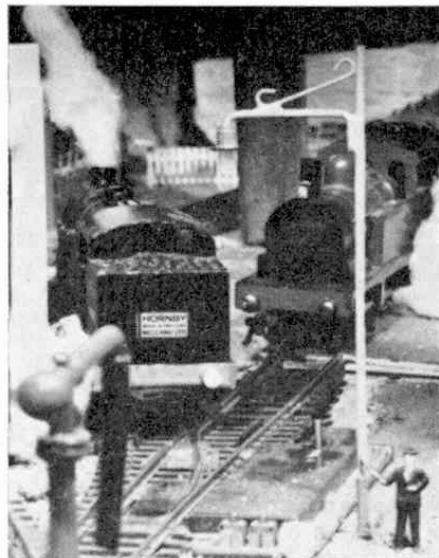


# An aid to layout realism

● On pages 606-7 of this month's issue "Linesman" writes about the design of motive power depots on miniature railway layouts. Here, S. F. Page, owner of the "Longdon, Newborough and Easthyde Railway", shows you how to construct a similar sort of depot using the Hornby-Dublo Engine Shed, and Engine Shed Extension, Kits.



ONE of the most impressive areas of any Hornby-Dublo layout can be the locomotive depot, the provision of which is well catered for in the Hornby range by the inclusion of No. 5005 Engine Shed Kit, and No. 5006 Engine Shed Extension Kit.

Once erected, the shed forms the central point for locomotives, whether you have steam or diesel types, since its very modern appearance is in keeping with many new diesel depots built on British Railways.

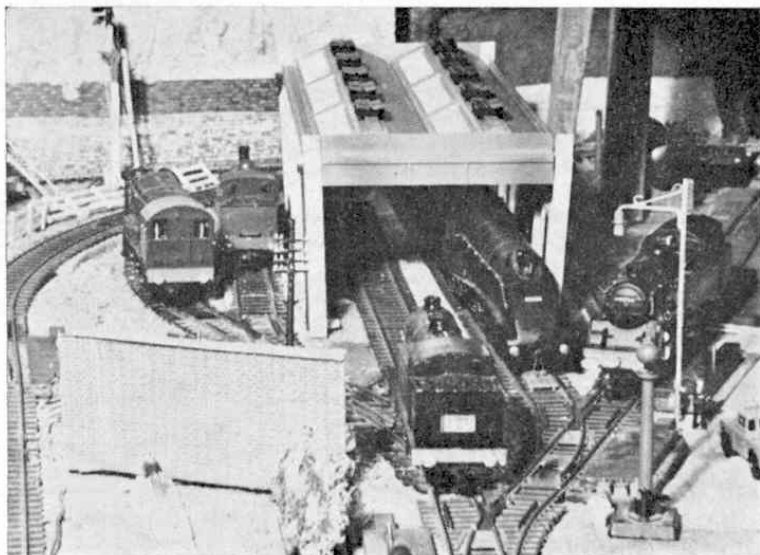
On a permanent layout, the use of this engine shed helps to keep dust from settling on locomotives when the layout is not being used. Have a look on the top of the shed after your layout has been out of action during holidays and you will be surprised at the layer of dust which has accumulated.

The track at a locomotive shed is usually sunk to enable railwaymen to move around without the need to keep walking along sleepers and over track, but if you do not want to sink your track into a plaster base, then provide walkways. These are easily made with match sticks, about four between rails, and then continued between tracks. Make sure that these do not come up close to the inside of the rail and so foul the flanges of the engine wheels.

At all engine sheds in actual practice watering points are provided and on your layout the Hornby-Dublo Water Crane (No. 5095), which needs to be fitted to each "road" from the shed, looks after this requirement.

Canteen accommodation is often provided in the neighbourhood of sheds, and you can arrange similar facilities for your

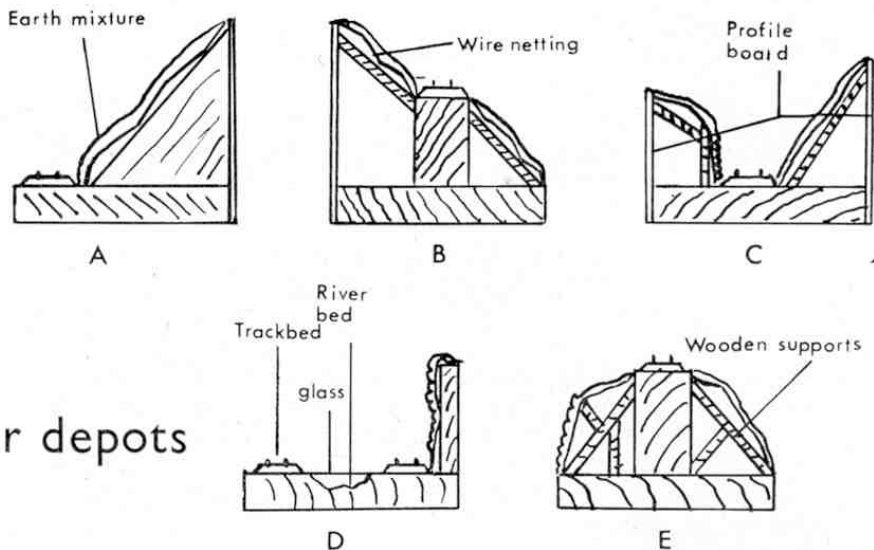
(Continued on page 599)



Top: A regular morning scene outside the Longdon locomotive shed. Centre: A view of the main sidings on the author's layout, taken from Easthyde Hills. Right: A Hornby-Dublo locomotive shed forms the centre of this locomotive depot, catering for both steam and diesel type locomotives, seen in the centre picture.

# SCENIC STRUCTURES

## And plans for two motive power depots



AS promised last month, I am continuing the series on baseboards in this issue, with particular reference to the methods involved in the construction of wooden bases for scenery. At the same time, as the "sandwich" feature I introduced last month was so popular, I will devote some of my comments to two rather unusual motive power depots which readers can assemble by using Hornby-Dublo Two-Rail track.

Scenery is usually one of the last things to be added to a model railway, and if the builder has been wise enough to plan for its inclusion no difficulty should be encountered in relating the two to each other. So great is the flexibility of scenery that even if the layout has not been planned it will be found relatively

easy to fit scenery, with a few adaptations, into any number of awkward locations. Always remember that when the actual railways were built, the landscape was not modelled around them. But permanent way was laid across the landscape, and so, although your track will be

By "LINESMAN"

the first permanent feature to be installed on your model railway, the scenery which is subsequently added should be made to justify the track.

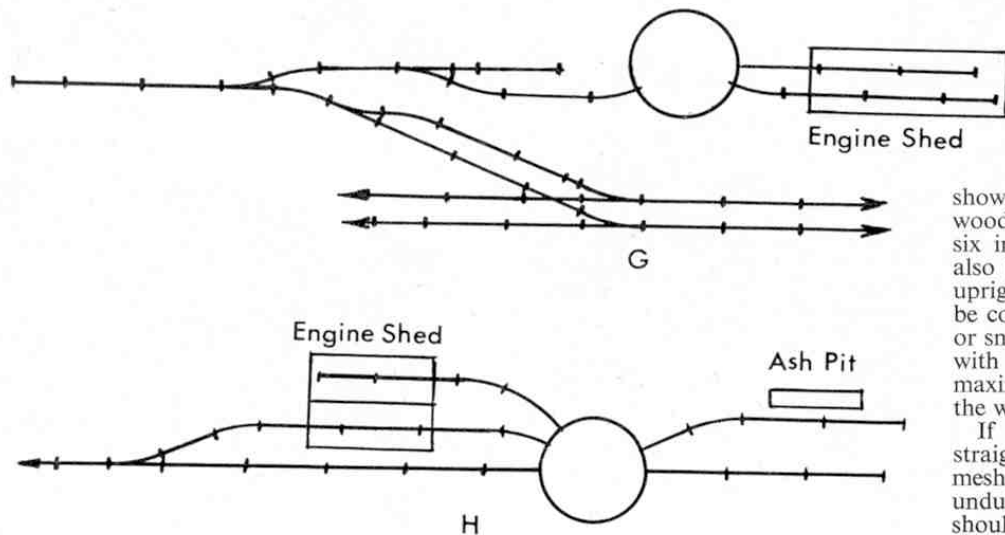
For instance, where a curve is laid a hill or other natural obstacle should be made to account for it. Gradients should actually run to higher or lower levels, and

tunnels should run through hills that would have made a cutting impossible to make. Most important before starting work on a layout is the planning of both the track and the scenery so that both exist in harmony, and heighten the overall effect.

Hills, embankments, sheer rock faces, and other natural features have to be built up over a wooden substructure, which may be built from scrapwood and any other spare pieces of timber that may have been accumulated during the building of the baseboard. The principles involved in the building of baseboards need not be meticulously followed during construction of the substructure. It does not have to be a model of neatness because it will never be seen, nor does it have to be unduly strong, since, in most cases, the maximum weight it will have to carry will be a coat of plaster, or possibly papier-mache.

Included in this article are five sketches of the scenic combinations which, in my experience, are the most widely used on model railways. A single hill on one side of the baseboard is shown at "A", and illustrates in cross-section the type of construction used to build the contour shown. The wood on the end of the baseboard shown in the sketch is nailed, or screwed, into position, being first shaped to the contour required. It may, alternatively, be left quite flat, as shown in the drawing. A similar piece of wood should be nailed into position every six inches, with a longitudinal member, also nailed into position, on top of the upright formers. The whole hill may then be covered with chicken wire of medium or small mesh. I would suggest that wire with a mesh of half an inch be set as a maximum if plaster is to be applied on to the wire direct.

If the end contour board is quite straight, as shown in the drawing, the wire mesh will have to be relied upon to give an undulating surface, and to achieve this it should be twisted and bent into a suitable





Our photograph shows a typical cutting. The combination of rock and grass should be studied in order to get the best effect if you are adding scenery to your model railway. This picture of No. 92220 "Evening Star" passing over Masbury Summit with the last Up "Pines Express" to run over the Somerset and Dorset line is by Ivo Peters.

shape, then nailed into position on the contour board ends and the sides of the track base. The wire is then ready to receive its surface. The arrangement shown at "B" is one which many readers will have not seen. It is basically a raised trackbed with a hill at one side and a slope on the other. The raised trackbed is built up from blocks of wood cut to the required height and screwed into position at 9 inch intervals along the baseboard. The trackbed is then screwed on top of the blocks. The hills on either side should be built up as before, with pieces of scrapwood nailed to both the trackbase supports, and with the profile board at the rear of the baseboard. These boards should be cut out of either plywood or hardboard, to represent the shape of the terrain you require.

A typical profile board is shown at "F". A keyhole saw, obtainable from most tool shops, will be found useful for cutting out the undulations from wood sheet.

A very popular arrangement with railway modellers is that shown at "C", which is a trackbase with a hill on either side. The supports for the hills in this case have been tailored, or assembled, to suit the type of scenery required. Basically the same method of construction that has been used for the other types has been followed. Note that two profile boards are used in this particular diagram, one for each side of the layout.

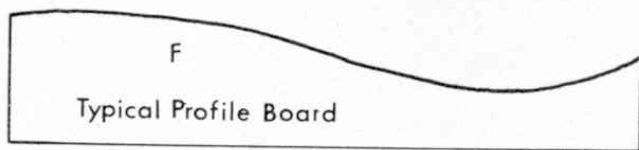
Diagram "D" shows the dual feature of a vertical rock face and a river. The construction is unusual, but simple. The rock face is a vertical piece of wood, screwed or nailed into the edge of the baseboard as before. The wood should be rather thicker than the ordinary profile material. The wire mesh is draped and pinned over as before, and material re-

sembling a sheer rock face is applied over the wire mesh. I hope to deal with this fact in a later article.

The river bed should be gouged out of the baseboard timbers, and covered with an earth mixture to represent a river bed. It is then painted, and the whole river bed covered at water level height with a sheet of thin glass. There are however, many other ways to simulate a river, and I shall explain them fully in a future article.

The last of our five diagrams shows a high embankment. The supporting struts for this should be positioned according to the type of embankment required. As in the other drawings the construction for the substructure is not a very intricate affair, and is easily accomplished.

The two plans of motive power depots will be of interest to all readers who feel the need for something of this nature on their layout. Those who wish to make use of either plan will find that an excellent kit for a turntable such as the one shown



is produced by Airfix. Not all motive power depots are attached to a particular station—indeed, most large depots are found outside station limits, and so it is with this in mind that I present these two designs.

Diagram "G" is intended for use off a double track main line, although it may also be used for a single track line simply by removing one of the tracks stretching from the backshunt to the main lines. The engine shed roads lead from the turntable, and are therefore dependent on it for accessibility to other parts of the system. The ashpit may be found on the line adja-

cent to that which runs to the turntable from the backshunt. If no turntable is required, points can easily be substituted.

The engine shed shown in the diagram is only suitable for two tender locomotives or three tank engines. Its capacity can easily be enlarged by additional locomotive sheds, which may be placed round the turntable as required, giving it an American roundhouse look. The American system will not find favour with everyone, for a large amount of space is required to accommodate a roundhouse. The total space needed for sheds forming a quarter of a circle round the turntable is approximately 2 feet 6 inches square, assuming that the turntable is 1 foot in diameter, and the locomotive shed is 1 foot long. A length of six inches should be left between the turntable and the shed.

It is possible that the average enthusiast will not be in a position to afford the space required for such a scheme as this, and so the depot shown in diagram "H" may be of interest. The advantage of this plan is that it requires less width than "G" although it is of slightly greater length. This is no real disadvantage, since it is usually easier to fit a long thin baseboard into a room than it is to accommodate a short, but wider, one.

The plan shows two locomotive sheds, one of which is of the run-through variety, and the other of the more usual type. An ash pit and coal road can be seen on the other side of the turntable, and if these are suitably dressed with flock of appropriate colours they will enhance the whole depot scene.

Next month, I will give readers details of several recognised methods of constructing scenic surfaces.

#### A Lucky Liverpool Boy—

*(Continued from page 588)*

of the British Railways Board. He was invited into the cab of the diesel locomotive *Accra*, which hauled the train, and introduced to Driver F. Lawson and Fireman D. Lindsay, both of Camden Sheds.

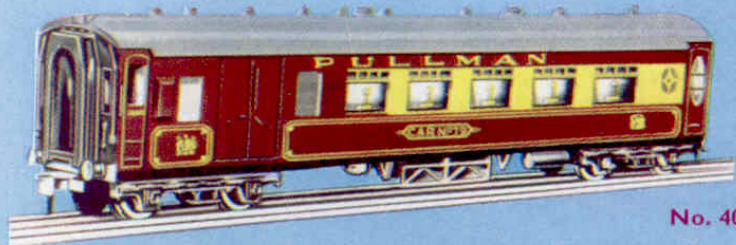
After being photographed at the controls of the *Accra* young Robert travelled on with the party, by Underground, to Clapham and spent a busy afternoon inspecting the interesting exhibits, which include engines from the days of Trevithick and Stephenson to the present day. He was helped on to footplates, shown into coaches that were part of the Royal Train in the days of Queen Victoria and King George V, and finally entertained to tea by Mr. L. Clay, Deputy Curator of the museum. In the party, too, were Mr. Frank Allen, P.R.O. of the Merseyside and North Wales Division of British Railways, who travelled with Mr. Rogers and his son from Liverpool, and Mr. T. Germaine, Assistant P.R.O., British Railways Board.

Then Robert, who is a pupil at Warbreck Primary School, Liverpool, set off on his journey back to Merseyside, with a wonderful story to tell to envious friends on his return to school. Both he and his father were already Hornby-Dublo enthusiasts before they won their prize.

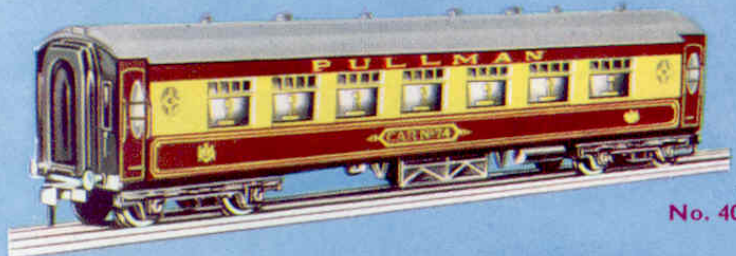
# PULLMAN *Cars*

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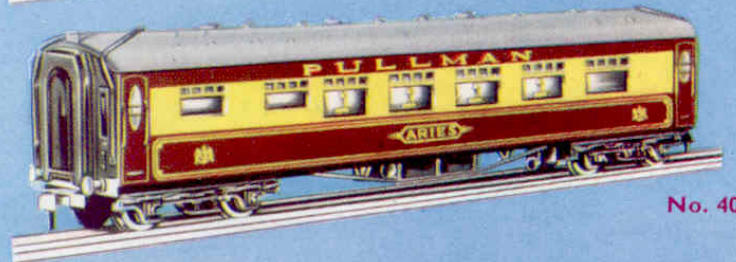
These Pullman cars are superbly detailed with such refinements as accurately scaled interiors with seats, tables and dummy lamps. Each car—there is a first class, second class and a Brake/2nd—is painted in the Pullman livery and carries the name of the real car.



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No. 4036



No. 4035

The interior of a Hornby-Dublo Pullman Car.



4037 Pullman Car Brake/2nd.  
Length 9 $\frac{3}{4}$  in.

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A LAYOUT THAT  
IS DIFFERENT

# THE ORTOGO RAILWAY

By  
J. Dugdale, B.Sc.

LAST winter, I decided to make a railway layout which was different from others I have arranged in the past. They were all very much alike, and somehow seemed similar to everyone else's railway. Several ideas which had been reposing in the back of my mind were brought to the front, developed and expanded, and work started on what eventually came to be called the *Ortogo Railway*.

Let me tell you to begin with that it is an exhibition piece—some of my friends in the Merseyside Model Railway Society have said that it is an exhibition in itself—and does not pretend to imitate any railway location. It is small, only eight feet by three feet, because my workshop is not much bigger than that. The railway is built on two levels. The lower track is just a "looped eight", a continuous track

without points. It is level at the station in the centre front, climbs to pass over the other track and then falls at 1 in 20, to datum level. The radii of the curves are necessarily very small, but as more than half of the thirty-six feet composing the lower track is covered by the upper baseboard this is not a great disadvantage. The lower track is divided into four block sections, each with its Hornby-Dublo Colour Light Signals.

The upper baseboard contains two features, independent of each other, each having a special task. The first of these, in the foreground, is a four-road marshalling yard with a shunting neck and there we see a Hornby 0-6-0 Diesel and about twenty wagons of various kinds assembled. The yard is completed scenically with

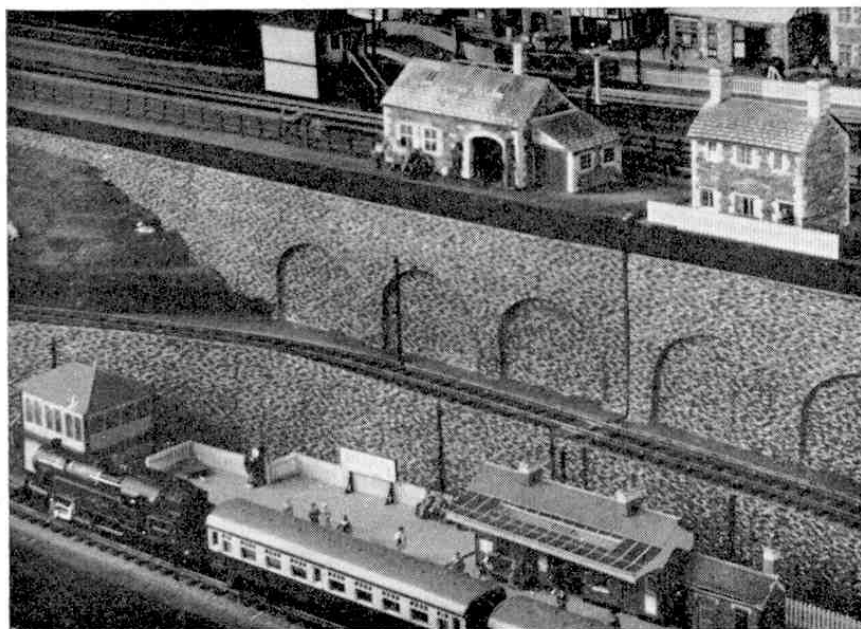
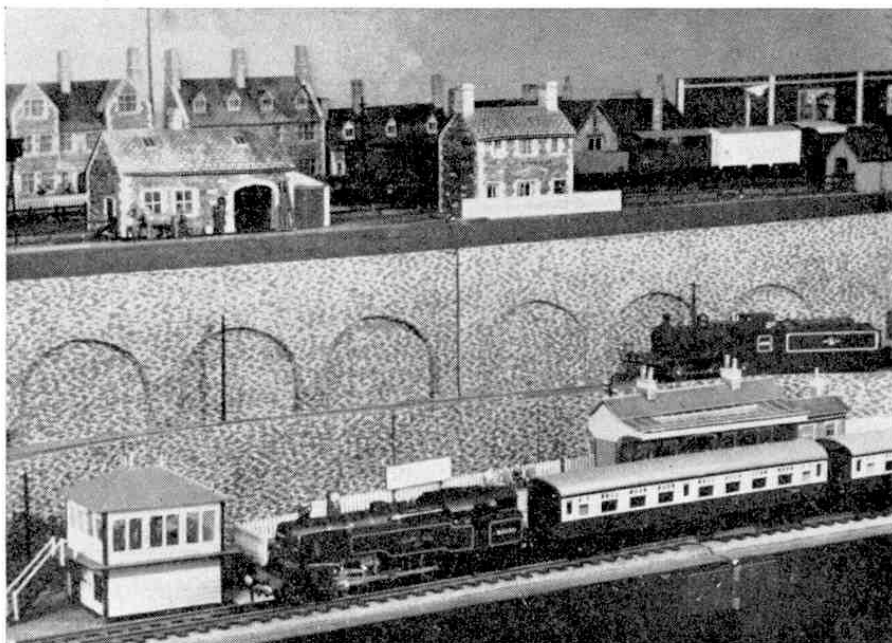
various sheds and buildings, and behind are a few works attached to the town of *Oxhey-on-Sea*. The town and its station form the second main feature of the upper level.

*Oxhey-on-Sea* has become more important recently and is developing into a pleasant seaside resort. The railway authorities have just provided the line with a service of electric trains and this has made the town even more popular. At the back, we see the main street of *Oxhey* with its modern shops and cinema alongside the Alms House and other old stone buildings which show that the place has a history, too. Next to the road we have the railway, with the station at the left-hand end. A level crossing gives access to works at the side of the line.

So much for the geography of the layout; with the aid of photographs let me describe the operation. The railway is entirely automatic so there is only need to switch on the main circuit and the whole model comes to life. As a description might be a little bewildering, let us assume that each circuit is put on separately, to give us time to take it all in.

First we have a Hornby-Dublo 2-6-4 Tank and two coaches on the bottom loop and switch on. The starting signal shows green and away goes the train, disappearing into the tunnel on the left. As it does so the signal shows red behind it, and when it leaves the tunnel on the right it enters the second section, governed by its own signal. This shows a green light, but as soon as the train has passed, this, too, changes to red and at the same time the starting signal reverts to a green aspect because the section to which it belongs is

In the upper picture a Hornby-Dublo 2-6-4 Tank waits with its train at the station named "Pawsing", on the layout described in this article. After station work has been finished, the 2-6-4 Tank moves its train away from the platform.



Top right: Shunting operations in progress in the high-level yard. This picture shows how effectively the various lineside buildings fit in with the general scheme. Below: The railway passes a busy street scene. A point of interest is the road repair gang on the left of the picture.

cleared. This is repeated as the train enters a second tunnel, on the left.

As it emerges it faces the home signal for the station, where it slows down and then stops. It remains in the station for about twenty seconds before it carries on and repeats the performance.

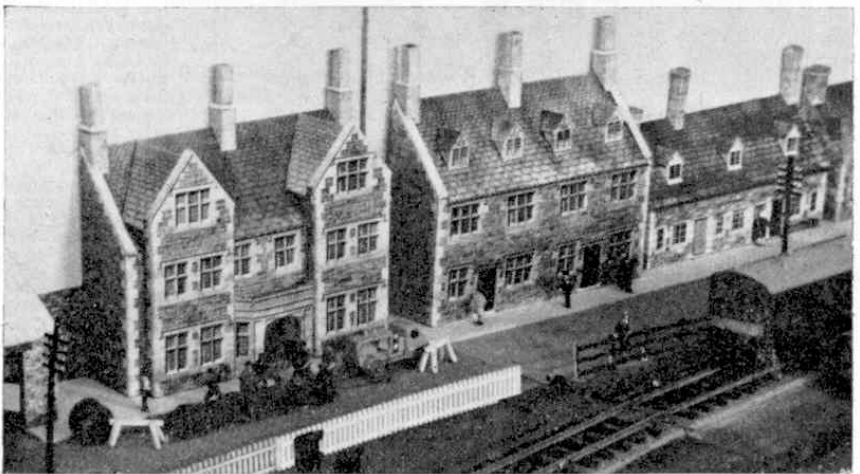
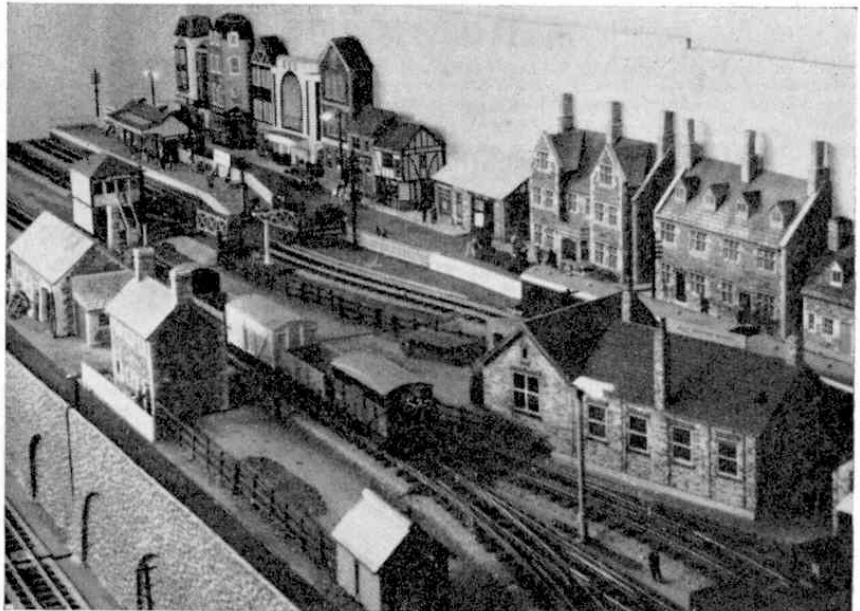
While it is standing in the station we can place a second train on the same track. This will run round, and the signals will operate just as before until it approaches the red light. The train then slows and eventually stops just before the signal, remaining there until the signal gives a green aspect, showing that the section ahead is clear. So it goes on, whichever train is second having to wait for a given section to clear. The trains pause sometimes, but not every time, at the station. Hence the station is called *Pawsing*. Actually three trains can perform on the same track in the way described above.

\* \* \* \*

The marshalling yard is even more fascinating to the onlooker. The Diesel Locomotive moves from the shunting neck into one of the siding roads and couples up a number of wagons. It reverses and draws clear of the points with its load, then stops, waits about ten or fifteen seconds while the points are reset, and pushes the trucks back, leaving some of them in one of the sidings. It reverses again, draws out very slowly and realistically and waits again while the points are changed, and then shunts more wagons back in another siding. When it has sorted all these wagons, it can be moved to another line of vehicles and do the same with them. It will continue to perform similar operations unaided for fifty minutes without actual repetition.

In the meantime *Oxhey-on-Sea* has come to life. The passenger traffic is not yet sufficient to demand a very frequent service. Actually, a twenty-minute service is provided. In real practice this would be quite a good one, but by miniature railway standards it is certainly not very frequent. As we watch we get an indication that a train is coming, the clue being the opening of level crossing gates, operated from the adjoining signal box. They are single gates; one opens completely and then the other begins to move across slowly, just like real crossing gates. After a short delay, the home signal goes to green. Eventually the expected train appears from behind a retaining wall, lights in the coaches giving an occasional flicker. It stops at the platform and there is an interval for passengers to leave the train. The home signal is returned to red, the crossing gates are closed again and the train lights go out while we may suppose that the "crew" go for a quick cup of tea with the station staff.

It is not long before the train must leave again for the Metropolis. The lights come on in the coaches, the gates open again one



at a time, the starting signal changes to clear and the train moves off. The signal returns to normal, and the gates close, each of the operations being performed at about half-minute intervals. Although the actual service is infrequent, there is no lack of activity on the lines around *Oxhey*. Meantime, work in the marshalling yard goes on, and our three trains circle the lower baseboard, halting when a signal shows red and pulling up occasionally at *Pawsing*.

\* \* \* \*

To add interest much attention has been given to lineside details. For instance, "people" on the layout are not just standing or sitting; they are depicted doing something—a billposter does his weekly rounds, the linesman repairs the telephone wires, and two old-timers watch the new electric trains go by.

To add to the reality of it all the light in the various buildings can be changed—the flood-lighting of the cinema changes from red to green and then to white, and, of course, if you put lights inside buildings

you have to furnish the property. Finally, as each train enters the *Pawsing* section the bell code is heard in the signal box, and the figure of a signal man enthusiastically heaves on the lever to give a clear aspect from the starting signal.

\* \* \* \*

How it is done? A whole magazine could be written about this. Below the layout and between the trestles which support it is the "brain", a complicated set of relays, high-resistance, low resistance, quick-acting and slow-acting, thermal relays and selectors, which "choose" the successive operations. More switches are housed in the baseboards themselves and some of these are actually operated by magnets carried in some of the rolling stock.

The track is Wrenn and is laid on foam rubber ballast underlay. Most of the rolling stock is Hornby-Dublo, except for a few wagons which are Peco and of various other makes. The buildings include both hand-built and commercially-produced models.

# New suspension bridge over the Severn

TO carry the new M.4 London-South Wales Motorway, a giant suspension bridge is being constructed across the River Severn a few miles north of Bristol. At present the most southerly road bridge over the river is at Gloucester, a notorious bottleneck when traffic is heavy. The new bridge is to be operated on a toll system but the time saved will be tremendous.

This new motorway will relieve Gloucester, Cheltenham and the A.40 road between London and Gloucester of a large proportion of the present traffic. At present, a ferry is being operated near the bridge site, but this can only carry about 56 cars per hour in each direction.

This suspension bridge, having the second longest main span in Europe—3,240 feet, exceeded only by the 3,300 ft. main span of the new Forth Bridge—is expected to cost a total of £16,000,000 and is due to be completed in 1966. Consulting engineers are Messrs. Mott, Hay and Anderson, and Messrs. Freeman, Fox and Partners. The architect is Sir Percy Thomas.

To carry the cables, 400 ft. steel towers have been built on concrete piers in the river. Each tower consists of a pair of hollow box-shape sections constructed from stiffened  $\frac{3}{4}$ " thick high tensile steel plate. The weight of steel in each tower is about 1,200 tons.

The cables will be about 20 inches in diameter, comprising in all some 18,000 miles of wire 0.2 inches diameter and

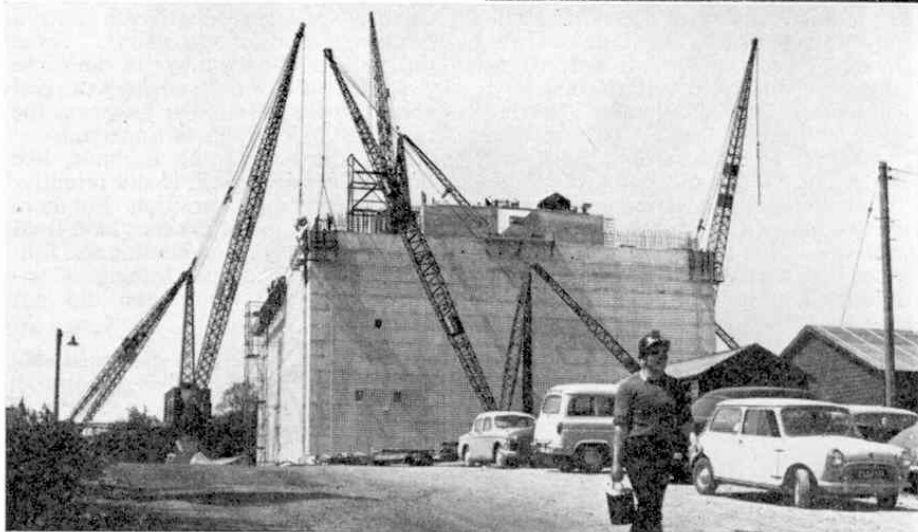
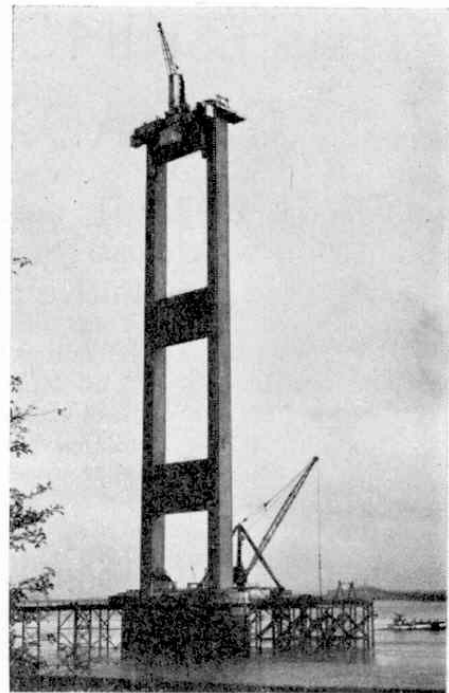
By  
**Edward G. Hodgkins**

weighing about 4,200 tons. The roadway will be suspended from these cables by steel wire ropes, between which will hang the main deck in the form of a hollow 80 feet wide by 10 feet deep. On this will be laid a 24 ft. carriageway in each direction while outside the ropes there will be a 12 ft. wide cycle track on one side and a 12 ft. wide footpath on the other. The total weight of steel in the deck will be 11,000 tons and this will be assembled in 60 ft. lengths in a local shipyard, floated to the site and hoisted directly into position to be finally welded into one continuous length. The road will be about 120 feet above high-water at mid-span.

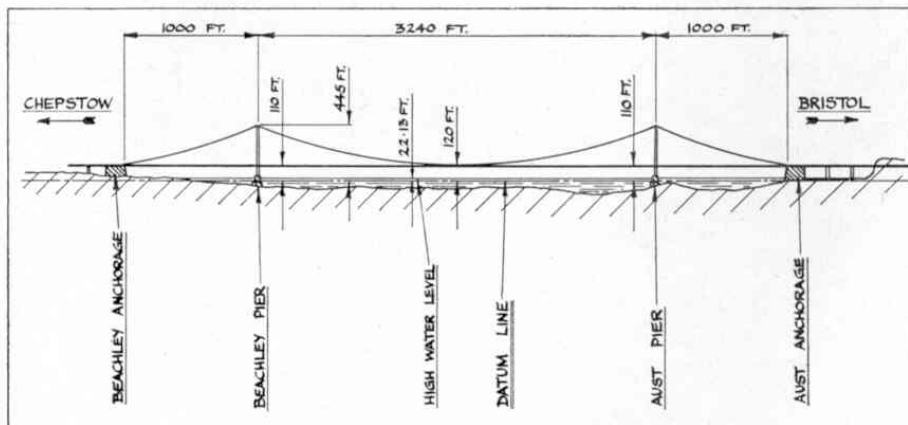
The foundations of the bridge, already complete, are in four main parts and are of reinforced concrete. The Aust pier, weighing about 20,000 tons, is built on a limestone outcrop in the river. The Beachley pier, however, is founded on two 60 ft. diameter shafts sunk 35 ft. into the river-bed and filled with concrete. The pier consists of some 35,000 tons of concrete.

Each anchorage comprises a hollow block of concrete 140 feet long by 110 feet wide by 120 feet high and weighs about 80,000 tons. The main cables will each exert a horizontal pull of some 10,000 tons on these anchorages.

The bridge, which will be the sixth longest suspension bridge in the world, has been designed to withstand wind speeds of up to 100 m.p.h. and to carry vehicles of up to 180 tons in weight.



(Top) The Beachley Tower nearing completion. The roadway of the bridge will pass over the lower cross-piece of the tower. The Aust-Beachley Ferry, at present the only car-crossing south of Gloucester, can be seen on its journey across the river. (Centre) The giant Beachley anchorage nearing completion. (Below) A diagrammatic view of the new bridge, giving height and distances. Illustrations by the author.



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