected flair. And at once railway modelling opens out to us, as it has done to countless others, a happy hunting ground of perpetual challenge.

We shall be so busy—and so happy—meeting this challenge four square and wrestling with the prob-

lems presented that the taunt of playing with "toy trains," far from evoking any resentment, will make us feel rather sorry for the poor misguided individual who can never have known the thrills of achievement which are the especial reward of the model maker.

Of course, no wise man goes off from a standing start and sets in to make everything for himself. Apart from the fact that it would take many years of leisure time to build even a modest stud of locos and their rolling stock, there would be the uncertainty always as to whether one was on the right track—whether the particular kind of loco one was building was best suited to one's needs.

In other words, you can only decide upon the most profitable line to follow by first laying down and operating a railway of your own and that means that you must start by buying ready-made components.

It is only after some practical experience in operating that you can find out which of the many aspects of the hobby appeals to you most.

It is for this reason that we have consistently advised the newcomer to the hobby to "get the wheels turning" at the earliest opportunity; to buy two or three locos, a few coaches and wagons, and a modest assortment of track units, straights, curves and some points.

Do not, in the first place, lay down an elaborate baseboard entailing carpentry and timber. Be content with a trestle table (or two, if you have room). If the tops of these tables are in good condition, you can probably incorporate them at a later date into a more permanent structure.

Having rigged up your table, lay out and wire up your track units. Again do not, to begin with, aim at too complicated a circuit with gradients and flyovers and elaborate civil engineering work. It will be time enough for these when you acquire a working knowledge of track work and the influence of layout design upon operating possibilities.

A simple oval with passing loops on the long sides and perhaps a few siding or platform bays off the loop, will make a good layout, from which many interesting operating lessons may be learned.

After a month or so of operating such a railway, sending out your passenger and goods trains with some mission, working out an elementary timetable and trying to arrange the track units so as to afford maximum operating scope, you will, no doubt, begin to form an idea of what sort of a railway you can reasonably expect to lay down, having regard to space, time and pocket.

You will wish, in fact, to put your own ideas into practice and to start model making on your own account. And it is at this point that you will come up against what may be a serious problem. You will have to decide whether, in order to achieve a realistic model railway, you must sell off your existing equipment and start again at the beginning, or whether your existing railway can, with a few modifications, be made to conform with scale dimensions.

If you decide that there is no way in which your existing locos and rolling stock can ever be made to look like "the real thing" and that a completely fresh start is necessary, there is no need to despair. Your dealer, knowing that there are always fresh recruits coming along to the hobby, should be prepared to offer you a very fair price for your equipment if it is in good condition. Alternatively, you may be able to arrange with him to take your unwanted components in part exchange for better models.

But if, when you buy your first set of equipment, you are careful to select items that are already quite passable looking models, you may find that for a small outlay you can convert them to the requirements of a "scale" railway and thus avoid much of the loss that is inseparable from selling off.

Therefore, if you are contemplating making a start this winter and have not already bought your first set of equipment, you would be well advised to give some consideration to this point. For example, you may have decided that as soon as you have acquired some general experience, you are going to set about modelling a small country station with its goods yard and engine shed. Now this station of your dreams is served by steam trains only, and the track is, therefore, of the two-rail variety.

Ultimately, you reflect, you are going to have a railway with proper scale permanent way that looks the part—proper ballast, sleepers spaced at correct intervals, scale sized chairs and fishplates and all that.

Just to begin with and for practice purposes, you may be content to buy equipment where the straight, curved and point sections are made in units that clip together.

In the particular equipment you think of buying for your first set, the track units are of the three-rail kind. You decide you will, in any case have to sell off these track units when it comes to laying down your own two-rail permanent way. But how about the locos? Are they of a kind that can be converted to two-rail running and, if so, are they of the type and appearance that one would reasonably expect to find in a loco working a small country station? Similarly with the coaches and goods wagons. It will probably be simple to fit these with scale wheels and insulated axles, but are they realistic and well made enough to warrant the conversion? Then again, it is no good having the wheels on your rolling stock complying with scale measurements and outline, if those on the loco are made to other standards and cannot be changed.

These are points which it is worth while to consider when buying the first set, in order that as much as possible of the original purchase may be turned to good account when the apprenticeship days are over, when the joys of serious model making lie ahead and you arrive at the parting of the ways. The

(*Continued on page* 740)

WHERE TT GAUGE SCORES

BY "MANXMAN"

This specially posed shot of the Rokal Model Railway demonstrates Manxman's point that even with comparatively sharp curves in this scale the overhang is not excessive — with goods rolling stock it would, of course, be even less apparent.

VISITORS to last summer's "M.E. Exhibition" were, no doubt, as intrigued as I was to see on show for the first time a commercially complete outfit of trains, track and accessories to the TT gauge of 12 mm. and the modelling scale of 1/125 — comparing with the 00 gauge of 16.5 mm. and a modelling scale of 1/77.

"What! yet more scales and gauges?" says the newcomer to the hobby, wondering what good purpose can be served by such a bewildering range.

But the answer is that, provided we keep within the limits of reason, these attempts to present a complete railway picture in a more compact form do meet the requirements of a certain section of the public and bring the joys of miniature railway operating within the reach of those who otherwise might have been denied.

There will always be the man who has the workshop equipment, the practical skill and the inclination to construct passenger hauling steam locos. But for every one of these, there will be scores, if not hundreds, whose ambition is to have in miniature a complete railway system operating in a convincing scenic setting. And it is these people who will welcome any move which, while still retaining operating reliability, increases the completeness of the railway that can be laid down in any given space.

The realism of a miniature railway does not depend solely upon the accuracy with which the locos, carriages and other components have been reproduced in the chosen scale. There is another feature which can contribute very largely to the overall realism of a home railway and that is the radius of the curves relatively to the gauge of the track. Nothing more surely destroys the illusion of reality than to see a train running at high scale speed along a straight track and then suddenly swerving round a bend, narrowly missing capsizing.

It is not good realism to have main line curves of a sharpness that would never be tolerated in the full-size equivalent. But since these sharp curves are inevitable in a home railway, they may be excused. What is, surely, inexcusable is for the operator to crash his trains into such curves at scale speeds that correspond to 100 m.p.h. or more, and thus accentuate the disability of the sharp curves he is obliged by space restrictions to employ. In case you may feel that this point is being over-stressed consider for a moment the fact that in 00 gauge a radius of 13 in. corresponds to a prototype equivalent of 29 yds.—slightly over one chain. This is the sort of curve at which a contractor's four-wheeled loco would squeal in protest—certainly not one around which a Pacific would be set to haul a crack express at full bore.

In full-sized practice a curve of 10 chains would probably be safeguarded by considerable super elevation and a check rail and even a 20 chain curve would call for speed restrictions on main line work.

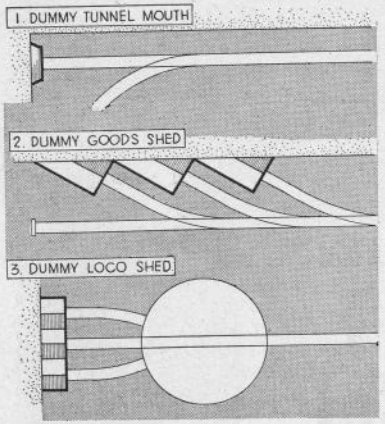
Now 20 chains in terms of the 00 equivalent would be 19 ft. or thereabouts, implying that even if we had a room some 40 ft. square, our 00 track would still include curves which would be considered sharp in the prototype equivalent.

Of course, the answer to it all—apart from the fact that few of us have rooms of 40 ft. square either for a layout or for anything else— is that it is not necessary to observe strict scale reduction in this matter of curves, because the scale weight and "factor of stability" does not vary in direct ratio to the modelling scale.

At the same time, even though we may be able to use sharper curves than the scale equivalent and drive our trains round them at far higher scale speeds than would be tolerated in practice, there is—or should be—moderation in all things, and any more that will help to "iron out" the discrepancies for us is all to the good. Hence TT.

If you decrease the gauge (and scale) of your railway and take advantage of this fact to decrease the radius of curve on the track proportionately, you will not be much better off. But if you sternly resist this temptation and say "Yes, I will have a narrower gauge of 12 mm. instead of 16½ mm., but I will keep the curve radius as it was before" then, obviously, you have taken a big step in the direction of realistic running and you will be rewarded by seeing your train gliding round a curve with something approaching a graceful sweep instead of doubling back on its tracks like a startled rabbit.

(*Continued on page* 744)



Improving the Miniature Railway Layout

H. A. ROBINSON GIVES HIS ADVICE ON ILLUSION AND TRACK LENGTH

Top left : Fig. C. Three methods of employing dummy frontages to give the impression of a larger system. Top drawing opposite page, left to right : Fig. E. A mainly "illusion" station combining most of the ideas set out in the article. Fig. D. Comparison (to scale) of long and short stock. Lower drawing opposite page : Fig. F. A length of track ballasted nearly up to rail height to give impression of greater length. Fig. B. Localising track—and the mirror backing idea. Top shows an ordinary station mirror-backed, and lower sketch a half-station so treated. Fig. A. Effect of single track on impression of length.

SOME little time ago I promised that I would deal in this series with illusion and its relation to *apparent* track length.

As has often been stated, the crying need on most indoor gauge 0 systems is for room and still more room. With HO and 00 matters are not so bad, for in effect the space available has grown with the reducing of the scale. But with even a fair-sized room, a gauge 0 line is cramped, curves having to be too tight and distances between stations far too short.

And here is where illusion comes, for it can be used with the utmost success to give the impression of a longer track and bigger system. The purist may not altogether take to the idea of illusion, and admittedly it does not add a single inch of actual length or size. But as in a way the whole model railway hobby is one of illusion the use of this most powerful agent to create the impression of bigness that is not really there, is psychologically sound.

Most indoor tracks are built round the walls of the room in question—the operating space being in the centre. Everything possible must be done, however, to kill the impression of the train just running round a circle. This is fatal to a sense of size, so illusion must first of all be used here. Furthermore, if extra footage is put in, the impression of "circle within circle" must also be killed.

To give the idea of maximum length between two stations where space is very limited, only have a single track. A double set of rails seems to reduce the distance, while numerous tracks side by side can make the distance appear quite short. This is because the mind subconsciously always accepts the bigger dimension of a rectangle as "length". Thus in Fig. A a train moving in (1) from (a) to (b) will be considered to have traversed a "length" of track, but in going from (a1) to (b1) in (2) it will merely seem to have moved across the narrow side of a rectangle in which (b1) to (c), being the bigger measurement, dominates the scene—this, although the distance is the same.

It is all rather subtle, but if you wish to give the impression of "length" then the distance in question must in very truth be a *length* and not a breadth.

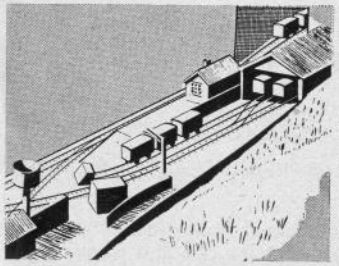
A stretch of line, too, always seems slightly longer if it is ballasted well up to the rail head so making the sleepers not very obvious. This again is because we have taken away from width by hiding the parts of the sleepers that extend beyond the rails. Actually the producing of a sleeperless effect is not far from reality for most lengths of full-sized track when seen from a little distance look as though the rails were laid direct on a smooth surface.

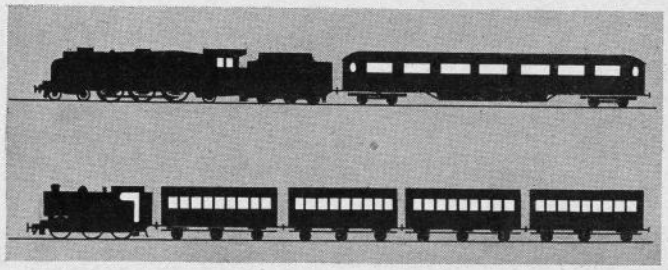
To boost further this general idea of length, stations should be strongly localised and not in any way overlapping. It may mean shorter sidings and platforms, but this strong localisation produces a satisfactory impression that a train has definitely moved from one place to another. An impression that is spoilt when, say, the sidings of one station adjoin those of the next.

I have always held that tunnels, as long as the barriers through which they run are high, can be used to the greatest advantage in producing this sense of localisation. The tunnels need not be long —it is the height of the barriers that counts.

Such breaks mean that the observer can only comfortably take in one section of a system at once, and when a train is seen emerging from a tunnel the impression for some reason always is that the tunnel must be of a considerable length, and that it has not necessarily anything to do with the tunnel noted in the last section. Again pure illusion, but it works. Fig. (B) makes the idea quite clear.

Tunnel divisions also make quick changes of scenery possible—all of which helps to give the appearance of greater distances traversed. Thus the terrain to the right of a barrier might be pure country and to the left a town. To give a nice finish, high barriers should either be covered with crinkly paper or stone-painted to produce the appearance of a "rock face".





As well as localising, the tunnel-framing of a station can be used with a mirror backing to suggest a much bigger and busier place.

The idea here is to place a mirror behind the station with its ends hidden by the rock faces. A vertical wall mirror turned on its side will do well. This gives at once the impression of a station of double the size, and as it is framed by the tunnels the sudden extra depth does not offend the eye. Also, although we have now produced the depth just described, within the limits of a station it does no harm. Indeed it is good here, as it accentuates the front-to-back thinness of the approaching track on either side —which is what we want.

A mirror can go behind an ordinary station or a specially built "half" station as (2) Fig. B. Here there is a thin platform and half building which go right up against the glass, the reflection in which immediately produces the appearance of their being standard width and size. The trains pass in front of the platform, and as their reflections run in apparently on the further side of an island platform the general impression is better than the upper layout where the trains seem to come in side by side. The half station, too, does actually save space.

This mirror principle is the same as that used with ship "half models" where a mirror is placed at the back to produce the appearance of a whole ship, though there is really only a half one there. The illusion obtained is very satisfactory.

Mirrors can be used at other places on model railways, but the sides of the mirror must always be masked by "high land" or other obstructions, otherwise the good impression is greatly lost.

We are now arriving at some general rules to give the illusion of greater length to short systems. Divide up the track into localised sections, have but a single line between stations, do not let stations overlap, but strongly localise them and do everything possible to break down the impression of merely a glorified circle.

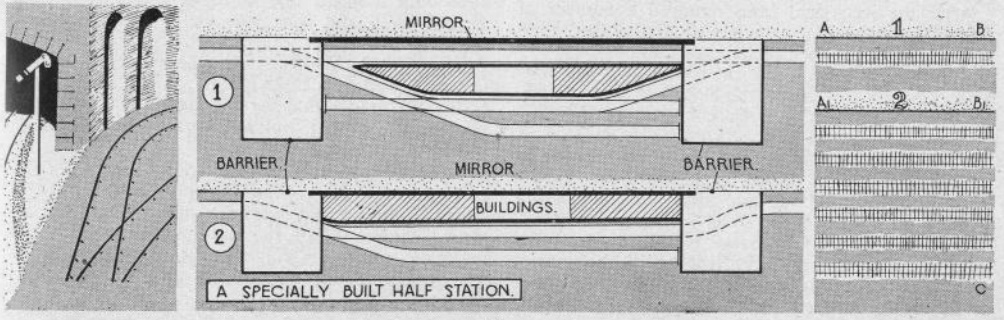
But we can enrol the services of the wizard "illusion" far more still, and "dummy frontages" are another of his ruses. Thus, in a corner, for instance, a line can be taken off as Fig. C (1) to a tunnel. Actually, the tunnel mouth is a dummy, but to the observer it seems as though it comes from tracks away and beyond. The fact that the line is never used is not noted.

Dummy frontages can also be employed as in Fig. C (2) to give the impression of a large goods shed where none exists, or as (3) to produce a loco shed where there is really only a flat wall. Indeed, the wealth of possibilities that lie behind this idea of dummy frontages is really great.

Now we come to the question of the kind of stock that best helps a quest for apparent greater size, and here we get the fixed rule that the shorter the stock he greater the seeming track length.

This is not hard to understand. In Fig. D it can be seen that the short tank engine shown with its following coaches takes but the same room as the Pacific above with one 75 ft. coach. But with this

(*continued on page* 740)



E. M. KILLICK'S LAYOUT

*The Kessex Railways

PT. IV CONTINUES THE BLEND OF FACT & FICTION THAT DESCRIBES THIS AMBITIOUS MODEL RAILWAY. AS A PRACTICAL PROGRESS FEATURE IT WILL APPEAR EACH MONTH THAT NEW WORK IS REPORTED

DURING July a small party of keenly interested railway enthusiasts was invited to visit Kessex and have a conducted tour of the railway works at present under construction. The following report was given to us by one of the visitors.

"We arrived in the early afternoon at our port of departure from the mainland—Northport, the new town which has been built around the mouth of the underwater tunnel. This tunnel has already reached almost to the half-way position.

"We were met by a member of the Kessex Railways Joint Committee, a body set up to facilitate full co-operation between all companies, and consisting of members from each of the companies.

"The rest of that afternoon and evening we spent at the yards at the tunnel mouth, where a number of locos and some rolling stock is now stored ready to be taken through the tunnel as soon as it is completed.

"These locos and rolling stock have been purchased from British Railways for use on the two normal gauge lines of Kessex. Two of the locos we managed to photograph just outside the sheds before they were pushed inside for overhaul. (See photograph published in Part III.) One of these, a 4-4-2 tank, had no coupling rod on one side and on the other side the rod was already half removed. The other loco, an 0-4-4, appeared to have a damaged bogie frame. A third loco, a 2-4-2, was already in the shed and although it had Southern Railway on its tank, there seemed to be a remarkable resemblance to an old Lancashire & Yorkshire. Lighting inside the shed did not permit the taking of any photo of this loco, which we understand will be used on the N.P.C.R. (Nenewater, Pertre and Crofton) branch line.

After the locos had been removed a number of wagons and coaches were moved to the shed lines and photos were taken of some of these.

"The most interesting of these were two old four-wheel coaches for use on the N.P.C.R., and two articulated coaches in G.W.R. colours, but the final destination of these is not yet known.

"The following day we left Northport harbour in a large cabin cruiser owned by the Garaville-Elkborough Railway (G.E.R.), and after a most pleasant crossing we landed at the small fishing port of Gaybourne. Although Gaybourne is one of the places to be served by the railways, it is not on the lines at present under construction. Our journey was continued by car to Crofton, along a very good road, and through most pleasant countryside.

"Near Crofton, we left the cars at a point where the N.P.C.R. line will shortly cross the Postern Wells — Crofton road by a level crossing.

"The line at present starts from the south side of the road and from this point commences a downgrade of 1-35 on a short stretch of straight in a south-westerly direction. Right from the start the line runs in a cutting becoming steadily deeper.

"At the end of the straight section there is a curve to the left in a long arc of about 70 deg., and still on a fall grade of 1-35. The full depth of the cutting is reached at a point about half-way round the curve, and it is here that a road bridge will be built over the line.

"Track has been laid as far as the end of the curve, at which point the track bed widens to form the site of Pertre Station. This station will have double track and two goods roads providing the only place on the line where two trains can pass.

"At present there is no village of Pertre, which perhaps sounds rather strange. However, it appears that it is the site of the original settlement when the Island was first inhabited, and a new village is to be built on this position. Although the village will be new, all the buildings will be in old-world style under the direction of the Kessex Old World Preservation Society. It is expected that the village will become a show place, attracting many visitors during the summer season.

"From Pertre the line again curves to the south and on to an embankment built on a natural rock bed as far as the curve at Rocky Halt. At the position of the halt the line will be built on an embankment built against the rock face, and there turning once until it heads due north, it gradually falls to ground level, and runs into the site of Nenewater terminus. Just after leaving Pertre Station site there is a gap in the natural rock embankment which is to be spanned by a stone bridge. It was at the south end of this bridge that the halt station was originally planned to be built, but was later re-planned to its present location at Rocky.

"After this most interesting tour of the N.P.C.R. construction work we were taken to Garaville, where on the following day we were shown round the almost complete station site and the Kessex end of the undersea tunnel. A full description of this part of the Kessex Railways will be given in the next despatch."

Construction Notes

As readers will realise from the foregoing fictitious journey to Kessex, the branch line is now well under way, but a change of plan has caused some further delays. The original idea was to complete this line during the summer and start on the indoor section in the winter months. However, the indoor section had to be built in time for exhibition at Cobdown Show, Aylesford, during August, and so work on the branch came to a sudden halt.

The work so far completed is as follows: The track has been laid from the side of the garden path, round the raised ground as far as the pear tree. The bridge to be built will carry the line across the steps at the edge of the lawn, and the embankment is on a low rockery, built along the edge of the lawn.

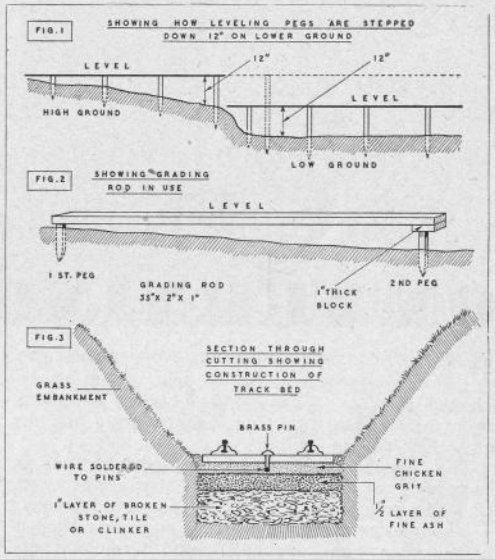
The first stage of actual construction was to drive in levelling stakes starting from the path at ground level. On reaching the end of the raised ground the top of the pegs were 12 in. above ground and as the lawn was another 12 in. lower it would have made the next peg 24 in. high. To overcome this the next peg was driven in to a height of 12 in. lower than the last one and a new level continued to the end of the line.

The required gradient to keep the line at ground level at Pertre Station was worked out to be 1-35, and a piece of good straight 2 in. x 1 in. timber was cut 35 in. long, and a 1 in. block nailed on one end.

The first yard of track bed was then dug out to a depth of $1\frac{1}{2}$ in. below the level of the first peg, and $2\frac{1}{2}$ in. below the original level at the end of the yard length. The grading rod was then placed with one end on the first peg and the other end (with 1 in. block attached) on a second peg 35 in. from the first. This second peg was then knocked in until the grading rod was level (Fig. 2).

This process was continued to the end of the cutting and the soil removed to the width of a narrow spade. The whole of the cutting so formed was next filled with small broken stone, tile, or clinker to a depth of 1 in. On top of this was laid boiler ash or fine grit $\frac{1}{2}$ in. thick, and the whole lot trodden down hard (Fig. 3).

During the following three weeks there were several heavy falls of rain, and this helped to settle the foundation even better than treading it down. Grass seed had been sown along the sides of the cutting and this soon grew quite long, and had to be trimmed. This job was undertaken with a pair of scissors every few days until it had thickened sufficiently to cut with shears. While the grass was getting a start some parts of the bank had fallen away due to rain and the playful activities of two feline members of the household! As soon as the grass had a good start these places were repaired and in a few days the grass was through these patches and no further trouble has been experienced.

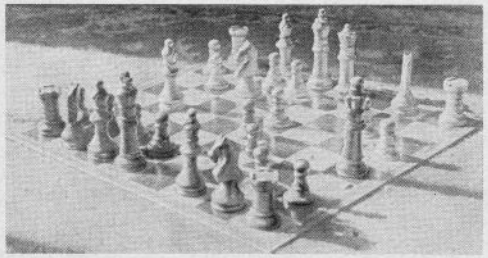


Some seed had been washed into the road bed, and the bald patches were re-sown. The road bed was sprinkled with weed killer, which not only destroyed the grass which had begun to grow there, but has prevented anything growing through the ballast since, and it has now been down over three months.

The track used on this line is some which had been in use on another outdoor line for many years. The sleeper spacing was about every 4 in., so extra sleepers were placed between them but without chairs. As the stud contact system is to be used here, brass pins were placed in every third sleeper driven down with only the rounded head above the sleeper. A wire was carried the full length of the track on the underside of the sleeper, and soldered to the point of each pin. The road bed was then given a $\frac{1}{4}$ in. layer of fine chicken grit, the track laid down, and more grit was then put down to bring it to the top of the sleepers.

Although the line curves round the foot of a pear tree, and it is said that one should avoid laying track under any tree or bush, no trouble has yet been encountered with falling leaves, etc. It is quite a simple matter to gather these from the track and even when the autumn brings a heavy fall it is not expected to prove too great a task.

★ *Continued from September issue*



METALWORKER OR WOODTURNER ALIKE CAN MAKE A SET OF STAUNTON CHESSMEN. THE AUTHOR, ARTHUR GRIFFITHS GIVES STEP-BY-STEP DETAILS

ON TURNING CHESSMEN

WHEN I first considered turning wooden chessmen I was appalled at the thought of turning 16 identical pawns. I could tolerate slight variations from the standard type, but variation from one another just wouldn't do.

This thought led to experiment and trial, and so successful was the result that only shortage of wood stopped me from mass-producing almost indefinitely.

I had better make plain at this stage that I am a metalworker with very little wood turning experience, also that all the tools used are simple metal worker's equipment.

First we should find the right material, be it wood, plastic or aluminium. I tried oak, found it too open grained, and whitewood which turned easily but not too good a finish. After experiment I found beech the best (I couldn't find any boxwood) and had a good supply in old chair legs, but when I ran out of this wood I fell back on the whitewood and used it for the black chessmen where the finish was not so important.

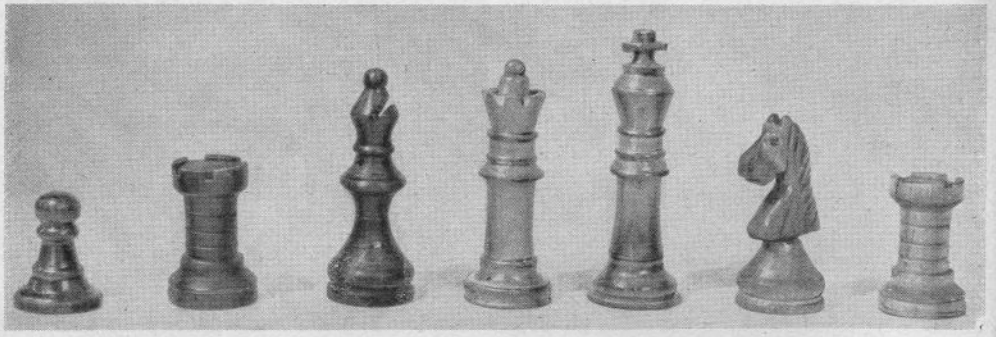
A 1 in. collet could be used, but I think a 3-jaw self-centring chuck fills the bill o.k. Preferably the spindle throat should take at least 1 in. dia. so that lengths of 1 in. round rod can be used. The other requirements will be stated as we go along, but are simple and cheap.

In the first place if 1 in. round rod is not obtainable, but chair legs or odd size wood is to be used, much time can be saved by turning it all to 1 in. first. I did this by gripping one end of the legs in the 3-jaw chuck and the other centred and held by the tailstock. Run up the work with all gearing disconnected, until you think that you're going to take off, and rough it down with a tool with about 30 to 40 deg. top rake. A word of caution—watch your centre doesn't burn up, or use a "live" centre. Don't bother to turn or polish smooth and keep $\frac{1}{32}$ in. over rather than under.

We now come to the form tools. The two types of chessmen are Plain and Staunton, and the sharp undercuts of the Plain type, settled me on the Staunton as shown in Fig. 1. You will notice that I have chosen 1 in. for the rod diameter as being the best for all the chessmen bases. A study of the sketched forms in Fig. 1 shows the pawn as being $1\frac{1}{2}$ in. high so that a piece of mild steel of about 15/8 x 1 in. and $\frac{1}{4}$ in. or $\frac{3}{16}$ in. is required.

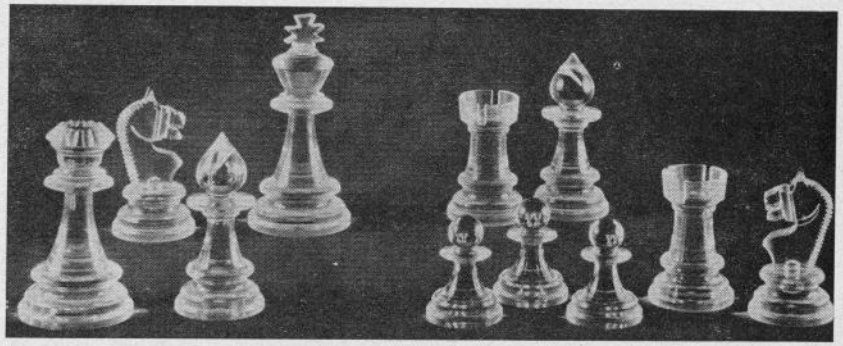
If you have difficulty in drawing the profile as in Fig. 2 on the piece of metal, the following method may help you. Place another piece of metal of the same thickness against the other as shown in Fig. 3

The various pieces in the author's set which were turned from beech. Boxwood if obtainable and ebony might be a better material, but virtually any close grained wood can be used successfully. Lead weights in the bases will give a feeling of solidity if lighter woods are employed.



Left : The author's chessmen laid out on the board—do not try to work out the game—it is a photo set-up !

Right : Staunton chessmen in blue and clear "Perspex". This set was presented to Myford's by an appreciative ML7 user.



and copy the form from Fig. 1 by scaling, using the two faces touching as the centre line. When you've done this once you'll soon be able to finish without trouble.

Don't fuss too much with the marking out, as for example the half-circle at the top of the pawn is best judged by checking with a piece of round bar the correct diameter when it is being filed.

When marking is complete, very lightly dot punch in the outline. Rough file out to $\frac{1}{64}$ in. of the outline, then commence giving front and side clearance (no top rake) of about 30 deg. This is not difficult if it is remembered that the clearance only needs to clear the work. The success or otherwise of the clearance can easily be checked by fitting it in the lathe toolpost and turning a sample piece of wood. If the wood darkens and browns in isolated spots, excess rubbing is occurring and greater clearance is necessary. This clearance is filed back until the top face marking off is reached as shown in Fig. 5 with the file at approx. 30 deg. The concave sweeps of the bases (convex on the tool) can be best finished by draw-filing still at the 30 deg. angle, but lengthways along the tool face.

At this stage the reader is probably wondering if a zero top rake is going to work, as normally a good top rake of another 30 to 40 deg. is necessary. The making of a top rake of 30 deg. with its resultant alteration of work form, centre height variation, etc., is a nightmare, and I breathed with relief when I found zero top rake worked excellently.

As all the tools should be of the same thickness either $\frac{3}{16}$ in. or $\frac{1}{4}$ in. (or even $\frac{1}{8}$ in.), then toolpost packing will always be the same height and will thus save valuable time scrounging in the scrapbox for odd thickness pieces.

Fit the tool firmly at centre height with as little overhang as possible as in Fig. 6. Start up the lathe, traverse the saddle until the R.H. end of the tool coincides with the end of the wood. If possible lock the saddle in this position and then feed in the tool. In the case of the pawn the best way to get similarity in size is to check the diameter of the end sphere which hasn't got to be spherical but should be similar in diameter to $\frac{1}{64}$ in.

You will be surprised how quickly the form turns out, and before parting off, two grades of glasspaper will give a good finish prior to polishing.

As the lathe I was using was not a four toolpost type I simply held a hacksaw blade on the required place to part off. This is quite successful if a coarse blade is used, and it saved me swopping tools continually in a simple toolpost holder. Don't worry about dishing the underside of pawn base as it is dealt with later.

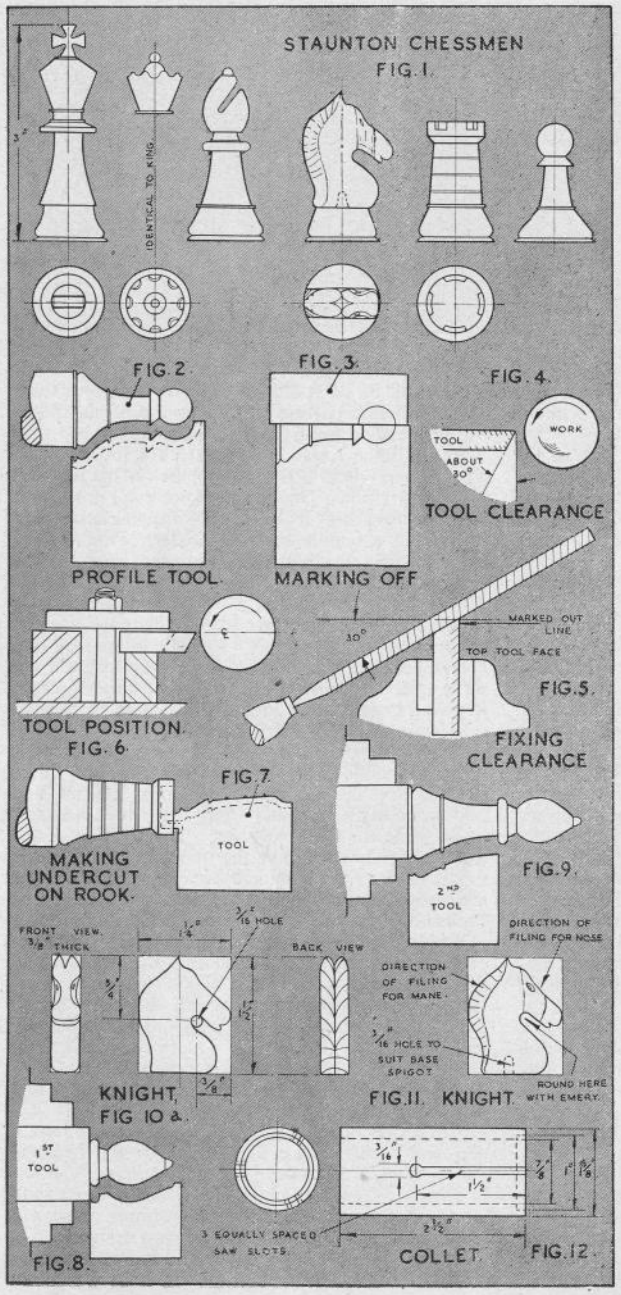
Now you're happy that it works, and also to your surprise the mild steel has not lost its edge, we can get on with the other tools. I must confess here that I casehardened the pawn tool as it is required for sixteen off. Further, I surface ground the top face to give a good cutting edge as I had used black mild steel with an indifferent finish.

The next tool is for the Rook or Castle, and is very simple. This is shown in Fig. 7. The ridges as shown on the tool can be made, or left flat, and put on the castle freehand afterwards with a hacksaw blade while the work revolves. The position of the tool in Fig. 7 shows how the undercut on the castle top is made. No comment is required for making the castellations by hand afterwards, and maintaining similar diameters.

Now a difficulty arose as longer pieces were required, as experiment showed that the wood would not stand up to a 3 in. face of tool cutting at once. I tried first a roughing tool with the same result. Eventually, I found it advisable and not unduly tedious to cut my form tool in half as shown in Fig. 8 and 9, and do the front half first, and then draw the wooden rod out a little farther from the chuck and turn the other part (being the base).

When four of the Bishops are made keep the second tool in and make four bases for the Knights, and with a file make a pip about $\frac{3}{16}$ in. dia. as shown in Fig. 1. The carving of the heads is dealt with later. The Mitre of the Bishop is simply a saw cut made with two saw blades in the saw frame.

The main body of the Queen and King are similar so that the same form tool (cut in half) was used,



having previously formed the crown for the Queen and the cross for the King (two flats being filed after to complete the cross). I have not detailed little odds and ends of finishing touches as these are best left to your own discretion and taste.

Fortunately up to now very little hand work has been needed as I am not a woodworker, but I evolved the following method for the Knight's head. Fig. 10 shows a piece of wood (preferably beech) $1\frac{1}{4}$ in. x $1\frac{1}{2}$ in. x $\frac{3}{8}$ in. thick. A $\frac{3}{16}$ in. hole is drilled through the head marked as shown. This is now cut out to marking shown. The back view shows where the middle and lower part is filed to an edge with the top fanned out to make the ears which are filed in the middle. The mane is marked on the head by fine saw cuts. The front view shows the thinning of the nose made with a $\frac{1}{4}$ in. round file in an almost vertical direction as can be seen in Fig. 11. The eyes can now be put in, preferably with a $\frac{3}{32}$ in. drill. I can well imagine enthusiastic model makers putting small beads in for eyes. General rounding off by a strip of emery or glasspaper, particularly around the neck almost completes it, not forgetting a horizontal saw slot for the mouth.

The $\frac{3}{16}$ in. hole in the base is to fit over the base spigot and a spot of glue or some adhesive will soon stick it. At this stage it will probably be noted that none of the bases will stand up square and dishing is necessary. If the pieces are now held in the 3-jaw chuck, marking and jumping out is likely so I made the simple collet in mild steel as shown in Fig. 12. The pieces can be held in this, with only the base showing to "dish" it, or with the whole piece showing for polishing, etc.

The final polishing is best left to the individual, but can be done quite easily in the lathe, remembering that slightly defective pieces or unsuitable coloured wood (in my case whitewood) was reserved for the black pieces which were dyed with black shoe dye and then polished.

"All About Kites"

OUR RECENT ARTICLE ON KITES BRINGS COMMENT FROM "CARACTACUS"

IT is pleasant indeed to find an article in *Model Maker* about the neglected sport of kite flying. Having been a keen kite flyer over forty years ago, and later an engineering student, I would offer a few comments on Mr. Colbridge's article.

The bow or "round-topped" kite was excellent in its day, as the absence of a crossbar allowed a smooth flow of air along the kite. As a boy I flew the less perfect crossbar kites, made at home. They flew very well, but the breaking of the surface by the crossbars must have lowered the flying angle.

The "eddy kite" is a modification of the crossbar kite. Although Mr. Colbridge speaks so favourably of them I would suggest few improvements.

In your illustration (Fig. 3) the crossbar is sprung like a bow by a tension cord across the back of the kite; and the "skin" of the kite, we are told, is "uniformly slack".

This construction would aggravate the imperfection of surface due to the crossbar. The impact of the air-stream on the "humps" due to the curved crossbar would increase the horizontal component of the parallelogram of forces, and so lower the flying angle of the kite, i.e. the angle of the kite line relative to the level ground surface.

Now for the improvements. Saw the crossbar to form two equal arms, and join the arms (as shown in

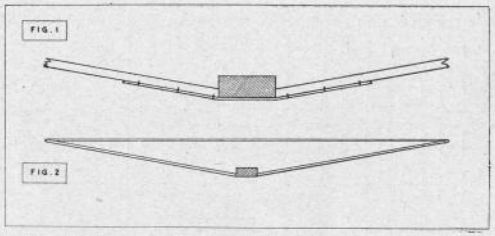


Fig. 12) by a light strip of sheet brass or aluminium and small tacks. The cross-hatched rectangle is the backbone of the kite.

Having done this bend the metal strip so that the arm tips embrace a "strut" or compression member as shown—preferably the strut is of circular section, as we want no needless corners to cause air eddies (Fig. 13).

Slant off the ends of the strut, to form elliptic sections, so that it makes neat joins with the ends of the arms, and bind the joins with linen thread.

Slight cross cuts on the round strut may be made to give the binding a grip, so that it does not slip down the slanting joins, and a coat of varnish well brushed into the binding will seal the whole job together. It will be advisable *also* to bind the joins of the arms and metal strip, to reinforce the grip of the small tacks; varnish should be applied to these bindings.

Let the "skin" of the kite be *uniformly taut*, as this should increase aerodynamic efficiency by nearly eliminating the ridges due to the cross arms.

L. C. MASON TRIES *Breaking in Brunton's Steam Horse*

MAY I chip in on this very fascinating subject of Brunton's Steam Horse? I think I can see how the feet could have been lifted on the return stroke.

Referring to the diagram, Mr. Watson provides the clue in suggesting that lower point 'g' of the links was fixed. Indeed, there is little point in having the linkage at all if this was not so.

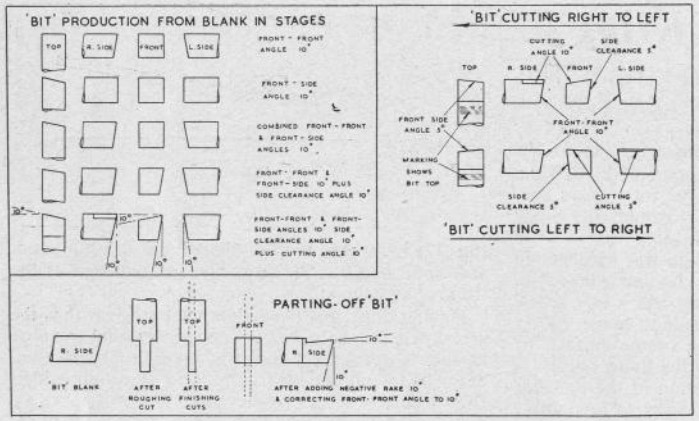
Ropes or cords are indicated as being connected from the points 'f' on the legs to the ends of the short arms pivoting at 'c'. The ends of these arms are shown in exactly the same way on the old drawing as are points which we know to have been joints. In that case, I suggest that the rounded ends of the two short arms were really eyes, and that the two cords were actually one length passing from point 'f' on one leg up to and through both eyes on the arms, and down to 'f' on the other leg. It only needs one dot of the cord dotted line to be shown between the arm ends for this to be obvious.

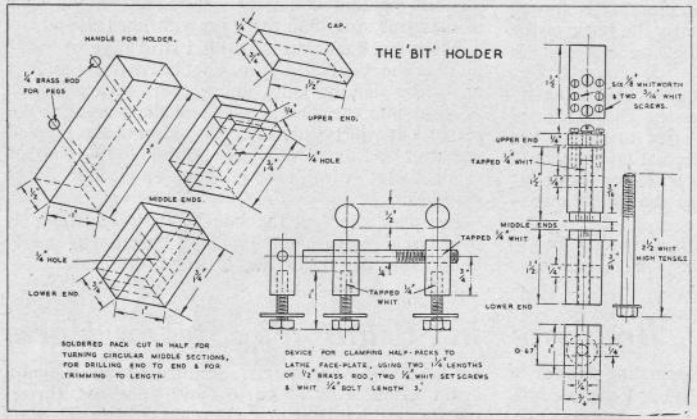
Now, consider the action. Lower point 'g' being fixed, as the links swing with the legs point 'c' will rise and fall, being at its lowest point at each end of the stroke and highest at mid-stroke. This is just the action we want, surely. Referring to the diagram again, point 'a' is about to move outwards, thrusting foot 'b' hard on to the ground. Point 'c' starts to rise, lifting the middle of the loop of cord. An equal lift is therefore given to both feet *but*, foot 'b' being jammed hard down, the leg 'a b' is immovable so far as the possibility of lifting it goes. This is not the case however, with leg 'd e'. This is trailing loosely on the return stroke, so the cord runs through the eyes of the short arms, raising the foot 'e' by twice the distance the point 'c' lifts. Foot 'e' is well off the ground at mid-stroke and comes to earth again when fully retracted — when 'c' reaches its lowest point again.

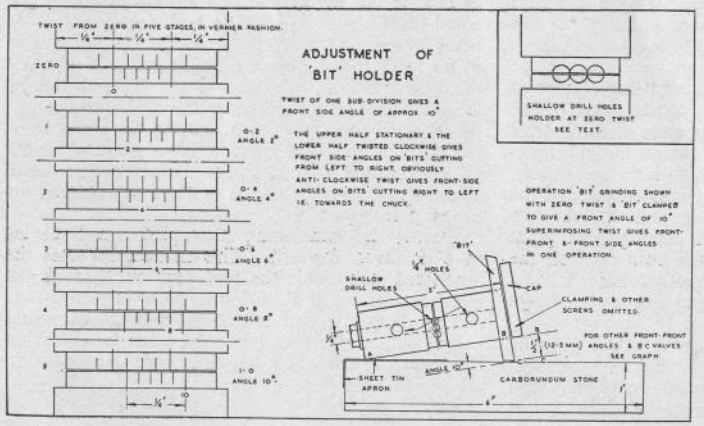
Exactly the same thing takes place when the leg 'd e' is thrust forward. This in turn becomes the 'anchored' one, while the cord pays out through the eyes towards leg 'd e', lifting leg 'a b' in turn.

The slight rise and fall of the short arms would cancel out, as one rises while the other falls, leaving the raising of the whole length of cord dependent on the rise and fall of point 'c'.

Any snags?







BITS & PIECES

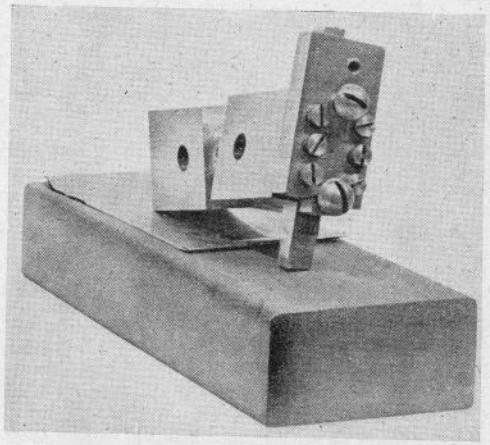
PART I OF AN ARTICLE BY J. W. G. BROOKER ENABLING THE TYRO TO SHARPEN CUTTING TOOLS ACCURATELY TO "PROFESSIONAL" STANDARDS

IT has been said there is more fun in journeying adventurously than in arriving in safety. In any case most makers of models agree that whilst there is a thrill in the first sight of the completed job there is more real pleasure in vanquishing the difficulties which arise in its making. Craftsmanship is far from the prerogative of the wealthy. More often it is an outstanding feature where mechanical equipment is limited by a shallow pocket and the worker has to exercise resourcefulness. "Improvise" should be the model maker's maxim.

When I bought a small lathe I obtained with it one or two tool "bits" or cutters ready for use and several Dormer $\frac{1}{4}$ in. blanks from which to shape extra bits. Regarding the latter I realised that to complete my equipment I needed a motorised grinder and a universal vice which would hold the "bit" blank at the appropriate angles to the grinding wheel. Half the success of a "bit" as a tool for cutting metal lies in the correctness of the angles at its business end and the other half turns on the sharpness of the cutting edges. Merely scraping instead of cutting is a poor job. With experience one learns how to position the "bit" in the toolpost to the best advantage to secure a nicely finished surface consistent with a good rate of cutting. If this sounds rather elementary let me emphasise that the policy of *Model Maker* is to encourage and help the newcomer. However, to return to our "muttons" I could see that equipment to fashion new "bits" from blanks and to sharpen these and others I might buy would cost nearly £12. Even if I could afford the outlay my nature was such as to seek some other solution. The "bit" Holder and Frame described in these articles are the result of months of thought and experiment, but what a joy. As will be seen they are comparatively simple to make and certainly not costly. They produce "bits" having exceptionally accurate and sharp edges and the novice if painstaking can, with this equipment, rival the expert with a costly grinder.

The drawing on page 728 depicts "bits" ready for use. One cuts from right to left, i.e. towards the chuck, and the other from left to right—away from the chuck. Primarily the former is for cutting circumferentially and the latter for reducing length and and trueing-up surfaces. Incidentally it can at first be puzzling which way up to lock the "bit" in the toolpost, and I find it helpful to mark the top face for identification. This can be done by lightly drawing a fine, narrow carborundum stone across the top face to leave an etched-like strip. The drawing of the "bits" shows this marking.

It will be seen that my Holder takes only $\frac{1}{4}$ in. "bits". There are cutters both smaller and larger than this—generally larger, but the $\frac{1}{4}$ in. seems the best compromise for the small lathe. My "bit" Holder just 3 in. in length, requires two $\frac{1}{4}$ in. Whitworth bolts $1\frac{1}{2}$ in. in length, 1 ft. length of brass flat 1 in. x $\frac{1}{4}$ in., paste solder and $\frac{1}{8}$ in. and $\frac{3}{16}$ in. Whitworth screws with round or cheese heads. To allow for losses in cutting and in "cleaning-up" the brass flat should be cut into two pieces each $3\frac{1}{2}$ in. in length, one piece $3\frac{1}{4}$ in. length and the balance will be $1\frac{3}{4}$ in. length from which the cap is made. The upper end of the shorter of the three long flats should be filed or otherwise finished to a smooth surface square to the sides before soldering the pack together as it is awkward to get at this end once it is in the solid block. Securely clamp the three long pieces together with of course the shorter of the three in the centre, and keep the lower ends of the three flush with each other. Drill two $\frac{1}{4}$ in. holes through the pack and smooth out with a reamer to ensure an



Bit-holder with bit inserted in use on the carborundum stone, which has been removed from the frame for convenience. The frame and its construction will be covered in the second and final part of the article. Model Maker photo.

easy fit for the bolts. The two holes should be approximately $1\frac{3}{4}$ in. from each other and the pair equidistant from the ends and sides. It is a good plan to mark the three flats in some way so that when re-assembling for soldering they can be put together in the same positions as when the holes were drilled. Unclamp and thoroughly clean the contacting surfaces and paint these with Flux solder or other semi-liquid solder paste. Bolt together using strong spring washers to draw the surfaces tightly together when the solder melts and runs under blowpipe heat. Brazing is not necessary. Before heating pull a piece of rag through the two holes to remove any traces of solder paste present to ensure that the nuts and bolts can be readily removed after the block has cooled down. The holes serve not only for the bolts for clamping for soldering, but also for a bolt to secure in turn each half of the pack to the lathe face plate. A simple device for locking the half pieces to the faceplate is drawn on page 728.

As is obvious the use of a $\frac{1}{4}$ in. flat provides a slot at the upper end into which will fit the $\frac{1}{4}$ in. "bit". This end, also the lower end, must be filed or milled exactly square with the long axis to ensure that when the divided pieces in turn are mounted on the lathe face plate the middle ends can be trimmed square to the same axis. For clarity I call the two ends of the pack the upper and lower respectively, and the two ends resulting from cutting the block in half, the middle ends.

Getting back to the three flats which have been nicely soldered into a solid block, the joins should not be more apparent than as faint parallel lines. The upper end will have a slot slightly deeper than $\frac{1}{4}$ in. and the lower end will be flat exactly square to the long sides. With a hacksaw cut the block in two halves keeping the cut as nearly straight across as

can be managed. I started cutting from all four sides in turn on scribed lines and joined up in the middle. Next the two pieces in turn are fixed as centrally as possible on the face plate and the middle ends turned to circular section 0.670 in. or 17 mm. in diameter, and about $\frac{3}{16}$ in. in depth.

Without disturbing the pieces drill the lower $\frac{1}{4}$ in. and the upper $\frac{13}{64}$ in. In each case the drilling is carried to a point just short of the holding bolt which traverses the block, and in each case it is easy to finish the holes when the pieces have been transferred from the lathe to a bench drill. The exact diameter of the middle ends is not important provided that the two are precisely the same and register exactly when the two halves are clamped together by the central $\frac{1}{4}$ in. bolt. The $\frac{1}{4}$ in. hole through the lower half is smoothed with a reamer to give the locking bolt an easy fit and the smaller hole in the upper half is tapped $\frac{1}{4}$ in. Whitworth, using plenty of thin oil to get smooth finish. From time to time remove the "tap" to clean off swarf accumulation. I prefer this to tapping brass dry.

Whilst mild steel bolts are good enough for clamping the pieces for soldering and machining, the central bolt permanently fitted for locking the two halves together should be the best obtainable to ensure an absolutely straight shank and accurately cut thread.

The turning, drilling and tapping having been completed the two halves in turn are replaced on the face plate for turning each to an overall length of $1\frac{1}{2}$ in., including making the slot at the upper end exactly $\frac{1}{4}$ in. in depth, and the middle ends each $\frac{3}{16}$ in. in depth. The cutting and the fixing of the cap to the upper end and the marking of graduations on the middle ends complete the job. By the way, a $\frac{1}{4}$ in. bit ground to a chisel-like edge at one end makes an excellent scraper for final operations on the $\frac{1}{4}$ in. slot should it be necessary at any time to ease the fit of any "bit" in this slot.

The cap is secured with four or six $\frac{1}{8}$ in. Whitworth screws as one thinks fit and two $\frac{3}{16}$ in. Whitworth screws are "tapped" in the cap to act as clamping screws on any "bit" under treatment.

The graduations (see drawing), are generated by a ground steel cutter. I made one from a scrap of $\frac{3}{16}$ in. silver steel rod hardened by heating and rapid cooling. It is carried on the toolpost by a short length of drilled brass flat in which it is adjusted and clamped by two $\frac{1}{8}$ in. Whitworth screws. The drawing shows how the faint lines of the solder interleaving are used as a basis for the graduations. I clamped the mandrel spindle so that it was friction tight and fixed a strip of gummed paper right round the broad edge of the face plate. The appropriate markings were calculated and pencilled on the paper and the mandrel carefully turned in stages. At each sub-division the cutter on the topslide was traversed. This arrangement gave a magnification of about six, and the graduations marked on the middle centres were as accurate as one could expect with simple equipment. I cut six sub-divisions on the upper half and five on the lower half. More than this is not necessary. The drawing illustrates also the result of angular displacement. The degree of "twist" determines one clearance angle of the "bit" under treatment. Unfortunately there are no commonly accepted set of descriptions for all the angles to which the business end of the "bit" may be shaped.

My Holder used as pictured in the photo on page 729, gives front clearance as a blend of two angles and I would call one the front-front angle and the other the front-side angle. The former is obtained by setting the "bit" in the Holder to protrude a fixed length as dictated in the graph (next issue), and the latter by twisting one half of the Holder in relation to the other half. The front-side angle is proportional to the degree of twist, and this when set is locked by the clamping bolt. In the drawing on page 728 I show the two angles separately and then blended together. Analysis on these lines eliminates any misunderstanding.

Using the coarse carborundum stone to remove the bulk of the metal and the fine stone to give a very smooth surface and finish, the two angles are obtained in one operation. The "bit" remains in the Holder throughout the operation, taking care, of course, that the apron of sheet metal for protecting the end of the Holder from damage is always in place. For security all "bit" grinding should be done with the oil stone in place in the Frame. The photo shows the stone out of the Frame merely for ease of illustration.

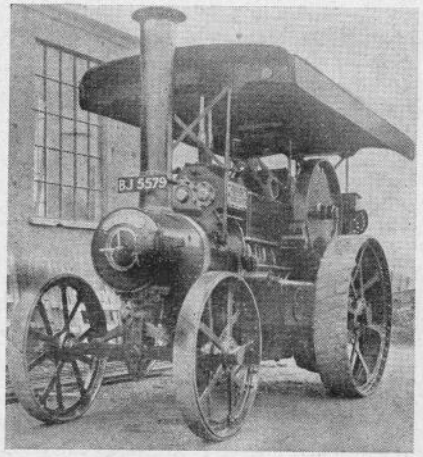
In the case of the "bit" featured in the drawing the front-front angle is 10 degrees, and the front-side angle 5 deg. To get these set the "bit" in the Holder with a protruding length of 12.5 mm. (line BC in the drawing), then fix the degree of twist at 0.5 of one sub-division. A degree of twist of one sub-division is equivalent to 10 deg. — actually very slightly more, but the difference is negligible. When the "bit" needs re-sharpening it is put back in the Holder with the same length of protrusion and the same degree of twist and locked securely. In a few minutes of rubbing on the "fine" oil stone the original angle and its sharpness are fully restored. Reproducibility is 100 per cent.

Whilst the graduation marks enable one to lock the two halves together in line it is easier still to use as a guide the edges made by shallow drill holes. The drawing on page 728 depicting three $\frac{5}{32}$ in. holes makes this clear. With great care I made three small punch marks barely $\frac{5}{32}$ in. apart from each other precisely on the dividing line of the two halves locked together in a machine vice, ensuring they were exactly in line. The punch marks were slightly enlarged with a bigger punch having a tip with an included angle of 120 deg., and the holes finished with a $\frac{5}{32}$ in. drill to a depth of about $\frac{1}{8}$ in.

A Garrett Tractor and a Simplicity Road Roller

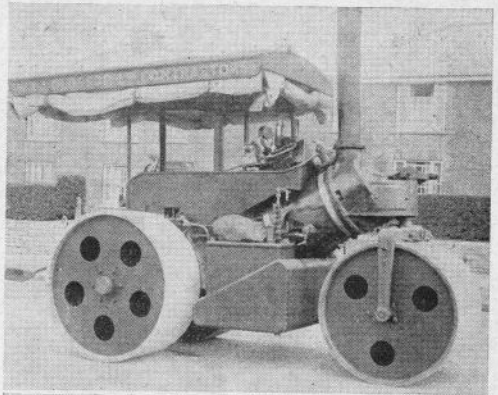
MORE PROTOTYPE ROAD VEHICLES DESCRIBED AND PHOTOGRAPHED

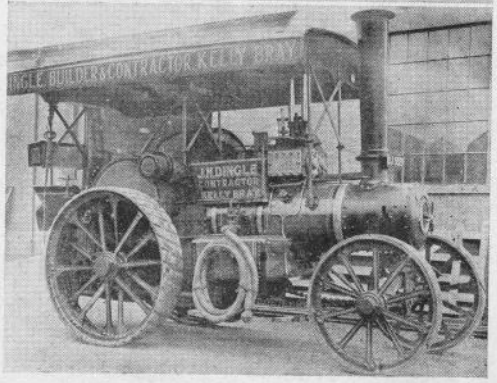
BY L. J. OLDRIDGE



Heading right : Threequarter front view of the Garrett which shows it in spick and span condition worthy of the old tradition.

Below : The unusual Simplicity Road Roller with its inclined boiler. Bottom : Another view of the Garrett, giving further detail work.



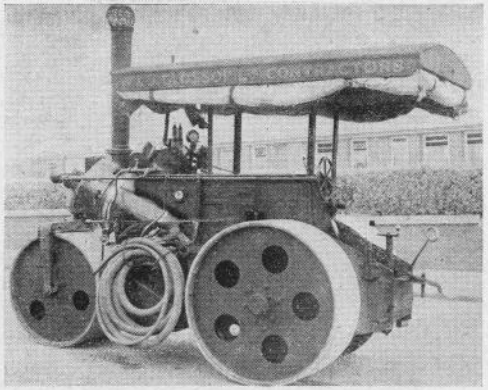


RECENTLY I had the pleasure and privilege of inspecting, photographing and driving a Garrett Steam Motor Tractor, a small traction engine built especially to comply with the Motor Car Act of 1905. This engine has recently been repainted and lined out by the owner, and with her brasswork shining she is indeed, a wonderful sight. I never thought that I should see again an engine in such lovely condition. My mind went back to the days when owners took such a pride in their engines and I recalled the anecdote of the famous showman who invariably carried a silk handkerchief in his breast pocket with which he used to wipe over the wheel-spokes to ensure they were clean, and woe betide the driver whose wheels caused the handkerchief to become soiled.

The Garrett is an orthodox compound engine, but much smaller and lighter than the ordinary traction engine or road locomotive. Beautifully proportioned with a full canopy, it will be seen from the photographs that the engine is fitted with a smokebox longer than usual, and the front wheels are placed well forward. The makers claimed in their catalogue for this period that their tractors could not be made to rear (i.e. front wheels leave the ground), however heavy the load, and with the extra weight forward this might well be so.

The engine is provided with two speeds, and all the gearing is neatly enclosed in a steel casing. A disc flywheel is fitted and also a flywheel brake. Brakes are also provided on the rear wheels, blocks operating on the inside wheel rims by means of a screw-down lever seen on the off side.

Steam from the double safety valves is taken away by two brass tubes through the canopy. Cylinder



The Simplicity again—which recalls very happy memories to one of the Editors who fulfilled a lifelong ambition during the war by actually driving one very similar.

drain cocks operated from the cab by rods and levers are fitted, and very neat pipes carry the steam and water away from the cocks and to the ground.

A belly water tank is fitted and this, with the tender tank, gives a water capacity of 140 gallons, which the makers claimed was sufficient for a journey of 12 miles without taking up further water. A water lifter, injector (fitted to the off-side of the engine) and a pump are provided to look after the water supply, the latter, unlike previous engines described by the writer, is geared down so as it does not run at excessive speeds, wear and tear thus being reduced, due largely to the absence of water hammer. The gearing for the pump is situated immediately behind the flywheel and outside the hornplate.

The steering wheel is on the near side, and a seat is provided for the steersman. It will be remembered that in a previous article the merits of left- and right-hand steering were discussed. Since that article appeared one of my friends, who is also a traction engine enthusiast, has pointed out to me that left-hand steering is advantageous when "lining up" the engine with a threshing machine prior to fitting the belt.

A fast and loose type winding drum is carried on the main axle on the near side and is provided, on this particular engine, with 100 yards of steel wire rope, not the usual 50 yards. Fairleads are fitted to carry the rope in a forward or backward direction. The owner of the engine uses her for a special winching process in conection with timber hauling, and declares that no other power is quite so good as his well-loved Garrett, and he intends retaining her for this job.

On my arrival at the yard where the engine is kept the fire had just been lit, and in just over an hour we had steam. The blower valve is fitted just in front of the low pressure cylinder, and it is necessary to dismount from the engine to operate it—this is done to prevent too frequent use of it by the bad driver — and once we had the blower working she was soon blowing off. A few revolutions of the engine with the cylinder drain cocks open, and we were ready to try her out. What a thrill to have such a docile but powerful machine under one's complete control. To have the spinning flywheel, the flashing motion, the whiffs of steam from the glands, all exposed to view, and to have the feeling that one was riding on a machine pulsating with life; I am quite sure that no horseman riding a thoroughbred in the hunting field was more thrilled than I that memorable afternoon.

But enough of this—I have another fascinating little machine I wish to describe to you, this time a road roller, a Wallis & Steevens "Simplicity". As you will see from the photographs, this is a most unorthodox machine, but nevertheless, as I was assured by the driver, a most efficient one. The most outstanding feature, as will be seen from the photographs, is the inclined boiler, the makers claiming that this type combines the good points of both the vertical and loco type boilers, and eliminates their disadvantages. The engine is a single cylinder 4 in. bore, 6 in. stroke, with "D" slide valve, Stephenson reversing link motion and trunk pattern crosshead guide. The flywheel is inside the hornplates, and this gives the engine a very neat appearance. The motion, of course, is inclined in line with the boiler.

The engine's working pressure is 130 lb. per sq. in., and the pressure gauge is situated above the cylinder. Injector and water pump are fitted, the water being carried in a 75 gallon triangular tank fitted beneath the boiler. Coal bunkers are provided on each side of the engine.

Transmission is by spur gears, and only one speed is available. The differential is on the intermediate shaft and there is no through driving axle—each rear roll being mounted and driven on its own axle.

The steering wheel is in a vertical position and a horizontal shaft runs forward to a worm which operates the quadrant on the front rolls.

The rear rolls are 3 ft. 9 in. dia., and 1 ft. 6 in wide, and two front rolls are fitted 3 ft.dia., and each 1 ft. 4 in. wide. A screw operated brake with brake blocks acting on the inside rims of the rear rolls is provided.

What a fascinating little model this would make; in $1\frac{1}{2}$ in. scale the model would be about $14\frac{1}{2}$ in. long and $7\frac{1}{2}$ in. wide; how easy she would be to fire with no tender to obstruct the shovel. With a model like this rolling the lawn would be a pleasure. What about it someone? In the words of that famous radio personality, will someone "Have a Go".

Paints & Painting

PART II

BY BOYCE MARTIN

A digest by courtesy of our American contemporary "Model Railroader"

Spray Techniques

It is usually necessary to spray several coats for thinned spray paint does not cover as well as the thicker brush paint. If it is thick enough to cover with one coat, it will spray out in blobs rather than in a fine mist. The usual tendency on the part of the beginner at spraying is to hold the sprayer too close to the model and too long in one place. Either the sprayer or the model should be kept in constant motion when the spray gun is on to secure an even job. The proper distance of the nozzle from the object being sprayed is a problem that must be carefully watched. If the gun is held too far away (more than 6 in.) some of the spray will dry before reaching the model. To maintain uniform distance of the sprayer to the model being painted, the sprayer should be moved in a parallel line rather than in a circular motion. Each coat should be allowed to dry thoroughly before the next coat is applied, so here again the question of time will determine the amount of thinner and the number of coats.

There are both advantages and disadvantages to spray painting. Chief advantages are uniformity of application of the paint and preservation of detail on the model. Disadvantages are lack of control of the spray and the necessity for masking and protection, the waste of a considerable amount of paint, and the increased amounts of thinner and solvent required both to do the job and to clean the spray equipment when the job is completed. It is also obvious that there are certain items that cannot be spray painted. If we attempt to paint trucks with a spray, some of the paint would get on the axle points and the free rolling qualities would be adversely affected. On the other hand, spray painting a trestle, a bridge or a timbered construction tunnel is a relatively short and simple matter compared to the laborious and time-consuming work required to paint all sides of each member with a brush.

For model railroad work, lacquer is the principal type of paint used in spray work. Oil and tempers paints can be sprayed, but the problems of thinning and running are usually more difficult. Lacquer spraying permits several coats of paint to be aplied in a relatively short time, and if the result is not satisfactory, the paint can be removed in an even shorter time by a spray or bath of lacquer thinner or acetone.

Masking

Another advantage of spray painting is the relative ease with which stripes, special curves and two or more colours can be applied with the use of masking tape and paper. Here again there are many tricks to the trade. Most important of all, of course, is to make certain that the coat of paint under the masking tape is not removed when the tape is pulled off. Ample time must be allowed between coats to allow the paint to dry thoroughly. Transparent Scotch tape should never be used for masking for it will pull off the paint. The best masking tape, and also the most expensive is Scotch electrical black tape. This tape is extremely thin, a factor of great importance when two pieces of tape are used to produce stripes or special curves on diesel locomotives with considerable detail on the casting. This tape can also be stretched and shaped so that special curves and designs can be sprayed on. Care should be exercised in removing this tape, however, or some of the paint may be removed.

Use of Brushes

The preparation of work for brush painting is exactly the same as for spray painting except for the necessity of masking to protect the parts which are not to be painted. The techniques of brush painting are, of course, quite different from spraying. Al-

though it is possible to spray several coats of lacquer, it is difficult to brush paint one coat of lacquer over another without making a messy job. It is necessary therefore, to do a good job on the first coat when using brushes, and this is where the importance of using a good brush is most apparent.

There are two important points about a good brush: (1) It has enough "body" so that sufficient paint is carried by the brush to permit smooth, even strokes without working back too much; (2) Its bristles do not pull out when the work is brushed. The first point is most important when using lacquers. The lacquers are so quick-drying that the brush must carry a sufficient volume of paint to prevent it from drying out and becoming gummy before it is applied to the model. For this reason, a flat brush at least ½ in. in width is usually recommended for flat surfaces. The flat brush permits the user to run a straight line with his paint, if necessary, and the ½ in. width will carry sufficient paint to allow smooth brushing. A small round brush is necessary, of course, to reach small details such as ladders, brake wheels and underframe detail. Do not attempt to use a round brush to paint a flat surface, however, for it is impossible to secure a smooth and even surface with a round brush.

Brush painting should be done with the brush fairly full of paint and in strokes as long as possible so that even coverage is secured. Too large an area should not be covered at one time, or the paint will dry before ripples and runs can be brushed away. While lacquers cannot be brushed like oil paints, it is possible to brush over a second time if it is done immediately. So long as no excess paint is left to run, most model railroad paints will "level out" without too much brushing. At some convenient stopping place the brush should be squeezed out by holding a few pieces of newspaper between the fingers. This prevents the lacquer from becoming too gummy for smooth brushwork.

Good brushes are expensive, but if they are properly cared for, they will give good service for a much longer period than cheaper brushes, and are thus more economical in the long run. Each brush should be cleaned with the appropriate thinner or with acetone immediately after using and "worked out" by brushing until there is no colour perceptible in the brush, and until the brush seems fluffy and dry.

SCENIC MODEL MAKING

(*Continued from page* 735)

mark them in with a little dark brown paint to break up the regularity of the brickwork.

In this same series I very much like the weathered brick in red and brown. Used in conjunction with stone strips this makes a very effective treatment.

Choose wisely in your roof coverings. If you are striving for variety then have the houses or bungalows with different coloured pantiles and tiles. They are made in green, red, brown, and tiles are in terra cotta, flat dun and brown. Here again you must study the effects of any roof to see the uncommon markings and get the right effect. Where there is a dormer window you will see that the tiles on each side of the window structure are probably marked by the continued and heavy pressure of rain. And, by the way, most dormer gable structures have a fitment of lead in the dip part or where it joins the main roof.

In the country wall treatments we have variety in plenty. Before starting on these buildings I have a sort up of odd bits of distemper, flat paints, oil colours and all sorts of left-overs in paint tins. Such colours as cream, fawn, brown and yellow are fetched in and these shades fit in well with the patchwork beauty of the old time cottage. Notice that all cottages of this type enjoy a patchwork quilt effect mixed with some form of wooden beam treatment. In some case the plaster is broken and laths may be showing. It is little points like this which make the exhibition model.

Do not overlook the use of poster paints, and these should be used fairly thickly to give a good covering effect. Should you be using a porous type of card for the building, then cover this with rough surface brown paper, the rougher the better.

Timbers can be made with spill, cut to shape and coloured with light water stain. Don't forget the splits which are so common in old buildings. You see these in very old oak, and they should be picked out in dark vandyke brown. Exterior oak beams are nearly black due to age.

Rough cast or wattled and daub effect is popular in all old buildings. In this case paint with Process White, and when dry go over with a thin wash of grey, fawn or whatever you require—just enough to break from the white background.

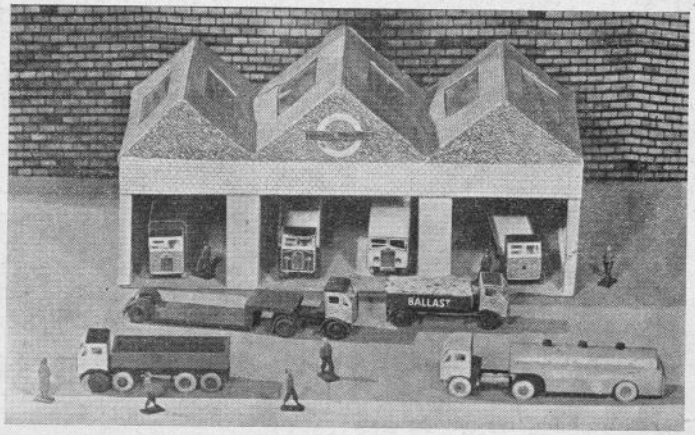
Railway buildings give variety in design. In sketch No. 6 we see the red brick used with heavy concrete corner facings. These can be added with cardboard treated with flat grey paint. Cut the corner sections to fit the two sides. We have seen red brick alternating with blue brick, two rows of red brick to one of blue.

In Cornwall, Devon and Somerset, one finds a considerable amount of stations with the castle brick effect. This can be marked out and then a layer of grey plasticine put on. The marking can then be effected with a stick of wood and the bricks lightly dabbed with a stiff nail brush.

Boarded buildings are interesting to make, and these can be built from ordinary cardboard and the boards marked in with a fairly blunt penknife.

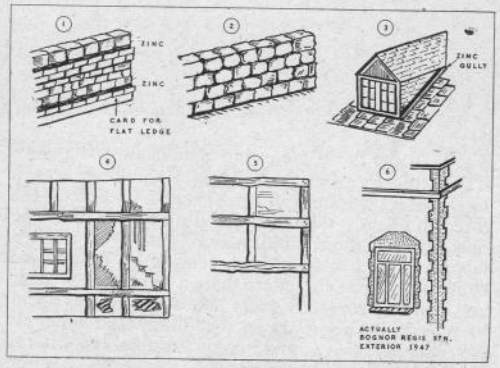
★Making Model Buildings

VICTOR SUTTON WRITES ON WALL TREATMENT



Two new buildings in "Sutton Village"—London Transport Garage on the right, and below the new Cinema, with queues already at the early door.

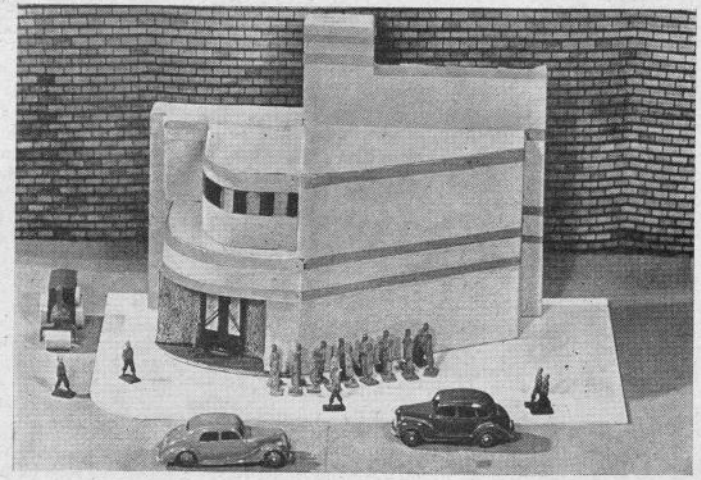
So many models are spoiled by the actual wall treatment. In the larger layout we see too much use made of the regular brick paper in various styles. This paper is quite good, and I am not against it, but to get a really good effect it should have more detail in it. Most buildings have quite a few ledges and other trimmings which can be added with thin card or sticky paper. Just the additions make all the difference to the model.



In sketch No. 1 you will note the extra ledges all added in proportion to the design of the building. Underline these with a thin strip of Indian ink. Ledges near the top of the building will probably have a layer of lead which will show a dull grey colour. Bricks nearest the underside of ledge will show quite dull and stained as a rule due to the effects of the rain and other conditions. Fronts of older types of buildings will probably have a wide coping at the top and this again makes a big difference to the appearance.

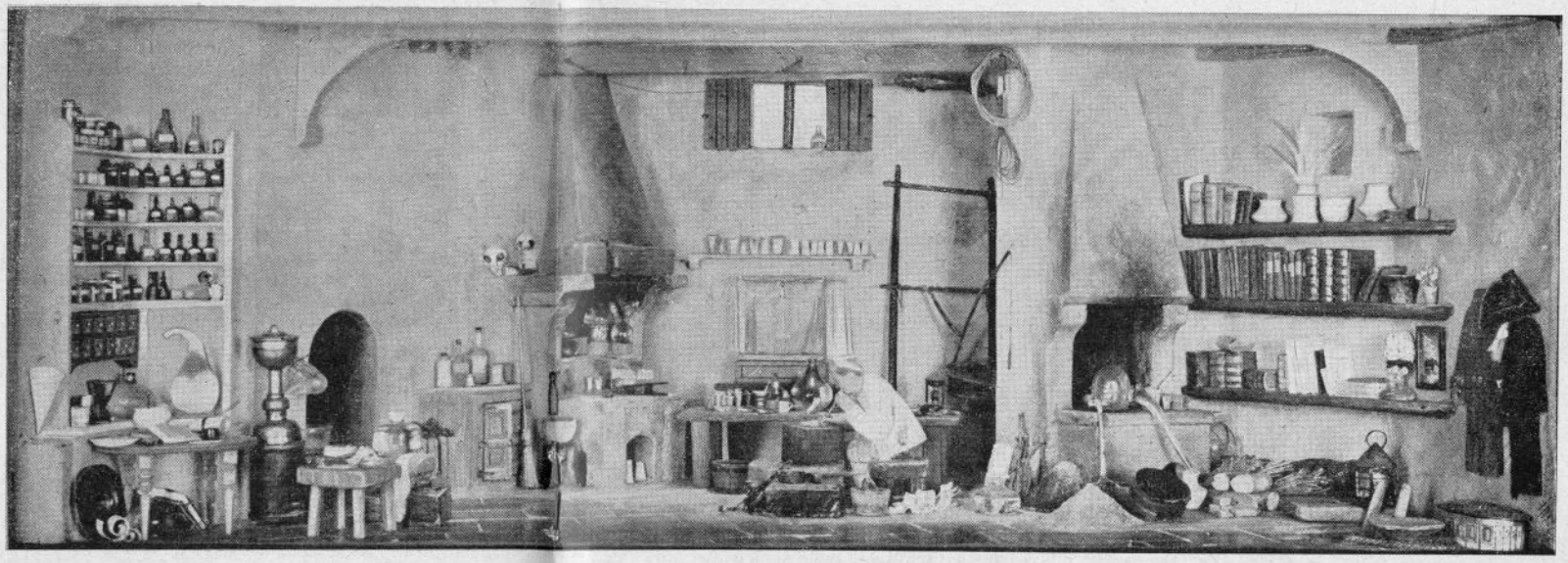
In the Modelcraft series are now about 37 types suited for the 00 gauge railway layout. Red brick, yellow brick, brown brick, are always common. Blue brick we see used in tall railway bridges where there needs to be additional strength. Buildings made in a selection of these alone will create variety.

We now come to the ones depicting the following grey granite wall, red granite wall, stone wall, grey and red. These are very effective and I



★ *Continued from September issue*

CRONSTEDT'S LABORATORY



The design and contents of the model are based upon records in The Royal Institution, The Science Museum Library and the British Museum. Details of clothing were provided by the Swedish National Museum, whose assistance is gratefully acknowledged. Width of model—22 inches.

Photograph by: Art Display Service Ltd.

ONE of the most interesting exhibits at The Engineering, Marine & Welding Exhibition, was a model of a laboratory of Axel Fredrik Cronstedt, the Swedish scientist who discovered nickel in 1751. The only known direct information about Cronstedt's laboratory is contained in a remark by a scientific contemporary to the effect that in Cronstedt's "dear and edifying company every spare minute was spent in progressing exercises in metallurgy and mineralogy, the company, and a comfortable laboratory, much contributing to the whole."

This flattering tribute was not much help to the model makers, but Cronstedt was a prolific writer and his records indicated what experimental work engaged his attention. With this information, and the general available information on the type of scientific equipment available in Europe, it was possible to design a laboratory that was typical of 18th century Europe and, accordingly, The Mond Nickel Company commissioned Mr. H. Broun-Morison to produce what was required.

The miniature model, which Mr. Broun-Morison has constructed, shows the type of apparatus which Cronstedt and his contemporaries used to carry out their experiments. Furnace equipment in great variety had been used for centuries. Bellows were normally used to provide the blast. The blowpipe was used in the investigation of minerals, but very infrequently before Cronstedt's time. Examination of specimens was usually carried out on a charcoal block hollowed out to receive the specimen.

Ore was broken on an anvil under a hammer and reduction to finer size completed with pestle and mortar. In the case of nickel ore, this must have been a long laborious task. Magnets were used to identify iron. Solvents of various kinds were employed to leach away known materials. The principles of distillation had long been understood. Calcination, precipitation, crystallisation and the microscopic examination of residues were regular experimental procedures.

The model measures only 22 in. x 7 in., but it contains hundreds of items and faithfully reproduces the chemical apparatus and furnace equipment used in 18th century Europe.

The scene portrayed is startingly lifelike, and illustrates the period which separated a thousand years of alchemy from the beginning of scientific chemistry. The hanging alligator, the skulls and other "signs of the alchemist" are present but so, also, are volumes of papers presented before the recently-formed Societies of Europe. Youthful eyes may be able to read the minutely lettered titles in Greek, Latin and Swedish.

Glassware, made from "Perspex," is indistinguishable from the real thing and the infinite care which characterises all the model in typified in the tiny spider's web, fashioned from nylon yarn, which can be seen in the high window.

To simulate a candle-flame, Britain's master-modeller will attach a speck of mirror glass to the wick so that it catches the light and appears to burn. It is an ingenious device such as this which intensifies the white of ore under the blowpipe flame in the Cronstedt model.

Mr. Broun-Morison was particularly qualified to construct the model, as he is a silversmith and metal-worker as well as an architect, painter and jeweller.

There is no end to his patient insistence on accuracy. For example, because the operation of the great bellows structure, built of wood and leather, was not immediately apparent from the sketches in old-time prints, he built a large model and verified that it was workable before making the miniature.

When completing the nylon web he tells, with some dismay, how a real spider examined the work, scurried across the model without a pause and then made for a corner of the studio to spin a proper web, possibly to show his imitator just how it should be done!

Mr. Henry Broun-Morison, who built the laboratory, was originally trained as an architect but, at 65 years of age, looks back on a life spent as a painter, silversmith, jeweller, craftsman, metal-worker and teacher. Much of his work has revolved around the stately homes of England and Scotland. He has produced models of Chatsworth House, Mompesson House, and other impressive examples of English and Scottish architecture. His interiors are marked by fidelity to the originals, and most of them reproduce beautiful and sometimes historic rooms. But he makes no compromise with truth, and the Victorian interiors, complete with clashing colours, gilt galore and aspidistras, are faithful reproductions.

Several examples of Mr. Broun-Morison's work are owned by members of our Royal Family, and American visitors regularly buy specimens to take home as souvenirs. Much of his work is carried out in a remote Sussex village where he lives with friends, and has a studio workshop overlooking the Downs. For close work he wears zeiss prismatic spectacles clamped to his forehead to give extra magnification. With these he engraves titles on books so that it is possible for anyone with a good magnifying glass to read them clearly. Modest in manner, he claims no special ingenuity and ascribes his success to time and patience.

CONTENTS OF THE MODEL

CENTRE
Cronstedt with blowpipe
Charcoal block on wood block
Rectangular anvil, two rings
Ore
Two hammers
Chisel
Small round anvil
Tongs
Glass bowl of ore
Cloth
Notebook and scroll
Carboy of acid
Sheet cork
Poker
Shears

MAIN HEARTH
Bright fire
Bellows
Retort
Distilling apparatus
Weighing scales by glass case
Large pair of bellows
Shelf of crucibles
Bottle on window sill
Long table—sink and tub underneath
Magnet, forceps
Carboy
Spirit lamp
Hour glass

TOP SHELF ON RIGHT
Books
Vases

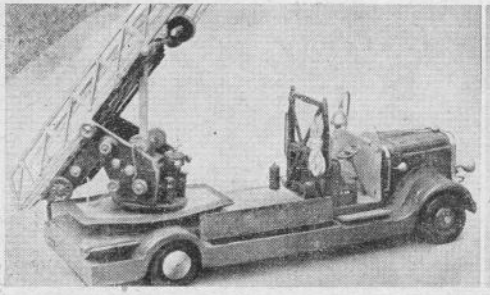
MIDDLE SHELF
Books
Vase
Yellow flowers

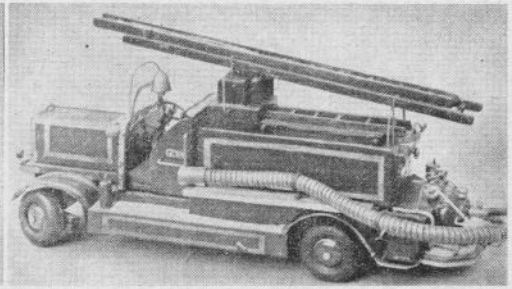
BOTTOM SHELF
Books
Papers
Wig on stand

MAIN HEARTH
Diagram
Dividers
Pen and ink
Pounce box
Magnifying glass
Coffee mug
Pestle and mortar
Roll of copper
Silver spoons
Papers, etc.
Cordage and alligator hanging up
Three specimen skulls
Hare's foot
Stool—account books and money

RIGHT-HAND HEARTH
Fire glowing
Glass retort and bowl
Muffle and crucibles
Shovel
Cinders
Sand
Bricks
Bowl of sand
Sieve
Logs
Faggots
Kindling
Basket of charcoal
Check rug
Carboy of acid in corner
Lantern
Cat's milk
Earthenware vessel
Mystery box
Cellar
Coil of rope
Ladder
Tricorne
Two coats on wall

LEFT CORNER
Five shelves of bottles and jars, etc.
Twelve litter drawers
Lower shelf — vases and retort
Silver carboy of acid
Oval table
Delft dish
Gold snuffbox
Book
Pen
Ink
Filter bag
Testing needles
Bowl
Spoon
Papers
Large dish on floor
Portfolio
Carboy
Scrolls
Copper distilling apparatus
Glass filter on wall
Bench
Glass bowl





A FLEET OF MODEL FIRE ENGINES

PART I OF A NEW SERIES BY VICTOR SUTTON DESCRIBING THE CONSTRUCTION OF HIS REMARKABLE COLLECTION

IN my first articles I explained the old-time model appliances which number twenty-three, and to which I can still add as details come in to me from various sources. These roughly cover the period from 1666 to 1903. The subject of these next articles will be a description of the vehicles, now numbering thirty which give full scope to every known type of fire appliance used before the war, during the blitz period and up to 1951. No two engines are alike and they consist of turntable-ladders, pump-escapes, escape vans, hook ladder units, water-dam pumps, light pumps, salvage corps tenders, canteen, kitchen, hose-laying lorry, telephone repair vehicle, heavy rescue and breakdown lorry, communications car, emergency tenders, etc.

Information for all these was gleaned from books on firemanship, pictures and photographs from the firms who build them, and notes taken at fire stations in my own area and London.

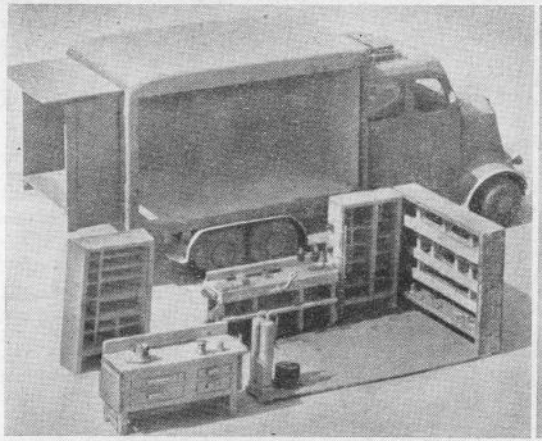
Transport is always a problem, especially with the six escape units. I use six strong cardboard cartons which I got from the grocer. These are strengthened with stiff brown paper which I pasted all over. Struts of $\frac{1}{2}$ in. square wood are used up the sides and across the top, and it is very surprising how many times little boys have sat on these without damage to the contents. Each appliance has a number underneath connected with its position in its respective box. These boxes take about five apiece and the depth of 12 in. allows for clearance of escapes. These are not removed when packed. By a series of small hooks and rubber bands the whole fleet stays in position without undue buffeting. Thin cardboard sheets between them prevent them rubbing each other which will, in time take off all gold lining. History cards of about fifty words are packed with each model.

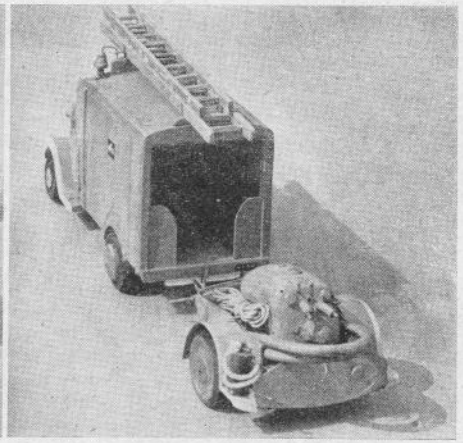
As with all model making I start with my main base panel. After making out a rough sketch on paper I then draw the chassis out on $\frac{1}{4}$ in. obechi wood. For each type this panel is different, yet it is a fact that many are quite similar and only wheel arrangement and length alters. Most engines are overall length 11 in. and width $3\frac{1}{2}$ in. In planning we have to deal with those which have the new forward drive, six-wheelers and cases where, due to the type the wheelbase may be adjusted. Fire chiefs have their own ideas on where even the wheels should be whilst the pumps may be on the back, on the front, amidships or on both sides. Who said all fire engines were alike? I have been to one county display and seen thirty-nine different types.

From my sketch No. 1 is shown the simple outline of a fairly modern pump appliance. On this you will note the cut-away for the wheels, position of driving seat, bonnet and the lockers. From this panel one can then ascertain if everything does look in the right place and it can be put right. Once correct I always feel that whatever else is added it just fits on or hangs on somewhere, and I am seldom wrong when the model is completed.

At this stage I always try to get the mudguards fitted, and for these I use the strips off fish paste pots. Not being a metal worker I find I can bend these to shape. In Sketch No. 2 you will see that the mudguards are fitted and must fit into the bodywork at a later date. Note that the inside edge is covered in as all modern appliances are definitely flush all over.

Wheels I have turned up for me in a soft wood. Mostly these are $1\frac{3}{4}$ in. dia. and $\frac{1}{2}$ in. wide. I file the shape of the tyres in next. Some are convex (rear ones) and others concave. Various types I build up with curtain rings, strips of solder and strips of cardboard. Bolt heads I make with small Lil pins. Tyres are dead flat black, and Indian ink is





On opposite page, left: Merryweather Turn Table Ladder appliance with ladder extended — the complete ladder will be shown later in the series. Opposite page, right: Leyland appliance, an old favourite with the London Fire Brigade.

Above left: Typical Mobile Workshop, with the workshop unit removed — note the completeness of the model equipment, including bench with vice. Above right: Bedford appliance and Pump, typical of trailer units in use during the war, and still largely in service.

—Model Maker Photos.

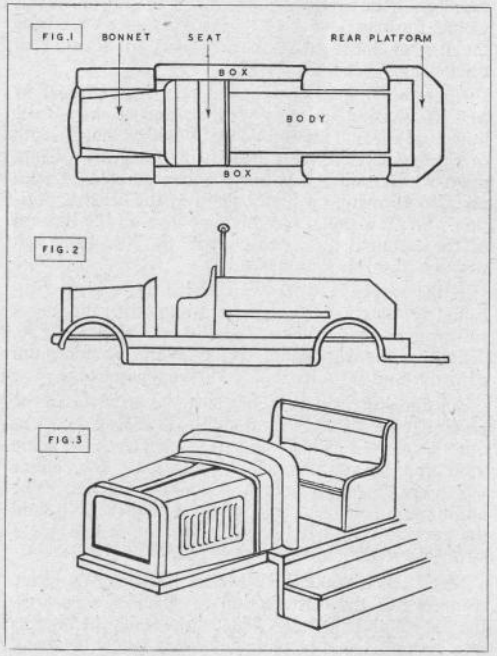
used for this, or I see nothing wrong in a coat of black boot polish, but we don't have black enamelled tyres. I mention this because I have seen them at quite good exhibitions.

As a rule I then build up from the bonnet and this I do with obechi wood. Sometimes I use block obechi, but never balsa. Coachwork on fire engines is always of the highest order, and you will note the deep streamlined effect in Sketch No. 3 which would be possibly connected with some of the newer Leyland and Dennis types. All radiator vents, beadings and other embellishments I put on with thin card. As these are mostly gold I like the idea because it helps in the painting. Radiator material I use is seen in the front of meat safes. Sometimes I used sheet corrugated aluminium sold at model railway shops. However, all types of radiators are seen and these have to be conjured up by the model maker.

The next part is always the panel in front of the driver. This varies nearly every time, but can be made with $\frac{1}{4}$ in. obechi. As shown in Sketch No. 4 this is well rounded and again finished with strip cardboard.

By building this way one is able to check up all measurements as he goes along, and provided with ample pictures he should not go far wrong. Windscreens and other items are always left to last. I make a point every time of completing all wood parts first. This enables me to cover with two coats of flat grey which I may not want on the metal parts. It also prevents over-running of paint.

The seat is quite simple to make as shown. The sides and back can be made in $\frac{1}{8}$ in. wood because it has to be sanded down to well rounded corners. Do not substitute cardboard here, it is bound to get split and then cannot be removed for replacement. This plywood does not sand well and leaves a very ragged edge.



ON THE RIGHT TRACK

(*Continued from page* 718)

reason for having kept what may be called the "try-out track" down to a simple specification as regards both the baseboard arrangement and the layout will now be apparent. Most commercially made track units are confined to a single radius of curvature, and, since these units are designed primarily to enable the user to get in a complete circle (or oval) within the width of a dining table, the curvature is necessarily sharp in relation to the gauge. Hence, because of the overhang of long vehicles, station platforms and other lineside effects cannot be located on curved sections of the track, but must be confined to the straight parts. Similarly, this fixed radius of curvature hampers the design of gradient approaches, bridges and other engineering features.

Additionally, commercially produced track units often incorporate a base which has the effect of making the train run perpetually on a raised embankment. Thus the heights of platforms, tunnel mouths, retaining walls and the like must be exaggerated to suit the track level.

If, therefore, the beginner equips his try-out railway with a considerable amount of scenic and lineside work, he may well find that much of it cannot be used when a more realistic railway is attempted, because it is out of scale in some dimension or other.

The try-out railway on the trestle table is eminently worth while, because it is the best and quickest means of getting the trains running and forming ideas for future guidance, but the try-out equipment should be chosen with one eye on its ultimate usefulness and too much time and trouble should not be expended on completing the scenic picture.

IMPROVING THE MINIATURE RAILWAY LAYOUT

(*Continued from page* 721)

difference,—that the tank engine with its coaches is accepted by the brain as a complete train, while the bigger loco and coach is not. To complete this train at least another six vehicles would be needed. Carried to extreme, one could imagine a long sixteen-coach scale train practically going right round a cramped track and having nowhere to run to—the small train in traversing this same length, however, would have gone a really long "distance". Hence the use of short stock in procuring an illusion of track length becomes obvious.

In terminal platform roads every inch of real as well as illusory space is needed, and to help this, buffers at the end should be made with a small depth or entirely deleted, their place being taken by a beam upon which buffer heads are either painted or supplied by drawing pins pushed in at the correct position. Shallow buffers of this type give all the illusion of the terminal road being correctly "finished" but without absorbing any length.

If the way you work your trains demands a run-round for the engine at the terminus, then employ a traverser as described in *Model Maker* of June, 1950. This frees the trapped engine, takes up the minimum of room and is quite sound railway practice.

An illusion of space where none exists can be given at the back of a track by building up "cut out" scenes. That is, there is a backcloth of some kind and before this is set trees and other items which are "cut outs" on card like stage scenery. The additional items need only stand an inch or so before the backcloth, but it is quite sufficient to produce a strong stereoscopic sense of depth.

Mr. J. B. Little in his "Model Railway Working" recommends the introduction of spacious scenes on the backcloth to give an added impression of bigness to a system. That is, ploughed fields stretching away into the distance, or seascapes. This writer is also of the opinion that to sharply vary land heights around a stretch of track seems to increase the illusion of length. That is, having the line at one moment on the level, then running out on an embankment, and then, say, into a cutting. It means quite a lot of scenic building round about certainly, but with permanently laid track it is wonderful how surrounds grow, and in any case much of this scenic effect needs only the broadest treatment.

A little earlier I spoke of ballasting well up to get the utmost impression of length, and in this connection it should be noted that in setting or building up the surrounding ground to rail-head level in cramped factory or goods yards does produce the sense of a much bigger area covered by the yard than when the chairs and sleepers are visible. Again this is because the eye accepts the rail heads and even the flangeways (if there is continuous check-railing) as the width of the track and not end to end of the sleepers —hence the distance between parallel tracks seems greater and the whole yard more spacious. The illusion of added area here is really very marked but it has to be seen to be fully appreciated.

And finally, if a line is artificially lit, this can (as on a theatrical stage) be used to give all sorts of illusory impressions. Generally speaking, anything which is illuminated in an otherwise shaded room looks bigger than it really is, and so lights should be directed with this principle in mind.

Thus it will be seen that illusion can really be used a lot in making a track look as large as possible, and as already opined there seems no reason why these little subterfuges should not be adopted to give the effects we require. They are used without stint in the theatrical world, and there is a close relationship between a stage scene and a model railway in its broader aspects.

A Three Float Racing Yacht

BY A. M. COLBRIDGE

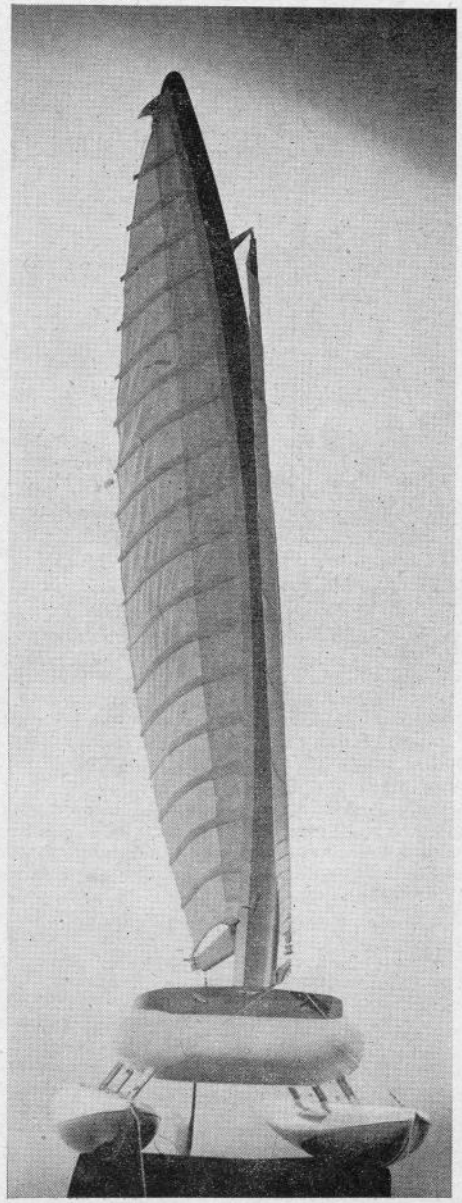
THE original catamaran layout, comprising a main hull with a single outrigged float, possesses considerable stability. Although not recognised as a racing type, yachts of this type are capable of extremely good speeds, particularly in very light winds. The catamaran layout, developed into a true twin-hull craft, is excellent for power boats, both model and full-size. Most modern power boats do, in fact, approximate to this form of suspension at high speeds, where the hull is actually skimming the water on three (usually) or four small planing surfaces. Apart from low skin resistance, the added stability achieved by a broad (virtual) beam is considerable.

The same remarks as regards stability apply to sailing craft design but the true catamaran, being asymmetric in layout, has certain limitations on this score. The same principle, however, has been extended to the trimaran or three-float sailing craft, consisting basically of a central hull with two outrigged floats, one on each side and equally spaced from the centre line. Being a symmetrical layout it can have a performance and maneouvrability factor equivalent to that of a single-hull vessel.

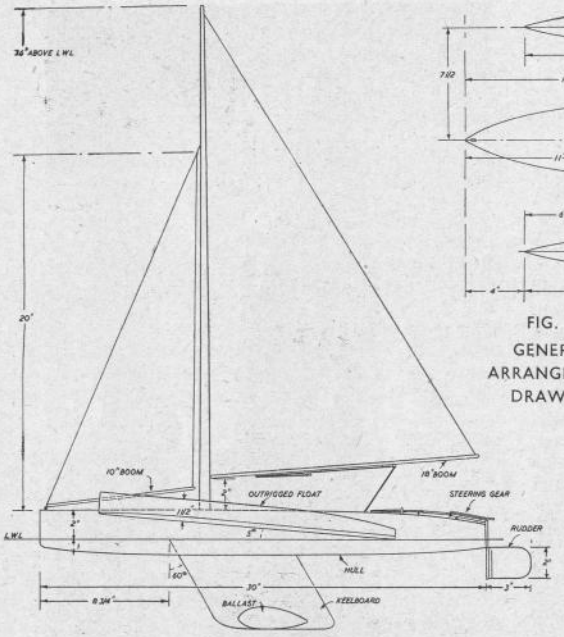
The trimaran has been tried out in full-scale practice in America and is characterised by its ability to achieve very high speeds in light winds. Under such conditions it is considerably faster than a comparable conventional yacht. Largely this is because the layout does not permit the yacht to assume a large angle of heel, hence the sails are more truly vertical under sailing conditions, and thus offer more effective area to the wind. In other words, since the vessel is not free to heel over to any marked degree, the effect is equivalent to an increase in effective sail area.

It was with these thoughts in mind that a model trimaran was contemplated. It was considered that most of the full-scale details could be retained with small modifications and the result should be a stable very fast sailing craft under light wind conditions. In rough weather it might get into difficulties, unless sailed under considerably reduced area.

Initial tests were made with a half-size model with solid balsa hull and floats which more than proved the contemplated layout. Stability was such that even in rough conditions it could usually fight its way out of trouble and would appear to retain the



A wingsail catamaran model shown at the Britain Can Make It Exhibition in 1946, designed by Messrs. Wells Coates, O.B.E., R.D.I., F.R.I.B.A., B.A., B.Sc., Ph.D., and Leslie Appleton, M.A., A.F.R.Ae.S. It was built primarily to develop the wingsail but is an excellent example of modern scientific handling of one of the oldest boat forms.



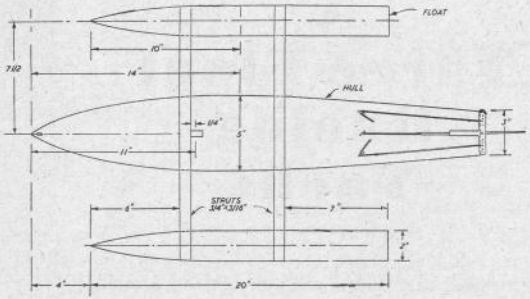
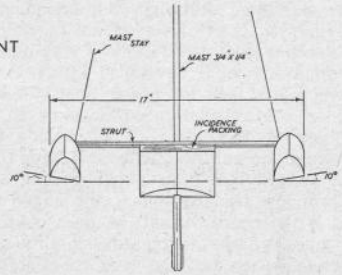


FIG. 1
GENERAL
ARRANGEMENT
DRAWING



high speed characteristics of its full-size prototype. The larger model, with simplified construction, is certainly an interesting project for anyone interested in sailing models to attempt, for it is essentially a modern design which, we feel, is capable of still further development.

The general layout is given in the main drawing, from which the main dimensions can be found. The major construction features will now be described in detail, starting with the main hull. Hull dimensions are detailed in Fig. 2.

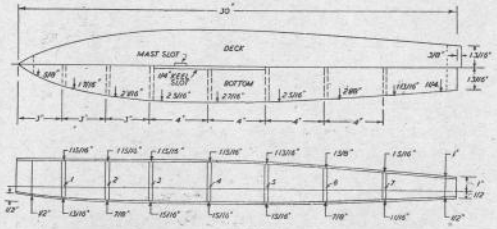


FIG. 2

Mark out a deck and bottom to the offsets given on $\frac{1}{16}$ in. ply, and cut out. Note the $\frac{3}{4}$ in. x $\frac{1}{4}$ in. slot in the deck for the mast and the $7\frac{7}{8}$ in. x $\frac{1}{4}$ in. slot in the bottom for the keelboard. All the formers are cut from $\frac{1}{8}$ in. sheet material, balsa being a good, light medium and easy to work. Each former is rectangular in shape and dimensions can be found by reference to the hull plan and elevation. Former No. 4 has a $\frac{1}{4}$ in. slot, 1 in. deep in the middle of

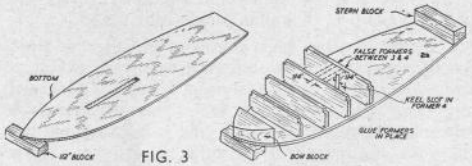


FIG. 3

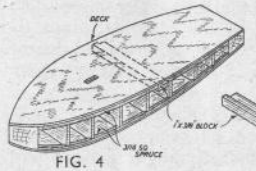


FIG. 4

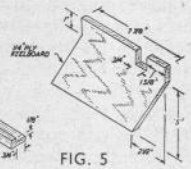


FIG. 5

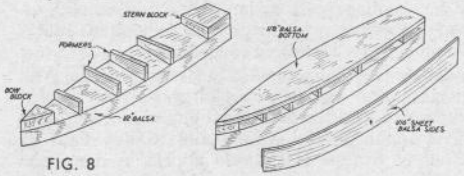


FIG. 8

the bottom side to admit the keelboard. All formers have $\frac{3}{16}$ in. square notches cut out of each corner.

Pin down the ply bottom panel on to a flat surface, with the extreme bow blocked up $\frac{1}{2}$ in., as shown in Fig. 3. Add a similar $\frac{1}{2}$ in. dia. block under the stem. Other packing blocks can be added under the fore part to achieve the required curvature, if desired. All the formers are then glued or cemented in place and shaped bow and stern blocks added. An open box is built up between formers 3 and 4 with $\frac{1}{4}$ in. sheet balsa, leaving a slot $\frac{1}{4}$ in. wide, as shown in the diagram. This box will eventually locate the keelboard.

The next stage consists of pinning and glueing the deck panel in place over the assembly, as in Fig. 3. Check that it beds down accurately on top of each former and make sure that each glued joint is a good one. A slow drying cellulose cement is probably the best type of glue to use. Only a waterproof glue should be used, in any case. Spruce strips $\frac{3}{16}$ in. sq. are then added under the deck and bottom panels, fitting in the notches in the formers. A 1 in. x $\frac{3}{8}$ in. hardwood block is notched as shown and glued under the deck against former 5, and the assembly can then be cleaned up. Sides cut from $\frac{1}{16}$ in. ply can then be pinned and glued in place. This completes the basic hull assembly.

The keelboard is cut from $\frac{1}{4}$ in. ply to the dimensions shown in Fig. 5, with a cut-out, as indicated, which will locate the mast. Assemble the keelboard in the hull bottom slot temporarily, as a check, but do not glue in place yet.

Float construction follows similar lines, but is very much simpler. The lower or planing surfaces of the floats are chamfered off at an angle of 10 deg., which is produced by cutting the former to this chamfer.

First mark out and cut the deck plan in $\frac{1}{2}$ in. sheet balsa. Use this as a pattern to cut out an identical panel from $\frac{1}{8}$ in. sheet balsa for the bottom. All the formers are $\frac{5}{8}$ in. deep at their widest side, with one edge tapering off as shown in Fig. 7. They should be cut from $\frac{1}{8}$ in. balsa and trimmed to exact width by reference to the cut-out deck or bottom.

Lay the $\frac{1}{2}$ in. deck on a flat surface and cement the formers in place, also the shaped nose and bow blocks, as with the main hull. The only difference

FIG. 6

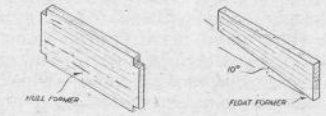
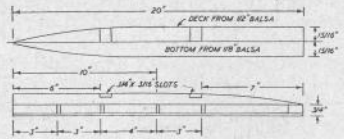


FIG. 7



is that the floats are built upside down (see Fig. 8). Cement the $\frac{1}{8}$ in. sheet bottom in place, and then trim off the formers vertical. The $\frac{1}{16}$ in. balsa sides can then be cemented in place. When set, carve away the aft portion of the $\frac{1}{2}$ in. deck to conform to the side elevation shape, and finish each float by sanding down smooth. Cut the two notches in the deck to take the struts and then, for durability, cover each float completely with thin silk. This, when doped or painted, will result in an extremely strong assembly which is not readily damaged or dented. The floats will come in for a certain amount of abuse when the model is sailed, so make allowances for this at this stage.

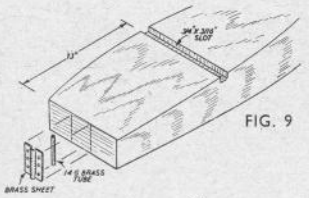


FIG. 9

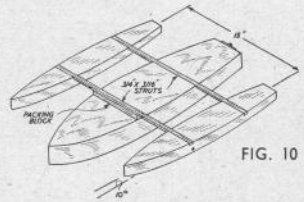


FIG. 10

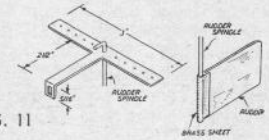


FIG. 11

With the two floats and hull complete the model can be assembled. Prepare the hull by cutting a $\frac{3}{4}$ in. x $\frac{3}{16}$ in. notch as shown in Fig. 9, this coinciding with the cross member adjacent to former 5. The rudder fitting can also be screwed to the stern block at this stage. This consists of a length of brass tube soldered to a piece of shaped brass, which is then attached to the stern block with woodscrews. The tube should be 2 in. long with the bottom of the tube flush with the bottom of the hull. This allows $\frac{1}{2}$ in. of tube to project above the deck level and carry the rudder quadrant well clear of the deck.

Hull and float assembly is shown in Fig. 10. The struts are simply 17 in. lengths of $\frac{3}{4}$ in. x $\frac{3}{16}$ in. spruce or similar straight-grained hardwood, glueing in slots in the hull and floats. To give the required float angle of 10 deg. the front strut comes above the deck level of the main hull and is actually attached by means of packing glued between the strut and the hull. This stage should be tackled with care. Block the hull up so that the design load water line is parallel with the table top and adjust the floats until they have the required angle. Then firmly glue and pin the appropriate amount of packing in place. Leave the assembly ample time to set thoroughly before disturbing.

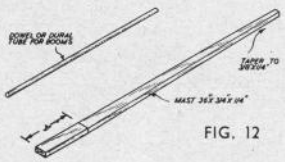


FIG. 12

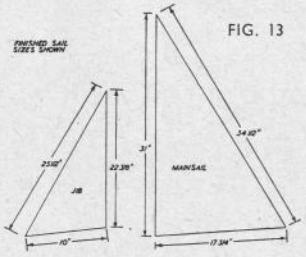


FIG. 13

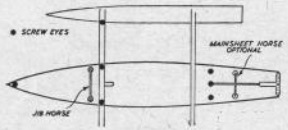


FIG. 14

After this you can waterproof and finish the hull and floats in any colour required, prior to adding the fittings and the rigging. The keelboard can now be glued securely in place, forming a fillet of glue along the entry line into the slot. The keelboard must be a close fit, otherwise the hull will leak. Pack out the slot to be thoroughly watertight, if necessary.

The simple Braine-type rudder gear is shown in Fig 11. The brass wire rudder spindle soldered to the top of the quadrant. This spindle passes through the rudder tube and the brass rudder is soldered to the lower end. The rudder projects beyond the stern and is in a somewhat vulnerable position—a point to remember in subsequent handling.

The mast is cut from a 36 in. length of good, hard, straight-grained stock. The first 3 in. is parallel, after which it tapers in width to $\frac{3}{8}$ in. at the top. Round off all edges on the tapered portion with sandpaper. The mast fits through the deck slot and down into the slot in the top of the keelboard. It is prevented from moving sideways by the false formers cemented in the hull. Booms can be cut from suitable dowelling, or dural tubing. The latter is particularly favoured by some modellers.

It is not proposed to describe the rigging in detail, as this follows standard practice, and is kept as simple as possible. The deck plan of Fig. 14 shows the main rigging points. The jib should be provided with a horse, and it is an advantage also to have a horse for the mainsail so that the yacht can be sailed without the rudder gear in operation, if desired. Sail patterns can be derived from the dimensions given in Fig. 13. Mark and cut out as paper patterns. Model sailcloth is really the only suitable material for sails, and when these are cut out, allow the necessary extra strips for the hems.

The model is sailed and adjusted on the same principles as any other yacht, except that it is less responsive to rudder and so considerably more rudder power can be used on the automatic steering gear. Best performance will only come by proper balancing, which is achieved in the first instance by adding lead ballast weights to the bottom of the keelboard to float the hull on the load water line position shown on the main drawing. If it is found desirable to add more ballast, this is quite in order, as long as the same attitude relative to the water line is maintained. In the drawn position, the extreme aft tips of each float just touch the water. It does not matter greatly if a greater draught has to be employed and more of these floats submerge when floating stationary. No specific recommendations for the actual amount of ballast required can be given since this will vary with the overall weight of the model. Different materials and different constructional technique cause this to vary considerably from one model to another.

Another tip to remember is that with models of this type it is sometimes an advantage to ballast the stern down. This is particularly advantageous for running downwind. Try this if your boat tends to "dig in" rather than plane smoothly forwards, but otherwise stick to the recommended waterline position.

MODELMAKER'S MIXTURE . . . . . .

Model Signal Operation

D. F. T. Roberts points out a printer's error in his article on this subject in the September issue of *Model Maker*.

The type of second-hand Post Office relay that should be obtained is 1,000 (one thousand) ohms. variety and not 100 (one hundred) as stated. He goes on to add: "I know it sounds a lot, but it works, and you can see it then makes sense. The particular danger in the error is that P.O. stuff is nominally 25/50 v., not 12, and someone may think that the intention is 50 v. 1,000 w = 12 v. 100 w. The 1,000 w. is intended to be used with 12 v. working NOT 25 or 50: it will even work sometimes on 6 v.! It did not occur to me that any voltage other than 12 was intended, but the use of P.O. stuff may cause some people to think that 25/50 v. is meant.

The whole point of the article was that *closed magnetic circuits multiply the force obtained by about five to one hundred times*—which the 1,000 ohms. shows in no uncertain fashion.

Posters for 4 mm. Trackside Hoardings

Messrs. ERG (Bournemouth) Ltd., have drawn our attention to a printer's error in our September review of their new Will's Trackside Posters. The set which is available at 1/10½d. including P.T., comprises *three* sheets each containing six different posters in full colours, not five as stated.

"Eedee was a Lady . . ."

GEORGE HONNEST-REDLICH'S OWN STORY OF HIS CHANNEL TRIP

Before and after : These pictures show the beginning of the trip at Dover, and finally, in murky weather, the faithful lady aboard the control launch ready for home.

The Boat

THE August issue of the *Model Maker described* in detail the proposed channel boat of "Electronic Developments Ltd." This was its first public view shortly after completion. This boat was conceived for one particular purpose only, a long duration run, the rudder control to be used for trimming more than for sharp or rapid turns. A great amount of thought had been put into the combination of boat, radio and engine, therefore it is not really surprising that from the moment it became waterborne very few alterations or additions were made as a result of the various very strenuous tests it was put through.

However, with that feeling of "just in case", a thrust race was fitted to the forward end of the propshaft and the exhaust pipe was continued upwards for 6 in. to prevent probable following waves from flooding up to the expansion box. The only other safety measures taken were to enclose all batteries in a bag of plastic material, smear thick grease over all exposed plugs, sockets and switches, and after starting the engine to run liberal strips of plastic tape over all deck and hull joints.

The cooling vents for the radiator were left open, but due to the great forward buoyancy of the hull, very little water, and that only in the form of spray, got in. The radio receiver was already enclosed in a watertight box.

After the crossing a very thorough check of all components, engines and batteries was made. No alterations or replacements were necessary, even the batteries were only 5 per cent lower in voltage. In fact the boat is running now in the same condition and with even the same batteries as during the crossing. Mechanically, any wear in either engine or propshaft did not exist.

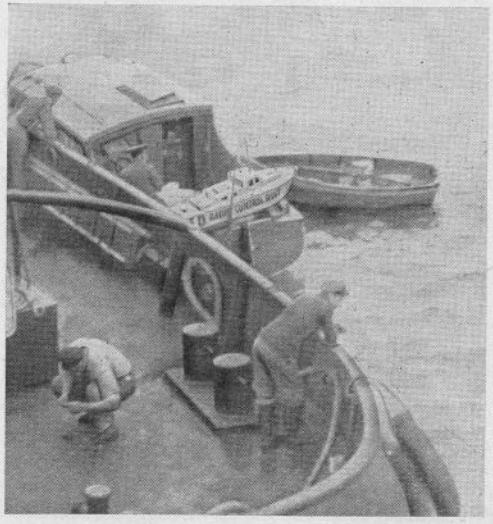
The relatively slow running engine (with my large prop., about 5,000 r.p.m.) using E.D. Standard fuel, can now be termed "run in". The good compression and yet free movement of this 4.5 c.c. marine job is a tribute to the design of Basil Miles, and perhaps the main contributing factor to the channel run.

The Crossing

The iron rungs set in the wall were cold and slippery, glancing aloft the quayside appeared higher than I had imagined. Then for the first time I realised how tired and weary I was. But we were at Calais, the dreams had become reality, the hours spent checking and re-checking designs, the practical tests, all of the thousand and one small but vital details were things of the past.

Finally, on the quayside, I turned and glanced back towards the way we had come. The dark and deserted basin of Calais harbour, the entrance between the moles, the red and green marker lights reflected in the oily swell, and the sea which now at night had lost its horizon.

Nine hours before on a morning of sunlight and haze we left the beach of Dover harbour and stepped



aboard our 20 ft. motor launch anchored 100 ft. out. All of my hopes rested in the 5 ft. hull of *Miss E.D.* which bobbed alongside. The radio had been checked, fuel tanks were full, it only remained to start the engine, fit the rear section of the deck, tape over all of the joints between decks and hull, and switch on the radio. A check of rudder right and left, then on a signal from me at 11.39 precisely, Trevor Owen released the boat.

I turned it towards the northern harbour opening three-quarters of a mile distant. Away from the shore the water was choppy, and the model pitched and tossed alarmingly, but on tests its design had proved that even under the worst conditions nothing green ever came aboard. Within a few hundred yards of the harbour entrance I could see that the Channel swell and tide combined were producing broken water as far as I could see. However, both here and later during a very rough patch the model behaved faultlessly, although of course its general speed was reduced slightly.

After 1½ hours running the coast line disappeared and for the first time we felt very small and isolated in our tiny river launch. Twenty-four miles on a map, especially in these motoring days, does not seem to be very far. It is probably that which has made us lose respect for that stretch of water separating us from the Continent.

For the next five hours we all took turns at the controls and the pent-up feelings of the departure having subsided, we settled down to boredom relieved only by the very uneven pitching of our boat. After three hours' running the only incident of the voyage occurred—we ran into a large bed of seaweed which caught up in the propeller and stopped the engine. Within four minutes this was cleared and the motor running again. We could not, however, replace the tape water-tighting the decks.

Our pilot, a Dover seaman, had chosen a course to make a landfall north of Cape Gris Nez and about six miles south of Calais. We had hoped to call the crossing done at that point within wading distance of the shore, and then turn north to Calais harbour. But after seven hours had passed without sight of land we realised that something had gone wrong.

During the crossing I had kept my eyes on the sun and with a very good instinct for direction I was sure that we had taken a far too northerly course which would, combined with a northerly running tide, put us by now north or even north-east of Calais. When I finally sighted land it was low lying and to the right of us, which convinced me of our position. Three steamers seen in the distance diverging from that point indicated a major harbour.

By now it was dusk and at that moment a light began to flash. Within half an hour we saw the red and green lights of the mole entrance and on a now oily calm sea we crawled in between them at 8.30 p.m. Nine minutes later we were in the basin, and bringing the model alongside, stopped the engine and switched off the radio.

Inside the hull was black with diesel oil fumes, but the engine was still cool enough to touch, and the tanks were still quarter full. In all, plotted on the chart, we had made an "S" shaped course of about 32 to 35 miles from harbour to harbour, and as well as the crossing, I think we can claim a duration and distance record up to date.

Crossing the Channel by one means or the other seems to be the dream of any Englishman who wants to prove his own value or the value of his products. Thirty-five miles up and down off Brighton pier would be just as good but not as spectacular. From my own point of view there is that feeling that I have, in my own little corner, lined myself up with the big names of Captain Webb, Bleriot and all of those other individualists or cranks, which ever way you look upon them. On the other hand, my wife said, "You find the queerest excuses for popping over to France every now and then, but this method is really the limit."

OUR CHRISTMAS NUMBER

Our Christmas number will be on sale as usual on the first of the month, giving time for the enthusiastic model maker to make use of the special seasonal suggestions for present making that will be a special feature of the issue. Then, as at no other time of the year, can the model maker demonstrate his skill in an appropriate fashion, and thus earn rich bouquets that may still serve their turn when untidy messes bring down a fear of family retribution.

A number of Christmas items are envisaged—here are some of the highlights : The Modelmaker's Christmas Tree with easy to make present suggestions, lists of cheap gifts for fellow modellers. Family Favourites—with instructions for a Doll's Bungalow, Doll's Furniture, Modeller's Letter Rack, Novelty Book Ends for Railway enthusiasts, etc.

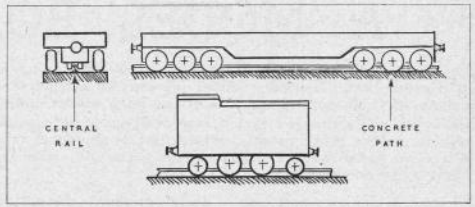
A magnificient feature article on Making Perspex Ship Models—these are six or more month projects and will NOT be ready for this Christmas.

Making a model of Emett's Festival train.

All our usual features will be there as well—the second part of J. W. G. Brooker's cunning Tool Sharpening Devices, On the Right Track, TT Feature, Improving the Miniature Layout. Another Fire Engine article by Victor Sutton. An interesting 0 Gauge Diesel electric loco, with full motor making instructions. We hope there will be a further instalment of A. H. Dadd's Eastern Region Electric Coaches. Then the Model Car Section will be there in strength, with attractive scale models and notable speedsters and another example of the new Phototype Parade.

There will be a big demand for December Model Maker—book your copy early, and remember no extra charge for this number which will be the same size as usual but packed with topical model making material.

WHY NOT "UNILINE"?



MONO-RAIL methods of travel have an interest of their own, and to the family of single-rail guidance now comes another member, the "Uniline system", invented by Mr. R. E. Hagley and sponsored by Messrs. Brockhouse Ltd. Will this in time become a new prototype for modellers? — for the Uniline train would model well, and its track be simple to lay.

In this innovation we have rolling stock which is a hybrid between the road and rail vehicle, the carrying wheels being pneumatic-tyred and running on a concrete pathway, while guiding is effected by a single centre rail engaged by vertical rollers fitted to the underside of each frame.

The vehicles are supplied with a number of axles to well distribute the weight, thus making it that the concrete path need be of no great thickness. Twelve wheels per vehicle will be quite general, arranged in groups of six at either end.

As many trucks as desired can be joined together and coupling is effected in railway style by a single central coupler which also acts as a buffer for back shunting, etc. Air-brake connection is made down a train with the usual flexible hose, and the locomotives of this new type of mono-rail are eight-wheeled units, which in railway classification would be described as the 2-4-2 arrangements, as the middle four wheels are all drivers and coupled.

With the road-transport characteristics of the stock, steep inclines and sharp changes of grade can be readily negotiated and consequently Uniline trains will be useful in the opening up of undeveloped country, and in particular for the bringing of quantities of raw material from interior locations when the building of a usual railway with its bridges, embankments and tunnels, would not make an economical proposition.

WHERE TT GAUGE SCORES

(*continued from page* 719)

It is herein that the TT gauge scores. It permits you, despite your space limitations, to keep the curves easy in relation to the gauge and so to secure far greater operating realism.

The Rokal people who are now marketing their TT gauge railway in this country have, clearly, appreciated this most important factor in realistic operation, because despite the narrow gauge of 12 mm., they have kept to the relatively easy radii of 11¼ in. and 13 in. (Note that these two radii give the requisite "6 ft. way" when a two-road track is laid on the curve.)

The result is that these sturdy trains hold down to their two-rail track in a most realistic manner, and this is accentuated by the exceptionally smooth rheostat control by which the most gentle starting acceleration and stopping can be secured.

For the moment, however, we are more concerned with the track work, because not only are there curves of two radii to choose from, but the sponsors of this railway have wisely provided a wide range of standard track lengths. Thus straight track is available in lengths of 8½, 6½, 4¼ and 2⅛ in.; the smaller radius curve in its full length goes eight units to a complete circle of 22½ in. dia., but units of $\frac{3}{32}$, $\frac{1}{16}$ and $\frac{1}{32}$ of a circle are also available as standard. The larger radius curve is supplied in $\frac{1}{16}$ and $\frac{1}{32}$ of a 26 in. dia. circle. There are thus, apart from points, uncoupler ramps and other special features, no less than ten standard track units available, and it will be seen at once that by taking advantage of this range of lengths, it is possible to lay a track with almost as much latitude as if one were using flexible material.

Not only so. Thanks to the fact that electrical continuity (as between one track unit and the next) has to be secured for only two rails instead of three, it is a simple matter to saw through the metals and plastic base with a fine metal saw and thus to secure the exact length of track required to fit the formation. Joining a standard length of sawn-off portion is merely a matter of inserting a small spring clip in slot which is exposed when the base is sawn through.

Because of the relatively large radius of the curves, the trains enter and leave curved sections without a violent change of direction, particularly if the speed is kept down to the scale equivalent of 60 m.p.h. or less the entire performance is most satisfying and convincing.

At present there is no acute crossing supplied with the Rokal equipment, but advice has it that this is well on the way and its addition will permit of the fabrication of single and double slips as well as the ordinary facing or trailing crossovers, which can be made from the existing right-hand and left-hand points. From the foregoing it will be seen that the great advantage offered by the TT gauge is that it enables an extensive layout to be put down in a confined space, without making it necessary to resort to unduly sharp curves.

A curve of 3 ft. radius in 00 appears as a sharp curve—in TT it becomes a majestic sweep that adds immeasurably to the realism of the moving train.

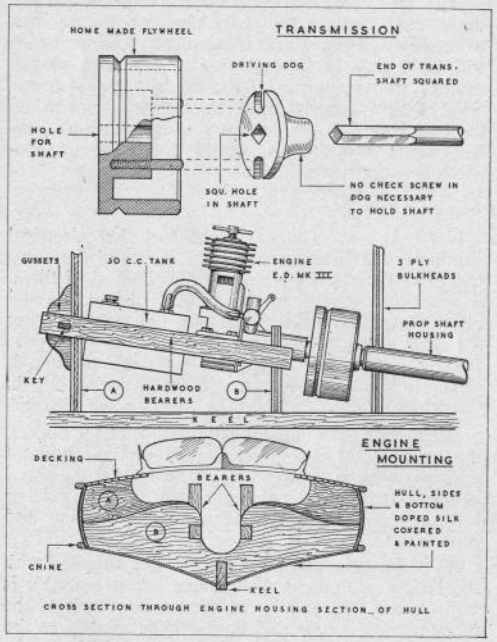
TT track can, of course, be constructed in the home from rails and sleepers just as readily as 00 track, and we shall have more to say about making your own TT permanent way in a forthcoming issue.

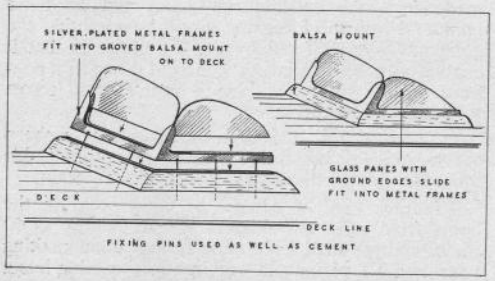
A MODEL BOAT IN MYSORE

This little article from D. Hardaker, a hydraulic engineer in Mysore State, Southern India, presents so attractive a picture of trials and tribulations of the keen model maker in far off parts that we feel it may well serve as a counterblast to the more prosaic adventures on the local lake where no hazards more dangerous than the old swan are likely to be encountered.

In spite of distance and lack of design guidance the author has made an elegant little craft, fabricating many of the parts that happier placed modellers would acquire over the counter.

The illustrations show something of his magnificent boating water, though the crocodiles have not obliged by appearing before the camera.





I ENCLOSE some photos of my first attempt at a cruiser in which you might be interested.

It is built entirely of balsa and is entirely my own idea and design, though I have seen very little of such craft. In fact I have not copied the general arrangement from any other craft because I have never seen one actually except in photographs and even then it's my own design and arrangement and not copied, either, from any photograph.

I have built another cabin cruiser which uses the same engine and is almost the same length and beam and I have christened her *Blue Arrow*. She is also a lovely model but somehow *Ricochet* appeals to me and looks snappier. I have also built the Frog Whippet hydroplane, and am so thrilled with the realistic performance of them all that I want to do a lot more of it.

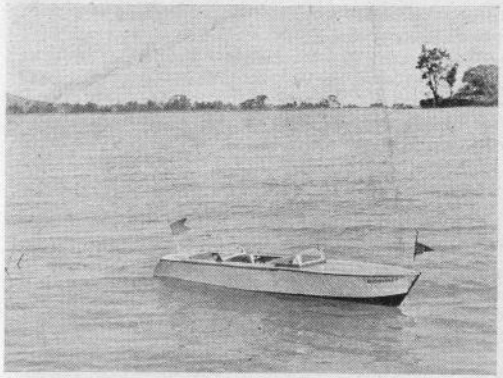
I intend to use the E.D. Mark IV in *Ricochet* as soon as I get the engine out from abroad (U.K.) in the very near future, and see how the performance improves.

Being the very first time I ever built a model boat and tried it you may be sure I was absolutely dumbfounded to see *Ricochet* shoot off and skim along so marvellously.

We have a lovely large open reservoir here which is used for balancing the supply and draw-off of water for the two 12,500 h.p. turbo-generators (of which I am in charge) we have in the Generating Station here.

The reservoir is less than two miles distant from my home and has the main highway leading to it so it's easy to get to. Furthermore its banks are grassy and there is absolutely no embankment for most of its circumference (which must be easily 3-4 miles) so it's ideal for models—even if they crash head on (as *Ricochet* did on her maiden trip) there's absolutely no danger of a smash-up, the water level being almost level with the banks. In other words shallow so boats have a ready-made natural cushion of thick grass to take the shock of impact.

Well, after I had some idea of *Ricochet's* performance I made many little runs with her and she was wonderful. I thought "why not do a duration run?" and see if she could cross the reservoir. I had a home-made 30 c.c. tank fitted. I was using less than 1 c.c. of fuel for the tests, so making a rough calculation that 15 c.c. of fuel should see her easily across I filled up, got her all ready and started up the engine. I let her go! Off she shot shooting forward most gracefully as the water churned up in a flash behind her and again she was gone leaving a most beautiful and realistic wake, and skimming along at an amazing speed. A wonderful sight indeed as her graceful, slim, shiny body just glided along, the very busy little engine humming away at top speed and taking her full out for the wide open and deep centre of the vast stretch of water. We



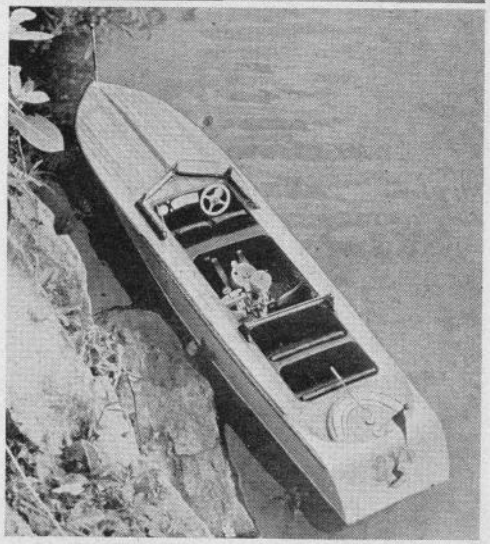
waited a few minutes—no signs of her yet, and I was beginning to get nervy over it when my eye caught a flash of light. But surely she wasn't moving at all or she'd have reached us in a few seconds, and then I could no longer hear the engine sound. Not enough fuel—it must be! So far out a mere speck and right in the dead centre of that vast expanse of water my precious, lovely little model, bobbing about so alone and helpless on the waves.

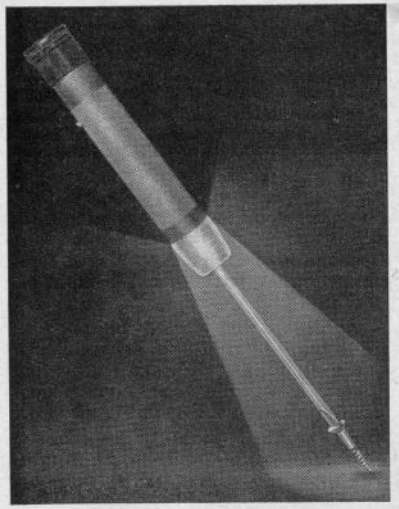
I jumped into my car and raced down to our workshop, collected four 50 gallon capacity empty oil drums and some rope and bamboos and rushed back to the spot and got some of my coolies hastily to construct a raft.

But lo and behold what should I see alongside her now and then but a long black rugged object! What could it be? Some driftwood? Some tree washed along from somewhere? Then suddenly it dawned on me with a crash it was a huge crocodile! I had forgotten that there were two of them, each well over 12 ft. long that lived in the reservoir. Well, though I knew that these creatures were not partial to a snack of balsa wood and silk, etc., I was afraid that the attractive colouring of *Ricochet* might make the savage old thing take a bite at it!

What a predicament to be in! Well, we all yelled together at the top of our voices and this had the desired effect for immediately the large black form slowly began to submerge like a submarine and disappear from sight. At long last the raft was completed but imagine our disgust and dismay to find that the wretched thing floated too high off the water and was very unstable; besides, the paddles we had weren't long enough and we hadn't poles long enough to push it along. The raft after all that trouble was useless.

I'd started the test runs at 8 a.m. in the morning and it was now nearly 2.30 p.m. and we were still at it! There was nothing left to do but sit down on the shores and wait until the breeze blew the model ashore. The water had, however, calmed down by this time and a slight breeze kept steadily on and *Ricochet* came to shore at 5.30 p.m.





OUR morning post is always regarded as something of a daily adventure. Letters are neatly stacked and opened first, followed by the more identifiable packets, leaving the pleasure of opening parcels to be our final task. When wholesalers have provided items for test and report we fear the matter of attending to correspondence is shelved until we have looked them over carefully, taken them along to our co-editor for mutual inspection, photography and test.

In asking wholesalers and manufacturers to submit their goods for our review we know we are pandering to some extent to our own pleasure in handling them, but we would also add that there are far too many to go out and buy them all even if we were argus-eyed enough to search them out, and it is only by sending them along that we can deal with them. When we add that our readers no doubt share our own interest in these items we are sure that all and sundry will help in making this a live feature to everybody's ultimate benefit.

The Spotlight Screwdriver "Minor"

Submitted by John E. Buck & Co., 47 Brewer Street, Piccadilly, London, W.1. Price 6/9d.

This little screwdriver which forms our heading picture has for some time been available in a larger or "Major" version and proved its value in no uncertain fashion. The "Minor" has been introduced for the radio and electrical trade where a smaller size is handier—and has an immediate value to the model maker. Its great feature is the installation of a torch in the handle which illuminates work in dark or inaccessible places. Anyone who has fiddled in the dark with someone else trying to keep a light on the work will appreciate what a boon this is.

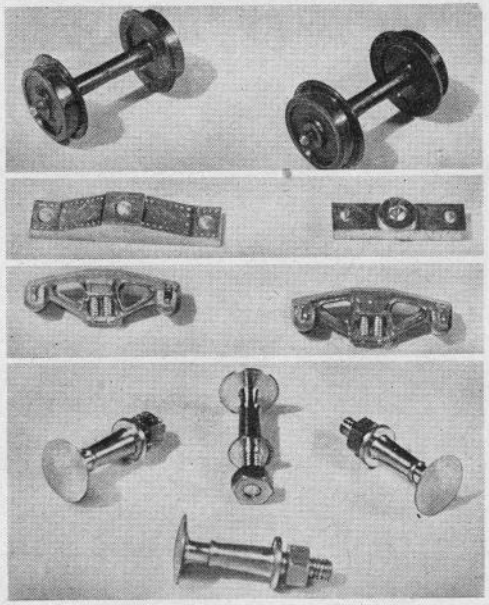
Overall length is $6\frac{3}{4}$ in., blade is $\frac{1}{8}$ in. x $2\frac{7}{8}$ in., set in a lens of transparent plastic through which the beam of light shines. A standard pen-cell provides the light source. For electricians we are happy to say the screwdriver is shockproof.

On-off movement of the light is operated by screwing or unscrewing the end-cap. There is no fear of wasting power by accidental turning on in the pocket—a fault we have found with some pen-cell torches.

The manufacturers inform us that reasonable supplies have been distributed in most parts of the country but, if local suppliers are not yet stocked, the manufacturers will be happy to send off individual screwdrivers post free on application with remittance. A little early for Christmas perhaps—but half-a-dozen would be a good buy for assorted model making friends and save the personal toolbox from early despoilment.

. . . TEST BENCH

A REVIEW OF NEW ITEMS FOR MODEL MAKERS



HO Gauge & 0 Gauge Parts

Submitted by James Rogerson Ltd., 30 Chertsey Street, Guildford, Surrey. Various prices.

Heading left : The Spotlight Screwdriver "Minor"—posed with light on turning a screw.
Left : Some of James Rogerson's new HO and O accessories, from which some idea of their quality can be gauged.

We are always glad to receive items from Jas. Rogerson Ltd., for, as *practical* model engineers, they can be relied upon not to waste their money or their customers' on anything that will not stand up to critical examination.

Some of these items are illustrated on the left. First there are 10.5 mm. dia. disc wheels moulded in hard plastic for 2- or 3-rail at 1/- per pair. Similar sizes in brass for 3-rail only cost 2/6 per pair. We have inspected the plastic variety and are amazed at the smooth high quality of the moulding. They are turned to the American N.M.R.A. standards and will run satisfactorily on 16.5 mm. gauge on track laid to B.R.M.S.B. dimensions.

The die castings, some of which are illustrated, approximately full-size, are in a lead base alloy of excellent quality. These, by the way, are manufactured in the Dominions, so that their purchase is all to the good for balancing Commonwealth trade returns. A whole range of truck parts are available from stock in HO gauge or to order (about eight weeks delivery in 0 Gauge). As a guide to prices body bolsters sell at 6d. each including P.T. Additional items shortly to be available will include freight car ladders, solid knuckle couplers and brake wheels. Some of these items are essentially for rolling stock built to American prototypes, but others are of universal application.

Finally, bottom illustration, there are the very elegant 0 Gauge Wagon Buffers in brass. These retail at 1/7d. per set of four, including P.T., a figure we had to check to really make sure it was not a mistake!

Tailstock Die Holder

Submitted by Mechanical & Model Supplies, 39 Kings Road, St. Leonards-on-Sea, Sussex. Price 7/6d. or by post 7/9d.

This very useful little tool has been produced for use with a wide variety of the smaller home workshop lathes where a great range of accessories is not available. Several internal diameters are in standard production to suit lathes with tailstock barrels of around $\frac{1}{2}$ in. to $\frac{3}{4}$ in., with centre heights of about $1\frac{3}{4}$ in., such as Super Adept, Lane, Flexispeed, Wakefield, etc., for which no suitable dieholders previously existed.

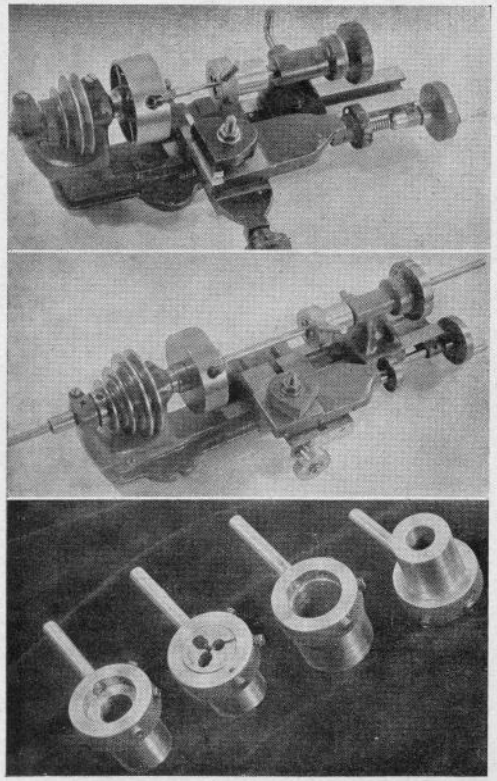
As no screwcutting gears are fitted to these small lathes users must depend on dies for all screwcutting. Dieholders depending on Morse tapered pilots leave little or no room between die and chuck or saddle, while the often excessive overhang on their small tailstocks makes good work difficult if not almost impossible.

Special advantages of the M. & M.S. dieholder can be summarised as follows: —

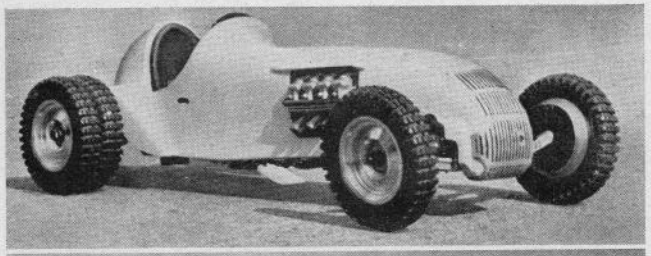
1. Maximum space between die and chuck.
2. Overhang reduced to a minimum.
3. Best possible alignment—the end of the tailstock barrel pressing on the face of the die evens the pressure (provided both faces are clean!)
4. Ability to screw any length of rod that will pass through the tailstock barrel, with the dieholder fully supported the whole time, thus a true thread can be cut for the whole length.

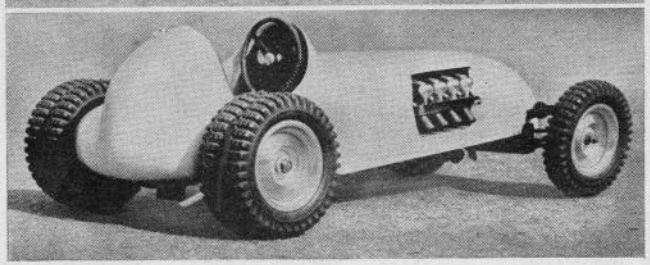
In ordering this almost essential accessory readers should quote the make of lathe for which it is required and also give diameter of their tailstock barrel. In many non-standard instances the makers can make one up to suit—a valuable service where little-known lathes are concerned.

We have had one made up for our Portass and find that it does all that is claimed for it—in fact for one or two off screwing cutting it is simpler than setting up a more elaborate screw cutting lathe. The moderate price of 7/6d. could well be saved in the first job where it is used and machine-made screws need not be bought.



Mechanical and Model Supplies' Tailstock Dieholder in use on (top) a Super Adept lathe, (centre) a Lane Microlathe. Bottom picture shows a selection of several sizes, front and rear faces, one with dies fitted in place.





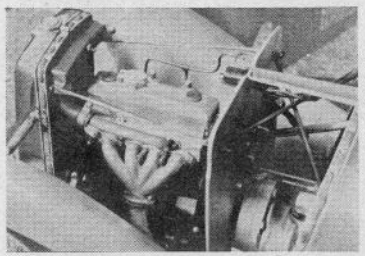
Left : Two views of the Steyr-Allard sprint car, built by A. L. N. Stephens of Kingston, which won a first class award at Staines.

Right : Underside of the Allard model, showing the arrangement of the Stentor engine and electrical components, and a head-on picture, showing suspension details.

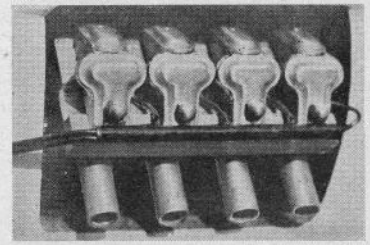
Bottom right : The magnificently detailed model M.G. Midget in unfinished state, built by F. H. Buckley and on view at the Staines exhibition.

G. H. DEASON RECORDS SOME FINE EXAMPLES OF

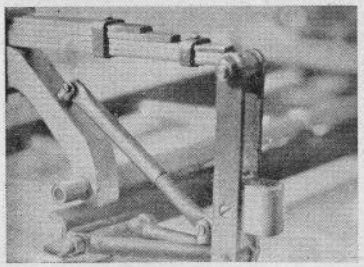
MOTOR MODELLING AT STAINES



Left : Exhaust side of the true-to-scale P. Type M.G. engine in F. H. Buckley's model, which is electrically driven.



The realistic dummy valve gear visible on either side of the Steyr-Allard's bonnet.

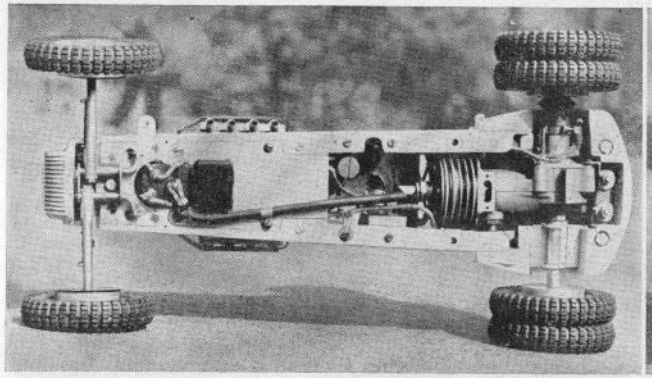


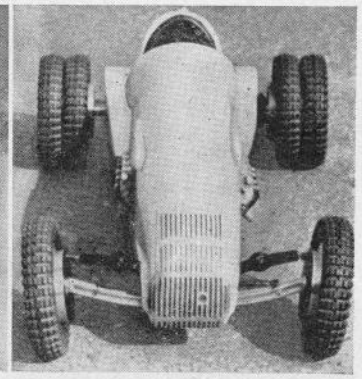
Close-up of front suspension fitted to E. E. U. Rogers' working model Cooper 500 chassis.

THE Staines Society of Model Engineers held its Annual Exhibition on September 29th, and even had the writer not been engaged in judging duties, the journey would have been more than worthwhile if only to inspect a number of fine examples of car modelling which were on view there.

The most notable of these exhibits was F. H. Buckley's large scale model of a 1935 P. Type M.G., which, being incomplete, was not entered in the Competition Section, but which is nevertheless probably one of the finest examples of scale car modelling to be found outside the Science Museum. Obviously in an exhibition specimen of this kind there can be no question of installing an engine of working type, unless it be a perfect replica of the real thing, so an electric motor has been substituted, cunningly concealed, and a fully detailed o.h.c. unit meets the eye. And in this case fully detailed is an exact description, as will be seen from the illustrations reproduced here. Practically every item to be found on the original is included in the model, down to such details as Jubilee hose clips and the anti-rubbing tapes under the bonnet.

The chassis and transmission are faithfully done, and all pedals, cockpit controls and instruments appear, although the facia is not yet finished. The bodywork is beautifully made, being of composite construction in brass and copper sheet over framing, the copper being used for the more intricate curvature such as the scuttle with its characteristic wind deflectors. The rear slab-tank is another fine piece of craftsmanship, having the correct pressed-in fluting for greater rigidity. Trafficators are fitted, and lights and horn work from their respective switches. The hood frame and tapes are fitted, but the hood cover remains to be made. The wheels have been well done, although possibly the tyres fitted were a shade out of scale to the 400 x 19 Dunlops of the original. Altogether a most magnificent piece of craftsmanship, more in the tradition of the small locomotive purist than any model car we have seen to date.





Of different character but equally appealing in its way was A. L. N. Stephen's trim model of the famous Steyr-engined Allard which won the Hill-Climb Championship in Sydney Allard's hands in 1949. One of the most interesting features of this car was the fact that it was built in Abadan, and therefore has a strong topical flavour. Moreover, the only data available was that obtained from photographs, which proves our oft-repeated argument that really satisfying results *can* be achieved by this method if all else fails, and although it might be possible to fault such a car by careful checking with tape measures and dividers, this seems to be of small import if the resulting model is not only immediately recognisable, but gives pleasure to the eyes of the expert and the discerning enthusiast, virtues which are sadly lacking in many so-called "scale type" models at the present time.

The single-seater Allard is built as a working model without any claim to outstanding performance, but a number of features of the original are retained. The scale is 1/9th, an unusual one probably dictated by the possession of a set of 600 x 16 Dunlop "Sports" tyres which fit in very reasonably with the general scheme. The bodywork is of wood and aluminium, the short tail and nose piece being blended into the lines very neatly. Such portions of the well-known V8 air-cooled Steyr engine as are visible on the full-sized version, which include the valve gear, rocker boxes and short exhaust stubs, are reproduced as dummies in the model, and look extremely

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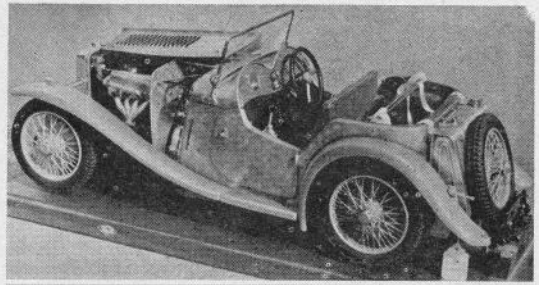
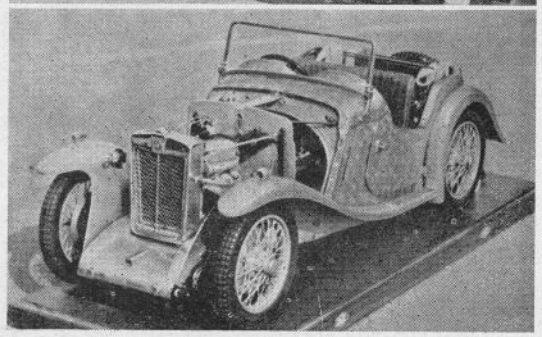
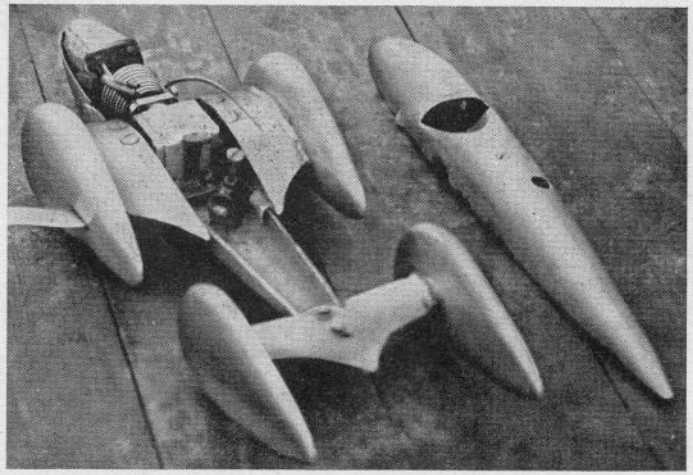






Portrait of a Record Breaker

BEING A SHORT DESCRIPTION OF ALEC SNELLING'S AMAZING LITTLE STREAMLINED 2.5 C.C. RECORD BREAKING MODEL

IT is improbable that when the 2.5 c.c. racing class was first inaugurated, and that was some time before the M.C.A. officially recognised its existence, anyone had the faintest idea of the fantastic increase in speed that was likely to be achieved in the course of the next two or three years. Owing to the fact that the 2.5 c.c. class is the undisputed domain of all-British engines, and the most fertile ground for the development of home-built units, a tremendous amount of interest has been aroused by it, despite the comparatively lower speeds obtaining, and most valuable lessons have been learnt.

Outstanding in this class at the time of writing is that remarkable little projectile designed and built by Alec Snelling, and known by its owner and his friends as The Thing. Appearing for the first time early in the 1951 season, at Surrey and Edmonton Club meetings, it shook the experts somewhat by bettering 70 m.p.h. as a regular performance by a substantial margin, and crowned its brief career, as model racing fans will know, by winning the M.C.A. Speed Championship in its class at Cleethorpes and establishing a new British record for the Quarter Mile at 84.11 m.p.h., against a championship-winning speed of 71.65 m.p.h. recorded by F. G. Buck in 1950.

To realise that Alec has something quite out of the ordinary in this small bundle of dynamite it is only necessary to look at it, for externally it is of arrestingly unusual appearance. Basically it consists of a slim tapering nacelle which fairs-in the horizontally disposed engine, and a streamlined spat enclosing each wheel. Naturally, however, you don't crack records on the strength of a futuristic appearance alone, so we asked Alec to allow us to publish a more detailed description of the car.

To deal first with the engine, some folks may be surprised to learn that, unlike so many other successful engines which have powered the Snelling brothers' cars in the past, this is not a home-built job, but is a modified Oliver unit. It was, in fact, one of the first six plain-bearing "Tiger" engines, built by John Oliver after his return from his successful trip to Sweden with "Busy", in 1949. In 1950 John built in ballraces at Alec's request, and this year it was considered advisable to bolt down the barrel, but the original 1949 barrel and crankcase are still in use. Alec admits to having "played about somewhat with the rotary valve shape and timing", and he has also added a long induction pipe and slightly increased the venturi size. This disposes of the power unit as it exists today.

On the subject of fuel for the car's high speed runs, we cannot supply such definite information, since Surrey Club member Jim Dean looks after this end of things, and Alec says that apart from believing that it is paraffin based, with nitrate content and about 12 per cent ether, he doesn't know any more about its other additives, which are on the secret list. For reference purposes it answers to the name of "No. 10".

The bodywork is of 18 gauge aluminium, beaten over a wooden former. It is in two halves, no welding being required. The wheel spats are made in three sections and welded together. These are detachable, being held in place by clamps round the axles. When "The Thing" was designed last winter as a potential record breaker, it was obvious that a very low frontal area and good aerodynamic form were essentials. At the same time it was decided to employ front wheel drive to ensure maximum traction, as it had been noticed that rear drive lightweights with direct transmission had a tendency to stand on their tails on meeting the smallest bump, thus losing valuable wheel grip. In order to get as much weight as possible over the driving wheels the fuel tank was placed in front and sundry bits of lead were attached here and there, the sum of which brings the centre of gravity about the wheel centres. The venturi was brought inboard, by means of a long induction pipe for two reasons, namely to keep the air intake away from th eddies round the bodywork, and to bring the jet line somewhere near the centre line of the tank. This layout pays dividends, evidently, for no mixture troubles have been encountered, and settings remain constant for all distances from a quarter to a mile.

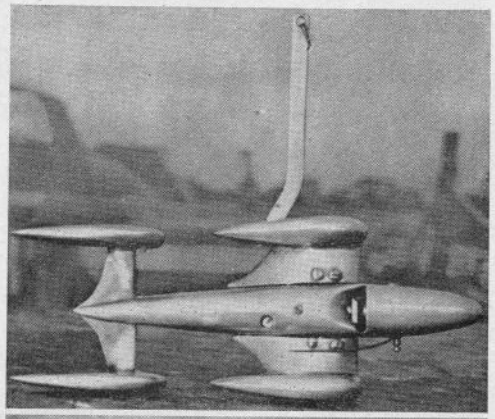
Wheel diameters, of course, play an all-important part in a direct drive car of this type, and the drive wheels in this case have been cut down to $2\frac{1}{16}$ in., giving something like 14,000 r.p.m. on full bore, which seems to suit this particular engine. On the question of the value or otherwise of the wheel spats Alec is non-commital, saying that he hasn't carried out comparative tests, but that since the car is fast enough *with* them and astonishingly ugly without them, why worry? His bet is that they make very little difference—but this view is at least open to argument. In the full-sized field there has been an increasing tendency to search for additional miles per hour by the expedient of improving air-flow and decreasing frontal area, rather than to attempt to extract still further b.h.p. from already over-stressed engines, with a consequent loss of reliability. If this line of development has paid dividends, as it undoubtedly has, not only in racing cars but among the sedater road vehicles, it seems all the more likely to prove a vital factor in model record car development, and more particularly so where the under 2.5 c.c. classes are concerned. It would seem that the small single cylinder two-cycle engine is nearing the ultimate in its already astonishing power output, with further experiments in fuels as one of the few remaining avenues of approach. Under these circumstances Alec Snelling's experimental streamlined envelope has considerable significance, and would seem to point the way to other aspirants after record-breaking honours, despite Alec's modest disclaimers as to its value.

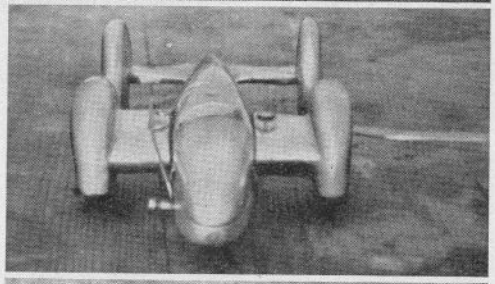
We feel that a great deal of credit is due to its builder particularly so as he has always been willing to pass on his experience to fellow enthusiasts. He, with his brother E. V. Snelling, together with the Olivers, father and son, have certainly shown the way so far as small compression-ignition engines are concerned.

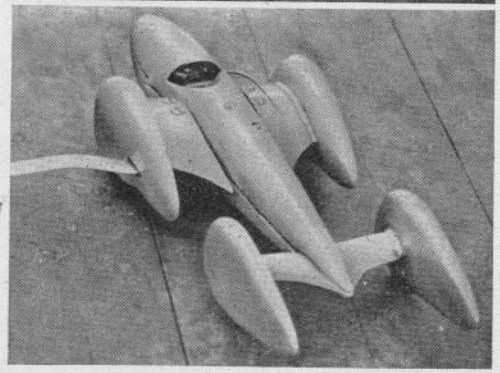
Main dimensions of the car are as follows:—

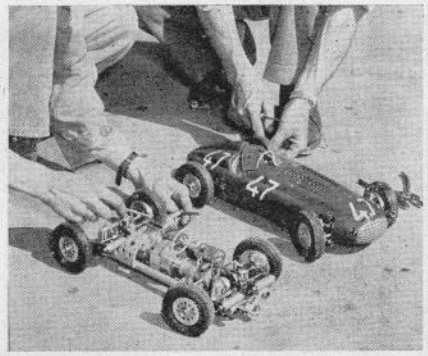
Overall length, $13\frac{1}{2}$ in.; Overall width, $5\frac{1}{4}$ in.; Wheelbase, 6 in.; Track (front), $4\frac{3}{4}$ in., (rear) $4\frac{1}{4}$ in.; Body width, $1\frac{1}{2}$ in.; Height $1\frac{5}{8}$ in.; Length, 12 in.; Weight, 2 lb. 2 oz.

(Left and below): The Snelling-Oliver streamlined record car shown from several angles. Its appearance is as sensational as its performance, which is now approaching the 90 m.p.h. mark. The view on the left, with body top removed, was taken after the lead ballast weights had been removed for greater clarity, and show the simple layout and inboard air intake which has proved most successful.

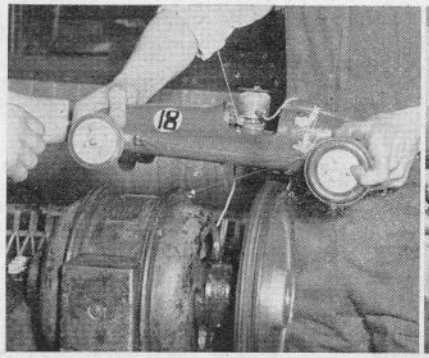


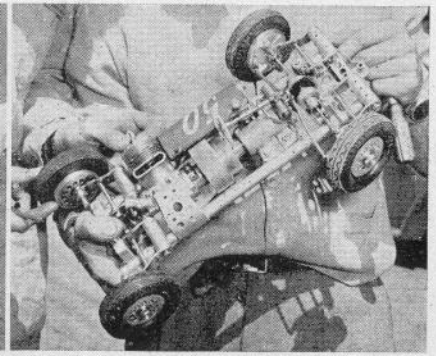






Here There & Everywhere





MODEL makers are an International brotherhood, interested in each other's activities and achievements no matter how many miles apart they may be. We are always pleased to receive news and views from abroad, and to put our readers in many countries in touch with one another for the furtherance of our mutual interest, model making and model sport. This month we are publishing a selection of items, from Italy to Tasmania, which show how live is the interest in model car racing in far-away places.

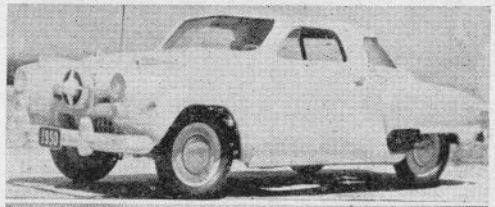
Firstly, that very active body, the Auto Model Sport Club Italiano, which is affiliated to the Automobile Club of Italy, staged part one of the Italian Championship at Milan, and received 49 entries in three classes and the Midget class. Several national records were established or broken during the meeting, recorded by electric timing in the charge of two representatives of the Italian Timing Federation. A points system of scoring is employed, the aggregates over the season being taken into account for the 1951 Championship.

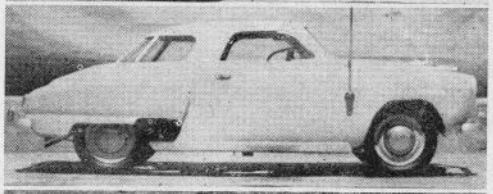
Class A, for 2.5 c.c. cars, was run over 300 metres, and was won by Remo Galetto's OSAM at 33.33 m.p.h. Fastest entry in this class was Felice Riva's G.20 Tiger engined job with 41.8 m.p.h., recorded on one run only. In the 5 c.c. class, over 500 metres, best speed was scored by Piero Casanova, of the Scuderia Dorica, with a Dooling 29, at 61.5 m.p.h., the first four places going to engines of this make, fifth being a Torpedo. The only Italian engines running in this Class finished 6th and 7th respectively at speeds of a little over 40 m.p.h. Class C (10 c.c.) again fell to a Dooling entered by Piero Rozzi with a best speed of 77 m.p.h., second being C. Carugati's McCoy at 63.2 m.p.h., an Elia 10 coming third at much lower speed. The Midget Class, which appears to consist of American speedway models of Thimbledrome persuasion, was won by Felice Riva with a 19 McCoy powered model.

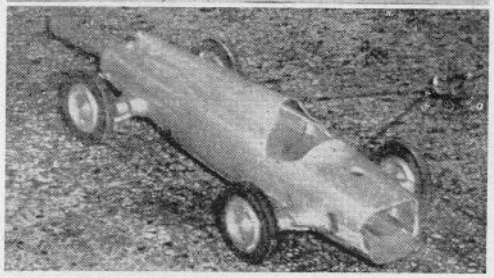
From the foregoing it will be seen that although the American motors seem to be scoring as heavily there as here the speeds generally achieved are far below those of British owned models similarly engined, which in view of the Italian ability to extract vast power outputs from small engines in the motor cycle world is somewhat puzzling. True, to judge from pictures received, many Italian models appear to be extremely elaborate pieces of work, and many home constructors cling lovingly to transmission by woven belts, and employ some very fancy forms of independent suspension, which may account for some loss of efficiency. Not all the cars are of this type, however, so we can only suggest a course of Mr. Howard Frank's instructive lectures!

Another Italian meeting run under the auspices of the A.M.S.C.I. was the Olivetti Grand Prix, organised by the Workers' Recreation Centre of the well-known firm of Olivetti typewriters at Ivrea, near Turin, an event open to 5 c.c. models only. Here reliability seems to have been rather higher than in Milan, and four new Italian records were put up. These were 250 metres, 67.38 m.p.h. (Franco Conte), 500 metres, 62.83 m.p.h. (Franco Conte), 1,000 metres, 50.02 m.p.h. (Arturo Leuzinger), and 500 metres, 46.1 m.p.h. (Elia Bengalio). The Grand Prix itself was won by Leuzinger at 60 m.p.h.

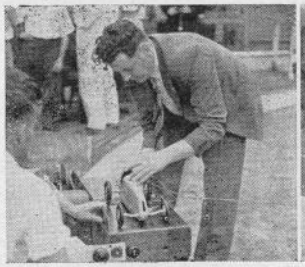
Hopping now from Italy to Germany, we have some further snippets relating to that astonishingly ingenious builder of unusual power models, Herr Jaeger of Gomaringen. Readers will recall a description in our June issue of a most ambitious eight-cylinder engine in an Auto-Union chassis, equipped with a three-speed gearbox on the back axle. Despite further researches into this interesting subject with the help of the German hobby journal *Mechanikus*, Herr Jaeger has proved somewhat elusive, although we were recently visited by a member of the U.S. Air Force who had seen the Auto-Union at the Stuttgart Club. Now, however, our editorial friends of *Mechanikus* have provided further evidence of this versatile craftsman's work, in the shape of a

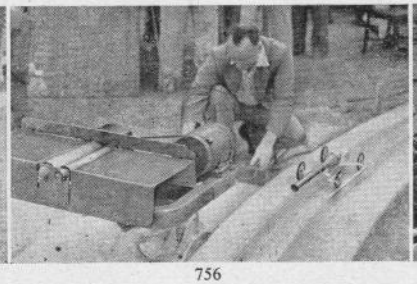


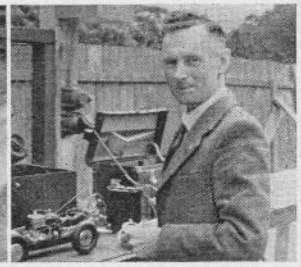




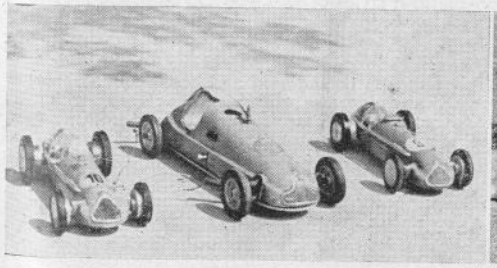
(Above, left and right): Two interesting entries in the Milan meeting, one clearly Ferrari-inspired. Track scene is at the Olivetti Grand Prix, the car being Sig. Cirani's. (Below): Three Australian snaps showing R. Boardman with his Lightning Dooling, a jet-model about to be demonstrated, with the swing-over car starter in background, and our correspondent, E. H. Price in his pit.

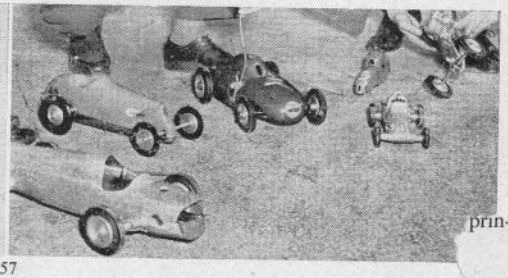






(Above): Milan models. Bruno's conventional model and Lazzaro's highly complex chassis with full suspension. (Centre): The Studebaker by A. Hawthan of Tasmania, and a ferocious Dynajet model at Milan. (Below): More Italian varieties at the Championship meeting.





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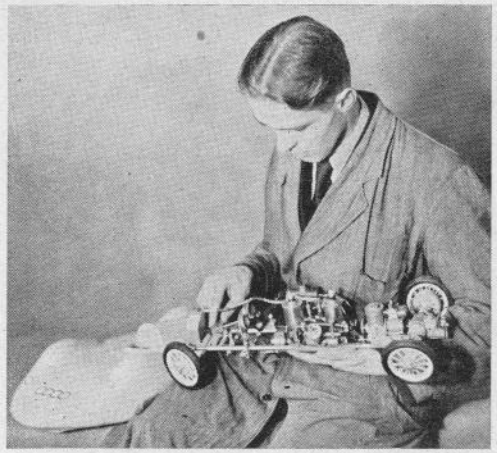
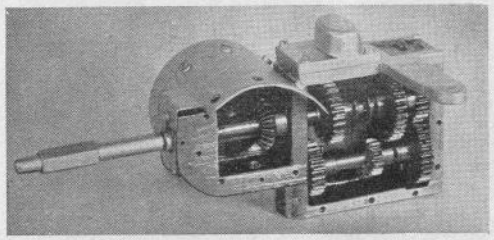
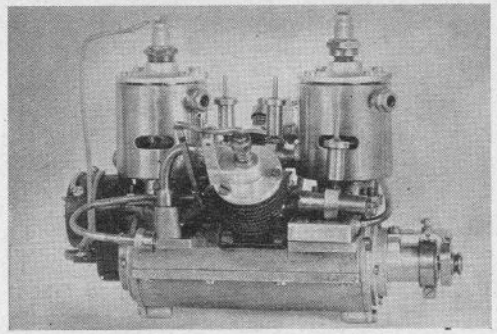
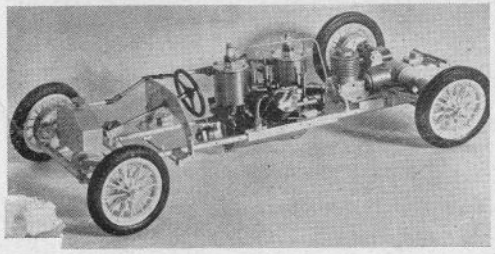








detailed photograph of the gearbox with cover-plate removed, and an entirely new engine of intriguing design. This engne was built in 1942, and was presumably installed in the chassis prior to the eight-cylinder unit. It is a water-cooled two-cylinder design, with separate water jacket to each cylinder. Total capacity of the firing cylinders is 10 c.c., and the engine employs a supercharger in the form of a pumping cylinder set, as will be seen, between the firing ones. Inlet to this is controlled by means of a push-rod operated overhead valve working from a cam on the crankshaft, but we admit to being completely baffled by the purpose of what appears to be yet another compressor, seen in the chassis picture, driven by the transmission shaft. Long water off-take pipes pass forward from the engine to a working radiator set low in front. This shell presumably contains a tubular cooling element, and is liberally perforated with air holes. We leave readers to speculate on the practical problems involved in so ambitious a layout, which should give them plenty of mental gymnastics.

News from Australia isn't quite so up-to-date as it might be, but our old friend E. H. Price has been keeping at the top of the record bill, both at Como Park and in Sydney, where the $\frac{1}{32}$-mile track is operated with a double cable, cars running without self-contained ignition, and thus having it's own special record figures. Price's Dooling has turned the latter track at 108.75 m.p.h. with the temperature in three figures, whilst his home-built car managed 98.7 m.p.h. At Como Park, a 1/24-mile track, the Dooling did 115.2 m.p.h., another new record, and the home-built job stepped up to 105.1. In the "Mite" class J. Rowles's McCoy clocked 61 m.p.h.

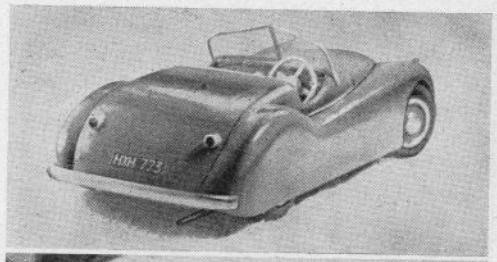
Finally from Launceston, Tasmania, comes a packet of pictures from A. Hawthan of the Launceston Society of Model Engineers, showing three models of his own construction. Two are straightforward single-seater racing models of nice appearance, fitted with 10 c.c. engines. One is based on the Buck 2A, has a Whirlwind motor driving on the front wheels and does some 50 m.p.h., whilst the other is a neat rear-engined car with all independent suspension, using knee action at the front and coil springs at the rear, the model managing 72 m.p.h.

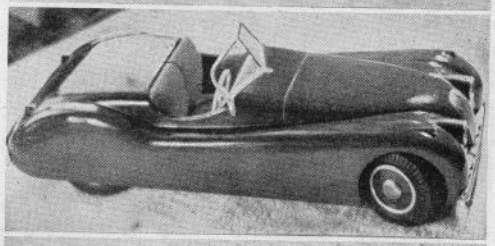
The third model from the Hawthan stable is much more unusual, being an excellent replica of a 1950 Studebaker sedan, one of the more advanced of American styles of that year. The whole job seems to have been beautifully done, the bodywork being built of King Billy wood (a new one on us!), and being 17½ in. in length. Power is a 3 c.c. engine of the builder's own design and construction. Again knee action front suspension is fitted, with leaf springs on the back axle. The model was built mainly for exhibition, and took ten months of spare time, but is a creditable runner with a maximum of some 30 m.p.h.

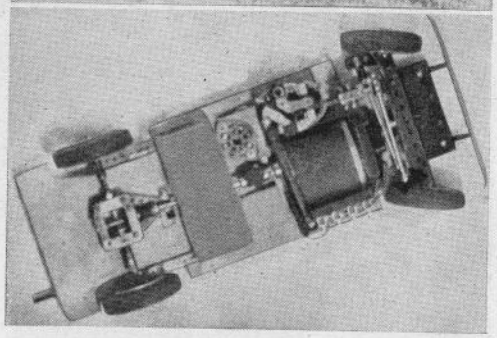
Various views of the unusual model built by Herr Jager, including three-speed gearbox, supercharged twin cylinder water-cooled engine, and the complete chassis.

REMOTE CONTROL

RECENT ARTICLES HAVE EVOKED RESPONSE FROM W/O LILLEY NOW SERVING IN AUSTRIA







The slick looking Jaguar XK 120 built for remote control by means of a flexible multi-core cable on a swinging arm. Windscreen wiper motors propel the car and operate the steering, and a speed of 12 m.p.h. is possible.

THE application of remote control to any form of model undoubtedly exercises a profound fascination over the operator, out of all proportion to the simplicity or complication of the method used. This is plainly apparent in the immense popularity of the modern miniature railway layout, in which an operator can carry out not only the movement of trains, but the operation of points, signals, turntables, and automatic uncouplers, etc., without having any physical contact with these things. This appeal has given a fresh impetus to the model aircraft world, where radio control of free-flight models is gaining fresh adherents daily, as it is with marine models also.

Our recent illustrated description of Trevor Owen's radio-controlled Buick model has naturally aroused considerable interest, particularly in view of its diminuitive size, but we were not prepared for the enthusiasm with which our much simpler little experiment, the D.B. Hillclimb Special, has been received by many readers. However, it would appear that the attraction lies in the element of personal control, however simply or obviously achieved, and this point is well brought out in our contributor's article regarding controlled rail-track racing on p. 765.

Most of our correspondents are in the process of building something or "thinking about it on paper," but Warrant Officer Lilley, stationed in Austria with a R.E.M.E. unit, has sent us a description of his latest effort in this direction, a 1/10th scale model of a Jaguar XK 120, which combines electrical and mechanical control, and is an interesting and rather novel project.

W/O Lilley writes: "This model was inspired by seeing a demonstration of a remote controlled model car at Gamages some two and a half years ago, and upon deciding after many hours at the drawing board to scale down an XK 120 Jaguar, plans were drawn up and component parts sought. Finally the model was constructed of scrap and odds and ends from the workshop, plus a few parts that I had in hand, the latter consisting of a set of 600 x 16 tyres and a pair of 2/1 bevels. The chassis is simple, consisting of a flat piece of five-ply wood, cut away for the wheels, and on which is mounted the driving and steering motors, both axles and the seat.

The driving motor is a 12 volt S.W.4 Lucas windscreen wiper motor, driving direct from its armature spindle to the rear axle via a universal joint and the 2/1 bevels. The steering motor is another wiper motor, this time a 12-volt Bosche, which drives the transverse drag-link through a worm and a train of gears which give a total reduction of approximately 80/1. Both these motors are fully reversible.

The front axle is constructed from Meccano, on Ackermann principles, and is centrally pivoted to the chassis, with a light coil spring between chassis and axle at each end to assist stability. The rear axle is supported by two quarter-elliptic leaf springs.

The wheels consist of an aluminium boss, to which are bolted two paint tin lids, which sandwich the tyre quite firmly. The front wheels, which are fully visible, are embellished with conical discs and nickel hub caps made from the heads of carpet tacks.

The body is carved from the solid in beech, the bonnet being made removable. Seats are covered with Bedford cloth and padded with cotton wool, the cockpit sides being also lined with Bedford cloth. Floor mats were made from chamois leather, and the instrument panel built up on the sandwich prin-

(*Continued on page* 766)

ON September 23rd three competitions of differing types were held at the Eaton Bray track, catering for a variety of interests, when the Russell, Jaguar and Sutton Trophy events were run off. In excellent weather after a most unpromising morning, some first class racing was combined with a display of Concours models, many of which showed their paces in addition to their looks. A notable absentee was W. P. Jones, who has won the Russell Trophy twice with his handsome Type 51 Bugatti model, but who was ministering to a full-sized version at Shelsley Walsh that weekend.

Scale, Speed & Workmanship

G. H. DEASON DESCRIBES THE EATON BRAY MEETING

As usual, to place the emphasis on fidelity to scale construction rather than sheer speed, bonus points were added to actual speeds divided by five for the Russell Trophy, whilst the 5 c.c. cars competing for the Sutton Trophy were only asked to prove their ability to complete a ¼-mile. In the absence of G. Arthur-Brand due to illness, P. D. Macdiarmid judged the Russell Trophy entries and A. F. Snelling the Sutton competitors. The latter was won for the second year in succession by C. W. Field's finely built Alfa Romeo 158, fitted with his own o.h.v. engine.

In the Russell Trophy some excellent speeds were recorded, and all the entries completed their runs. L. R. Gawley's E.R.A. showed that scale suspension need be no hindrance with a best run at 95.71 m.p.h. Alec Snelling's Lago Talbot, with a home-built engine did 91.83 m.p.h., and James Batten's Gordano (is this the only one ever built?) complete with working lighting, spare wheel, etc., managed 75.65 m.p.h. on its second run. The Concours judging was a deciding factor, however, and with two very consistent runs at 53.41 m.p.h. and 54.15 m.p.h., A. F. Weaver took the Trophy with his beautifully turned-out E.R.A., 24 points ahead of L. R. Gawley's similar car. The winning model scored 97 points out of a possible hundred in the Concours, and well deserved them. Fully working half-elliptic springing is fitted front and rear, all steering joints are works of art and beautifully proportioned, and the execution of the louvres is literally beyond criticism. A working exhaust system is a good feature, and the fuel is replenished through the radiator filler, which rather shook the judges! Engine and transmission are laid out as in conventional full-sized practice, and of course includes a clutch. L. R. Gawley's fast E.R.A. is chiefly notable for its beautifully constructed Porche front suspension, described in these pages some time ago, and the third placed car, C. W. Field's new 10 c.c. o.h.v. engined freelance model was an excellent example of its class, having many new features commonly to be found in a typical modern Grand Prix job, and being excellently finished.

The track was dry and in good condition for the Jaguar Trophy, run as usual on a class handicap, based on the maximum speeds achieved by each class according to M.C.A. records — 10 c.c. cars ran from scratch, 5 c.c. received 33⅓ per cent, 2.5 c.c.s 53 per cent and 1.5 c.c.s 140 per cent.

The only 1.5 c.c. entry was that of B. Griffin, a young member of the Medway Club, whose home-constructed Elfin powered car was run by proxy on his behalf by fellow member K. Robinson. This model went extremely well and succeeded in setting a new ½-mile record for the class in 20.9 seconds.

The 2.5 c.c. class had a strong chance, and speeds were high, although Alec Snelling was unable to produce his record breaking form, his best run being his half-mile at 80.4 m.p.h. In the 5 c.c. class J. Hadlow's Dooling managed 86.78 m.p.h. in the half-mile while J. Dean's Borden Dooling did 87.8 m.p.h. in the quarter-mile. In the strongly supported 10 c.c. class Alec Snelling's Dooling put in best performance with 126.58 m.p.h. and 121.95 m.p.h., D. Garrod was second fastest with 114.35 and 120.48 m.p.h., and C. M. Catchpole third with 119.2 and 112.35 m.p.h. Joe Shelton had a run of bad luck with his Dooling Arrow, but no fewer than ten runs exceeded 110 m.p.h. After handicap correction Alec Snelling placed first and second with his 10 c.c. and 2.5 c.c. cars, B. Griffin's Elfin Special and J. Hadlow's 5 c.c. Dooling finishing third and fourth.

RUSSELL TROPHY

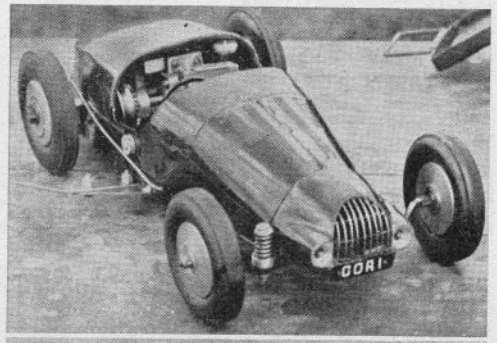
		m.p.h.	m.p.h.	m.p.h.
A. F. Weaver	5 c.c. E.R.A.	53.41	54.15	97 bonus pts.

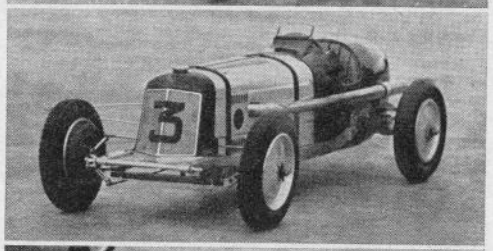
SUTTON TROPHY

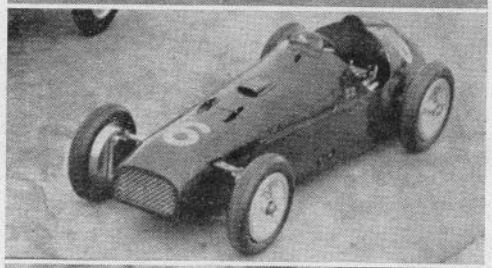
C. W. Field	5 c.c. Alfa Romeo Type 158

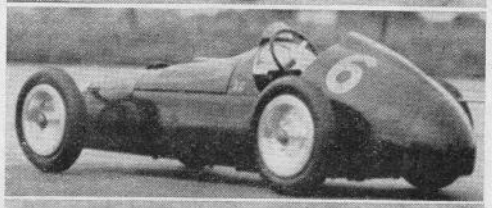
JAGUAR TROPHY

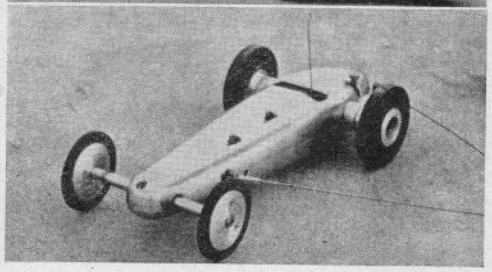
		¼	½	On H'cap
A. F. Snelling	10 c.c. Dooling	126.58	121.95	124.26
A. F. Snelling	2.5 c.c. Oliver Sp.	79.29	80.64	122.33
B Griffin	1.5 c.c. Elfin Sp.	51.54	43.06	114.16
J. Hadlow	5 c.c. Dooling	73.64	86.78	106.94





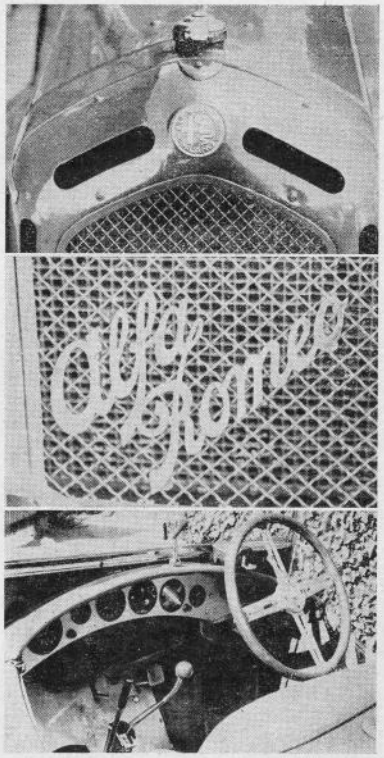






(From top of page): A. F. Weaver, C. W. Field and Alec Snelling with the three trophies of the day, Mrs. Catchpole and K. Robinson with their 2.5 c.c. cars, and J. Batten (5 c.c. Cooper), and C. W. Field (10 c.c. Ferrari) start in the Russell Trophy.

(From top of page): James Batten's 10 cc. Gordano, showing headlights and springing, A. F. Weaver's winning E.R.A., C. W. Field's Ferrari-inspired model from two angles, and Mrs. Catchpole's new 2.5 c.c. speed job, built from two lower-half Oliver castings.



A series of useful close-up pictures of the Zagato Alfa Romeo. From above: Radiator cowl, badge, grille and cockpit details. Below: Front suspension, fairings and lamp mountings, and a close-up of the 16 in. alloy drum and backplate.

Once again "Model Maker" is happy to acknowledge the courtesy of CHILTERN CARS in providing photograhic facilities.

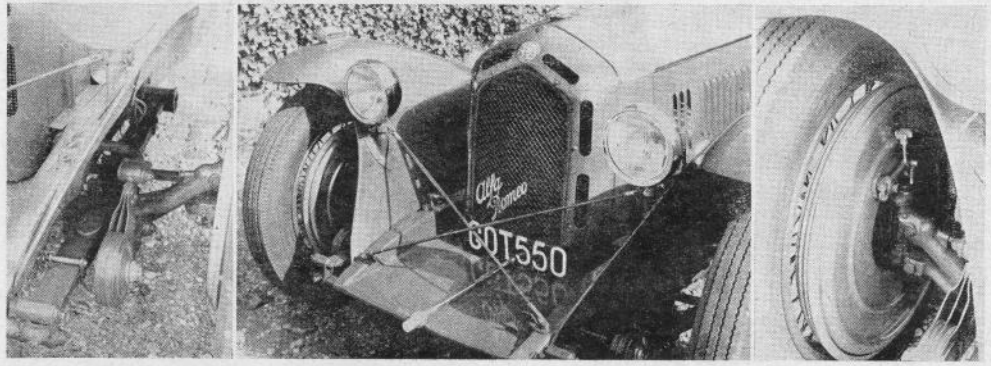
PHOTOTYPE PARADE NO. 2

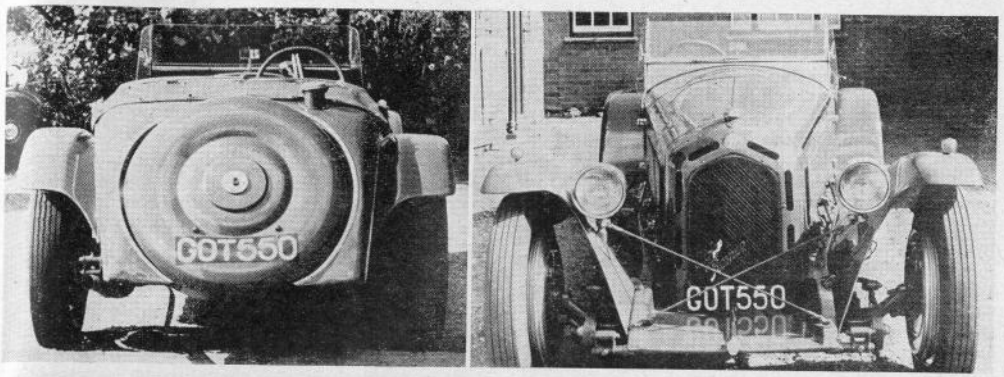
2.6 LITRE S/C Alfa Romeo

DESCRIBED BY G. H. DEASON

THIS series has so far dealt only with the racing versions of Alfa Romeo, in the shape of the P.3 and the Type 158, so it is more than time to give a little prominence to an Alfa road car; the specimen chosen, the famous Zagato two-seater on the 2.6 litre supercharged chassis being one of the finest sports cars in the world today, irrespective of size or date of manufacture. All production models from the Milan works are, to a greater or lesser degree developed from their racing machines, and in the case of the 2.6 this ancestry is most apparent, since the engine and gearbox and the suspension are direct descendants of the illustrious "Monoposto" P.3, and the resulting performance is correspondingly magnificent. So potent, in fact, that only a very select coterie of modern road cars could hope to live with it under normal road conditions.

My acquaintance with GOT 550 came about due to its proprietor desiring to buy a packet of cigarettes from the little shop round the corner, less than four hundred yards distant. "Which" said he, "shall we take? This or that?" "This" was a very opulent Bugatti, "that" was the Alfa. Feeling that we really ought to walk, I plumped for "that", having run the gamut of Bugatti types in my time, but my education in Alfas stopping short at the 17/95. GOT 550 was commenced, and one purposeful prod from the seat-back brought us to the tobacconist's door. "What a nice night" said the proprietor, "let's go to Aylesbury." We went, to the song of the Alfa's camshafts and the howl of our own private gale. You don't converse in a 2.6 in full flight, unless you have lungs of brass, but life isn't tedious. "You *can* drive it like a gentleman's carriage" said my conductor, "or you can play Boy Racers if you feel inclined." We did both, pobbling through a village in top gear, then into third and dropping down a winding hill like a plummet, blower in full song, to pass an astonished modern sports saloon on the following level at a velocity I should be ashamed to mention in a



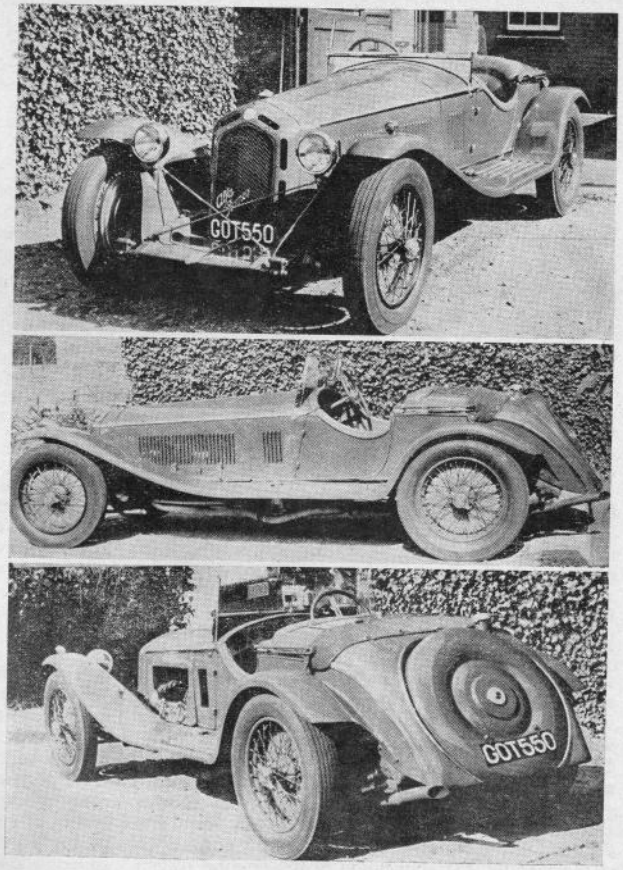


General views of the car, which is a comparatively rare model developed from the better-known 2.3 litre car. Some 2.6 litre versions do not have the slotted cowl over the radiator.

law-abiding journal. Before allowing me to take over, my driver couldn't resist the temptation to do a "Standing Half" on a nice straight bit, and let it suffice to say that at the end of that distance the rear braces buttons were still making themselves felt!

However, I can hear some of my readers murmuring that *they* want to model the darned thing, not drive it at second hand. (All right, but you're none the worse for a little atmosphere!) And what a car to model! Already a number of Alfas of older type have been built in miniature, and very beautiful some of them have looked. In the first place you aren't let off with any fancy concealed suspension. Half-elliptic "cart-springs" all round are the order of the day, and although the chassis frame isn't very apparent to the eye, being concealed by bodywork and fairings, a full-length frame of conventional type is there for a basis on which the rest of the car is built. The leaf springs are set outside the frame, and it will be noted in the detail pictures that the shackled ends are at the front of the front pair of springs and at the rear of the back ones. Normal friction shock-absorbers are fitted at the front, but, in the case of the car described, telescopic struts are used on the rear axle.

Viewed from the front the handsome polished alloy brake drums and back plates look very imposing, filling the wheels in most satisfying fashion. Neat finger-operated adjusters will be noted above the operating arms. There is a marked kick-up at the axle ends, and the steering pivots



are considerably recessed into the brake drums. Still looking at the front, the radiator, slotted grille, small hinged filler cap and maker's badge are all identical to the racing Monoposto 2.6 and 2.9 cars. GOT 550 has the small headlamps fashionable on super-sporting machinery which disdains to fit more road equipment that is strictly necessary, and these are rigidly braced by steel bracing rods in tension. A plain unlouvred fairing covers in the front dumb-irons, over which the plated extension shaft of the starting handle passes.

Viewed from the side the Alfa has a pleasantly austere appearance, enhanced by the shallow wings which terminate high both back and front. Generous running boards are fitted, and on the nearside one will be seen the oil tank filler for the dry sump lubrication system. Both bonnet and scuttle sides are ventilated by louvres facing rearward, but the bonnet top is plain. Two doors are fitted, and a beading runs from radiator to tail, which emphasises the line of the Zagato body. As will be seen, the hood is partially concealed, dropping into a compartment behind the seat, where it is covered by a canvas cover. The spare wheel is modestly hidden under a metal casing, the whole being sunk into the tail. Finally, a large filler-cap is visible on the off-side. It is almost superfluous to add that the bodywork is finished in brilliant Italian red.

The cockpit, or perhaps driving compartment should be used in this case, still further enhances the impression that this is a racing car masquerading as a touring machine. Floorboards and instrument panel are plain aluminium, highly polished, and everything has a pleasingly utilitarian air, despite the fine finish of all the fittings. The central gear lever is fairly long and works in a visible gate, and the handbrake has a plain ebonite grip, with a button ratchet. The instruments themselves have black faces with white figures, there being a speedometer calibrated in kilos per hour and a 6.000 r.p.m. revolution counter flanking the circular panel for the electrical controls, whilst on either side of these are smaller dials for fuel gauge and oil pressure and a complicated clock on the extreme left.

The steering wheel is typically Alfa, with spring steel divided spokes and a leather-bound rim 16 in. in diameter. In the centre of the boss is a short ignition lever. The roller-ended accelerator pedal is central between the square clutch and brake pedals. The view from the seat of government is excellent, the position being high, giving a clear outlook over the steeply sloping bonnet. Upholstery is in grey leather.

The "engine room" has been omitted from the series of detail photographs, as although very beautiful to behold it is calculated to make the average model maker reel back in awe at the thought of reproducing such a masterpiece. This is, of course, the eight-cylinder unit, in two blocks of four, with the drive to the twin overhead camshafts going up between the blocks. The supercharger is situated alongside the engine on the off-side, and everything in sight is in highly-polished alloy, with vast numbers of ribs, nuts and what-have-you to add to the excitement of the scene. Whilst making no apology for omitting it, *Model Maker* will be pleased to supply photographs of both sides of the Alfa unit to genuinely interested enquirers who wish to model this lovely engine, at usual print prices.

Main dimensions of the Zagato two-seater are given herewith.

Wheebase, 9 ft.; Track, 4 ft. 8 in.; Overall length, 13 ft.; Width at cockpit, 3 ft. 5 in.; Height to radiator cap, 3 ft. 2 in.; Height to scuttle, 3 ft. 6 in.; Tyre sizes, 5.25 x 19.

Letters to the Editor . . . .

Dear Sir,

I really cannot let Ken Proctor's remarks about the Blackpool Club pass without adding a few words on their behalf.

This meeting happened to be the first of the few I attended this year, and on arriving, found the organising officials more than harrassed for the following reason. The club had organised a meeting along the lines they thought most fair for all concerned, but apparently this was not good enough for some folk who virtually demanded that the M.C.A. grading system should be substituted, apparently against the Blackpool Club's wishes, and with the threat of applying a boycott!

Small wonder then that the organisation was thrown off balance for a while, but to put the blame for this on the club in question is hardly correct.

Incidentally, the application of the grading system resulted in myself being awarded three prizes for runs which were considerably sub-standard (spiders in the by-pass!), and for one of which I don't know to this day how or why an award was given.

If this is an example of how prizes are to be distributed to the deserving (?) cases, it may well be that the chap doing the "chain pulling" has the right idea!

I might mention that the Meteor Club's annual "competition day" will NOT be incorporating the grading system, and if last year's entry of 65 "British" cars is anything to go by we do not exactly anticipate any very drastic falling off in entries this year, despite our worthy Editor's suggestions to the contrary in his review of the Grading System and unless, of course, there are a lot of folk who are also getting a little weary of seeing cars going round and round, one at a time. Yours faithfully, F. G. BUCK.

"I'm Sick of Speed!" . . . .

A MOTORING ENTHUSIAST SPEAKS BOLDLY ABOUT THE FUTURE OF THE MODEL CAR MOVEMENT

WHEN I say I am sick of speed I do not mean that I am fed up when the Real Thing gets-a-move-on. When Brooklands was in action before the war quite my most enjoyable times there were spent watching the big outer-circuit cars like Birkin's blower 4½ single seater Bentley and Oliver Bertram's long slim Barnato-Hassan-Special hurtling round the scarred concrete at upwards of 140 m.p.h. This year, when I arrived at the Rheims circuit for a sight of the Grand Prix of Europe, I looked at that very long straight down past the pits from Thillois hairpin and could hardly wait for the drop of the starter's flag and the spectacle of G.P. Alfa Romeos and Ferraris devouring it at something like 170 m.p.h.

Yes, I like speed all right from full-size cars, I even enjoy conducting a really swift sports car myself, but I do *not* seem to have taken to flat-out speed in the field of models.

Years ago, when I was very young and had not even *been* to Brooklands, I went to model exhibitions and I thought how nice it would be to have at home a model racing car, a scale replica of the cars I saw illustrated in the motor papers, possessed of a tiny petrol engine that you would crank up at the front, to send puffs of real exhaust smoke eddying from its long exhaust pipe.

That, of course, was just a dream of childhood, for in those far-off days model i.c. engines were either the gas variety with a vast flywheel or were large, heavy, very expensive unless you could machine a set of castings, and in any case were intended for miniature boats. Certainly no *commercial* multi-cylinder existed, such as today's delightful "Seal".

So the years rolled by, watching the full-size stuff at Weybridge, Donington and elsewhere became my hobby, and models were largely forgotten. Then I saw in the *Aeromodeller* that r.t.p. racing with petrol models had become a possibility. Naturally, dimly remembering my adolescent dreams of real smoke issuing from tiny exhaust pipes, I went along to have a look.

At first I was greatly intrigued. I adored Gerry Buck's big "No. 1" as it ambled realistically round the concrete, and I thought Mr. Russell's scale Jaguar a honey as it committed its sedate lappery with all its wheels firmly on the ground.

Alas, the speed bug hit these good car modellers. Soon it was hair-raising to stand near an unprotected track while their odd-shaped speed machines screamed round so rapidly that the human eye was only just able to follow them. Few, if any, of these models looked or sounded anything like their full-size counterparts, and my hope that some enterprising person would bring along a scale Leyland-Thomas and confidently win all the prizes with it, in memory of the late J. G. Parry Thomas, was still-born. Such a large, heavy model wouldn't have stood an earthly against the Hornets and Doolings as they skimmed on, at most, two wheels, straining at their harnesses at goodness knows what exaggerated scale speeds.

Disgruntled, I ceased to attend; the full-size fixture list was full enough to hold my attention anyway. Then I heard about circuit racing and thought I had better have a look at that. With all due respect to H. C. Baigent for the technical excellence he has achieved with the rail track, until there is some way of slowing the cars for the corners and letting the human element control them (radio control?) I do not feel that this sort of racing is much advance over r.t.p. — again because the cars go too fast and consequently look so ridiculous on the turns. (Has the unhappy driver who was flung out of an Alfa Romeo during a heat at the "M.E." Exhibition recovered, or are plastic persons impervious to such unpleasantnesses?)

So for the likes of me there is no hope! But there is, or at all events it seems there may be! At the end of the article about Jack Parker in your September issue you tell us that his 1/12th scale furniture van, powered by a 2 c.c. E.D. engine, laps his lawn at a sedate 2 m.p.h. Here, I realised, was the sort of thing I'd been wanting to see for years. A furniture van! Well, why not a lorry or tractor to tow we "Peter Pans" about, as steam-loving "Peter Pans" go driving their model traction engines?

At this stage of my reverie I recalled that fascinating 40 c.c. model of a Bedford mechanical horse which L. O. Gibbs demonstrated at the 1948 "M.E." Exhibition. With a water-cooled side-valve four-cylinder engine, this 1/5th scale vehicle could tow its builder at 12 m.p.h. Apart from self-propulsion, the use of tiny i.c. engines in the model of an 1894 Panhard by S. C. Palmer and in the miniature 1903 G.B. Mercedes which Major T. W. Stubbs is building, emphasises what I have in mind. Over and above the tiny external driving chains of these two models the problem of installing the engines without spoiling the scale effect and of persuading them to function at appropriate road speeds adds enormously to their appeal.

The true model builder derives as much fun from making his model as in operating it, and I am not sure that making a very small i.c. engine drive a vehicle *slowly* doesn't call for more skill than letting it have its head!

So, at the risk of being drummed out of any model car club I might visit, I will be so bold as to suggest

that perhaps the future of the model car movement may be bound up with making replicas that not only look like the Real Thing when they are stationary, but which continue to do so when they are set in motion. Let us hear more of the technical problems behind these nice, peaceful models and let the model car fraternity think in terms both of scale models *and* scale speeds. How about a Scale Speed Society, closely linked with what the radio-control boffins have to tell us? W.B.

REMOTE CONTROL (*Continued from page* 759)

ciple. The steering wheel is a dummy, and is not connected to the steering.

The car operates at the end of a long and very flexible 7-core cable, via a swinging arm, from a control box, which consists of two two-way centre-off switches, one for steering and the other for drive, a speed regulator in five distinct steps and a main on-off switch. Voltage supply is from a transformer and rectifier, or a 30-volt battery, the resistance of the trailing cable dropping the voltage to twelve at the car. The cable is connected to the car by means of an old seven-pin radio valve base and a valve socket mounted in the passenger's side floorboard.

On a concrete floor the maximum speed is in the region of 12 m.p.h., and braking is effected by flicking the switch to reverse. Steering is of course, controlled by operating the steering switch left or right. A useful refinement is the connecting of the steering motor through the speed regulator, thereby ensuring that when the car is travelling fast the steering operates faster and vice versa. Maximum curent consumption, when both motors are operating simultaneously at starting, is 4.8 amps.

Another car at present under construction is a 1/10th scale Rolls Royce Phantom III limousine, using the same mechanical details, but with a metal chassis, half-elliptic rear springs and coil spring I.F.S., a 3/1 axle ratio and a friction clutch if I can construct one. However, on seeing the radio-controlled Buick in the August isue, I am fired with new ambitions."

MODEL CAR ASSOCIATION NOTES

It is our custom at the end of each racing season to publish the existing records. Of the forty-four classifications listed it is interesting to note that twenty-seven bear a 1951 date, twelve were established in 1950 and only five — all in the 10 c.c. class have lasted since 1949.

M.C.A. RECORDS STANDING AT SEPT. 28th, 1951.

Showing all Records made since last issue.

Dist.	Name	Club	Track where Made	Date	m.p.h.
	British 1½ Class				
¼	B. Griffin	Medway	Edmonton	26.8.51	54.97
½	B. Griffin	Medway	Eaton Bray	23.9.51	43.06
	British 2½ Class				
¼	E. Armstrong	Sunderland	Derby	24.6.51	76.27
	A. F. Snelling	Edmonton	Eaton Bray	22.7.51	78.74
	A. F. Snelling	Edmonton	Edmonton	19.8.51	83.33
	A. F. Snelling	Edmonton	Cleethorpes	2.9.51	84.11
½	A. F. Snelling	Edmonton	Surrey	12.5.51	76.66
	A. F. Snelling	Edmonton	Eaton Bray	23.9.51	80.64
1	A. F. Snelling	Surrey	Surrey	12.5.51	76.84
5	F. G. Buck	Meteor	Stoke	27.8.50	47.95
10	F. G. Buck	Meteor	Stoke	27.8.50	45.79
	British 5 Class				
¼	E. V. Snelling	Edmonton	Cleethorpes	27.8.50	94.64
½	J. T. Green	Sunderland	Ossett	4.6.50	85.71
1	W. B. Edmondson	Hooton	Blackpool	8.7.51	69.40
	J. C. Cook	Sunderland	Sunderland	21.7.51	75.00
5	F. G. Buck	Meteor	Stoke	27.8.50	41.60
10	F. G. Buck	Meteor	Stoke	14.9.50	32.45
	British 10 Class				
¼	F. G. Buck	Meteor	Derby	3.9.50	114.64
½	F. G. Buck	Meteor	Derby	3.9.50	113.56
1	F. G. Buck	Meteor	Eaton Bray	15.5.49	105.50
5	I. W. Moore	Derby	Derby	16.1.49	69.77
10	—	—	—	—	—

Hon. Records Officer: I. W. Moore, 2 Bridge Street, Derby.

Latest Dated Speed is Current Record.

Dist.	Name	Club	Track where Made	Date	m.p.h.
	Open 1½ Class				
¼	B. Griffin	Medway	Edmonton	26.8.51	54.97
½	B. Griffin	Medway	Eaton Bray	23.9.51	43.06
	Open 2½ Class				
¼	E. Armstrong	Sunderland	Derby	24.6.51	76.27
	A. F. Snelling	Edmonton	Eaton Bray	22.7.51	78.74
	A. F. Snelling	Edmonton	Edmonton	19.8.51	83.33
	A. F. Snelling	Edmonton	Cleethorpes	2.9.51	84.11
½	A. F. Snelling	Edmonton	Surrey	12.5.51	76.66
	A. F. Snelling	Edmonton	Eaton Bray	23.9.51	80.64
1	A. F. Snelling	Surrey	Surrey	12.5.51	76.84
5	F. G. Buck	Meteor	Stoke	27.8.50	47.95
10	F. G. Buck	Meteor	Stoke	27.8.50	45.79
	Open 5 Class				
¼	J. A. Shelton	Surrey	Cleethorpes	29.7.51	98.50*
	F. J. Dean	Surrey	Edmonton	26.8.51	98.68**
½	C. M. Catchpole	Surrey	Eaton Bray	22.7.51	94.24
1	C. M. Catchpole	Surrey	Surrey	12.5.51	84.24
5	F. G. Buck	Meteor	Stoke	27.8.50	41.60
10	F. G. Buck	Meteor	Stoke	14.9.50	32.45
	Open 10 Class				
¼	J. A. Shelton	Surrey	Derby	24.6.51	127.47
	J. A. Shelton	Surrey	Edmonton	8.7.51	130.24
½	I. W. Moore	Derby	Derby	19.8.51	122.95
1	F. G. Buck	Meteor	Eaton Bray	15.5.49	105.50
5	I. W. Moore	Derby	Derby	16.1.49	69.77
10	P. J. E. Hugo	Derby	Chiltern	18.4.49	57.14

*Subject to confirmation of compliance with rules.
**Will stand if Mr. Shelton's record is rejected.

DOPE & CASTOR

By JERRY CANN

LAST month's *Model Maker* is likely to become a collectors' item, rather like those odd postage stamps that feature the President of the Republic with only one ear, due to a printer's error. I mean, I've stood in this market-place for so long now that an issue without Jerry *is* rather unique, isn't it? However, here we are this month again, by dint of some vigorous elbowing, and complete with cartoonist Manwaring too. Those readers who are a trifle mystified by his problem picture are advised to seek enlightenment in the Sunderland area, but no responsibility can be accepted for their personal safety!

Edmonton ran a very successful affair on October 7th, by which the Mayor's Old Age Pensioners' Fund benefited by over ten pounds, a first class effort by the organisers. The "do" was the competition for the George Laird Trophy, and consisted of two runs over a quarter mile, with flying and standing start. Speeds were added together and divided by two, and competitors had to estimate these beforehand. Tricky! Trickier still was the fact that the donor of the trophy came out top, with an error of only .08 m.p.h. with his Oliver Special, but he sportingly waived his claim, and who should appear as official winner than cartoonist Manwaring, running old "Monoposto," which incidentally did its practice run backwards! Runner-up was Eric Snelling's handsome home-built B.R.M., the errors being .14 m.p.h. and .74 m.p.h. respectively. The Club was lucky with its end of season weather, and are taking another chance with it on October 21st, the last outdoor meet this year.

A further Edmonton Club meeting is to be held early in November at the Rego Works in Angel Road, and includes a new and attractive idea thought up by Secretary Pickard. This is a "Vintage" event, designed to appeal to the owners of old cars of the Bootlace and Ronsonol era, and a thoroughly good scheme too. Many keen model makers have disappeared from sight since those days, who may well be attracted to return to have a go in the old tradition, and it is good to hear that among likely entries are Jim Cruickshank with his Mercury Ten (Hey! Jim, what about the M.G.?), the Hon. Sec. in person with his P. & N. Special, and, of course, "Monoposto". I don't know, at the time of writing, whether this is an open invitation affair or not, but a line to Jack Pickard at 53 Fairfield Road, Edmonton, E.18, will soon put interested parties wise, and if it is, it's to be hoped that a rousing entry is gathered in, and that other clubs will see that similar events would be well worth organising, particularly during the winter months when many clubs are confined to slower indoor tracks.

Many spectators at model race car meetings have almost forgotten how pleasant it can be to see a good looking model running well at reasonable speeds, and it was instructive to see the favourable impression created by some of these in the Russell Trophy at Eaton Bray recently. Particularly favourable comment was roused by C. W. Field's two four-strokes, the latest of which is a 10 c.c. model. Incidentally, although entered on that occasion as a Freelance, the builder says he prefers the term "Ferrari-type", since the model has a strong general resemblance to the famous Italian newcomer. He does *not* add that any resemblance to the B.R.M. is purely coincidental. Speaking of which, isn't it odd that, like the ill-fated E.-Type E.R.A., the B.R.M. has been the subject of so many successful models, before the original has proved its worth.

The Brush Society of Model Engineers at Loughborough is becoming interested in the possibilities of rail-track racing, and its Hon. Sec., W. D. Harris, is anxious to have the formula on which a collection of cars can be built. Speaking of which, I hear that one well-known circuit-racing protagonist has been experimenting with various forms of braking for corners, and has obtained very satisfactory results. Being a cautious type he's saying nuffin' yet, but more of this, I hope, anon. The idea is a step in the right direction, but the *real* point, I feel, is to make the braking really necessary. In other words, the attachment of the cars should be such that they can come unstuck in a big way if they *don't* slow to the appropriate gait for individual bends. Only by this means can we come somewhere near to the real thing.

Another group about to embark on circuit racing is the Boys' Brigade Company in Glasgow, under the charge of Ian Whitfield, of 84 Novar Drive, Glasgow, W.2. Here again guidance is earnestly required, as Glasgow has seen nothing of this nature up to now

Motor Modelling at Staines

(Continued from page 753)

well. Allard divided axle front suspension is fitted, in conjunction with coil springs concealed in the body, the half-axles are correctly H-sectioned, and delightful working transverse shock absorbers of friction type operate above them. The unmistakable Allard grille is in aluminium, neatly fitted into the nose.

The working power unit is an elderly Stentor of 6 c.c., for which room has just been found under the seat. As will be seen, this drives the nearside twin wheels which are mounted on the crankshaft direct, whilst a bracket carries the short axle for the opposite free-running pair. The needle-valve control is accessible in the cockpit, and the electrical gear is placed well forward under the bonnet. The cockpit has a neat leather-covered seat and steering-wheel but final details remain to be added. For a simple model this is one of the most attractive attempts, for such detail as appears is reasonably robust, and the finsh (applied with a "Flit" gun) excellent. The model represents 300 hours work.

Another exhibit which immediately attracted attention was a project which E. E. U. Rogers of Weybridge has in hand at the moment, and which though far from complete is full of interest. This is a working model of one of the early Cooper 500s, and it has certainly been tackled in the right spirit. The chassis is of somewhat unorthodox channel section, with tubular and other bracings, and is a straightforward job, but in the matter of suspension the builder has not spared himself. Finely made transverse leaf springs with scale clips are mounted at front and rear, the forward one on a specially made bracket. Attention has been paid to the fitting of near-scale bolts and nuts, and the front suspension is completed by tubular wishbones and telescopic struts which work correctly. The engine is a McCoy 29, arranged with its crankshaft set across the frame, driving by 8 mm. roller chain to a countershaft carried in a massive bearing block. From this the final drive will be taken to the rear wheels by a similar chain. As a final authentic detail the forward engine mount is by the authentic transverse spring, as fitted by Coopers to overcome the breakages due to torque stresses in their early racers, and an air pipe runs rearward from the front of the chassis for cooling purposes. This should be a most interesting model on its completion.

These three unusual models were by no means the whole tale of cars exhibited, which included amongst other a home-built high speed Dooling engined model by E. E. U. Rogers, a very well modified Oliver Tiger with twin driving wheels by A. L. N. Stephens, two competition cars by Wilson of Weybridge, and a well-detailed Offenhauser speedway car by the Society's secretary, R. F. Slade.

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