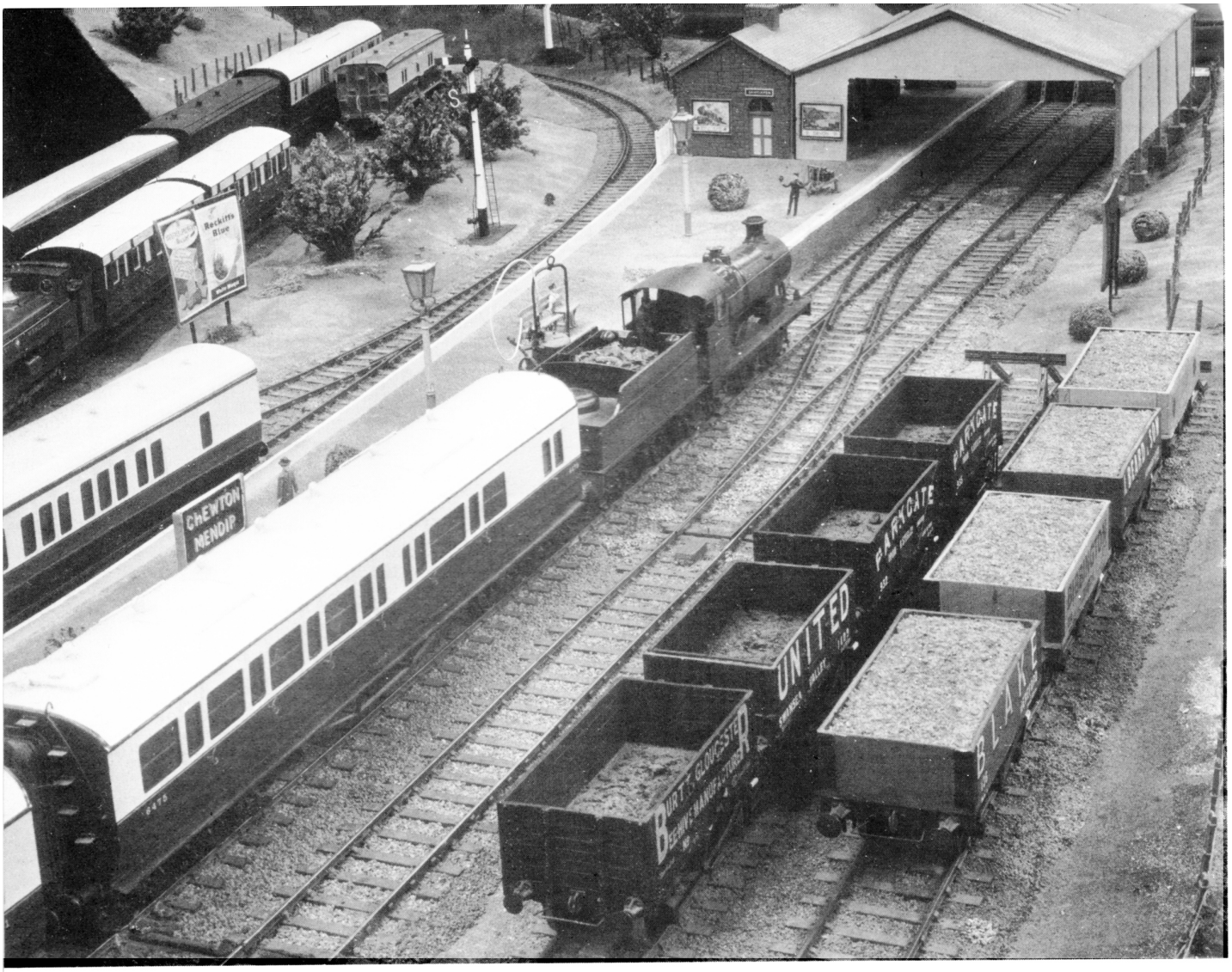


RAILWAY OF THE MONTH

Chewton Mendip

by Robert Harper
Photographs: Brian Monaghan

"CHEWTON MENDIP" began life as my first layout about nine years ago. Since then it has developed considerably, to the point that there is very little of the original layout left. I was first asked to write this article almost as many years ago, when the layout was still in its original form. If I had written the article then, I could still be writing another one now as a description of another virtually new layout! Various house moves, family commitments and pressure on time from my job (and essential modelling!) have kept it all on ice, but the main delay has been the ultimate lack of impetus to actually get started.

At last I've actually put pen to paper, for which I must thank (blame!) Brian Monaghan; having seen the layout at several exhibitions he was very keen to photograph it, and finally pinned me and the layout down at the 1982 Macclesfield Exhibition, at which he took all these superb photos. Almost within days a box of the completed results arrived through the post, and thoroughly shamed, I started to write. Needless to say, it all came relatively quickly and easily once I had started, so here at last is the saga of "Chewton Mendip".

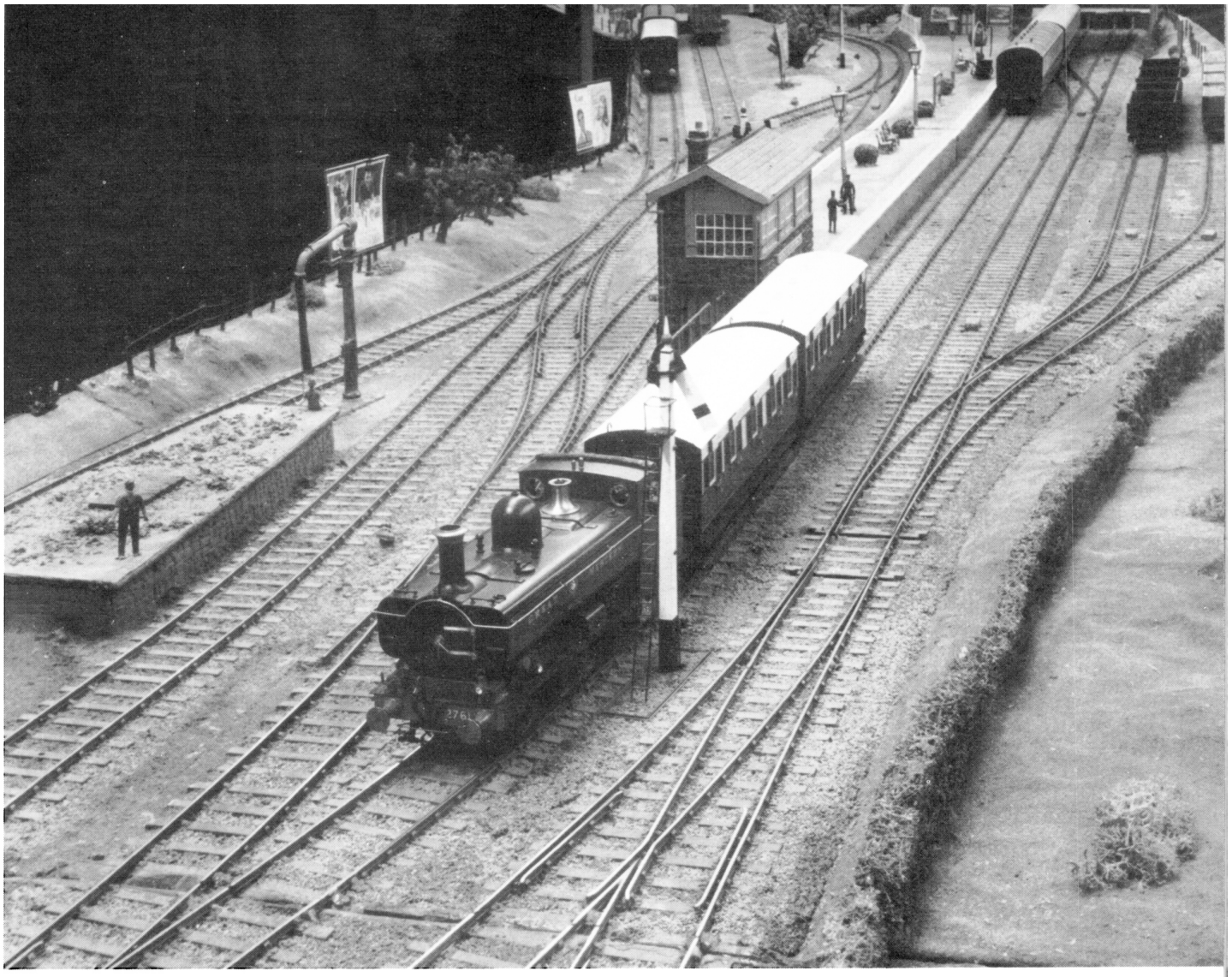
Origin and Early History

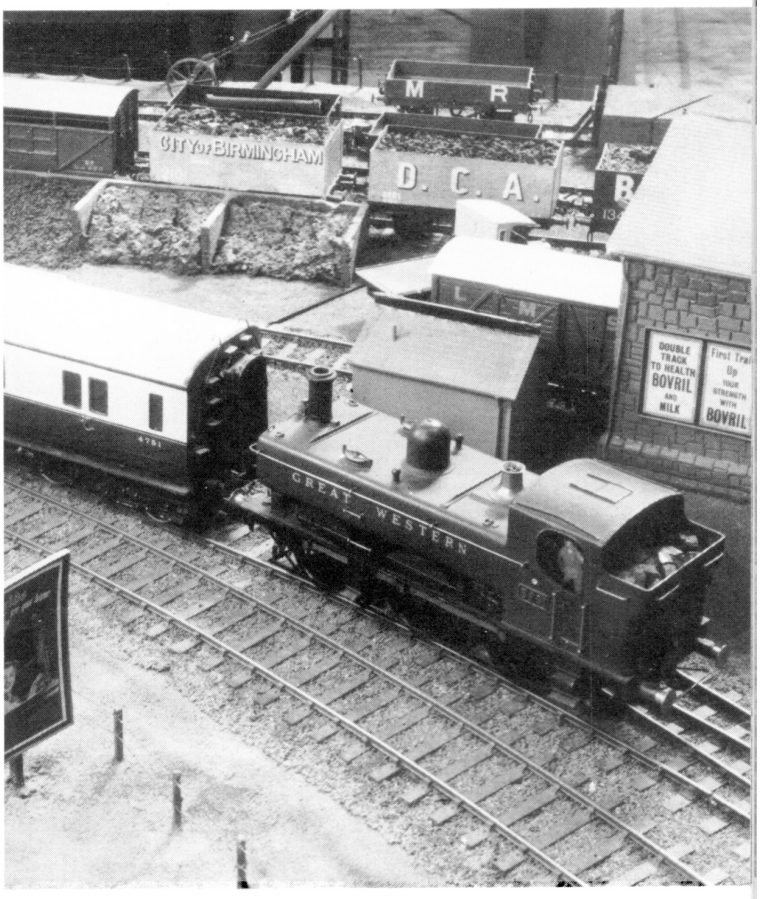
As a schoolboy I collected a small amount of the inevitable OO equipment — mostly Hornby Dublo — but I then had to leave home when the time came to go to University. With no effective home base for five years, the OO equipment obviously had to be disposed of and I was left in the position of being able to start again from scratch when circumstances allowed. However, the time was not completely wasted in modelling terms, as visits to several model railway exhibitions during this time allowed me to judge the merits of different scales, standards, etc., and started the process of deciding the principles on which my own future modelling would be based.

Bob Harper describes the history and construction of his O gauge Great Western layout. This has been designed with exhibitions in mind, and can be seen in operation at the Bristol Show from April 29 to May 2.

The major decision of course was that, for me, the choice had to be O gauge — two rail fine scale, of course. As far as I was concerned, the smaller scales just couldn't reach the levels of operational reliability and capacity for justifying detailed modelling work that I considered essential. This situation may have changed in recent years, but I still don't think that O gauge can be touched for realistic trouble-free running, as long as it has been properly designed and built. In terms of modelling details, it seems to me a bit self-defeating to build models abounding in fine detail if this detail can only be seen under a microscope — much as I appreciate the superb modelling that has gone into many of the models in the smaller scales. Finally, everything seems so much more impressive in O gauge, just because of its sheer size.

Having decided on scale, other decisions had to be made. Track had to be built as perfectly as possible, with handbuilt pointwork incorporating live frogs. All point and signal operations had to be mechanical. Electric point motors appeared to give unrealistic operation in terms of both movement and sound effects, and ultimately were not reliable enough — many was the time that a crucial point motor at a station throat failed halfway through a public exhibition; inevitably of course, as this point would be the one most heavily used. Coupling and uncoupling between vehicles had to be automatic — three link couplings may well be just right, but the overscale hands that appear in





ABOVE LEFT: *Collett Goods No. 2276 and the Bristol through train have just arrived in the main platform. The mineral transfer sidings are in the foreground, and the branch to Hinton Blewett curves off at the top of the picture. Parcels and empty stock sidings are at left rear, with No. 2761 and six-wheeled coaches. The editor had the privilege of inspecting this lovely little train at the Manchester MRS Anniversary Dinner back in March. Local train to Wells (B Set) waits in the branch platform.* ABOVE: *No. 2761 and six-wheelers again, working a local train to Wells. The loco yard is on the left.* RIGHT: *No. 5401 leaves Chewton Mendip with the through train to Bristol.*

the middle of these scale trains in the public view at an exhibition seems to me a contradiction in terms.

Baseboards

So a simple branch terminus was designed and construction started. The generally approved method of construction seemed to be a framework of 2″ × 1″ timber, with cross-timbers and longitudinals at 12″ intervals covered by Sundeala board. A large notice board of Sundeala happened to be going spare at the time, and was rapidly converted to other uses! Leg support was given by individual detachable two-legged trestles, giving a rail height of about 3′6″. (In late rebuildings this has come down to about 3″). The baseboards and legs were connected together by backflap hinges with the pin sawn off and replaced by longer pins with a hooked end to give a finger hold. A short length of chain connects the pin to the nearest bit of baseboard, so that there isn't the continual worry of losing the pins when the baseboards are disconnected. The trestles were held in position by detachable diagonal braces.

As all the baseboards were of different sizes, all the trestles and braces turned out to be different as well — a mistake which led to time wasting when setting up at exhibitions. In addition, the whole structure turned out not to be rigid enough when the layout was free standing in the middle of a room. At one exhibition which didn't have crowd barriers, the crush of people outside got so great that their pressure on either side of the layout lifted the centre of the layout about 2″ off the ground, so that the trains were riding a switchback! Desperate shoving outwards by the operators inside retrieved the situation on that occasion, but the lesson had been learned.

As rebuilding progressed a few years later the old trestles were scrapped and far more robust, free standing trestles with four legs each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WESTERN
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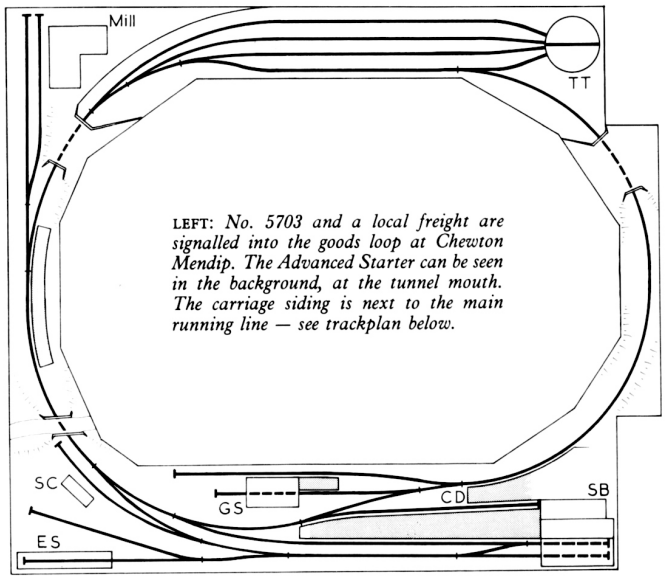


LEFT: *No. 5703 and a local freight are signalled into the goods loop at Chewton Mendip. The Advanced Starter can be seen in the background, at the tunnel mouth. The carriage siding is next to the main running line — see trackplan below.*

were built, all identical and so interchangeable. The rail level was also dropped at this time so as to make the layout more easily visible to children at exhibitions. In general, each baseboard is now supported by a trestle at one end and at the other end it rests on a carrying ledge fixed to the next baseboard. Two dowels on the top of each trestle plug into locating holes in the baseboards to provide horizontal alignment. The weight of the baseboards means that no vertical anchoring is necessary.

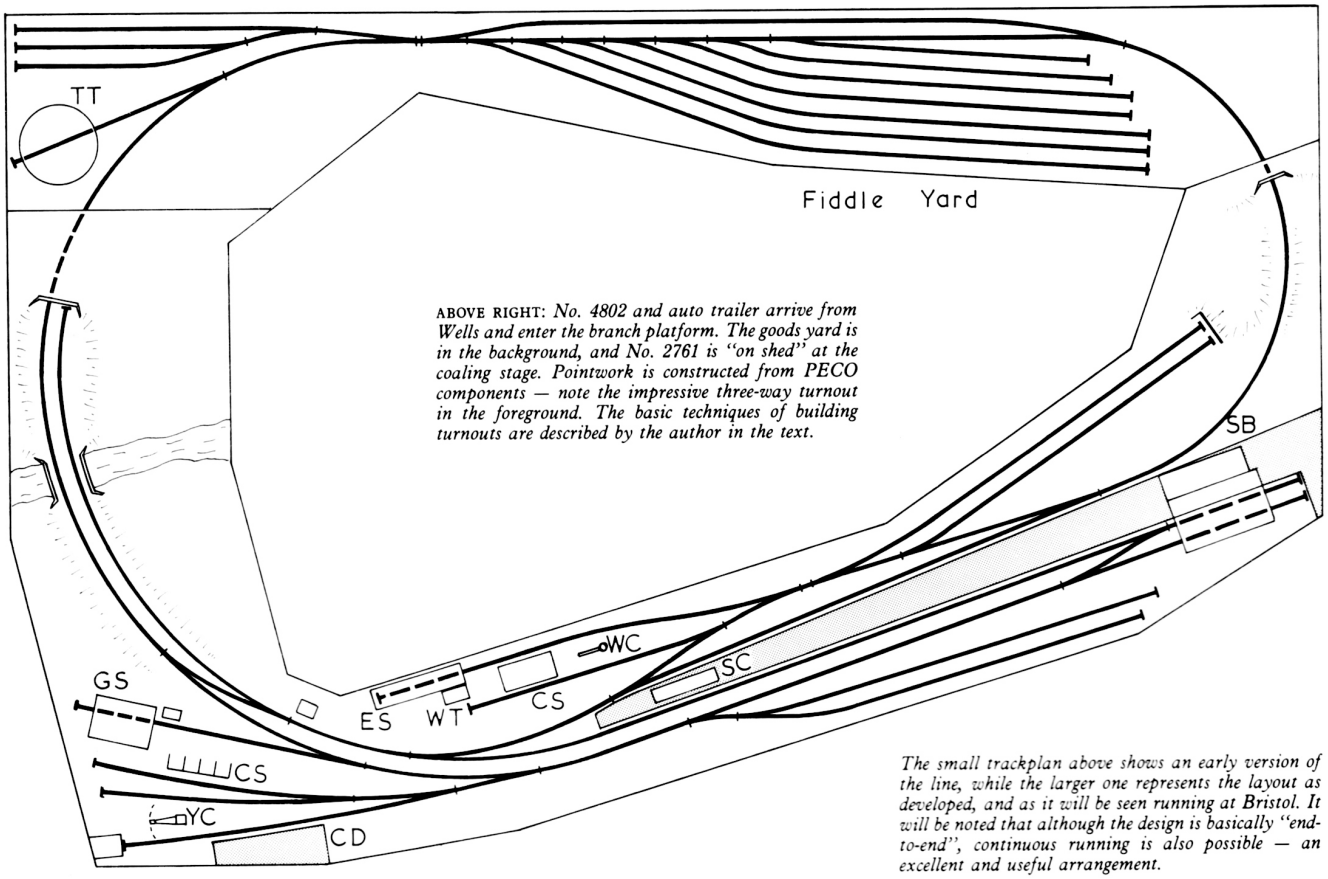
Re-design of the supports was accompanied by re-design of the baseboards as new baseboards gradually replaced the originals. The 2″ × 1″ timber framing and Sundeala board proved to be lacking in sufficient strength; the 6ft. long baseboards in particular began to sag between the points of support, and the Sundeala board itself began to sag between the 12″ interval cross pieces, so that the track surface began to look like a switchback ride! New baseboards now use 3″ × 1″ timber for the outside frames, and risers are used to support the shaped track bed which is itself formed from ½″ thick plank. All the rest of the surface is left open and only filled in later with very light material (⅛″ ply, card, etc.) sufficient to support the scenery. One advantage of this method is that the vertical height can be adjusted very precisely after the main frames have been fixed in position. The main disadvantage of course is the weight of a large baseboard (all that 3″ × 1″ timber) and the small amount of sag that develops even with the bigger frame.

As a result, future building may well follow a completely different pattern — the plywood box girder principle which has the advantages of relative lightness and immense strength.

Trackwork

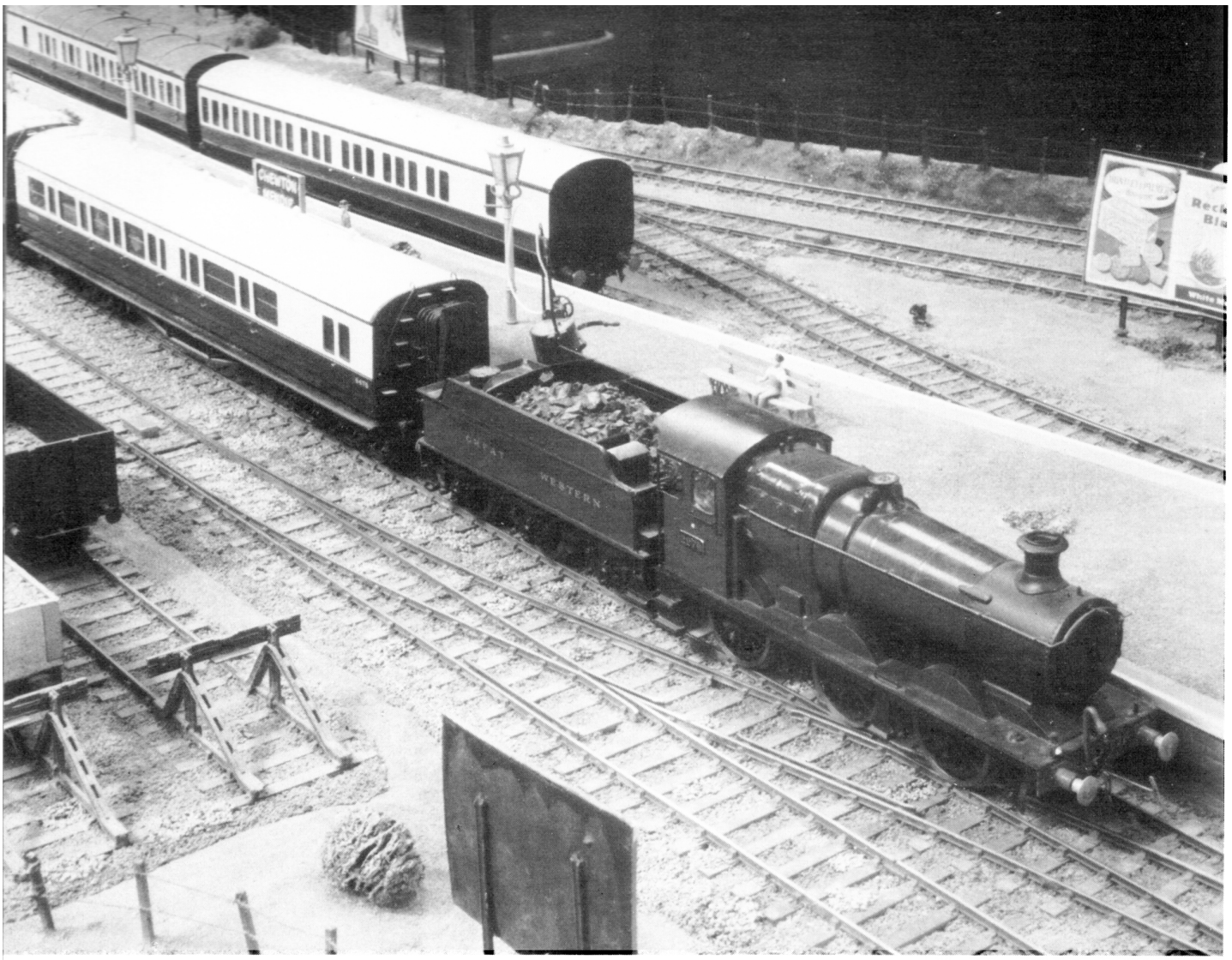
Track was initially laid on foam rubber, but my supply ran out fairly quickly and most of it is now glued with Evostik or Timebond on to ⅛″ cork sheet. Plain running track is PECO Streamline except on very sharp curves. These curves have been given gauge widening and check rails (so that 3′ radius is negotiable by all my 6-coupled locos), and are built in the same way as the pointwork from PECO track components.

A ⅛″ ply base is cut out to the shape of the point required and the positions of the sleepers and rail is drawn out on the wood. Lengths of PECO point sleepering are cut to length and glued down with Evostik in the correct positions. The frogs, point blades and stock rails are then filed to shape (and the frog soldered together) and PECO running rail



ABOVE RIGHT: *No. 4802 and auto trailer arrive from Wells and enter the branch platform. The goods yard is in the background, and No. 2761 is "on shed" at the coaling stage. Pointwork is constructed from PECO components — note the impressive three-way turnout in the foreground. The basic techniques of building turnouts are described by the author in the text.*

The small trackplan above shows an early version of the line, while the larger one represents the layout as developed, and as it will be seen running at Bristol. It will be noted that although the design is basically "end-to-end", continuous running is also possible — an excellent and useful arrangement.



ABOVE: *Collett Goods No. 2276 is just arriving in the main platform with the Bristol through train. The B set and pannier are leaving for Wells from the branch platform. Bob does not claim that Chewton Mendip is a "scenic" layout, but he certainly takes great pains to ensure that everything on the right side of the "railway fence" is well modelled and authentic. A small point, hardly seen in this picture, is the GWR station seat, with monogrammed cast-iron ends. Many still survive.*

chairs slid on. The rails are then pinned into position using PECO track pins, the pin passing through the chair, sleeper and plywood and the ends then cut off underneath. The pins are gripped securely by the wood rather than the sleeper. Tie bars between the point blades are p.c.b. upside down, with suitable insulation gaps filed in them (not just to insulate one rail from the other, but also each rail from the point rodding).

Another assistance in trouble free running has come from the use of pins that are free to pivot passing up through a hole in the tie bar and then soldered to the point blade, so that there is no soldered connection between the tie bar and blade that is continually under strain as it flexes backwards and forwards. Electric current to the frog is controlled by a SPDT switch. Initially these switches had to be thrown separately from the point lever, which led to operating embarrassment at times when the switch had been forgotten and trains stopped suddenly. As a result the original switches were replaced by micro switches built into the lever frame so that they are changed automatically.

The lever frame began life as a Gem frame, connected to the points by 24swg piano wire in brass tube pinned to the top of the baseboard. This worked well at first, but as soon as the layout was 'scenicked' and the track ballasted it became impossible to alter or service the rodding. In addition, the subsequent driving of two small screws into the ends of the baseboard so as to give stronger support for two rail ends at that point led to a totally unforseen and seemingly inexplicable short circuit an hour or two before an exhibition was due to open. Frantic investigation found that by the most extraordinary bad luck there was a point rodding tube passing underneath the ballast just at that point, so that by driving the screws down to touch the tube and then soldering them to the rails I had neatly formed a continuous electrical path between the two sides of the two-rail track!

All surface rodding has now been replaced by strong self-supporting rods under the baseboard. Directional changes are made by 45°, 90° or 135° cranks and the rods have enough strength to resist bending when under compression without needing continuous restraint as in wire in a tube. Six or sometimes eight swg rod is used for points, and ten or twelve swg rod or old bits of rail are used for signals. The movement of the point operating rods is designed to be greater than the required throw of the appropriate point. The extra movement is taken up by two compression springs sliding on the point rod which bear against either side of the bottom end of a reversing crank. This transmits the movement upwards through a small hole in the baseboard surface to the point tie bar. This method means that the rod and tie bar can be easily adjusted as to ensure that the blades close firmly against the stock rails in each direction.

In order to hold the rods firmly in position against these increased tensile and compressive forces, the lever frame has been adapted for those levers serving points. Far more robust lever guides have been soldered to the top of the frame with locating slots for sprung catches fixed to the lever. These not only hold the point blades firmly in position, but ensure that the micro-switch for the point frog stays depressed when the point is left in the "pulled" position. Otherwise the pressure from the internal spring in the micro-switch would cause the rod to "creep" outwards.

In the original layout the pointwork in the main station was arranged so that it all came on the two main central baseboards. The control panel and lever frame was spread over the common joint between the boards so that every point and signal was operated by a lever on its own baseboard. As the layout grew, the pointwork spread on to the next baseboard in each direction, so it became necessary to transmit mechanical rodding movement for points and signals across baseboard joints. This is done by using a length of brass tube with tightening screws at each end fixed to the tube via a soldered nut. When the layout is erected, the tube is slid across the gap to connect with the rod on the other side and the two screws tightened to give a continuous strong rod. This system allows more fine adjustment of the required throw for the points and signals beyond the baseboard joint but does take a fair amount of time to set up — perhaps an hour or so each time. When one is frantically setting up the layout at an exhibition fairly late on the Friday evening, the time required for this is a considerable handicap, so purely for layouts that are often exhibited I'm at present mulling over possible improved methods that give the same reliability but are far less time consuming to set up. In purely constructional terms the rods can

ABOVE: *A general view of the station, with 2761 and the two six-wheeled coaches waiting in the main platform. The timber train shed is typical of the Ashburton/ Moretonhampstead style of Great Western branch terminus, making a very attractive model.* BELOW: *Another view of the splendid open-cabbed pannier No. 2761, as it waits in the hidden sidings with the parcels train. Refer to trackplan on the previous page for layout of fiddle yard etc.*

be improved if one has access to a lathe. If the screws are tightened too much, the nut tends to be lifted off the solder fixing it to the tube; a turned collar with tapped screw hole fitting over the ends of the tube would avoid this problem.

Scenery and Ballast

Once the track has been laid, all the scenic details have to be added. I make no claims on behalf of my scenery — I've had little practice at it and have needed all my available time to concentrate on trackwork and rolling stock. After all, the most beautifully 'scenicked' layout seems pointless to me if the trains don't run well enough. It is, however, a field (pun not intended!) in which I would like to improve when the next opportunity arises.

At present the scenery is built up using Mod-Roc over crumpled newspaper with scenic flock sprinkled on to liberally applied brown paint; commercially available hedges, bushes and trees are added later. I am however, quite proud of my late buildings, track ballasting and the river.

The river bed was formed from Mod-Roc and then given further undulations using plaster of Paris. The bed was then painted with various blues, greens, greys and browns, with white swirls downstream from "rocks", and the water itself formed from clear varnish. The varnish was the unexpected problem — it took months to harden. Although a skin formed across the top within a day or two, the inside took far longer than expected to harden. As the railway had exhibitions to go to in the meantime, it couldn't stay horizontal all the time; so on arrival at an exhibition the surface would have a swelling of "water" at one end. Fortunately this unusual situation always righted itself after being horizontal for a day or two, and eventually the whole body of varnish did harden. The problem now is remembering to polish it! Dusty hillsides are realistic, but dusty water surfaces look very strange!

The ballasting was a very tedious job, but well worth it in the long run. A thick mixture of wallpaper paste is mixed up in a small pot and the ballast poured in and thoroughly stirred around so that all the ballast is coated in glue. The ballast is then placed around the sleepers using a spatula shaped piece of metal. The ballast can of course be packed in under the rail and also laid in varying depths. With the usual method of painting the surface with paint or glue and then sprinkling the area with ballast, it is difficult to get the sort of depth of ballast needed to embed 'O' gauge sleepers. Next time I may however, try the method of shaping dry ballast around the sleepers, pouring Resin W on and then spraying with water. If it is as effective as my method, then it must be preferable, because of the saving in time.