

NARROW GAUGE & INDUSTRIAL RAILWAY MODELLING REVIEW



An Illustrated Journal of Modelling & Prototype
Information Dedicated to all Aspects of Narrow
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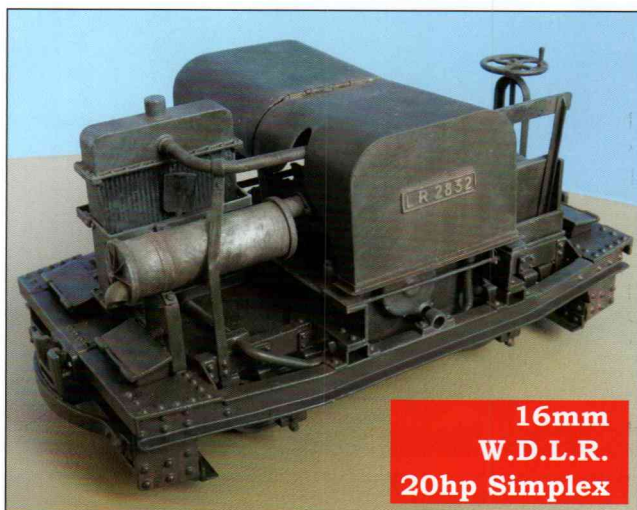


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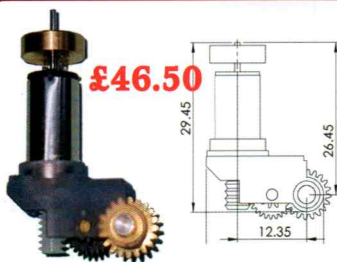
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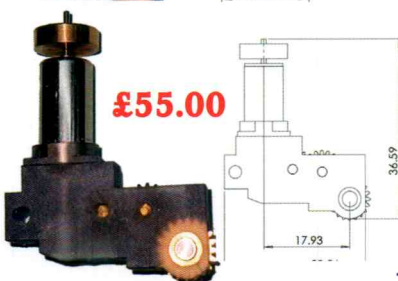


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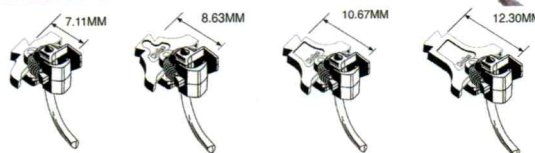
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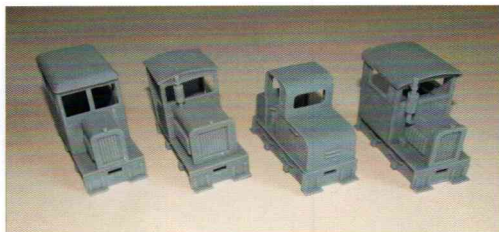
7mm Industrial and Narrow Gauge by Mark Clark

All loco kits are suitable for 16.5 & 14mm gauge, most also for 13.3, 12.7, 12mm. Compensation is built in, complete with wheels, gearbox and motor, just couplings required to complete. Full details of everything are on the website Locosnstuff.com



Hudswell Clark D29 kit, only 3 left.

If anyone fancies one of these in RTR form for O/16.5, I have these 4 ready to go and a US style box cab, email for details.



I am still way behind with work but trying to catch up so apologies to those still waiting for things. The 1/35th Gamecock and Berliet chassis are still a work in progress which I will try to get sorted out over the Christmas break.

My new Chinese gear sets are here and although they work well in single geared power bogies giving a 22:1 reduction, the ratio is too high for the dual geared ones as at around 55:1, they are just too slow. It looks like I will be ordering more stock of the older 13:1 gears for the all dual geared uses in the new year.

For any thinking of acquiring one of Henrik Laurel's RAR locos for which I do the chassis, they will be found at shop.winterzone.se who are now printing HL's parts after the demise of Shapeways.

I have no new products at the moment so I will wish all a happy and prosperous new year.

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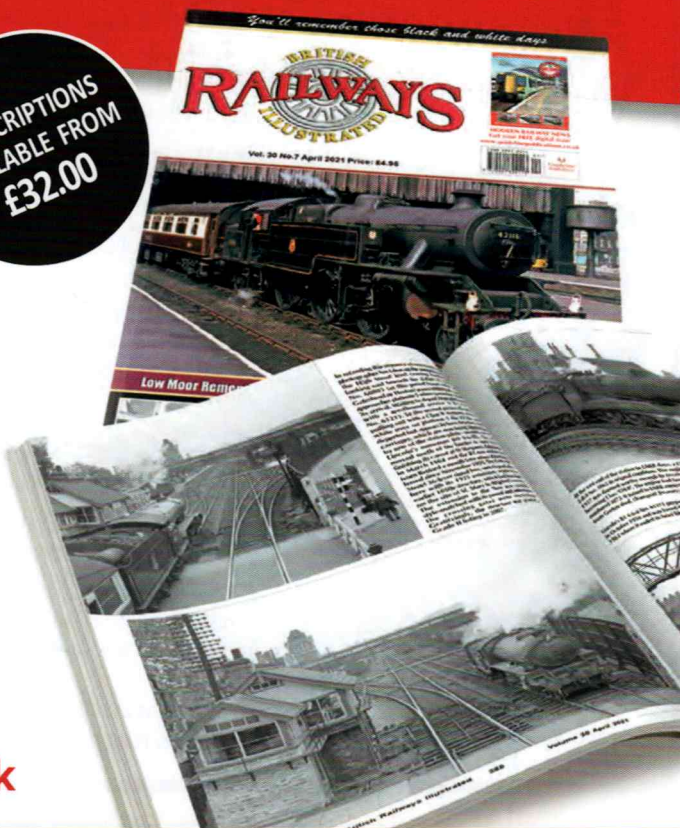
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NARROW GAUGE & INDUSTRIAL RAILWAY MODELLING REVIEW

EDITORIAL

Well this is finally it – my last issue as editor and designer. As regular readers will know it was originally planned that this would be the final issue of the Review, however it is now in the secure hands of Guideline Publications. I've been working with Gary Hatcher over the last few months on content and he takes full control as editor moving forward, with George Reeve as designer. I hope all contributors past, present and future will give Gary your full support as you have done for me.

As well as securing the future of this wonderful magazine of ours, Guideline Publications have the economy of scale with their stable of fine railway and modelling magazines to properly handle overseas distribution. This means EU subscribers will no longer run the risk of having VAT, custom and handling charges applied.

So this issue is very much business as usual with hopefully something of interest to everyone. I'm particularly proud that my last issue as editor leads with an article from Gordon Gravett on his and Maggie's new 1:50 scale Réseau Breton layout Port de Crozon – a project that I've discussed with Gordon and eagerly awaited for quite some years.

Hopefully I'll get more time to spend on my own long-term project. I have made progress this year but nearly all on the non-scenic sections. Maybe next year the long-planned work to finish the exchange yard, build the engine shed and workshops and embark on the wagon building programme will finally start. I'll endeavour to provide Gary with updates.

It's been a privilege to be part of the Review story. I'm looking forward to being a normal reader again and once again experience the excitement that the arrival of each new issue brings.

John

Editor and Designer: John Clutterbuck

Sub editor: Gary Hatcher

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PORT DE CROZON

A Small Réseau Breton Terminus by Gordon Gravett



Photo: Gordon Gravett

MAGGIE AND I HAVE BEEN VISITING BRITTANY FAIRLY REGULARLY SINCE THE EARLY NINETIES, initially to research the remains of the Réseau Breton, but also because we loved the spacious feel of the countryside. Although our early trips led to us building our Pempoul layout (featured in REVIEW 85) we were also attracted to the remote Atlantic coast and, in particular, the ports of Camaret-sur-Mer and le Fret on the Crozon peninsular – both, also, once served by the Réseau Breton.

The station buildings in this area are easily identifiable with their steep sloping roofs and tall tapering chimneys, but it was another building, at le Fret, that caught my eye and, in a curious way, was probably the main influence for the location of this layout. This was, what I assumed to be a watchtower. Although now dwarfed by the surrounding buildings, I like to think of this as once being the landmark that overlooked the small harbour. Some structures just cry out to be modelled, and this was one. All it needed was the excuse of a railway to keep it company!

Even a small railway site like le Fret was far larger than I could contemplate for a layout and, nice as they are, a model of one of the typical station buildings would totally dominate any scene that I had space for. So, within the limited space (7ft 6ins x 1ft 9ins for

the scenic area) I knew that anything I built would have to be purely fictional, but based on the coastal region of the Crozon peninsular.

As I write this, although largely complete, there is still work to do before Port de Crozon can be declared totally finished and ready for its first public outing. This is at the Manchester Model Railway Society's centenary exhibition over the weekend of 13th/14th December (see notice on page 383).

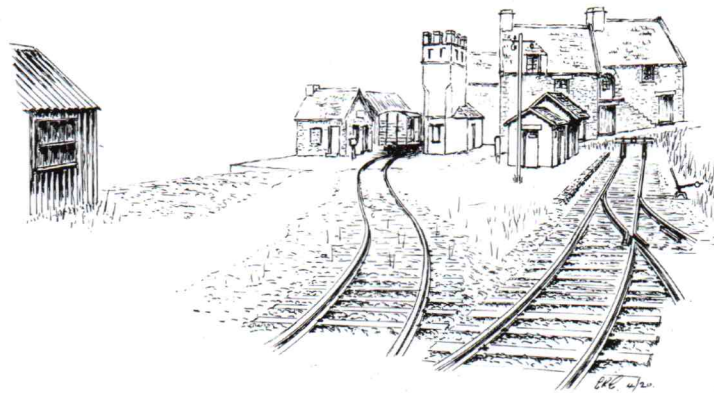
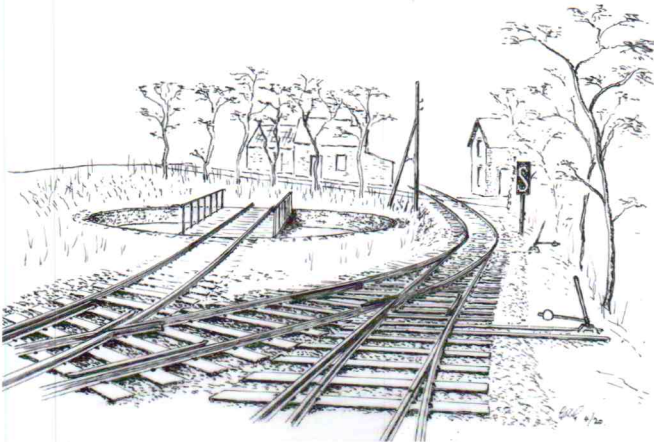
Top: A Billard 150D autorail approaching Port de Crozon and passing some dilapidated fishermen's sheds. The red and white disc should actually denote the rear of the train, but with the difficulty of making them loose and removable, I have one of these on both ends. One of the liberties that have to be taken in model form!

INSPIRATION AND PLANNING

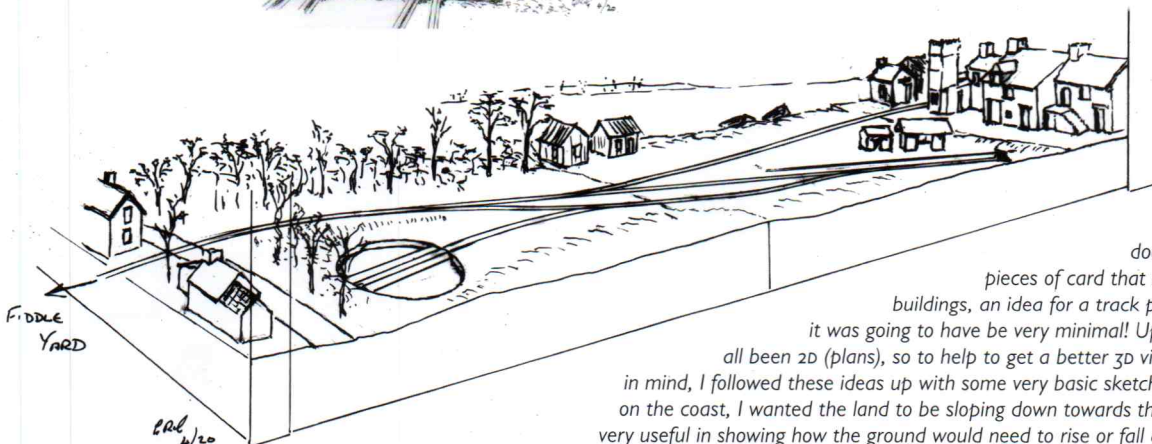


Photo: Gordon Gravett

The corner of le Fret's harbour with the curious watchtower overlooking the scene. Presumably, this would once have been the tallest structure in the area. The railway didn't actually reach this far, but I could imagine a single line running through the gap by the watchtower, maybe to a fish dock.

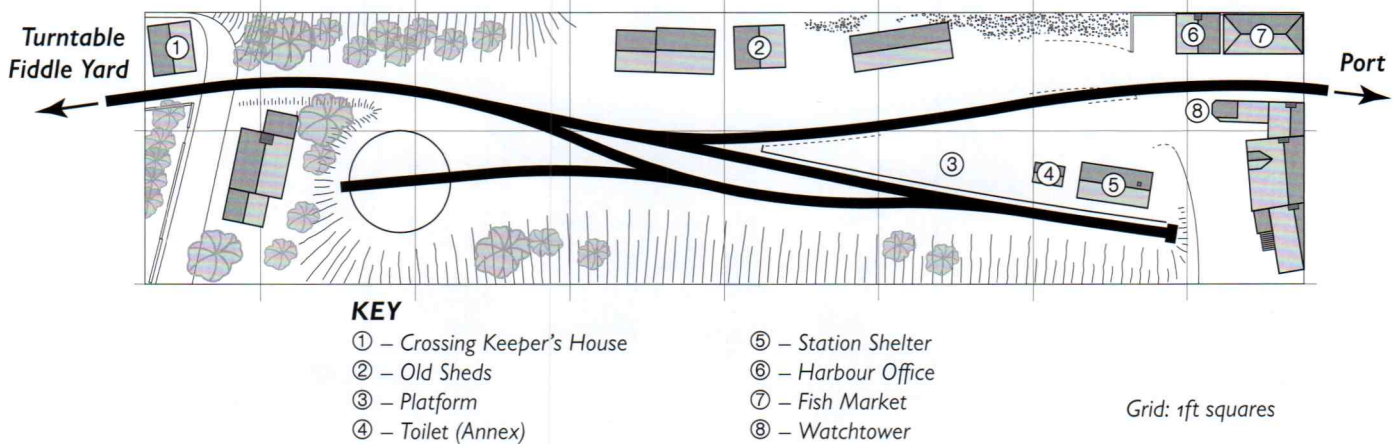


Sketches: Gordon Gravett



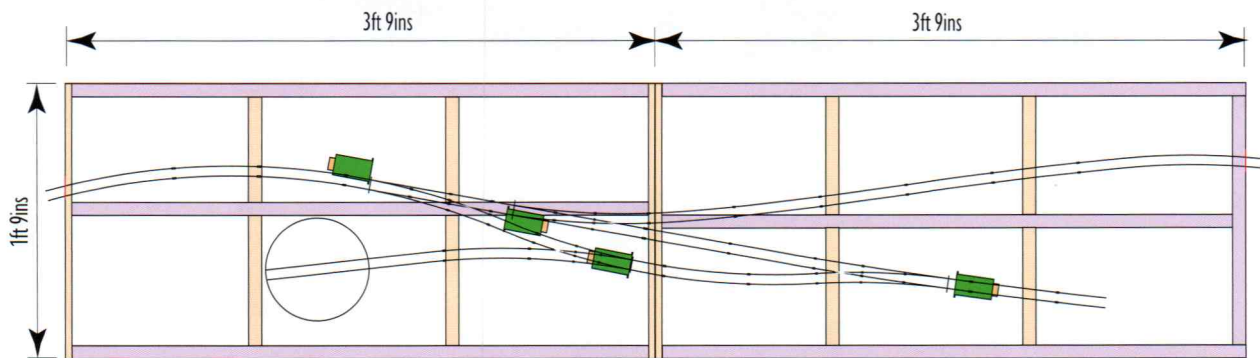
Following a fair amount of doodling and playing about with pieces of card that represented the floor plans of buildings, an idea for a track plan was starting to gel – but, it was going to have to be very minimal! Up until then, the planning had all been 2D (plans), so to help to get a better 3D visual impression of what I had in mind, I followed these ideas up with some very basic sketches. With the layout to be set on the coast, I wanted the land to be sloping down towards the sea, and the sketches were very useful in showing how the ground would need to rise or fall around the railway and in the general landscape. This would also have a relevance to the baseboard design that was to follow.

Port de Crozon (1:50 scale, 18.2mm gauge)



BASEBOARDS

I find a basic baseboard plan with the track layout drawn over the top to be essential before moving on any further. From this, levels can be established, and any areas of conflict can be seen straight away, and adjustments made before wasting time or money going any further. On this plan one of the Tortoise point motors can be seen clashing with a central longitudinal beam – which had already been moved to avoid the turntable well. This was not a big problem as the Tortoise could be moved to the other side of the beam and a longer reach rod added, but it was worth finding out about it at this stage.

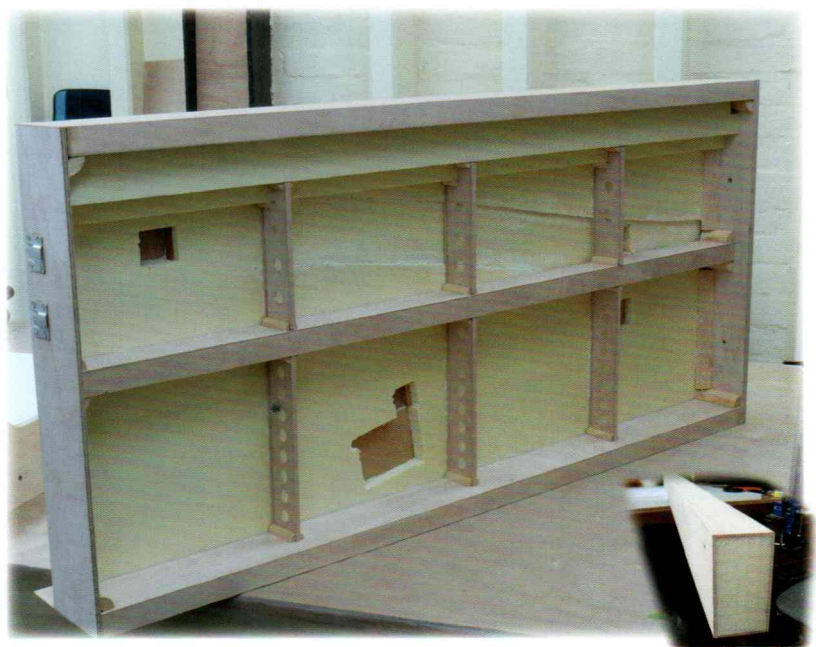


I have long favoured the idea of lightweight baseboards, and from early usage on Pempoul, my ideas were refined for an O gauge layout, Arun Quay. Although more work to construct, I have been very encouraged by their durability and ease of handling, so much so that these baseboards follow exactly the same design.

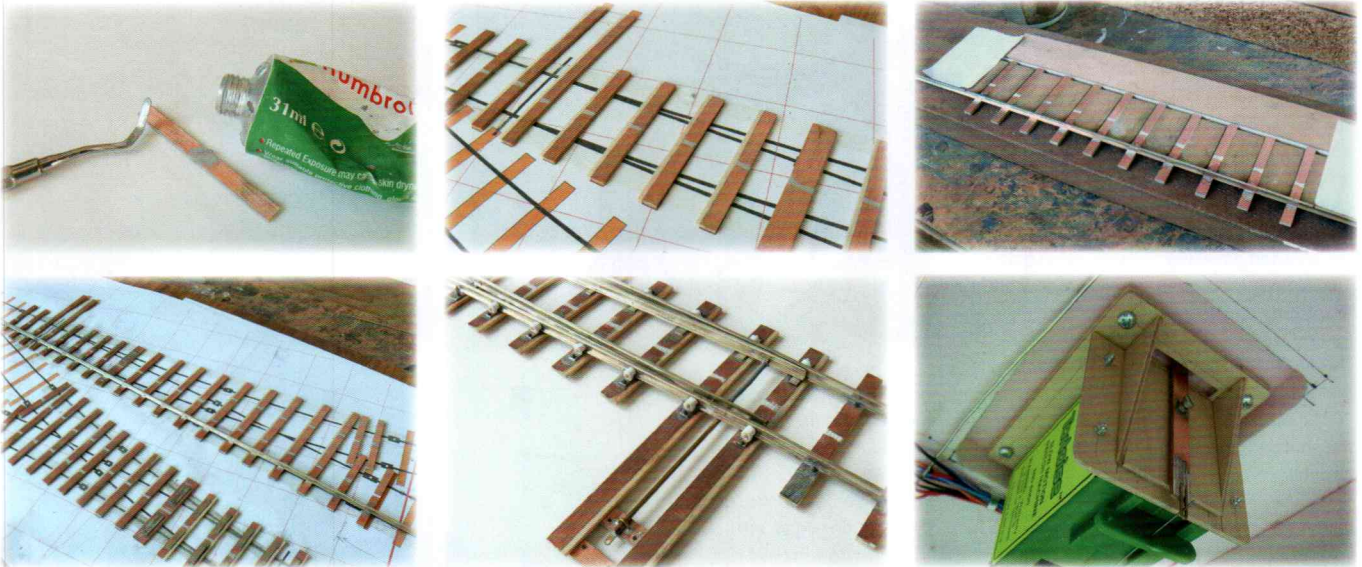
The main materials used are 25mm (1ins) extruded polystyrene sheet and 1/16ins plywood. The framework, which might normally be made from planed timber or thicker ply, is made from beams of 25mm polystyrene cut to 50mm or 75mm deep, and then clad on all edges with the thin ply to produce a box section.

These work well for the side rails and a central 'spine', but for the ends – where locating dowels or bolts are used to join the boards together, thicker ply is used. 25mm polystyrene is also used for the top surface. Extruded polystyrene can be cut very easily with a hand saw – preferably outside – and 1/16ins ply with a Stanley knife and straight edge. All the bonding was achieved with Unibond's No More Nails. The cross members on these boards are also made from 1/16ins ply formed to make 'I' beams.

The main disadvantage with using extruded polystyrene is that the material itself has very little intrinsic strength. Anything that needs to be fixed to it needs bonding over a relatively large area, or a stronger material, such as wood, needs bonding to the surface first. I set in squares of 6mm ply wherever there is a need to attach items such as point motors or uncoupling magnets.



Photos: Gordon Gravett



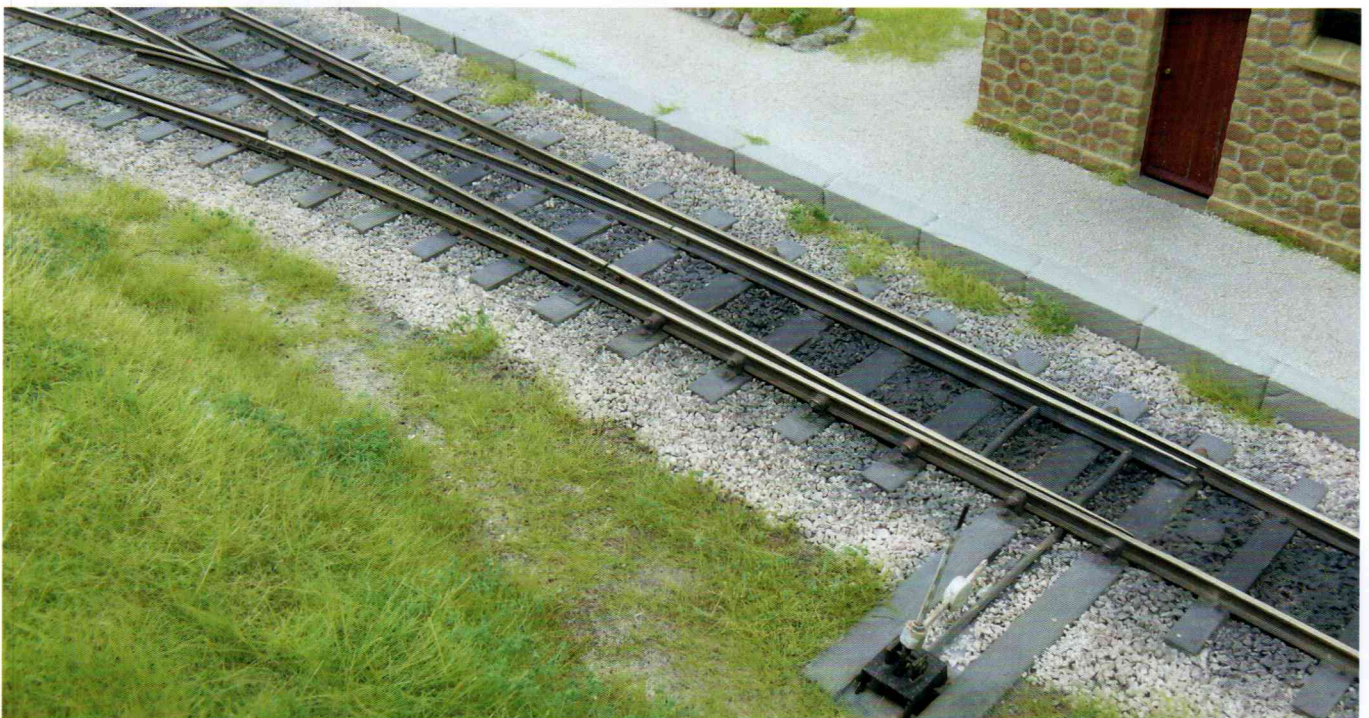
TRACKWORK

The track on this section of the Réseau Breton differed in being laid with flat bottom (vignole) rail – as opposed to chaired Bullhead (double champignon) on the rest of the system. There were no base plates – the rail was bolted directly to the sleepers, so I used 4mm scale copper clad point timbering for the plain track panels and soldered Peco code 100 rail directly to this. First, though, the gaps in the copper coating of the sleepers were electrically tested and then filled to make them less obvious. I prefer to build track on my workbench – far more comfortable and with better light and, from the accurate plans produced earlier, I started with the pointwork.

The timbering under the points was wider so I added balsa strips to the sides of the sleepers, fixed with super glue, so as not to interfere with the gapped insulation. Slide plates (combined with rail fixings) were used under the switch blades, so to allow for the extra thickness, thinner copper clad strip was used for these timbers. Longer timbers were also included for the (cosmetic) point levers, and I extended the drive rod to the stretcher bar so that the connection from the switch motor could be concealed under the lever's frame.

Lengths of 'half track' (one rail soldered to the sleepers) were also produced this way, with the second rail only soldered in place once I was happy with all the alignment. Cosmetic detailing, in the form of Grandt Line fishplates and rail fixing bolts, was added once the track was laid and tested. I also fashioned some plastic strip to represent the outsides of the slide chairs on the points, which appeared quite prominent in photos.

Point operation is through slow acting Tortoise switch motors running on 6v and I have made thin plywood adapters to mount them horizontally. The reduced voltage has two advantages; the action is even slower, and my hope is that it will be more sympathetic to the soldered joints on my stretcher bars. (This photo is actually of one of the point motors under Pempoul, but the mounting is identical.)



Photos: Gordon Gravett

BUILDINGS AND HARD SCENICS

Over the years my methods for making buildings have gradually evolved. Early ones were made with plywood shells and coated with Polyfilla, which was scribed to produce stones or slate blocks for a Welsh-themed layout of the time. The Polyfilla gave way to DAS modelling clay on a later layout and, to make lighter work of the cutting out of the shell, and the weight, the plywood gave way to foam-cored board. These materials were used on Pempoul and Arun Quay and I saw no reason to change them for Port de Crozon. I think you just get used to certain materials, learn about their strengths and weaknesses, and compensate where necessary.

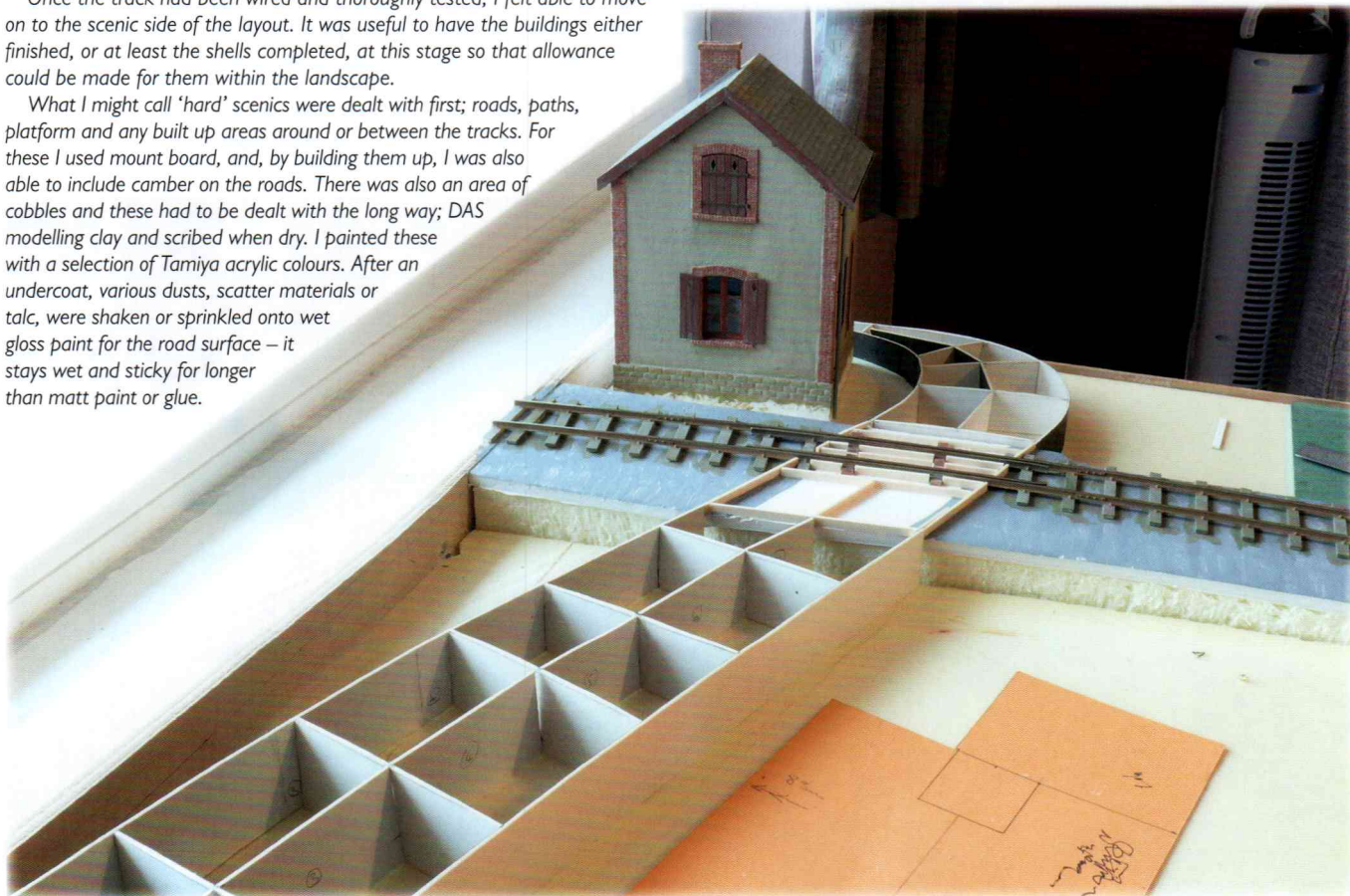
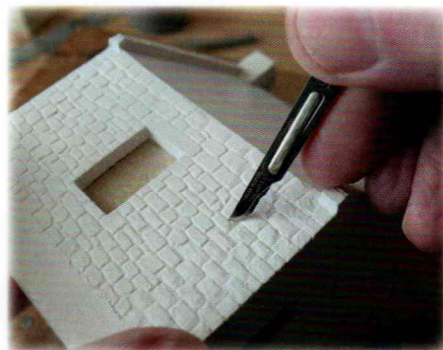
The foam-cored shells are easily cut and glued with PVA adhesive, and the walls are usually arranged to have two layers to help prevent warping. Experience has shown that single layers of board coated with DAS (which is glued to the surface with PVA glue) invariably bow or warp, so any amount of additional stiffening will always help the situation – and with very little extra weight.

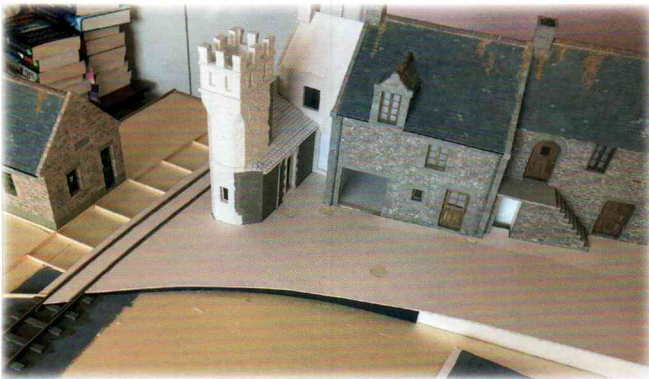
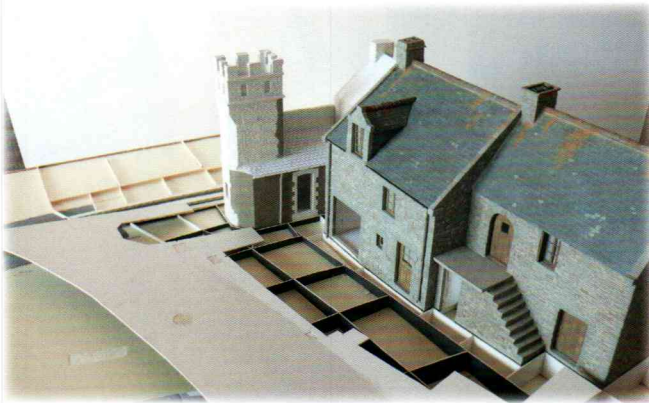
Scribing DAS can be seen as mind-numbingly boring but I find that, by doing a little at a time, it's surprisingly therapeutic and the end results can be very rewarding. I do, though, always try to work from a photo, which also helps when carving in any additional relief or textures with a rounded scalpel blade.

Painting will always be down to any personal preference, and for me that is Tamiya acrylics. I thin them down and wash a number of coats into the porous surface of the DAS – gradually adjusting the colours and tones to give a fairly toned down, 'viewed from a distance' appearance. Mortar courses and any weathering are added with water colour once the acrylic paint is totally dry.

Once the track had been wired and thoroughly tested, I felt able to move on to the scenic side of the layout. It was useful to have the buildings either finished, or at least the shells completed, at this stage so that allowance could be made for them within the landscape.

What I might call 'hard' scenics were dealt with first; roads, paths, platform and any built up areas around or between the tracks. For these I used mount board, and, by building them up, I was also able to include camber on the roads. There was also an area of cobbles and these had to be dealt with the long way; DAS modelling clay and scribed when dry. I painted these with a selection of Tamiya acrylic colours. After an undercoat, various dusts, scatter materials or talc, were shaken or sprinkled onto wet gloss paint for the road surface – it stays wet and sticky for longer than matt paint or glue.





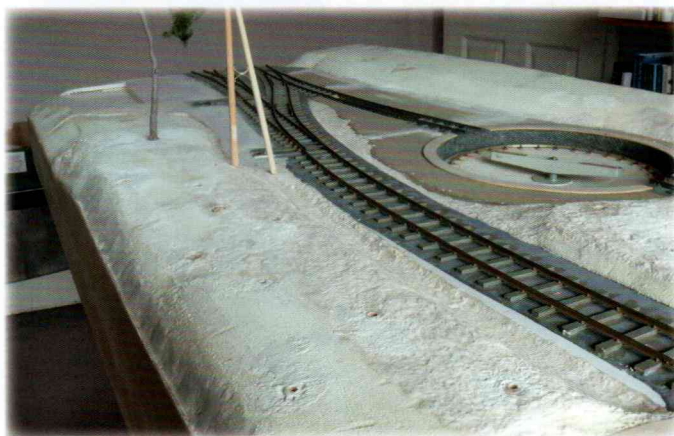
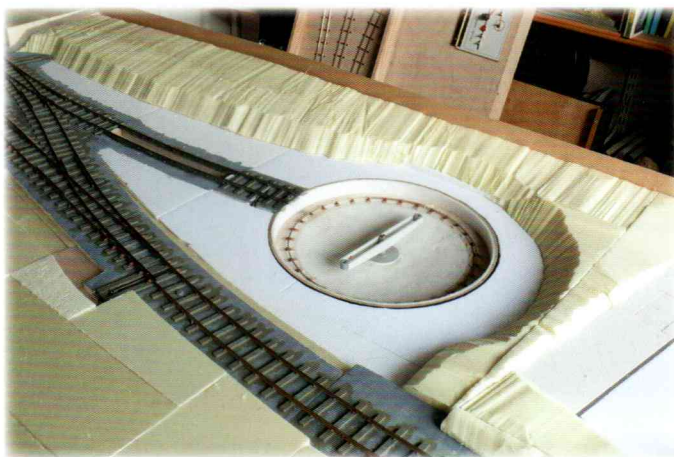
Photos: Gordon Gravett

SOFT SCENERY

The previously mentioned sketches were now proving their worth when it came to the 'soft' scenic work. Ground contours use the same extruded polystyrene – using up the leftovers – as on the baseboard surfaces. These were easily shaped (almost too easily!) with a hot wire cutter and this process was not too messy.

After sanding smooth, which is dusty, I marked where any trees or posts were to be located and drilled 6mm holes to accept corresponding pieces of dowel – all fixed in place with No More Nails adhesive. Any rough areas, joints or gaps were then filled with instant Papier-Mâché – a lightweight pulp material that just needs mixing with water, or small amounts of an Artex mix, but to keep weight to the minimum, I resisted covering the whole landscape.

With the polystyrene smoothed to match the pre-cut baseboard ends, a generous coat of earth-coloured emulsion paint then gave a good uniform foundation for the scenic detailing which was to follow. Static grass materials were used extensively, as were scatter materials to represent weeds. I find that adding a scatter of ash, soil, or one of the commercial products onto the wet glue before the static grass is applied helps to break up the edges and uniformity.



Photos: Gordon Gravett

LOCOS AND ROLLING STOCK

Having chosen 1:50 as the scale, everything has had to be made from scratch, but life was eased a little with my compromise of 18.2mm gauge – component parts being available for building chassis in 4mm scale to EM standards.

Having tried both brass and nickel silver for loco construction, I settled firmly with nickel silver – although it's a little stiffer to form, the ease of soldering makes all the difference. Not being 'greasy', it also takes paint much better. All locomotives are powered by Mashima motors and the drive is through either a Branchlines or High Level gearbox. Driving wheels, though, have been a slight issue. Although some 4mm scale wheels are available at the correct diameter, and the tread profile is about right to scale, the corresponding number of spokes is invariably too many. This has involved cutting out intermediate spokes, or in extreme cases, reducing eighteen spokes to six and then adding six more to make twelve in all! This was the situation for both locos featured here.

Boiler fittings were all turned from plastic rod, for which I happened to have some offcuts. The Réseau Breton engines all carried the spark arresters on their chimneys, and after numerous failed attempts to form them from etched or wire mesh, I resorted to turning the domes from clear (perspex) rod and then covering them with pieces of black nylon stocking material.



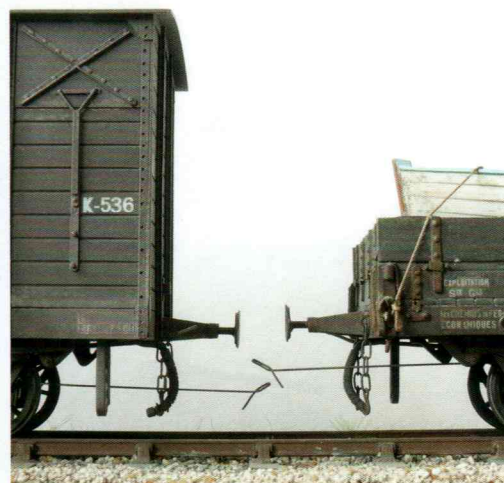
Above: Twelve of these 4-6-0s were built between 1904 and 1909 – this one, E332, being the last built by Compagnie Fives-Lille. The model was built over thirty years ago from nickel silver and, although it is built from scratch, I did draw, and have photo etched, the valve gear and motion parts. The re-railing jack, carried by all engines on the Réseau Breton, is a 7mm scale S&D Models casting, but it doesn't look out of place on these 1:50 models.



In 1891 the first engines built for the Réseau Breton were 2-4-0s. E206 was built by Société Alsacienne in 1893. For this engine I took advantage of photo etching techniques and it is, in effect, built from a personally produced nickel silver kit.



The goods and passenger stock is part of a batch built many years ago for Pempoul, and has since been added to for this layout. Evergreen plastic sheet is used extensively for the bodies of goods wagons, although many of the underframe parts are produced from photo etched components or specially commissioned castings. With so many duplicate and multiple parts required, I found it made sense to make masters and have them cast by one of the kit manufacturers, and for this I am grateful to the late Adrian Swain (ABS Models) and Springside. All the coach and wagon wheels on the Réseau Breton were 700mm diameter with eight spokes, so 14mm diameter wheels from Alan Gibson were ideal for these models.



Couplings are the Alex Jackson type. Although primarily designed for 4mm scale and for use with side buffers, I found that by increasing the dimensions and wire thickness proportionally, they also worked well under the centre buffers of the 1:50 scale stock. These couplings, and their use, was described in REVIEW 77.

Photos: Gordon Gravett



A Billard 150D autorail approaching Port de Crozon. This is one of the later, more angular, 1947 designs. The autorails are built around rigid clear acrylic boxes, that also form the glazing, and then clad with ABS plastic. The design of these are quite challenging, but ABS plastic can be quite forgiving when it comes to curving and laminating – in my opinion, far more so than styrene. – and can be seamlessly joined with super glue to achieve some of the more complex shapes. Power is from Mashima motors driving just a single axle.



A coach with guard and luggage compartment at the rear of a train waiting to depart Port de Crozon. Evergreen sheet styrene was used for the outer cladding over a rigid clear acrylic sheet box – in this case two clear boxes because of the off-centre access to the saloons. Self drawn etched components were used to form the balcony railings and detailing.

SHIP CANAL TIPPING WAGONS

By Sydney A Leleux



Photo: Sydney A Leleux

STUART BAKER'S ARTICLE AND DRAWINGS IN REVIEW 134 reminded me of places where I had seen ship canal wagons. At only one place they were still actually in use, but elsewhere one or two survivors remained, abandoned out of the way.

The active site was William Wild & Sons Ltd, Holyhead Breakwater, which the firm maintained on behalf of British Railways for a number of years. This was a completely self-contained system, with no link to the main line. While unusual, it was not unique, as I knew of three other isolated standard gauge systems, and there could well have been others. The self contained standard gauge systems I knew were:

1. Penmaenmawr & Welsh Granite/Kingston Minerals, where a standard gauge line on the very top of the mountain conveyed stone to the primary crusher, and a 3ft gauge line conveyed it to further crushers and screens.
2. Cliffe Hill Granite Quarry, Leicestershire, had a standard gauge line on the floor of the 'Sinking Hole' quarry. Wagons were hauled out by rope and tipped into the crusher. The link to the main line was 2ft gauge.
3. Associated Portland Cement, Highsted near Sittingbourne, Kent, had a standard gauge electric railway in its chalk pit, carrying chalk from the quarry face to a wash mill so that it could be pumped as slurry to a nearby cement works. Most electric industrial locomotives used on-board batteries or an overhead wire to supply the current, but those at Highsted used a centrally placed third rail – like early Hornby Dublo and Trix trains – and that in a quarry!

I am sorry, I digress!

During a family holiday near Pwelli in 1963, one day Zoe, then my fiancée and now my wife for 62 years, and I went to Holyhead and we measured one of Wild's wagons. Our measurements were:

Frame: 10x10ins, 49ins apart externally, $25\frac{3}{4}/35\frac{3}{4}$ ins above rail, 12ft long, buffers extend 26ins from nearest frame cross member.

Wheels: 8 spokes, 3ft diameter, 4ft 6ins wheelbase, 12ins boss in centre.

Body supports $16\frac{1}{2}$ ins short of buffers, 6x10 in set in 1 inch from outer edge of frame.

Body 10ft 3ins long by 6ft wide, side height 27ins (3x9ins planks), door 12ins wide. Strapping 6ins wide.

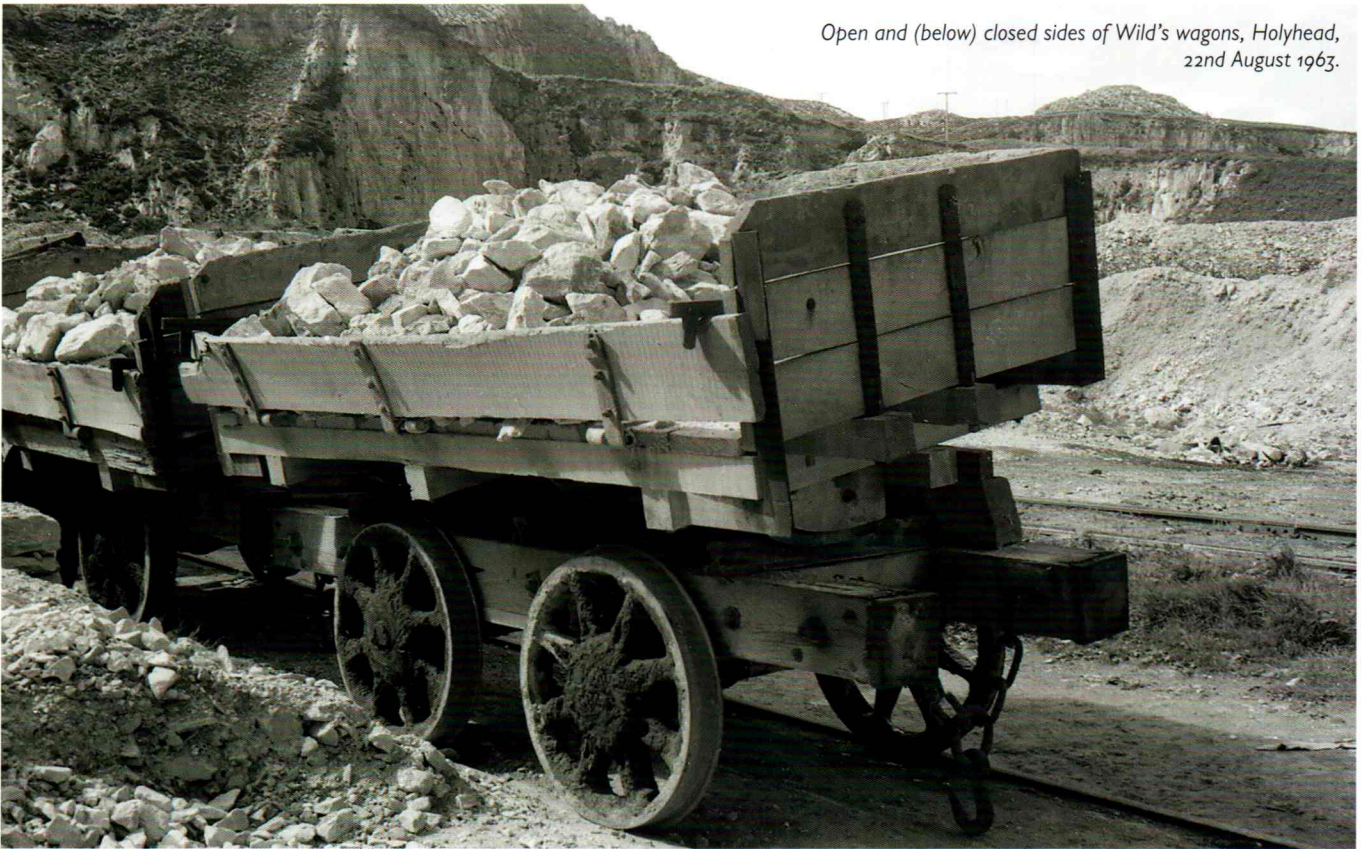
Floor supports 5x5ins, 11ins from end, 29/34in, $48\frac{1}{2}/53\frac{1}{2}$ ins from closed sides

Lower floor support 2ft from closed side. Tipping quadrant 26x9ins.

These measurements are different, but similar, to those accompanying Stuart's drawing. I suspect wagon builders took the general sizes and modified them slightly as necessary.

Top: Old wooden tip wagons at Ketton Cement Works, alongside modern steel tippler wagons. It can be seen that emptying large lumps of rock from an excavator's bucket takes its toll on the wagons receiving the load! 12th July 1977.

Open and (below) closed sides of Wild's wagons, Holyhead, 22nd August 1963.



Photos: Sydney A Leleux

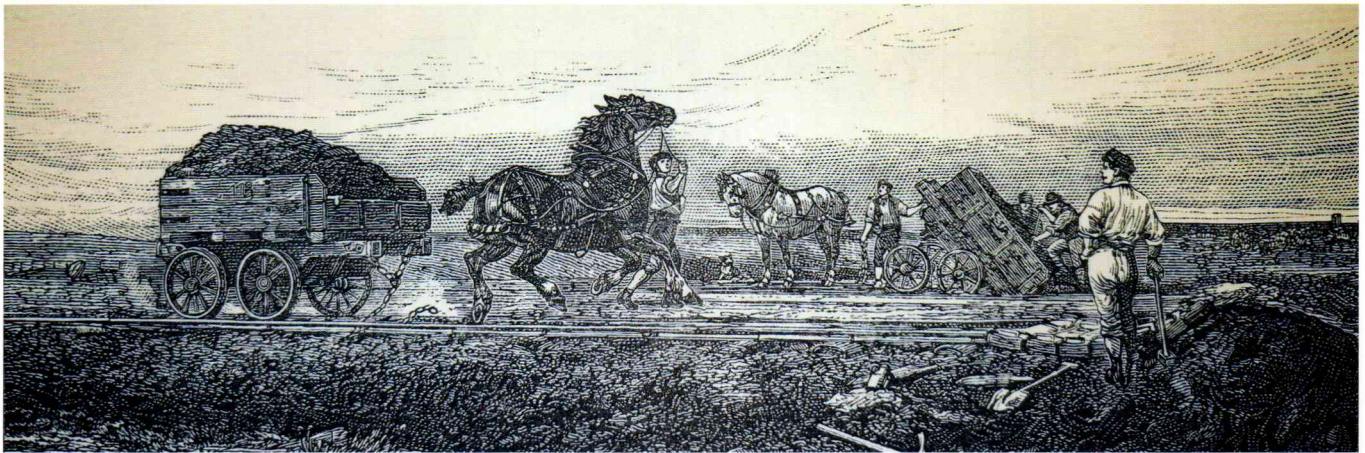
Irchester Quarries, South Durham. Pecketts ROTHWELL and PROGRESS, and some old wagons, have literally 'been put out to grass'. 14th June 1962.



Wooden side-tipping wagon abandoned behind the loco shed at Pitsford Ironstone Quarries, 19th September 1959.



Photos: Sydney A Leleux



Author's Collection

The frontispiece of *Aid Book to Engineering Enterprise* by Ewing Matheson MICE (E & F N Spon, London, 1889). It shows very similar wooden end-tipping wagons in use by a contractor. The horse has been uncoupled while moving, and its driver is leading it out of the way. Meanwhile the wagon travelled under its own momentum to the tipping site. In the background a navvy is shovelling the last dirt out of a tipped wagon before it is hauled away for refilling. It is sobering to remember that many British railway embankments were made like this.

Other examples of standard gauge wooden side-tipping wagons were all out of use. At Ketton Cement Works, Rutland, they had been replaced by steel open wagons. I attempted to get one of these sent to NRM, York, but failed. Similar wooden tipping wagons were once used in those Midlands ironstone quarries, which calcined the ore before dispatch. These quarries later used either side-tipping or steel dump cars between quarry and calcine clamp. The ore, mixed with small coal, was tipped on to huge heaps and burnt for several months, which concentrated the ore and turned it from sandy brown

colour to deep red. Occasionally a solitary wooden wagon survived, and could make an unusual feature in a model quarry.

The final illustration (above) was discovered by Andrew Eyre, who helped me when I was writing the history of Peter Brotherhood Ltd, Peterborough. It shows a very similar wooden end-tipping wagon in use by a contractor.

Whether as the main form of wagon in a quarry, or as a discarded relic of earlier times, wooden Ship Canal side-tipping wagons could form an unusual feature of a model layout.

Another view of Pitsford Ironstone Quarries, 19th September 1959 showing withdrawn Manning Wardle 0-4-0ST 345 of 1871.

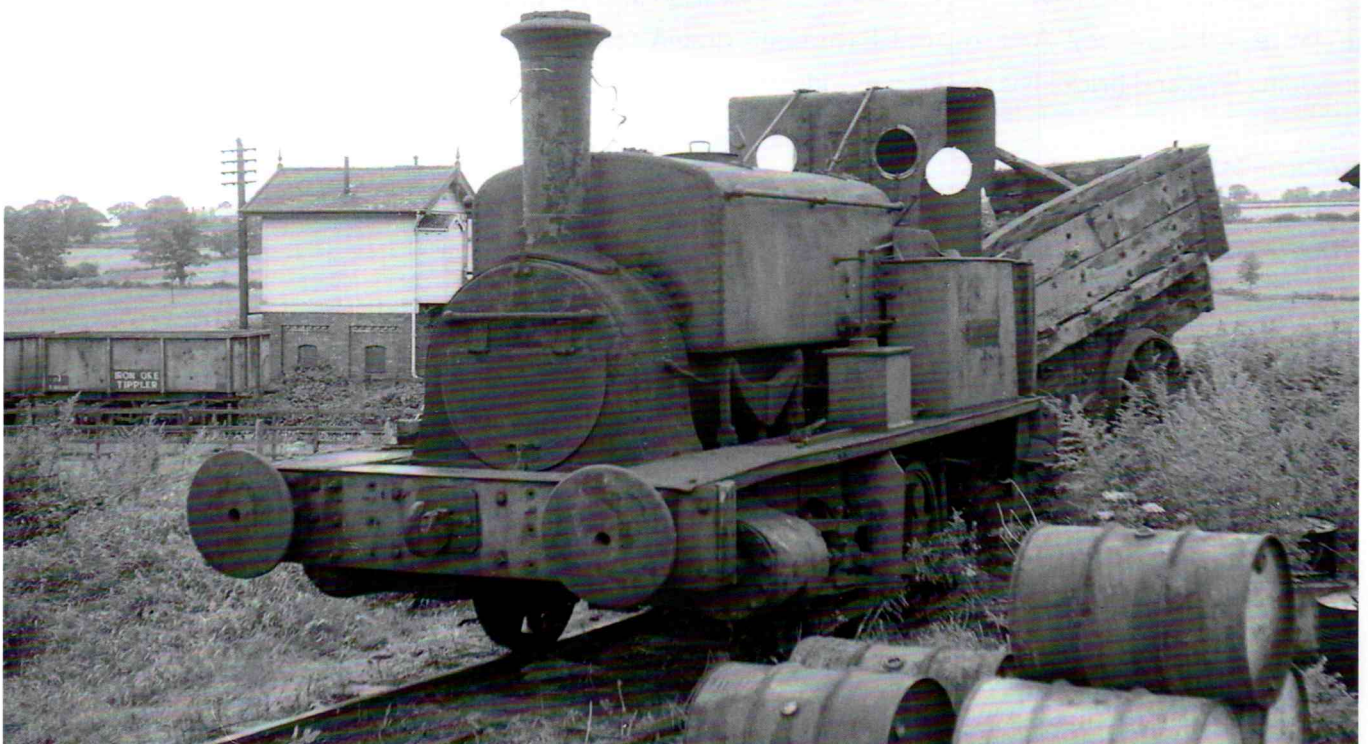


Photo: Sydney A Leleux

NEWCASTLE BRICK KILNS

by John Elliott

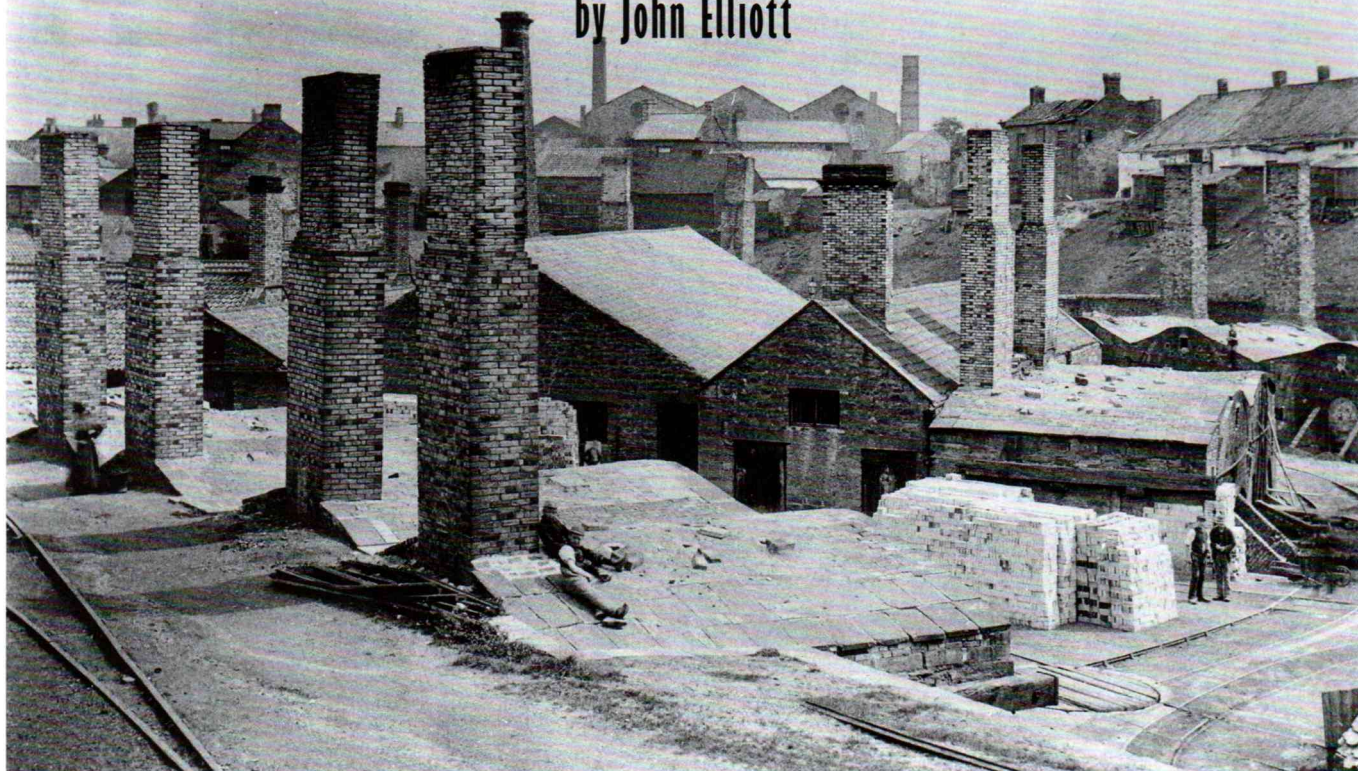


Photo: Courtesy Gateshead Library

I MUST ADMIT THAT I FIND OLD KILNS IN THEIR VARIOUS FORMS FASCINATING AND A GREAT MODELLING DISTRACTION. They are very varied in style and size and make really interesting models (at least I think so)! As a result I have been drawn to research and model some different examples including lime and brick kilns to serve as industries and sources of traffic for my growing miniature 'empire'.

BACKGROUND

There was a time in the past, at the peak of the UK's industrial might, when there were hundreds if not thousands of brickworks scattered throughout the country, especially in the coalfields where there was always a readily available source of cheap fuel. Time spent on the National Library of Scotland Map Images Website (a fantastic Resource), looking at the large scale 25inch Ordnance Survey maps (a favourite pastime of mine!) will show just how extensive this industry was. During the second half of the nineteenth century as the towns and cities grew dramatically these small brickworks also exploded in number to supply the growing need for workers housing and other buildings. Even away from the coal fields in more rural areas of southern and eastern England brickworks were very common, in fact anywhere where there was a source of clay (or shale) and a demand for buildings. These works generally used the thick superficial layers of clay or clay based rocks present in these areas, with the coal fuel being brought from the coalfields by the public railways. The works situated in the coalfields would often also use the seat earth fire clays, usually found at the base of coal seams and mined along with the coal, as a source of raw material. This seat earth was often high in silica, which enabled

the manufacture of refractory type products, such as fire bricks for furnace linings, which were resistant to high temperatures.

As mentioned above, the kilns used varied around the country with certain types being more common in some areas, but most types could be found in the principle industrial areas. Very early kilns were simply built by piling up a large number of green unburnt bricks into a structured pile known as a 'clamp' and then lighting fires under and around the bricks. This was a basic updraught type of kiln, and whilst simple gave very varied results due to poor quality control as it was difficult to ensure the bricks were fired at a constant rate across the clamp. As a result there was much wastage, due to partially burnt or deformed product. Over time specially-designed kilns evolved that

Top: Blaydon Burn Lower Works, probably taken before 1895, as the wagon turntable in front of the near kiln is not shown on the OS plan of that date. There was another one just out of shot to the right. This busy scene shows kilns, drying and moulding sheds and produce stacked for loading into railway wagons. In the early years of the twentieth century much of this area was rebuilt and modernised, with a large continuous kiln built on the site. The track to the left was the connecting line serving the mines and works, the company's river wharf and a connection with the NER.

Top: An 1880s view of the South Benwell works and its river frontage. The structure to the right is the eastern pug mill with its tall chimney for the steam engine used to grind the clay and a chute to supply coal and clay from the drift mine higher up the riverbank. Note there are four banks of two Newcastle kilns in this view, along with a pair of river boats being loaded.



Photo: West Newcastle Picture History Collection

improved the quality and efficiency of output. In the south of England a common type were the circular downdraught type, usually built in small groups, with a separate short squat chimney, connected to the kilns by an underground flue. This type of kiln was also sometimes used for producing pottery and could also be found further north and they were generally well represented around the UK. Another common variant used down country was the Scotch kiln. This was an updraft kiln – an improvement on the clamp kiln – consisting of a rectangular brick structure with an open top, with arched loading openings at each end and firing points located along the sides. The kiln was filled with bricks and then covered with timber planks to control and keep in the heat. The fires were lit and the smoke and heat passed up through the bricks like a clamp. While this type of kiln was used typically until the second world war in some locations, it was inefficient and had been gradually replaced by more modern and efficient designs.

NEWCASTLE KILNS

In north east England there were a number of common kiln designs in use including the later and much larger 'Hoffman' type continuous kilns, as well as the common circular downdraft kilns used elsewhere. However there was one type used for many years which came to be named a 'Newcastle' kiln because of its common use in the area. Whilst there were some examples outside of the area, they were very much a local feature and the dominant type of kiln in the north east. They were a very distinctive structure, often built in pairs or groups of three or more in rows and built typically from a mixture of brick and stone, although later ones were usually all brick. In form each kiln was a simple rectangular structure around 20 feet long internally with a vaulted roof usually built in brick. To provide a reactive force against the weight of the vaulted roof and to prevent sagging and collapse, the sides were usually heavily buttressed with substantial stone or brick masonry.

Because of expansion and movement from the heating and cooling cycle many also featured additional restraint to support the arch in the form of iron tie rods connected to large timber spreader beams, placed on short timber brackets set in the outer wall of the buttresses. This seems to have been a common feature of the works around the

River Tyne. The kiln was loaded from an arched opening at the front and at the rear of the structure was a single short squat chimney and each kiln would generally have its own. Later kilns adopted a common flue arrangement with a single tall chimney, providing a more efficient arrangement and no doubt saved on fuel. As I followed this particular rabbit hole of history I became more and more fascinated and having come across a number of interesting photographs of these structures I was drawn to model them.

INSPIRATION

In my researches I came across a number of photographs depicting two Tyneside sites that really grabbed my attention. The late nineteenth century photographs were very atmospheric and gave me the push to do something.

The first was at Blaydon Burn on the south side of the Tyne. This was actually two sites, one near the river Tyne at the bottom end of Blaydon Burn and the other was about 2km further up the valley. Both works were owned by Joseph Cowen who was renowned for making gas retort chambers, an essential part of the cooking process to produce coal gas. Both works were small and compact and featured banks of Newcastle kilns, with the two sites connected by a private mineral railway. This line connected to the North Eastern Railway at Blaydon and also crossed over it to reach the company's own river staithe, where small river craft took products up and down river to various Tyneside industrial concerns. The railway also served a couple of coal mines owned by the company, that provided both coal for fuel and raw material, in the form of seggar found along with the coal. The fire resistant bricks and other earthenware products made from this material tended to be a lighter buff colour compared to normal red bricks, made from the near surface clays.

The second site was the South Benwell brickworks, also known as the E & M yard, owned by the Cochrane family, on the north side of the Tyne west of Newcastle and situated adjacent to the river Tyne. This works was quite extensive and was well photographed during the late nineteenth century. The works featured a jumble of low roofed moulding and drying sheds, at least two pug mills and numerous Newcastle kilns.

Part of Blaydon Burn lower works showing a row of Newcastle kilns on the left and a set of brick-built, back-to-back Newcastle kilns on the right, with a central tall chimney. In the foreground are two of the company's special low frame chaldron type brick wagons, built for carrying bricks to customers along the river. The wagon side strapping is extended up above the wagon body to form lifting eyes enabling the small wagons to be craned in and out of river craft.

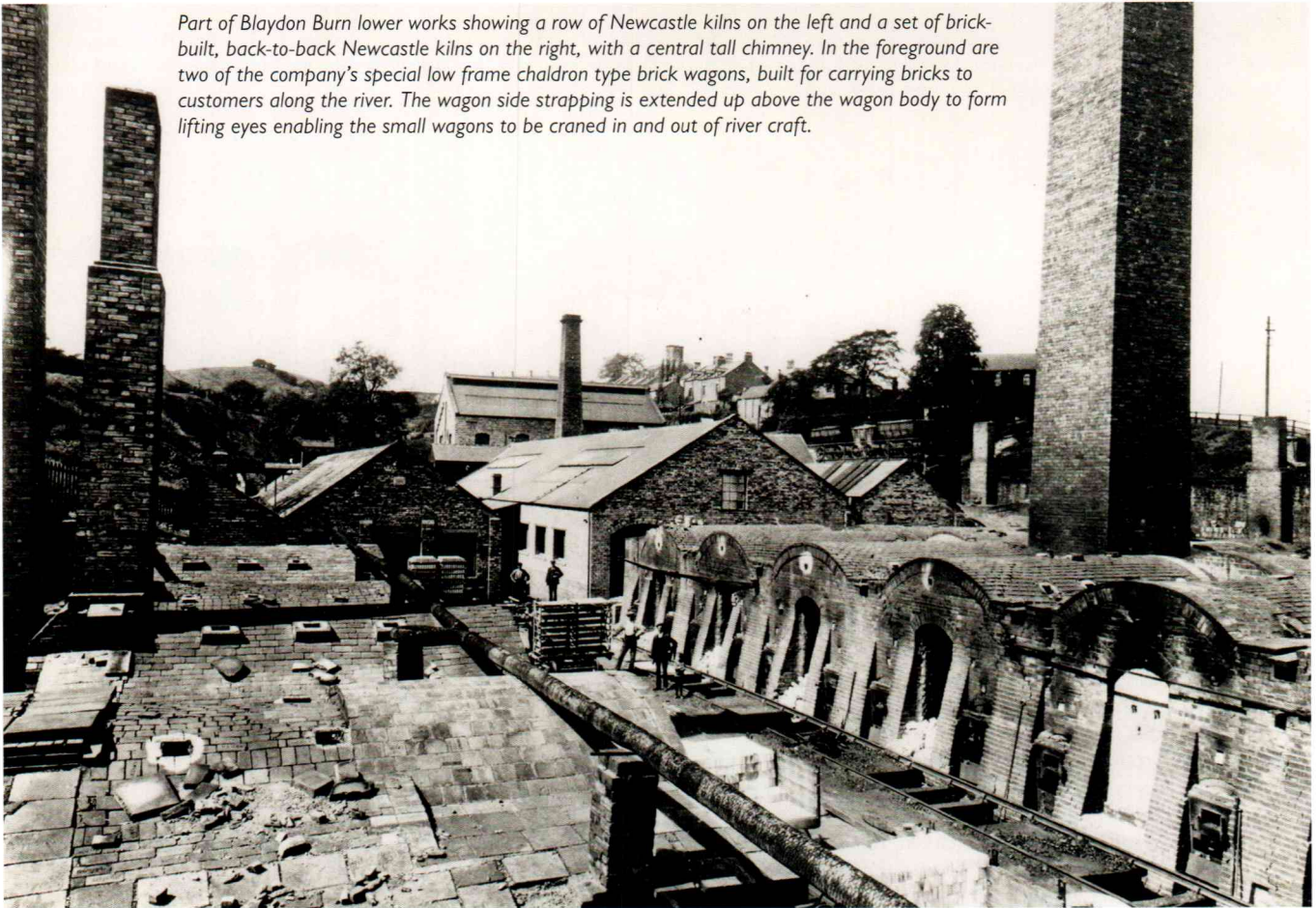


Photo: Courtesy Gateshead Library

Again this works was supplied with coal and clay from an adjacent drift mine, situated above the works slightly higher up the side of the river bank. In old photographs timber chutes can be seen, which were used to drop the coal and clay down to the works from the mine site. This works originally exported bricks via the extensive river frontage. However, the river trade declined with the development of the railway network and a connection was made to the North Eastern Railway west of Elswick station around 1900. This link had to change elevation from the main line high above the works to river level by using a reversing zig zag.

In operation the kilns were filled with green bricks waiting to be fired via the large arched opening at the front of the kiln, which was then sealed by building a temporary wall with a weak mortar that could allow easy demolition after the firing process was complete. Smaller arched openings either side of the access were fitted with grates and used to fire the kilns. These were of the downdraft type with the fire first being drawn up over the brick pile and then down through the brick pile to underfloor openings, which ran to a flue system under the floor and then to the chimney. Holes in the roof allowed small and powdered coal to be added during the firing – these could also be closed off using small fired tile covers. At some locations the kilns were built back to back sharing a common chimney.

Like much of the industrial north east the period of boom up to the First World War was followed by slow decline and closure and most of the old works have now been cleared and redeveloped. However, there are some surviving kilns, usually tucked away in more rural areas and often covered in undergrowth, decaying and

deteriorating as they slowly collapse. Looking at the old photos I was inspired to model some elements of this old order and felt a compulsion grow in me to build some kilns of this type.

THE MODELS

My first model was based on the type used at Blaydon and Benwell and other places. As I had some reasonable photos and indicative dimensions this seemed a good place to start and I chose to model a pair of these kilns, as this was a common arrangement.

Having built the first pair of Newcastle kilns and being reasonably happy with how they turned out, I thought about building more as most brickworks had more than one set – some loaded up, some closed with the fires lit and others open and cooling down and being emptied or re-loaded. I originally planned to just build another set similar to the first set, but thought some variation would make the scene interesting. By chance I came across the answer: in south Northumberland there are the remains of an isolated set of three kilns in a field south of Belsay, west of the A696, which once belonged to a small tile works. This group was different to the Tyneside ones in that the sloping roof was originally covered in overlapping stone slab slates, rather than the traditional fired square clay tiles set in mortar. At some point the centre kiln had its slabs replaced by pantiles (probably made in the very same kilns), and I thought this set would be an interesting contrast to the more common type. I am not sure if the pantiles were added after the kilns went out of use, but I have modelled them like this purely for their visual interest.

CONSTRUCTION

For both sets of kilns I used basic dimensions for the kilns as described in the book *Brickworks of the North East* by Peter Davison. Peter did an extensive and very detailed survey of what was still in existence towards the end of the industrial era and recorded much about the ownership and operation of the many works in the North East. The book was published as a photocopied and bound hand written document by Gateshead Libraries in 1986 and was republished in 2022. Whilst crude in its presentation, the extensive information in it is invaluable to anyone considering modelling such structures.

Whilst the dimensions vary from site to site, many were built to fairly common dimensions. After studying the examples recorded it became clear that these kilns were dimensionally similar – the internal measurements varying from 16 to 18ft long, 12 to 14ft wide and 8½ to 9½ft high at the top of the arch. These dimensions allowed me to arrive at a simple sketch to set out the arches and the relationship to the rest of the structure. I drew the front arch arrangement on a sheet of foam board making some guesses as to the thickness of the masonry of the external buttresses and the thickness of the arch and its springing points. The same approach was used to derive the overall external length allowing for a thicker back wall to accommodate the chimneys and a thinner front wall.

The base material for both sets of kilns was foam board. The basic shell was marked out on foam board and a piece of South East Finecast brick sheet used to mark out the front arches and the various arched openings. Further sheets were used to represent the front face brickwork which is set back under the arch. This was cut away at the edges to be replaced by scribed filler to represent the masonry of the buttresses. The opening arches were cut out and inset brick arch details added to the base brick. The arch details were Wills and Southeast Finecast and though not totally accurate are acceptable to my eye and saved me some time. Stonework was done using my usual method of spreading on ready-mixed DIY plaster filler with a pallet knife and then a few hours later scribing it to represent stonework. As well as scribing the joints I also attempt to represent the tool marks on the stones themselves. This detail is not really accurate as they are in reality very small, but my overscale marks help to provide some organic texture, which assists in the painting and weathering. I find working with this filler material very satisfying, although the initial work, when it is wet and sloppy is a little worrying, often resulting in a 'what have I done moment'. Once it has dried and is tidied up with sandpaper and scribed it takes on a new look and I find the scribing work quite therapeutic. The material is very forgiving and easily repaired or redone if an area doesn't look right. I also always seal the exposed foam core edges of a model with a slither of filler as this stops the card facing pulling away from the foam core at the edge. It also stops the foam core from dissolving when using cyanoacrylate adhesive during assembly, something I found out to my cost on previous models.

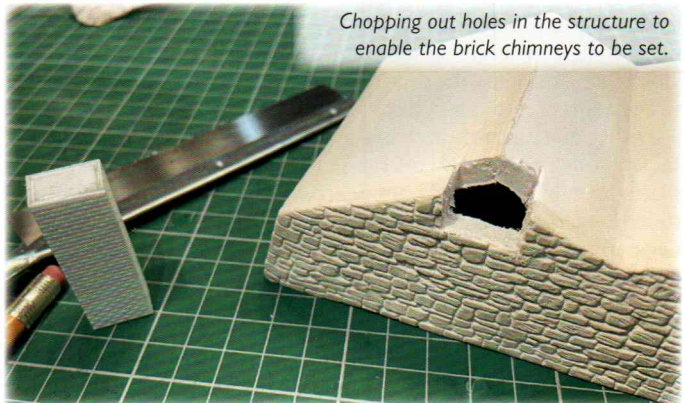
For the Blaydon type kiln the roof tiles were made by rolling out a thin sheet of DAS, (one of the few times I have actually used it) and once it had hardened it was cut into small squares and rectangles using a razor saw and the individual tiles glued onto the top of the roof structure. The chimneys were made in my usual way using embossed brick styrene and square section styrene to brace up the corners. I always struggle to get brick corner joints looking right, and don't always take the care that I should (I blame my tired old eyes) and some are better than others. Whilst I took great care to get the chimneys vertical in both axes using a small engineers square, the prototype chimneys were seldom vertical. Period photographs tend to show distinct leans on many of the chimneys



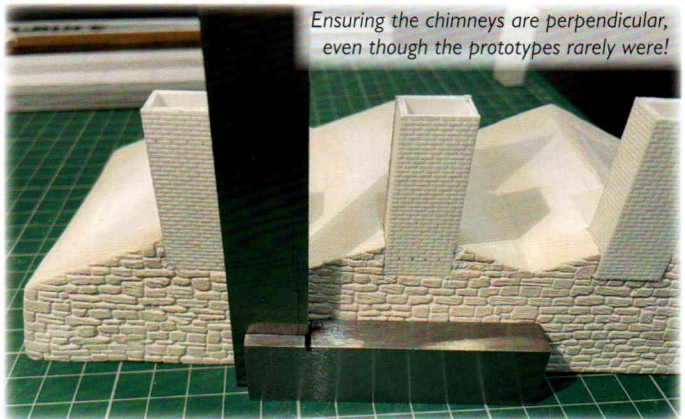
The front of the kilns marked out on Southeast Finecast brick sheet. Once the openings were cut out the arch detail was added. This master was then used to mark the openings in the foamboard.



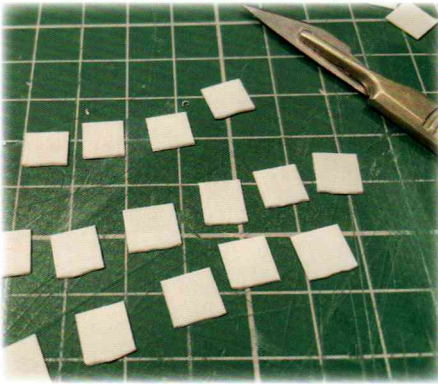
The main structure has now been assembled. Note the exposed foam core at the edges of the foamboard, which needs to be sealed with filler.



Chopping out holes in the structure to enable the brick chimneys to be set.



Ensuring the chimneys are perpendicular, even though the prototypes rarely were!



Left: Cutting the stone slates from 30thou styrene. Note the irregular nature of the knapped bottom edge



Right: Close up of the roof tiles. These were fired clay tiles set in mortar with a series of roof vents. These could be closed off with a small tile and were used to control heat. Powdered coal could also be dropped into these to aid the firing process.

Photos: John Elliott

probably caused by the softness of the lime mortar used and the differential heat from the kiln. I did think about trying to copy this feature, but reasoned that my work would be judged as being 'a bit rubbish' if I couldn't even keep the chimneys straight! The timber beams and tie rods were added in styrene, with grain scratched into the styrene beams using a scalpel blade.

The Belsay kilns followed a similar construction process to the Blaydon type, but the roof coverings were distinctively different. The original roof was done using stone slates, a typical type of roofing used in the northern Dales and parts of West Durham. I used 30thou styrene for the slates, cut individually from strips guillotined from a full sheet and roughened with sandpaper to give it some texture. The bottom edge of each slate was 'knapped' using a scalpel blade to give a representation of the irregular chamfered bottom edge of the full size slates. This is a slow laborious detail to do, but I think worth the effort, although I am not sure I could do a large building using this technique. The pantiles on the central kiln were 3D printed for me by Jim Rowbottom and had to be trimmed to suit the roof fitting around the chimneys. Whilst the product is first class and really captures the look of actual pantiles, the resin material is quite brittle and I have had to find a way of cutting it that does not shatter the sheet into a million pieces – a fine toothed razor saw gives good results, but care is still required and occasionally I will still end up breaking off pieces, as they shatter and fly across the room to accompanying bad language! The roof ridge tiles and vents were made up from styrene strip, with filler being used to form the mortar fillets around the chimneys and for filling the gaps between ridge tiles.

PAINTING

Both models were primed with rattle can primer. White was used for the Blaydon type kiln to act as a base for the buff firebrick construction and Halfords red for Belsay kiln. The idea being to give a slightly different hue to the colour of the brick and stonework of the two sets when the body colour was added. The choice of primer colour can give very different results to the overall hue of the finished product. I have found that if the paint is sprayed from a distance it will give a slightly textured appearance due to the paint being semi-dry when it hits the surface, which stops it from drying smooth. This textured effect is the opposite to what most modellers want when painting locos, but works well for something rough like a masonry structure.

The next step was to use an acrylic body colour to give a base colour for the stonework and I have used different colours depending on the stone type and colour effect I am after. This was followed by washes of artists oils using Paynes Grey and Charcoal Grey and a mortar colour mixed from white, grey and raw umber oil paints. This was mixed to a runny consistency and then run into the joints with a fine long-haired brush. Any excess on the stonework is simply wiped with a finger.

I find that weathering is an inexact process and best done in stages with patches that overlap. It also has to be done one side at a time to avoid the paint running to the lowest point and, as the paint takes time to dry, usually takes a few days to complete. The process helps to avoid the uniform or artificial look common on some models. When using oils it is important to make sure that each phase is dry before starting the next or the colours will mix and produce a muddy effect – I find a hairdryer is a useful tool for this purpose.

The pantiles were painted with a mix of mainly burnt sienna and titanium white. I find that blending the colours together on the model with a stiff brush produces a nice variation in colour. Again once the pantiles are coloured a wash of grey or black will help tone them down and reproduces the effect of the dirt that collects in the joints.

THE FUTURE

My original intent was to model just enough on a corner of my layout to give a representation of a couple of kilns and provide a siding for generating brick traffic for my empire. However, I have definitely got the brickworks bug and will probably build some more of the ancillary buildings, such as the drying sheds and pug mills and even some other types of kiln.

During my planning for my embryonic home based layout I had decided not to build an exhibition layout. The thought of humping baseboards around the country and the effort and stress of setting up and dismantling did not appeal to me in my old age. However, a small portable section which could be taken out occasionally may be a nice compromise and I know there are other modellers who have adopted this approach. To this end a self-contained brickworks portable layout that plugs into one end of the home layout appeals to me and may yet happen. I would also like to model some circular downdraft kilns, as there is enough information out there to do them justice. There are some one-piece ready-made resin castings available on the market from Skytrex, which look ok, but I prefer to make my own and add a bit of variety in diameter and detail. I also think they would make a nice 3D printing project.

We will see where I get to going forward. I have found researching and modelling the various elements of brick and tile works an absorbing and interesting project and we may yet have two separate brickworks and I shall report on any progress. However I do tend to be easily distracted, so who knows?

REFERENCES AND SOURCES

Brickworks of the North East by Peter J Davison, Path Head Press 2022
National Library of Scotland Maps: maps.nls.uk
South Benwell pictures: West Newcastle Picture History Collection on flickr: [newcastlephotoarchive.org.uk](https://www.flickr.com/photos/newcastlephotoarchive/)
Blaydon Burn pictures: Gateshead Libraries



A pair of Newcastle kilns modelled in 4mm scale and based on the Blaydon examples. Note the left tie rod has a distinctive sag, which was not there when I first built the model. No doubt caused by the young labourers doing pull ups on the bars to keep fit! The kilns are modelled empty awaiting filling and firing. The brickwork is a representation of the yellow firebricks made from seggar clay, which was mined along with the coal.



The author's representation of the Belsay kilns, whilst slightly different in style to the Blaydon/Benwell kilns the basic form can be seen. They are modelled empty with the main arches open awaiting the filling with green bricks.

WOOLWICH SUPERPOWER

The Bogie Hunslets of Woolwich Arsenal by Stuart I Baker

WOOLWICH ARSENAL, LOCATED ON THE SOUTH SIDE OF THE RIVER THAMES in the eastern London borough of Woolwich, was served by an extensive network of 18 inch gauge track. At its peak before and during WW1 it was served by a multitude of steam locomotives and a few experimental early oil locomotives.

Since the end of the first world war the Arsenal's network of 18 inch and standard gauge rail lines had been contracting as indeed had the arsenal itself. This resulted in many of the steam locomotives becoming redundant and thus many were disposed of, being generally sold for scrap during the 1920s and 30s. By the mid-1930s the diesel locomotive was becoming more reliable and starting to take over from steam in industrial settings so it was unsurprising that Woolwich looked to replace steam with new more efficient diesel locomotives.

In order to provide the pulling power of the steam locomotives with a flexible wheelbase to negotiate the many curves on the lines in the arsenal, in 1934 the Hunslet Engine Co Ltd provided a bogie diesel locomotive, this being works No.1722 and named by the arsenal ALBERT. This must have seemed like a very futuristic machine as the arsenal's previous ventures into internal combustion had been archaic heavy oil locomotives. Indeed ALBERT was the first double-bogie locomotive built by Hunslet.

ALBERT had a McLaren-Benz MDB4 four-cylinder engine rated at 75HP at 1000 rpm (with a short period rating of 82HP at 1100 rpm), and powered a mechanical gearbox via a Hunslet patent foot operated clutch and Hardy Spicer shaft. This mechanical gearbox was located beneath the main frame between the bogies and drove the wheels through cardan shafts and universal joints to worm driven jackshaft drive and coupling rods. The main gearbox was a two-speed pre-selector type giving speeds of 4 and 8 miles per hour in both directions. The MDB4 engine was started using a small Scott petrol jockey engine. Hand and air brakes were fitted, the air brakes being powered from a compressor located adjacent to the front of the main diesel engine. This compressor also powered an air whistle. ALBERT was fitted with conventional buffers as it was intended for main line use (it could negotiate a 30 feet radius curve) rather than within the very tight confines of the works buildings.

To aid operation ALBERT was fitted with dual controls, these being located at each side of the cab. ALBERT's driver was also provided with an array of shutters on the side window openings and doors, so the locomotive must have seemed very cosy after the open cabs of the steamers. In order to allow the side shutters to slide into place, the arm rests in the cab openings could be folded out of the way into the cab.

ALBERT must have been very successful because after the railway again gave sterling service during WW2, and with the remaining steam locomotives becoming very elderly, the arsenal again turned to Hunslet diesel power to replace steam on the heavy ammunition trains on the main lines between the production buildings and the stores.

The new Hunslet was an updated version of ALBERT and was named CARNEGIE, the locomotive being works No. 4524 of 1954. Indeed so alike were the two locomotives that it was quite an exercise to spot the detail differences when producing the two sets of drawings, the original GA of 1934 being reused in an updated format for CARNEGIE.

CARNEGIE was provided with a larger four-cylinder 88HP diesel engine, this time being started by an electric starter motor. A larger radiator was provided, which extended out from the front of the bonnet. Integrated front and rear lights were provided as was an angled cowling in front of the cab to allow the routing into the cab of small bore pipes, cables, and flexible drives for speedometer and tachometer.

To look after the driver's comfort CARNEGIE was not only fitted with shutters like ALBERT but was also now provided with two low level fan heaters. Comfort indeed.

In addition to the above differences there were minor differences such as location of exhaust discharge, mounting of whistle, location of bonnet side panel handles, drains to air receivers, and rivet details.

Finally the coupling details perhaps deserve a few words. The works drawings show differences between the couplings on ALBERT and CARNEGIE, and indeed later these were changed further whilst working at Woolwich, with the link being replaced by a large hook, and a side hook (presumably for a safety chain) being added. These differences are all shown on my drawings.

By 1961 there was unfortunately only a need for one of the diesels so ALBERT was withdrawn and scrapped, though CARNEGIE only lasted another year before being withdrawn. It is very fortunate that both CARNEGIE, and sister steam locomotive WOOLWICH, were saved from the scrap dealer and from 1963 became the main motive power on the Bicton Woodland Railway in Devon. Unfortunately with a change of ownership of Bicton Gardens in 1998 the Woolwich stock was sold and after residing in poor storage at the Royal Gunpowder Mills Museum at Waltham Abbey for some years CARNEGIE has now been restored by Statfold Barn and currently resides there, where it can be viewed on open days.

SOURCES AND REFERENCES

For further information and photographs of ALBERT and CARNEGIE the following sources are recommended:

The Royal Arsenal Railways by Mark Smithers – published by Pen and Sword.

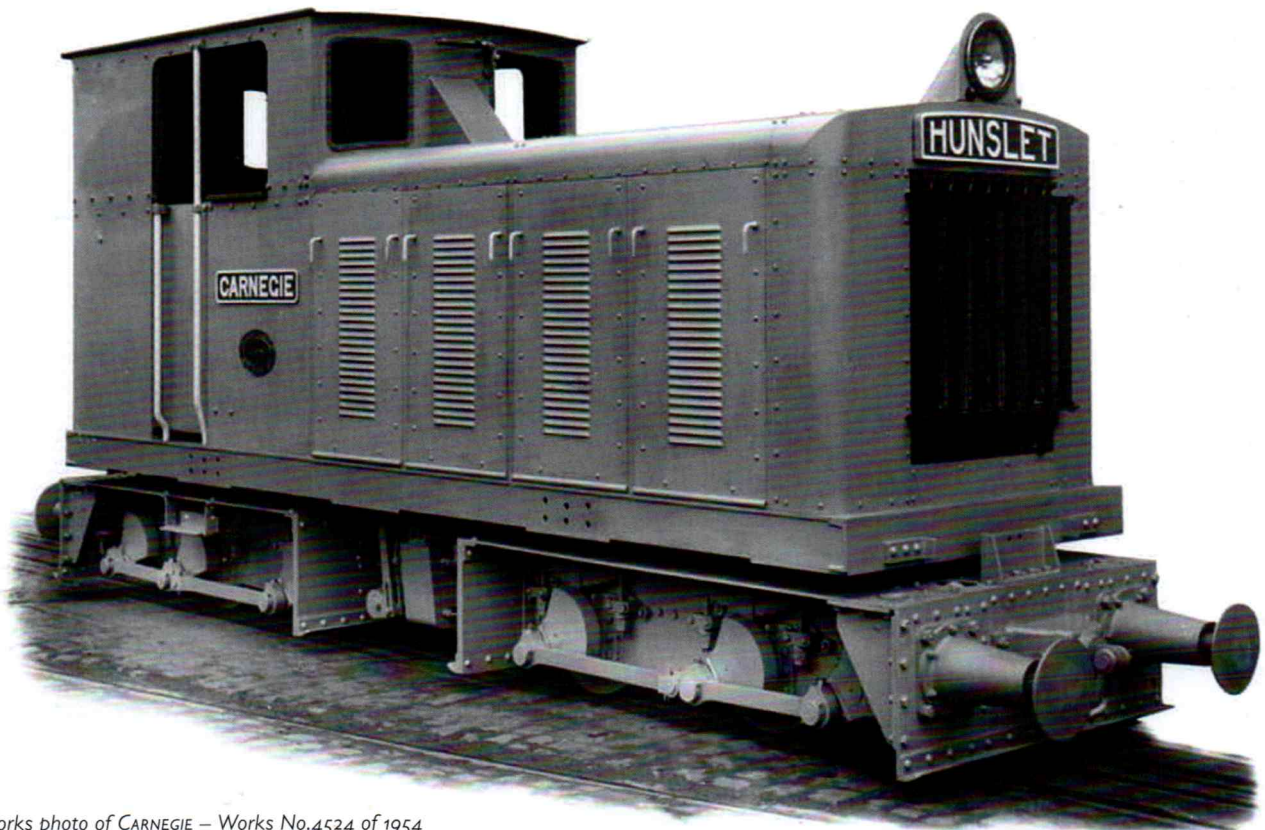
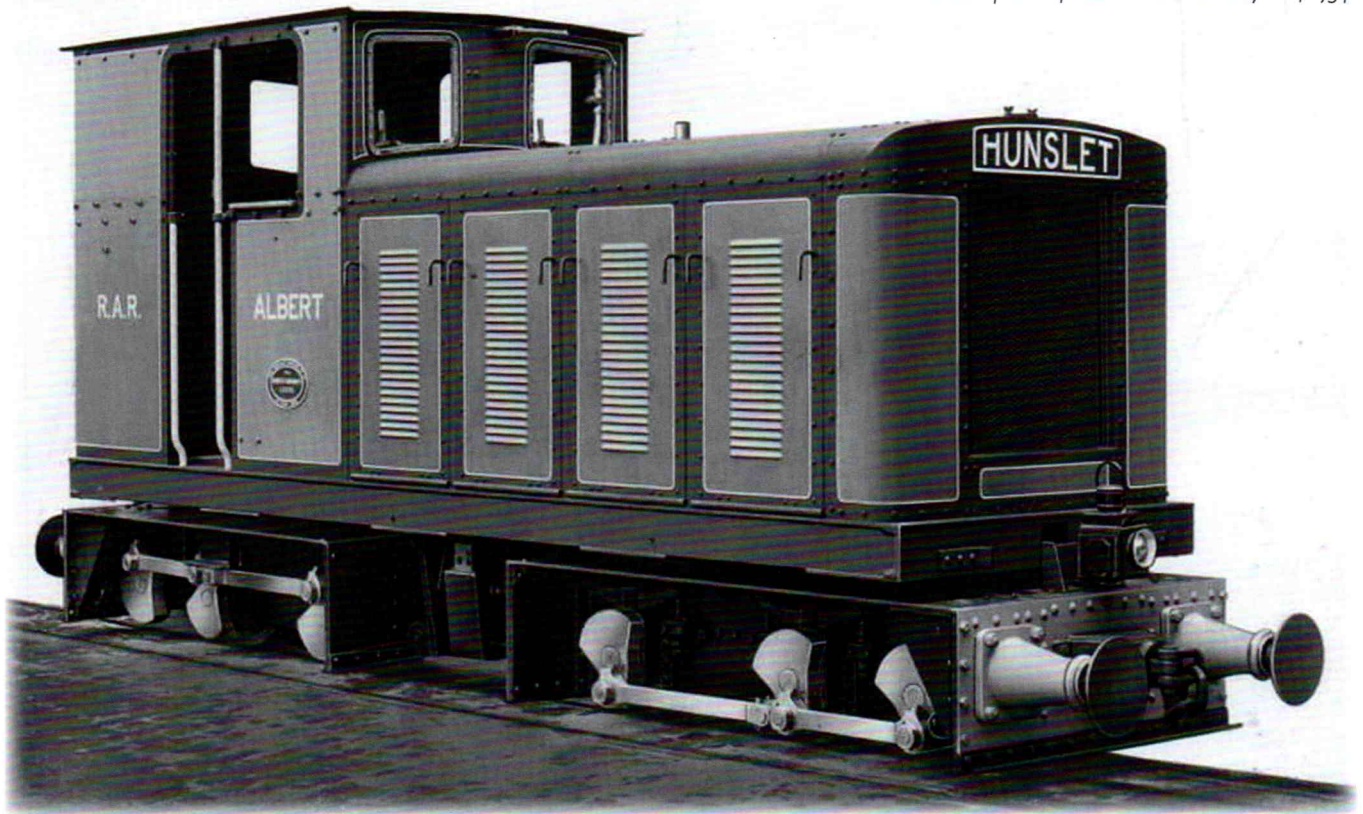
The Hunslet Engine Works by D H Townsley – published by Plateway Press.

18 Inch Gauge Steam Railways by Mark Smithers – published by Oxford Publishing Company

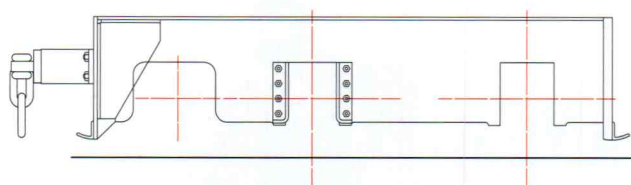
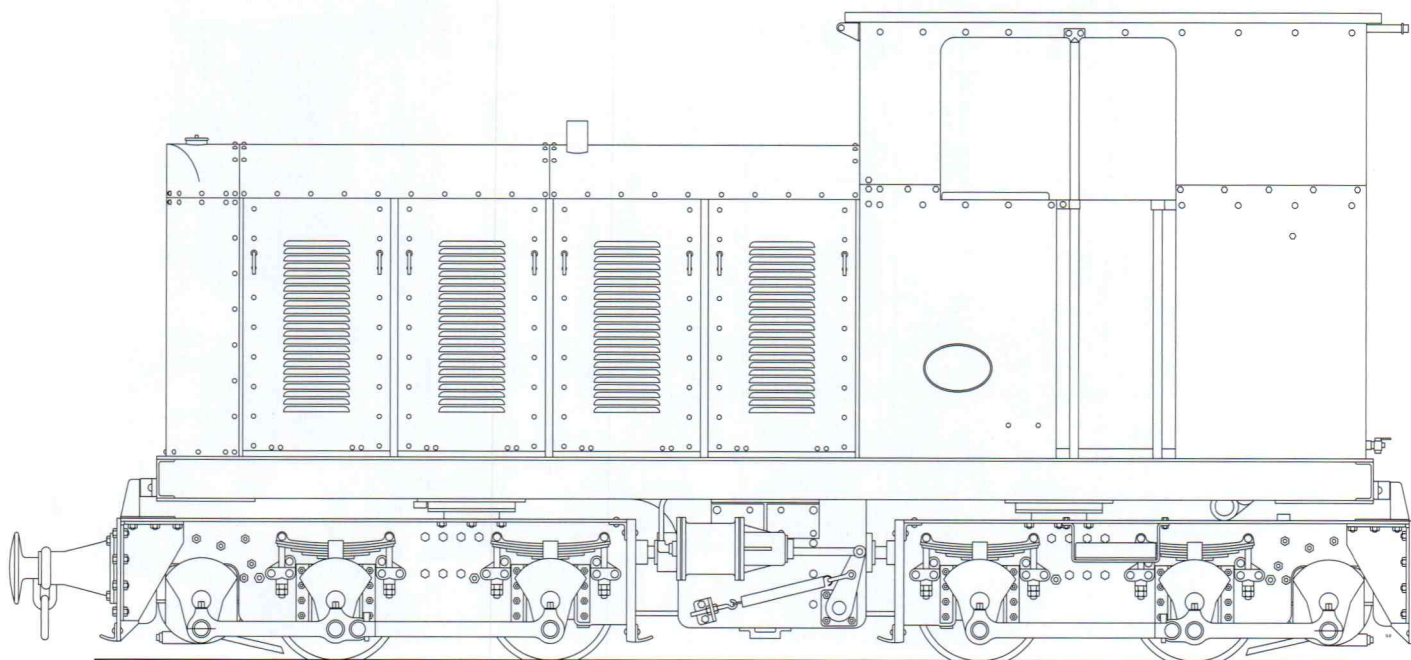
The British Internal Combustion Locomotive 1894-1940 by Brian Webb – published by David and Charles

CARNEGIE detail photos when at Waltham Abbey can be found at Fairlightworks photostream on Flickr: www.flickr.com/photos/fairlightworks/albums/7215760599883941

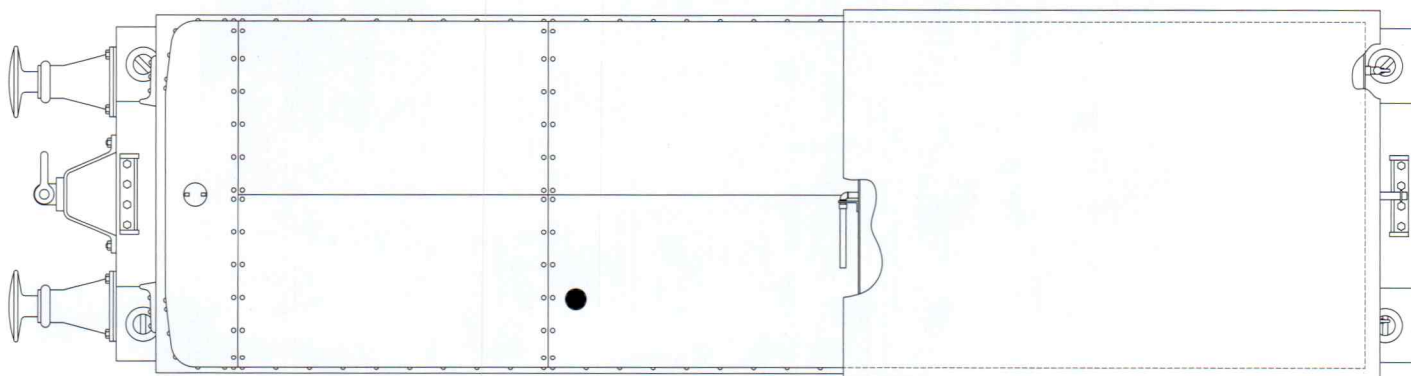
Works photo of ALBERT – Works No.1722 of 1934



Works photo of CARNEGIE – Works No.4524 of 1954

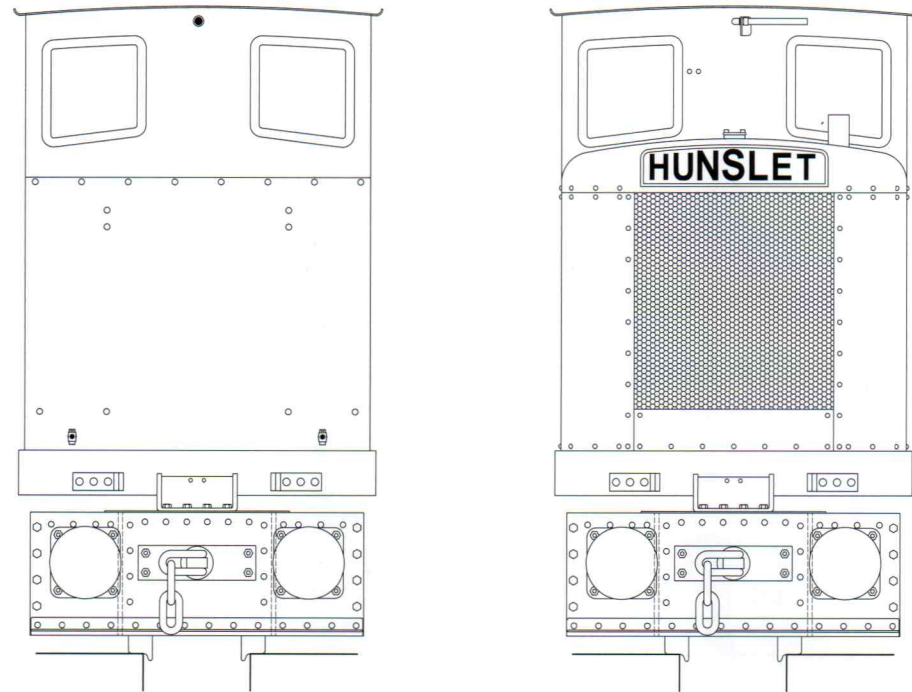


Outline of Bogie Frames



AY LOCOMOTIVE ALBERT

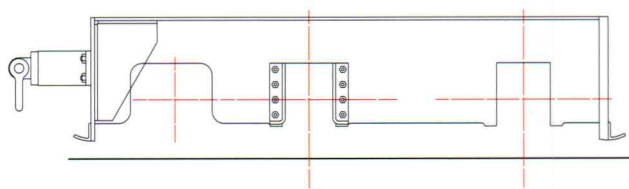
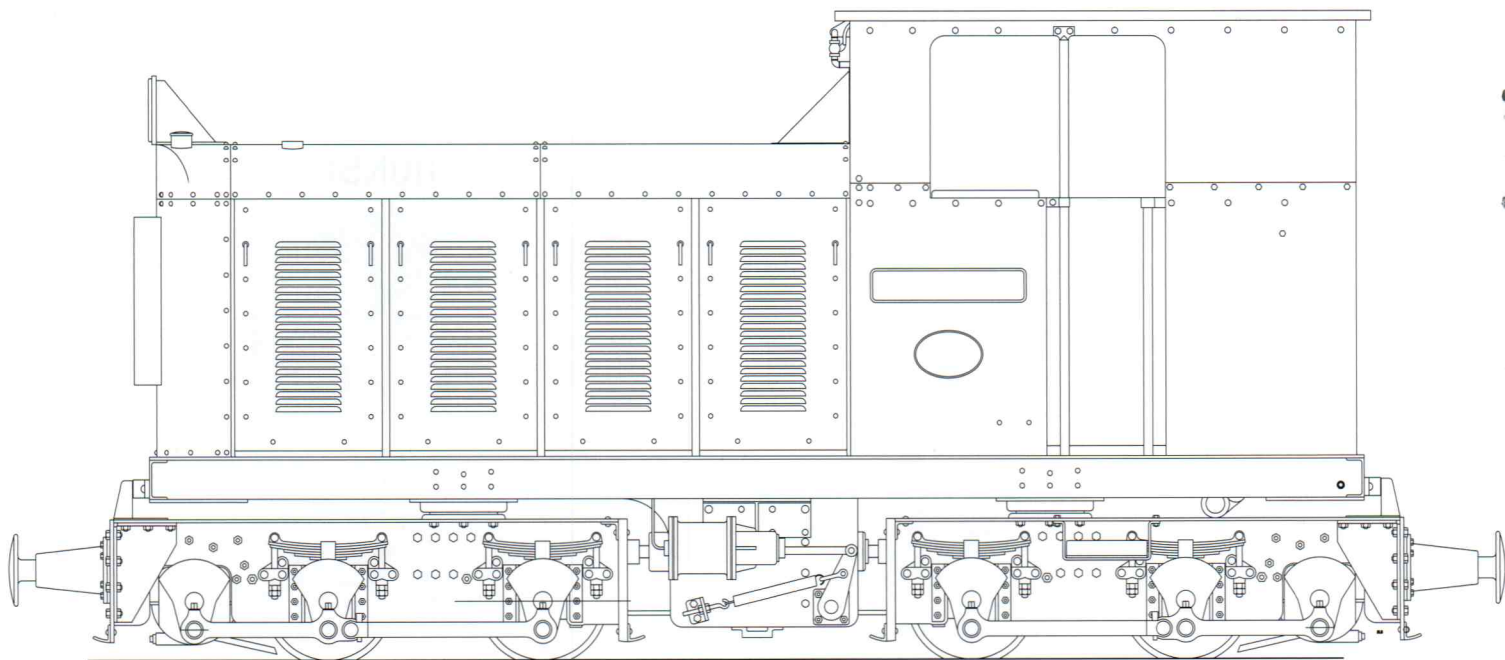
Works No. 1722 of 1934



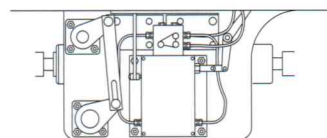
The following dimensions used in the drawing have been derived from the contemporary general arrangement drawing.

Gauge:	1ft 6ins
Length over buffer beams:	16ft 1¼ins
Bogie wheelbase:	3ft 0ins
Overall wheelbase:	12ft 0ins
Wheel diameter:	1ft 8ins

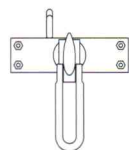
Drawn by Stuart L Baker, November 2022 — 1:32 scale



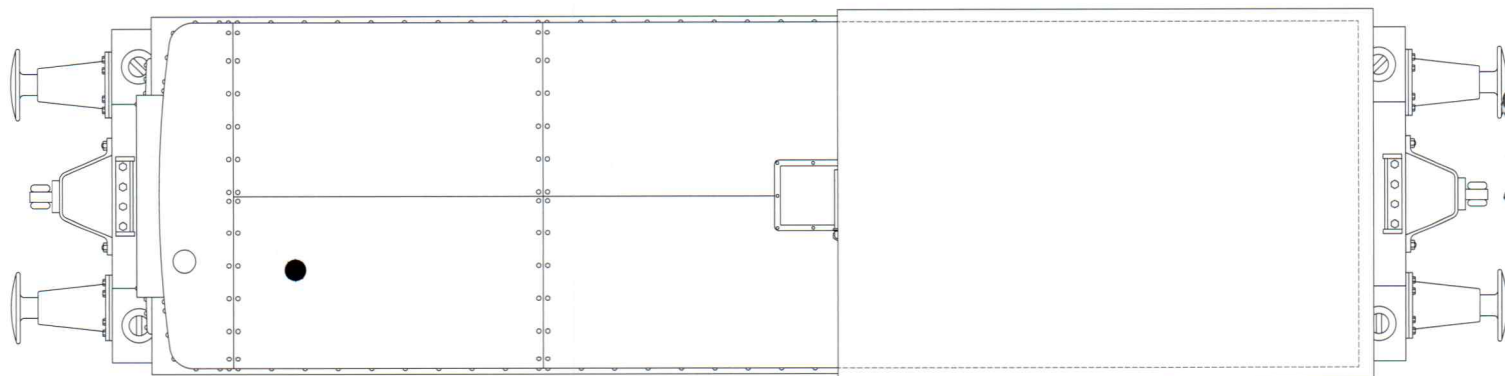
Outline of Bogie Frames



Scrap view of right hand side of
transmission assembly

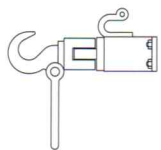
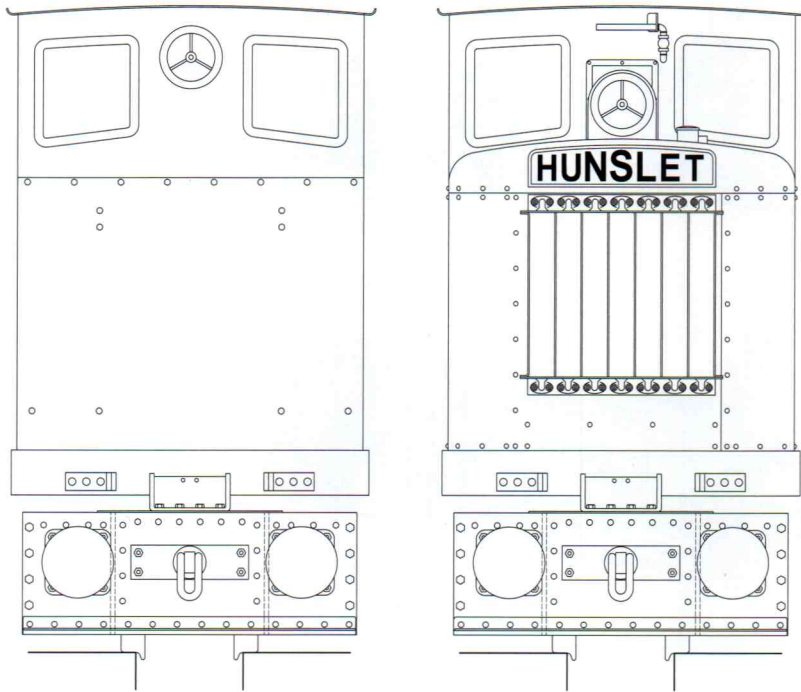


Scrap view of lat.



LOCOMOTIVE CARNEGIE

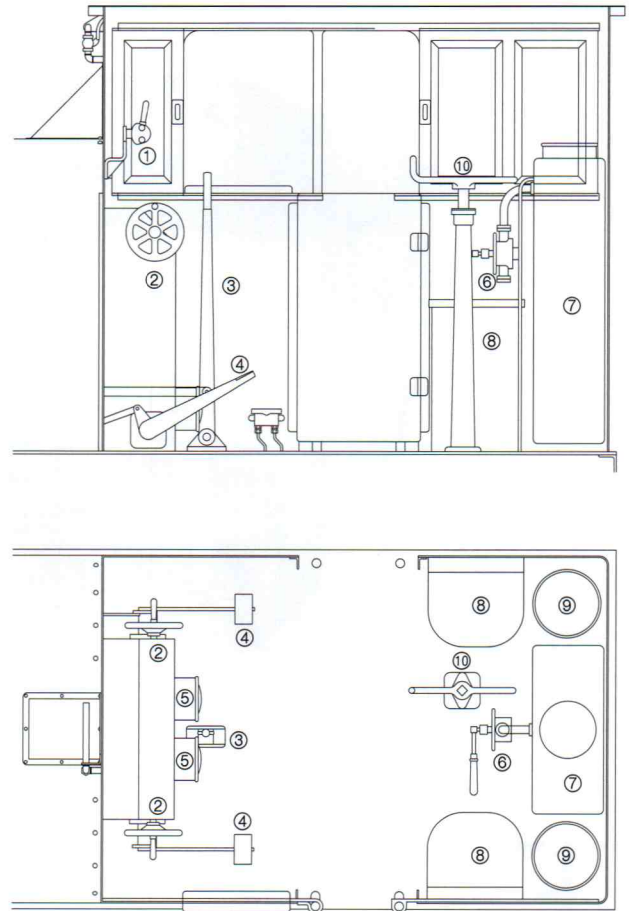
Works No. 4524 of 1954



r type coupling

The following dimensions used in the drawing have been derived from the contemporary general arrangement drawing.

Gauge:	1ft 6ins
Length over buffer beams:	16ft 1¼ins
Bogie wheelbase:	3ft 0ins
Overall wheelbase:	12ft 0ins
Wheel diameter:	1ft 8ins



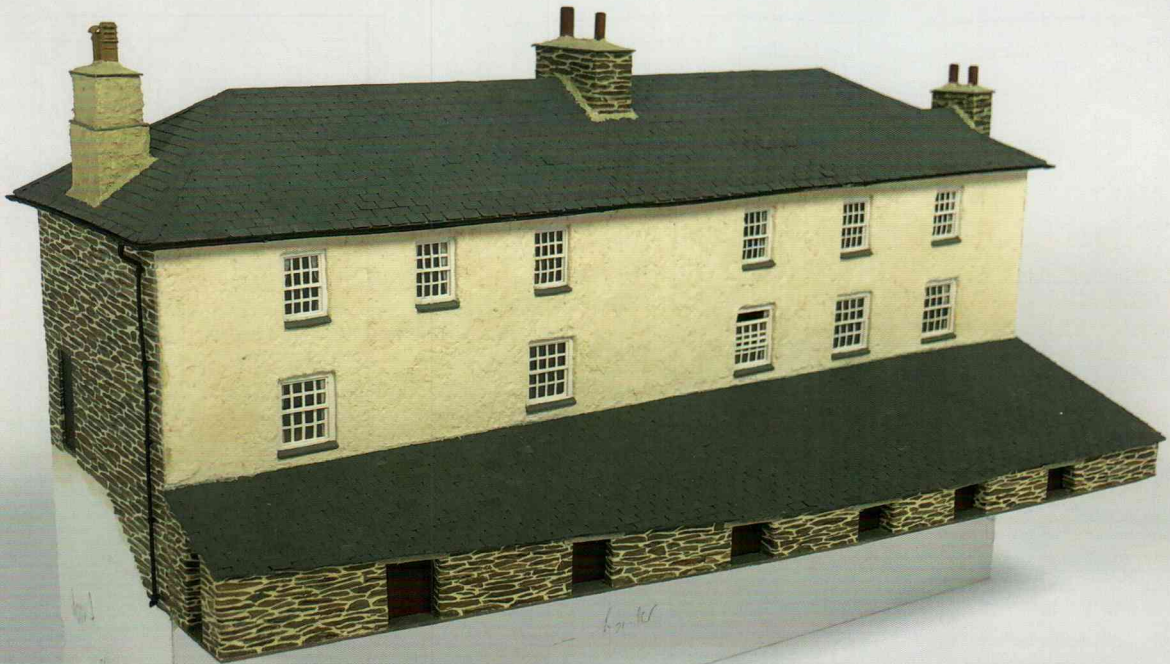
Major Cab Fixtures:

- ① Driver's brake valve
- ② Change gear handwheel
- ③ Reversing lever
- ④ Clutch pedal
- ⑤ Cab heaters
- ⑥ Fuel tank filling pump
- ⑦ 60 gallon fuel tank
- ⑧ Tool box
- ⑨ Air reservoir
- ⑩ Hand brake

Drawn by Stuart L Baker, November 2022 — 1:32 scale

BOSTON LODGE 1886

Alastair Steele provides an update on his 4mm scale grand plan



The finished Barracks and Stables. The render was done using a fantastic material called Fiber Paste, which was recommended to me at the last minute and was an absolute godsend. It spreads on with a texture, is paintable with watercolours just like paper, and also retains a fair amount of flex when dry. Highly recommended!

Photo: Alastair Steele

ECHOING THE HISTORIC FIRST MOVES ACROSS THE COB 70 YEARS AGO, I'm very pleased to say that trains have also begun to creep across the Cob in model form on my mega project, Boston Lodge 1886! I'm a long way off operating the layout as I intend it to be, but I've made lots of progress in the time since my last article in REVIEW 138.

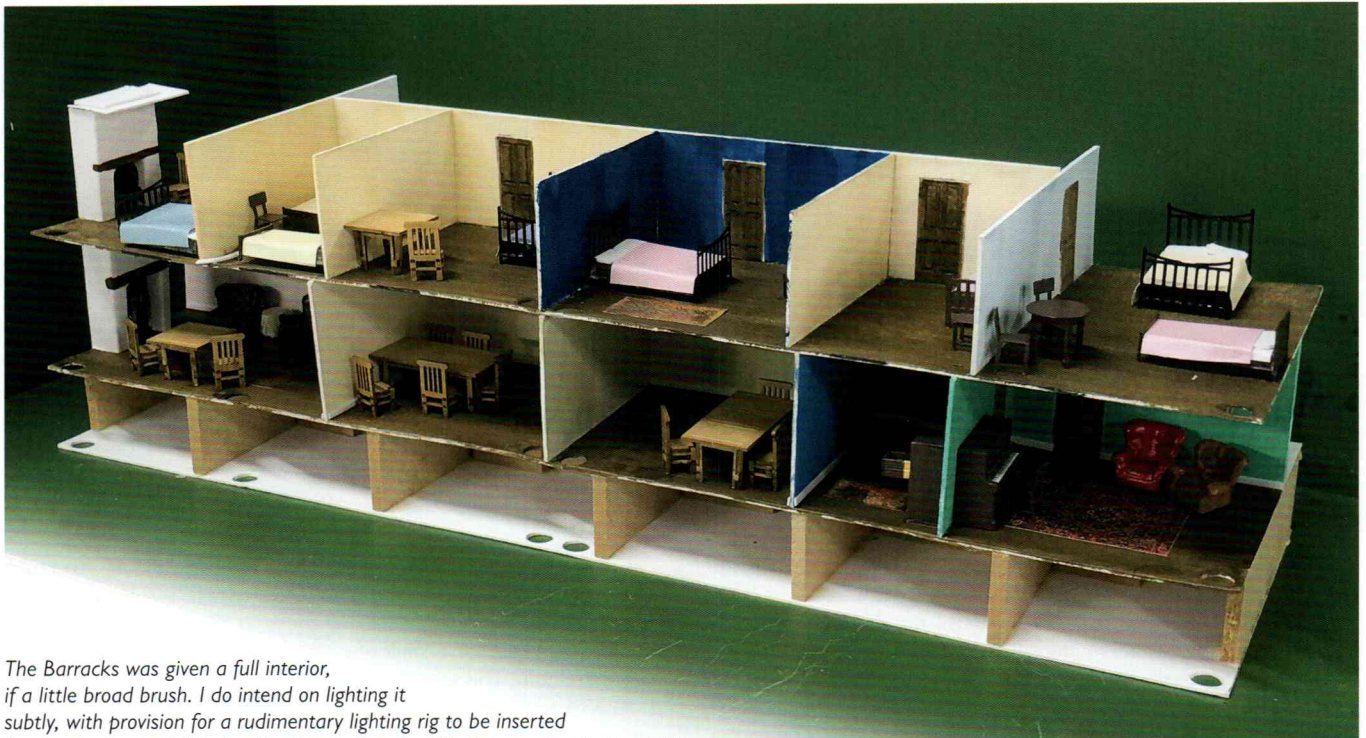
BUILDINGS

The last article focussed on the buildings, and things have very much advanced since then. To recap, I'm making the buildings using the Pendon method of embossing card and painting with watercolours but helping things along by designing the card kits on CAD and cutting them out on a fancy piece of CNC (Computer Numerically Controlled) equipment I have access to at work. The only model finished in my last article was the Toll House, which in some ways was a bit of a test of techniques. It worked well to a point, but as with any first attempt, was something of an experiment.

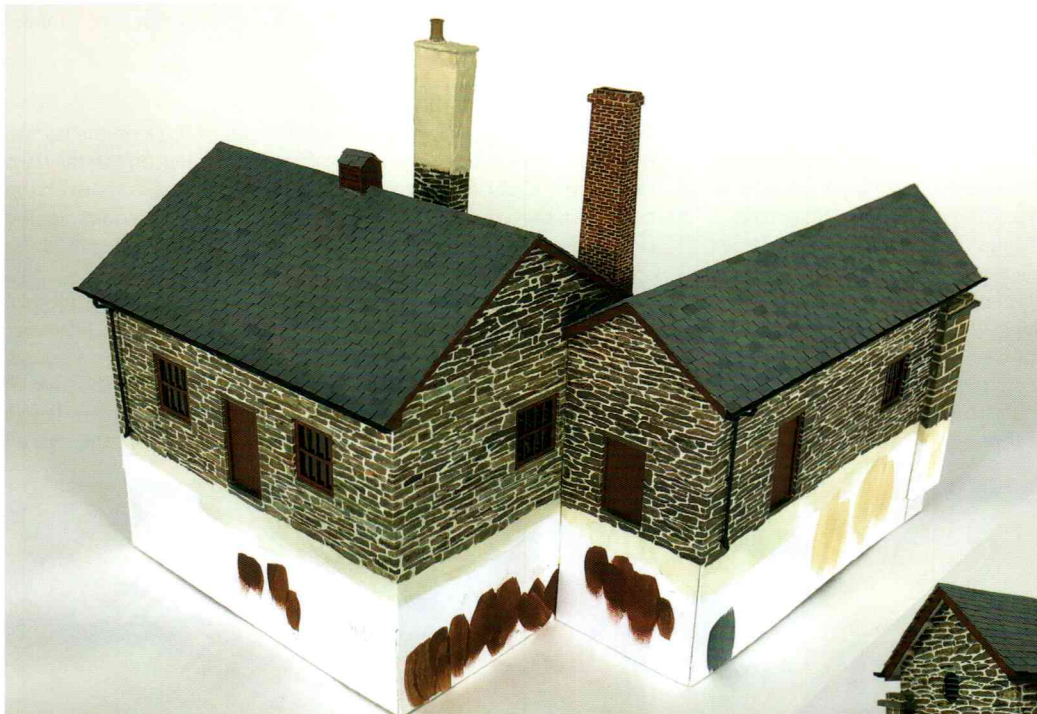
The biggest take away from it was on the painting side. Having not used watercolours since I was at primary school, it really took me out of my comfort zone to paint in this way, but I got there on the Toll House even if there was room for improvement. The problem I found was that I tended to try and keep each stone a uniform colour, and what I think has brought the subsequent buildings to life a little more is to make sure there is a variation in colour and tone on every

stone. For example, a grey base layer, then zipping through with a streak of brown or ochre, and the texture completely changes. It is definitely not a quick technique, but I genuinely look forward to painting my stones, it is really quite therapeutic – and I'm still saying that after several buildings, so it can't be too bad!

After the Toll House, I moved onto the works site proper with the Oil Store and Brass Foundry. This wasn't a massive structure, so was good to continue refining the techniques on, and I'm over the moon with the results. It gave me my first taste of my least favourite part of painting with watercolours though – bricks! They are just so fiddly to do, and my respect goes to all the demi-gods at Pendon who do a lot more than I do. I thank all the deities I can think of that most of the building materials in this corner of North Wales are stone. On more recent builds, I've moved from a brush to a lining pen for the bricks, which has helped to a certain degree, but I'm still not sure it's particularly neat.



The Barracks was given a full interior, if a little broad brush. I do intend on lighting it subtly, with provision for a rudimentary lighting rig to be inserted from underneath. While it will still be relatively difficult to see inside, I couldn't resist giving it a go. My favourite inclusion is the 3D printed piano in No.1, with dimensions taken from my own instrument at home.

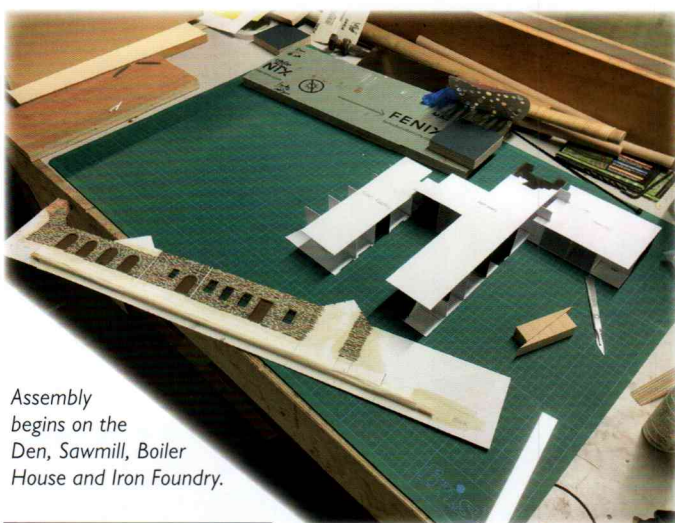


The completed Brass Foundry and Oil Store. The eagle-eyed among you will notice the door on the side wall of the Oil Store, which should be a window – I realised this just as I had assembled the building, but couldn't bring myself to attempt to amend it. Chalk one down to always checking your sources!

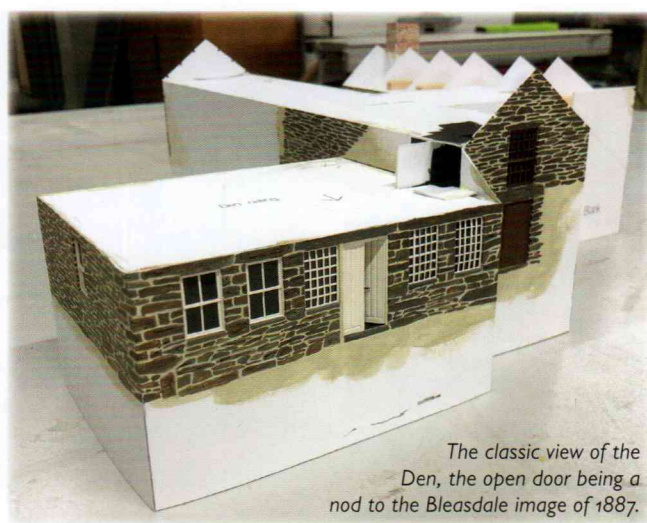
Right: The end of the Oil Store, which will face the public.



Photos: Alastair Steele



Assembly begins on the Den, Sawmill, Boiler House and Iron Foundry.



The classic view of the Den, the open door being a nod to the Bleasdale image of 1887.

After the Oil Store/Brass Foundry, I couldn't resist doing the Barracks, sometimes better known as Boston Lodge Cottages 1 & 2. It's one of the most prominent buildings on the site, probably because it's a big, white-rendered monolith in the middle of the works, which is really rather different to all that surrounds it. I'll admit I have gone slightly off piste with this one though, as I haven't rendered it all the way around. Photographic evidence is rather scarce from the time I'm modelling – to my knowledge not much more than the Bleasdale collection from 1887. The way I look at the photo of the bottom yard, it looks like the southern end wall of the barracks shows bare stonework, so I've modelled the building with only the front face of the building rendered. My thinking is that if that end face is un-rendered, it is unlikely that the other two would be as they face away from the sea. This has caused some debate between me and an FR luminary who disagrees with me, and if somebody shows me evidence to the contrary I will bow to greater knowledge, but it's my hypothesis and I'm sticking to it! If nothing else, I'm happy for the buildings to look noticeably different to how they do now, as I'm modelling a very different time.

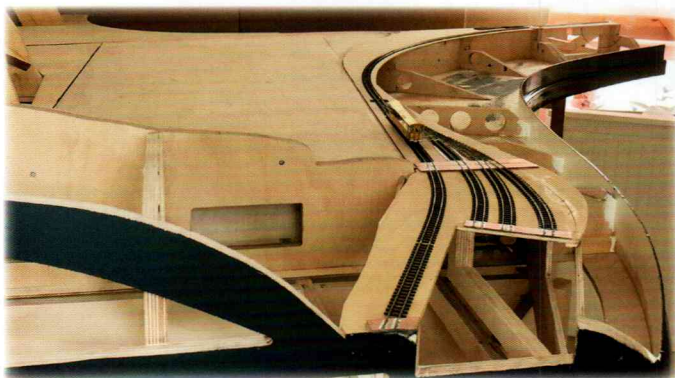
In front of the Barracks is the stables, which is a particularly odd building – long and low, with openings that at one end are barely at waist height, it is a building that appears in hardly any photographs and whose purpose in later years can't have been much more than a cobweb-filled store. But it is literally front and centre of the model I'm making so I've given it my best shot.

Currently under construction is the largest building structure I'll make, which includes the Den, the Sawmill, the Boiler House and the Iron Foundry. I'm making these as one, largely due to the rooflines, as I couldn't think of a way to divide them up and have a successful join. This was the first building since the Toll House that I did a test build of, as it would have been so frustrating to steam into a structure so large and find on assembly that something didn't work. Akin to the stables, the Sawmill and Boiler House were both a little camera shy, especially the crinkly tin extension of the Boiler House, but again Bleasdale has given me a flavour of it so I think I can proceed fairly well.

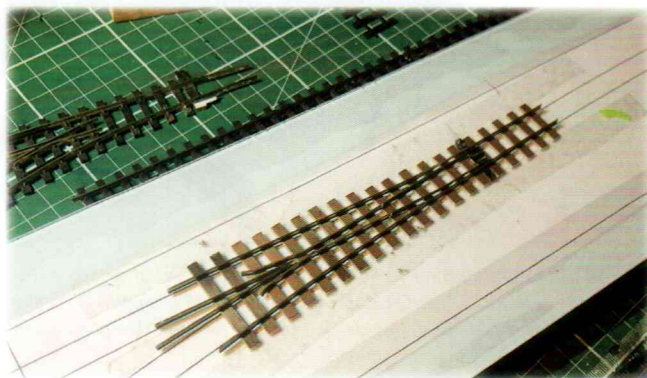
TRACKWORK AND WIRING

The big news is that there is now a full circuit of track on the layout. Both fiddle yards (one under the cliff, and the other on the seaward side of the Cob) are complete, and the main line runs over the cob, past the works and behind the loco shed to complete the circuit. Points are being laid into the works but that's as far as the approaches have got.

There have been a couple of locations where I've made my own points. The purists amongst you may be disappointed to hear that I'm using off the shelf products for trackwork, but there's a couple of reasons for this. Firstly, as it is such a huge project, the idea of making all the track myself just seemed one thing too many. I'm 39 and would like it finished before I retire, but secondly, the more I



The view from above the loco shed, showing the approaches to the shed itself, and Boston Lodge curve going around and onto the Cob, with the expanse of the main works where most of the buildings will be planted.



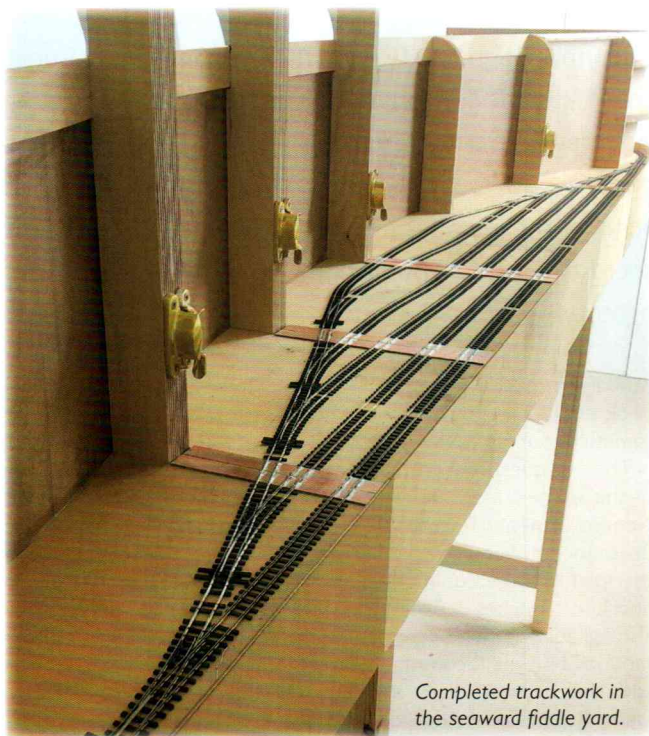
The king point into the yard in construction, showing the template it was built up from underneath.

Photos: Alastair Steele

thought about it, the less of the track would actually be visible – Victorian permanent way is generally buried up to rail height, so slaving away making something beautifully finescale, then burying it in ballast seemed a rather pointless exercise.

The two places I needed to build points for – the king point into the main yard and the points leading onto the loco shed roads – all just needed something a little different to that which is available ready-made. Luckily, while these were my first 9mm gauge points, they aren't my first ever points, as a couple of summers ago I built some 32mm gauge points for my garden railway. While definitely different beasts, making the garden railway ones was hugely enjoyable, and acted as a real icebreaker to something I had always thought of as rather intimidating. For both scales, my approach was to draw the points on CAD and print them at the correct size, then fix the print onto a piece of plywood to give a nice flat and solid base to work off. I then covered it with a thin piece of clear acrylic and positioned my sleepers with double sided tape. Then with track roller gauges working from one stock rail, I built across the point installing the rails. The 009 sleepers are PCB strip, so it was simple to solder them down once I was happy with positioning. I cheated slightly by using blades commandeered from Peco points so I didn't need to file any to shape, though I did need to shape the frogs. Once the rails were in place the PCB was scored to prevent short circuits and I connected it to a controller. Amazingly it worked first time, electronically and with no derailments!

With points made and trackwork down, in recent weeks it really has been time to start wiring. The electrical side of model railways is something I'm not that wild about. I'm good with making the baseboards, I can happily put together a brass kit, and even get good results with painting... but wiring? This makes my head hurt. To my credit, it doesn't normally go wrong, but it looks like a birds-nest and takes me absolutely ages to get my head around what I need to do. At the time of writing, three boards have been wired, which takes me across my section of the Cob to the king point into the yard.



Completed trackwork in the seaward fiddle yard.

PAINTING

One of the bigger visual changes to the layout has been the beginning of the paint job on the face of the boards. One of the main aspects of the concept when I dreamed up this mad scheme, was to have carriage style beading framing the face of the layout, and it be painted in the Festiniog Railway royal purple livery. The first stages of that are complete, with the royal purple completed on every board and it's looking very smart. Something I wasn't expecting was the evocative smell of the paint; I used to work at a heritage railway, and taking the lid off the tin of Williamsons spec 81 paint took me right back to those days in the carriage workshop at my old job.

I've begun to line out the boards as well, with one done as a test. A wide band of gold over the beading, then a thin line of red framing that. I've used lining tape for these straight sections, when I come to the corners of the beading it may prove a little trickier, but I'll work it out.

SUMMARY

That really takes me up to the current limit of progress. It's my intention to have trains able to run around the layout by the year's end, which would feel like a good milestone to have reached on such a big project. Getting the rest of the lining would be good too, while the buildings will boogie on in their own plodding way. The main thing, as always, is that I'm still really enjoying the project and it hasn't sent me completely round the bend. Can't ask for more really!



Above: The face of the layout, showing the FR royal purple livery and the curving public side of the layout, with (inset) the first board to be lined out. I would very much like to get the rest of the boards lined by the year's end.

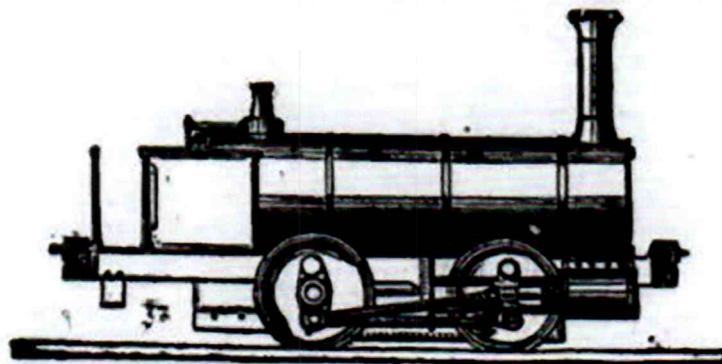


The Grand Plan continues...

Hughes & Co Locomotives and BELMONT of the Snailbeach District Railway

LOCOMOTIVE, STATIONARY, AND PORTABLE
STEAM ENGINES.
CONTRACTORS' WAGONS, DOBBIN CARTS, BARROWS, and
EVERY DESCRIPTION of RAILWAY and CONTRACTORS' PLANT, &c.

By Andy Cuckson



**CHEAP LOCOMOTIVES for MINERAL RAILWAYS and OTHER PURPOSES.
HUGHES AND MARCH, ENGINEERS and MANUFACTURERS OF RAILWAY
PLANT, and EVERY KIND of MACHINERY,
FALCON WORKS, LOUGHBOROUGH.**

**These engines are exceedingly useful in all cases where heavy loads have to be carried
up steep inclines. They are fitted in the best style, and with every requisite. Messrs.
HUGHES and MARCH, Falcon Works, Loughborough; or E. EDWARDS, Esq., C.E., 13,
Beaufort-buildings, Strand, London.**

**MAKERS of the IMPROVED HORSE ENGINE, by which full power of the horses
is given out without friction. It is applicable in all cases where horse power is required.
SECOND HAND PORTABLE STEAM ENGINES.**

*Hughes & March
advertisement in Mining
Journal, 1862*

I CONTINUE TO BE GRIPPED BY THE REMAINING MYSTERY OF THE SNAILBEACH line's first locomotive BELMONT built by Henry Hughes & Co of Loughborough. Part of the fascination is that almost no records survive of the Hughes company, let alone of this locomotive. In spite of this, consulting acknowledged experts on Hughes & Co's output and trawling trade journals for mid-19th century illustrations has given me a better perspective of Hughes products of the time, and certainly of what BELMONT was not. A little more information about BELMONT and the general history of the Snailbeach line has also come to light since my book *The Snailbeach District Railways* was published. What follows is a brief and hopefully informative account of all this work put together.

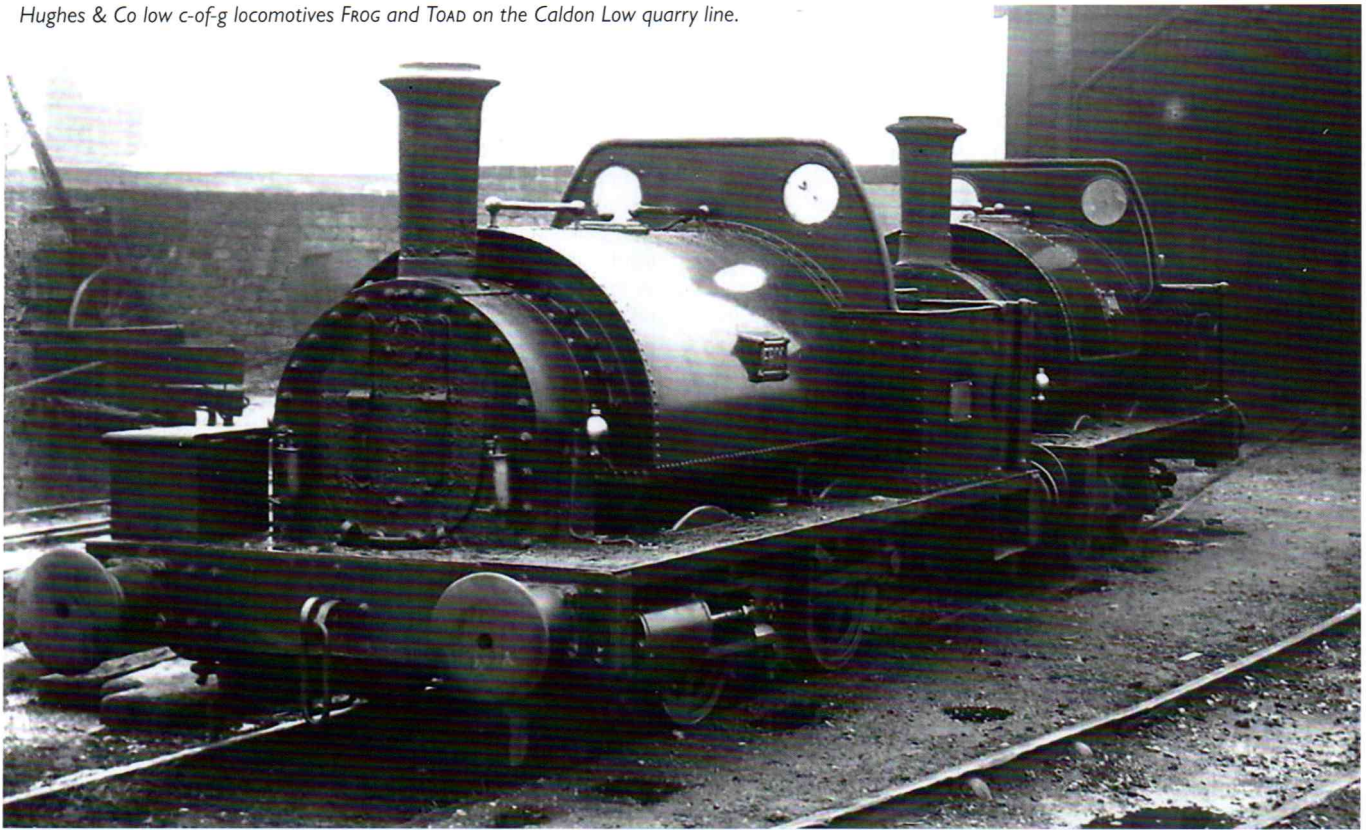
To recap, BELMONT was originally named SALOME when bought from Henry Hughes & Co, probably new, by Ifton-Rhyn Collieries Ltd in 1873-74. I outlined its origins on the 2ft 4ins gauge Ifton colliery railway in a previous article in *Industrial Railway Record* (IRR) 171. It was a 0-4-2 tank with driving wheels 2ft 7½ins diameter, cylinders 10 x 15ins and an 80-tube boiler; estimated weight 10 tons, weight in working order 13 tons (see book pp125-126; table p141).

To cover BELMONT in the Motive Power chapter all known facts were included, and a conjectural 'impression' drawing by Nigel Taylor (p125). Looking back, including that drawing was ill advised. It was produced simply by scaling up features of the Corris Railway's Hughes Locomotive & Tramway Engineering Works-built locos, but then, my belief was that the draughtsman Nigel Taylor knew the appearance of

BELMONT through a photograph of 1903, which was mentioned in the book but has yet to re-appear. I hoped that publication might draw something out of the woodwork, but I'm still waiting!

The big questions are still: 'what was a typical Hughes design of the early 1870s?' and 'was BELMONT typical?' I have consulted George Toms and Russell Wear, the experts on Hughes, Falcon and Brush locomotives, to try to get a better idea of the appearance of BELMONT. George's opinion is that later Falcon and Brush designs do not reflect Hughes designs of the early 1870s, being too modern. He also agrees with my book's conclusions that BELMONT was not the same as Hughes locomotives built for the Corris Railway. Russell adds that BELMONT, being a 2ft 4ins gauge 0-4-2, might have been a 'one-off' to a non-standard design.

Hughes & Co low c-of-g locomotives *Frog* and *Toad* on the Caldron Low quarry line.



The business of locomotive building by Hughes & Co at the Falcon Works, Loughborough, appears to have sprung out of an earlier concern occupying the same premises known as Hughes & March, and advertising railway locomotive building as part of a more general steam engine and equipment business. The loco depicted in the Hughes & March 1862 advertisement, probably engraved from an engineering drawing, seems to be 'setting the stall out' by promoting a small o-4-owt design.

Henry Hughes & Co began trading at Falcon Works between 1862 and 1863. Most Hughes & Co locomotives were fairly small outside cylindered o-4-ost designs with inside frames. BELMONT, being a o-4-2 tank design, was a rarity. Hughes locomotives built in the period 1866-1876 and known from illustrations fell into two broad patterns: low and high centre of gravity (c-of-g). Most narrow gauge locomotives followed the low c-of-g pattern. The high c-of-g pattern arose in 1866-1867, and following this some standard gauge builds were to this general design. But as with all builders of industrial and contractors locomotives, established Hughes patterns were tailored to suit individual applications. The later street tramway engines were lightly-built, and based on the low c-of-g pattern but mainly with inside cylinders. Our late Editor Roy C Link explored the relationship between the tramway engines and later low c-of-g locos in a fine two-part article 'Corris Conundrum', published in REVIEW issues 49 & 50.

Two narrow gauge designs of the period and known from photos have the low c-of-g pattern with horizontal or near-horizontal cylinders. The Swedish locomotive UA was 891mm (approx. 2ft 11ins) gauge but there is no other comparative data. As built it had no cab, and was similar to the 3ft 6ins gauge *Frog* and *Toad* of the Caldron Low quarries, Staffordshire. The latter had 7 x 12ins cylinders, and all three were of o-4-ost type.

The later Hughes Locomotive & Tramway Engineering Works-built Corris Railway locomotives again followed the low c-of-g o-4-o pattern of earlier Hughes & Co examples, had 7 x 12ins cylinders, and as is well known ran on 2ft 3ins gauge track. Apparently the pony wheels, making them the more familiar o-4-2, were added only following the objection of the Board of Trade inspectors that they would suffer 'loss of stability' should an axle break in service. They were well-balanced as built, not needing a pony truck to spread the weight, and saw service as o-4-os before modification, as shown by a photo in Peter Johnson's book *The Corris Railway*. Peter's book also carries the detail of the Board of Trade requirement.



Low c-of-g loco UA, pictured in Sweden about 1890.

Photos: Courtesy G Tams

An early example of the high c-of-g pattern is shown in a *Colliery Guardian* advertisement of 1867. The engraving was probably produced from an engineering drawing, but actual locomotives built to this general outline are known from photographs, one being included here. Most were likely to have been standard gauge, and heavier than BELMONT.

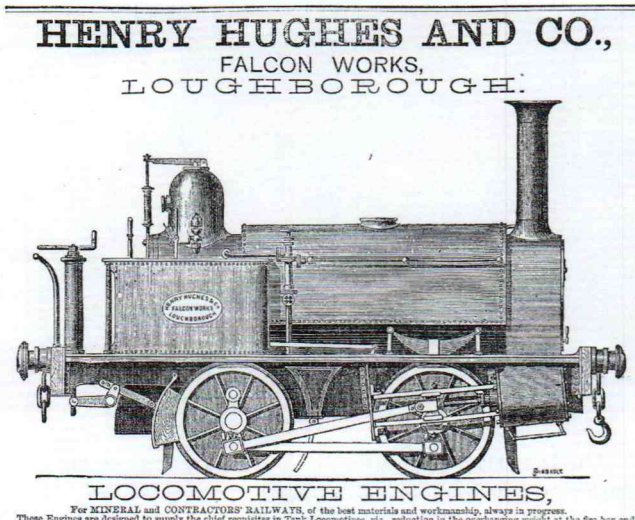
BELMONT was clearly larger and more powerful than FROG and TOAD, and of much narrower gauge than either these two or UA. But being a relatively heavy locomotive on a narrow gauge 0-4-2 frame, it did not fall into either of the usual two Hughes patterns, and was a clear case of tailoring the locomotive design to suit the needs of the original customer. The question might also be asked: why did BELMONT have a 0-4-2 outline, rather than Hughes's usual

0-4-0? In the *Colliery Guardian* advertisement, Hughes & Co state their design aims:

... to supply the chief requisites in Tank Locomotives, viz., reduction in the overhanging weight at the fire-box end, proper distribution of the weight upon the wheels, and keeping the centre of gravity low.

Since my IRR article of 2019, I have found a Henry Hughes & Co advertisement in the *Mining Journal* of 1863 (below), showing a well-balanced 0-4-0ST locomotive with 10 x 15ins cylinders, frames inside the wheels and firebox between the frames. The picture in the advert is in perspective, showing that the engraving was probably made from a photo and at least one loco had actually been built. Even so, its gauge, proposed or otherwise, is unknown, and probably it was not narrow gauge. In 1863, expert locomotive builders like Robert Stephenson were ridiculing the idea of locomotives on small track gauges, even as George England was building its first 0-4-0 locomotive for the Festiniog Railway – the first of such a small gauge.

With the Ifton line requiring a 2ft 4ins gauge locomotive with 10 x 15ins cylinders, a similar boiler to the 1863 loco would have been needed, and the designer might have had a problem putting a sufficiently large firebox between narrow frames without a large rear overhang. So a rear carrying axle would have been needed to distribute the minimum weight of 10 tons properly. The *Mining Journal* advert shows that Hughes already had casting patterns and tools to build feasible variants of a 10 x 15in engine when Ifton-Rhyn Collieries Ltd made enquiries. It also shows that outline features of Hughes designs, such as saddle tanks, did change between the early 1860s, the time of the advert, and the late 1870s when the Corris locos were built. The supply of SALOME falls between the two dates.



Left: Hughes & Co *Colliery Guardian* advert featuring high c-of-g loco.

Below: High c-of-g loco, photographed in service.

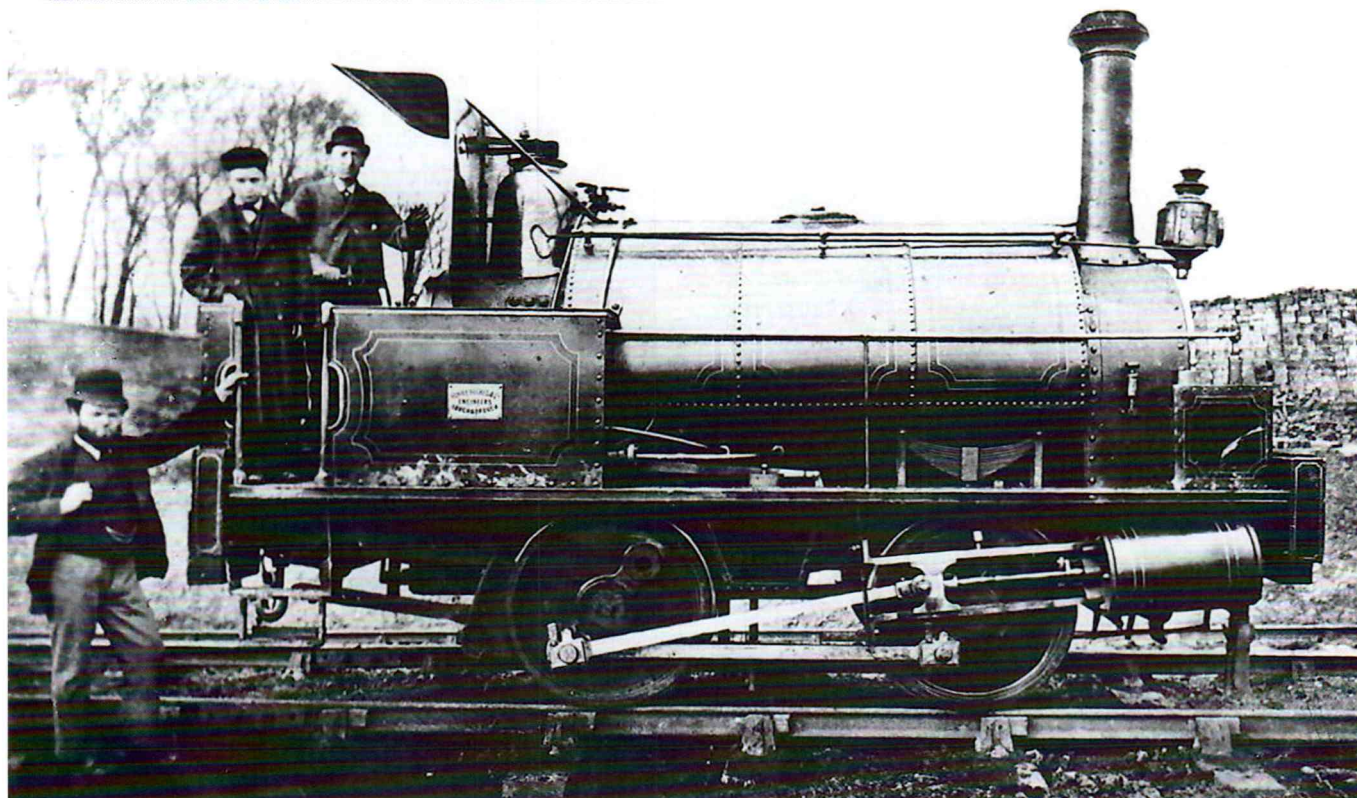


Photo and image: Courtesy G Toms

Page 371

Getting on Board the Band Wagon

By Lee E J Styger



Photo: Lee E J Styger

MY ARTICLE IN REVIEW 134, AUTHENTIC CAD MODELLING OF THE CORRIS VAN, discussed the CAD modelling and subsequent physical outputting of the Corris Van (Talylyn Railway Van No.6). I have previously mentioned the opportunity CAD and technology enabled modelmaking offers in terms of manipulating the CAD data to create many physical derivatives of a given subject – ie changing strapping, rivet details and roof and door profiles etc. This article is by way of a postscript to my previous jottings and outlines, briefly, the work behind one such derivative, 'The Band Wagon'.

THE GEEKS SHALL INHERIT...

I must admit to being a bit of a geek when it comes to making my models. For me, the fulfilment of my personal geek is not about absolute fidelity and the diameter of the rivet heads, but rather the opportunity offered by CAD driven technology to slightly change the geometry of a model, if, for example, more than one version is required (note this does not include the livery, numbering or secondary details such as loads). For example, I have a modest fleet of slate wagons, and all of them are physically different, in terms of the positioning of tie bars, patches for repairs, washers and even the odd plank width.

The Corris Van has fallen victim to my 'geekness' and I must confess to having around seven or eight examples of this van in my collection, even though there has only ever been one Corris Van at any given point in time. In this case, the Band Wagon was inspired by accounts in the Talylyn Railway literature relating to the time when the Towyn* Band were transported, instruments and all, up the line in the Corris Van as part of the ongoing festivities. In the context of this model, the enabling factor was the introduction of the excellent Modelu band figures. The rest, as they say, is history.

* as it was spelled back then, or Twywn as it is spelled now.

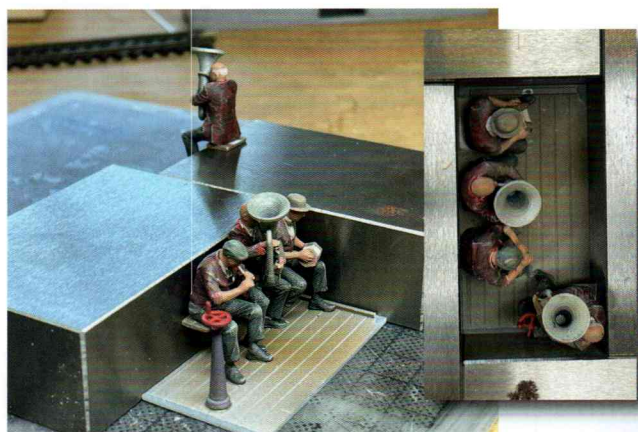
Top: A View of the Band Through the Door of the Corris Van – It makes the Cavern look large and inviting for a concert.

THE MODEL AND ITS DIFFERENCE

The basic CAD model and build process used for the Band Wagon was the same as that for the 'Ship in the Bottle' version using Rhinoceros solid modelling CAD software. The physical difference between the two models of the Van being how far the door is open on each (and it is not that much in reality). This modification in the CAD data was a simple drag and drop function, and it has probably taken longer to read about how it was done in this sentence, than it did to perform in the CAD software. It might be argued at this point that since there was only one Corris Van, and I am only ever likely to air one at a time on a model railway, then why bother. But in my defence, when you line all of the models up, something as simple as how far the door is open makes a big difference to the eye. Similarly, although you may never spot the actual differences on the slate wagons when they form a train, the eye picks up on something and you lose the feeling that they are the same model replicated.

HOW MANY PEOPLE CAN YOU GET IN A MINI?

There was a craze many years ago to run competitions based on challenging community teams to see how many people they could cram into an Austin Mini (the proper one), a public toilet cubicle (usually clean), or an economy class flight (horrific!). In some respects, this model was no different. I ordered my 'band' and I



Above: How Many People Can You Get into a Corris Van? The extremities of the Van are represented by weights and illustrate just how limited the space is in the Corris Van.

A Look deep inside the Van – I don't think the Towyn Band boasted someone on lead accordion, but then if Springsteen can do it – why not?



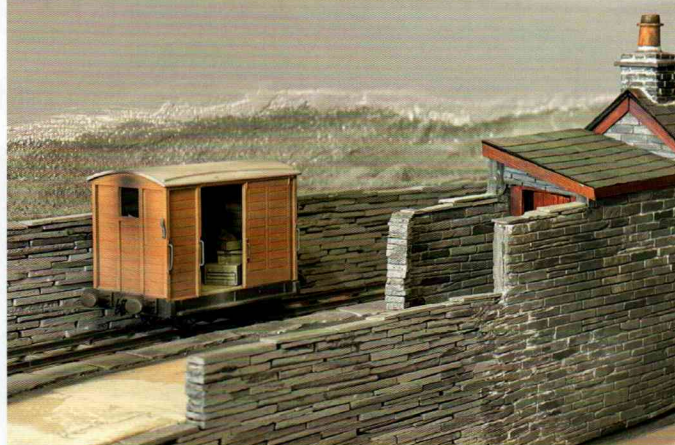
had a few extras just in case, but when push came to shove, I was surprised just how few figures I could squeeze into the Van, even after some butchery. Some elementary armchair research suggests that the Towyn Band consisted of about 20 members. If this was the case during the time of this event, then we are bound to ask "How did they all fit into the Corris Van?"

On a side note, I do wonder if the Talyllyn Railway should run a modern day challenge based on how many people you can get into the actual Corris Van. But in this day and age, I suppose they would have to be aware of the risk and compliance officers if they did try!

CONCLUSION

Overall, this project was good fun and it has, in its own way, captured a quirky historical moment of the Talyllyn Railway. It has also given me the opportunity to geek out with an extra derivative of the Van (well three actually, because I did a grey version and a mirrored version to represent an 'authentic' CORA from the Rev Awdry's Skarloey Railway). But as I said, it is all just a bit of fun really.

The Original 'Ship in the Bottle' Corris Van on Allan Ogden's partially completed Aberllefenni layout at the 2023 Fifteenth Australian Narrow Gauge Convention in Melbourne, Australia.



The Band Wagon and the Grey Version of the Corris Van – Note the subtle detail differences between the two derivatives of the model.



An 'authentic' CORA – this was a simple 'mirror' command on the CAD system from the original data.



Photos: Lee E J Styger

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BUILDING ON CROWSNEST THE BRAYFIELD ESTATE RAILWAY

By Peter Smith



Photo: Peter Smith

I AM NOT SURE WHAT BROUGHT ME BACK TO CROWSNEST but since I moved to 16mm scale using radio control during lockdown I had been searching for the right layout project. I have built over 20 small 16mm scale locos, mostly based on the easy on the eye and the pocket kits readily available via the Internet.

Over many years I have explored every scale from Z to 16mm choosing prototypes from around the globe, but it was OO6.5 and HO that got me into radio control via the Narrow Gauge Railway Modelling (NGRM) online forum: ngrm-online.com. The absolutely assured running was a revelation after so many years of varying degrees of frustration with both straight DC and also the early years of DCC before stay alive.

I have no interest in garden railways, having enjoyed O scale in the garden and a brief foray into US G scale but living in our retirement flat did not give much scope for an indoor layout either. I built a few micro layouts and a shelf layout and finally built a small layout using printed track disguised with scratch-built buildings but it wasn't what I wanted and I couldn't live with the tight curves.

Then out of the blue I saw the Crowsnest track plan again. By then *The Crowsnest Chronicles* was out of print but I tracked down a copy and read it from end to end again and again. I have of course admired Roy Link's modelling over decades and loved his modelling choices but the standards he aimed for and achieved were beyond me. However, on pondering the shunting puzzle described at the beginning of the Crowsnest saga I suddenly decided that I wanted to shunt that puzzle for myself.

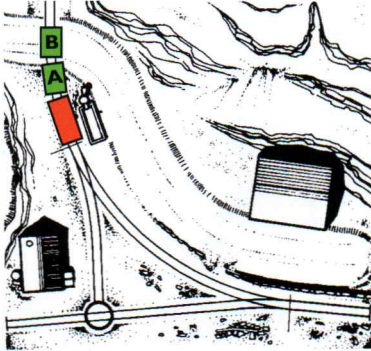
PLANNING THE LAYOUT

The track plan, including a working wagon turntable was perfect but I wanted as near as possible to have a micro layout (4 square feet with discretion in the large scale and ignoring staging). I loved the rough road curving down beside the line and decided the road and the long curve from the loading point to the staging beyond the crossing would be the focal point of my version of Crowsnest. It meant losing the smithy/workshop but I could live with that. The essence of Crowsnest for me is the lovely curving track with the two Y points leading to the weighbridge and wagon turntable. I resolved to build my own track – the first in over 80 years – and sourced the same Marcway code 148 flat bottom rail that Roy used. I also wanted to use the light-weight baseboard construction Roy used as I was familiar with foam board as a basis for most of my recent layout attempts.

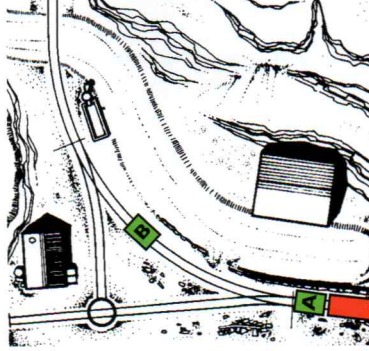
The local stationery store printed a full-size track plan using Roy's diagram at the beginning of Chapter 2 – The Last Stand. I designed a timber frame around the plan with foam board over the frame and a ply top. I made two changes to the original plan. First I moved the weighbridge turnout further towards the crossing and staging exit, making the inner triangle larger and I added just a couple of inches more baseboard behind the weigh house. At the time there was no

Roy C Link's Crowsnest Shunting Puzzle

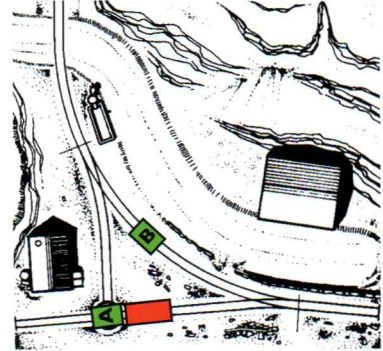
1 - Train arrives



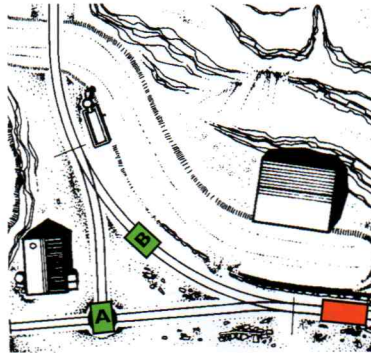
2 - Wagon A and loco to headshunt



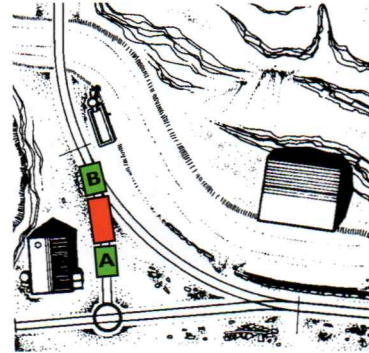
3 - Wagon A to turntable



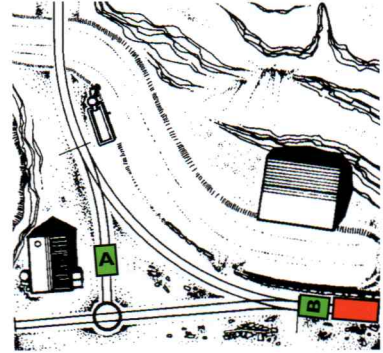
4 - Wagon A turned - loco to headshunt



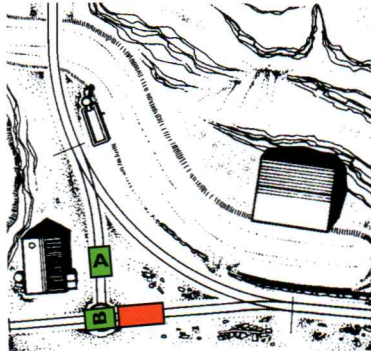
5 - Loco pulls wagon A beside office



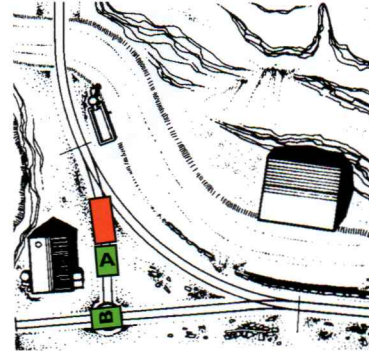
6 - Loco pulls wagon B to headshunt



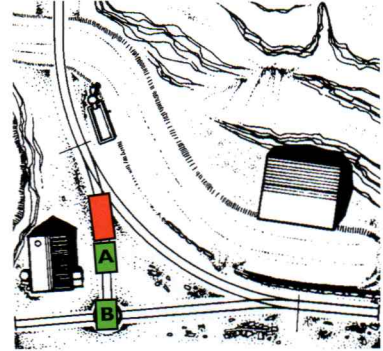
7 - Wagon B to turntable



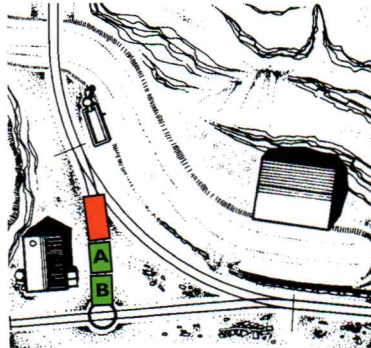
8 - Loco runs round to wagon A



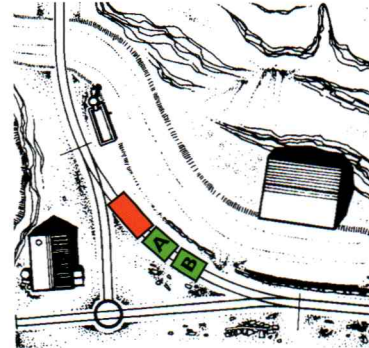
9 - Wagon B turned



10 - Wagons A & B coupled



11 - Train ready for return journey



A loco and two wagons have just arrived from the mines. The aim is to reverse the wagon order and have the loco at the head of the train, ready for the return journey.

The loco cannot use the turntable or cross the weighbridge. There is only room for the loco and one wagon beyond the right hand turnout of the wye adjacent to the unloading dock. The unloading dock only has room for two wagons – so the loco needs to run round them. Each wagon has to be weighed before unloading, requiring it to be positioned beside the office on the weighing platform.

Reproduced courtesy RCL Publications

firm reason for the extra width. I was not tempted to lengthen the end of the line beside the loading point as the restriction here is key to the shunting puzzle. The curved front fascia following the downward curve of the road was not planned in detail at this stage but was in my mind's eye, even if the construction detail wasn't. A key element of planning that isn't necessary with my layout is that as I use radio control there were no wiring or control issues to consider at the planning stage. Finally, and due primarily to age constraints, I have no plans to exhibit the layout so there were no plans to automate the turnouts or wagon turntable.

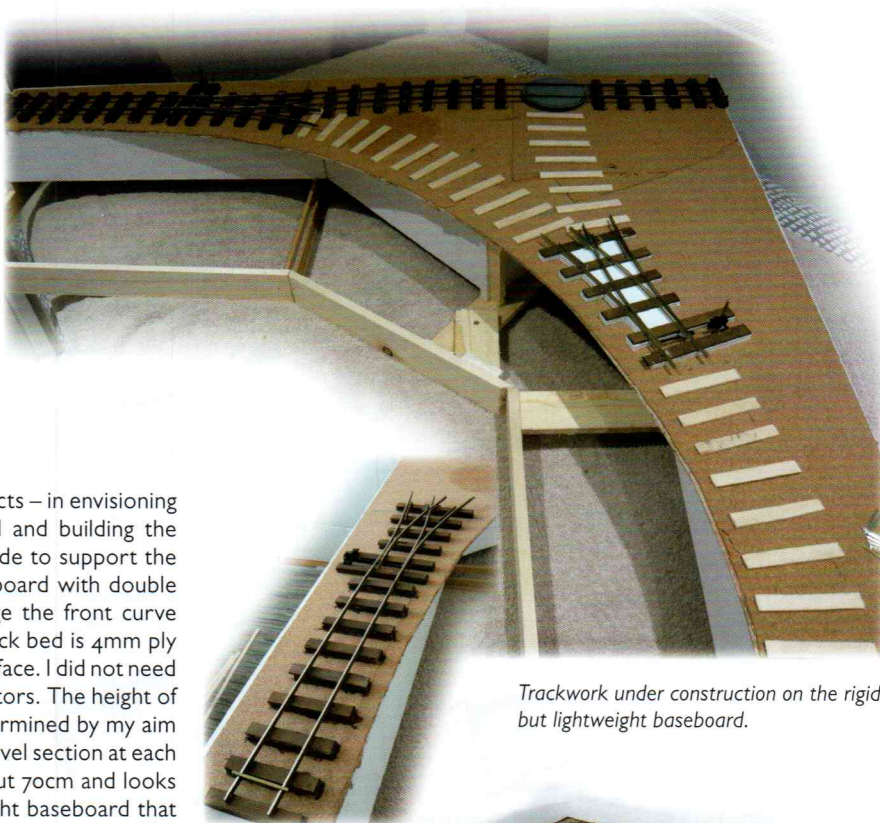
BUILDING THE BASEBOARD

The full size track plan was a boon in many respects – in envisioning the new viewing angle, building the baseboard and building the turnouts. A reinforced softwood frame was made to support the track base. This was overlaid with 5mm foam board with double thickness above the timber frame. At this stage the front curve was left until the track was ready to lay. The track bed is 4mm ply supported sufficiently to ensure a smooth flat surface. I did not need to make any allowance for wiring or turnout motors. The height of the foam board overlay and track base was determined by my aim for a realistic slope down the rough road with a level section at each end. The fall is about 14cm over a length of about 70cm and looks right to me. The result was a rigid but lightweight baseboard that allowed me to form the road and a front to the board from 4mm ply with a pleasing profile and curve. The curve was simply made by slotting the ends into each end board and then supporting an even curve with the edge of the road itself with copious amounts of PVA. I am very pleased with my variation on the Crowsnest theme. It was at about this time that I decided to change the name of my layout to The Brayfield Estate Railway. I wanted my own layout but to remain true to the core Crowsnest aims.

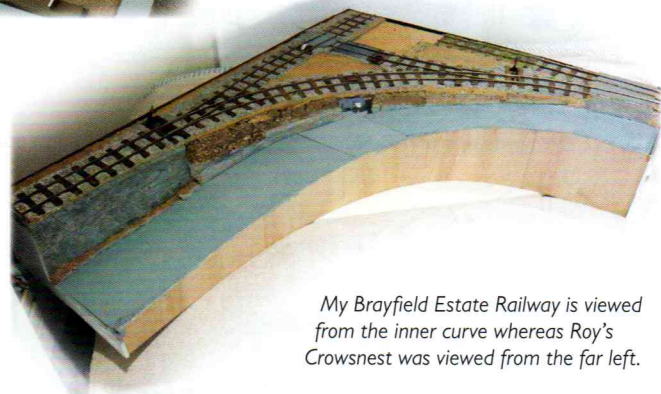
LAYING THE TRACK

I had never built my own track before beyond the odd level crossovers in my US modelling days. I made a turnout template from the full size plan and then followed the description of Roy's build in *The Chronicles*. I followed his methods as faithfully as I could except that I did not silver-solder the frog. I managed to get away with soft soldering. Amazingly the turnout worked just fine but looked terrible to my eye compared with Roy's superb efforts. I must admit to slight indents where the blades meet the stock rail, which Roy assiduously avoided, and I only used half depth bass wood sleepers. The remaining depth to allow for exposed sleeper ends was 5mm foam board, solid except at the exposed ends.

Buoyed by my effort I built the second turnout in similar manner and built track sections as described by Roy. I was fortunate to be able to borrow Roy's actual rail bender from a member of the NGRM and another that came with it. Between the two I bent the rail to make the smooth curves that are the essence of Crowsnest without any distortion. I used Peco spikes, which I was fortunate to find online, Peco having ended production in the recent past. I must admit I used small amounts of 5-minute two-part epoxy to fix the rail to the sleepers and this allowed time to ensure the curves were correct. Thus the spikes are essentially, but not wholly cosmetic. Rail lengths were joined exactly as described by Roy except again I used epoxy which has proved fine. I was really



Trackwork under construction on the rigid but lightweight baseboard.



My Brayfield Estate Railway is viewed from the inner curve whereas Roy's Crowsnest was viewed from the far left.

Photos: Peter Smith

careful to bend the rail precisely and none of the curves or joins were forced. Again Roy's method of pivoting the blade rails was followed faithfully which again ensures the blades are not a force fit against the turnout stock rail in either setting. Everything was based on 28mm back to back wheel spacing and frog and blade clearances to ensure my carefully set stock ran through smoothly and evenly. These clearances are rather more generous than Roy's exact scale build for The Last Stand but are not obvious to me.

The two turnouts are operated by modified Red Caboose ground throws and look rather like the throws Roy used in earlier versions of Crowsnest. They work fine and the light spring at each end of the throw is quite satisfying. I try to remember to leave the throws mid point when the layout is stored. So far the care taken in laying the track has paid off in trouble free operation. It does not have the peerless precision of Roy's build and I could not dream of achieving that but it is reliable, smooth and nice looking to my eye from, as they say, normal viewing distance. The absence of need for any electrical connections to the track has been a great relief and speeded the build considerably.

THE WEIGHBRIDGE AND WAGON TURNTABLE

My weighbridge is based on the Pooley example in the Narrow Gauge Railway Museum at Towyn. As with everything it doesn't have the finesse of Roy's but it looks fine even though I still await sufficiently small lettering to do the distinctive Pooley of Liverpool name plate on the styrene bridge.

The wagon turntable is unashamedly a cheap and cheerful bodge of my own using a plastic cake decoration container and lid with a styrene pivot. The visible turntable top is styrene with manual operation via an unobtrusive hand lever for operation. It looks fine and although I had envisaged an early rebuild after the initial layout build was complete it works well so far.

The different orientation of my version of Crowsnest makes a big difference and these two features, which were at the forefront on Crowsnest, are much less visibly prominent on The Brayfield Estate Railway but remain essential operating features.

At this stage I did basic ballasting using fine grade Woodland Scenic grey ballast. I had attempted to prepare the sleepers as Roy did by roughening the tops and staining with wood stain. It was a long process of trial and error before I was happy with the ballasted track and it wasn't until the greenery was applied much later that it started to look right in an estate setting.

THE WEIGH HOUSE

It was here that the biggest change was made. I first envisaged a loco shed behind the weigh house with a length of track disconnected from the layout itself. Then I decided to use the footprint of Roy's weigh house and extend it to incorporate the shed. I made a rough foam board mock up and liked it but a shed wasn't practical in the narrow extended space. Eventually the idea of the workshop and weigh house came together and a more permanent foam board frame was built. I extended the workshop part of the building and decided to make it brick with a tiled roof. I had some embossed brick sheet and tiles left over from my printed track layout and the building came together quite naturally. Some care was taken to try to match the brick courses at the corners and guttering and window frames added. The red brick was weathered down considerably to age the building into the scene. The fiddle stick at the crossing end of the layout was converted into a sector plate and a short length of track added ending before the workshop. This turned out to be an inspired move because the two or three wagons that could be held here increased the operating potential exponentially. The extended building is now the focal point of the layout, with full interiors in both the weigh office and the workshop and, I think, a genuine estate railway atmosphere with the clutter such places seem to have. I now have my own distinct layout identity but retaining those elements that are the essence of Crowsnest.



The weighbridge and wagon turntable were simply made from styrene and a plastic container. The turntable is hand operated.



The weigh house was built from foam board covered in embossed brick sheet. The workshop has been detailed with bench, tools and associated clutter.

Photos: Peter Smith

SCENERY

I had a large stash of scenic material going back years and so the layout turned green in a single afternoon. Static grass was applied liberally to the track base, including the track itself, care being taken to avoid any on the sleepers. These had been dry brushed after track laying was complete and eventually I was happy with the track and its surroundings. I like the ground scatter in a nylon mesh, which is excellent for hedgerows, and various colours formed the green parts of the rough road. This had already been painted with various shades of grey and very fine ballast added whilst the paint was wet avoiding the traffic lines typical in rough roads of this type. Some more green ground scatter down the centre and at each side and I was happy. The triangle was deliberately kept rough rather than mown grass. The aim was to create the estate site most have, which is not normally accessible to visitors, just being used by the work force and the railway. I then added wild flowers and stray cultivated plants to give variety and a hint of nettles, just as Roy did, but not quite as good. Short lengths of derelict fencing were then inserted into the scene and behind the track ending at the workshop entrance, again aiming for the effect Roy achieved so well, and a crossing gate made from scrap wood completed the scene. No other attempt has been made to add back scene or otherwise constrain the open, remote atmosphere that is Crowsnest.

It was at this point that REVIEW 136 dropped through the letter box and I read David Barham's article on 3D printing. The serendipity that was already becoming evident in my project really blossomed when I read that David had done some prints in 16mm scale for some of the iconic features of Crowsnest. Thanks to John our Editor, a request for more information was forwarded to David. Not only did he offer to print some items for me but he also joined NGRM to show some of his efforts. David, perhaps better known for his layout Fen End Pit, produced the coal scales, weigh house equipment and a collection of tools and workshop equipment that allowed me to fit the full interiors into both the weigh house and the workshop. David's contribution has helped me to achieve in a matter of months what Roy did in a lifetime in between his wonderful business contribution to narrow gauge in our hobby.

LOCOMOTIVES AND STOCK

A short YouTube clip of Roy operating Crowsnest at its only known exhibition outing, again provided via NGRM, showed how slow smooth motive power is essential to operate the track plan optimally. Fortunately another member of NGRM had provided me with a set of printed parts to build a Hudson Hunslet diesel based on the green locomotive on static display at Statfold. It essentially uses a Delrin chain drive to all 4 wheels and a low geared micro motor very similar to the drive system used by Bole Lasercraft in their 16mm scale offerings. Smooth and nearly silent, I was initially disappointed that it ran so slowly. It has of course proved perfect for my layout and fits into the scene seamlessly. Roy contemplated internal combustion power more than once but it never happened. I have a Bole kit-built 20HP Ruston that performs just as well.

The same NGRM member later surprised me with a set of 16mm scale printed parts for the Bagnall FLEUR, which was of course Roy's loco on Crowsnest. Compared with the two diesels it was huge so I decided to shorten it closer to the illustration of Bagnall 358 in *The Chronicles*. 358 had outside cylinders but since these locos were conjectural to a significant extent I could live with that. I reduced the footplate length equally at each end and shortened the boiler to compensate. I have been very pleased with this decision. The chassis is the only inside framed Bole one available – for their



Photo: Peter Smith

battery electric loco – rewheeled and with added coupling rods. Again with the serendipity that has been part of my layout build the wheelbase is perfect. Unfortunately this chassis has a two-stage Delrin drive and is slightly more noisy than my other locos but is otherwise slow and smooth. I decided on the same LNER green as used on the Hudson Hunslet via a Humbrol acrylic spray can and lined it with HMRS Pressfix decals. A spray with Dulcote has sealed the decals and gives an even smooth finish.

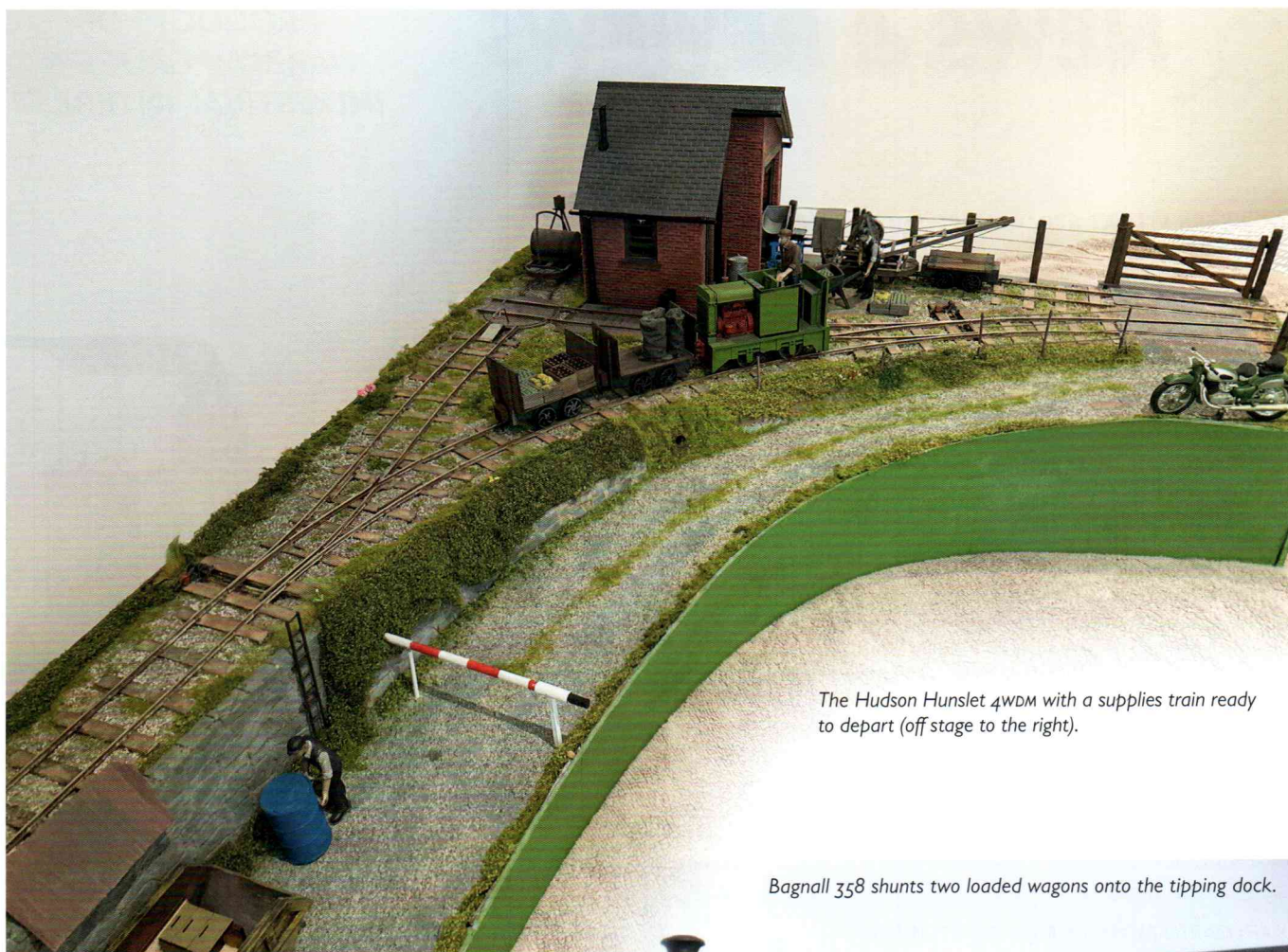
I have a very nice Sipat Peckett adapted from a Boot Lane Works 16mm scale kit, similar to Roy's build described in *The Chronicles* but although smooth and quiet it just isn't quite right for the layout.

I have adapted some of my existing rolling stock after carefully adjusting the back to back to 28mm. Most are based on PS Models or Binnie skip chassis with modifications to suit estate railway needs. There is still some residual stone traffic via side tippers that use the weighbridge, but not the loading point, and a single modified Binnie skip is used for rubbish collection and disposal. I have built a flat wagon and two open wagons with end boards for produce traffic using boxed produce from Trenarren Models. I cannot resist posing the small crane and fuel bowser I built for a small sand diorama based on Leighton Buzzard in the workshop area and behind it. I also have built a small removable add-on back scene at the loading point, which allows me to tip the waste skip into a container positioned below a ramp. I think Roy thought about a ramp and unloading but it never happened.

Although the turnouts and wagon turntable are hand operated I wanted to automate coupling and uncoupling. My simple solution so far is OO scale tension lock couplers. They are not as discrete as Roy's but they work and I don't find them obtrusive in use. An uncoupler ramp before the turntable works without intervention and a ramp before the weighbridge has an operating lever hidden in the scene. These couplers are an act of convenience on the layout and will last until I can find something better. The shunting puzzle is a joy to operate and the siding provides operating alternatives including the waste skips occasional trips to the loading point. If it is scrap metal it is via the weighbridge.

CONCLUSION

It has been a pleasure to build and operate the layout. I have got far closer to Crowsnest than I ever expected, thanks to the help of quite a few others, yet I have built my own vision whilst at the same time keeping faith with simple aims Roy exploited again and again. The layout stands on one end against a wall and takes only 5 or so minutes to set up for operation. I have enough locos and stock to be able to vary the operating theme. I have no plans for change but that has been the case with every layout I have ever built...



Photos: Peter Smith



NEWS & REVIEWS

PRODUCTS OF
NARROW GAUGE &
INDUSTRIAL INTEREST

OO9 KERR STUART RTR 'WHAT IF' SHORT-TANK SIRDAR

Fourdees Ltd

www.fourdees.co.uk

Prices in text

Fourdees Ltd have announced that they have partnered with Rapido Trains UK to bring an exclusive ready-to-run OO9 model to the UK market – a Kerr Stuart 'What if' Short-Tank SIRDAR in works grey livery. This uses the chassis announced by Rapido Trains in REVIEW 143.

This model of the short-tank SIRDAR includes an industrial half-cab that many of these machines received. Such locomotives were used in industrial settings throughout the UK, and overseas, with one example used to help construct the Leek and Manifold Valley Light Railway in Staffordshire.

It will be presented in Kerr Stuart works grey livery which was applied by the manufacturer to all locomotives upon completion, and photographed for company records. It is similar in styling to that currently carried by DIANA, but with further unique features such as grey frames.

It will come with a selection of detailing components to customise its appearance (dumb buffers, vac pipes, front footsteps, long couplings and stovepipe and spark arrestor chimneys).

The current expected delivery date is towards the end of 2026. The retail price is expected to be £139.95 (non-DCC) and £179.95 (DCC). At the time of writing the models are available to pre-order (with a deposit) on the website together with the Rapido chassis.

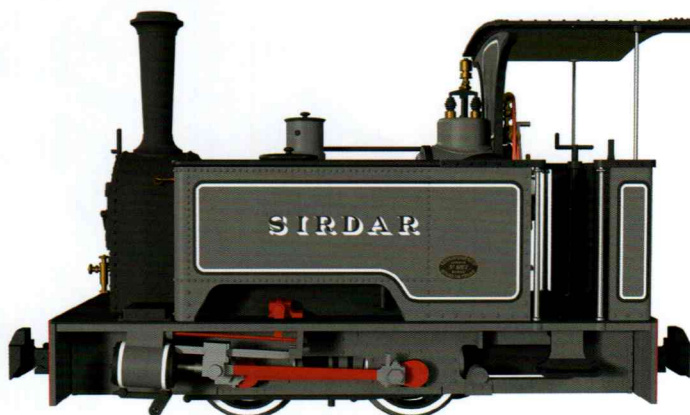


Image: Fourdees Ltd

CAD render of 'What if' Short-Tank SIRDAR

KARLGARIN MODELS AND IMPETUS KITS

Phoenix Precision

www.phoenix-paints.co.uk/karlgarin-models

Phoenix Precision have acquired the Karlgarin Models range of rail and Impetus 7mm and 4mm scale locomotive kits. Details are slowly being added to the website.

The rail range includes accurate 7mm scale profiles of flat-bottom and bullhead rail all in High-Ni nickel silver. Of these the most interesting to 7mm scale NG modellers will be the Karlgarin code 82 rail, which is the only model rail available that properly represents prototype 40-45lb/yd rail as commonly used on many narrow gauge systems, especially of old. Light SG industrial and some of the modern preserved narrow gauge lines would be more likely to use heavier 60-70lb/yd rail, which is properly represented by the Karlgarin code 100 rail. These two rail profiles are illustrated in the diagram below.



Comparison of Typical Narrow Gauge/Light Industrial Flat Bottom Rail in 7mm:ft Scale



xxlb - B.S. (OLD) Prototype Rail to 7mm scale

MExx - Micro Engineering Rail with xx=code (= inch/1000)

IL-x - Peco Rail with x = product no

KMxx/7 - Karlgarin Models with xx=code

The prototype profiles come from R Hudson catalogue (kindly provided by Roy C Link) and information kindly provided by Corus.

The ME, Peco and Karlgarin profiles are based on dimensions and drawings kindly supplied by Micro Engineering Company, Pritchard Patent Products Ltd and Karlgarin Models respectively.

Note that model rail profiles will inevitably have thicker webs and feet than equivalent scale prototype profiles due to considerations such as strength and manufacturing tolerances. The most important aspects visually in a model are overall height, rail head width and foot width.

(c) John Clutterbuck 2022

OO9 3D PRINTED MODELS

Brooks 3D Models

47 Turner Road, Colchester CO4 5JY UK

www.brooks3Dmodels.com

Prices in text

Nigel Brooks continues to expand his range of 3D printed kits for 4mm and 7mm scales.

There are three new Glyn Valley Tramway rolling stock items all designed and developed using original photos and drawings and extra help from the Glyn Valley Tramway & Industrial Heritage Museum Trust. These are initially available in oo9 as detailed below, however Nigel would consider upscaling them to 7mm if required.

GV2PS – GVT Two-plank Small Wagons is supplied as a set of three wagons for £13. It comprises: 3 x bodies/chassis with detailed axle boxes, 6 x brake levers (1 spare per wagon), 6 x coupling sets (fixed loop and double-link close-couplings), 3 x Pairs of Kato solid metal wheels/axles, which are normally pre-fitted to the chassis, and 3 x wagon loads for 4ins granite setts (cobble stones).

GVFTBS – GVT Flat/Tar/Bolster Wagons also comprises a set of three wagons for £13 supplied as 3 x flats, 2 x tar tanks and 2 x bolster tops with similar specification for wheels, brakes and couplings. Each can be made up as just flats, bolster wagons or tar tank carriers.

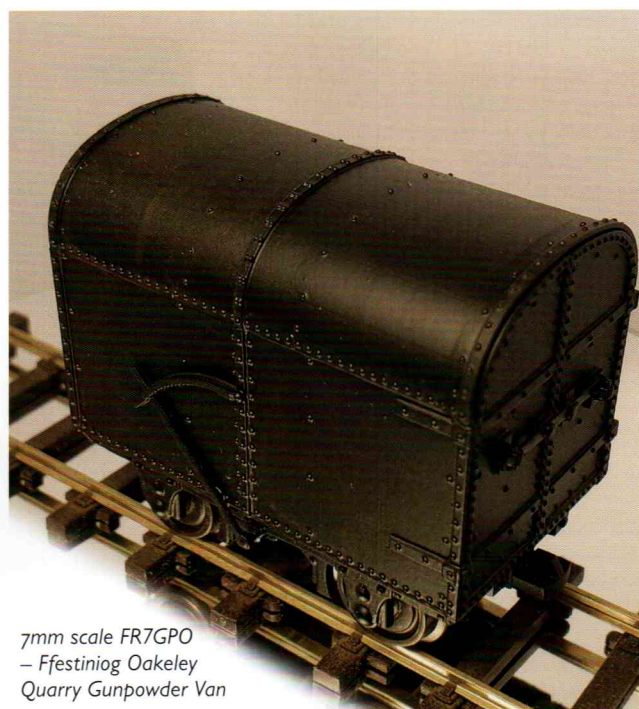
GVHDV – GVT Horse Drawn Van is a single van kit at £9 with similar specification. This is capable of being powered by a Tomytec TM-TR02 Chassis – see the website for details.

Finally for 7mm there is **FR7GPO – Ffestiniog Oakeley Quarry Gunpowder Van** at £19. As with the other 7mm kits this is an up-scaled version of the oo9 version but with improvements for the larger scale, including the NEM 362 slot and simple couplings (supplied). The wheels are solid disk type as per the prototype and set for 16.5mm gauge but can be regauged to 14mm.



Top: oo9 GV2PS – GVT Two-plank Small Wagons shown with supplied granite sett loads.

Above: oo9 GVFTBS – GVT Flat/Tar/Bolster Wagons showing each of the possible variants.



7mm scale FR7GPO – Ffestiniog Oakeley Quarry Gunpowder Van



A pair of oo9 GVHDV – GVT Horse Drawn Vans

Photos: Brooks 3D Models

NEW BOOKS



NARROW GAUGE ENIGMA – THE STORY OF PETER RAMPTON AND HIS COLLECTION 'X'

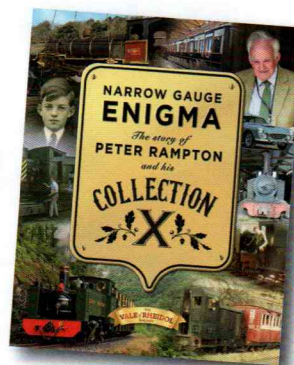
Vale of Rheidol Railway

By Stephen Phillips

Hardback, 270mm x 215mm, 416 pages

61 surveyed drawings, 13 original works drawings and over 600 photographs

RRP £80 – direct from the VoR



A fascinating new book from the Vale of Rheidol Railway lifts the lid on one of Britain's most enigmatic private collections and tell the story of the man behind it.

Narrow Gauge Enigma – The Story of Peter Rampton and his Collection 'X' launches in mid-October, offering an unprecedented glimpse into the life and passion of one of the narrow gauge world's most intriguing figures.

Peter John Rampton (1934–2019), heir to the successful Freemans mail order business, became renowned among railway enthusiasts for rescuing rare narrow gauge steam locomotives and coaches from across the globe. Peter was instrumental in starting the Brecon Mountain Railway with Tony Hills, and purchased the Vale of Rheidol from BR in 1989.

For decades, his extraordinary collection – nicknamed Collection 'X' by those in the know – was shrouded in secrecy, stored in agricultural sheds on his private Surrey farm, and protected by a web of rumours, myths, anecdotes, and even ingenious booby traps to deter intruders.

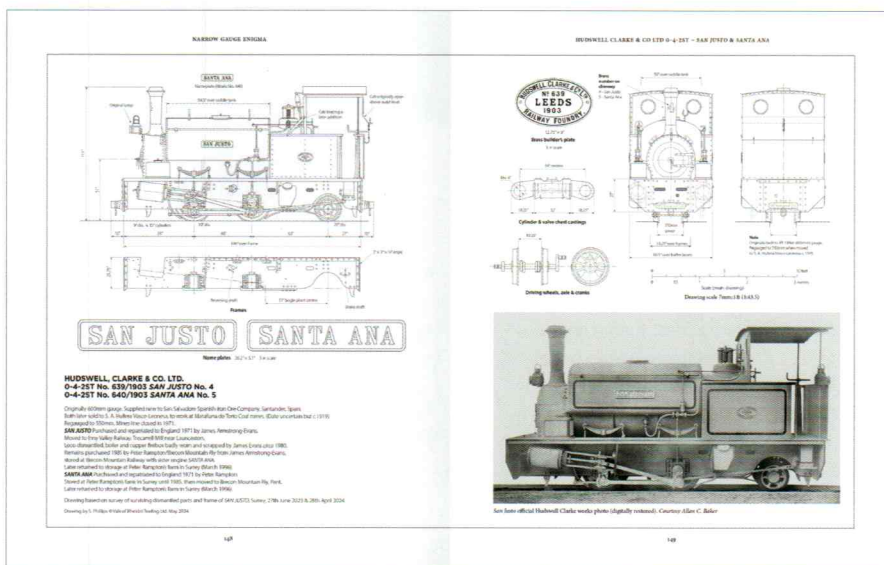
Following his death, the Vale of Rheidol Railway's Chief Engineer and Managing Director, Llŷr ap Iolo, led an ambitious project to research and record Rampton's life and work before vital knowledge was lost forever.

Author Stephen Phillips, who has worked closely with the railway for over a decade, spent years delving into Rampton's private archives, surveying and drawing the locomotives and coaches in Peter Rampton's collection. Of interest to modellers, specially prepared detailed drawings of the locomotives and coaches in Peter's collection are featured, mostly in 7mm scale.

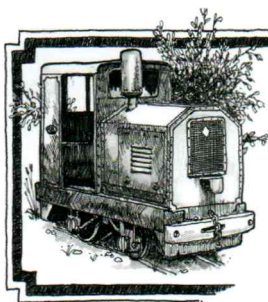
The result is a meticulously researched, beautifully illustrated 416-page hardback that charts Rampton's extraordinary achievements, from rescuing forgotten engines to painstakingly restoring historic coaches.

It also offers a rare insight into his colourful life beyond railways, including his lifelong passion for AC Cars and his friendship with company chairman Derek Hurlock.

The book is also being printed locally in Wales, by Gomer Press in Llandysul.



Two example spreads from the book.



Gottings: news, notes and nothings, in brief...

MANCHESTER MODEL RAILWAY SOCIETY EXHIBITION

Saturday 13th December 10.30am* – 5.30pm

Sunday 14th December 10.30am* – 4.30pm

(* 9.30am for advance ticket holders)

The Sugden Centre, Sidney Street, M1 7HB what3words: [///whites.jacket.ranks](https://www.whites.jacket.ranks)
www.mmrs.co.uk/exhibition

Advance tickets – Adults: Saturday £14, Sunday £11, Children (15 or under): free

On the door prices – Adults Saturday £16, Sunday £13, Children (15 or under): free

Founded in 1925, the MMRS are the third oldest such group in the world and have an enviable reputation for innovation and excellence. This year's exhibition celebrates their history, presents some of the finest layouts in the UK at present, and also displays a selection of iconic layouts which are significant in the development of the hobby.

There will be a special themed area within the exhibition which charts the history of railways and railway modelling in this country, but whereas the rest of the country celebrates the 200 year period from 1825, here in Manchester they do things differently, and start our timeline from 1804, with a film made by one of their members about the Cornish engineer Richard Trevithick.



Photo: Gordon Gravett

For the modelling connoisseur there is the long awaited debut of Port de Crozon (as featured in this issue) by the renowned modellers Gordon and Maggie Gravett, and also the very rare chance to see a layout built around 60 years ago and last exhibited in 2013 – Dundreich, built by P D Hancock and believed to be the earliest example of a narrow gauge model railway.

There will be plenty of activities for children, including a chance to win a complete train set, and they will be able to try their hand at driving model trams on the biggest exhibit in the show, almost 13m long! As well as that, they will be able to see the ORIGINAL Thomas the Tank Engine layout in operation, built by the author of the Thomas books for his son almost 80 years ago.

YNYS GWYNTOG

REVIEW issue 100 featured the late Bob Barlow's magnificent model Ynys Gwyntog – at the time Bob was publisher/editor of the REVIEW with Roy C Link as production editor. It was to feature as the core for his new layout depicting a North Walian seaside village. Unfortunately Bob passed away before he could do much more work on the model.

Since then the model has been carefully stored with the intention of it being used in another Welsh layout – but a recent change has made that impossible. So Ynys Gwyntog is looking for a new home.

Alex Duckworth and David John, custodians of the model, are seeking Expressions of Interest from modellers who would like to include it in a layout, preferably one suited for the exhibition circuit or public display.

The layout measures 5 foot by 2 foot 3 inches and is built to a scale of 7mm to the foot. At the moment the track is 14mm gauge but this can easily be replaced to whatever gauge the new owners wish.

This is not a sale – we are looking for a permanent home from an individual or club who will finish it, display it and give it the love and attention Bob's masterpiece thoroughly deserves.

If you are interested, please send your Expression of Interest, giving details of who you are and your modelling experience and an outline of what you will do with the model to ynysgwyntog@yahoo.com.



Photo: REVIEW Studio

READERS LETTERS

HORSE HAULAGE

Dear Editor,

Our village fete was to be held in about 6 weeks time and I had wondered what I could enter into the handicraft class. Then REVIEW 143 dropped through the letter box and Fate played his hand!

Our dear friend Sydney Leleux published another of his interesting articles, this time on horse haulage in mines. He mooted a proposal for modelling horse haulage and that was the answer for my class entry question.

Sydney's proposal was for a straight line of haulage, but I chose a circular route to make a self contained model for exhibition. The first question was forming a circular track. I had 16.5mm gauge track to hand so a one yard length had all the spacers between the sleepers removed on one side and a circle formed. A simple box was built from timber and plywood as the main structure with the scenic 'deck' as the top. Below this was a disk of plywood spinning in a shaft from a simple gearbox made up from Meccano with a knitting needle as the shaft to the front for the turn handle.

The next hurdle was the cutting of a circular slot central to the rails. I toyed with a coach bogie fixed to my electric jigsaw. This did work on the straight piece of track I experimented



with but the wheelbase was too long for the curvature of the model track! Nothing for it but to carefully draw a line along the middle of the track and hand propel the jigsaw. This went well until the centre of the scenic board dropped on the floor! The centre could not easily be supported from below because of the mechanism so a framework was constructed above it including three tunnel mouths. I did not want the frontage divided so the frame stopped short of the track. This formed the basis for the hillside which was made out of insulating foam board and DAS clay.

The pony, driver, wagon and sheep were abducted from my 7mm/ft scale railway, the lambs are 4mm scale sheep! The horse had a



short length of brass tube inserted between his front legs to go over the drive pin from the disk below (no horses suffered during this operation!). This was more obscured from view than in Sydney's sketch. The pin was a loose fit to the horse, but soldered to a short length of brass strip with a pivot to allow some lateral movement of the pin when moving around the track.

The model was finished with acrylic paints and static grass together with a few small lumps of slate.

I did manage a first at the fete in the handicraft class – out of 6!

Geoff Evans

email

Photos: Geoff Evans

MIXED TRAINS ON THE TALYLLYN RAILWAY

Dear Editor,

In my article on the Galtymorefre Tramway in REVIEW 143, I claimed that down mixed trains on the Tallyllyn Railway always ran with the loaded slate waggons on the downhill end of the train, between the locomotive and the carriages. Trevor Hughes, Andrew Young and Chris Featherstone have challenged this, and after more research and further correspondence with them, I agree that I was wrong.

I have found three photos showing down mixed trains, one from 1925, and two from the 1940s. All have the slate waggons on the uphill end. As Andrew points out, there are a large number of other photos of downhill trains and none of them show waggons between the locomotive and the carriages. Some of these may even show mixed trains with the waggons obscured by the carriages in front of them.

This alters the marshalling of down mixed trains at Abergynolwyn. We believe there were two methods; first:

- ◆ The locomotive returns to Abergynolwyn with the loaded waggons, which are left above the west end points.
- ◆ The locomotive runs down to the Tywyn end of the loop and comes back to couple onto the carriages.
- ◆ The waggons are then gravitated down to the west end of the rake of carriages and coupled on.
- ◆ The van brakes are released and the train departs for Tywyn.

Second:

- ◆ The locomotive returns to Abergynolwyn with the loaded waggons, and leaves them in the loop, next to the carriages.
- ◆ The locomotive runs past the points at the Tywyn end of the loop and comes

back to couple onto the downhill end of the carriages.

- ◆ The van brakes are released and the locomotive hauls the carriages down past the east end points.
- ◆ The train reverses into the loop and the rake of waggons are coupled on.
- ◆ The train departs for Tywyn.

There are photographs showing both these methods in Boyd's *The Tal-y-llyn Railway*.

Having the waggons on the uphill end makes the down trains easier to operate, but it does make for an interesting operational challenge between Pendre and Wharf. However, that is a question for another day.

Huge thanks to Andrew, Trevor and Chris for correcting the record.

Dan Quine

email

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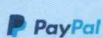
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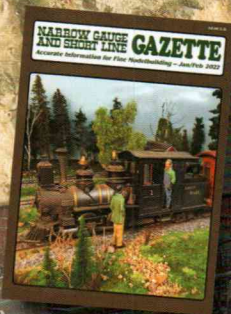
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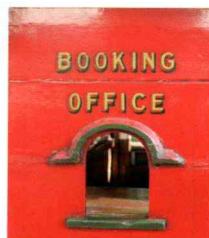
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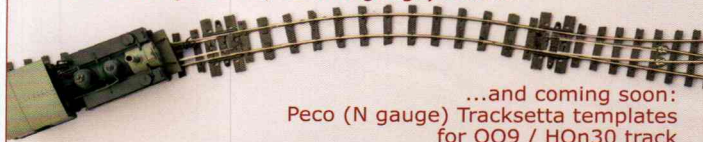
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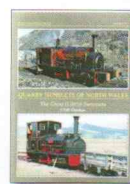
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NEW

Quarry Hunslets of North Wales - The Great (Little) Survivors • Thomas • £29.90

Reprinted, this is a detail history of all the Hunslet built, mainly 2 foot gauge, 0-4-0 tank locomotives which roamed the slate quarries of North Wales, and especially the good number which have been preserved. Huge amounts of detail, both technical and on service history, numerous B&W photos, a number being of locomotives being restored, which are excellent for detail. These Hunslets are very popular models, notably in 16mm NG, and anybody building a model of one will find this a most useful reference source. 256 pages. Paperback.



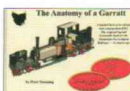
Camden DIGITAL EDITIONS

The Anatomy of a Garratt • Manning • £ 9.95

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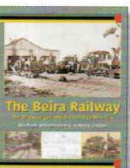
Available again, now in Digital Format, here are Peter Mannings' books on the first and second designs of Garratt locomotives built, the first for Tasmania and the second for India. As well as the history and technical details of each engine, each book contains full sets of drawings, dimensioned for full size, which are tremendous for modellers in any gauge. 66 and 72 pages respectively. Spiral bound card covers.

These two "Digital Editions" may be read on a computer or laptop, and MUST be ordered from our website.



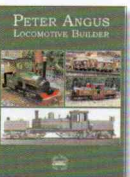
The Beira Railway • Whitehouse & Baxter • £46.95

2ft gauge and 222 miles long, the Beira Railway operated in this gauge for just two years, from Beira on Mozambique's coast to the borders of the new Rhodesia. It had taken 10 years to build, was converted to 3ft 6ins Cape gauge to connect with what became Rhodesia Railways. Motive power initially was 'Lawley' class 4-4-0 tender locos which whilst delicate looking, coped well with the arduous condition. Superbly illustrated 224 page book with many archive B&W photos covering the line's construction and infrastructure, as well as drawings. Hardbound.



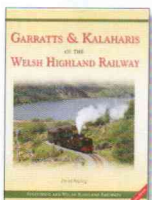
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If you would like to build a live steam narrow gauge engine in 16mm scale and want ideas, suggestions, hints, tips and the story of the prototypes, look no further than this book from Peter Angus, who has built 100s of such models. A pleasure to read and with 217 A4 size pages crammed with photos, drawings and illustrations, the bulk in colour, it is very good. (Original price - 39.45 inc UK P & P)



Garratts & Kalaharis of the Welsh Highland Railway • Payling • £30.95

This book describes the design origins of the WHR's Garratt and Kalahari locomotives in Britain, Europe and the Southern Hemisphere starting with K1, the Tasmanian Garratt. Their development is traced up to its culmination in the NG/G16 and the NG15 locomotives. It continues with an individual history of each of the Garratts, and the Kalaharis in their original environment and more recently in North Wales. There are also fold-out scale drawings of the locomotives, including the special features carried only on the first batch of NG15s in 1931. Profusely illustrated, the book draws on the photographic collections of friends to show the locomotives in action in both the South Africa and North Wales. The author, the late David Payling, was a life-long volunteer on the F&VHR, was part of the team at Boston Lodge working over 15 years to assemble the drawings and information to allow the restoration of these locomotives. This book, produced in support of the restoration of NG15 No.134, is published by The Ffestiniog Railway Co. This edition was first published in 2022 and hence missed the return of Kalahari No. 134 to traffic in April this year. A splendid book in every way - if you haven't already bought your copy, now is your chance! 152pp, 110+ colour and b/w illustrations, 3 scale drawings, one foldout. Hardback



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