

Getting Started

in 7mm Narrow Gauge



Fifth Edition



**Includes
articles on
DCC and 3D
Printing**

**An Introduction to Modelling Narrow Gauge
Railways in Scales Around 7mm/ft, with
Particular Reference to The British Scene**

Includes Getting Started Projects

A 7mm Narrow Gauge Association Handbook

Editor's Introduction

Welcome to this new edition of one of the 7mm Narrow Gauge Association's most important Handbooks. For the new railway modeller constructing a standard gauge N, OO or O gauge layout, 'Getting Started' is relatively straightforward given the wide range of ready to run locomotives and rolling stock. The new narrow gauge modeller faces different challenges with a much more limited range of ready to run equipment. This Handbook aims to help the new entrant to 'Get Started' in 7mm/ft narrow gauge modelling.

When the first edition of this Handbook was produced there was virtually no 'ready to run' rolling stock or locomotives available for narrow gauge modellers in the 7mm group of scales. That situation changed with the introduction of the Bachmann On30 range based on American prototypes and the Continental European style 'Magic Trains' from Fleischmann (sadly no longer available new but which can still be obtained second hand). With the growth of On30 modelling, the Association produced a new Handbook for those looking to model the American style narrow gauge and also 'Going Minimum Gauge' for those modelling narrow gauge railways with a gauge of under 2 feet, such as 15 inch miniature or 18 inch industrial railways. This fifth edition of 'Getting Started', substantially updated, revised and rewritten, concentrates on modelling the narrow gauge railways of the British Isles. One of the great attractions of modelling narrow gauge railways is the sheer variety of prototype inspiration available, even within Britain. This Handbook is, of necessity, only a very basic introduction to modelling that variety.

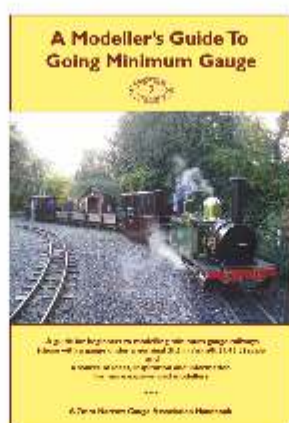
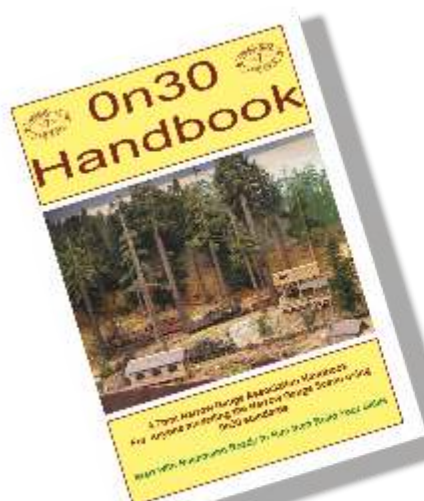
There is now good trade support for modellers of British narrow gauge working in 7mm/ft (1:43.5 – British O Gauge) scale, albeit that the products are mainly 'kits and bits' rather than ready to run models. It is possible to have kits built professionally, or to buy completed models on the second-hand market (the Association's second-hand sales department usually has a good selection). The new narrow gauge modeller can get a very long way in this branch of the hobby using commercial ready to run chassis

intended for standard gauge models in smaller scales as explained in some of the Projects later on in this Handbook. It is also quite easy to 'anglicise' On30 or Magic Trains locos.

For many narrow gauge modellers though the 'build-it-yourself' approach is part of the pleasure and the reward. Indeed, the present Editor's view is that one of the advantages of 7mm/ft scale narrow gauge modelling is that the tolerance of 'freelancing' allows the development of scratchbuilding skills without the need to produce a strictly accurate representation of a specific prototype. The availability of 'kits and bits' is constantly changing; information on what is currently available can be obtained from manufacturers' websites but the Association maintains a comprehensive list of traders and their products on its website (available only to members of the Association).

In updating this edition of Getting Started we have included articles on topics that are not narrow gauge specific but about which the Association is often asked. DCC is one such topic, particularly as many of the Bachmann locomotives are DCC fitted or DCC ready, and more and more modellers are adding sound to their narrow gauge locomotives. Also included is an article on figure painting which many modellers find something of a mystery, and to bring things right up to date there is an article on 3D printing. As with DCC, 3D printing is moving from the esoteric towards mainstream and the ability to 'print' your own locomotives, rolling stock or parts is almost designed for the narrow gauge modeller.

We hope that this Handbook encourages you to build your own narrow gauge model railway. However, even if after reading the Handbook, you are still uncertain about doing it yourself, we have included two articles on other approaches to 'Getting Started' – buying a layout from another modeller or building a layout as part of a group of modellers. Whatever your approach, there should be no reason why you should not 'Get Started'!



Modelling Narrow Gauge Railways



A narrow gauge scene that would be practical to model. Isaac running on the preserved Lynton and Barnstable Railway heading a rake of rebuilt L&B coaches (Photo: Peter Jackson).

Most of the material in this Handbook relates to the typical narrow gauge railway of the British Isles and its advantages as a subject for the modeller. Narrow gauge railways in continental Europe and around the world offer a similar set of opportunities. There are a number of very good reasons why people model the narrow gauges, whatever the scale chosen, so let us look at a few to see whether narrow gauge is right for you.

The Prototype

The variety of locomotives and rolling stock on any one narrow gauge railway is usually very great, even if there are only three locomotives. Narrow gauge lines bought locomotives from where they could find or afford them, creating a very interesting range from tractors and buses on rail wheels through diminutive 0-4-0T locomotives to enormous articulated engines. Most lines altered their motive power to suit themselves, or to reduce repair bills to a minimum. A wooden shed for a cab, or a steam chassis turned to electric, illustrate the kind of 'make

do and mend' approach that was necessary for these small, often not very lucrative, lines. For narrow gauge 'There is a prototype for everything'.

Narrow gauge railways were often low cost feeders to standard gauge lines, or self-contained railways with some industrial use in mind – quarries, mines, papermaking, etc. Lines were often very short, which means that there can always be an interesting location for the railway, and there is always something to carry. In reality, the decision to adopt narrow gauge was often a civil engineering one. Narrower track beds, lower axle weights and shorter wheel bases meant that engineering works for a line could be much simpler and cheaper than standard gauge in the circumstances. A bonus for the modeller and enthusiast is that many lines were built in very scenic areas of the country.

The Model

The nature of a narrow gauge railway suits a model very well. In all branches of railway modelling we tend to shorten trains and stations,

decrease the radius of curves and have gradients that no self-respecting main line locomotive would think of struggling up. In the narrow gauge these things are the norm. You can run scale length trains (although just look at a photo of a Festiniog slate train stretching into the distance) and build scale length platforms for your passengers. The scope of the typical narrow gauge line is such that you can think of modelling all the stock of the line. For example, the Tallylyn had but two locomotives and four coaches for the whole of its pre-preservation life. Add a few slate wagons, a gunpowder van, and the brake van and you have a railway. You will not be able to model the whole length of such a line, but at least you can run realistic trains and make more accurate prototypical layouts. The strange thing is that, given all these factors allowing accurate modelling, narrow gauge seems to attract 'freelancers' more than those modelling standard gauge railways. The reason is probably the sheer variety of what could be and was done with

locomotives and rolling stock. Almost anything can be justified in prototype terms if you try hard enough. It is also true that little ready-to-run equipment is available on the market in British narrow gauge, although this is slowly changing. You can create the whole of a railway in your mind in narrow gauge – standard gauge usually requires your railway to hook on to a main system somewhere to justify the traffic you want to run.

So What Is ‘Narrow Gauge’?

Technically, any railway with a track gauge (the distance between the rails) of less than the 4 ft 8½ in of the standard gauge is ‘narrow’, but this ignores the fact that in many parts of the world, main lines are operated on track gauges significantly less than standard. For example the South African and New Zealand main lines have a gauge of 3 ft 6 in. On the other hand a South

African Railways narrow gauge locomotive such as the NGG16 class of their 2 feet narrow gauge, is as big as some UK standard gauge locomotives. An illustration of the size variation routinely seen in narrow gauge stock is shown on page 7.

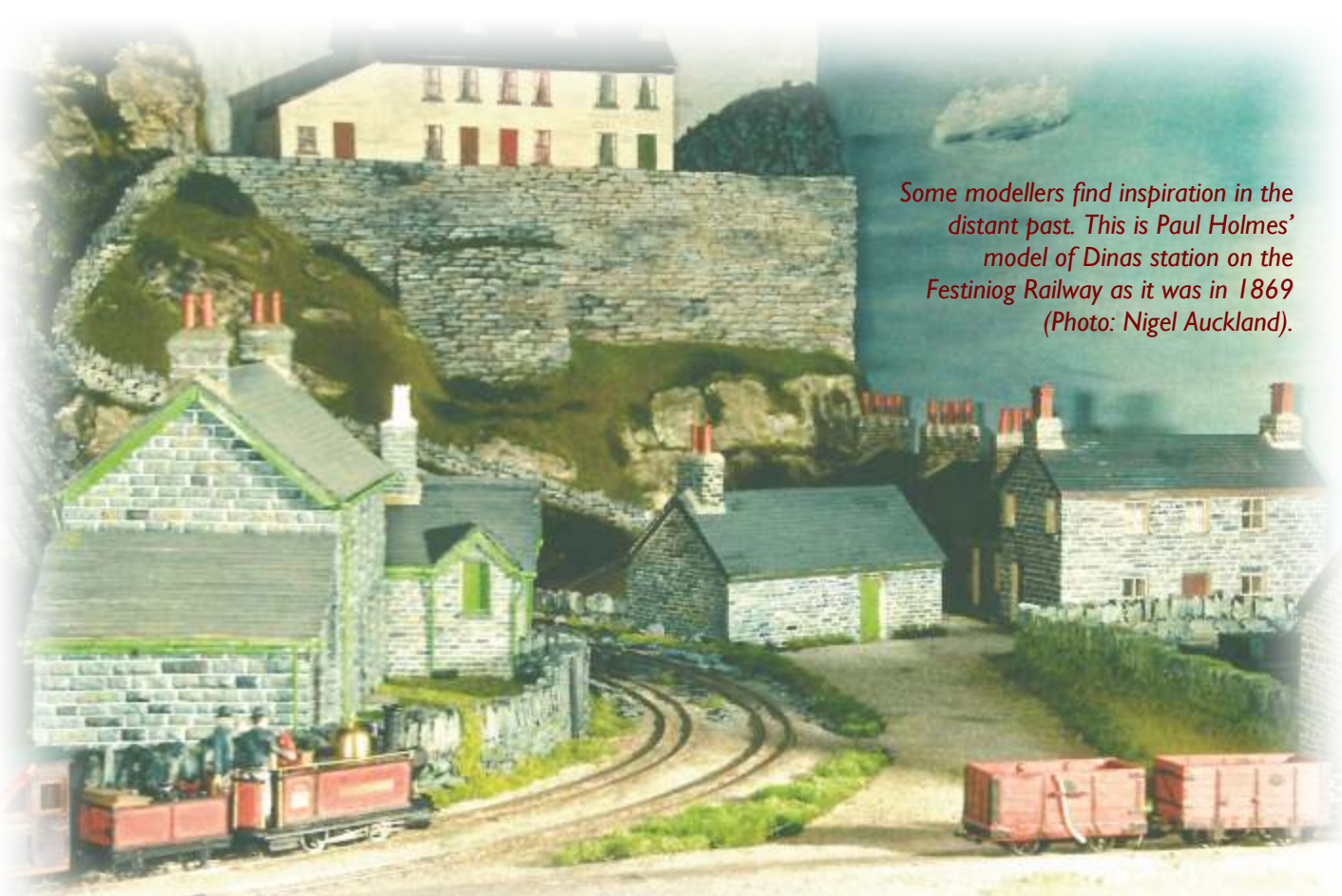
overseas, with British locomotive manufacturers providing much of the infrastructure for numerous narrow gauge railways, as well as rolling stock. Later, tourist narrow gauge lines started to emerge, such as the Groudle Glen line on the Isle of Man. At the other extreme narrow

For many narrow gauge modellers it is a first encounter with the real thing which colours the future choice. For Mike Pountney:

‘My own first encounter with Narrow Gauge was walking the trackbed of the Tallylyn Railway during the War, and seeing just two lines of rusty metal showing where the trains ran. I never saw a train then, although rumour said that they ran from time to time ! The trouble is that, although we now have a superb, restored, Tallylyn Railway I still long to see those ribbons of rust disappearing up the valley towards Abergynolwyn!’

Most narrow gauge prototypes had their origins either as industrial lines, such as the Festiniog Railway built to carry slate, or as lines to provide rail services to sparsely populated rural areas, as did the Irish narrow gauge lines and the Welshpool & Llanfair Railway. This pattern was repeated

gauge railways also played a significant role in the supply systems feeding the trenches on both sides during World War I. Luckily, many former industrial and rural lines have been preserved, albeit that they are now mainly tourist in nature.



Some modellers find inspiration in the distant past. This is Paul Holmes' model of Dinas station on the Festiniog Railway as it was in 1869 (Photo: Nigel Auckland).

Planning Your Layout

The process of narrow gauge layout design is the same as for any other layout design – first decide what you want to include in the model and then work it into the space available. At the outset, the following tips may be helpful:

- If there is any risk at all of you having to move house during the life of the layout, design it so that it is at least semi-portable. With the limited space available in most British houses, a fully portable layout may be best. In any case, if it's any good you never know when your first exhibition invitation will come along, and exhibiting is fun.
- Buy or build some rolling stock and a locomotive or two **BEFORE** you set about the design. Even if you do not build it as a detailed model, at least make a basic mock-up of the largest vehicle that you think you are going to use. This will give you some idea of the lengths you will need in loops, sidings and headshunts and of the space you will need to leave between and outside the tracks (see the earlier article on Scales and Gauge).
- Do not be too ambitious at a first attempt. A small to medium sized layout that can be largely completed is likely to be more satisfying than a complex one which never gets finished.
- Be prepared to experiment. Find out what you can do and what the stock can do. The only way to learn is by making mistakes.

The attraction of narrow gauge prototypes lies in the individuality of the stock and in the operation of the railway. There is huge variety in the way this attraction is translated into working layouts, and the newcomer would be well advised to look at as many examples as possible

***GASWORKS** - This is a scene on 'Nearleigh Works', a layout originally built by Dave Smith and now shown by Martin Rich.*



***SLATE** - a scene on Paul Holmes' recreation of Dinas on the Ffestiniog Railway as it was in 1869.*



of other people's work. This can be done at exhibitions, by reading model railway magazines and by consulting books of layout ideas such as the Association's own '*Small Layouts Handbook*'.

As well as looking at what other modellers have done, a study of the prototype is an essential part of the design of a narrow gauge model railway layout. A huge range of books about the real thing is available, and it is almost impossible to read them without finding a whole range of sources of inspiration. In terms of track plans, books and archive sources are probably better than looking at preserved railways where the layout has almost certainly been adapted to suit the needs of a modern tourist passenger service.

Most narrow gauge modellers are content with modelling just a part of a railway – a terminus, a junction, a corner of a quarry or a part of a factory, for example. The important thing is to have a purpose for the trains you want to run. This is often overlooked in the enthusiasm to get something running, but it is arguably one of the most important aspects of layout planning. The 'purpose' will drive the stock lists, types (and sizes) of locomotives and the train formation, just as it did when the prototype railways were conceived. Remember that the public 'common carrier' railways had a much wider purpose than private lines built to serve the specific needs of a single enterprise, albeit that some public lines were dominated by a single traffic like slate.

Narrow gauge railways can carry a wide variety of traffic. Here are some examples with particular reference to the British Isles, although even here the list is not exhaustive.

All layout photos: Mike Pountney

Getting Started Project I

Convert an OO Locomotive to O-16.5 by Peter J Page (Photos: Helen Page)

You cannot go far in narrow gauge railway modelling without providing yourself with a locomotive to move your trains. If you want to do this cheaply and quickly and are prepared to 'freelance', it is possible to take a small OO or HO locomotive and adapt it to O-16.5 by providing a wider footplate, a bigger cab and amended details. This project shows how this might be done with a Hornby OO 0-4-0 Caledonian pug tank. A number of other models, both steam and diesel outline, can be altered in a similar way. Small 0-4-0 saddle tanks and 0-4-0 or 0-6-0 diesel shunters (including the common BR Class 03/04 and 08/09 models) are the ones most usually tackled.

1 This is the OO locomotive to be used as the basis of the project. It was bought new but a second-hand model that works is equally acceptable. Before any work is done on the conversion, the locomotive needs to be tested to ensure that it runs properly. As a model it is a bit crude but the mechanism is of a type which is known to be reliable and which will go round unprototypically sharp curves.



2 The first step is to separate the body from the chassis. This model differs from many models in that it is not designed to be taken to pieces once the three parts - boiler/tank/cab, footplate and mechanism - have been clipped together in the factory. If the model is held upside down two of the four clips which hold the boiler/tank cab (body) unit to the footplate can be seen. In trying to ease these free with the tip of a screwdriver they broke off. The position where they were can be seen as white dots on the body. This does not matter. The other two clips, either side of the smokebox, are inaccessible but pulled clear without difficulty. Most other, more expensive, locomotives are designed for easier separation.



3 The footplate in this model is cast metal and adds valuable weight. Because of the clip-together construction it was decided not to separate the footplate from the mechanism.



4 After separating the body and chassis it is worth spending some time making decisions about exactly how you are going to carry out the conversion. What parts of the OO model will you keep and what discard? For most simple conversions it will be a matter of removing the OO cab and those small details which will look wrong in O-16.5.

This picture shows the cut-down body. Because it is worth retaining the firebox and boiler backhead in this model, the cab was removed in sections using a razor saw for the big cuts, a craft knife for trimming and files for smoothing. The whistle pulled out with a sharp tug using pliers, and the surplus lettering was removed with a glass fibre pencil. All these tools should be part of the basic toolkit of any railway modeller.



A piece of scrap plastic from the cab can be used to check that the plastic of the body can be joined to your styrene plastic card with your favourite solvent adhesive. This model passed the test using Plastic Weld.

5 In this picture of the chassis the buffers and cab back have been removed from the footplate casting. A razor saw was used for the cutting but a junior hacksaw would be an alternative. After cutting, the surfaces were tidied with a file. As will be seen from the extent of the bare metal the file also had to be used to smooth off the footplate surface detail so that the extended footplate would sit down flat. The hook and bar couplings have been retained but would need to be removed at this stage if you have chosen a different coupling system.



Now interested in modelling narrow gauge railways in scales around 7mm/ft?

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The 7mm Narrow Gauge Association

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- 10% discount on all purchases from the Association and free postage and packing on purchases of modelling goods and publications
- Books of drawings of narrow gauge prototypes
- Secondhand sales
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