A.B.C. of MODEL RAILWAYS

SIGNALS

Above, the "Golden Arrow" passes under three Southern Railway upper quadrant arms. The left-hand arm is of corrugated construction, for strength. At right, an ex-Great Western Railway No. 2250 hauls a special train through Barmouth Junction. The signal is a "Fixed Distant". The arms are fixed to the post permanently in the "caution" position; the driver must be prepared to bring his train to a stop at the next "Home". Below, "The Broadsman", one-time Eastern region crack express, passes an interesting double-bracket signal which incorporates "calling-on" arms.

DURING A journey by rail, few people these days ever spare a thought for the highly complex signalling system which protects their train from disaster as it speeds along. The modern railway signal is a very reliable and complicated device which has developed over many years, and has made the railways of Britain among the safest in the world.

Signals do not concern the model railway enthusiast from a practical point of view, and most layouts have signals only as part of the "scenery". Nevertheless, they are a fascinating study in themselves, and in this article we intend to describe broadly the development of the semaphore type of signal; modern "colour light" types will be dealt with at a later date.

In the earliest days of railways, signals hardly existed at all. Trains were usually despatched from stations on the "time interval" system. This meant that after one train had departed, another was not allowed to follow it until a certain time had elapsed. The dangers which were inherent in this system of operation are painfully apparent; if the first train broke down out in the country, there was nothing whatever to stop the following train from colliding

with it from the rear. It must be admitted that accidents of this kind were not very frequent, even in those far-off days, but trains travelled comparatively slowly, and drivers could often pull up in time if they saw that the line ahead was blocked.

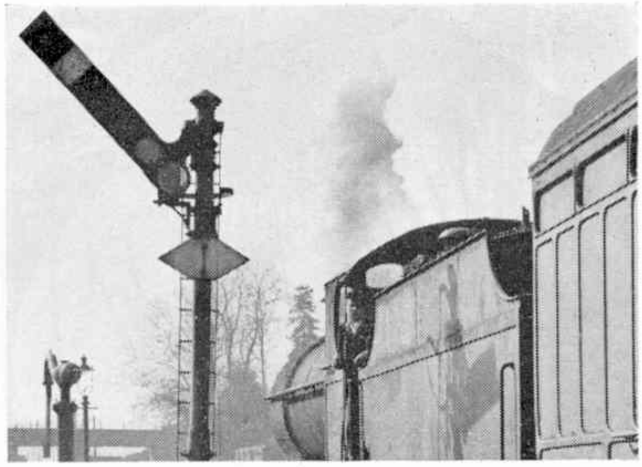
As locomotives developed, and the speeds of trains grew greater, the need of a proper signalling system soon asserted itself. The earliest signals were human beings, in the shape of railway "policemen". These gentlemen performed much the same duties as the present day policeman on point duty; they stood by the lineside at stations and junctions, and signalled the trains with red and green flags. This system proved fairly satisfactory while traffic was light, but great reliance was placed on the human element, and it was not long before a mechanical system of semaphores was introduced, similar in basic form to that which is familiar to us today.

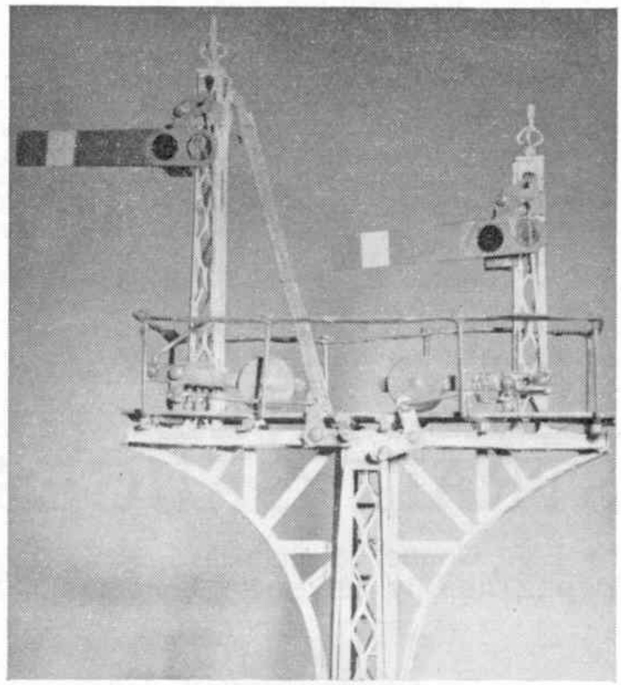
The earliest semaphore signals were arranged in a similar way to contemporary military "signalling posts". The arms of the signals were carried on high wooden posts, which sprouted from the top of a timber-built cabin, which provided shelter for the signalman. Standardisation of signalling between one railway and another was virtually non-existent; some lines used circular discs or large square boards on top of high posts, which presented their faces to the driver for the "danger" position, and rotated to an end-on aspect for "all clear". Others used a semaphore arm much like the ones we know today. This was often carried in a deep slot in the post itself: the "danger" position was indicated by the arm standing out at right-angles to the post, in the modern manner. At "all clear", the arm fell into the slot, and disappeared altogether, presenting the driver with a view of an unembellished post—a development of the old "no signal at all means all clear" philosophy. The slotted-post type of signal had one bad weakness, however. In severe winters, snow could easily block the slot in the post, and the arm was prevented from returning to the "all clear" position. Under these circumstances, the arm often hung at an ambiguous forty-five degrees, and drivers could very easily mis-read the signal, with disastrous results.

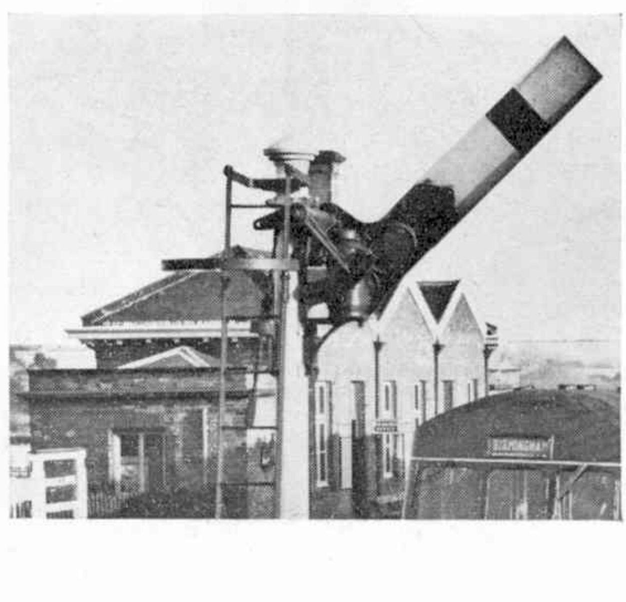
During the 1860's, the semaphore arm signal became firmly established as the standard type of railway signal. Almost all were of the "lower quadrant" type; that is, the arm in the horizontal position indicated "stop" and for the "all clear" position, it dropped to an angle of about 45 degrees. The back end of the arm, which carried the coloured glasses through which the oil lamp shined at night, was weighted so that the arm would return to the horizontal position if the controlling wires broke—a "fail safe" system, in fact. After the grouping of the railway companies in 1923, "upper quadrant" signals began to replace the older types. In this latter type, the signal arm is still in the horizontal position for "stop", but rises through 45 degrees for the "all clear" instead of falling. This made the "fail safe" action of the arm simpler and more fool proof, as it needed no weighting behind the fulcrum; the weight of the arm itself would return it to danger should the actuating wires break. The Great Western Railway never adopted the "upper quadrant" type of signal, and many of that company's very handsome "lower quadrant" semaphores can still be seen on the Western Region of British Rail to this day.

As trains began to travel faster, signalling became necessarily more complicated, and Distant signals were introduced. Most readers will be aware of the familiar yellow arm with the fishtail end and black stripe of this type of signal. Distants are placed in advance of ordinary, or "Home" signals, and give advanced warning of the indication given by the Home signal. A locomotive driver may pass a distant at "danger," but it only warns him to expect the next Home signal to be "on". "On" and "Off" in railwaymen's language mean "Stop" and "All Clear" respectively. Distant signals are rarely provided on a model railway layout, as space does not usually permit their inclusion.

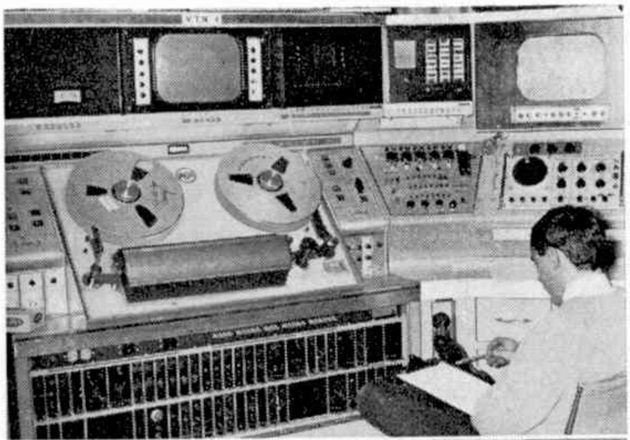
In a later article, we shall delve deeper into the workings of the railway signalling system, and discuss the manner in which stretches of line are divided into "blocks," how single lines are worked with safety, and the various systems of interlocking signals so that the signalman cannot make a mistake.

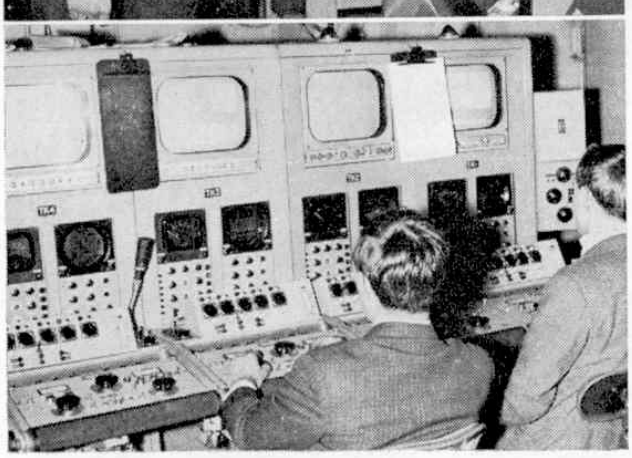






At right, top to bottom, an L.M.S. Class 4 0-6-0 gets the "Right Away" from Stamford Town station, back in 1956. The upper-quadrant signal is of standard L.M.S. design, with tubular steel post. Next, a double-bracket signal in model form, with lattice posts. Note the attractive openwork finials on top of each small post. Lastly, a close-up view of an L.M.S. style upper-quadrant arm.





A.B.C. of Model Railways

SIGNALS

Part 2

LAST MONTH, we looked at the evolution of the standard railway semaphore signal. In this article, we shall delve a little deeper into the subject of signalling from the model railway enthusiats point of view.

As mentioned last month, the rising speeds of trains in the 1840's led to the introduction of Distant signals, which warned the drivers of trains that the next Home signal they encountered was likely to be at danger. Of course, when a driver passes a Distant in the On position, the next Home signal *will* be at danger, unless something has happened in the meantime to alter things—perhaps a slow-moving goods train ahead has been shunted into a yard or relief loop, for example. The yellow and black Distant arm is well known: at night, a yellow light shines for the On position and a green light for Off.

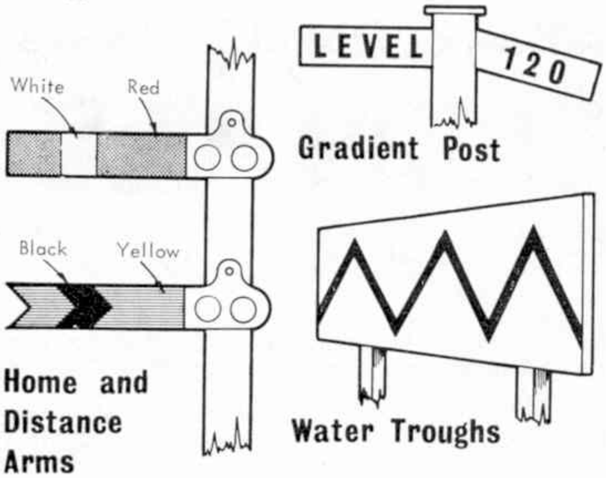
Mechanical interlocking of the signal levers in the signal box itself ensures that the Distant cannot be pulled Off until the Home signal has been set to the Off position—a valuable safety precaution against human error which has been law since an Act of Parliament of the late 1880's. Interlocking is rarely used on model railways, but never let it be seen that one of your Distants is Off while its corresponding Home is On!

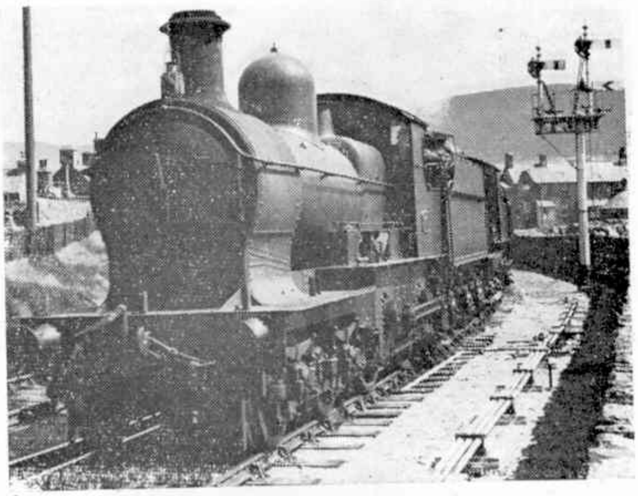
Sometimes, a Home signal shares a post with the Distant arm for the *next* Home. In such cases, the Home arm is always the uppermost. This particular combination looks very attractive on a model railway, but there is one very important point to bear in mind: whilst it is quite in order for the Distant arm to be in the On position while the Home arm is Off, the Distant obviously cannot be Off while the Home arm is On. In practice, the two arms would be operated from different signal boxes: the Home arm from the local box, and the distant from the next box up the line.

The Home signals themselves protect the entry to " Blocks " or " Sections." They are also used at turnouts and junctions, where they take the form of Junction signals, which are virtually signposts, telling the driver which track he is about to take. If one of the diverging lines is more important than the other, then its signal is usually carried on a higher post.

A Starter signal looks exactly like an ordinary Home signal, and the driver must stop dead if it is at danger. Starters are found at the end of station platforms, and are used to hold trains in the station while shunting and similar operations can be carried out in the section ahead. The starter is thus in advance of the next section, and the signal box up the line does not have to accept trains which are merely shunting within the station limits.

All signals stand on the left-hand side of the running track, except on lines of the old Great Western Railway, where they are positioned on the right (all G.W. locomotives were right-hand drive). Signalling is such a complicated subject, that no model railway could really hope to be fully signalled. It is a good idea to provide junction signals and Starters, but most Distants can be dispensed with.

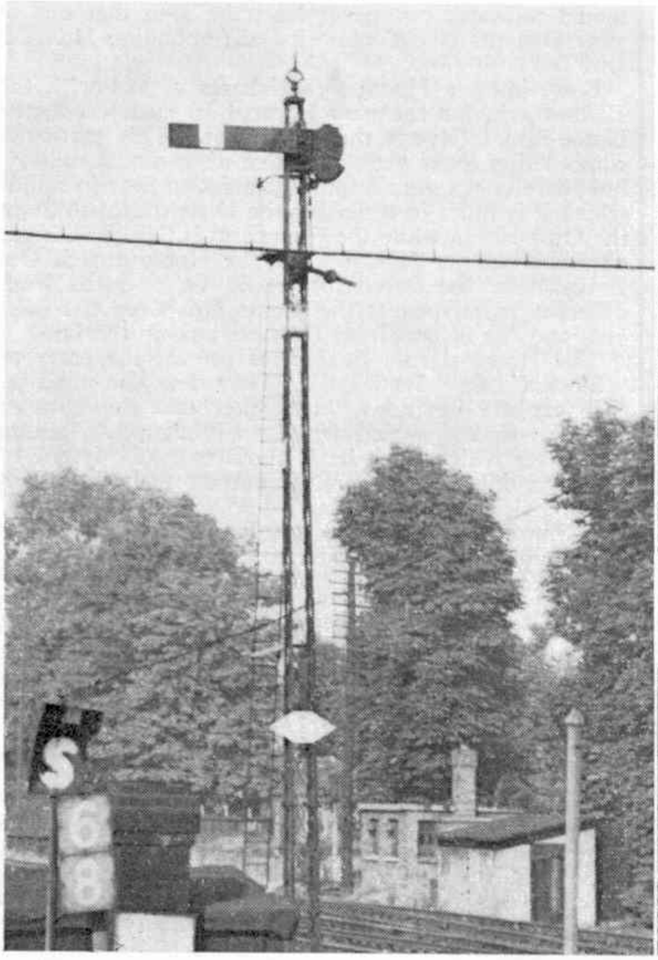


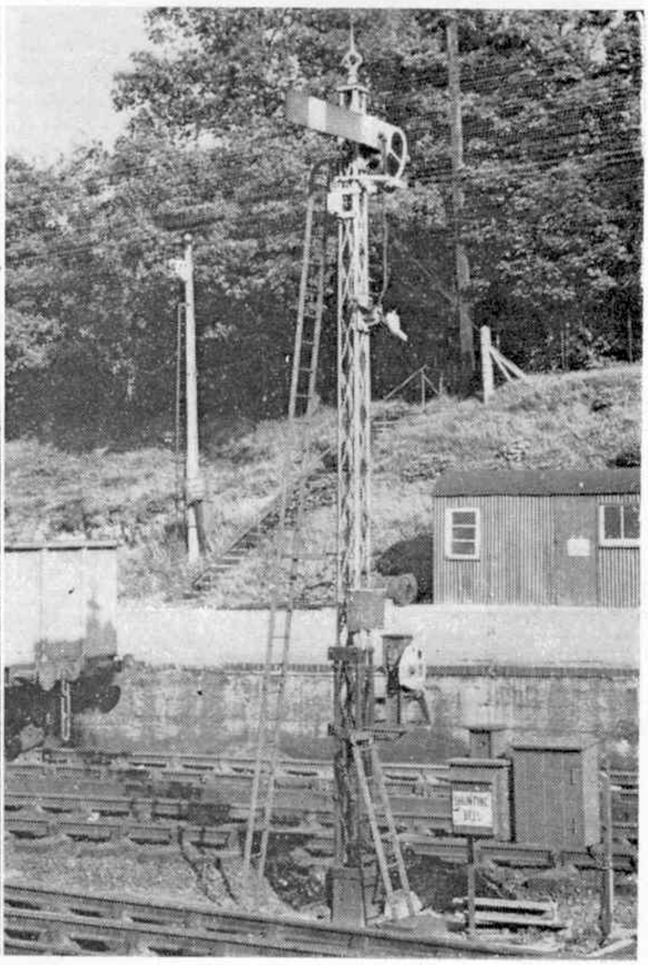


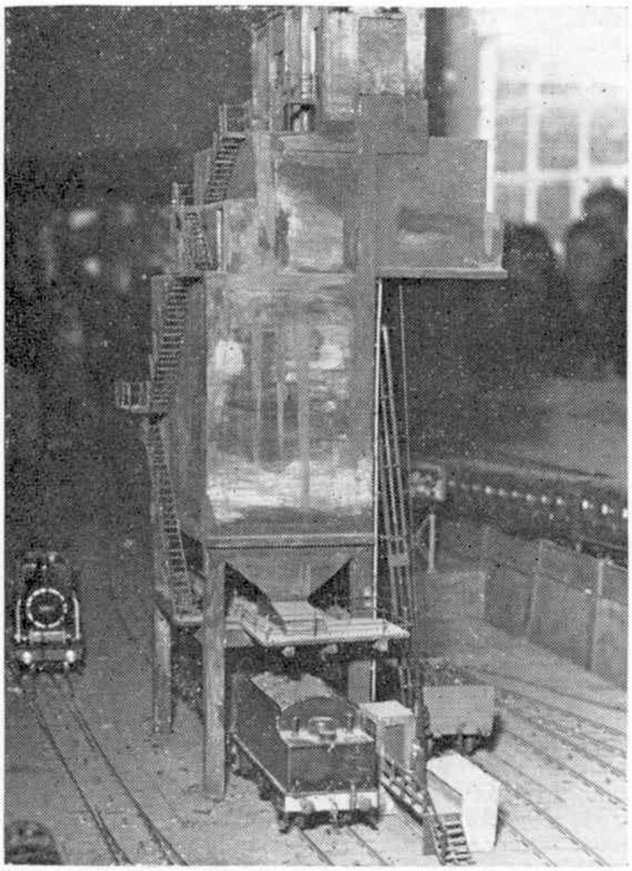
Conventional signals are not the only "signposts" which railway drivers have to obey: there are also such things as mileposts, gradient boards and water trough boards erected beside the tracks. Most readers of Meccano Magazine will be familiar with mileposts, which are situated every quarter of a mile. Usually, the quarters are marked by a simple stroke on the post, and the sequence goes like this: 27, I, II, III (for three-quarters) 28, I, II, etc., etc., etc. Mileposts are hardly ever seen on model railways, but they would be extremely easy to make from scrap balsa, painted white.

Gradient boards are also a common sight beside the line; they give the driver an idea of the steepness of the gradient he is ascending or descending. If the track is on the level, the arm of the board is parallel to the ground, with the word "Level" on it. If the arm drops at an angle (see sketch) with the number 120 on it, this means that the tracks descend at a gradient of 1 in 120. In other words, the track drops one foot in every 120 feet of length.

Above: Great Western "Dukedog" class rebuilt 4-4-0 trundles under a typical lower-quadrant bracket signal of G.W. pattern. Location is Barmouth, Mid-Wales, and the train is, in fact, double-headed (second engine behind the tender of thé first). Below: two old London and South Western Railway Home signals on the Waterloo-Woking main line, very easy to model.







A true to scale Gauge "O" coal bunker on the West Lancashire layout. This model, built by R. C. Chown really works! The coal wagons are lifted up and the coal is then tipped into the waiting tender.

A.B.C. of Model Railways

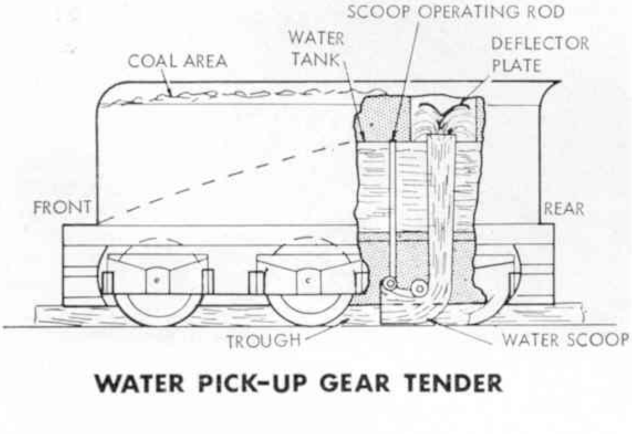
LINESIDE FIXTURES FOR YOUR LAYOUT—BRING IT TO LIFE

LAST MONTH, we looked at some of the interesting features which can be seen along the lineside and which, in model form, can be add a great deal of interest to a model railway layout. In this article, we shall take a look at some more details of much the same type.

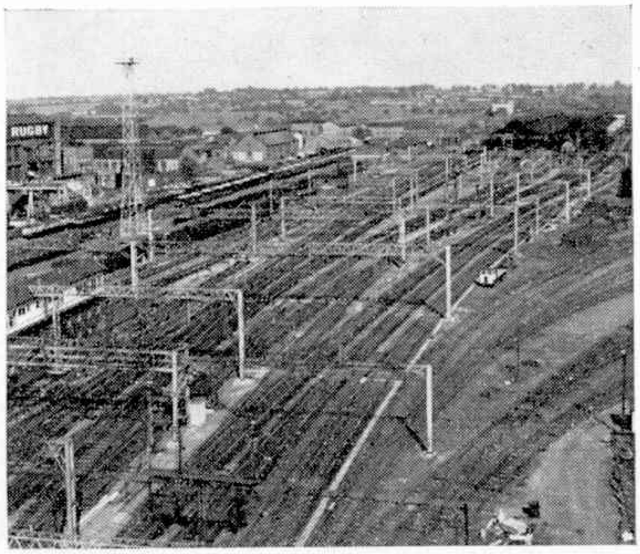
Our first picture shows a large and complicated piece of railway equipment to be found at large motive power depots, but only very rarely seen in model form. It is a gigantic automtic coaling hopper, and the model illustrated stands on the layout of the West Lancashire O gauge group. These huge structures were built of concrete, and were able to replenish locomotive tenders with coal very quickly and entirely automatically. In the picture, the locomotive tender is in position below the tower; behind the tower can be seen a loaded coal wagon. When the controls in the small hut at the base of the structure are operated, the wagon is hoisted bodily to the top (the rails of the lift can be seen in the picture) where the wagon is turned over and its contents shot down the hopper into the waiting tender. The model in the picture actually works, but most people would be content with a non-working model, which would be quite easy to build in the usual balsa and card manner.

Our next photograph is an aerial one, of the junction just north of Rugby station on the London Midland region. This was taken during the installation of the overhead catenary equipment for the new 25,000 volt electric services, but there are all sorts of things in the picture which are of interest to us as railway modellers. In the mid distance on the right-hand side of the picture can be seen some coal staithes. These are really only huge fences made from old sleepers, used to retain heaps of coal which has been unloaded from railway wagons and await shipment by road to consumers.

The sketch below gives a cut-away view of the inside of a typical locomotive tender, fitted with water-pickup apparatus. This system was used by all the pre-Nationalisation railway companies except the Southern Railway (the Southern had no main line non-stop runs long enough to justify water troughs, although its express locomotives generally had large, high capacity tenders to compensate for their absence). As can be seen from the sketch, water is provided in a long shallow trough between the running rails of the track. When the locomotive reaches the troughs, the fireman lowers the scoop beneath the tender, by means of a controlling wheel on the tender front, and the water in the trough is forced up the vertical pipe by means of the sheer velocity of the train. As the water spurts out of the top of the pipe, it hits the specially shaped deflector plate which diverts it into the water tank inside the tender "body". The dotted line on the sketch indicates the limits of the water tank itself; the area above it is for coal. The reasons for the sloping floor to the coal space are to enable the fireman to shovel the coal from footplate level, and also to ensure that the coal works its way to the front of the tender, where it is needed. Needless to say, the water storéd in the tender is fed into the locomotive boiler when needed, whère it eventually becomes steam. Flexible pipes between éngine and tender carry the water, which is virtually "sucked" along by a steam "injector", the workings of which will form the basis of a future article. The average main line steam locomotive tender carries about nine tons of coal, and no less than 4,000 gallons of water—the all-up weight of the tender often exceeds sixty tons.



WATER PICK-UP GEAR TENDER



BICC overhead equipment erected at the busy junction area just north of Rugby Station. The 100 foot floodlighting tower on the left is one of five supplied and erected by BICC. This photograph was taken prior to the replacement of the old signals and signal boxes by modern equipment.

Such staithes can be seen in many goods yards, although they are now fast disappearing in favour of highly mechanised centralised depots. No coal yard can be considered complete without the coal merchant's lorry, which can be seen in the picture just below the staithes themselves.

From the traditional coal yard, to the bang up-to-date. On the left of the picture is a 100 ft. tall floodlighting tower, which serves to illuminate the marshalling yard after dark, and enables operations to be carried out round the clock. Towers like this are becoming a common sight at modern yards, and would add a great deal of authenticity to a modern layout, especially if actual illumination could be arranged with miniature bulbs at the top of the tower. Has anyone tried it ? At the bottom right-hand corner of the picture can be seen the old-fashioned small lamp standards which are the forunners of the modern floodlight towers.

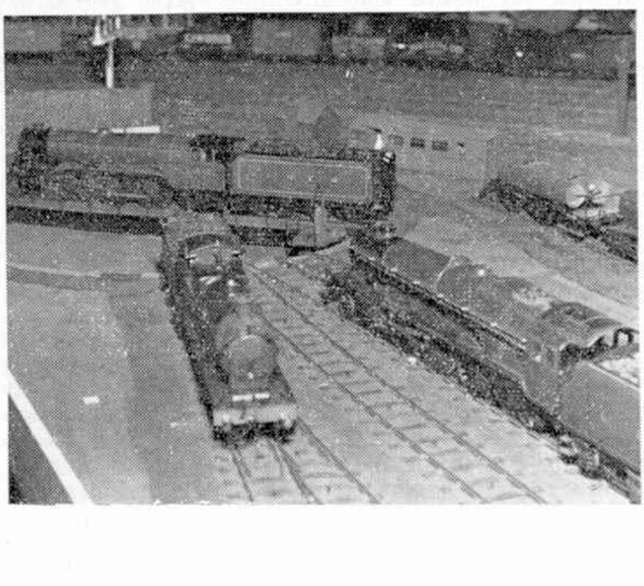
The third picture shows a shed scene on the layout of the West Lancashire O gauge Group. L.N.E.R. Pacific No. 4472 is being turned on the turntable, and the scene in general is most realistic. Just behind No. 4472's tender is an old coach body, minus its underframe, which is being used as a hut. The railways found that this was a most economical way of providing small buildings of this type, and a lot of very interesting old coaches and vans have survived for many years because of this habit. The railway modeller can take advantage of this by using old and discarded coaches for scenic effect in goods and locomotive yards. Incidentally, the coach body in the picture looks very much like an old steam railcar which was once operated by the Kent and East Sussex Railway. Does anyone know for sure ?

Here's another problem. Last month, when talking about the various " signposts " to be seen along the trackside, we described the warning board for water troughs. We have *never* seen water troughs on a model railway, and would like to hear from anyone who has tried it. Obviously they could not be made to actually work in a small scale, but there does not seem to be any reason why non-working ones should be difficult to build, on two-rail layouts at any rate. For those of you who do not know how these troughs worked, the diagram of a locomotive tender, showing the pick-up scoop should make things clear.

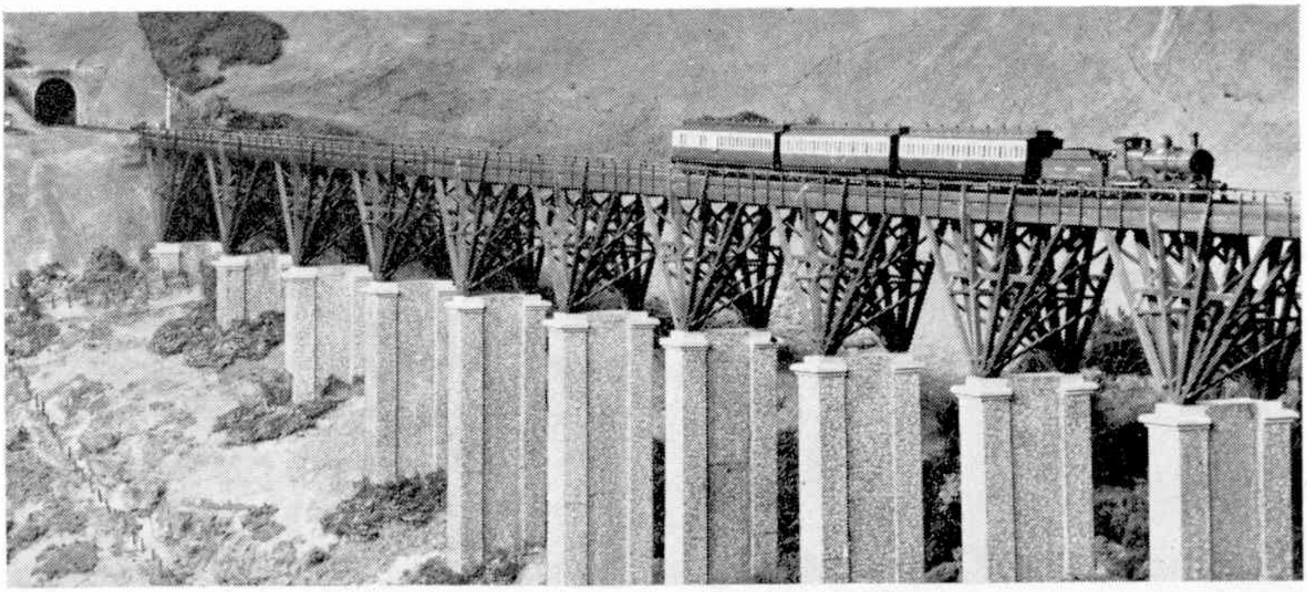
Not all railway " signposts " are entirely for the benefit of the railway crews themselves; some are intended for passengers, like the huge signs which say " LONDON 17 MILES " or " EUSTON 300 YARDS ". Then there are the huge train indicators at main line termini like Waterloo and Victoria, with their scores of little enamel nameplates and polished wood surrounds. Such an indicator would make an interesting " static " model, although it would look out of place on anything but a large multi-platform station.

Station nameboards are also of interest. If your layout is " with it " enough to represent present day practice, your nameboards will have to have black letters on a white background. Have you noticed that all modern railway nameboards and notices have the words spelt in " upper and lower case " letters ? That means that both capital and small letters are used, instead of all capitals. Thus the nameboard which used to read HEMEL HEMPSTEAD now says Hemel Hempstead. This is standard modern practice, which can be seen on most official signs on Motorways etc, and there is sound thinking behind the idea. Small or " lower case " letters vary in size and shape more than do capitals, and so words composd of them are easier to read in a hurry—quite important if you want to read the name of a station through which you are passing at eighty miles an hour. Older railway nameboards were always spelt in capitals, and during the Victorian and Edwardian eras some were very ornate indeed, with separate cast iron or wooden letters fixed to a board which was often painted in the passenger livery of the railway concerned.

Other notice boards which are worth looking for are those old " warnings to trespassers ". These are usually cast iron, and so have lasted very many years, and a lot of them still have the names of the old pre-grouping companies cast on them, like " South Eastern and Chatham Railway ", " London and North Western Railway " etc. etc. Similar warnings, also usually in cast iron, are those to be found guarding the approaches to road bridges and giving details of the maximum weights allowed for vehicles using the bridge. Some of the terms used on these boards sound quite picturesque these days—" Heavy Locomotives ", " Light Locomotives " etc. Plenty of these old notices survive to this day—there is probably one near your home.



An operating Gauge " O " turntable by the West Lancashire group. Note the old coach " shed " in the background and the detail on those locomotives.



Believe it or not, this magnificent Brunel timber bridge is a OO scale model! It can be seen at the Pendon Railway Museum at Long Wittenham, Berkshire. The surrounding countryside is typical of the Dartmoor area. Notice how the timber part of the bridge is supported by huge masonry piers; many of these piers are still standing beside newer viaducts on Western Region lines in Devon and Cornwall.

ABC OF MODEL RAILWAYS

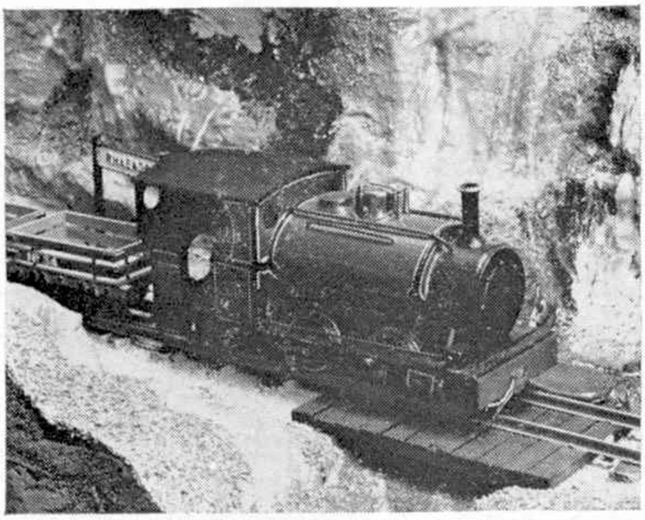
BRIDGES

ONE OF the basic facts about a railway which gives it an advantage over other forms of transport is that the railway usually goes from A to B by a route which is not only direct, but relatively free from steep gradients. Such level routes are necessary for trains, which cannot cope with the sort of hills a car or bus can climb. When a road reaches a mountain, it must either make a lengthy detour around the foothills, or go right over the top, zig-zagging up the mountainside in order to lessen the gradient. A conventional railway may also make the detour round the mountain, but it certainly will not go over the top, unless it is one of those magnificent "rack" lines to be found in Switzerland (or, in this country, at Snowdon). If it is a main line, which was designed in the first place for fast running, then in all probability it will strike straight through the mountain by way of a tunnel. When the line reaches a deep valley, it may make another detour in order to cross the "head" of the valley, but it is more than likely it will span the valley with a bridge.

Isambard Kingdom Brunel, who engineered the Great Western Railway and several other lesser lines in the West of England, was a great believer in a fast and level "road" for his trains to run on. As most of you will know, his lines were built to the broad seven foot gauge, which gave his trains a terrific stability at high speeds. Now, Brunel was the engineer of the Cornwall Railway, which was opened in 1859, running westwards into the Duchy from Plymouth. This railway was eventually taken over by the Great Western, and today it forms part of the Western Region's main line to the Cornish resorts. Those of you who know Cornwall will realise that it is a country of hills and valleys, and will be able to appreciate the sort of task that Brunel took on when he was appointed as engineer of the Cornwall Railway. The "road" obviously had to be kept as level as possible, as the line was visualised as a western extension of the mighty Great Western, over which passengers would be able to travel direct from Paddington without changing trains; therefore, the Cornwall Railway was to be no "light railway" but a full blooded main line through difficult country. The first major obstacle to the new railway on its route westward was at Plymouth itself, in the shape of the River Tamar at Saltash. This was bridged by a magnificent iron bridge of unusual design—the Royal Albert Bridge. This still stands to this day, and the ultra-modern Western Region diesel-hydraulic locomotives pass daily under the vast iron tubes which support the bridge decking itself, and under the tall arch of the tower, on which this inscription proudly remains: "I. K. Brunel. Engineer 1859." In next month's issue, we shall be looking at some famous railway bridges in greater detail.

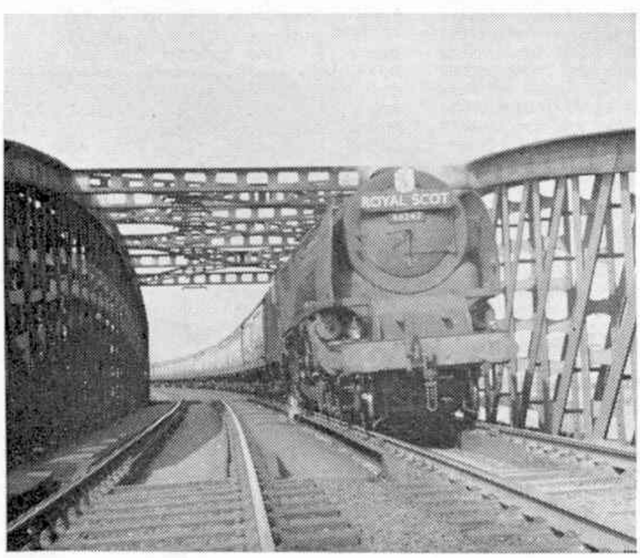
Back to Brunel: once over the Tamar, the Cornwall Railway traversed much very hilly country, and here the great engineer put his famous timber viaducts to good use. The photograph shows a magnificent OO scale model of one of these, which can be seen at the Pendon Museum, at Long Wittenham, Abingdon, Berkshire. Actually, the prototype for this particular model was in the Dartmoor area of Devon, but the Cornish ones were built to the same general design. The supporting piers were built of stone, but the rest of the structure was entirely of timber. Some of these viaducts lasted into the 'thirties, and to this day many original masonry piers still stand beside new viaducts as a reminder of the pioneering days of railways in the West Country.

ABC OF MODEL RAILWAYS BRIDGES



Simplicity in bridge building! A simple narrow-gauge structure on John Kimber's layout. The bridge decking is built of old sleepers, and there are no handrails. Rails are simply spiked straight on to the wooden deck. Bridges like this were only used to span small streams and gullies—something more ambitious would be needed for a river!

Above: "The Thames-Clyde Express", hauled by Jubilee Class 4-6-0 No. 45589 "Gwalior" passes over the famous Trent bridges south of Trent station. Redhill Old Tunnel is in the background.



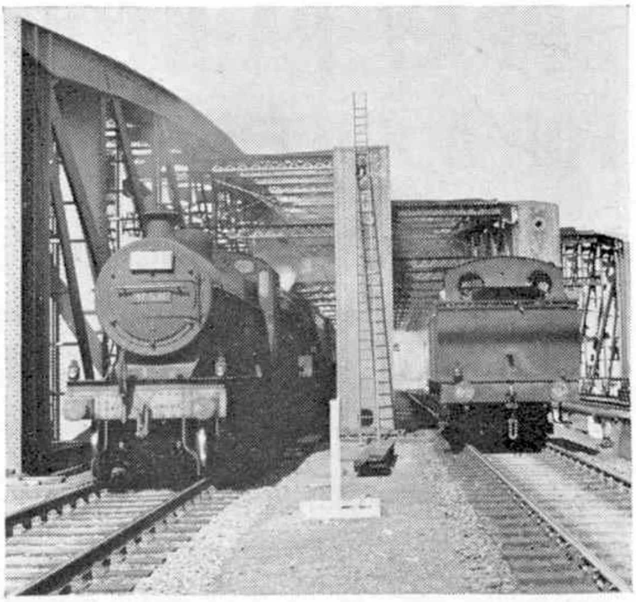
IN A recent article, we discussed the function of railway bridges and described some of the early timber bridges used by Isambard Kingdom Brunel on the railways in the west country in the nineteenth century. In this article, we are going to take a look at some more modern bridges, particularly with a view to their use in model form.

Basically, there are two kinds of bridge which are built and maintained by railways: *overline* bridges, and *underline* bridges. Both these terms are self-explanatory; overline bridges carry a road (or another line) *over* the railway, and underline bridges enable a road to pass *under* the line. The latter are not so common on model railways as the former, as track is usually laid flat on the baseboard, and the provision of an underline bridge is therefore impossible without "digging" a hole in the baseboard itself! It is usually far easier to put the road on a raised embankment and to carry it over the line by an overline bridge, rather than to put the railway on the embankment and do the reverse; this is because a model road can have much steeper gradients than a railway (this also applies, of course, to the prototype).

By far the greater number of small bridges of the types described above are of brick construction, and one of the photographs shows a magnificent array of brick-built overline bridges at Fullerton, on the S.R. Andover-Bournemouth line. This would make a most appealing model, and proves that one does not even need to have tracks running between every arch! An even simpler bridge is shown in the photograph of the narrow-gauge engine, which was taken on John Kimber's narrow-gauge layout at the 1968 Model Railway Exhibition in London. This particular bridge is the underline type, and carries the narrow-gauge tracks over a narrow stream. Because of the short span, and the extreme lightness of the tiny trains which pass over it, the bridge is of very simple construction: simply two steel girders spanning from bank to bank, and "decked" with old sleepers, with the rails spiked directly to them. Some narrow-gauge lines even dispensed with such decking, and the rails ran merely on top of the girders. Passengers, on looking out of the train on a bridge could see no evidence of the bridge itself at all—a dizzy experience.

From a small and primitive bridge, let's turn to the big ones. Most readers will be familiar with the great bridge over the Firth of Forth in Scotland, and the Tay railway bridge which replaced the one which blew down in a gale in 1879—we will tell that story in detail one day—so we have not illustrated them in this article. Rather, we have included pictures of some impressive, but not so famous (or notorious) structures, like the magnificent and complex girder bridge over the Mersey at Warrington

"The Royal Scot" passes over the massive bridge over the River Mersey at Warrington. Locomotive is No. 46247 "City of Liverpool". Notice the absence of conventional transverse sleepers and ballast; the rails are laid on longitudinal sleepers, and there are check-rails to minimise the effects of a derailment.



Right: An interesting and massive bridge, carrying several tracks over a wide river. The very conspicuous rivets should be included, if possible, in a model.

and the Trent bridges, on which the main girders rest on masonry piers. The huge girder bridge over the approach to Paddington station is a famous Great Western landmark. Girder bridges are quite complicated things to make in OO gauge, if you build them completely from scratch. We have seen some quite good ones built of balsa strip, but somehow wood never looks *quite* like metal. Tri-ang produce a very realistic bridge in moulded plastic—so good, in fact, that it is hardly worth making your own unless you particularly want to, or you want an accurate model of some particular structure.

Model bridges, like all models, are a compromise, and have to be modified in their dimensions to suit a layout. A reasonably sized river, if represented to scale, might well turn out to be over a yard wide in OO gauge, and many people's layouts are no wider than that! It is best, therefore, to resist the temptation of building a model of the Forth bridge, and choose something more modest, which will look much more realistic in the long run. If you really want big bridges, and plenty of them, then N gauge is really the size for you. Lone Star do a very nice girder bridge in this scale, made of cast metal; the girder sides clip in place on to the brick "abutments". Tunnels and bridges abound on this layout, which measures only three feet by two, which just shows what can be done in the sub-miniature scales.

When modelling bridges, it is very important to see that your track looks right where it passes over the bridge. On the old-style brick-built structures, the track was usually quite normal and laid in ballast in the usual way. Steel bridges, however, usually have a timber decking over which the maintenance men can walk, and the rails are often laid on longitudinal timber baulks instead of the usual transverse sleepers. Sometimes the wooden decking is laid between the rails as well as at either side, giving the track itself a "tramway" appearance.

One of the problems with model bridges is that they have to cross over something; that "something" is usually a river, and water is very difficult to model effectively. Some people have even tried using real water, in metal trays, but somehow this never looks right—water refuses to be "scaled down". One of the best ways of simulating water seems to be the simplest. Paint the baseboard a dark greenish-brown (water is very seldom blue) and cover the paint with several layers of shiny varnish. Do not be tempted to try to represent rough water, with crinkled cellophane—this seldom looks like anything except crinkled cellophane!

Perhaps the best way of getting round the water problem is not to use a river at all, but make your railway cross a road instead. If any readers have their own ways of representing water in model form, though, we would be very interested to hear from them. We would also like to hear from anyone with unusual bridge models, or bridge-building techniques. Meccano is very useful for building girder bridges "on the quick" and, being metal, produces a realistic metallic "roar" when the train passes over. Appearance is quite realistic, too, if you can stand all those holes!

Talking of "roar" when trains pass over bridges, this can be quite easily achieved by laying your track on some resonant material, like Formica. Remember, though, that brick-built bridges are usually silent.

A final word for those who wish to design their own bridges for suitable locations on their layouts. Try to copy an existing bridge, at least in all its essential details. We see all too often on model railways, bridges which would give a real civil engineer nightmares; bridges which would certainly fall down when the first train passed over them, if not before.

Below: At Fullerton, on the Southern Railway's Andover to Bournemouth line, could be seen this impressive array of traditional brick-built "overbridges". The locomotive emerging is an ex L.S.W.R. T9 Class.