



BASIC MODEL RAILROADING

Part 6: THE PROTOTYPE AND THE MODEL

or “How to make your model railway a more realistic miniature of the prototype”.

Purpose of a model railway layout

The purpose of any model railway is to be an enjoyable hobby in creating a scene that evokes a happy recognition of reality in miniature.

Visual Perception

We all know that a model is a model - it's not the real thing, and we accept the fact that any model is a compromise in every way. With that as “a given”, the eye then scans the scene and runs a comparison with what the memory has stored about the real thing. During this process, some allowances will be made by most of us for the knowledge that what the eye sees is only a representation of the real thing.

While our visual perception is prepared to make some allowances, it balks when it is asked to push its acceptance factor beyond a certain point. A good model has to “look right”. So how much of the prototype has to be embedded in the model before it is accepted as looking like the real thing? The answer for most of us is probably “as much as possible”.

How to get the model to look like the real thing

- **By observation.**

Without trespassing, observe at stations, overpasses and grade crossings and from highways. Take photographs from all angles to fortify your memory.

- **From information.**

Your main sources of information about yesterday's railways come from photographs, building plans and track diagrams. These are readily available from railway periodicals, especially monthly (model) magazines and “how-to” publications, railway books, hobby shows, clubs and meets that offer quality model railway layouts for observation and instructional (“how-to”) clinics, and of course the Internet.

Hobby shows also frequently offer railway photographs and old publications for sale at reasonable prices. Of particular value are the publications, because these interpret the railway scene and place it in its correct historical context as to time, place and function.

- **By good design.**

A good layout design captures the essential details of the prototype while avoiding the pitfalls of texture and dimensions in miniature.

Type of layout

A layout is either prototypical (i.e., it represents an actual railway scene, past or present), or it is freelance (i.e., it represents an imaginary railway scene).

Some freelance layouts introduce prototypical elements of a particular area or structure, but whatever the representation, for a realistic model layout the general railway prototype ought to be observed and followed to the best of the modeller's ability.

All layouts are one of three basic types, and with the exception of dioramas, afford the more usual and ever-popular continuous circuits, or the less common end-to-end (point-to-point) operation, or a combination of both. As such, all have to make compromises with the prototype:

- diorama – analogous to a stage set: a portable, but by definition non-operable, scene in any scale.
- modular – an operable layout built in one or more sections that can be moved/dismantled intact. This includes all of the layouts at a hobby show, and is also highly recommended for any home layout.
- permanent – a larger operable layout that would have to be torn down to be moved.

Rules of space, scale and detail

- A larger scale obviously demands more space (unless it is a scene in a diorama)
- The larger the scale in a larger space, the more opportunity for roughed-in scenery and detailing.
- The larger the scale in a smaller space, the greater the need for detailing.
- The smaller the layout in any scale, the greater the need for detailing.
- The smaller the scale in a larger amount of space, the more opportunity of building a credible end-to-end operation, and/or to represent a larger and diverse (rural, urban and industrial) landscape.
- Smaller scales are ideal for a layout of reasonable size in a restricted amount of space.

Aspects of “looking right” and mistakes to avoid:

- **Perspective** - the smaller the scale in relation to the size of the layout, or in the case of any multi-tier layout, the greater is the need for the proper treatment of perspective. The importance of perspective increases in proportion to the amount of geography represented by the model.

A part of a layout that is elevated, or is otherwise intended to be at some distance or in the background, must appear to be at a distance. A good way to achieve this is to reduce the scale of the structures involved, and to ensure that any backdrop acknowledges the necessity for perspective.

- **Boundaries** - Since a model is a model, it has to end at a defined edge. In the background, the edge is often extended into a vertical backdrop. A credible backdrop requires a sense of colour and perspective, as well as some artistic ability.

In the foreground, define the edge of the model. It is in order for roads, (non-operational) tracks, yards, fields and meadows, to end at the edge of the model without any kind of vertical shield. Freely admit the necessary boundaries of the model. Think of it as a stage set.

Study the various types and designs of background. Some are very elaborate and artistic, but even the simplest background is better than none.

Most layouts are constructed at a height of between 42 and 48 inches. At the front a dark (green is popular) cloth will hide the wiring and storage and allow the eye to rise to focus on the show piece.

- **Hide the improbable** - continuous operation layouts of any design (circular, oval, “dog bone”, figure-eight, multiple figure-eight, reversing loop) will seek to hide the curve(s) to avoid the appearance of caboose chasing.
- **Texture and colour** - Matte colours and a little weathering are in order for structures. Above all, colouring the landscape should never be attempted with paint at full strength. A sieve for powdering on landscape materials and a syringe of diluted paint for rock faces work well for proper texture. Techniques vary from modeller to modeller.
- **Time and place** - many layouts are dated to the 1950s, which allows for the operation of both contemporary steam and diesel power. In the past, manufacturers tended to produce motive power models that never existed on a particular railroad, or with numbers chosen at random, or without offering a choice of more than one number, but fortunately, models produced today are more likely to be a more correct representation of the prototype, both in design and livery.

Be sure to choose rollingstock that conforms to the era and location of choice - streamlined passenger cars and heavy modern freight cars are simply not credible on a 1950s branch line.

That said, you can cut yourself some slack by including a railway tourist operation on the layout, or by designing it in such a way that parts of it can be legitimately designated as main and branch line operations.

- **Tracklaying** - the appearance of many a promising layout has been spoilt by indifferent tracklaying and poor or non-existent ballasting.

“Dog-legs”, that is rail joints with a kink, not only look unsightly, but are a hazard to good operation.

Track that is not in good alignment is also very noticeable.

It only takes a few moments to slide spare ties under the track at joints, in order to preserve the continuity of the prototype.

Ballast is also an important component of “acceptance threshold”.

Last but not least, turnouts with attached above-ground electric motors will stretch credibility unless located at busy stations or junctions.

- **Detailing** - Too little detail does not let the model come to life - too much may detract from the overall impression that the model is trying to make. Again, scale plays a part.

For instance, experienced modellers in HO, S and O scales usually “weather” their motive power and rolling stock, but in N and Z scales excessive weathering may detract from the fine detail of the equipment.

As another example, many layouts include roadways, but an excessive attention to road signs, traffic lights, and so forth, is likely to be at the expense of, or will detract from, the detail that should be bestowed on the railway-related infrastructure.

Too much detail can swamp the viewer’s ability to grasp the essence of the model - a good model is a representation, not necessarily a minutely-detailed imitation. However, one tip: tunnel entrances should afford a view of a tunnel rather than an all-too-common cavern.

But detail is necessary to make the model to come to life, and to provide an interest for the viewer.

Do detailing after the essential railway buildings and structures are in place, starting with people, livestock, road vehicles, station names, order boards, switch stands, signalling, fencing, telegraph poles, non-railway buildings, and so on and so forth.

Some layouts add lighting, houses on fire, a street accident, half-built houses, illuminated business signs, a static or operating trolley line. There are loads for the gondola, flat, hopper and bulkhead cars. Got a stash of bits of scrap metal, discarded axle sets? Perfect for a scrap yard. The possibilities are endless.

- **Too much railway.** When planning a layout, resist the temptation to jam in as much track as possible. Unless the plan is for a marshalling yard, that’s simply not prototypical. Allow the layout to breathe. Less is better. Study the many variations of layout plans published in many magazines and periodicals.

For a successful layout there has to be room for other activities that represent the model community around your railway - there is not just the station, but a water tower,

a freight shed, a yardmaster's hut - there are trees, the road leading to the station, some people, road vehicles - even some abandoned track. An abandoned roadbed is very prototypical today, and is proof of the determination to resist laying track on every available inch of space.

A related rule is not to plan too big - better to start modest and do it well than to have a vast expanse of layout (even if you have the space, lucky person) and make a sloppy, obviously rushed model.

Conclusion

Imitating the real thing is more of an art than a science. There are few absolute rules to follow, yet the realism of a model will always depend on an impressionist adherence to the essentials of the prototype, set in the appropriate time and space. At a minimum, the purpose of the model has been achieved as soon as the viewer's forgiveness threshold has been satisfied.