

RAILWAY OF THE MONTH

Grandsmoor Central

Jim Lawton describes the 3mm.-scale layout Jim Edgar, George Brown and he built

THESE three towns have been served by TT since it first came into existence, but throughout their life they have never been served by the same kind of railway for more than a year. Visitors to the Corn Exchange over the last few years have been intrigued by changes that have taken place on this layout; furthermore, as I am writing this article, this one has already been dismantled and Jim Edgar and George Brown are busy planning the next layout. [The Isle of Man model was the result.—Ed. R.M.]

The changes that have taken place have been made with a definite aim in view, namely to produce the ideal exhibition layout. A tall order? Certainly, and one on which we have been working together for over ten years. Not that we have succeeded yet, but we are on the way, though whether we shall ever arrive I am not so sure.

There are a number of considerations to take into account with an exhibition layout, not the least of which is its portability and its ease of erection. The layout described here is capable of being erected and ready to run within the hour.

We have also found from experience that standardized baseboards are invaluable, as they are easy to mate together, and when we decide on a new plan they can be placed together in a number of different ways. Each board is 4ft. 6in. by 2ft. 3in.; thus the width is a multiple of the length. Holes are drilled to standard measurements by means of a jig, so that any board can be fixed to any other board in eight different ways. Our present layout uses seven such boards, two rows of three, with one board broadside on at the end (total dimensions 16ft. 9in. x 4ft. 6in.).

The boards are fastened together by carriage bolts and located by steel dowels. So much for the foundation of the layout.

The next consideration is what is wanted by the public, but first we have to consider what we mean by the public. Well, as far as we are concerned this is how we see it: (a) about eighty per cent dads and lads, (b) ten per cent up-and-coming youths, and (c) ten per cent real enthusiasts of one kind and another. We have to cater for all these. The dads and lads like to see bags of trains bashing round, and as they constitute four-fifths of our customers our main concern is how to get trains running on an intensive service, but a service that is properly signalled and has all the lineside what-have-you to satisfy the up-and-coming

youths, with prototype running and some scratch models performing for the benefit of the serious boys.

The first requirement was obviously some kind of automatic control over the main line, with route selection in the terminal. We have proved from experience that an operator at an exhibition must be able to handle as many trains as the chaps at Clapham Junction and be able to answer questions from all and sundry at the same time. Therefore the control system must be reliable, simple to operate, and foolproof, with some provision for manual operation during the "gremlin periods." And this is not all; our public is divided into two further groups, namely those who like the rural ramblings of the branch line and those who prefer the more hectic main line. Well, we did our best. Grandsmoor Central was the Mecca of the main line, while Drylesthwaite and Wealdsend was for those who favoured the quaint and quiet.

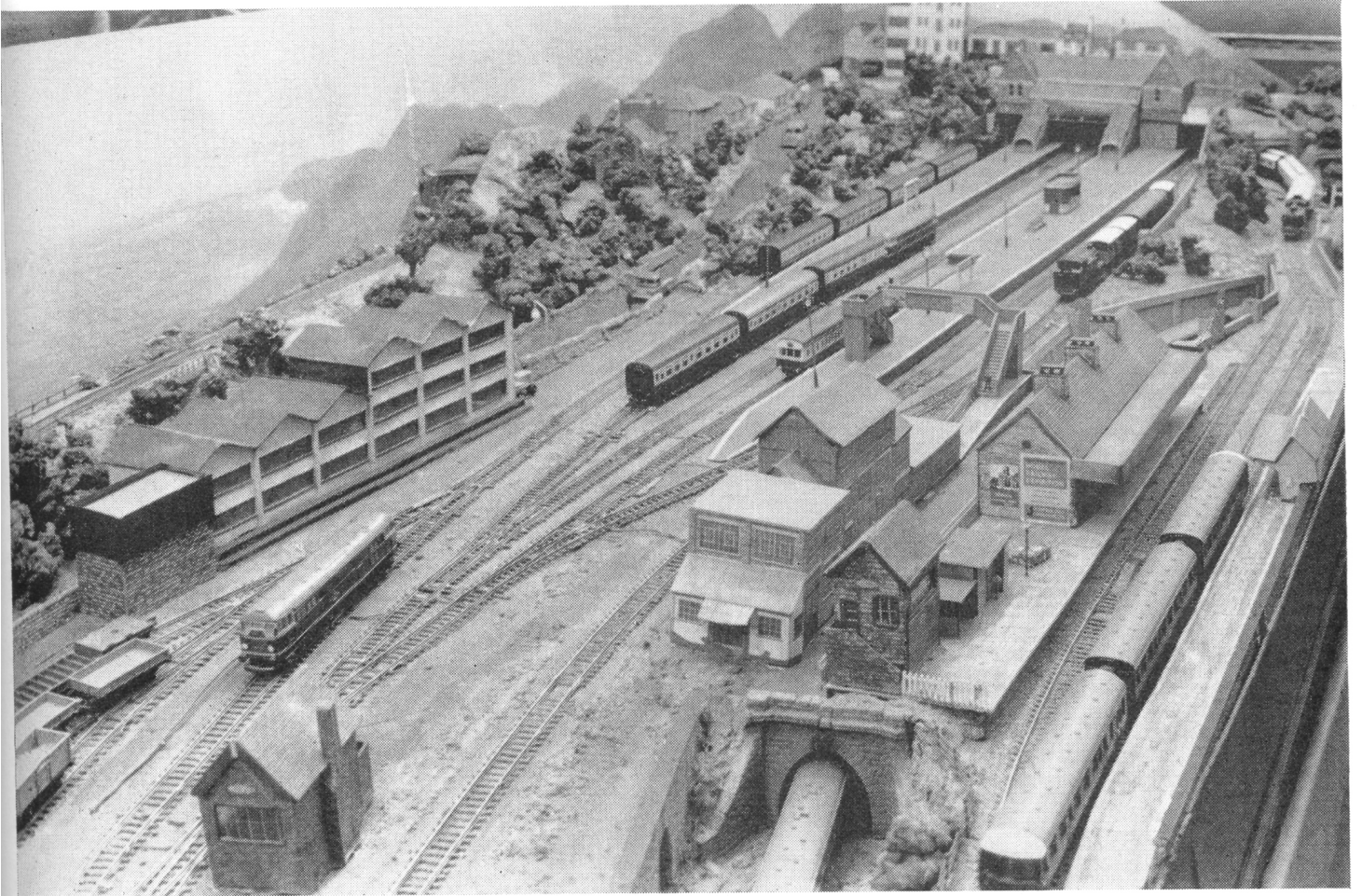
The main line is an "out and home" layout based on Grandsmoor Central, with automatic control outside the station area on the main line and manual control within the station itself. Within the station environs there is full cab control, with one or two modifications to suit the particular demands of the layout. The most important requirement within any station is that there must be no conflicting movements. To accomplish this, one must have route selection that is electrically interlocked, just as in prototype practice. The fewer switches there are for this purpose the less likelihood there is of a mistake being made. Our present version of Grandsmoor Central has all movements controlled by three G.P.O. telephone switches, both in and out of the station, which is a four-platformed terminus. One H & M controller with an R.C.1 clip-on unit provides the motive power for the whole of the main line and the terminus.

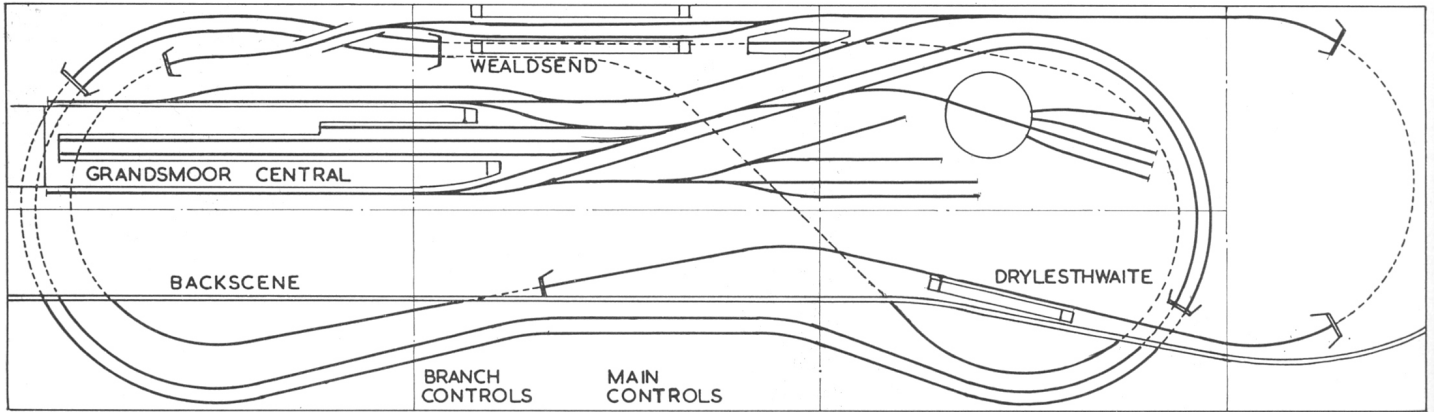
The main line is virtually a single line running in one direction only, although by careful track planning the observer is given the impression

TOP OF PAGE: *Sacré single and train of clerestories in Drylesthwaite station.*

FACING PAGE TOP: *general view of Grandsmoor Central, with Wealdsend in foreground.*

FACING PAGE BOTTOM: *Close-up of Wealdsend station.*





PLAN OF LAYOUT. Each board is 4ft. 6in. x 2ft. 3in. Total area 16ft. 9in. x 4ft. 6in.

that trains run in both directions. A careful study of the track plans will reveal this piece of deception. Having trains running in one direction only means that the main-line controller can be left set in the required direction, with the trains controlling themselves automatically. To dispatch a train to the main line it is only necessary to throw one switch over, which is returned to its original position once the train has cleared the station throat. This then puts the other controller into circuit and enables the engine that brought in the train to be released and taken on shed to be prepared for its next trip. During these operations no other train can move except in the branch-line platforms, which actually form a separate layout with its own controls. The branch line is just an ordinary two-cab-controlled layout with no complications. Its purpose is to demonstrate how a simple layout can be made to operate efficiently and interestingly. Its very simplicity ensures trouble-free running and it is useful for keeping trains running whenever there is a touch of the "gremlins" on the main line.

I do not wish to go into details about the scenic modelling, but there is just one building which I think is worthy of mention, namely the station building at Wealdsend. This building was made from 1/8in. obechi, with windows made from Slater's grid. The interesting part, however, is the method of making the brick and slate work, which is all scribed out on a material known as scraperboard, obtainable from any good art and craft shop at about 1/6 per square foot. The method is to paint the plaster side of the board the required colours in a random fashion. Only transparent watercolour paints should be used here. I use a Winsor and Newton student box costing about 5/6. When the paint is dry scribe the required pattern of brick, stone, slate or tile with a sharp-pointed instrument such as a needle or a compass point, according to the width of the mortar courses. These courses will now show up white; if you wish to have the more usual grey mortar just rub some cigarette ash into the courses. You need not smoke it, just burn it—it is ash you want, not lung cancer.

Automatic train control (general requirements)

In order to install a simple automatic system of train control, such as we have successfully used on this layout, you require (a) an independent 12-volt D.C. supply for the purpose of working the relays, in addition to the usual supply for locos; (b) a relay of at least 1,000 ohms resistance for each track section (the high resistance is necessary because

the current operating the relay passes through the loco motor; the resistance brings the voltage down too low to affect the engine). Each relay must operate at least one "make" switch and one "break" switch, and if colour-light signals are wanted there must be an additional change-over switch; similarly if a lighted diagram is wanted. It will be seen, therefore, that each operation is a separate electrical circuit which needs its own independent supply.

Wiring details

One rail is a common return and is continuous throughout the automatic system. The other rail is divided into the number of sections required. A lead is taken from each section to a relay, the other side of the relays being connected to the 12-volt independent supply and the negative of this supply being connected to the common rail. Remember that the relays must be of 1,000 ohms resistance and have at least one "make" and one "break" switch. A lead is joined to a track section from one contact on the "make" of the relay (a) and from the other "make" contact on relay 1 to one contact of the "break" switch on relay 2 (see sketch). The "break" contact on relay 2 is connected to the positive side of the controller, the negative side of the controller being connected to the common-return line. Thus if a loco is standing on section 3, current from the independent relay supply flows through the loco motor without moving it and energizes relay 3, which causes the switches to operate and break the circuit, and thus no current is admitted to the section in the rear. It also completes the circuit on which the engine is standing. On a continuous run the last section is coupled to the first section, as at x on the diagram. Another change-over switch is required for colour lights, the switch to be set so that the green light is lit when the section is clear. The switch on relay 2 operates a signal which is placed ten or twelve inches from the start of section 1. Signal and diagram lighting must each come from its own independent source of supply in each case. If semaphores are used they could be coupled direct to the relays, but this would entail a formidable amount of wiring, and as none of our combine dare have a girl friend in a wire works we gave this one the go-by.

Loco stud

Great Western Railway

- 2 Tri-ang 2-6-2T engines, one painted green and lined.
- 4 0-6-0 condenser tanks—die-cast kits.
- 1 94xx 0-6-0PT—die-cast kit.

Great Central Railway

- 1 Sacré 2-2-2, scratch built and painted in G.C.R. green and claret.
- 1 Robinson 2-6-4T goods tank—black.

Great Northern Railway

- 1 0-6-0T J50.

British Railways

- 2 A1A diesel locos—one with two motors.
- 1 three-car diesel multiple-unit set.

It will be seen from the loco list that most of our locos are tanks. This helps to speed up the turn-round of trains when intensive running is undertaken. Our rolling stock is a mixture of Tri-ang wagons, Peco Wonderful Wagons, several butchered Kitmaster coaches, a number of Tri-ang main-line and suburban coaches, and a set of three clerestory-roofed G.C. coaches in the purple-and-cream livery.

TOP: Drylesthwaite station, with Grandsmoor Central motive-power depot in foreground.

BOTTOM: overall view of layout.

All photographs by Brian Monaghan.

