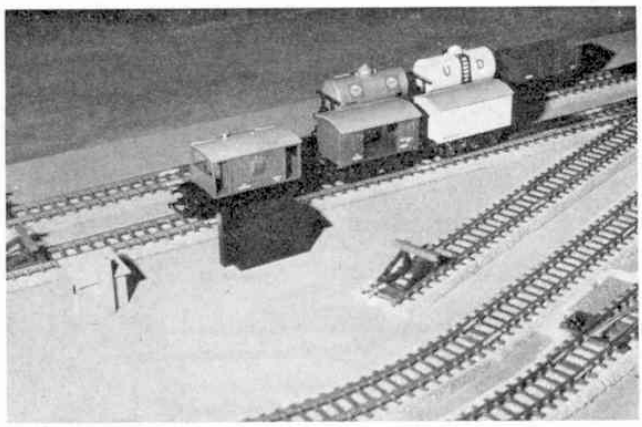
BUILDING A MODEL RAILWAY

Part I

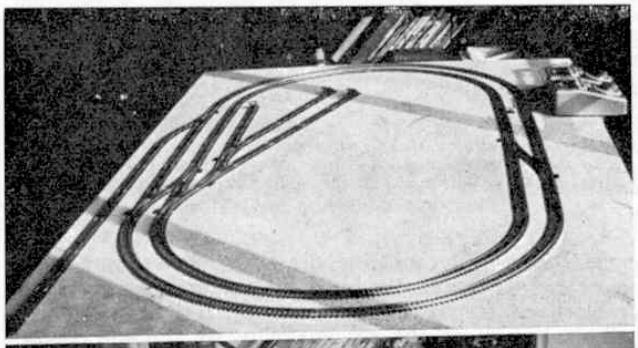


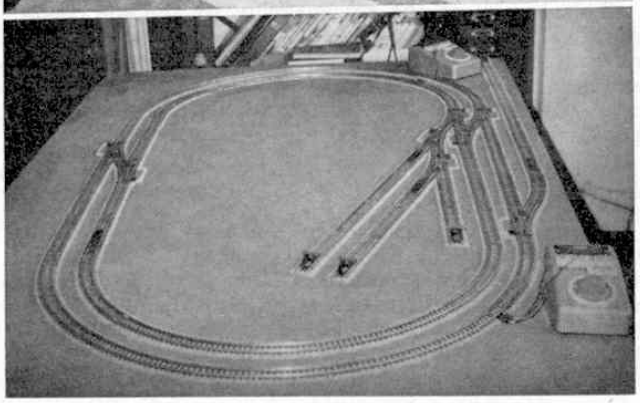
Planning the layout, the baseboard, and laying the track

A PROPER MODEL RAILWAY cannot exist without a baseboard, unless you call the traditional circle of track on the hearthrug a model railway—we don't !

As we were determined to make the layout described in this series as *simple* as possible, we started with the very simplest of baseboards. It is, in fact, nothing more than a 6 ft. × 4 ft. sheet of blockboard, ¾ inch thick, which can be bought " off the shelf " and without cutting, from any good D.I.Y. store. One great advantage of this material is that, in the smaller sizes at least, it is extremely rigid and needs no additional framing to keep it stiff and flat. If you are keen on carpentry, a perimeter frame of 1 in. × ½ in. battening could be fixed to the underside of the board, which would give clearance underneath for electrical wiring. In the interests of simplicity and time saving, we did without any framing at all, and our baseboard has withstood a fair amount of moving about without showing any signs of bending.

Below : Two views of the layout. In the top picture, the track has just been laid out roughly, without fixing down, to check that everything fits together properly. In the lower picture, track has been pinned down, with the underlay in position, and the baseboard has been painted green.



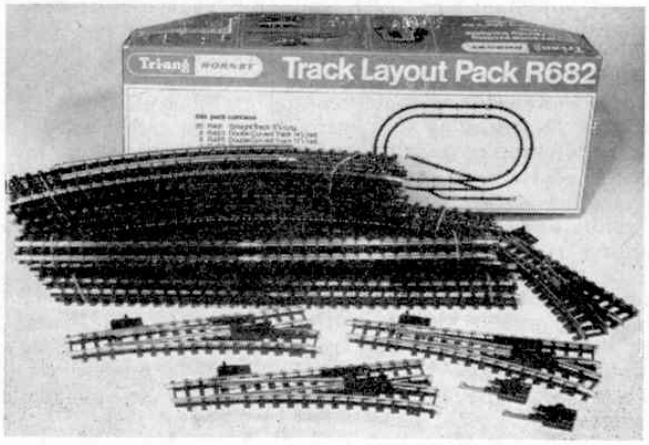


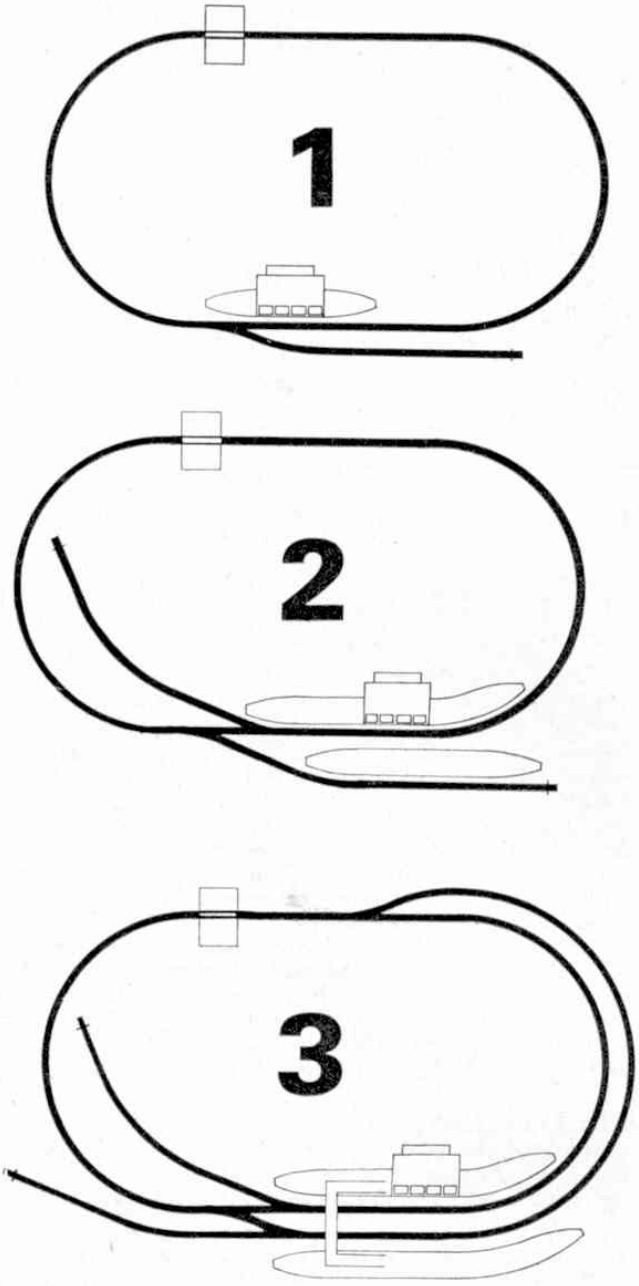
Before any track is laid, we would recommend that the board's top surface be painted with a coat of flat green paint (Household brand from Woolworth's is ideal). We forgot about this until the track had been fixed down, which made the painting more difficult, as keen-eyed readers will detect from the photographs !

The Track Layout

We kept the track plan simple, but tried to " build in " a certain amount of operational interest. Basically, the double-track oval provides a " main line " upon

The contents of the Tri-ang Hornby Track Pack R682, upon which our layout was based. The drawing on the box lid shows the R682 layout—we simply added two extra sidings, another crossover, and more straights in the " main line ".

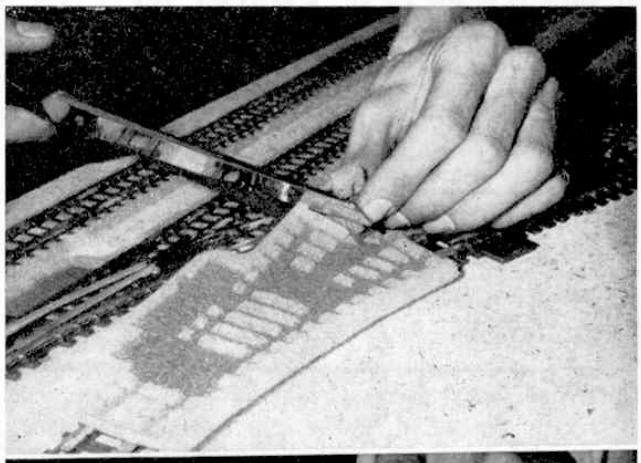


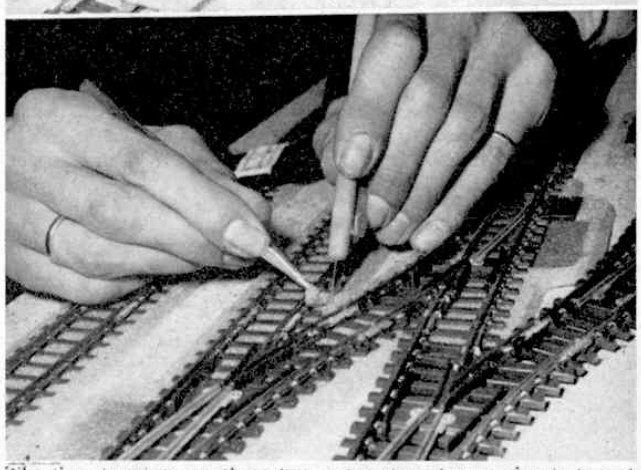


which two trains can run continuously if you are in a mood to just sit and watch 'em roll by. Two crossovers provide trains with the ability to cross from one line to another, and also enable locomotives to "run around" their trains without cheating, i.e. simply making a circuit of the track and arriving at the other end of the train by that means. As you can see from the photographs, a small goods yard is provided in the centre of the oval, comprising three short sidings, and a further siding branches off on the *outside* of the "main line". Remember that, in this country, trains always run on the left-hand track (like road traffic). This means that trains travelling on the *outside* of our two tracks travel *clockwise,* and can easily back wagons into the outside siding, and those on the inside track go *anti-clockwise* and can use the sidings on the inside of the main line. We will go into this in more depth when we come to discuss "operation" in a later instalment.

If you compare the picture of our track layout with that of the Tri-ang Hornby Track Layout Pack R682, you will see that our plan is really only a development of that provided in the pack. We have added more straight sections to lengthen the "main line", and an additional four points have provided the extra crossover and two additional sidings.

Of course, you do not have to follow our track plan. If money is short you could easily start by purchasing Pack R682 as it stands, or even one of the smaller





The line drawings on these two pages show how a simple layout can be developed gradually, using Tri-ang Hornby Track Packs. A 6 ft. by 4 ft. baseboard is the right size for all these layouts.

Packs. The series of line drawings shows how these packs can be gradually built up to form a very comprehensive 6 ft. × 4 ft. model railway.

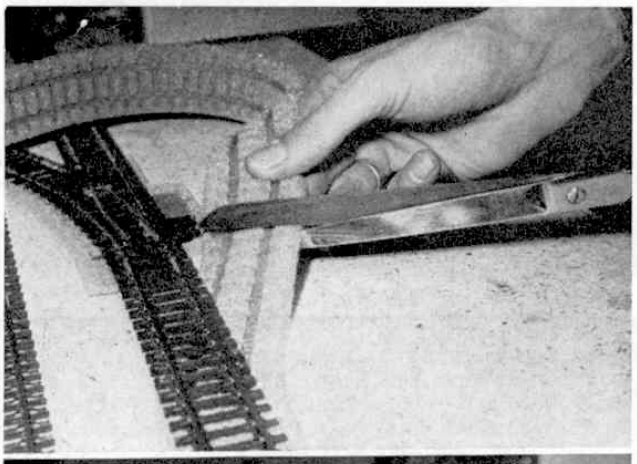
This is one of the reasons why we do not recommend flexible track to beginners—you cannot keep altering your layouts as you can with the sectional, snap-together, Super 4 track, although Tri-ang Hornby now market flexible track in yard lengths which is very good, and makes more realistic "transitional" curves.

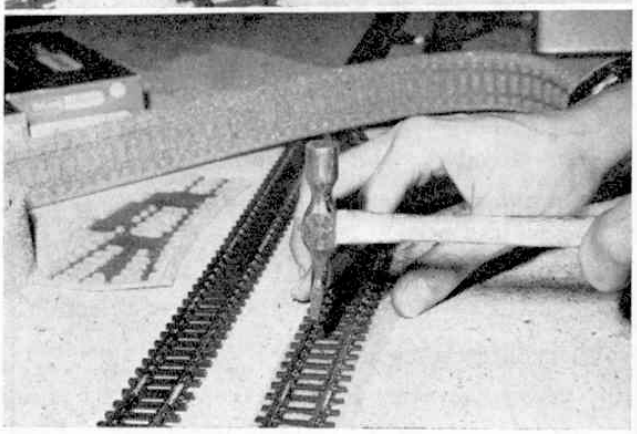
Track Underlay

A good start to track laying is to lay out the whole track system on the board exactly as you want it, and snap every section together. At this stage, you can try out a few modifications to sidings, etc. We think that it is well worth while to fit Tri-ang Hornby foam plastic track underlay (R410), and this must be done at this stage. Not only does the grey-coloured underlay look

exactly like proper track ballast (even down to the "chamfered" edge) but it also makes the trains run much more quietly, stopping "drumming" noises from the baseboard.

Study of the photographs will show that the underlay has indentations moulded in it, into which each sleeper of the track sections fits neatly. Thus the "ballast" lies flush with the sleeper tops, and looks very realistic. Separate underlays are used for points (available correctly in both left and right-hand versions).

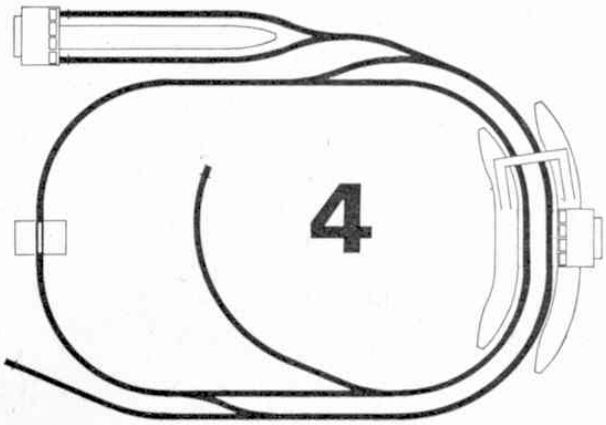


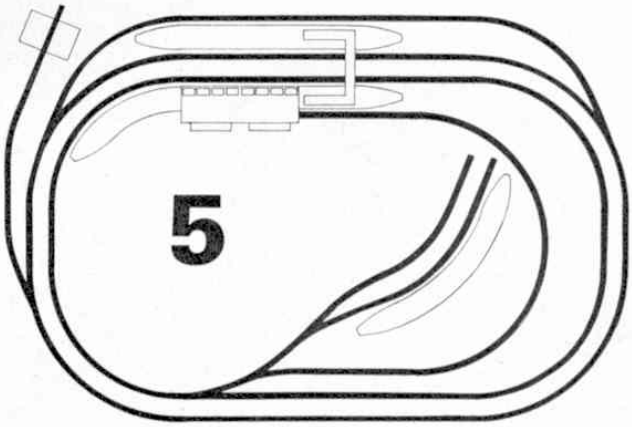


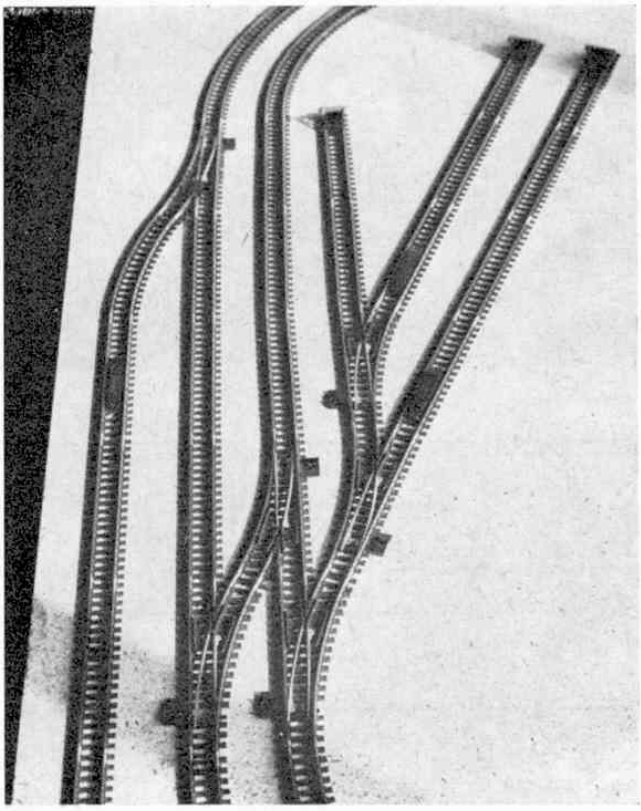
Above and left: Cutting and fitting foam plastic track underlay. Note the moulded-in recesses for the sleepers—this makes "ballast" flush with sleeper tops. Photo top left shows special point underlay. Picture above shows final pinning down with Tri-ang Hornby Track Pins.

"Feeding" the underlay underneath the track needs a little patience and prodding, and sometimes trimming with scissors. Some of these operations are shown in the photographs. At the same time as the underlay is fitted, the track should be fixed to the baseboard. Tri-ang Hornby Track Pins (R207) are ideal for the job, although you may well have some equally suitable pins to hand already. Holes are provided in certain sleepers to accommodate the pins—the whole thing could hardly be easier.

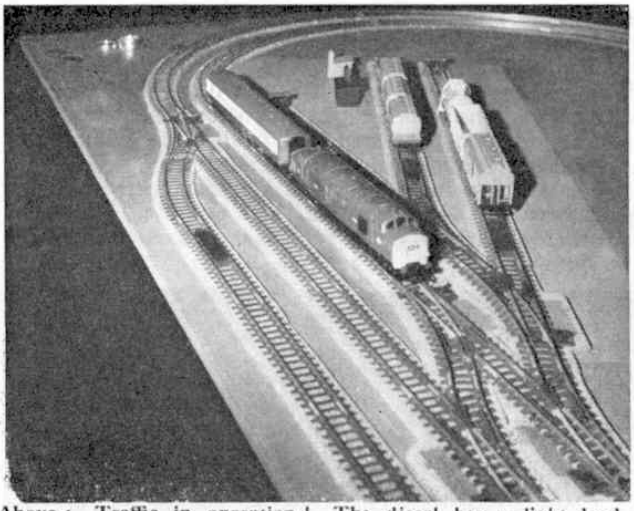
Next month we will show how the layout was wired up for two controllers, and how electric point motors were installed. We will also discuss methods of operating the railway in a realistic way.





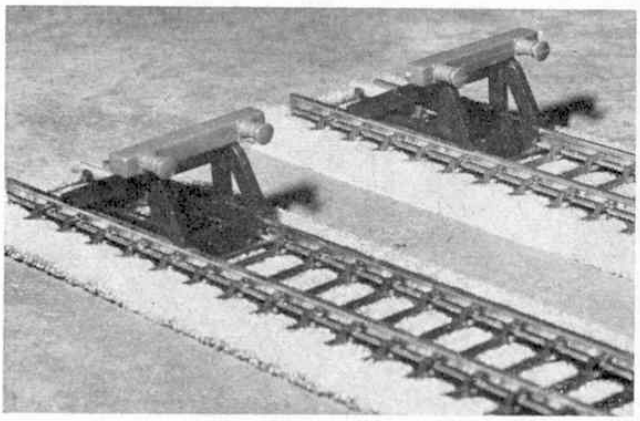


Right: Close-up of the "goods yard," showing how we enlarged and developed the original R682 plan. Note the positioning of the uncoupling ramps at the entrances to the sidings.

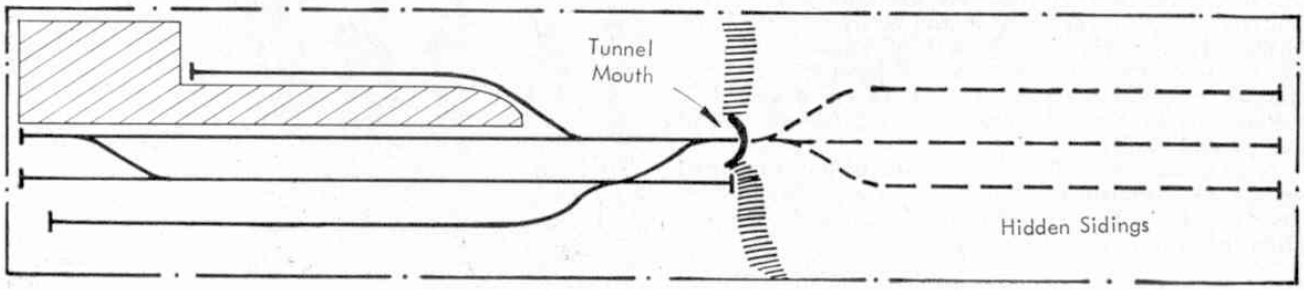


Above : Traffic in operation ! The diesel has a light load. Left : Tri-ang Hornby Track Pins. Left lower : Buffer Stops simply clip on to siding ends.

In this article we have shown a small selection of track layouts which can be built up from Tri-ang Hornby Super 4 sectional track. Readers who are interested in more plans (both simple and complicated) are recommended to read the Tri-ang Hornby book of Track Plans, which contains a large selection of very interesting schemes.



Below : A simple " end-to-end " layout, which makes a change from continuous types. Sidings shown dotted are hidden under scenery, and form an invisible place for the trains to " go ". More on end-to-ends later.



A simple end-to-end terminus station layout for a space 9' x 2'

BUILDING A MODEL RAILWAY

Part II

Wiring, operation and introduction to scenery

ELECTRICAL WIRING FOR a Tri-ang Hornby layout just could not be simpler. The negative and positive wires from the controller-transformers are joined to the track with the track connectors, as shown in the photographs—there is absolutely no soldering to be done, as the wires have push-in connectors to the track " spade ' 'assembly. The picture will make this clear.

Converting points to remote controlled operation is equally simple, and our picture shows just how the connections are made betwen the un-controlled transformer outlets, the operating lever, and the point solenoid. All Tri-ang Hornby points are designed to be converted to electric operation if required. The solenoid unit simply clips into place and connects to the original hand lever. In this way, points can be " electrified " when required, and the cost of doing so can be spread over a long period. On our layout we only electrified the crossover on the far side of the layout to the controllers—this saved leaning over the layout. Points thus automated work with a satisfying " snap ", and several lever quadrants arranged in a bank look very much like a real lever frame !

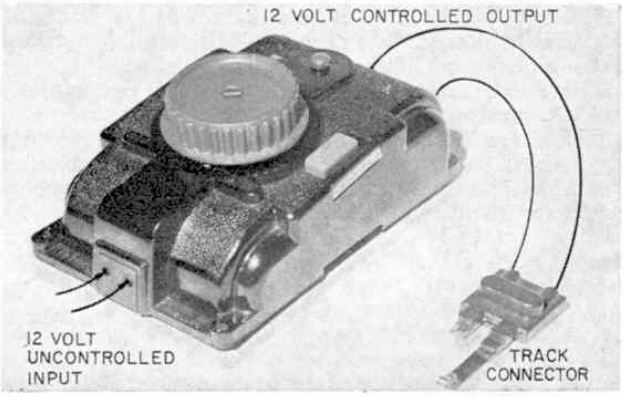
Although we decided to keep all scenic effects on our layout as simple as possible, readers who saw the pictures in last month's article will agree (we hope!) that the latest pictures show a considerable improvement in realism as interest. This has been achieved by two methods—by painting roads on to the basic green baseboard in grey paint, and by adding various items in the way of buildings, fences, trees, etc. As a site for our passenger station, we used the side of the baseboard opposite to the " goods yard complex ". The station platforms and buildings are from the Tri-ang Hornby range. They represent a modern style of structure, and look very attractive with their " glazed " canopies. Photograph 4 shows an aerial view of the station, with passenger and goods trains passing. This picture was taken before we added any trees, but the " roads " had been painted in. Note the white lines in the " car park " outside the station—these were merely strips of white paper stuck down. The cars are from the Lesney " Matchbox " series.

Photograph 5 shows a tree we " planted " in the station forecourt. It is one of Britain's realistic plastic products—these sort of things really relieve the essential bareness of a simple layout.

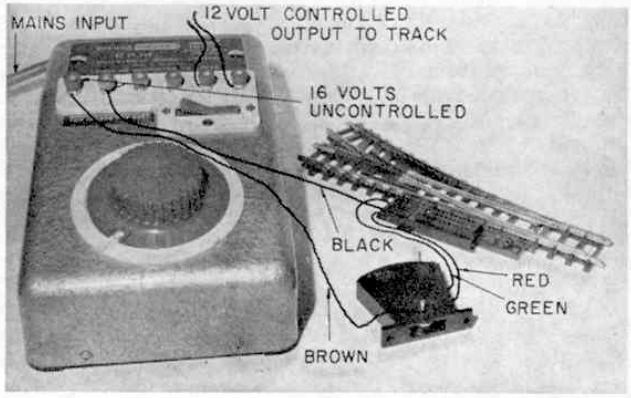
Photograph 6 was taken across the main lines, looking towards the " inner " goods yard. The scene is simply set: a little plastic fencing, a Tri-ang platelayers hut, and Lesney commercial vehicles. The grey-painted goods yard " ground " separates it from the rest of the layout. In the far distance, an express can be seen approaching, and an incoming goods train is just backing its brake van into the siding on the extreme right. Realistic as it is, this scene is entirely built up from cheap commercial items.

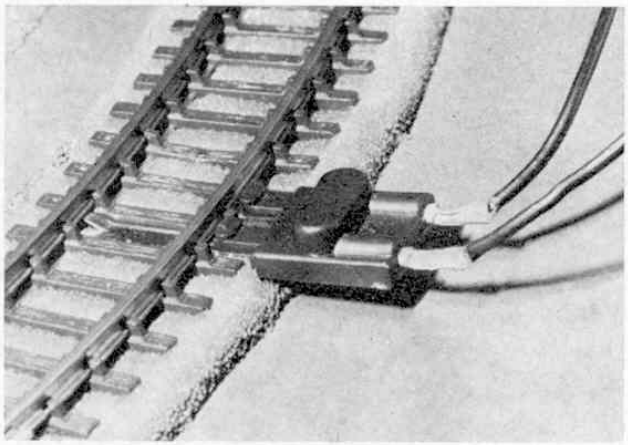
Photograph 7 shows exactly the same scene from " the air ". Raising the viewpoint immediately proves that this is our model railway, and a lot of the realism of that low-level shot is lost. The painted confines of the goods yard itself are now apparent, and the fences and accessories show up clearly. The left-hand siding is mainly used for fuel storage, and a rail tanker

The " sceond " controller has no built-in transformer—the " 12 volt uncontrolled input " comes from the main transformer-controller.



The main transformer-controller. The 16 volt uncontrolled output is wired to point lever and point motor as shown.





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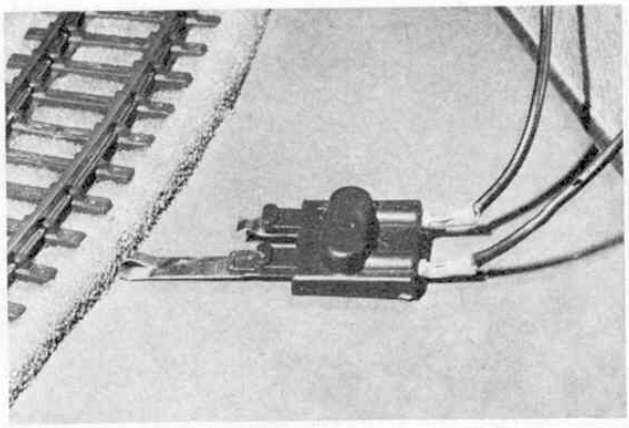

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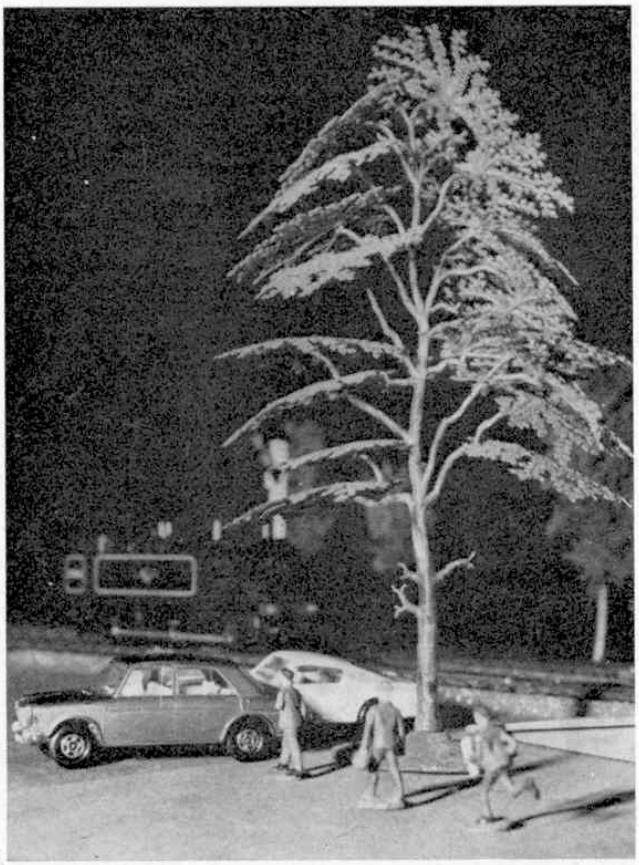

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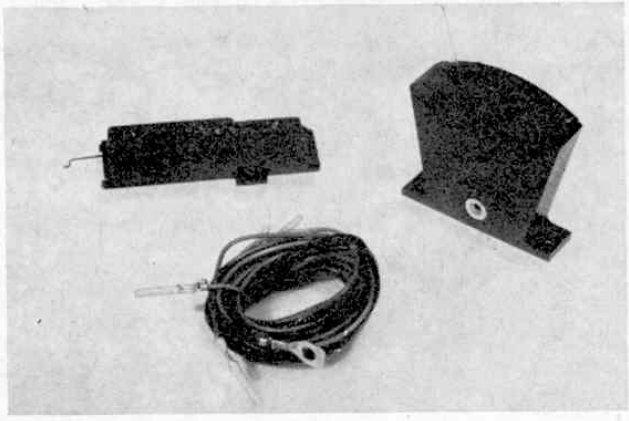
is standing next to the elevated fuel tanks. An interesting shunting movement is taking place in the inner goods yard. The mixed freight train has just arrived from the bottom of the picture, travelling on the inner track (trains, like cars, drive on the left). It has just pulled up beyond the yard entrance points, and backed into the yard. The brake van and U.D. milk tank are required to go on to a further destination, so they have been uncoupled and left in the short siding. The remaining vehicles of the goods train will soon be backed into the middle siding. While all this is going on, a diesel-hauled express is about to pass on the main line.

We come down to ground level again on Photograph 8, once again in the inner goods yard, but looking in the opposite direction. The little 0-6-0 " Jinty " is still shunting, and the uncoupling ramp can be seen right in front of it. These ramps are very cunningly designed and, although they are completely " remote " in their

1: The track power connector in position, and (2) withdrawn.
3: Point motor, actuating lever, and wire connections.
4: View of the main station " from the air," showing the very realistic appearance of the Tri-ang Hornby station buildings. Note the car park !
5: Britain's plastic tree " growing " in the station car park.



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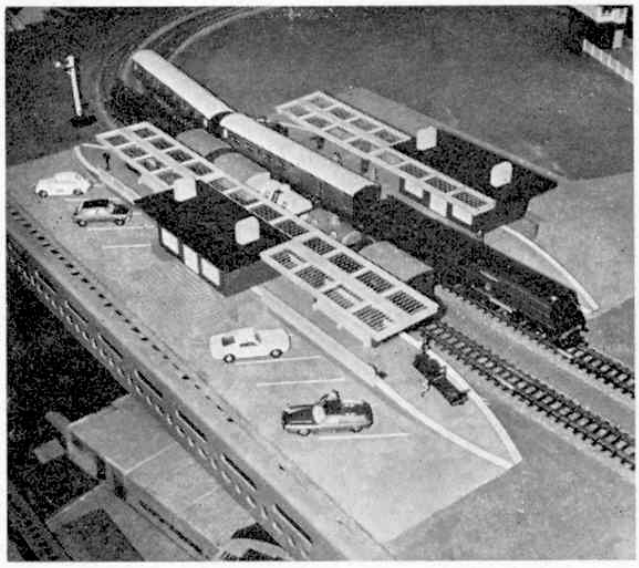

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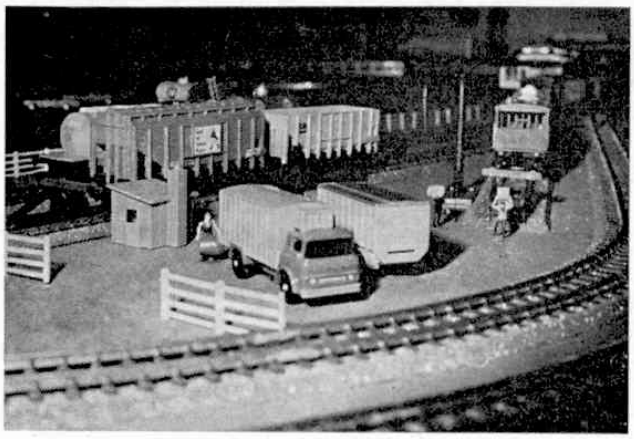

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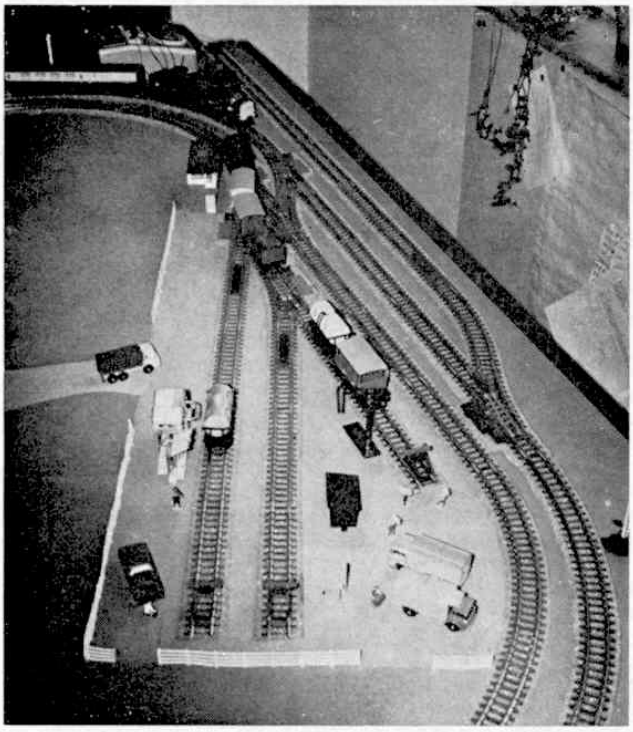
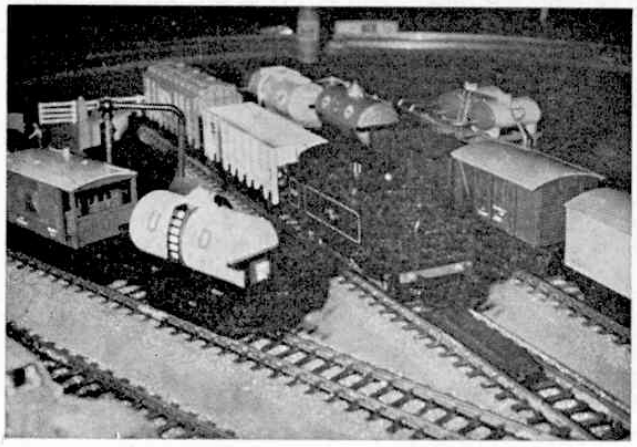


operation, no electricity is needed to make them work. If a train is pulled over the ramp, no uncoupling will take place, because the couplings are locked together when under tension, and they just push the spring-loaded ramp down. If a coupling is stopped over the ramp, however, and the engine just backed off a little, the couplings unlock, the ramp pushed them up and, hey presto ! Uncoupled.

Although plenty is going on in the goods yard, the main line is not idle. A double deck articulated car train is just passing, in the charge of D6830—an easy load for such a big locomotive. Only the glimpse of the station in the background gives away just how small the layout really is. (Photograph 9.)

Photograph 10 takes us back to the station again. The picture gives a good idea of the very detailed canopies. The express passing through is hauled by the Tri-ang Hornby Southern Railway Bulleid Pacific. The cross-over it is negotiating is the one we electrified with point motors for ease of operation.

8



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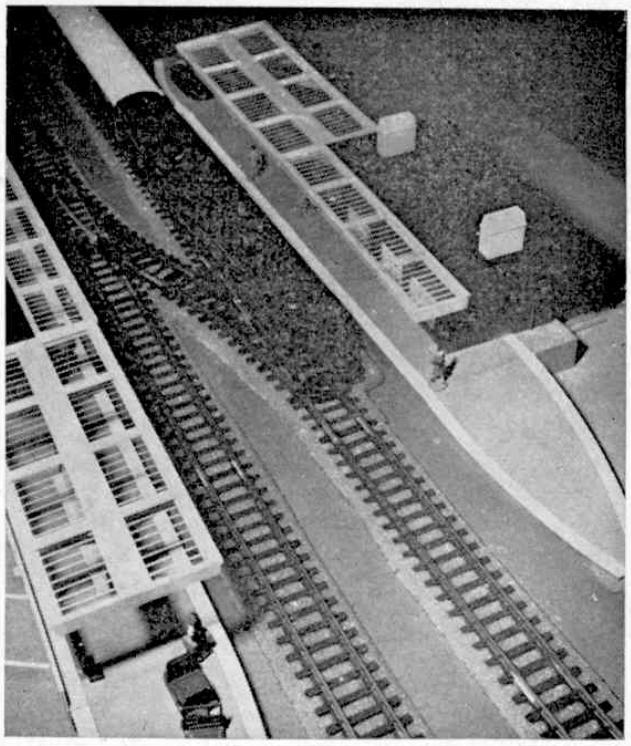
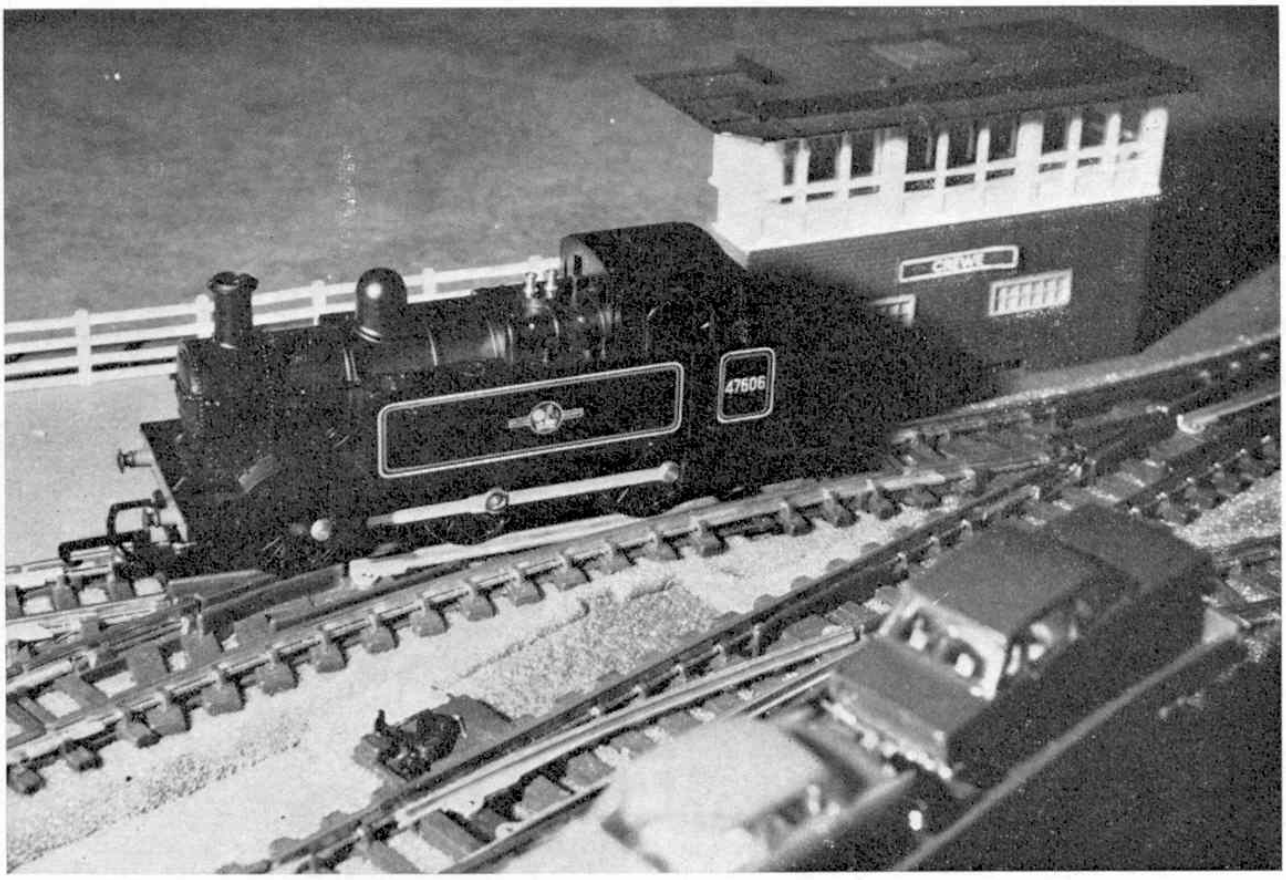




Travelling slowly into the goods yard is the Hornby Class 3F Tank Locomotive. In the foreground is the Cortic Articulated car carrier (R666) complete with a load of no less than 16 cars. The ' Crewe ' signal box is also by Hornby (R145).

BUILDING A MODEL RAILWAY

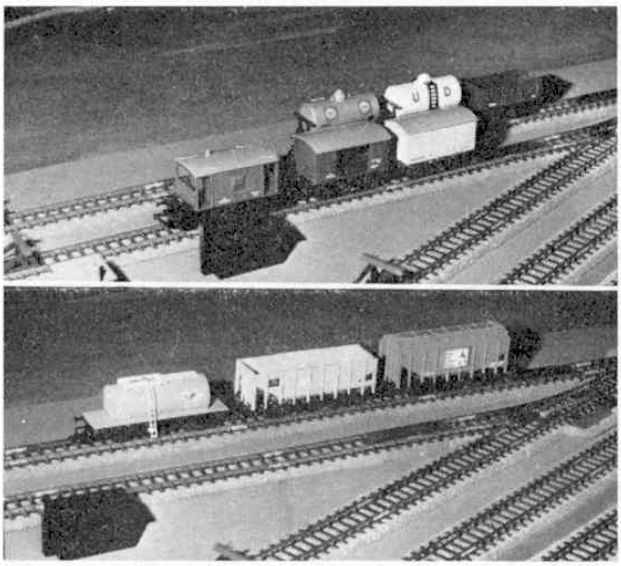
Part III

Rolling stock—operation—more thoughts on end-to-end layouts

Most model railways we have seen are spoilt by the fact that the rolling stock operating on them is usually a completely haphazard collection. Of course, if one has the money, it is very tempting to buy all new items as they appear on manufacturers' lists, but this policy never makes for a realistic model railway. The burning question is; how should one go about planning a collection of locomotives and rolling stock ?

The first thing to decide is the sort of railway the layout represents, and in which " locality " it is situated. Perhaps your layout is to be based on your local railway, or the seaside area in which you have spent holidays. Are the services predominantly freight or passenger ? Main line or branch ? A " commutor " type line will obviously require a lot of passenger rolling stock for its services—perhaps diesel or electric multiple-unit sets. A layout set in an industrial area will need a predominance of goods rolling stock—perhaps even a Freight-liner or Bulk Oil storage depot. Then there are main line express passenger trains—the most spectacular trains of all—but these can look out of place on very small layouts, as a two-coach " Flying Scotsman " never looks realistic, however vivid your imagination.

Apart from deciding what sort of railway the layout is intended to portray, the next most important decision is " what period ? " The Tri-ang/Hornby range alone includes a tremendous variety of livery styles, appro-



The old and the new. Top photograph shows five of the older type B.R. rolling stock in a siding on the unfinished goods yard of our layout. Lower picture shows three more modern wagons in the same siding.

priate to the various periods of railway history. Before 1948, the major lines in Great Britain comprised four large companies—the Great Western, which served South and West Wales, the Midlands and the West Country; the London Midland and Scottish, which served those areas mentioned in its title, plus parts of North Wales; the London & North Eastern, which ran the East Coast route to Scotland, and the Southern Railway, serving the Southern London suburbs and the South Coast resorts. Tri-ang/Hornby locomotives available in the liveries of the "Big Four" include the L.N.E.R. Pacific No. 4472 "Flying Scotsman" (R855); L.N.E.R. B12 Class (R8665); Great Western "Hall" Class 4-6-0 "Albert Hall" (R759G); L.M.S. Pacific "Princess Royal" (R25BG); Southern Railway "Battle of Britain" 4-6-2 "Winston Churchill" (R869S) and Southern M7 class 0-4-4T (R868).

Coaches are available in pre-1948 liveries to match the engines mentioned above. Great Western (chocolate and cream livery) R743, R744, L.N.E.R. (teak livery) R745, R746; L.M.S. (maroon) R422A, R423A; Southern (green) R622A, R623A.

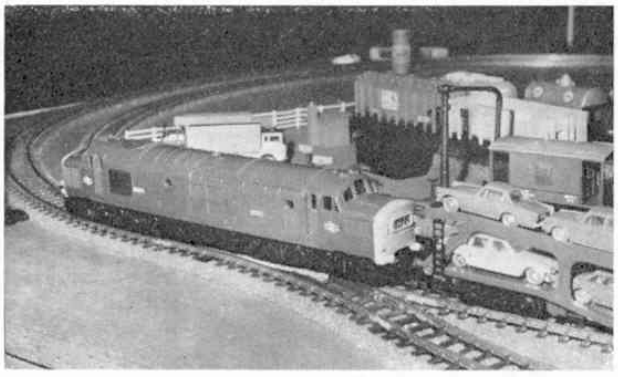
All the locomotives mentioned are also available in post-1948 British Railways colour schemes. Many readers of Meccano Magazine will not be interested in the old liveries, simply because they cannot remember them (it is a sobering thought that one must be in one's forties to have many real memories of pre-Nationalisation railways!).

Even the bang up-to-date "Inter City" trains are represented in the Tri-ang/Hornby range, including the new B.R. Mk 11 coaches (R723, R722) and electric locomotive type AL1 (R753). These vehicles are finished in the now familiar British Rail livery—blue and yellow for locomotives, and blue and grey for coaches.

The photographs of our layout include both "pre-war" and "modern" rolling stock, but it is not a very realistic proposition to mix periods in this way.

Tri-ang/Hornby freight rolling stock also covers a wide period of time, from the standard 4-wheeled wagons and vans (thousands of which are still running on B.R.) to the up-to-date and colourful Freightliner containers and "bogie flats". The car transporter which can be seen in the pictures is a typical example of a modern "special purpose" vehicle. Many motor cars are transported by rail these days—not only holidaymakers' cars on "Motorail" trains, but also new cars en route from factories to consumer markets. The Ford Motor Company has its "own" trains for this purpose, which connect Dagenham and Halewood (Liverpool).

Close up of a typical tunnel mouth, acting as a divider between terminus and "fiddle" sidings.



English Electric type 3 Co-Co Diesel Electric Loco hauling a freight train consisting of 4 of the new Freightliners.

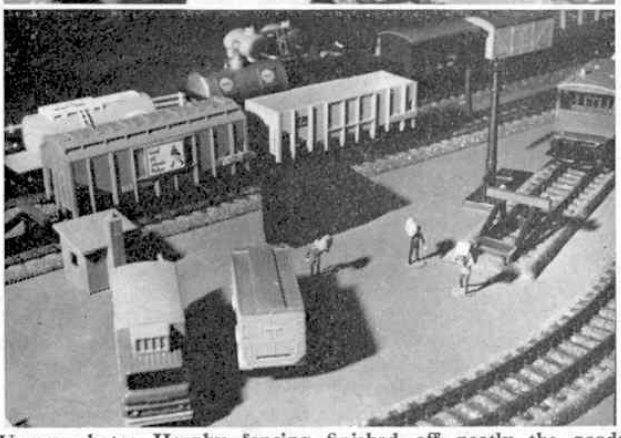
Choice of rolling stock for a model railway is the first requirement for realistic operations. "Steam" engines obviously should not run with Mk 11 coaches any more than an AL1 electric locomotive should pair with pre-Nationalisation coaches—it looks wrong, and it is wrong, and it is these small details of choice which make all the difference between a toy train set and a model railway.

In the first article in this series, we described how our small continuous layout could be operated in a reasonable realistic way, and we also hinted at the possibilities of "end-to-end" layouts as opposed to "continuous" ones.

The continuous type of layout has one big advantage and an equally big disadvantage. The point in its favour is that trains can be set in motion, at speed and will circle the layout without any attention from

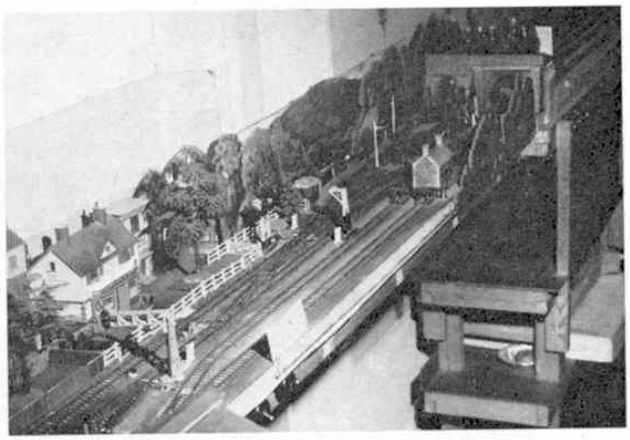
the operator—you can just sit back and watch the action. The drawback is that the "action" can soon become very boring and, particularly if your layout is a small one, the constant gyrations of tarins is unrealistic, to say the least!

With an end-to-end layout, there is no "circle" or "oval" of track; as the name suggests, the track is simply laid from "end-to-end" of a long, thin baseboard. Admittedly, one has to have a space long enough for the layout (9 ft.-10 ft. minimum in OO gauge) but the width of the baseboard can easily be as narrow as 18 inches. The end-to-end design is very suitable for installing along one wall of a room,



Upper photo: Hornby fencing finished off neatly the goods yard. MATCHBOX car, Hornby lineside huts, water crane and Faller Diesel Depot add to interest.

Lower photo: Hornby figures and more MATCHBOX vehicles create further realism.

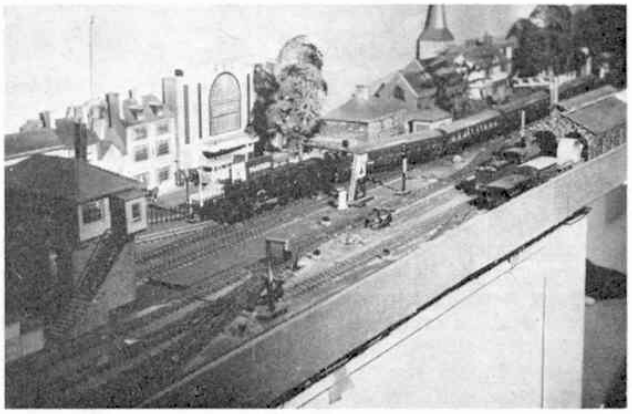


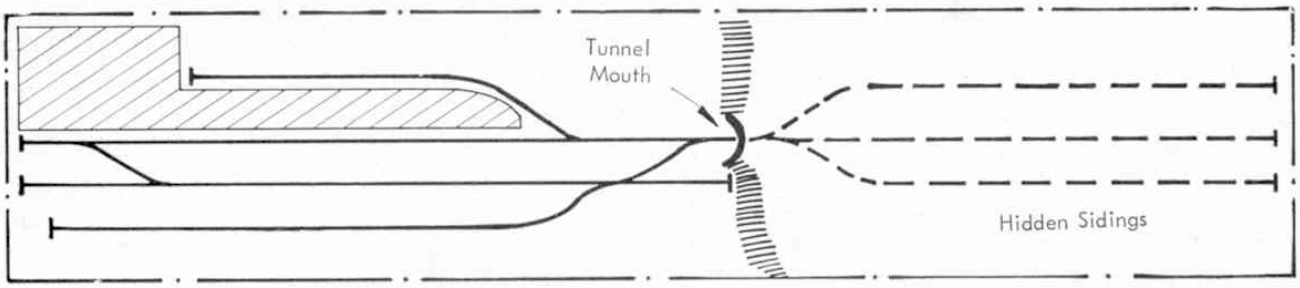
View of an "end-to-end" layout built by G. F. W. Malham. The "fiddle" sidings can be seen beyond the tunnel mouths.

and the thin baseboards can be "sectionalised" into very handy modules (say 2 ft. × 1 ft. 6 in.) for easy transportation: The long and thin appearance of this sort of layout adds greatly to the realism of the model almost before you start—real railways, after all, are always that shape.

What about operating an end-to-end railway? Well, at first one is bound to miss the advantages of continuous running, but soon all sorts of other, much more interesting, possibilities will come to light.

View near the terminus station on the same layout. Note the narrowness of the baseboard and the "low relief" buildings which act as a backscene.





A simple end-to-end terminus station layout for a space 9' x 2'