

332 PAGES

BRITISH RAILWAY MODELLING

BRM

NOVEMBER 2018

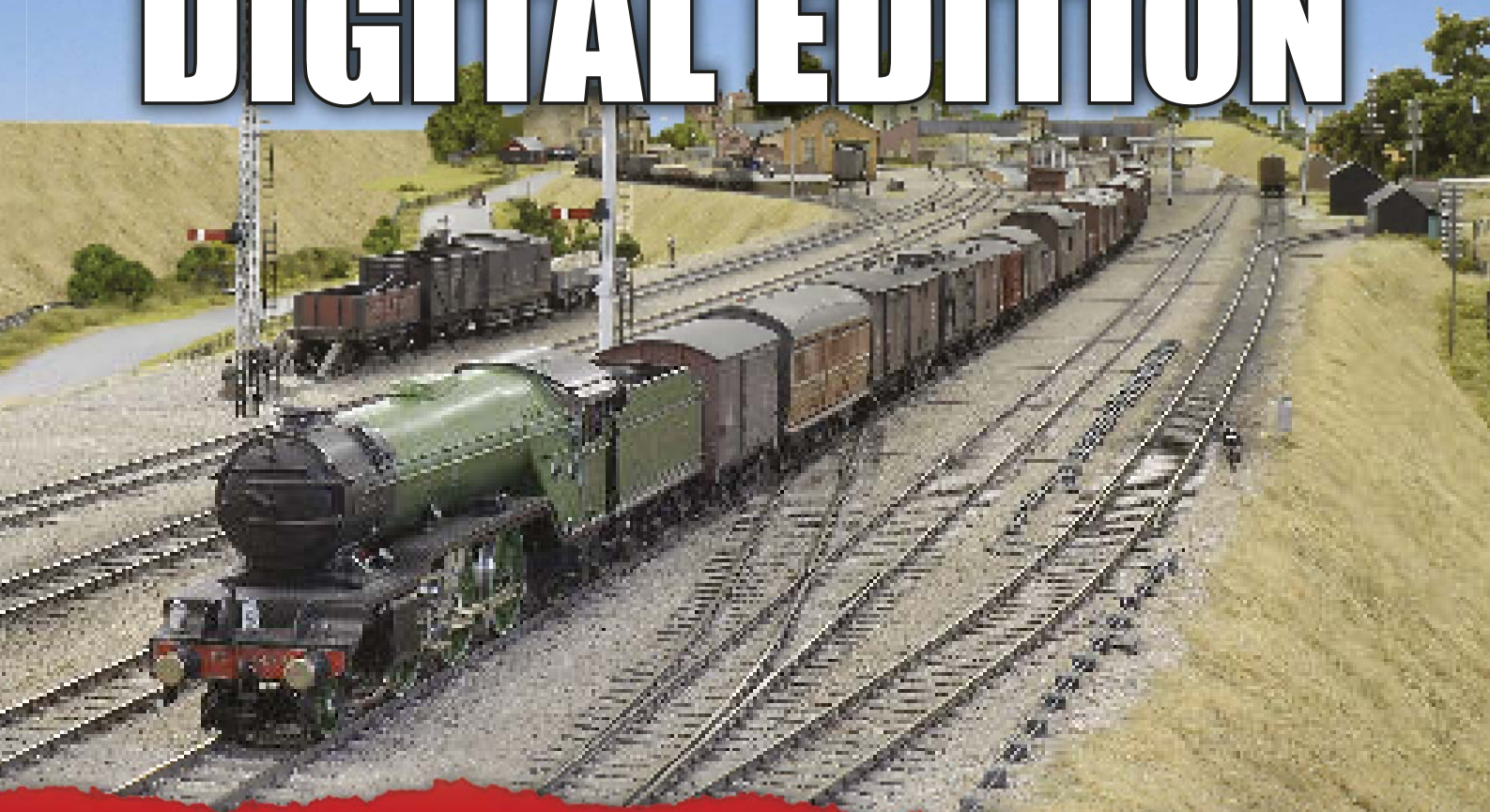


TACKER00



A POIGNANT PORTRAIT
OF A WW1 RAILWAY

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2

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BRM TV

BRITISH RAILWAY MODELLING

IN THIS EPISODE...

We enjoy the modern image heavy industry of Caroline Concrete Works, we show you how to add flowers to your layout, we take a behind-the scene peek at Apedale Valley Light Railway and, as a special bonus, we roll back the years as the LNER is resurrected on Little Bytham.



**TELL US WHAT YOU
THINK OF THIS
MONTH'S DVD**

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AND GET INVOLVED IN
THE CONVERSATION.



WATCH THE VIDEO HERE
(You must have a wifi connection to stream video content)



PLAY



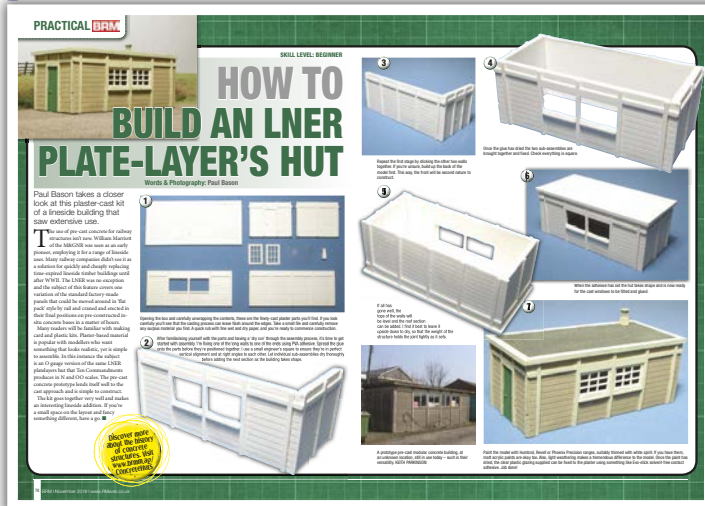
Phil Parker takes a simple card kit and shows how you can enhance it with just a few simple modifications.



Andy Banks and Andy York research and then build a poignant model of a local WW1 military railway which lasted just three short years.

64

46



Paul Bason takes a closer look at this plaster-cast kit of a lineside building that saw extensive use.



Graham Morfoot's layout is a hive of heavy industry. The easy access to a local works supplied all the inspiration he needed, however.

100

104

103 REVIEWS
Bachmann's C1 'Atlantic' is appraised, alongside Hornby's Class 87, the latest Mk2f coach, Freightliner flats, colourful BREL coaches from Murphy Models and a Mk1 Horsebox.

FEATURES

36 BUILDING 'BOCHE BUSTER'
With an RTR version in prospect, we doff a Brodie helmet to Harold Smith for building this mighty WW1 railway howitzer from scratch.

40 LNER RUNNING SESSION
Roll back the years to 1938, as BRM alumnus Tony Wright resurrects this iconic line on his own 'Little Bytham' layout

56 HELJAN INTERVIEW
Former BRM Editor Ben Jones has joined Heljan. What difference does he hope to make in his new role? We find out.

86 RAPIDO INTERVIEW
BRM catches up with the reliably enthusiastic Jason Schron. He has a real railway carriage in his basement, but what else is he planning?

82 SPOTLIGHT – THE HAY WAIN
We look at David Wright's astounding 3D model of John Constable's most celebrated painting. With tips for regular railway modellers too.

120 NEW BOOKS
A round up of our latest reading recommendations,

including a woefully overdue look at the Telegraph Pole Appreciation Society handbook. Oh yes!

162 TAIL LAMP
Richard Johnson of DCC Concepts wonders if all this choice in the railway modelling marketplace is actually a good thing.

On the BRMTV DVD

- Caroline Concrete Works
 - Behind the scenes at Apedale
 - The LNER on Little Bytham
- See page 80 for details





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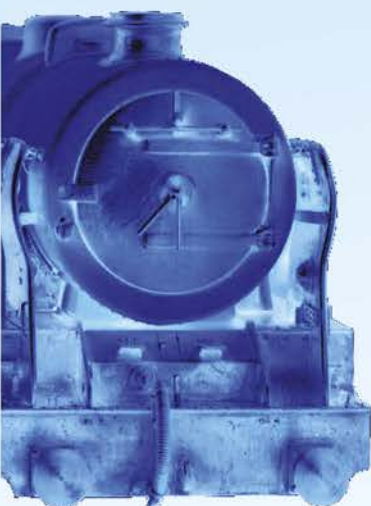
Cobalt-S levers are the best there are!

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Welcome

Welcome to a brighter, better **BRM**, this issue leading with a shorter introduction from me and a few words from the rest of the **BRM** team, also a bit of eye-candy from our forthcoming Peterborough show just for good measure. We start as we mean to go on, and that means bigger photos of brilliant layouts – we have three corkers this month – easy-to-follow practical projects for modellers of all abilities, and great feature content as usual. In the latter regard, you must see David Wright's astonishing 'Hay Wain' diorama on page 82. A little off-piste for us, I admit, but great modelling is always worth celebrating – particularly when the techniques used can be applied to this hobby.

The digital edition of **BRM** is on an upward trajectory too; last month's issue being our second biggest ever, with a wealth of digital extras and the full **BRM** TV DVD. There's a free sample of typical content at www.brmag.com/ specialissues. More and more of you are already enjoying the electronic version of the magazine each month, though, so do take a look when you can.

Moving on, we welcome the return of the 'Wishlist Poll' to **RMweb**. This online survey took a year off in 2017, so it's sure to go like gangbusters this time around. Running from October 15 to November 3, this is your

Go Digital: Discover more at www.pocketmags.com/BRM

opportunity to indicate and debate the models you'd really like to see in production – head to RMweb.co.uk on October 15 to have your say. Finally, a note of apology to Calum Faerlin-Cruich of 3DK, whose splendid Dairy kit we featured in last month's edition, albeit with completely the wrong text. These things happen, but shouldn't. The mistake is rectified later this issue. On that note, let's hear from the rest of the team...

Andy



MANAGING EDITOR I Andy McVittie



Howard Smith

Gaugemaster's Open weekend saw me travel to the South Coast, whilst a trip to DCCconcepts entailed a trip to Settle. An impressive showroom and friendly staff were two of the things I took away – that and two bags of new products from the manufacturer which you'll see being used in **BRM** soon!



Phil Parker

Telford, Llanfair... I've spent way too much time driving on the M6 this month. At least the International N Gauge Show was close to home! It was all worth it, though, as every show featured some cracking layouts I'd never seen before. There is some really inspirational modelling out there.



Andy York

Boxes everywhere! There seems to be a never-ending stream of new products to be photographed and reviewed at this time of year. Have we ever seen so many new names and new products? Little birds tell me there'll be more exciting news before the end of the year too.



Ruth Jamieson

September saw me travel to Arundel with Howard to the Gaugemaster Open weekend! Some of our subscribers came up to say hello and have a chat about their thoughts on the hobby! It was lovely to meet both young and older modellers, with Howard offering advice too where asked.



BRM

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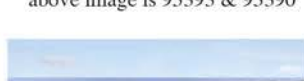
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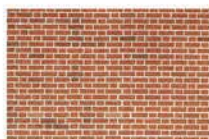
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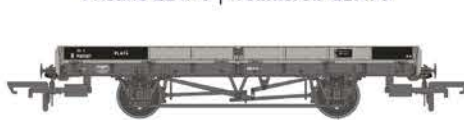
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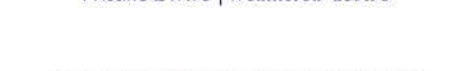
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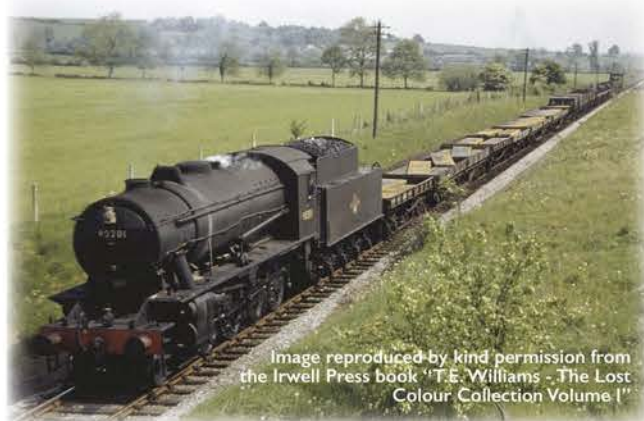


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Pre-order from £67.96
Due in Stock: August 2018



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OO Gauge (1:76 Scale)

Steam locos



R3612 80th Anniversary of World Steam Record pack gold-plated Class A4 4468 'Mallard' and commemorative box set (Hor) £184



H4-AB14-004 Andrew Barclay 0-4-0ST 14" 1863 in Caledonian Railway lined blue (Hat) £99



H4-AB14-002 Andrew Barclay 0-4-0ST 14" 2047 '705' in GWR green shirtbutton roundel (Hat) £99



H4-AB16-002 Andrew Barclay 0-4-0ST 16" 2043 'No 6' in NCB green (Hat) £99



H4-AB16-003 Andrew Barclay 0-4-0ST 16" 2226 'Katie' in lined maroon (Hat) £99



H4-AB16-001 Andrew Barclay 0-4-0ST 16" 2244 'No.10' in NCB lined black (Hat) £99



H1416 Class 14xx 0-4-2T 1409 in BR Unlined green late crest (DJ) £99



31-127 Class 30xx 2-8-0 ROD 3023 in BR black early emblem (Bac) (RRP £129.95) BARGAIN £69



32-227DS Class 3F Jinty 0-6-0T 7365 in LMS black - DCC sound fitted (Bac) £182.71



R3619 Class 4073 'Castle' 4-6-0 5013 'Abergavenny Castle' in BR green late crest (Hor) £136



4780 Class 47xx 2-8-0 'Night Owl' 4704 GWR green shirtbutton emblem (Hel) £154



4781 Class 47xx 2-8-0 'Night Owl' 4705 in GWR green Great Western lettering (Hel) £154



4785 Class 47xx 2-8-0 'Night Owl' 4709 in BR lined green late crest - as preserved (Hel) £154



H1403 Class 48xx 0-4-2T 4871 in GWR Unlined green Shirlutton logo - Lightly weathered (DJ) £99



R3313 Class 4F 0-6-0 4323 in LMS Black (Hor) (RRP £99.99) BARGAIN £58



32-881 Class 4MT Fairburn 2-6-4 tank 42105 BR lined black early emblem - weathered. (Bac) (RRP £139.95) BARGAIN £94



H1407 Class 58xx 0-4-2T 5802 in GWR Unlined green G W R lettering - Lightly weathered (DJ) £99



R3494 Class 5MT Black 5 4-6-0 45025 in BR Black late crest - Railroad Range (Hor) £80



R3385TTS Class 5MT Black 5 4-6-0 45116 in BR black early emblem - TTS sound fitted (Hor) £170



R3453 Class 5MT Black 5 4-6-0 45274 in BR Black late crest (Hor) £144



31-187DS Class 5XP Jubilee 4-6-0 5588 'Kashmir' in LMS crimson welded Stanier tender - DCC sound fitted (Bac) £212.46



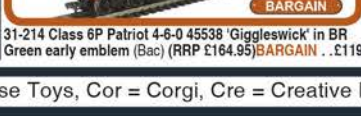
R3332 Class 6000 King 4-6-0 'King Edward VIII' in BR Late Crest Green (Hor) (RRP £159.99) BARGAIN £114



R3331 Class 6000 King 4-6-0 'King James I' 6011 in GWR Green (Hor) (RRP £159.99) BARGAIN £114



R3614 Class 6P 'Rebuilt Patriot' 4-6-0 5521 'Rhyl' in LMS black (Hor) NEW £136



31-214 Class 6P Patriot 4-6-0 45538 'Giggleswick' in BR Green early emblem (Bac) (RRP £164.95) BARGAIN £119



31-204 Class 6P Patriot 4-6-0 5530 'Sir Frank Ree' in LMS crimson (Bac) (RRP £164.95) BARGAIN £104



R3633 Class 7P 'Rebuilt Patriot' 4-6-0 45534 'E. Tootal Broadhurst' in BR green early emblem (Hor) NEW £136



R3618 Class 7P6F Rebuilt Battle of Britain 4-6-2 34050 'Royal Observer Corps' in BR green late crest (Hor) £144



R3617 Class 8P Rebuilt Merchant Navy 4-6-2 35030 'Elder Dempster Lines' in BR green late crest (Hor) £136



32-858 Class 9F 2-10-0 92189 in BR black late crest & BR1F tender - weathered (Bac) £169.96



32-850A Class 9F 2-10-0 92220 'Evening Star' in BR green late crest (Bac) £161.46



R3284TTS Class A1 4-6-2 4472 'Flying Scotsman' in LNER Green TTS Sound - Railroad range (Hor) £108



R3060 Class A1 4-6-2 60163 'Tornado' in British Railways Apple Green (Railroad Range) (Hor) (RRP £100.99) BARGAIN £58



31-531 Class A2 4-6-2 60536 'Trimbrush' in BR lined green early emblem (Bac) (RRP £179.95) BARGAIN £121



R3312 Class A3 4-6-2 60062 'Minoru' in BR Green early emblem (Hor) (RRP £154.99) BARGAIN £94



R3630 Class A4 4-6-2 4493 'Woodcock' in LNER apple green (Hor) £136



R3676 Class A4 4468 'Mallard' in LNER garter blue - as preserved (Hor) £152



R3338 Class B1 4-6-0 61310 in BR Apple Green (Hor) (RRP £155.99) BARGAIN £87



R3588 Class B17 4-6-0 2864 'Liverpool' in LNER green - Railroad Range (Hor) £76.50



R3004 Class B17 4-6-0 61631 'Serlby Hall' in BR Green early emblem - weathered (Hor) (RRP £131.99) BARGAIN £79



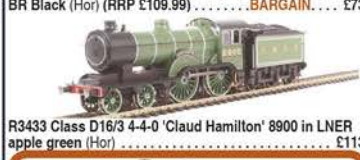
31-138 Class D11/2 4-4-0 62682 'Haystoun of Bucklaw' in BR black early emblem (Bac) (RRP £139.95) BARGAIN £99



R3234 Class D16/3 'Claud Hamilton' 4-4-0 62530 in BR Black early emblem (Hor) £101.90



R3235 Class D16/3 'Claud Hamilton' 4-4-0 E2524 in early BR Black (Hor) (RRP £109.99) BARGAIN £73



R3433 Class D16/3 4-4-0 'Claud Hamilton' 8900 in LNER apple green (Hor) £113



35-075 Class E4 Brighton tank 0-6-2 579 in LB&SCR umber (Bac) (RRP £109.95) BARGAIN £80



R3242A Class K1 2-6-0 62032 in BR Black early emblem (Hor) (RRP £129.99) BARGAIN £82



R3456 Class N15 King Arthur 4-6-0 30792 'Sir Horvis de Revel' in BR Lined Green early emblem (Hor) (RRP £160.99) BARGAIN £108



3912 Class O2/3 Tango 2-8-0 63948 in BR black early crest stepped tender (Hel) (RRP £184.95) BARGAIN £89



3913 Class O2/3 Tango 2-8-0 63952 in BR black late crest stepped tender (Hel) (RRP £184.95) BARGAIN £89



3911 Class O2/3 Tango 2-8-0 63954 in early British Railways black stepped tender (Hel) (RRP £184.95) BARGAIN £89



3920 Class O2/4 Tango 2-8-0 3962 in LNER black flush tender (Hel) (RRP £184.95) BARGAIN £89



3922 Class O2/4 Tango 2-8-0 63975 in BR black late crest flush tender (Hel) (RRP £184.95) BARGAIN £89



3923 Class O2/4 Tango 2-8-0 63982 in BR black late crest flush tender (Hel) (RRP £184.95) BARGAIN £89

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R3541 Class 06 Raven 0-6-0 2265 in LNER black pre-war lettering (Hor) (RRP £160.99) **BARGAIN**... £109R3208 Class V Schools 4-4-0 30915 "Brighton" in BR Black early emblem (Hor) (RRP £139.99) **BARGAIN**... £89

R3550 Class W4 Peckett 0-4-0ST 883 in Lilleshall Co (Hor)..... £99.99



R3279 County Class 4-6-0 1016 "County Of Hants" in BR Green early crest - Railroad range (Hor)..... £69.50

R3419 Drummond Class 700 0-6-0 693 in Southern Railway black (Hor) (RRP £124.99) **BARGAIN**... £69
4S-018-003D LSWR Class B4 0-4-0 88 in Southern Railway lined black - DCC fitted (Dap)..... £115.33

4S-018-002 LSWR Class B4 0-4-0 90 "Caen" in Southampton Docks brown (Dap)..... £93.50



H4-P-010 SECR P Class 0-6-0T "Pride of Sussex" in Robertsbridge Flour Mill green (Hat)..... £99



H4-P-001 SECR P Class 0-6-0T 178 in SE&CR full lined green (with brass) (Hat)..... £99



H4-P-015 SECR P Class 0-6-0T 27 in SE&CR full lined green (with polished brass) (Hat)..... £99



H4-P-007 SECR P Class 0-6-0T 31027 in BR black early emblem (Hat)..... £99



H4-P-016 SECR P Class 0-6-0T 31556 in BR black early emblem (Hat)..... £99



H4-P-012 SECR P Class 0-6-0T 323 "Bluebell" in Bluebell Railway lined blue (2010s) (Hat)..... £99



H4-P-013 SECR P Class 0-6-0T 5027 in ROD green (Hat)..... £99



H4-P-002 SECR P Class 0-6-0T 753 in SE&CR full lined green (with brass) (Hat)..... £99

32-353 Standard Class 4MT 2-6-4T 80135 in BR green late crest (As Preserved) (Bac) (RRP £134.95) **BARGAIN**... £99

R3500 The Sir Nigel Gresley Collection (Hor)..... £480



R9287 Thomas and Friends - 0-6-0T No.1 Thomas the Tank Engine (Hor)..... £36

Steam train packs

R3299 'Going Home' train pack - 70th Anniversary of the end of WWII Black 5 4-6-0 5156 in LMS Black and 3 x LMS Period 3 Coaches - Ltd Ed (Hor) (RRP £289.99) **BARGAIN**... £150

Diesel locos

10001 HAP 10001 BR Brunswick green orange, black & orange lining. Aug 1956 - Oct 1957. (Dap) (RRP £105) **BARGAIN**... £942503 Class 05 Hunslet shunter "Cider Queen" in green wasp stripes (Hel) (RRP £129.95) **BARGAIN**... £692500 Class 05 Hunslet shunter D2574 in BR green (Hel) (RRP £129.95) **BARGAIN**... £692502 Class 05 Hunslet shunter D2581 in BR green wasp stripes (Hel) (RRP £129.95) **BARGAIN**... £692520 Class 05 Hunslet shunter D2592 in BR green wasp stripes (Hel) (RRP £129.95) **BARGAIN**... £692521 Class 05 Hunslet shunter D2600 in BR green wasp stripes (Hel) (RRP £129.95) **BARGAIN**... £692523 Class 05 Hunslet shunter Departmental No.88 in BR green wasp stripes (Hel) (RRP £129.95) **BARGAIN**... £69

2930 Class 07 shunter 07001 in Harry Needle Railroad Company - Exclusive to Hattons Model Railways (Hel)..... £111



2910 Class 07 shunter 2993 in BR blue wasp stripes and air brakes (Hel)..... £111



R3504TTS Class 08 08623 in DB Schenker - TTS Sound fitted (Hor)..... £132

32-119 Class 08 Shunter 08907 in DB Schenker red (Bac) (RRP £124.95) **BARGAIN**... £76

1409 Class 14 D9531 in BR green - as preserved (Hel)..... £110.46

1604 Class 16 North British Type 1 D8409 in BR green grey roof - Gloss finish - Ltd Ed of 750 (Hel) (RRP £134.95) **BARGAIN**... £724D-012-007 Class 22 D6321 in BR green small yellow panels and headcode boxes (Dap)..... £127.46
4D-012-007D Class 22 D6321 in BR green small yellow panels and headcode boxes - DCC fitted (Dap)..... £146.91

2813 Class 28 CoBo D5706 in BR green small yellow ends (Hel)..... £110.46



R3583TTS Class 37/0 37040 in Railfreight triple grey - Railroad Range - TTS Sound fitted (Hor)..... £88



32-790 Class 37/0 37049 "Imperial" in Railfreight Coal Sector triple grey (Bac)..... £135.96



32-789 Class 37/0 37099 "Merl Evans 1947-2016" in Colas Rail Freight (Bac)..... £135.96



32-377A Class 37/4 37401 "Mary Queen Of Scots" in BR large logo blue (Bac)..... £117.26



32-370 Class 37/4 37405 in DRS Compass blue (Bac)..... £117

R3392TTS Class 40 40164 in BR blue - TTS sound fitted - Railroad Range (Hor) (RRP £99.99) **BARGAIN**... £7432-482 Class 40 97407 "Aureol" in BR blue - weathered (Bac) (RRP £179.95) **BARGAIN**... £119

31-650DS Class 47 47001 in BR Blue - DCC Sound fitted (Bac)..... £203.95



32-618 Class 47/0 47245 West Coast Railway Company maroon (Bac) £135.96



31-654 Class 47/4 47576 "Kings Lynn" in original Network SouthEast (Bac)..... £114.71

R3658 Class 50 50033 "Glorious" in revised Network SouthEast (Hor) **NEW**..... £136R3653 Class 50 50040 "Leviathan" in BR large logo blue (Hor) **NEW**..... £1445311 Class 53 D0280 "Falcon" in BR two tone green - Ltd Ed (Hel) (RRP £125) **BARGAIN**... £94

32-534DS Class 55 Deltic 55004 "Queen's Own Highlander" in BR blue - DCC sound fitted (Bac)..... £225.21

R3660 Class 56 56303 in Devon and Cornwall Railways green (Hor) **NEW**..... £1365827 Class 58 58016 in EW&S maroon and gold (Hel) (RRP £125) **BARGAIN**... £995826 Class 58 58028 in unbranded Triple Grey (Hel) (RRP £125) **BARGAIN**... £965825 Class 58 58038 in Mainline Freight blue (Hel) (RRP £125) **BARGAIN**... £99

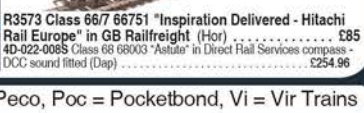
R3666 Class 59/0 59004 "Paul A. Hammond" in Yeoman Aggregates - Railroad Range (Hor)..... £68



R3572 Class 60 60087 "CLIC Sargent" in Colas Rail Freight orange/black (Hor)..... £149



R3573 Class 66/7 66751 "Inspiration Delivered - Hitachi Rail Europe" in GB Railfreight (Hor)..... £85



4D-022-008S Class 68 68003 "Ashtur" in Direct Rail Services compass - DCC sound fitted (Dap)..... £254.96

Prices valid until 07/11/18

All prices correct
when going to press.
Errors excepted.



31-590 Class 70 70015 in Freightliner air intake modifications (Bac).....£144.46



4000 Hawker Siddeley Brush HS4000 'Kestrel' prototype diesel electric loco (Hel) (RRP £155).....£129

Electric locos



7700 Class 77 EM2 Woodhead electric 27000 'Electra' in BR black early emblem - gloss finish - Ltd Ed for Olivias Trains (Hel) (RRP £165).....£129



7701 Class 77 EM2 Woodhead electric E27005 'Minerva' in BR green half yellow panels - Ltd Ed for Olivias Trains (Hel) (RRP £165).....£129



31-679 Class 85 (AL5) Bo-Bo Electric E3095 BR Electric Blue small yellow panel (Bac) (RRP £139.95).....£144.46

NEW



R3582 Class 87 87010 'King Arthur' in Intercity Swallow (Hor) NEW.....£144

NEW



R3580 Class 87 87035 'Robert Burns' in BR Blue (Hor) NEW.....£144



R3480 Class 92 92016 'Brahm's' in Railfreight grey EWS 'Beastie' vinyls (Hor) (RRP £99.99).....£52



9002 Metropolitan Bo-Bo electric 1 in London Transport wartime grey (Hel) (RRP £139.95).....£74



9007 Metropolitan Bo-Bo electric 11 'George Romney' in London Transport maroon (Hel) (RRP £139.95).....£74



9009 Metropolitan Bo-Bo electric 12 'Sarah Siddons' in London Transport/Metropolitan (1990s preserved condition) (Hel) (RRP £139.95).....£74



9008 Metropolitan Bo-Bo electric 12 'Sarah Siddons' in Metropolitan (As currently preserved) (Hel) (RRP £139.95).....£74



9005 Metropolitan Bo-Bo electric 19 in Metropolitan (Hel) (RRP £139.95).....£74

HSTs



R3478 Class 43 HST train pack 43070 'The Corps of Royal Electrical and Mechanical Engineers' & 43036 in First Great Western (Hor).....£199



R3602TTS Pair of Class 43 HST Power Cars 43078 and 43079 in Intercity Swallow - TTS sound fitted (Hor) NEW.....£239



R3510 Pair of Class 43 HST Power Cars 43187 and 43188 in GWR green - Ltd Ed (Hor).....£246

DMUs



32-286A Class 101 2 Car DMU in BR green yellow panel - weathered (Bac).....£144.46



4D-009-HAT02 Class 121 single car DMU 'Bubblecar' 121032 in Arriva Trains Wales - Hatton's limited edition (Dap) £129.95



4D-009-HAT07 Class 121 single car DMU 'Bubblecar' 55022 in original Network South East - Hatton's limited edition (Dap) £129.95



4D-009-HAT05 Class 121 single car DMU 'Bubblecar' 55027 in revised Network South East - Hatton's limited edition (Dap) £129.95



8920 Class 128 parcels DMU 55991 in BR blue yellow ends 'Parcels Service' branding (Hel) (RRP £119.95).....£59



32-937 Class 150/2 2 car DMU 150202 in Regional Railways Centro blue stripe. (Bac) (RRP £164.95).....£96



30-425 Class 251 Midland Pullman train pack in Pullman nanking blue - Collectors Edition (Bac).....£490

EMUs



R3606 5-BEL Pullman Brighton Belle EMU end vehicles in Pullman umber and cream small yellow panels (Hor) NEW.....£160



R3341 Class 2-HAL 2 Car EMU 2677 in BR blue (Hor) (RRP £130.25).....£62



31-426B Class 411 4CEP EMU 7122 in BR Green yellow warning panels (Bac) (RRP £299.95).....£220



R4871 Pack of three centre coaches for 5-BEL Brighton Belle in Pullman umber and cream (Hor).....£144

DEMUS



31-236A Class 205 'Thumper' 1121 in BR green small yellow panel - weathered (Bac).....£203.96

Track Maintenance vehicles



B800 Non-motorised OO Track Cleaner motorised cleaning heads & vacuum in blue (Dap).....£64

Train sets - analogue



R1176 Class 373 'Eurostar' Train Set (Hor) (RRP £169.99).....£129



R9283 Thomas the Tank Engine starter Train Set (Hor) £55

Train sets - digital



R1126 Mixed Freight DCC digital train set Class 08 0-6-0 BR diesel electric loco, steam loco & 4 wagons (Hor) (RRP £264.99).....£170



R1125 Somerset Belle train set Class 3F 0-6-0 S&DJR 0-6-0 steam loco & 3 wagons - DCC control (Hor) (RRP £210.99).....£130



R1184 Western Express digital train set eLink TTS sound Hall steam loco (Hor) (RRP £329.99).....£199

Coaches



R4831 GWR A30 autococh 190 in GWR chocolate and cream (Hor) NEW.....£34



MM1509 Irish Cravens buffet coach in OCE orange and black (Mur) NEW.....£41



R4873 LMS Stanier Period III coaches in LMS Coronation Scot crimson lake - pack of three - Railroad Range (Hor) NEW.....£64



39-025G Mk1 SK second corridor E25898 in BR blue and grey (Bac).....£38.21



R4617A Mk2E FO first open 3221 in BR intercity (Hor) (RRP £24.99).....£17



R4622 Mk2E TSO second open W5860 in BR blue & grey - Railroad range (Hor).....£23

R4859 Mk3a DVT 82141 in Virgin Trains red and black (Hor).....£60

R4857 Mk3a FO first open 11074 Virgin Trains red and black (Hor) NEW.....£29.50

R4858 Mk3a TSO second open 12132 Virgin Trains red and black (Hor) NEW.....£29.50



R4860 Pullman J Type 'Devon Belle' observation car No.13 in Pullman umber and cream (Hor) NEW.....£60

Wagons

4F-012-019 12 ton ventilated van B768120 in BR bauxite (Dap) NEW.....£9.50

4F-012-020 12 ton ventilated van B768120 BR bauxite - weathered (Dap) NEW.....£10.50



37-225H 16 ton steel mineral wagon top flap doors in BR grey - weathered (Bac).....£16.50



R6855 20 ton tank wagon 'Pumpherson Oil Co., Glasgow' (Hor) NEW.....£14

R6864 4-plank open wagon 'Stonehouse Brick & Tile Co.' (Hor) NEW.....£13

OR76MW5002 5-plank open wagon 'Buckley, East Kensington' (Oxf) NEW.....£10

OR76MW5003 5-plank open wagon 'Corporation, Cannock' (Oxf) NEW.....£10

OR76MW5001 5-plank open wagon 'T. Bowler, London' (Oxf) NEW.....£10

OR76MW5004 5-plank open wagon 'W.M. Barnard, Worcester' (Oxf) NEW.....£10

R6872 6-plank open wagon 'John Lancaster & Co.' (Hor) NEW.....£13

4F-071-152 7 plank open wagon 'Buckley Junction Brick Company, Buckley' (Dap) NEW.....£9.50

4F-071-153 7 plank open wagon 'Buckley Junction Brick Company, Buckley' - weathered (Dap) NEW.....£10.50

4F-020-029 8 ton cattle wagon B883325 in BR bauxite (Dap) NEW.....£9.50



4F-036-025 Bulk grain hopper B885320 in BR grey (Dap) NEW.....£11.50

4F-060-017 Grampus wagon D886708 Taunton Granite grey (Dap) NEW.....£14.50



4F-026-013 HIA aggregate limestone hopper 369006 in Freightliner green (Dap) NEW.....£22.52

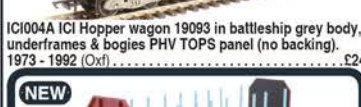
4F-026-014 HIA aggregate limestone hopper 369012 Freightliner green (Dap) NEW.....£22.52

4F-026-015 HIA aggregate limestone hopper 369018 Freightliner green (Dap) NEW.....£22.52



4F-026-017 HIA aggregate limestone hopper 369026 in Freightliner white (Dap) NEW.....£22.52

4F-026-018 HIA aggregate limestone hopper 369033 Freightliner white (Dap) NEW.....£22.52



ICI004A ICI Hopper wagon 19093 in battleship grey body, underframes & bogies PHV TOPS panel (no backing). 1973 - 1992 (Oxf).....£24



R6847 OTA timber wagon in in EWS maroon parallel stanchions (Hor) NEW.....£24

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R6473 Pack of 3 16 ton mineral wagons in BR bauxite - Railroad Range (Hor) (RRP £19.99) BARGAIN £18

R6884 Pack of three 6-wheel Milk Tanks 'Express Dairy' (Hor) £38
R6885 Pack of three HEA coal hopper wagons in EWS maroon (Hor) NEW £38

38-650A PCA Metalair Bulk Powder Wagon 11017 in 'Blue Circle Cement' (Bac) £22.91



R6887 PTA 102 ton bogie wagon PR26552 in Yeoman Aggregates grey - Railroad Range (Hor) £15



4F-027-009 Silver Bullet bogie tank wagon in NACCO/ ECC - 3387 7898 070-0 - Weathered (Dap) £28.05



4F-027-011 Silver Bullet bogie tank wagon in NACCO/ ECC - 3780 7898 118-0 - Weathered (Dap) £28.05



H4-WW-006A Warwell wagon 50t diamond frame bogies M360337 in BR grey (Hat) £33



H4-WW-001A Warwell wagon 50t diamond frame bogies MS.3 in WD (GWR) (Hat) £33



H4-WW-020 Warwell wagon 50t Gloucester GPS bogies MODA95524 in MOD 2000s olive - weathered (Hat) £37



R6845 YGB Seacow bogie ballast hopper DB980057 in Mainline Freight blue (Hor) £25

Analogue controllers

R8012 HM2000 High output power & speed controller, mains supply, (Hor) £87

Digital decoders

DCC-AD218-6 6 function DCC 21-pin to 8-pin adaptor/converter - allows use of an 8 pin decoder in a loco a 21-pin socket - alternative to Bachmann N549 (DCC) NEW £4.50

Digital control accessory decoders

PC2 One Touch DCC Quad Point Controller x 4 (Tra) £32

Point motors

R8243 Surface Mounted point motor (Hor) £8.50

Cables & Wires

PL-80 Power lead joiners - Code 100/124 (x4 pairs) (Pec) £6

Model railway spares

SL-111 Finescale insulated rail joiners/fishplates (Code 70, 75 & 83) for OO & HO gauge - Pack of 12 (Pec) £2

SL-11 Insulated rail joiners/fishplates (for OO, HO & O gauge code 100 rails incl. Hornby, Peco & Peco Streamline) - Pack of 12 (Pec) £2

SL-10 Metal rail joiners/fishplates (for code 100 rails incl. Hornby, Peco & Peco Streamline). For OO, HO & O gauge - Pack of 24 (Pec) £2.20

18KADEE NEM362 Kadee coupling - Medium (8.63mm) - Pack of four (Kad) £5

Buildings - railways



PO313 Double track brick built engine shed - card kit (Met) £19.50

44-017 Modern servicing depot - Scenecraft range (Bac) £84.96
EM6110A Stationmaster House Extension - stone (Pec) NEW £12

Man-made scenic structure - railway-related



89121 27.4 metre (90ft) Motorised turntable - ready for installation. For HO/OO scales. DCC ready (Hel) £199

R083 Box of 6 Buffer Stop (Hor) £9.50
R083 Single (Hor) £1.80

R070 Electrically Operated Turntable (Hor) £64

Signals

4L-002-001 Signal - Motorised, LMS home (OOSIGN3) (Dap) £25

4L-001-001 Signal - Motorised, Square post GWR home lower quadrant (OOSIGN1) (Dap) £25

Buildings - general



99660 Art Deco Bus Garage and bus (EFE) £72.21



44-0086 Industrial Gate House (Bac) £80.71



44-0088 Industrial Stores and Canopy (Bac) £46.71

Grass, Ground, Lichen, Hedges & Foliage

PSG-32 Lavender tuft strips - 130mm - pack of ten (Pec) NEW £6

PSG-37 Long Veld Meadow tuft strips - 130mm - pack of ten (Pec) NEW £5.50

PSG-46 Marshland tuft strips - 130mm - pack of ten (Pec) NEW £5.50

PSG-34 Spring tuft strips - 130mm - pack of ten (Pec) NEW £5.50

PSG-48 Water meadow tuft strips - 130mm - pack of ten (Pec) NEW £5.50

PSG-35 Winter tuft strips - 130mm - pack of ten (Pec) NEW £5.50

People - civil



36-408 12 x Seated Coach Passengers (Bac) £11.50



36-047 Locomotive staff x 6 (Bac) £8.46

Track - Code 100 Setrack

ST-2035 4th radius Standard Curve Track (ST-203 x 8) (Pec) £18

R601 Double Straight (Hor) £2

R601 Box of 24 (Hor) £47

R8072 Left Hand Standard Point (Hor) £9.50

R8073 Right Hand Standard Point (Hor) £9.50

ST-245 Setrack curved double radius left handed point insulfrog (Pec) £14.50

ST-244 Setrack curved double radius right handed point insulfrog (Pec) £14.50

ST-240 Setrack No 2 radius left handed point insulfrog (Pec) £9

ST-204 Setrack Quad Straight (670mm) (Pec) £3.50

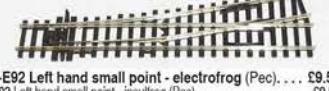
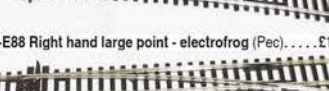
ST-204 Box of 24 (Pec) £76

ST-100 Setrack Starter Track Set - Second Radius (Pec) £58
R621 Single 970mm length of flexible track (Hor) £66
R621 Pack of 24 (Hor) £66

Track - Code 100 Streamline

SL-100 Pack of 25 1 yard (91.5cm) length of Code 100 Wooden-sleeper nickel silver flexible track (Pec) £66
SL-100 Single (Pec) £3
SL-102 1 yard (91.5cm) length of Nickel Silver concrete-sleeper flexible track (Pec) £3
SL-102 Pack of 25 (Pec) £70SL-E99 3 way medium radius point - electrofrog (Pec) £27
SL-99 3 way medium radius point - insulfrog (Pec) £27
SL-90 Double slip - insulfrog (Pec) £33SL-E87 Left hand curved point - electrofrog (Pec) £12.50
SL-87 Left hand curved point - insulfrog (Pec) £12.50

SL-E89 Left hand large point - electrofrog (Pec) £12

SL-E96 Left hand medium point - electrofrog (Pec) £10.50
SL-96 Left hand medium point - insulfrog (Pec) £10.50SL-E92 Left hand small point - electrofrog (Pec) £9.50
SL-92 Left hand small point - insulfrog (Pec) £9.50SL-E86 Right hand curved point - electrofrog (Pec) £12.50
SL-86 Right hand curved point - insulfrog (Pec) £12.50

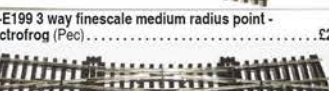
SL-E88 Right hand large point - electrofrog (Pec) £12

SL-E95 Right hand medium point - electrofrog (Pec) £10.50
SL-95 Right hand medium point - insulfrog (Pec) £10.50SL-E91 Right hand small point - electrofrog (Pec) £9.50
SL-91 Right hand small point - insulfrog (Pec) £9.50

Track - Code 75 Finescale

SL-108F 1 yard (91.5cm) length of Code 75 Wooden-sleeper nickel silver bullhead rail flexible track (Pec) £4

SL-108F Box of 25 (Pec) £100

SL-102F Pack of 25 1 yard (91.5cm) length of finescale Nickel Silver concrete-sleeper flexible track (Pec) £82
SL-102F Single (Pec) £3.30SL-100F Pack of 25 1 yard (91.5cm) length of Nickel Silver Finescale flexible track (Pec) £72
SL-100F Single (Pec) £3

SL-E199 3 way finescale medium radius point - electrofrog (Pec) £29



SL-E190 Finescale double slip - electrofrog (Pec) £38

SL-E187 Finescale left hand curved point - electrofrog (Pec) £13
SL-E196 Finescale left hand medium point - electrofrog (Pec) £11.50

SL-E192 Finescale left hand small point - electrofrog (Pec) £10.50



SL-E186 Finescale right hand curved point - electrofrog (Pec) £13



SL-E195 Finescale right hand medium point - electrofrog (Pec) £11.50

SL-E191 Finescale right hand small point - electrofrog (Pec) £10.50
SL-U1189 Left hand large radius bullhead rail point - unitfrog (Pec) £26
SL-U1188 Right hand large radius bullhead rail point - unitfrog (Pec) £26

Track underlay

GM200 5 metres of realistic grey ballasted OO gauge underlay (Gau) £22
SL-50 Roll of foam track underlay sleeper indentation. Suitable for Setrack and Streamline 5m long (16' 4") (Pec) £10

Buses

OM43917A Guy Utility Bus, Burton Corporation, 6 Anglesey Rd via Station & Unbridge St, (Cor) NEW £33

OM43917B Guy Utility Bus, Burton Corporation, 6 Calais Rd via Station & Belvedere Road (Cor) NEW £33



76PAN007 Plaxton Panorama - Ribble (Oxf) £16



76WFA007 Weymann Fanfare North Western (Oxf) NEW £14.50

Cars

76CT006 Citroen 2CV Charleston component grey / midnight grey (Oxf) NEW £4.50

76CAPO08 Ford Capri Mk3 Signal Orange (Oxf) NEW £4.50

76FCC001 Ford Consul Capri Lime Green/Ermine White (Oxf) NEW £5
76DIS005 Land Rover Discovery 4 Firenze Red (Oxf) NEW £4.5076MCS003 Mini Cooper MkII Tartan Red/Black (Oxf) NEW £4.50
76RCL002 Range Rover Classic Dartan Gap (Oxf) NEW £5
76TR7002 Triumph TR7 Convertible Persian Argus Metallic (Oxf) NEW £576VW029 VW Bay Window Auf Wiedersehen Pet (Oxf) NEW £4.50
76VWB010 VW Beetle Pastel Blue (Oxf) NEW £4.50

Commercial vehicles

3010EFC AEC MkIII 4 axle tanker 'Pickfords' (EFE) (RRP £21.99) BARGAIN £9.50

76CA030 Bedford CA Ice Cream Hockings (Oxf) NEW £5.50

76J4002 BMC J4 Van British Rail (Oxf) NEW £5.50
76GDSF001 Burrell Bnfp DCC Showmans Locomotive 'The Masterpiece' (Oxf) NEW £12.50
76DAPO04 DAF 85 Short Fridge Trailer Trevor Pye (Oxf) NEW £19.50
76TPU001 Ford Transit Dropside - Stobart Rail (Oxf) £10

76LW001 Living Wagon Maroon/Red (Oxf) £10



76JCX001 JCB 3CX - 1980s (Oxf) £17

Military ground vehicles

76QLR003 Bedford QL R 8 Corps HQ (Oxf) NEW £12

A01314V Churchill Mk7 tank - Airfix Classics range - plastic kit (Air) NEW £5.50

A01315V WW1 Mk1 Male tank - Airfix Classics range - plastic kit (Air) NEW £5.50



76LRFCS001 Land Rover FC Signals Nato Green Camouflage (Oxf) NEW £8.50



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Construction materials - plastic

SSMP206 Pantiles (Wt) NEW £3.50

Tools

SL-43 Loco Lift and storage unit (Pec) £12

N Gauge Steam locos



372-312 Class 21C1 Merchant Navy 4-6-2 35028 'Clan Line' in BR green late crest (Gra) (RRP £169.95) **BARGAIN** ... £124



372-536 Class 4MT Standard 2-6-4T 80119 BR lined black late crest (Dap) £101.96
2S-007-0100 Class 57xx Pannier 0-6-0 6700 in GWR green shunt pattern emblem - DCC fitted (Dap) £97



372-800B Class A1 4-6-2 60163 "Tornado" in BR Express blue (as preserved) (Gra) £144.46



2S-008-008 Class A4 4-6-2 4468 "Mallard" in LNER garter blue valances (Dap) £128.83



2S-021-001 Class Q1 0-6-0 33016 in BR black early emblem (Dap) £107

Steam train packs



2S-011-005 Class A3 4-6-2 4472 "Flying Scotsman" in LNER apple green (as preserved) four Gresley teak coaches in maroon - light bar fitted (Dap) £198.90
2S-011-004D Class A3 4-6-2 50103 "Flying Scotsman" in BR green early emblem four Gresley teak coaches in crimson & cream (Dap) £220.64

Diesel locos



371-037 Class 20 20205 in BR blue - as preserved (Gra) £101.96



371-450A Class 37/0 37041 in BR blue split headcode boxes (Gra) £103.66



371-471 Class 37/0 37261 in Direct Rail Services blue (Gra) £110.46



371-171 Class 37/4 37421 in Colas Rail Freight (Gra) £103.66



371-182 Class 40 40159 in BR Blue (Gra) £118.96



371-386 Class 66 66416 in Freightliner Powerhaul (Gra) £114.71

NEW



371-398 Class 66/7 66779 "Evening Star" in BR green GBRF branding (Gra) NEW £114.71
2D-022-0070 Class 66 68001 "Evolution" in DFS - DCC fitted (Dap) £140.72

HSTs



2D-019-008 Class 43 HST 4-car book set in GNER blue (Dap) NEW £160.89

DMUs



371-880 Class 108 2 Car DMU in BR Green half yellow ends (Gra) £144.46



371-877A Class 108 2-car DMU in BR blue & grey (Gra) £144.46



371-629 GWR Railcar 20 in GWR chocolate & cream shirt button emblem (Gra) £80.71

Coaches



371-710A BR Mk2A TSO Tourist Second Open in blue & grey (Gra) £25.46
2P-005-921 Mk3 TFO first open 41044 in GNER blue (Dap) NEW £21.39
2P-005-920 Mk3 TFO first open 41090 in GNER blue (Dap) NEW £21.39
2P-005-932 Mk3 TSO second open 42063 in GNER blue (Dap) NEW £21.39
2P-005-933 Mk3 TSO second open 42064 in GNER blue (Dap) NEW £21.39
2P-005-931 Mk3 TSO second open 42127 in GNER blue (Dap) NEW £21.39



2P-005-930 Mk3 TSO second open 42340 in GNER blue (Dap) NEW £21.39
2P-012-253 Pack of three Maunsell coaches - Set 394 - brake third, compartment third and compartment third in SR olive green (Dap) £70.13

Wagons



2F-013-046 11 ton gunpowder van "Blue Circle" - weathered (Dap) NEW £9.50

2F-038-050 20-ton steel mineral wagon 315750 in BR grey (Dap) NEW £11.50
2F-038-049 20-ton steel mineral wagon 315750 in BR grey (Dap) NEW £10.50
NR-10B 21 ton "Hybar" lorry wagon 8715010 in BR blue (Dap) NEW £8.50
2F-013-045 4 wheel gunpowder van "Blue Circle" (Dap) NEW £8.50

Model railway spares

2A-000-008 Magnetic NEM couplers - medium arm (ex-NSPARE8) - 5 pairs (Dap) £2
SL-310 Rail Joiners/Fishplates for N & OO9 gauge (24 per pack) (Pec) £21

Signals



GM270 2 aspect lineside signal (Gau) NEW £16
BPGM270 2 aspect lineside signal - pack of three (Gau) NEW £46
GM271 2 aspect platform mounted signal (Gau) NEW £16
BPGM271 2 aspect platform mounted signal - pack of three (Gau) NEW £46
GM273 2 aspect signal head (Gau) NEW £8
BPGM273 2 aspect signal head - pack of three (Gau) NEW £37

Track - Code 80 Setrack

ST-11 Double straight track (Pec) £1.60
ST-6 Setrack left hand point insulfrog (Pec) £8.50
ST-5 Setrack right hand point insulfrog (Pec) £8.50
ST-31 Setrack starter track pack - second radius (Pec) NEW £52

Track - Code 80 Streamline

SL-300 1 yard (91.5cm) length of Wooden-Sleeper Nickel Silver Flexible track (Pec) £3
SL-300 Pack of 25 (Pec) £84



SL-E396 Left hand medium point electrofrog (Pec) £9.50
SL-396 Left hand medium point insulfrog (Pec) £9.50



SL-E395 Right hand medium point electrofrog (Pec) £9.50
SL-395 Right hand medium point insulfrog (Pec) £9.50

Track - Code 55 Finescale



SL-300F Pack of 30 1 yard (91.5cm) length of Finescale Nickel Silver flexible Wooden Sleeper track (Pec) £84
SL-300F Single (Pec) £3



SL-E399F 3-way finescale turnout (Pec) £28



SL-E390F Finescale double slip electrofrog (Pec) £38
SL-U396F Finescale left hand medium point unifrog (Pec) £10



SL-E392F Finescale left hand small point electrofrog (Pec) £9.50
SL-U395F Finescale right hand medium point unifrog (Pec) £10



SL-E391F Finescale right hand small point electrofrog (Pec) £9.50

Cars

NCOR3003 Corina MkIII Sebring Red (Ox) NEW £4

OO9 Narrow Gauge

Steam locos



391-028 Baldwin Class 10-12-D 4-6-0T "Hummy" in Ashover Railway black - weathered (Bac) £131.71



391-026 Baldwin Class 10-12-D 4-6-0T 590 in Welsh Highland Railway black (Bac) £123.21

Track - Code 80 Setrack

ST-400 Setrack narrow gauge starter track pack - first radius (Pec) NEW £68

Railway publications

SYH29 Booklet - "Shows You How" Series - Introduction to OO9 narrow gauge modelling (Pec) NEW £1
PM-400 Setrack track plans planbook for OO9 narrow gauge modelling (Pec) NEW £1.95

O Gauge (1:43 Scale)

Steam locos

7S-026-004U Class 3F "Jinty" 0-6-0T BR black late crest - unnumbered (Dap) £191.25



7S-007-001 Class 57xx 0-6-0PT pannier 5717 in BR Black early emblem (Dap) £199.75



6101 Class 61xx "Large Prairie" 2-6-2T 6106 in GWR green GWR lettering - as preserved (Hel) NEW £594.15



6100 Class 61xx "Large Prairie" 2-6-2T 6110 in GWR green Great Western lettering (Hel) NEW £594.15



6103 Class 61xx "Large Prairie" 2-6-2T 6111 in BR unlined green late crest (Hel) NEW £594.15



6104 Class 61xx "Large Prairie" 2-6-2T 6132 in BR lined green late crest (Hel) NEW £594.15



6102 Class 61xx "Large Prairie" 2-6-2T 6144 in BR black early emblem (Hel) NEW £594.15
7S-024-004S Class 64xx 0-6-0PT pannier 6439 in BR lined green late crest - DCC sound fitted (Dap) £467.50



7S-007-005 Class 8750 0-6-0PT pannier 3716 in BR Black late crest (Dap) £199.75
7S-007-005S Class 8750 0-6-0PT pannier 3716 in BR Black late crest - DCC sound fitted (Dap) £357.60



7S-007-003 Class 8750 0-6-0PT pannier 9659 in GWR green (Dap) £199.75
7S-007-003S Class 8750 0-6-0PT pannier 9659 GWR green - DCC sound fitted (Dap) £357.60
7S-007-003UD Class 8750 0-6-0PT pannier in GWR green - unnumbered - DCC sound fitted (Dap) NEW £357.60



7S-010-016 Class A1 "Terrier" 0-6-0T 672 "Fenchurch" in LBSCR marsh brown (Dap) NEW £191.25
7S-010-016D Class A1 "Terrier" 0-6-0T 672 "Fenchurch" in LBSCR marsh brown - DCC fitted (Dap) NEW £212.50



7S-010-014 Class A1 "Terrier" 0-6-0T 734 in LSWR green (Dap) NEW £191.25
7S-010-014D Class A1 "Terrier" 0-6-0T 734 LSWR green - DCC fitted (Dap) NEW £212.50



7S-010-013 Class A1 "Terrier" 0-6-0T 751 in SECR green (Dap) NEW £191.25
7S-010-013D Class A1 "Terrier" 0-6-0T 751 SECR green - DCC fitted (Dap) NEW £212.50



7S-010-012 Class A1X "Terrier" 0-6-0T 32650 in BR lined black early emblem (Dap) NEW £191.25
7S-010-012D Class A1X "Terrier" 0-6-0T 32650 in BR lined black early emblem - DCC fitted (Dap) NEW £212.50



7S-010-015 Class A1X "Terrier" 0-6-0T in plain black (Dap) NEW £191.25
7S-010-015D Class A1X "Terrier" 0-6-0T plain black - DCC fitted (Dap) NEW £212.50



7S-010-010 Class A1X "Terrier" 0-6-0T W9 "Fishbourne" in Southern Railway green (Dap) £191.25



7D-008-010 Class 08 shunter D3316 in BR blue (without ladder) (Dap) £191.25
7D-008-007UD Class 08 shunter in BR black early emblem - unnumbered - DCC sound fitted (Dap) NEW £339.15

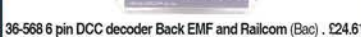
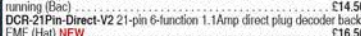
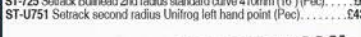
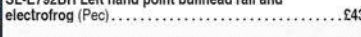
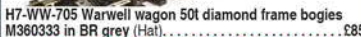
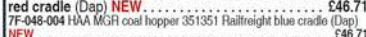
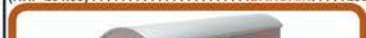
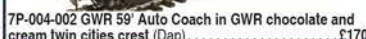
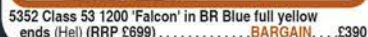
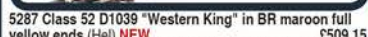
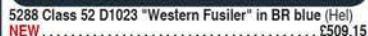
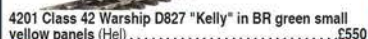
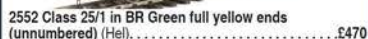
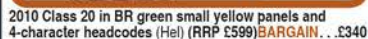
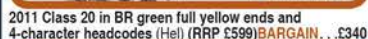


2006 Class 20 in BR blue full yellow ends. 1980s style warning flashes and headcode discs - Exclusive to Hatton's (Hel) £550



2006 Class 20 in BR blue full yellow ends. 1980s style warning flashes and headcode discs - Exclusive to Hatton's (Hel) £550

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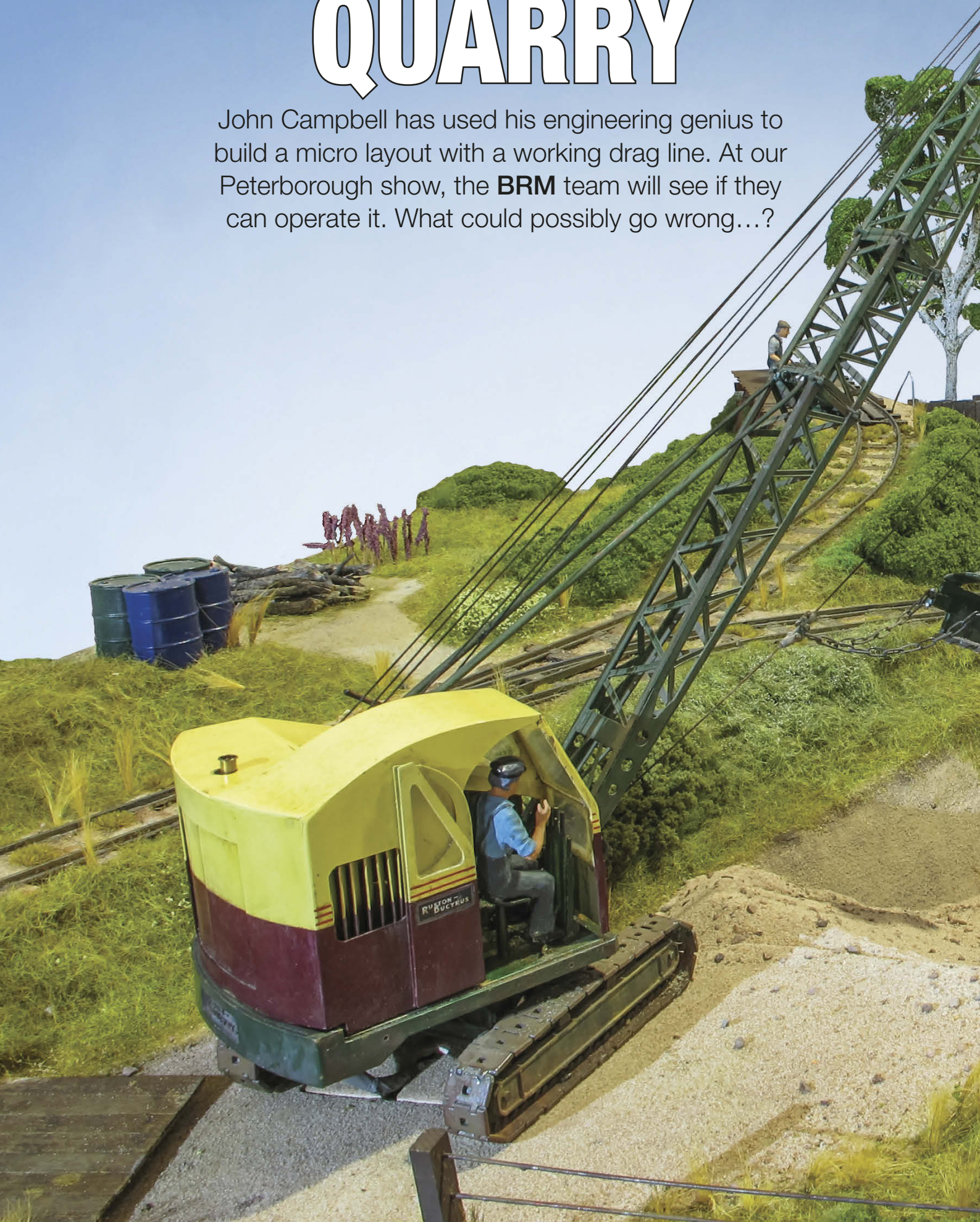
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CAMPBELL'S QUARRY

John Campbell has used his engineering genius to build a micro layout with a working drag line. At our Peterborough show, the **BRM** team will see if they can operate it. What could possibly go wrong...?





Strictly Come Digging

At The National Festival of Railway Modelling, John Campbell has arranged a little challenge for the **BRM** team. We are going to have to try and operate his working dragline to load wagons with sand.

This might sound simple, but we will have to juggle three different controls to scoop, lift and slew the bucket before dropping sand into a hopper wagon. John's team make it look easy, but they have lots of experience. We'll only have a couple of minutes to practise before our attempts.

Points will be awarded for:

- Skill
- Accuracy
- Lack of cussing

In addition, the wagon will be weighed after three scoops to see who has managed to transfer the most sand.

All our attempts will be filmed and broadcast live on our **BRM** Facebook page, and we'll combine the clips later for your entertainment.

The winner gets this magnificent glitterball trophy. See you there! ■



Get the Look

- 1 Mamod cast metal track. Locos are battery-powered and radio-controlled.
- 2 Trenarren models resin cast oil drums.
- 3 Scratch-built, operating Ruston-Bucyrus dragline.
- 4 Home-made rosebay willow herbs (make by pushing a glue-covered bristle into some coloured flock powder).
- 5 A mix of block paving and sharp sand from a builders merchant.
- 6 Scratch-built, working Ruston Bucyrus excavator.
- 7 Tree from Ceynix models.
- 8 Binnie Engineering hopper wagon.
- 9 Short grass, World War Scenics electrostatic grass. Long clubs, Woodland Scenics.

BRM TV

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PETERBOROUGH SHOW

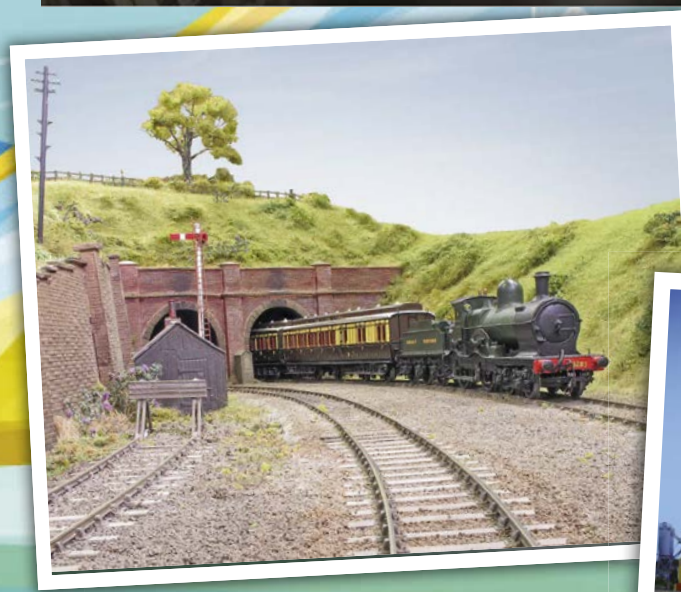
8TH-9TH DECEMBER 2018

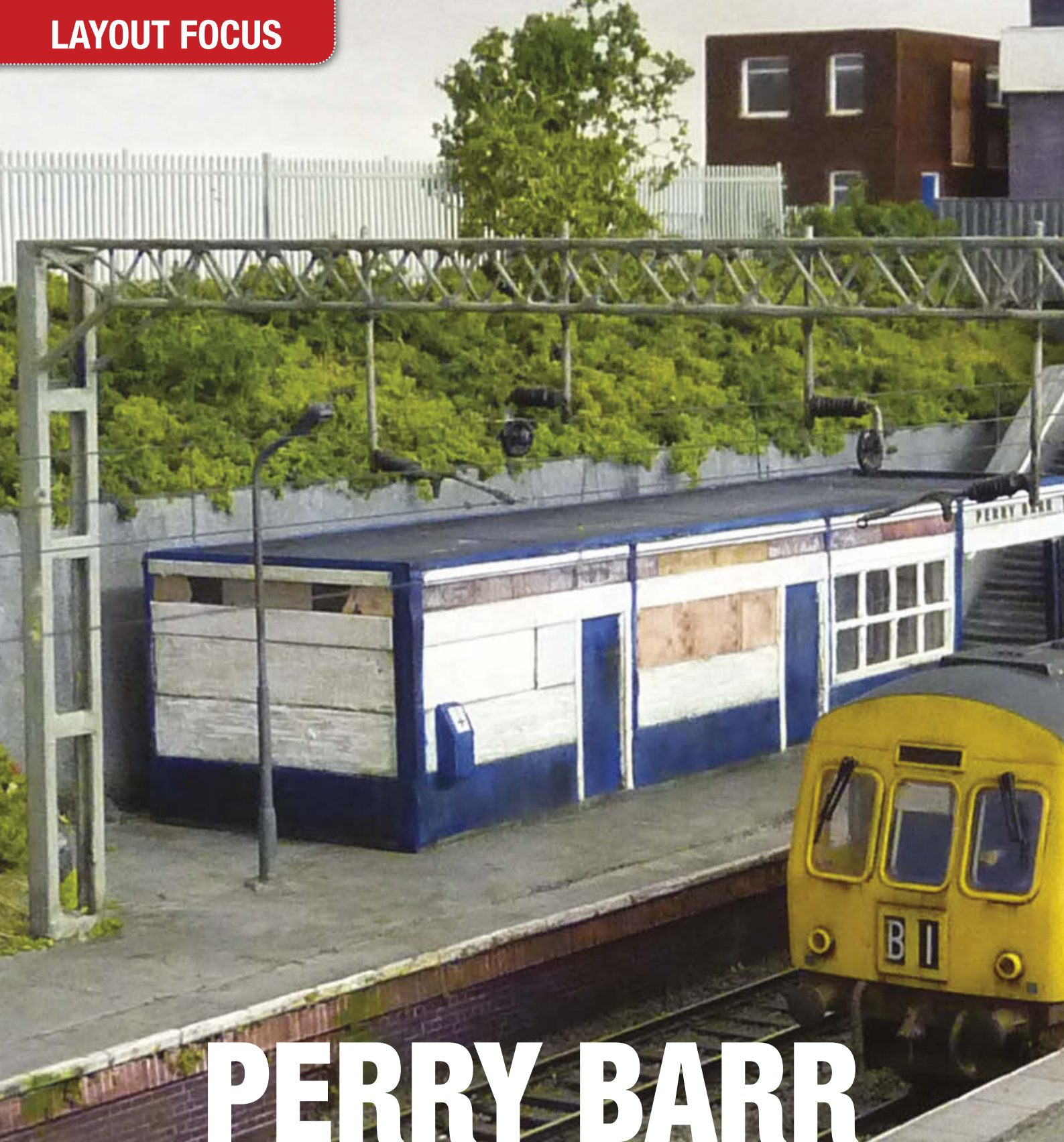
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PERRY BARR STATION

Words & Photography: Mike Lynch

The prototype for Mike Lynch's layout didn't win any beauty contests. Nevertheless, the scene is evocative of a particular era and, for him, is filled with childhood memories...



Factfile

Layout name: Perry Barr Station
 Scale/gauge: 4mm/00
 Size: 8ft x 2ft
 Era/region: 1970s/West Midlands
 Layout type: Main Line

An unidentified Class 101 leaves a haze of smoke as it travels beneath the overpass. A comparison with the photograph beneath shows how closely Mike has copied the decrepit nature of the prototype.



Copyright Steve Jones 2012
 312204 Perry Barr 15/05/78

PROTOTYPE INSPIRATION

Perry Barr's buildings were ugly to begin with – flat roofed, badly made and assortedly vandalised. One look at the prototypes shows what a fabulous job Mike Lynch has done in recreating them. For all that, his memories of the station paint a far rosier picture.

Perry Barr isn't the prettiest station on the network and has been described as one of the worst examples of 1960s Railway Architecture. It opened for operation on the July 4, 1837 and initially served the Grand Junction Railway that linked Birmingham with Manchester and Liverpool. The line, completed over a year before the London to Birmingham route, was arguably the world's first long-distance railway. This makes Perry Barr one of the oldest operational stations on record. In spite of this grand beginning, it was eventually reduced to nothing more than a suburban halt. A section of the route was electrified in 1966 as part of the West Coast Main Line scheme. This became a crucial link in the system and provided



In an era of pre-Intercity swallow colours, BR blue was king. Sporting only a mild weather-beaten look is 43168 as it snakes through the station with a non-stop service.



a diversion for main line traffic whilst maintenance work was carried out between Wolverhampton and Birmingham. Given its history, and that it is in the area where I grew up, the station seemed a rather fitting choice for my first serious attempt at a prototype layout.

BASEBOARD

The Baseboard is 8ft x 2ft and is a straightforward beam and board construction with lengths of 50mm x 25mm supporting pieces of 12mm MDF. Concrete trunking from Model Railway Scenery was laid between the tracks and a signal from Express Models was placed at the end of the Down platform. Whilst the concrete over bridge provided a convenient cut-off at the station end I had to invent some sort of break on the left. I decided to use a typical blue brick, WCML construction. Whilst compromises like this were made, most of

the layout is fairly accurate. I didn't just rely on memory alone and was able to source some brilliant photographs taken by Steve Jones in the late seventies. These were of the right era and just how I remembered the station as a lad.

Scenics

The platforms are from Scalescenes. The rest of the structural elements were cobbled together using a combination of Scalescenes textures, mounting card, 3mm ply and anything else that came to hand. A box structure of the station bridge was constructed first and covered in sandpaper in order to convey a concrete finish. The retaining walls were made from 6mm ply and, again, covered in sandpaper. This was all given a coat of grey emulsion followed by several coats of black wash to create a realistic finish.

The 1960s station building is made from

mounting card. The windows were made from thin card and painted white. I used an old plastic file cover to create the frosted glass and installed LEDs for night time operation.

The platform shelters were faithfully copied using a combination of card and Scalescenes textures. The paint effect was achieved by rubbing a glass fibre pen over the surface once it had dried.

Whilst the scenic area looked pleasing, my wife noted that it looked a little too rural for a suburban setting. The layout did need some sort of a reminder of its location, so I placed a factory structure behind the fence and included a picture of the old Polytechnic behind the station building.

Stock

I've had a lot of fun running my Blue and Yellow stock, particularly my collection of Hornby Class 86 variants. Most of my RTR



is second-hand, but after a bit of detailing and modification, I think they stand up rather well. However, the layout would have been meaningless without a WCML EMU. With no RTR examples available, I had little choice but to order a Southern Pride AM4 (Class 304) kit. These kits are not for the faint-hearted and I made rather a hash of it at the start. However, I learned a lot from my mistakes and managed to pull it all back from total disaster.

Conclusion

Perry Barr has certainly helped me recount the days spent on those platforms as a lad. Some of my fondest recollections, though, are of the many shopping trips to town on the train with Mom. On return, she would always take my sister and I for a slap-up meal in the 'Shell Bar' at the far end of the over bridge building. It had a seating area that was festooned with fishing nets and

life-size models of sea creatures. A few years ago we found one of the plastic creatures; a lobster, still wrapped up in newspaper at the back of one of Mum's kitchen cupboards. It struck me that the memories of those days must have been as important to her as they

were to us. Perhaps, that's one of the main reasons why we build layouts; an attempt to recapture the memory of those happy, carefree days of youth. ■



A train of 'liners' heads through the station at a steady pace. Weathering of the containers is very authentic, particularly the rust on what would be older models.



86218 *Planet* in Intercity Executive livery hauls a rake of Mk. 3 coaches, still in BR blue livery, at the head of which is a Mk. 1 BG. The locomotive would later lose its yellow cab roof and sides to IntercitySwallow livery, and in its later life would be painted into Anglia turquoise. Withdrawn in 2004, the locomotive now operates in Hungary.

Lobster, anyone? This life-size plastic creature originated from the Shell Bar which was located at the far end of the real overbridge building on which it sits. Mike found it at the back of one of his mum's kitchen cupboards, wrapped in newspaper - here it poses for the shot.



OVERHEAD LINE EQUIPMENT

Like all stations on the WCML, portal gantries are used to support the overhead wires over the platforms. Notable British outline products exist, but Mike made his own - here's how...



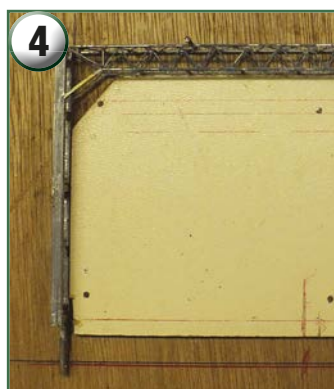
For the lattice elements, a piece of plasterboard was cut and lines scored in the paper covering to reveal the Gypsum underneath. These grooves were essential in keeping the longitudinal wires firmly in position during the making-up process. The wire was stretched in a vice to straighten it and prevent it from being too malleable. I used two diameters of wire; 1mm for the outer beams and 0.5mm wire for the angled connectors. The positions for the angles were marked on the jig to achieve the correct spacing. The wire was then cut to the lengths needed and tinned.



This jig was devised to join each of the portal sides together. Two pieces of 3mm MDF were glued together to make an inner spacer. Two pieces of 15mm x 5mm soft wood were used to hold the portals in alignment against the spacer. The lower bar was swivelled back to release the portal after completion. These were tacked down to a piece of tongue and groove. Once both sides were placed it was simply a matter of soldering pre-cut pieces of the 0.5mm wire along the top. I decided to solder only four straight connectors to give the structure some rigidity. Once washed down, each completed piece was given a good sanding to take the rounded look off the longitudinal wires.



The upright stanchions were the next item to construct. Two square 'U' channels were made for each of the uprights required. I used 0.75mm wire to achieve the correct scale width - four wires for the flat part and two wires for each side to form the desired 'U' shape. Once two channels had been completed they were placed opposite each other in a jig similar to that used for the portals. Small pieces of tin, cut from an old biscuit lid, were soldered at appropriate intervals to join them together. These give a good impression of the joining plates that are seen on the prototype. To get that crisp angular look to the channel edge, each stanchion was given a thorough filing and sanding once cleaned.



The stanchions were connected to the portal in another jig. This was a piece of 3mm ply, cut to the correct dimension and nailed to a piece of 12mm ply. Tacks were used to hold all of the elements in place. The top of the portal was soldered to the top of the stanchion. For the bottom angle connector, I used small pieces of brass 1mm x 1mm brass 'L' angle. It's a signature feature of the British Mk. 1 portals and using the brass certainly compensated for some of the inaccuracies found elsewhere.



The two 'H' girder-type portals were made in a similar jig. These were made from 3mm x 3mm brass section supplied by Eileen's Emporium; a necessary extravagance as nothing else would do. Small pieces of 1mm wide flat brass were used for the angle supports. It was a good decision to use quality products, and it certainly helped create a much more believable interpretation of the prototype. The brass was soldered at the joints making both portals relatively quick to make.

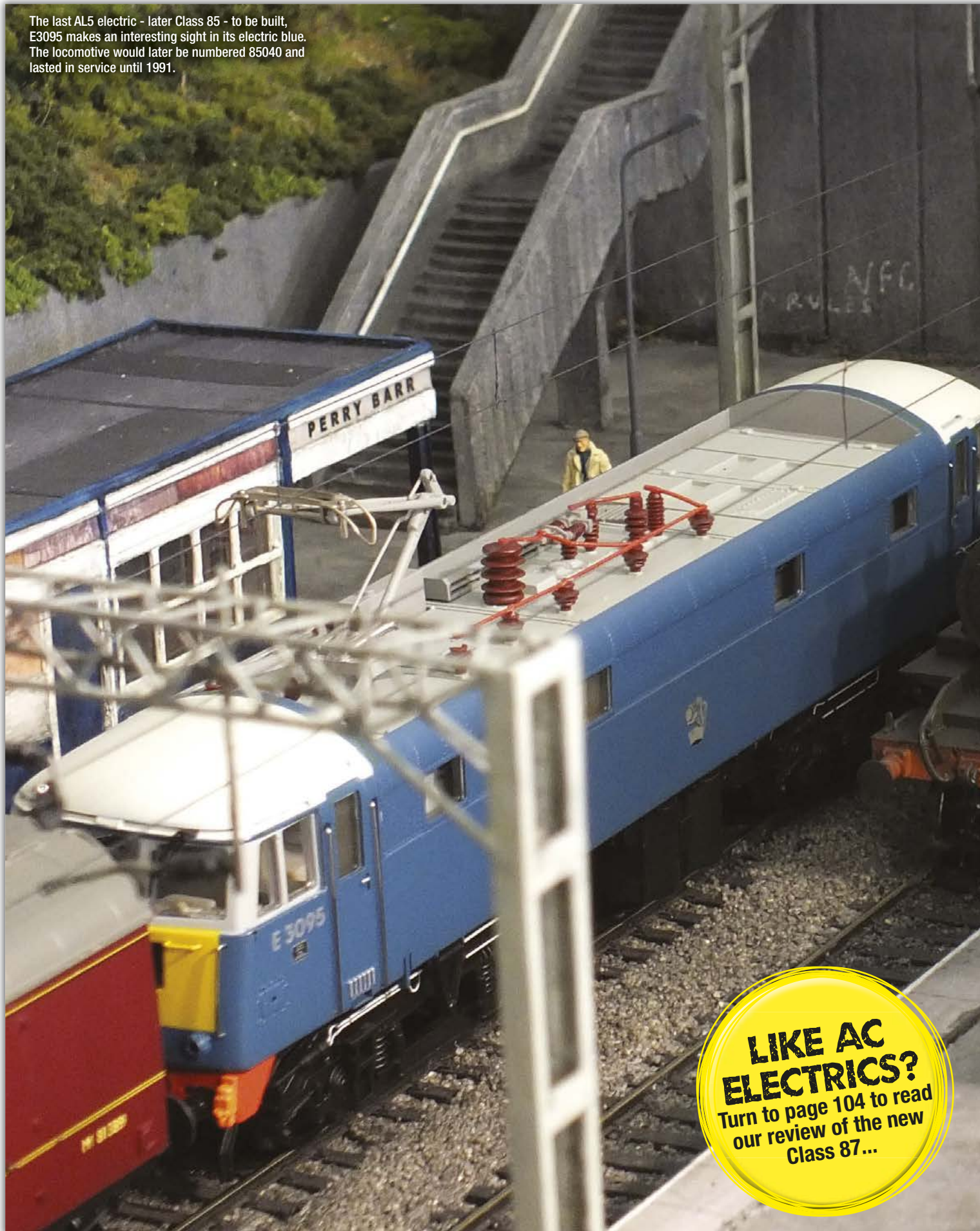


The registration and suspension arms were fairly simple to create by bending dressmaking pins to the desired shape. To lend these a bit of authenticity, some of Colin Craig's superb 4mm scale insulators were used along with hand wheels from a Brassmasters fret (P004). Two brass wheels were soldered together for the support pulleys; the arrangement providing a handy groove for the top wire to sit in. A small loop of fine electrical wire was also soldered to the end of each registration arm to hold the lower wire in place. The arms were finally soldered onto the portal using the measurements that had been drawn on the jig beforehand.

The final thing to do before finishing and painting was to add a small peg to the feet. This was made from coat hanger wire and soldered in place. Everything was given a final wash before painting. Once dry, they were test-mounted on the layout in holes that had been drilled in pre-determined positions. Once satisfied with the arrangement, the portals were glued into place and it was on to the installation of the wires.

Fine electrical wire was used in a first attempt, but it proved too tricky to work. Cotton therefore became an obvious choice, but instead of using the ordinary sewing type, I decided to invest in a roll of Embroidery Cotton. It's very sturdy and doesn't tend to 'fur'. However, and try as I might, I couldn't get the top support wire to sag in that characteristic way. Being so thin this is hardly noticeable. Small slithers of electrical wire were used as the hangers. These were glued on in oversized lengths, left to set, then trimmed.

The last AL5 electric - later Class 85 - to be built, E3095 makes an interesting sight in its electric blue. The locomotive would later be numbered 85040 and lasted in service until 1991.



**LIKE AC
ELECTRICS?**
Turn to page 104 to read
our review of the new
Class 87...

LAYOUT FOCUS

M1769, the first unit of this AM8 (later Class 308) makes a fine sight and adds great variety to Mike's collection of AC traction.

LNWR MODELLING COMPETITION



Perry Barr Station is entered in the LNWR Society's annual modelling challenge. See **BRM** September 2018 for further details - www.bit.ly/2PVrmGX - or head to www.brmm.ag/LNWRComp to take part.

3 details I enjoyed – Andy McVittie

1. OHLE

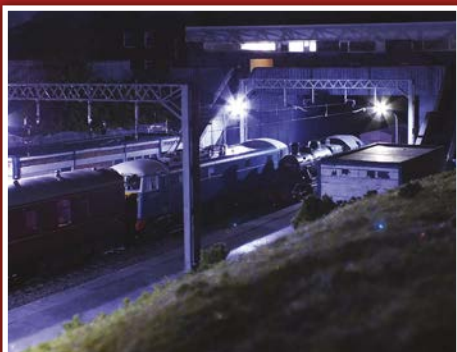
Mike's overhead line equipment is to be admired. Built from scratch, he made all the necessary jigs and even made it all look relatively achievable for the rest of us. Respect is most certainly due, and especially for those nicely taut wires.





2. NIGHT MOVES

A cloak of darkness does much to mask the unprettier elements, such as they existed at the original location. The layout looks great day or night, of course, but the slight lens flare effect adds much atmosphere..



3. THIS IS THE AGE OF THE TRAIN

Memories of the early '80s Jimmy Saville commercial notwithstanding - a great advert for automotive transport if ever there was one - its great to see the InterCity 125 on the layout. Mike's weathering adds to the general grubbiness of the scene too.



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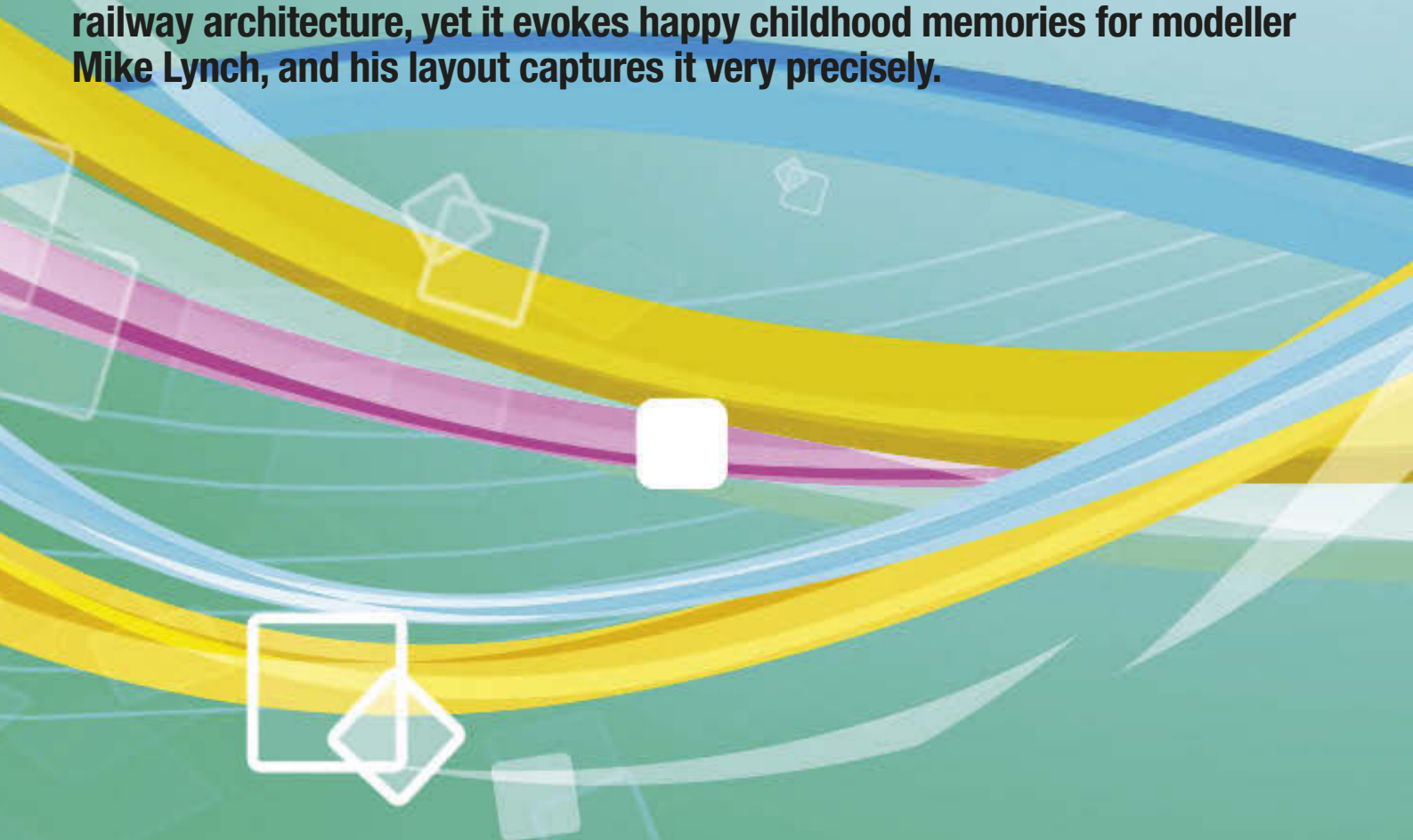
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PERRY BARR LAYOUT

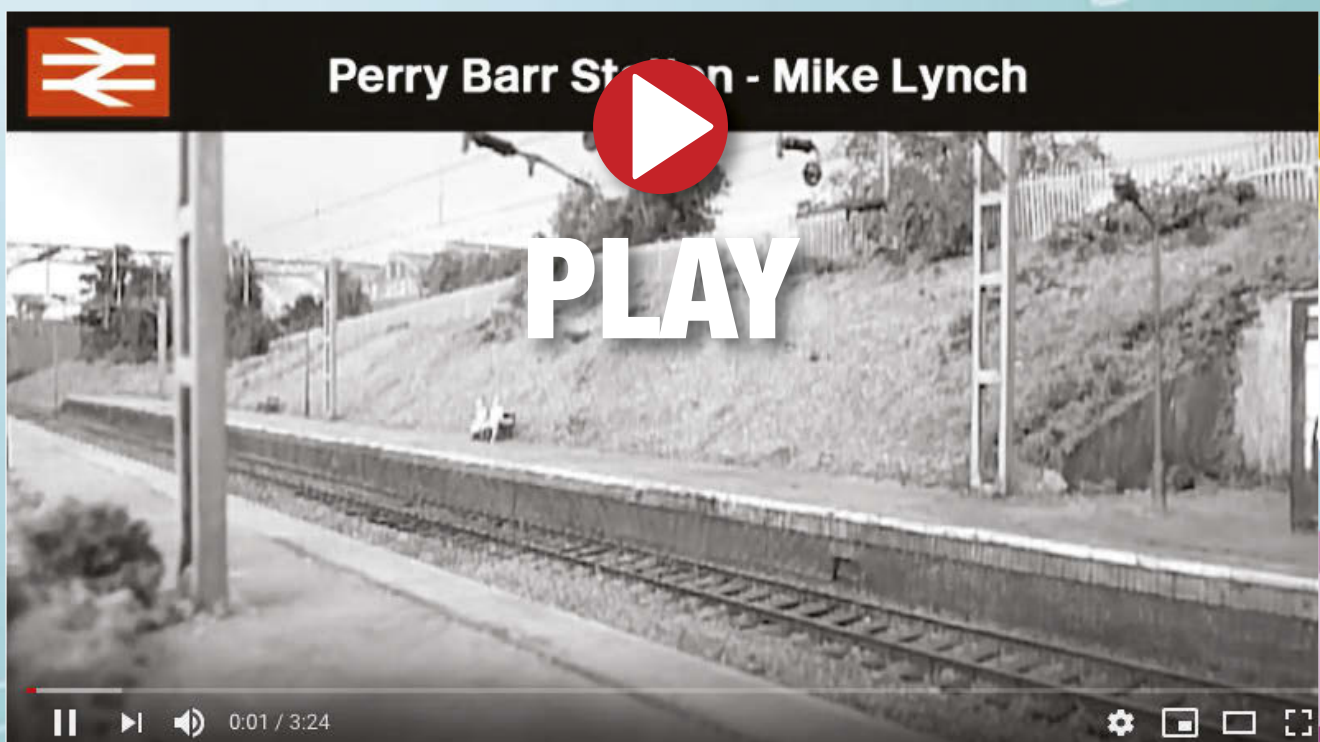
Birmingham's Perry Barr Station is perhaps an example of the very worst in railway architecture, yet it evokes happy childhood memories for modeller Mike Lynch, and his layout captures it very precisely.



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Harold's efforts make for an impressive rail vehicle. Though never fired in anger, Boche Buster was tested numerous times - imagine the recoil and sound of that!

BOCHE BUSTER

It's not often that one comes across a wow factor – but the Royal Armouries Museum of Artillery at Fort Nelson near Portsmouth was just that.

Fort Nelson is packed with artillery from the past and is superbly presented. On arrival you're met with a stunning 14in Mk. 7 naval gun, the class of which was in service between 1937 and 1945. In addition to the artillery displays there are others throughout the year. On our visit there was a stunning poppy 'wave' which included many which had been on display around the Tower of London.

My visit was planned so that I could see first-hand the gun barrel of Boche Buster for my model. Only the barrel now remains because the railway equipment has long since gone. I say gun, but I have it on good authority that this is a Howitzer. Its proper title is Ordnance BL 18 Howitzer Mk 1 on Railway Truck Mounting. A gun has a long barrel and is designed to be aimed at (and hit) a target. The Howitzer is shot over obstacles, hoping its hits are successful.

The Howitzer barrel is protected under cover and mounted on a proofing carriage. The carriage has limited transverse and elevation movement and was designed for testing barrels. The equipment became the last of the railway guns. Although it was built during WW1, the intention was to fire it across the channel. It was never fired in anger in either war.

THE MODEL

The wagon body is made from Styrene. As on my earlier exceptional loads wagons I had looked at converting Tri-ang 6-wheel bogies into 8-wheel

versions, but this wasn't possible, so everything is scratch-built. The axle boxes are modified Ivatt cl2 tender boxes, and together with the handbrake wheels, are from the Comet range of Wizard Models.

I decided to make the barrel detachable, as I feel the weight could affect the body when stood for long periods. In earlier models which included a long plate, I shaped the plates from aluminium then encapsulated these with styrene.

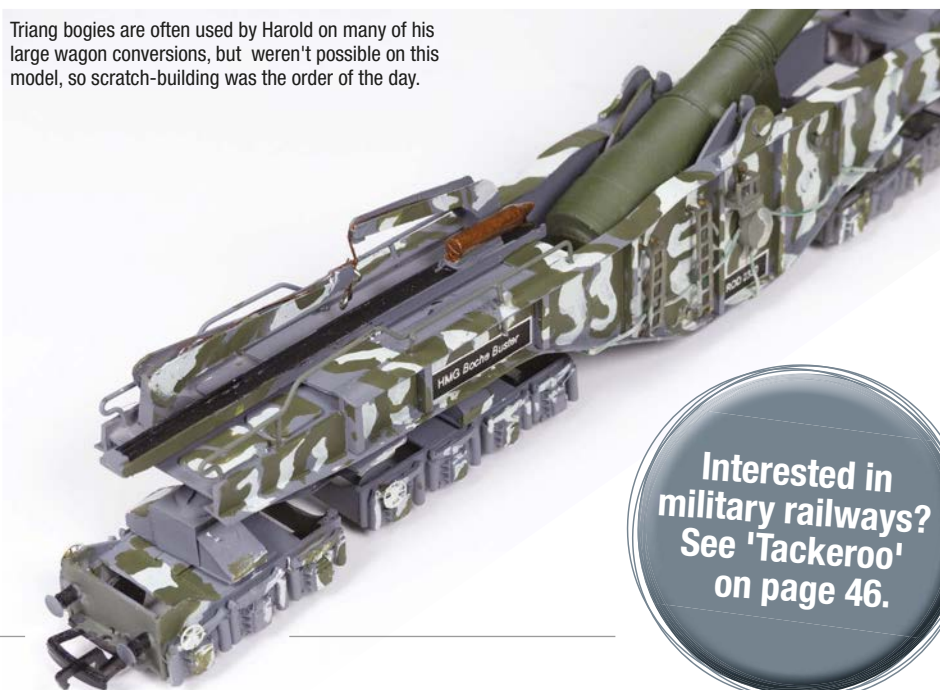
Four bolts were used for the six swivel points. The barrel is die-cast made by Adrian Swaine of

ABS models and was sprayed mid-green and the body in grey, a matt dark green being used for the camouflage. On the prototype a frame was built across the front and round the barrel to support additional camouflage netting. Despite an extended search I was unable to find out the wagon number.

My sincere thanks go to Philip McGrath, curator of Artillery at Fort Nelson for his help and advice. Also, to Adrian Swaine who provided me with a wealth of technical information on gun barrels.

Harold Smith

Triang bogies are often used by Harold on many of his large wagon conversions, but weren't possible on this model, so scratch-building was the order of the day.



Interested in
military railways?
See 'Tackeroo'
on page 46.



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Forum
RMweb.co.uk

BOCHE BUSTER... DID YOU KNOW?

Now located at the Royal Armouries Collection at Fort Nelson, object number AL.387 an 18in howitzer is the sole surviving element of 'Boche Buster', the 1918 Elswick Ordnance Company-built railway gun. Its undercarriage was scrapped after WWII, and at present it is fitted to a proofing carriage - a gun carriage with limited elevation and traverse intended for test firing.

After WW1 there was no use for large short-ranged weapons and they were placed in storage. In World War II the two wagons were used to mount 13.5 inch guns, which were capable of engaging targets on the German-occupied Channel coast of France. In late 1940, an 18-inch howitzer was placed on the railway mounting nicknamed 'Buster', previously used in WW1 to carry a 14in gun. It was deployed at Bishopsbourne in Kent on the Elham to Canterbury Line as a coastal defence as a precaution against possible German invasion. The gun's range was insufficient for cross-Channel firing and hence it was never fired in action.

Twenty-five men pose for the camera with 'Boche Buster' at Ashbury station during WWII. The howitzer would shortly be fired into Okehampton artillery range.



NEW TALENT

Hi Howard, we met at the Gaugemaster Model Exhibition where I signed up for **BRM** magazine for my son. Ewan is 5 and has had a OO gauge train set since he was three. He was lucky enough that his Grandpa built him a fold down set in his bedroom and over the last couple of years he has steadily added to it. He is train obsessed and as soon as he wakes up in the morning before school, he plays with them – the same when he is home. He is incredibly knowledgeable about all trains and teaches us a thing or two! He would love it if you featured him and his favourite locomotive Flying Scotsman No. 4472 on his layout.

Jane Cossins

Howard says: Hello Ewan - nice to meet you at the show! Nice railway, please send me more photographs if you add to your layout.



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GREAT EASTERN MODEL EVENT

Great Eastern Models is to host a club event at its upstairs showroom on Saturday October 13. The 32A Model Railway Club is to exhibit layouts and provide demonstrations on the day, with refreshments provided throughout. 10.00 – 15.00. Great Eastern Models, 199 Plumstead Road, Norwich NR1 4AB.

CAKEBOX CHALLENGE: VOTE NOW!

Voting for the winner of BRM's 'Cakebox Challenge' will open shortly this October. Many of you took up the challenge of building a small diorama that had to fit into the confines of an 8in square x 6in cakebox onto which could be found at least two railway-related items.

All entries to the BRM Cakebox Challenge must be submitted by Friday October 12. Meanwhile, the voting opens on RMweb from October 15 and will run until October 31, so hurry to enter yours. Voting rules will be explained on the website when voting opens. Don't miss your entry for a chance to win a £75 prize, courtesy of Humbrol.

The dedicated section on RMweb has been filled with more than 260 different and dazzlingly creative projects. From fields of corn with country lanes to scenes of industrial urban decline, we've seen many good projects and featured a variety in the pages of BRM. We got involved too, with Andy McVittie's 'Crimble Cakebox', Howard's London Underground tube diorama, Michael Russell's 'View Across the Tracks' and Phil's selection of projects. Digital copies of BRM can still be downloaded if you missed any of these projects. See some of the great entries to our competition on RMweb and vote for your favourites from October 15 – remember, you need to be in it to win it!

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IRON MAN - TOP TIP

In Phil Parker's article on stick fiddle yards (Spring 2018) he mentions cast iron angles from Squires. These are an excellent idea but Squires no longer stock them. A local engineering company is happy to buy stock bar and cut it. Using it with magnets can be useful to prop cardboard walls against the angle iron; the magnet locking the walls in place.

Patrick Wilmore

INK-JET DILEMMA...

I've been doing trials to produce my own transfers. So far I've produced viable transfers but my Canon ink-jet printer won't print white or shades of 'off-white'. The red has been sprayed with three thin layers of matt varnish and looks better than in the photograph.

An idea I am yet to try is to produce white text, highlighted in the wagon colour, say grey. Paint the area of the wagon white where the letters are to be, thus when the transfer is applied the white paint shows through the grey transfer - in effect, a negative frame. Have readers any thoughts on how I can print white transfers?

George Willetts



DCC FOR BEGINNERS?

Q I'm a DC user and new to model railways, but I can't help being amazed by the sound of DCC locomotives at exhibitions. I don't think I'd be able to build something to an exhibition standard, but I am seriously considering DCC. The trouble is, I feel the user interface on many DCC systems I've seen is complex and I feel put-off. Can you recommend a helpful system?

Ken Wilson

Howard Smith says:

Hello Ken, moving to DCC is a major step and isn't just about unplugging your DC controller and changing to a DCC one – learning the user interface is a big step too. I've experience of designing man-machine interfaces (MMIs) from a degree in software engineering, but DCC systems are rarely so visual as a computer screen with buttons to click. Often you'll discover that one button has multiple uses, much like the keyboard on your computer. The first time you use a system might prove quite frustrating too, with calls to the user manual on a regular basis. That said, as soon as you're accustomed to the way your new system operates, you'll be 'flying'.

If user interface is really something you prefer to have in a visual format, I'd look at the Sig-naTrak ACE-2 DCC controller by GFB designs. The screen offers a combination of colour-coordinated menus and sub-menus to keep the operation of points and accessories separate from operation of your locomotives or programming tracks. It has a 5A power supply which is more than enough for the needs of most layouts. Read my review of this system in the June 2016 issue of **BRM**, available from pocketmags.com/BRM



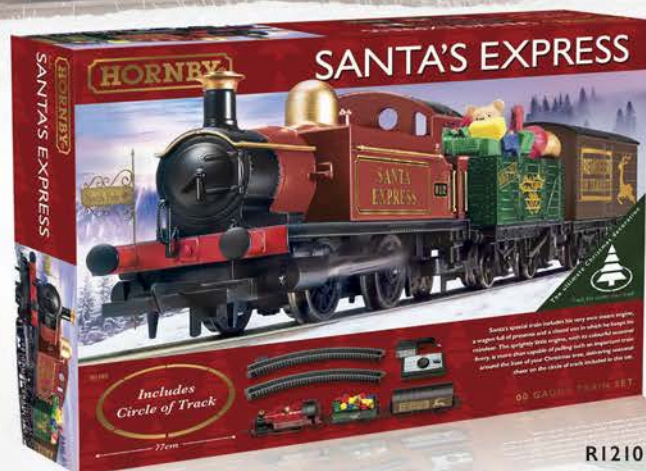


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SPOTLIGHT

Since the time set in 1938 was the summer, then the FLYING SCOTSMAN would be non-stop. That being the case, it would be hauled by a loco with a corridor tender - an A4. Though it did originally have a corridor tender for use on the non-stop, by '38, like all her A1/A3 siblings, it had gone to an A4. In this view, she has a streamlined non-corridor tender (correct for '38), so we'll have to say it's the winter, when the train still ran, but not non-stop. This loco is a modified Hornby A1. The train was built by Roy Mears and represents the brand-new, pressure ventilated stock built for the FS in 1938.



LITTLE BYTHAM LNER WEEKEND

With the LNER recently resurrected and the 80th anniversary of Mallard's speed record to commemorate, Tony Wright invited a few friends over for a prototypical running session...

I often wonder where the best ideas are conceived, developed and eventually come to fruition. I wonder, because I'm so rarely a principal participant in any of the three stages mentioned above!

2018 is a significant year in the history of the East Coast Main Line. After over 80 years we now have the London North Eastern Railway operating trains again between Kings Cross, Leeds, Newcastle, Edinburgh, Glasgow and Aberdeen. Not only that, 2018 also marks the 80th anniversary of Mallard's record-breaking 126 mph dash down Stoke Bank, when a Yorkshireman drove a steam locomotive faster than anyone else before, or since. It was on July 3, 1938, when Joe Duddington, Tommy Bray and Sam Jenkins were on the great duck's footplate as it went through Little Bytham at over two miles per minute! 1938 also saw the building of new, pressure-ventilated, teak-bodied sets for the non-stop 'Flying Scotsman'. And, in the same year the LNER also brought out of retirement its preserved Stirling Single to haul the 1888

The date is July 3, 1938, and driver Joe Duddington, fireman Tommy Bray and loco inspector Sam Jenkins are on *Mallard's* footplate as it flies into history, setting the world speed record for steam of 126 mph. The actual peak was a couple of miles further south, near the village of Carlby, but Little Bytham was the nearest station to the record breaking point. In this shot, it's doing well over two miles a minute! The loco is modified Hornby and the train (including the NER Dynamometer Car) was built by Roy Mears.

Tony Wright's
'Little Bytham' layout
is in the October 2014
issue of BRM. Visit
pocketmags.com/BRM
to read more...





Three of the team setting up for the day. From left to right: Roy Mears, Graeme King and Jonathan Wealleans.

One 'curious' working of the period was the daily milk train from Ingestre (near Stafford) to Kings Cross. It ran eastwards on the ex-GN 'withered arm' section between Stafford and Uttoxeter, then used ex-North Stafford metals to get to Derby (Friargate), thence ex-GN tracks through Nottingham and on to Grantham, where it picked up the ECML for a fast run south. Here it's hauled by a kit-built C1.



'Flying Scotsman' set, alongside the new one, at Stevenage.

With such a significant series of LNER anniversaries, how could any of these (and the ordinary trains of the day) be recreated in model form as by way of a commemoration? Well, in Little Bytham I have the 'stage' so to speak. Though, Little Bytham is actually modelled 20 years later than 1938. However, so little would have changed in the railway environment that only a few things would need altering to make it 'right' for the summer of 1938. But, all I have is the stage.

I've mentioned 'good' ideas, and it was suggested afterwards that to have a 1938 weekend on Little Bytham was my idea. I can categorically deny this with one observation. It turned out to be a good (a very good) idea! I think the idea originally came from my friend Tony Gee, who, seeing I had a little input on the layout 'Grantham', which runs 1930s LNER stock, suggested that same stock be brought 'down South', put on Little Bytham, and a full complement of trains



Class A1 No. 4479 *Robert the Devil* heads a Down express. The loco is a modified Hornby product (weathered by Tom Foster) and the magnificent teak train a mixture of kits built mainly by Jonathan Wealleans. It includes the Leeds Quint set and a Cinema Car as the first vehicle (built by Roy Mears).

run over a given weekend. Not only that, the event would be recorded on stills (my role) and also on video. What would happen to the material had not been decided, until a chance conversation with BRM's Editor resulted in this piece being written for the magazine.

The idea really grew from Tony's original suggestion, and I'm delighted how the members of the Grantham team bought-into the idea. That team comprises of Graham Nicholas (Grantham's principal builder), Graeme King (of resin fame), Jonathan Wealleans (master stock builder) and Roy Mears (teak reproducer extraordinary). Add on to that, Jesse Sim, over from Australia and (a real rarity these days) a young modeller!

The event was staged over two weeks. One weekend saw all the stock brought down and put in place (after I'd taken over a day to remove mine), and then, a fortnight later, the full running weekend. I used the time in between to take the stills and to practise with my new camcorder. The second Sunday afternoon was used to take off the 1938 stock and to carefully pack it away. Jesse then helped over the next couple of days to put my 1958 stock back on.

It's been a testament to how well the team which put Little Bytham together and a tribute to the builders of Grantham's locos and stock as to how it all ran so well. There



were almost no derailments and absolutely no failures. Processions of these wonderfully-evocative trains went past my camcorder's lens to be captured for posterity. The commitment to making the whole event the great success it became was incredible from the Grantham team, so, my most heartfelt thanks to Graham, Graeme, Jonathan, Roy and Jesse. It really has been most-worthwhile.

Finally, all proceeds from the LNER weekend will be donated to Cancer Research UK.

Run your own event

What it's proved is that, given the will and a high level of expertise, an event like the LNER weekend on Little Bytham became a reality. In excess of over 40, full length trains were assembled, run and filmed over a period of two weeks. The results speak for themselves. How viable might such an event be for someone with far fewer resources? Certainly, nothing on the scale of the 1938 Little Bytham event could be

contemplated without all that expertise and those resources, and it would be disingenuous to claim otherwise. However, if one contemplated such an event on a smaller scale, I think it's perfectly viable. Think of what's available from the model railway trade these days, especially from the RTR manufacturers.

May I take as an example, the modelling of an ex-Great Eastern branch line or branch line terminus? Many of these changed very little from GE days, right through the LNER period, through to BR days, including dieselisation. A given period could be modelled as a general scheme in OO, say BR in the '50s/early-'60s. Loco wise, there is much to choose from RTR in the form of a B1, D16, J15 and K1 from Hornby, a J39 (and a B1) from Bachmann, plus a forthcoming N7 from Oxford Rail, not to mention appropriate diesels from Hornby, Bachmann and Heljan. Appropriate carriages and goods stock from both Hornby and Bachmann is also freely available. Just think,

remove the diesels (and the K1), and run the same loco and carriage types, but this time branded LNER and you've recreated your own little 'time warp'. Almost nothing would need altering on the layout. Why not give something like that a try? ■

Tony Wright has further advice for prototypical running on the following page.

See the digital edition of BRM for more images www.pocketmags.com/brm

Such is the quality of today's RTR locomotives that a top kit-builder/painter would have to try hard to match this modified Hornby D16/3. All I've done to it is weather the frames/motion, add a lamp, fit a crew and put real coal into the tender. It tows a delightful mix of arcane carriages, built by Graeme King and Jonathan Wealleans from a variety of kits. You can't get this sort of stuff RTR. Tony Gee's lovely signals show up well.



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LITTLE BYTHAM:

MODELLING THE PROTOTYPE

As a counterpart to his LNER running session, Tony Wright extols the benefits of prototype modelling, with advice for those considering making this step...



I have written about my preference for always modelling a prototype. To me, it really is so much easier; all the principal decisions are made with regard to track layout, signalling, the size and positions of buildings, topography and civil engineering features. One has just to look at prototype pictures and drawings, or, if one models the current railway scene, just go and look, take photographs. I've alluded to the fact that prototype information might be hard to find, and, of course, there is always the question of space. Real railway locations tend to sprawl, especially when out in the country. No matter how much space one has, it'll never be enough, and 'selective compression' will almost certainly be required. Even if no actual prototype exists, at least the modeller should follow prototype practice, to ensure things are as 'right' as can be.

Promulgating my idea of modelling an actual prototype has brought criticism on occasions. My layout 'Little Bytham' needs over 30' x 12' to accommodate it in OO, and, even then, selective compression was required to fit it all in. It should also be stated that it is also very much a team effort, and has taken a considerable amount of time to reach fruition. With regard to the locos

and stock running on Little Bytham, it's taken me over 40 years to build/modify, so the construction of a main line layout should not be seen as a 'quick fix'.

I admit, my choice is entirely self-indulgent, and I've built models of what excited me the most in my trainspotting years. I've used experience gathered in over 40 years of modelling, both from my own input and as working as part of a highly-skilled team. Not many have those 'luxuries' at their disposal, and the notion of prototypical modelling can appear to be very daunting. In the case of Little Bytham, the layout is a testament to the team's ability, but, please, don't expect to build such a creation without numerous resources and a considerable amount of expertise. Those resources and that level of expertise have resulted in the model of Little Bytham, as it was in the high summer of 1958, when BR steam still reigned supreme and a 'traditional' railway scene delighted the eye. It looks nothing like that today – such is progress.

The last thing I want to do is to discourage modellers from following the prototype path. I've mentioned the resources required, and accomplishing the construction of

a large model railway where resources and time are in very short supply will be impossible. However, there are myriads of smaller prototypes to choose from, not to mention the choice of a smaller scale (N Gauge, for example) where space, particularly, is at a premium. This year alone, BRM has featured some beautiful N Gauge layouts, based on prototype practice, which have not required enormous amounts of space. They are inspirational.

No matter which scale/gauge is chosen, I think it's safe to say that 'We've never had it so good' with regard to what's on offer now model railway manufacturers. In my own case, my choice has always been to build my own locos and rolling stock, or, at least, substantially improve any items. I mention 'necessity', because, over 40 years ago, what was available RTR was pretty dire and the range was very limited. That is not the case today. Neither is it the case with all the other things one needs to successfully create a 'believable' model railway. Off-the-shelf trackwork is now extremely realistic and the ranges of signals, buildings, structures and scenic necessities have never been better. Indeed, one could almost build a model of, say, a section of the Settle & Carlisle in BR days using just out-of-the-box products. I say 'almost' because there will never be every loco type or example of rolling stock available RTR. However, there is plenty to be going on with.

I state again, that the building of a layout such as Little Bytham needs a lot of skill, resources and time. I hope such a layout can be viewed as being 'inspirational', but it also could be intimidating. No matter; my advice is to study a prototype that appeals to you, and exploit what's available to the full.

Above all else, have a go, as prototype modelling is very rewarding. ■

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Warwick and Warwick have an expanding requirement for early to modern collections of British and Foreign trains and train sets from large accumulations to items of individual value. Our customer base is increasing dramatically and we need an ever larger supply of quality material to keep pace with demand. The market has never been stronger and if you are considering the sale of your collection, now is the time to act.



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TACKEROO

Words & Photography: Andy York

As the centenary of the World War One armistice approaches, Andy Banks and Andy York research and then build a local military railway that lasted just three short years...



Factfile

Layout name: Tackeroo
Scale/gauge: EM
Size: 15' x 2'3"
Era/region: 1915-18
Location: Cannock Chase
Layout type: End to end

“modellers can have a part to play in recording the history of railways in a way which museums or books cannot realistically do”



The backscene was toned to match the model's scenery to try and give a reasonably continuous flow to an open barren scene with a vista that reaches to the far distance. There was little vegetation growth on the high heathland at that time, which made it even more of a challenge.

Some years ago, the then director of the National Railway Museum said to me that modellers can have a part to play in recording the history of railways in a way which museums or books cannot realistically do. It is hoped that as modellers we have an interest in the real railway, current or historical and can research subject matter to produce the best interpretation possible of the subject matter. Often this is limited in the mind of the modeller as to what trains ran in that place and hopefully the relevant structures, but it's commendable when modellers replicate the traffic and operate the model based on evidence. Of course, it is possible to have a wonderful layout which ignores all of these things, but then it is just a model railway and not a model of a railway.

We were aware of the short-lived Cannock Chase Military Railway, which was practically on our doorstep, but it was evident how little we knew when we looked at the available source information – any map representations were vague to say the least, and the imagery confined to picture postcards that the recruits sent home to their loved ones. Our research took us out to the field; to personal insights of the environment, to long forgotten historical documents and to contractors' drawings and specifications.

At the outbreak of war, the call to arms was taken up by the eager lads of villages, towns and cities around the nation to support the standing army. Keen and patriotic the recruits may have been, but these were young men who were not ready for war. They all needed to be trained, so the pre-organised plans to build and manage the throughput of training camps around Britain were speedily implemented.

The War Office gained permission from the Earl of Lichfield to use the high heathland of Cannock Chase which formed part of the state for the purpose of establishing two training camps, Brocton Camp and Rugeley Camp. To assist in the construction and supply of the camps, which could accommodate 40,000 troops at a time, a railway was constructed by the West Cannock Colliery Company. The line was started from the colliery sidings on the Walsall to Rugeley L&NWR line climbing steeply onto the Chase at Brindley Heath and wending its way across the barren plateau before descending from Coppice Hill to reach the sidings at the L&NWR station at Milford & Brocton. Gradients to reach the top of the Chase and traverse the occasional



Subscribe to see the 'Tracks to the Trenches' event marking the centenary of WWI on the BRMTV DVD. Turn to Page 80 now to find out more





Rutted, dirty and dusty unmade roads serviced parts of the camp, which was achieved by shaping away the expanded foam, airbrushing with dusty tones and highlighting with weathering powders.

interrupting valley were as harsh as 1 in 20. This railway was not for the movement of troops, who would be marched from the stations at either end of the line, but for the supply of construction materials, coal, food supplies, fodder and munitions.

The locomotives were a collection of mainly small-wheeled 0-6-0 tank engines from a variety of manufacturers commandeered from surrounding collieries. There are very few photographs of any of the engines working on the line, but through acquiring copies of detailed maps showing the points and loops on the 10-mile single-line railway we can surmise how the line would have been worked and from which direction traffic would have originated. In style it would have been similar to light railway operations, both in terms of the track used and the operation of workings, for there is no evidence of any signaling beyond occasional huts for flagmen. The operation of the line moved from the Colliery to the Railway Operating Division after 1915.

So, what is 'Tackeroo'? No-one seems to know the origin of the name, but it is referenced in a postcard from one of the many tradesmen who were transported in open wagons to their work sites, in a poem entitled 'The Tackeroo Express'. The model is a compressed representation of some key features on Brocton Camp, namely the large ordnance store building and the water tower, which is identifiable in many postcard pictures of the camp, and smaller buildings such as the flour store, shower and toilet blocks, guard room, a WH Smith's store and accommodation huts.

Trackwork

Through reference to images from other camps and on-site research, Andy Banks determined that flat-bottomed 55lb rail spiked to 9-foot sleepers was used with interlaced sleepers under pointwork, so there was no alternative for him other than to build from scratch with Code 55 steel rail on copperclad sleepers. The trackwork was built on the ply trackbeds and then secured to the XPS terrain, except that wasn't very good with some suspect undulations, so Andy took the sensible step of removing the foam from beneath the trackbed and supporting it properly with timber uprights and support at the board ends.

Postcards from the camp often included groups of people and even activities. One soldier drew his own cards to send home illustrating and describing camp activities.



Buildings

The building of the munitions store and water tower has been previously covered in BRM November 2017 and April 2017 respectively. Andy Banks is a dab hand at resin casting and so made moulds for key modular wall components to produce the accommodation huts of which several were needed with measurements taken from official contractors' drawings whilst individual structures were scratchbuilt from plastic card.



A training camp must have had to bake a lot of bread as we have seen many pictures showing the activity, a fairly easy way of producing a lot of food in a remote location.

Find out how Andy York built this water tower in the April 2017 edition of BRM. See www.brmmag.co.uk/2PiqvPe



Cameo scenes appear around the layout, from a doctor and nurse talking to wounded troops, bread being taken from the bakery back to the store and a potato peeling session. Andy Banks scoured suppliers for suitable figures and poses, during the time of our portrayal of the scene in 1917/8. The New Zealand Rifle Brigade had returned from the front and the 'dinks', as they were known, had a distinctive pinched hat style which necessitated a few head transplants along the way.

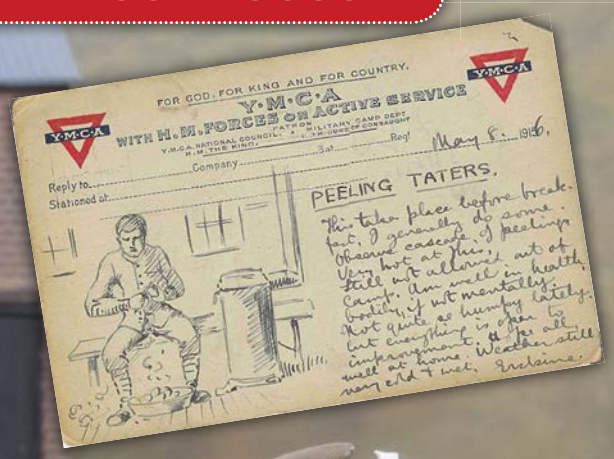
Scenery and Presentation

Cannock Chase was one of the first places in Britain to be designated an Area of Outstanding Natural Beauty. Today the open heathland mixes with forestry, but the old postcards show barely a tree in the areas we have modelled. This gave us several challenges, with the trains appearing on scene through holes in the sky, and how to capture the subtlety of vegetation and produce a plausible but identifiable backscene. We've had to live

This branch of WH Smith & Son has helped us understand a lot more about life on the camp, producing postcards for the troops to send messages home across the Empire.



Whilst numerous good exhibition layouts include reference material we thought we would go a little further to give some of the atmosphere of life in the camp, with end display boards and fasciae representing weathered timberwork from the huts. The artwork was produced from high resolution texture files for the woodwork overlaid with images and maps from the camp to assist with interpretation and information. The files were sent to a local printer who produces graphics for commercial exhibition stands to be printed onto Foamex board. The frontage of the layout is dressed with hessian; one day we may get around to stenciling some appropriate markings on it.



Bandsman Erskine Williams sent hand drawn postcards home showing camp activities, pictured here peeling 'taters.

with the first, with use of some structures at one end, the second by use of materials from different suppliers and a variety of techniques including hanging basket liner, static fibres and very fine scatter materials to portray flowering and decaying heathland plants. For the backscene we couldn't use contemporary photographs due to afforestation so, using Photoshop, the topography was recreated digitally without the coniferous areas and toned to match the physical scenic areas of the scene fading out into the distance. Head for the spot known as the Glacial Boulder on Cannock Chase and you can see the view from the model's location.

100 years

The last four years have marked significant events of the war and part of that legacy came to the Chase when the New Zealand Rifle Brigade were posted there to train more troops and guard the prisoner of

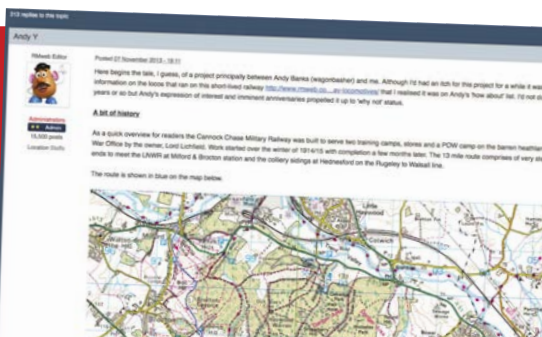
war camp, which housed 6,000 Germans. The NZRB had a momentous campaign in the Battle of Messines in Flanders, where the German Lines were undermined and massive underground explosions, which could be heard in Whitehall, were detonated and advances made preceding the horrors of Passchendaele. The Kiwis and the POWs made a topographical model of Messines at Brocton Camp, which had gradually become overgrown and was literally unearthed in 2014 by archaeologists. The sad tale from the end of the war is of mounting deaths in the camp, not from guns or Mills' bombs but from Spanish Flu. ANZAC Day is commemorated at the Commonwealth Cemetery alongside the path of the railway

where British, New Zealanders and Germans rest together, with headstones recording the dates either side of Armistice Day.

Summary

We haven't told you much about locomotives and trains. That's deliberate, as the model is more about a moment in time and the people that were there – the railway just happens to be there. We know it's not an exhibition layout to entertain with processional train movements, although the shunting can be very enjoyable, but we're happier to talk to people who have an interest in the era and area than be just another invented model scenario. ■

FOLLOW TACKEROO ON RMWEB:
www.brmm.ag/Tackeroo



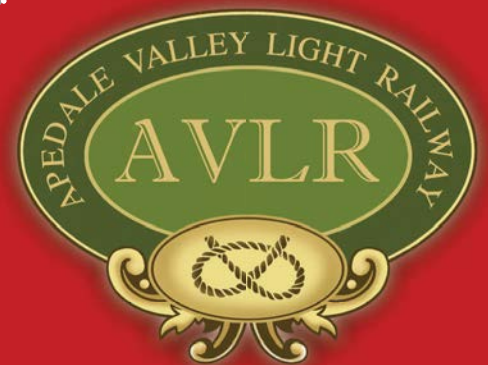


ABOVE: Blocks of accommodation huts would be supported by washblocks, showers and the latrines. I don't suppose the weary looking soldier would wish to take his cap off and put it down.

N 18

The Tackeroo Express
A lot of Jolly Carpenters from many another place,
Went up by special Train one day to work on Cannock Chase,
The gradient is very steep, of curves there are a few,
And all the lively workers they entrain at Tackeroo.

Our Tackeroo Express, Our Tackeroo Express!
The scenery is wonderful as you all confess,
Everything is splendid, especially the Mess,
From the sparks that fly, as we pass by, on the Tackeroo Express



MARK THE OCCASION

Now in its centenary year, the World War One Armistice is marked on November 11. The Apedale Valley Light Railway, operated by the Moseley Railway Trust, has organised a memorial event taking place on November 10th & November 11th from 11:30 am - 4.00pm See www.avlr.org.uk for more details, and read all about the laudable activities of the Moseley Railway Trust at www.mrt.org.uk



How to...

DESIGN AND BUILD A WATER TOWER

Andy York creates a large and intricate water tower from scratch for a forthcoming layout project. Research and planning was key, as he explains.

For a Great War layout based on the short-lived Cannock Chase Military Railway I'm planning to build, a friend and I were looking at a looming deadline and a complex water tower structure.

We decided to explore laser-cutting to give a speedier result than traditional, styrene

or brass construction. Although primary research material is available, we found that scaling down the model tower was necessary to avoid overpowering the rest of the layout. The model we devised now better fits the space available and I'm pleased with the near-finished model.

I made some mistakes in the design, but these were rectified at the building stage. It proved an interesting exercise for my first time having bespoke laser-cut parts made. The cost is higher than styrene or brass sections, but it was assembled faster with consistent and tidy results. ■

Research and reference material



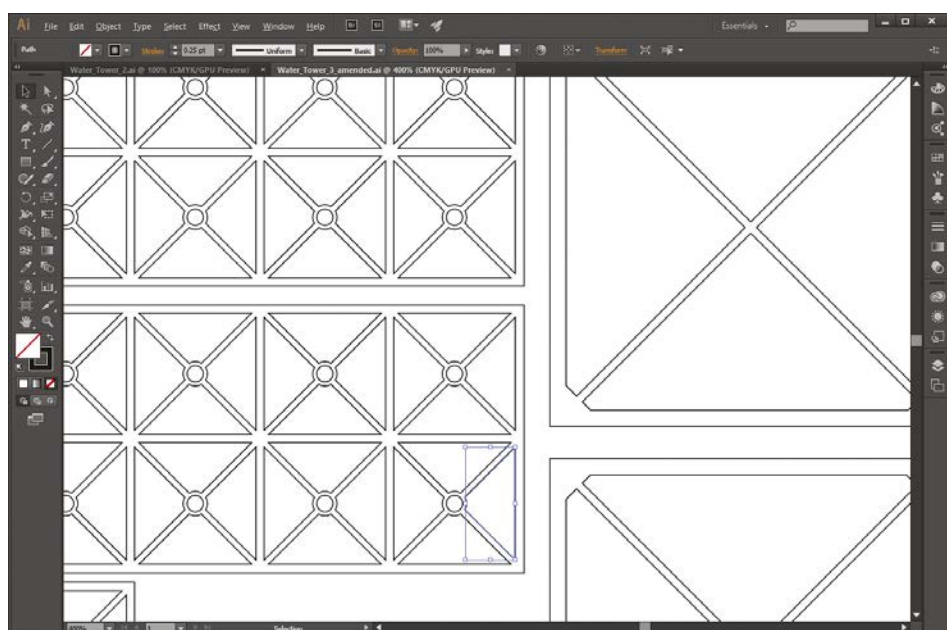
Local postcards were produced for the troops at Cannock Chase to send home. They've been an invaluable reference source for the project. This panoramic view of the heathland camp shows the water tower high above the surrounding buildings.



After the war the camp was cleared and the water tower was re-configured and moved to Sedgley Beacon between Wolverhampton and Dudley. This picture gave us the size and style of panels along with information on the bracing and girder supports for the tank.

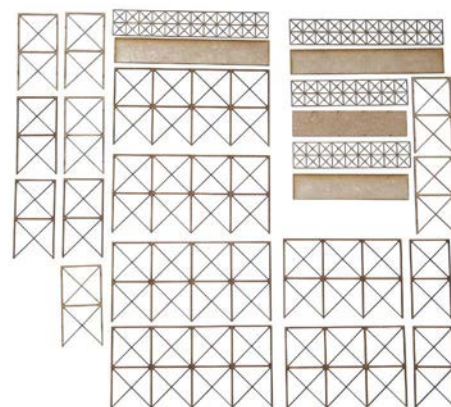


The concrete pads onto which the water tower legs were once bolted still exist, which gave us a measurement of 12ft centres for the supports.



I used Adobe Illustrator to create the two-dimensional drawings of the individual components. It's not as daunting as it first appears. This model has a lot of simple geometry which is duplicated. Free software such as Inkscape can be used as an alternative and support is available on RMweb for 3-D printing and laser-cutting.

Laser-cutting

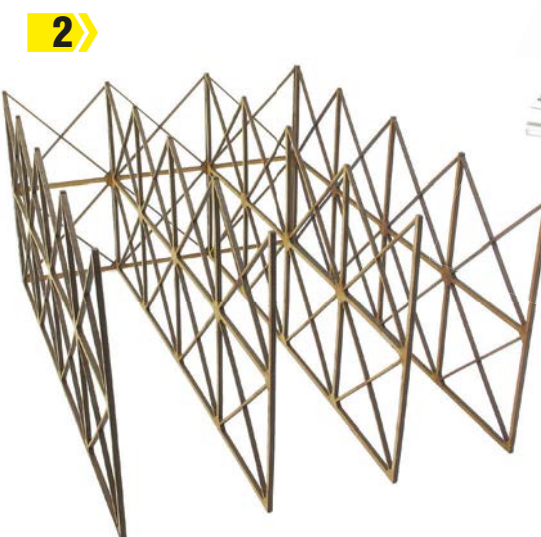


The drawings were sent to Intention, a 3-D laser-cutting firm. Its owner is on RMweb under the username 'BrushType4' (see also intention.co.uk) with a topic showing many projects that he has undertaken. I specified 1.5mm MDF as the material for this. In hindsight, 1mm MDF would be finer. I'm pleased with the quality of the cutting and the speed of turn-around. If you've designed parts you shouldn't need instructions, but it's worth a dry run before getting too far ahead.

Assembly



Assembly starts by joining a long side and an end of the supporting ironwork. PVA glue takes too long to set. Other adhesives were tried on test pieces, but I settled on thick grade Expo superglue which holds in 10-15 seconds. Clothes pegs are useful to hold parts.



The remaining long sections are glued to the end piece with the thicker upright sections butted to each other.



At the design stage I hadn't given consideration to the width of the intermediate ironwork pieces, and it was necessary to cut off the upright sections leaving the horizontal and diagonal trusses.

PRACTICAL BRM

4»



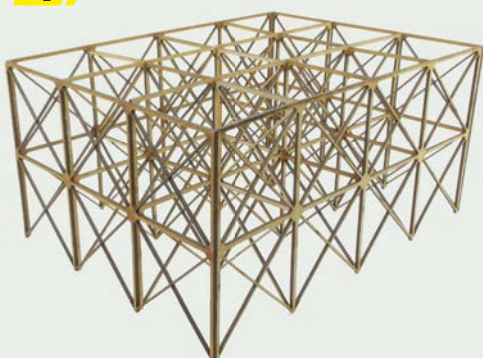
Each intermediate section on the ironwork is attached to a neighbouring upright section, one side at a time to guarantee precise positioning.

6»



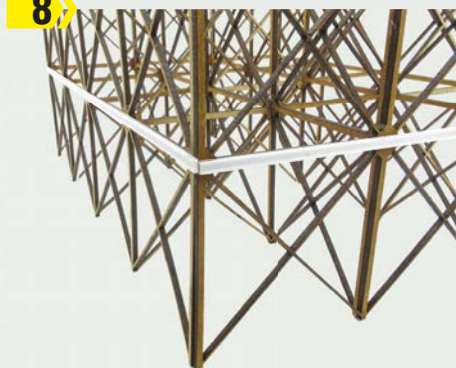
I couldn't resist the temptation to test the structural integrity of the frame once dry. Just 22g of MDF happily supports 1.6kg of tins!

7»



Once the single intermediate sections are glued, the other end can be glued to make the structure square.

8»



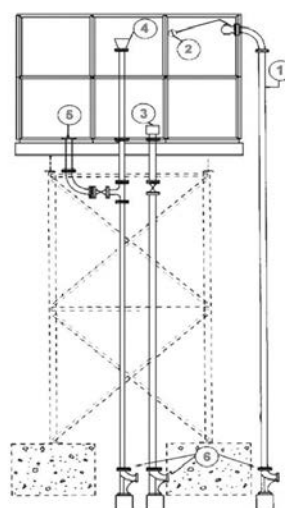
U-section plastic strip (2 x 1mm) is glued to the horizontal truss halfway up the sides.

5»



Once the single intermediate sections are glued, the other end can be glued to make the structure square.

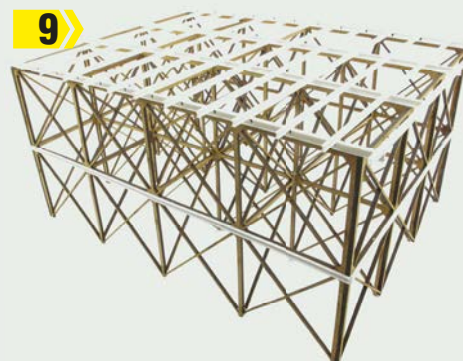
What's inside a water tower?



The manufacturer Braithwaites has produced steel water tanks since the 1920s in Newport, South Wales. It kindly supplied reference diagrams showing the functional parts of a water tower.

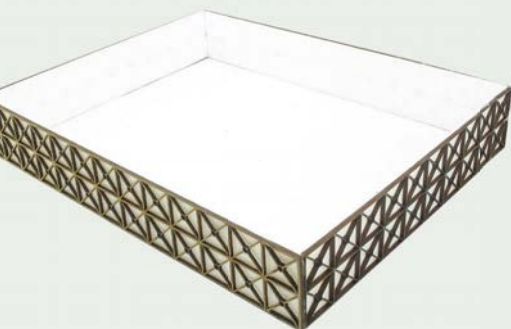
- 1 – Rising main inlet pipe
- 2 – Ballcock
- 3 – Outlet pipe
- 4 – Overflow with coned top
- 5 – Washout pipe
- 6 – Valves and stopcocks

9»



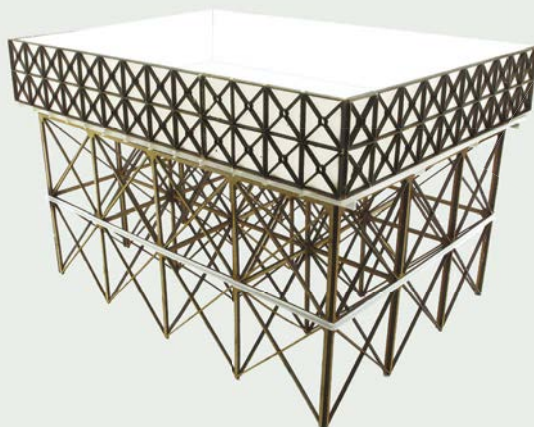
H-section plastic strips (3 x 2mm) are glued to the long sides of the ironwork to form longitudinal beams. H-section plastic strips (2.5 x 2mm) are then glued across the beams to form lateral supports.

10



I had designed the tank panels one panel short in each direction, so each side and end was lengthened using waste material. These panel frets were glued onto 0.030in plastic sheet, cut to size, and a suitable bottom was cut for the tank accordingly.

11



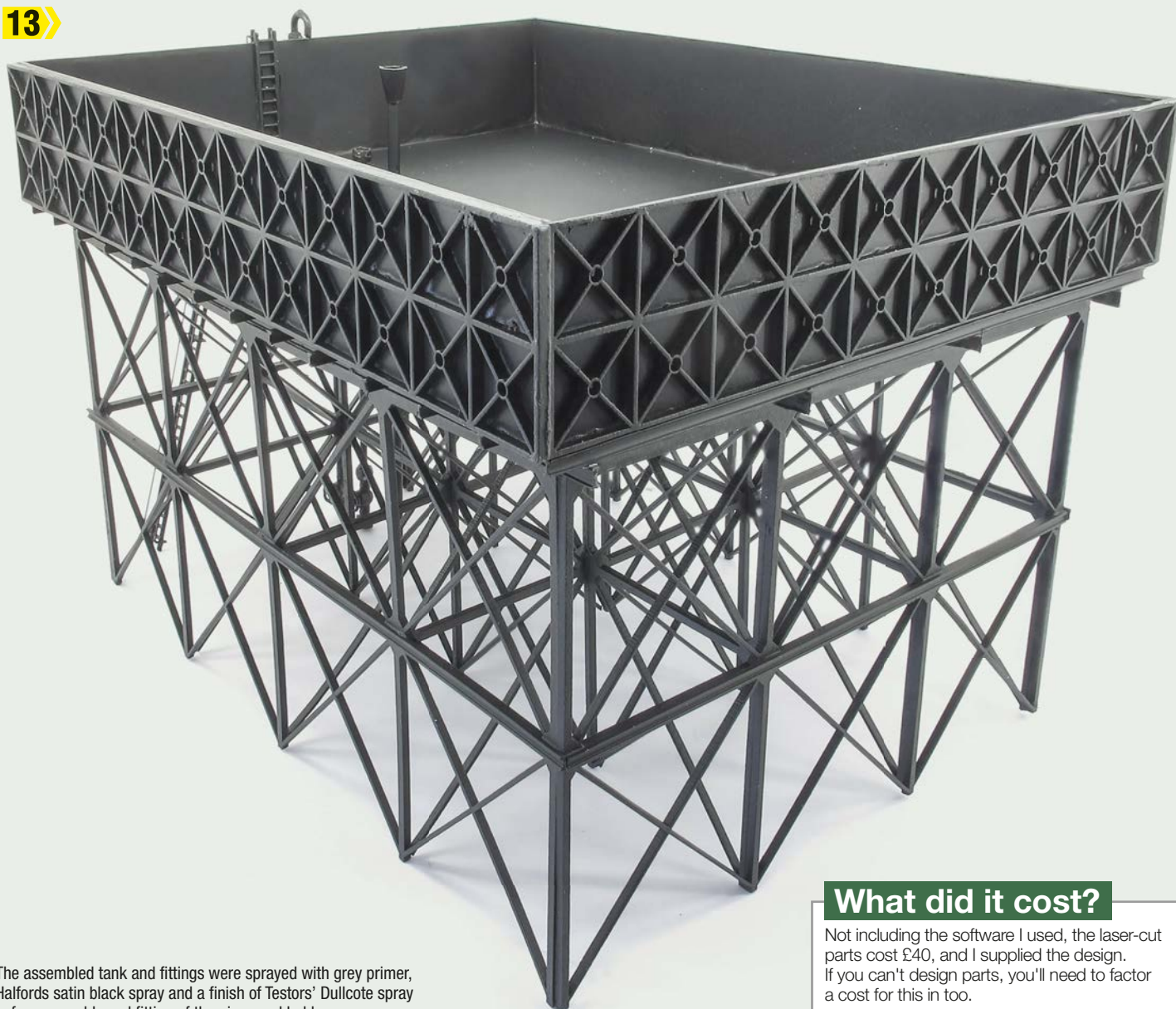
The water tank is test-mounted onto the supporting ironwork to ensure everything is square and level.

12



Inlet and outlet pipes with valves and junctions were created from Knightwing's UN3 pipe set. Ladders are 1:100 scale from Plastruct using 0.5mm brass wire. Slaters' Plastikard treadplate sheet is cut to make the platform.

13



The assembled tank and fittings were sprayed with grey primer, Halfords satin black spray and a finish of Testors' Dullcote spray before assembly and fitting of the pipes and ladders.

What did it cost?

Not including the software I used, the laser-cut parts cost £40, and I supplied the design. If you can't design parts, you'll need to factor a cost for this in too.

UP THE LINE

Built to a tight deadline by *Kevin Hughes*, this impressive 0-16.5 gauge model recalls the devastated landscape of northern France during the First World War.



FACT FILE

- **Layout Name:** Up The Line
- **Scale/Gauge:** 7mm:1' scale, 16.5mm gauge
- **Size:** 21' x 9"
- **Era/Region:** Northern France, 1915
- **Location:** Portable
- **Layout Type:** End-to-end
- **Control:** Gaugemaster Prodigy DCC
- **Photography:** Andy York

7mm
SCALE



Against a backdrop of destroyed houses, a WD Hunslet 4-6-0T passes through the village with a train of supplies.





An injured 'Tommy' perches on a crate, waiting for a ride in the AEC ambulance.

Although it's not based on any specific location, I have used many contemporary images from the area around Arras.

When it says in job adverts 'someone who works well to targets' - that is me! I had been building up a small collection of War Department locomotives and stock for some time but lacked anything to run them on. When I saw a post on a narrow gauge forum asking for First World War themed layouts for the Apedale Railway's 'Tracks to the Trenches' event in September 2014 I volunteered immediately. Eighteen months to build a layout - no problem! Well I did it but not much DIY happened on the house during that time!

Much of the detail is scratchbuilt in wood, with extensive use of that most useful resource - coffee stirrers.



The model is based on the highly efficient system of 60cm gauge light railways that were developed in the latter half of the First World War. They were built to supply front line troops with vast variety of stores they needed on a day-to-day basis. Although not based on a specific location, I have used many contemporary images, mostly from the area around Arras, as inspiration and have recreated a number of scenes. My aim was to create a very authentic atmosphere, fairly open and uncluttered without any obvious clichés and above all to be respectful to the people who carried out these, often very dangerous, tasks.

My previous attempts, many years ago, had been in OO9 but I was never happy with the running quality I achieved; it would be interesting to see what I can manage now though with modern N gauge mechanisms. So, I decided to move up to 7mm scale. The correct track gauge to represent 60cm is 14mm in this scale and this is widely modelled as O-14.

Although the stock would have been no problem to convert, I already had several locomotives built that would have been difficult to convert. Finally, I felt that given the time available, building the track to the standard I required would be beyond me. The decision was therefore made to use Peco O-16.5 gauge track. As this is heavily weathered and mostly ballasted over the sleepers, the compromise is not noticeable to most people.

However, the track has not been without its problems. Due to the small size of the wheels used, I have found a tendency for them to fall into

the frog gap of the points, causing stalling at low speeds and rather too many derailments. After much experimentation, the solution was to solder two small strips of nickel-silver into the gap and then flood it with solder. This was then cut back with an old hacksaw blade and files so that some support for the flange is provided.

Much work was also involved in converting the points to run reliably with DCC so that all parts are independently powered and automatically switched by the point motors.

I initially just used fishplates to join the track at the baseboard joins but quickly found this to be inaccurate and a major task to get all three parallel tracks aligned correctly. The solution was to relay the track across the joins in one piece over a large piece of PCB board firmly glued and screwed on each side. The plastic sleepers were removed from the central section and the rails then soldered to the PCB board. The PCB and rails were then laboriously cut across, blunting several razor saws!

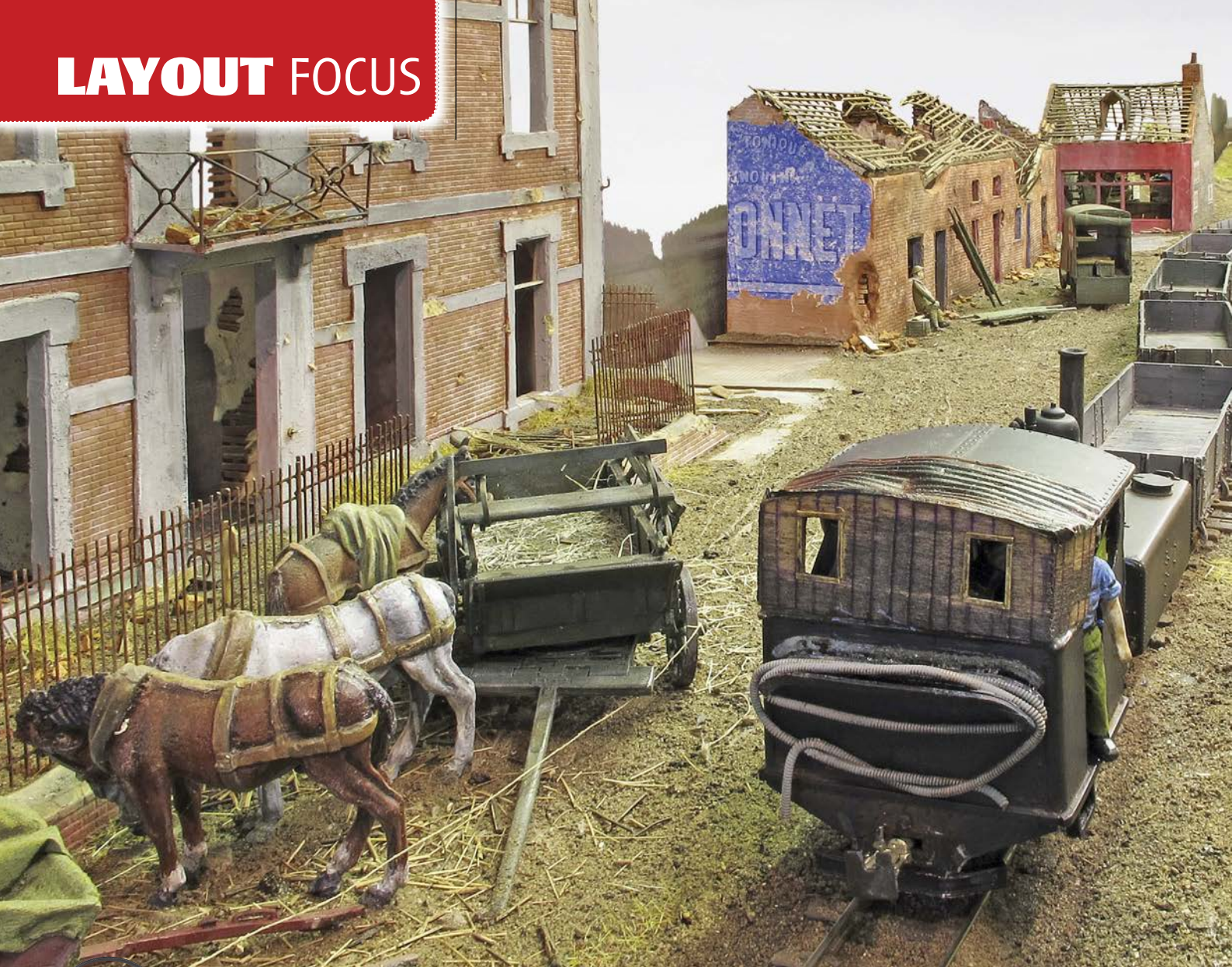
After gapping to insulate the rails the whole was covered with ballast which is dried and sieved soil from the garden; also used for roads and ground cover. This is definitely one aspect which would have been easier if I had done it correctly the first time. Working amongst the scenery and buildings has made it rather more interesting than I would have liked!

The layout is powered by a Gaugemaster Prodigy Advance DCC system. Points are operated with DCCconcepts 'Cobalt' motors and can be switched either



Cleverly modelled ruins and a hand-painted backscene disguise the fact that the layout is only 9" deep. The artillery shells and duckboards loaded into the open wagons are all hand-made.

LAYOUT FOCUS



KEY DETAILS WAGON LOADS

The whole reason for the railways' existence was to bring supplies to the front and, being carried in open wagons, there was no alternative but to model a wide variety of loads. Very little of any use was available commercially so a lot of ingenuity was required.

Shell loads were cast in resin (something I had not done before), from moulds made from real small calibre bullets. Duckboards and 'A' frames were made from balsa cut to size with a stripper intended for model aircraft construction, and assembled on top of templates covered with double-sided tape.

Ammunition boxes were moulded in resin from masters made from wood strip with the strapping made in paper with a Cameo Portrait cutter - a device I wish I had obtained earlier!

Corrugated 'Elephant Iron' for dugout construction was from a vacuum-formed sheet, heated in hot water and strapped to a tin of beans until it had cooled. Hay bales were from cubes of balsa, textured with sandpaper then sealed with sanding sealer. Empty shell cases are from small diameter drinking straws with a base stamped out with a hole punch.

All the loads have a piece of iron wire (florist's wire from a craft shop), included so they can be lifted out of the wagons easily with a magnet.



from a handset or from either of the two control panels with LED Route indicators. Short circuit protection is by NCE units which cut in before the throttles re-set themselves. There are an awful lot of wires involved despite it being DCC but this is mainly down to my requirement that the layout can be operated from either end simultaneously.

LOCOMOTIVES AND STOCK

The working fleet is mostly built from Wrightlines and Chivers kits although some 3-D printed items are now making an appearance. Locomotives are mostly fitted with DCC sound.

Couplings are scale narrow gauge style 'choppers' from Zamzoodle which work very well but require a lot of work to make sure they are fitted correctly. All stock is weathered with a mixture of washes, pastels, weathering powders and dry brushing - all held in place with a coat of acrylic varnish. A lot of effort has been made to provide the wagons with suitable loads all of which have iron wire included to allow them to be picked out easily with a magnet. The shell loads are resin castings from real bullets of a suitable calibre kindly supplied by a shooting friend. Lettering was custom made for me by Peter Blackham.

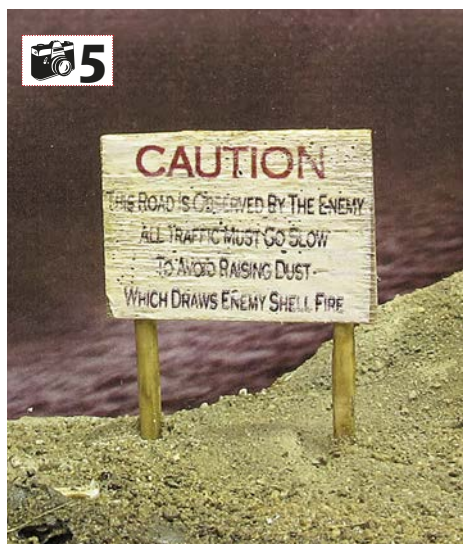
An important contribution to the smooth running of the locomotives is the addition of Zimo Super Capacitors which provide a second or two of power if track current is lost for any reason - rather like a huge flywheel. Coupled with my improvements to the points this has meant that very realistic slow running is possible even with the smaller locomotives.



04

Field railways replaced horses on much of the heavier WW1 supply work.

The capacitors are easy to install as they just replace the existing smaller capacitor on the Digitrax sound decoders fitted to most of the locomotives. All have been reprogrammed with more suitable sounds but some compromises had to be made and so far no one has noticed that the Hunslet is actually a Stanier 'Black Five'! In time, I intend to record my own sound profiles but in the case of the Hunslet I'll have to wait for them to restore a real one!



A word of warning to road users, and a clue to why internal combustion engine locomotives became so important.

A SOLID BASE

The baseboards were made from ply girders cut to size by my very helpful local independent DIY store, softwood pieces sandwiched inside and holes cut through to reduce the weight. The top surface is ply with all track on a foamboard base. Pattern makers dowels toggle clips are used to align and bring the boards together but they are then firmly joined by large bolts and plywood plates passing through the lightening holes at the baseboard ends.

The baseboards are supported on metal trestles (again from eBay), with the top bar drilled to take two M10 bolts which locate in the bottom of the boards and provide height adjustment via a butterfly nut. These trestles have now been made narrower by cutting sections and re-welding to make a much neater presentation and to save valuable space while transporting.

I would certainly make sure that the method for joining and supporting the baseboards was fully decided before laying any track next time, along with paying more attention to the positioning of point motors. The baseboards are probably over-engineered and I would make the lightening holes larger. They are very useful for passing cables through but have become a bit congested.

FIRST WORLD WAR LOCOMOTIVES



HUNSLET 4-6-0T

A total of 155 were built for the War Department, many seeing service all over the world after the war. No. 1215 is currently nearing the end of a complete restoration in this country and should be steaming soon. My model is from the Chivers whitmetal kit and runs with a Mashima 16 x 24 motor and flywheel through a Markits gearbox. It is fitted with DCC sound with a speaker in each side tank and decoder in the coal bunker.



BALDWIN CLASS 10-12-D 4-6-0T

Perhaps the best known of the First World War field railway locomotives, 495 were built for the War Department by Baldwin in the USA between October 1916 and April 1917 after British manufacturers were unable to supply sufficient numbers of suitable locomotives quickly enough. Mine is built from the long-defunct Wrightlines whitmetal kit with significant modifications to enable it to be fitted with a Mashima 16 x 30 can motor and flywheel running through a Markits gearbox. The pony truck has been rebuilt to use roller bearings, compensation and pick-ups. It is DCC sound fitted with an Icecube speaker lurking in the cab. One of these locomotives is now fully restored and based at the Leighton Buzzard Railway with a further three under restoration in the UK.

Roofs were built in full and then damaged in situ to give an authentic effect.

06



07

Many thousands of sandbags were created using DAS modelling clay.



40HP OPEN SIMPLEX

In attempt to make operations near the front line safer for locomotive drivers, Motor-Rail produced three 40hp versions with different levels of armour, the 'open', 'protected' and 'closed' version that resembled a small tank. This is the 'open' version built from the Wrightlines whitmetal kit. It has DCC sound although it currently sounds suspiciously like a Class 08 shunter! Accurate sound files for these locomotives are a work in progress. It runs on a Black Beetle motor bogie.



LAYOUT FOCUS

KEY DETAILS BUILDINGS

All were scratchbuilt using contemporary photographs of existing buildings as guides.

Construction is from foamboard clad with embossed plastic sheet, DAS clay or Redutex papers. Floors and roofs are made from coffee stirrers (100 for £4 via eBay!), and balsa sheet cut with an Airscrew balsa stripper designed for aircraft modelling. This saved a huge amount on buying ready-made balsa strip. Plans were drawn up in Photoshop, printed, then used as cutting and construction templates. Plaster walls, wallpapers, floors and carpets are laser-printed textures from the internet suitably distressed by soaking in water then rubbing and weathering with water colours. Roofs were made whole and then broken in situ before I got too attached to them!



UNUSUAL CHALLENGES

There have been a few things in building this model which have proved pretty challenging to a railway modeller with no experience (and only passing interest in), military modelling. These were not helped by the fact that 1:43.5 is not a usual military scale so little, if anything, is available commercially.

Sandbags were a big problem, solved by reading an article on making dry stone walls. I adapted the technique, which involved rolling out a 'sausage' of DAS modelling clay and placing it in a channel made from suitable thickness plastic card. I then chopped up the now rectangular 'sausage' with a U shaped tool quickly bent up from brass strip to make identical blocks which were then pinched at the ends and left to dry. I made about a thousand bags and developed a deep respect for those who had to do it for real!

Another tricky problem was picket posts for barbed wire. After much experimenting I found that thin florists wire, intended to go up the stalks of Gerberas and the like (they don't like it up them Mr. Mainwaring!), was ideal - easy enough to bend but strong enough to hold its shape.



8 Creating the devastated look of the buildings posed a few interesting modelling challenges (see above).





An 'open' Simplex 40hp built from a Wrightlines kit and fitted with DCC sound.

69



A simple jig was made up of four brass rods inserted in an offcut of timber and the wire wrapped around these to make the picket. Barbed wire for the posts came from a 1:48 scale etching from the Czech supplier Eduard.

The iconic symbol of the First World War has, of course, become the poppy so I had to find a way to reproduce them. After a couple of unsatisfactory attempts with punching circles of crepe paper, I hit upon the idea of using the insulation from electrical wire.

Firstly, I removed the wire from some red sleeving and then found some black wire of a smaller gauge that fitted snugly inside. Very fine slices were then taken and mounted with a touch of tacky PVA on stems of 'Field Grass' from Hornby or Woodland Scenics; and then repeated over and over again!

The backscene has attracted many favourable comments at shows and really sets the atmosphere. It is a panorama of individual shots taken early one misty morning in the Arras area of France and then stitched together in Photoshop. After some work to tone things down a bit and remove anything that looked too modern it was printed as an outdoor advertising banner 18" high and 24' long! This is not the ideal material as it is slightly textured and reflective but it was relatively cheap and has proved tough and very compact to transport but above all it is one piece there are no joins in the sky! **BRM**

SEE IT IN ACTION...

Having successfully completed its first marathon outing at the three day 'Tracks to the Trenches' event it went on to collect the 'Best in Show' trophy on its second outing. Several appearances are booked for 2015/16:

- 7mm Narrow Gauge AGM, Burton on Trent – June 15
- Welshpool – October 25
- Apedale for TTTT2 – May 2016

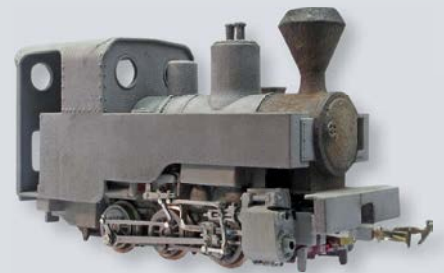
Any exhibition organisers wishing to book the layout can contact me via the **BRM** office.

FIRST WORLD WAR LOCOMOTIVES



DICK, KERR PETROL ELECTRIC

Another solution to the problems of running steam locomotives close the front was found in these cleverly designed locomotives which could also be used as generators for workshop trains. Only one is preserved, at the lovely Tacot des Lacs in France



KERR, STUART JOFFRE

This type of locomotive was built to a French design by Kerr, Stuart for the French government so is a bit of an interloper. The model has a 3-D printed body and runs on a Roco chassis. A second version is being prepared now from the etched brass kit by Locomotives 'n' Stuff.



20HP SIMPLEX

The most numerous of the WD locomotives, built by Motor-Rail in Bedford. This innovative design enabled supplies to be delivered far closer to the front line than was advisable with steam locomotives. This diminutive machine is built from the Nigel Lawton kit which is cleverly designed but much tweaking and extra weight has been required to gain satisfactory running.

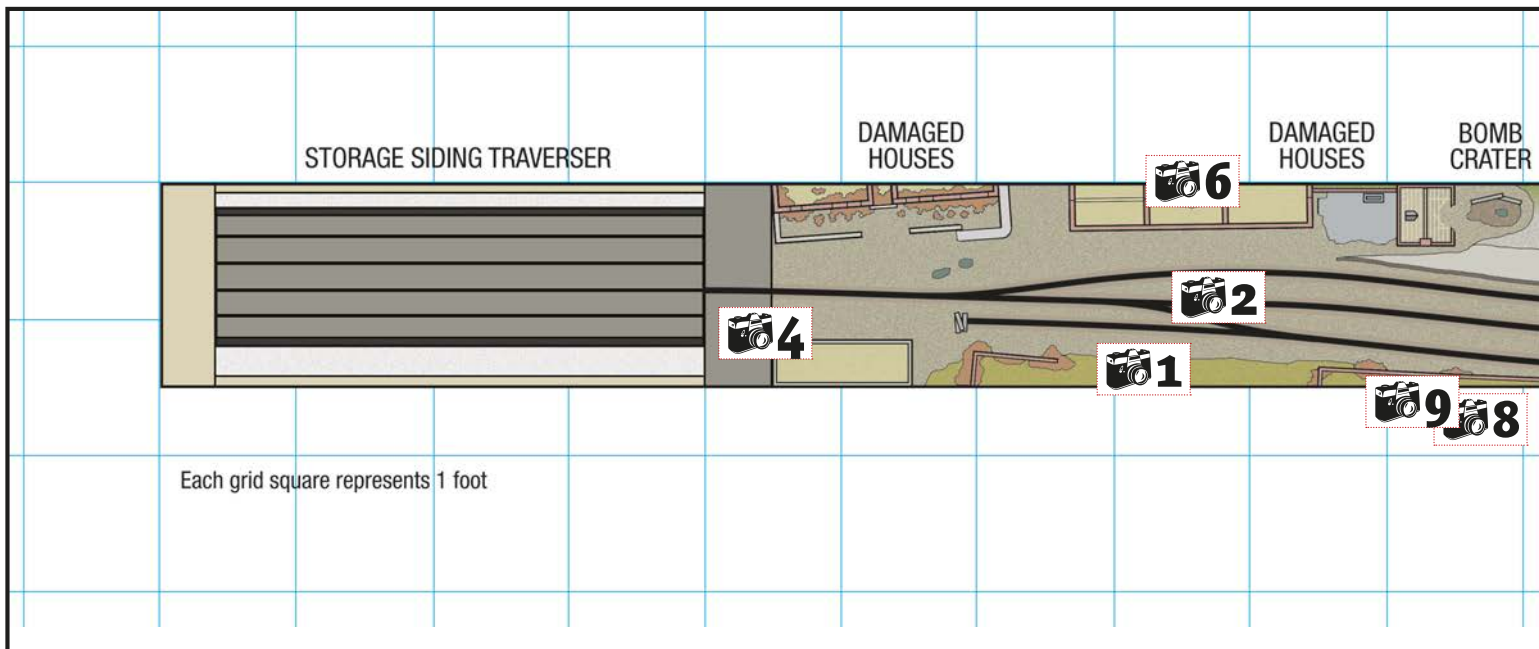


DEUTZ

Another one 'borrowed' from its original owners, this time the Germans. These curious locomotives had an enormous flywheel and water-cooled engines that, on contemporary movie footage, can be seen emitting large amounts of steam. It has a 3-D printed body with extra weight running on a Tenshodo motor bogie. It has been given a deliberately beaten up appearance. 

7mm
SCALE

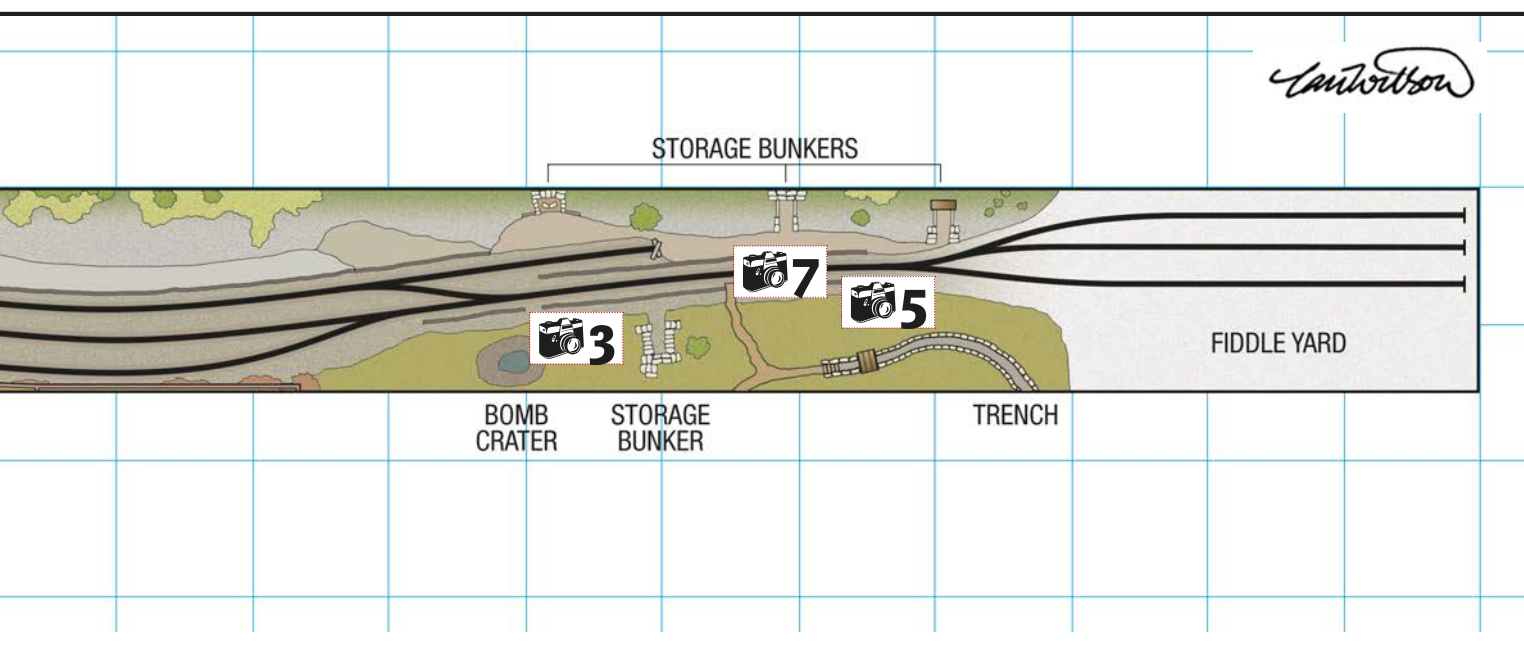
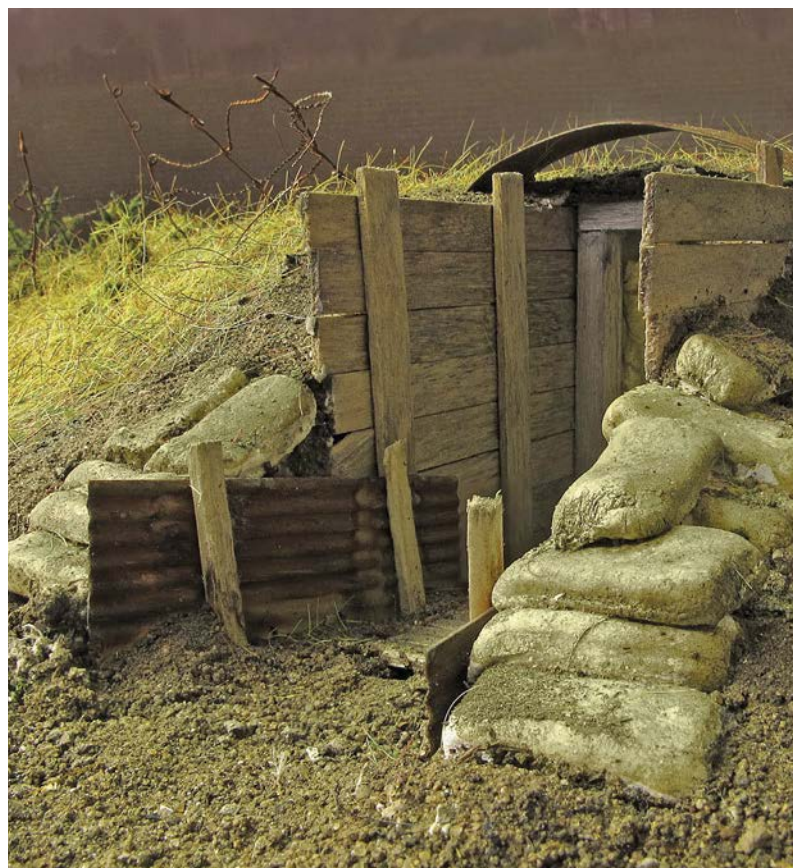
UP THE LINE





Meet the modeller

I'm a 'born again' railway modeller having awoken from a 30 year hiatus! This is my first layout since my teenage attempts and was built in just over a year for the 'Tracks to the Trenches' event at Apedale in September 2014. I have fully embraced the advances in technology that have occurred in the last three decades and use etching, 3-D printing, laser cutting and Photoshop for backgrounds and construction templates. Being self-employed and working from home, I am lucky in that I can fit little bits of modelling in throughout my day but I have to be very disciplined with myself when I have to get some proper work done.



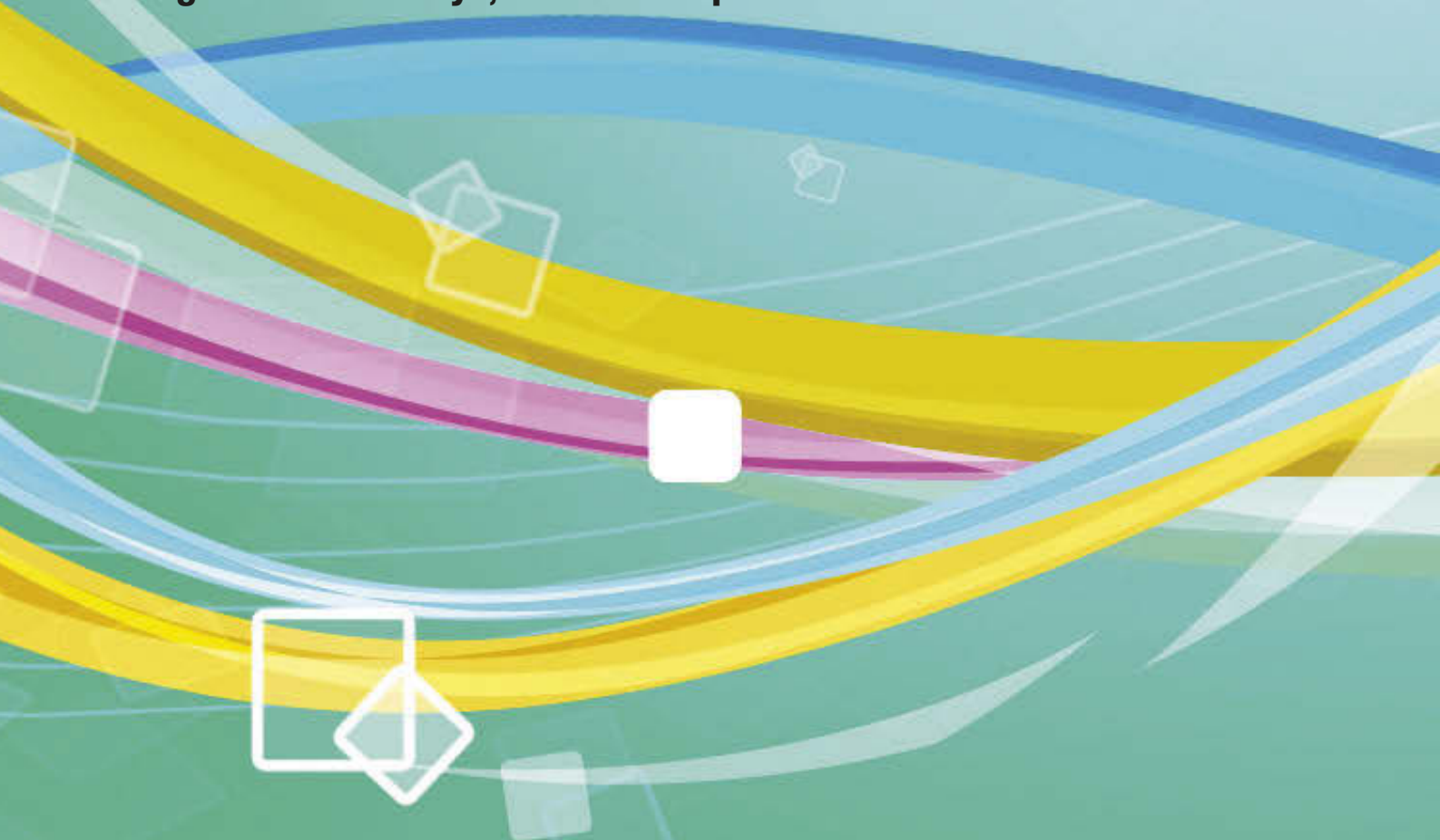
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• Other Gauges •

Ashurst Brickworks
Light Railway - 009
Hampton End - G
Launceston Steam
Railway - 009
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Campbells Quarry - 32mm
Caroline Concrete
Works - O-16.5
Faringdon - P4

BRM meets...

BEN JONES



Former **BRM** Editor Ben Jones now leads Heljan's UK operations. Andy York looks at what his new role entails and what he hopes to achieve...

BRM: Congratulations on the appointment, it's a long way on from starting in the industry as shop assistant at Rails of Sheffield and through several roles in the hobby press. How do you feel about the new role?

BJ: I'm genuinely excited about it. I'd always had a good relationship with Heljan in my previous jobs and I was delighted that Kim [Nannestad] wanted me to join the team. These are very interesting times for the hobby and it's nice to be involved again in developing products that (I hope) will give people years of pleasure and reliable service.

BRM: What does your role include?

BJ: It's fairly open-ended, encompassing everything from manning the Heljan stand at shows to research and development, production selection, media and PR and maintaining good relationships with retailers in the UK. I'm sure there will be plenty of other jobs along the way too!

Martyn Sanders [Ben's predecessor as Heljan UK agent] set a high benchmark over the last 15 years, bringing dozens of new products to the market and helping to spark off a revolution in RTR O gauge. It's a steep learning curve for me at the moment; there's an awful lot I need to get my head around, but fortunately, he remains a part of the team, acting as a consultant and guiding me through the bits that are new to me.

BRM: What strengths do you see in Heljan's performance so far and where do you see opportunities for the future?

BJ: I think Heljan products are generally regarded as solid, reliable and well-designed. They're easy for modellers to work on, offering plenty of choice through different variants, and with an eye for the more unusual prototypes. The OO and O ranges are actually quite large now, probably bigger than people realise, covering a large selection of diesel and electric prototypes,

and a small but growing number of steam locos. There are some really great models in the range, including some staples of the D&E fraternity. My favourites include the OO 'Hymek', the Park Royal railbus and the new Class 07. I know that many people rate the Heljan Class 47 highly and would like to see us produce some more. However, we'd need to re-tool it to current standards as it is past its 'sell by' date.

One model we are looking at again is the Class 86. The original version wasn't perfect, so we're addressing areas such as the pantograph and some of the body details and backdating it to produce an original 'AL6' or Class 86/0 for the 1960s to early-1980s period.

I think another big Heljan strength is the ability to produce small batches of relatively niche items, whether that's a one-off prototype diesel, a railbus, a giant like the LMS Beyer-Garratt or ready-to-run O gauge locomotives and stock.

In terms of opportunities, I think there's still some way to go with the development of RTR O gauge. There are more and more products being announced all the time, but it's not a mature market yet, and certainly not saturated in the same way as OO gauge. Heljan has focused mainly on diesels so far, with great success, but our first O gauge steam locomotives, the GWR '43XX' 2-6-0 and '61XX' 2-6-2T (see page 110) will be out soon and we're looking at others to join them. There's lots of potential for good quality RTR 7mm steam at the right price and so many wonderful prototypes to consider.

I also think we're entering a new period for RTR OO gauge. Whereas over the last two decades we've seen a massive expansion in the range of prototypes available, and a movement into neglected areas such as multiple units, electrics and pre-Grouping steam, we're now seeing some of the key diesel classes being reinterpreted and modernised, superseding existing models that are 10, 15 or even 20 years old and ready for a fresh look. Technology has moved on so much in the last few years – and it isn't stopping to wait for anyone – that even models regarded as benchmarks a few years ago are starting to look outdated.

Reportedly weighing over 1kg, Heljan's Class 03 is plainly no lightweight. Livery options are set to include conical or 'flowerpot' chimneys, wasp stripe chevrons, buffer beam colours and numbers.

BRM: Heljan has produced some great models, although some, such as the original OO Class 33/0 and the more recent early Class 25 in O gauge, frustrate those seeking utopia. Do you feel this is an area where more consistency and reliability could be achieved and how will you go about it?

BJ: Absolutely. Consistent quality is key to maintaining customer confidence in your products, and I think Heljan hasn't always delivered as consistently as people would like. It's incredibly difficult to achieve, but if we talk to the right people during development, get good critical feedback

The O gauge BR Class 03 0-6-0DM has a boxy but ominous profile. 14 livery options are planned, and there will eventually be two models covering the detail changes made between 'early' and 'late' versions. Launch is scheduled for the first half of 2019.





The Class 50 diesel locomotives were designed to haul express passenger trains at up to 100mph. Heljan plans to deliver the O gauge model in six livery options.

during the design process and continue to challenge our suppliers to deliver the best possible product every time, we should be able to achieve greater consistency and reliability.

This is something that's extremely important to me, having spent 15 years reviewing models, and having to be critical of Heljan models myself on a few occasions. I can't promise that I'll always get it right – we're all human – but I will do everything I can to ensure it's as good as we can make it.

It's also important to say that there's no such thing as the 'perfect model' – every single scale model, whether it's mass produced, kit-built or a one-off hand-built masterpiece contains compromises. Obviously we all want to minimise them, but some compromises are unavoidable. While I absolutely don't want to patronise anyone, we perhaps need to do more as an industry to inform people about what is possible, and what isn't, at a price they are willing to pay.

BRM: You are already keeping online readers via RMweb and Facebook up to speed with the development of models and you are keen to listen if observers can give substantive information; can they make a difference and maybe negate some of the previous slip-ups that didn't get addressed despite comments?

BJ: I've always believed that it's vital to engage with your customers, whether they're mag readers, forum members or model buyers. Knowledgeable modellers can help us to make better magazines and better models, and improve the overall

specification of products through constructive criticism. The wonderful thing about this hobby is that people want to help and are genuinely passionate about the products.

BRM: How difficult is it to identify new opportunities that are commercially viable these days?

BJ: I think it's certainly harder than it was 20 years ago, but if you talk to your customers and the retail trade about what they want, and keep a close eye on new developments, it's still possible to identify a huge number of opportunities. We announced an O gauge Class 56 at the recent Gauge O Guild show in Telford – that was a direct result of feedback from 7mm D&E modellers, many of whom had been pleading with us to start work on a 'Grid'!

It's still early days for me, but I've compiled a list of potential projects that could keep us going for the next five years at least. Some of those are all-new subjects that have never been produced RTR before, others could be updates of older products and still others focus on different variants of popular classes. There are some clever and perceptive people in this trade, so I know that some will inevitably be snapped up by others before we get a chance to work on them, but I hope that at least a few will be the basis of future Heljan projects.

BRM: Heljan has worked through some of the interesting diesel prototypes in the UK. There are still a few gaps in there, but will such oddities as the Fell and Clayton's DHP1 ever appear?

BJ: I really believe that we will eventually see some of the missing oddballs appear as RTR OO gauge models. The 'Fell', and the gas turbine prototypes have a real cult appeal, and a charisma that many other prototypes struggle to match. If it's right, people will find an excuse to have them, just because they're so different. Imagine an RTR 'Fell' with those coupling rods flashing around, hauling a train of LMS Period IIIs!

I'd like to see some of the early diesel shunters appear as RTR models too, for example the LMS jackshaft drive 0-6-0DEs and the forerunners of the Class 08s, but maybe I'm in a minority. If anyone else out there wants a Western Region Ruston 'PWM' 0-6-0DE, I'm listening!

BRM: Although Heljan have produced some OO wagons there haven't been any OO coaching stock projects yet; what would be the challenges in going into that part of the market?

The British Oxygen Company TEA tankers are an exclusive OO gauge commission for Olivia's Trains.



BJ: As others have found, coaching stock is probably the trickiest segment of the market to get right. Depending on what prototype you choose, it presents huge challenges in terms of sourcing the necessary drawings and photographs and can be very expensive in terms of tooling because of the number of variations required. That's particularly true of pre-BR coaching stock, where vehicles often no longer exist and were produced in small numbers for specific requirements and even for specific trains.

Because of the different variants and the often large number of components (and therefore high assembly costs), development and tooling costs for coaching stock can be almost as high as they are for a locomotive but, very rare exceptions aside, it's impossible to charge as much for a carriage as you would for a loco.

BRM: Heljan has been fairly good at delivering products within consistent timescales. Has the business got the agility to maintain this, as ever-increasing numbers of newcomer 'manufacturers' squeeze the marketplace?

BJ: I believe it has. We're a small team, both here and in Denmark, so we can move quickly when we have to. Kim also has extensive contacts with factories in China, so he can arrange design and production time over there when it is required. Not everyone has that, and not everyone can call on the experience of two generations of model railway production, as we can with Kim and his father, Jan.

We talk by email and telephone every day and are constantly monitoring developments in the industry. The recent decision to produce a OO gauge version of the late

body Class 25 (as well as an O gauge model) was taken within a few minutes and only a couple of weeks later had progressed to fully-formed CAD artwork. I hope it will continue to make progress just as quickly over the coming months.

BRM: With retailers and start-ups now commissioning items directly from China in addition to the pressure on established manufacturers to continue growing and a customer base which is not really expanding, are we in a 'golden age' or do you feel there could be casualties ahead?

BJ: I think the real golden age started around 1998, with Hornby's rebuilt 'Merchant Navy', and continued through the 2000s with the huge expansion in RTR models from Bachmann, Hornby and Heljan. That ended a few years ago when the two biggest manufacturers suffered a lot of issues with production in China and prices started to escalate.

What we're experiencing now seems more like a period of upheaval, with new suppliers coming in and disrupting the established order, showing that there are different ways to do things.

It's an exciting time, but this is a business that requires large amounts of capital and a willingness to take risks. Some projects are riskier than others and I do worry that some projects will fall by the wayside – it seems inevitable that those without strong financial backing will struggle if they don't have a robust business plan or their products don't capture the public's imagination.

It will also be interesting to see if the two largest British RTR manufacturers are nimble enough to respond, but I believe they should be looking to set the agenda

for the hobby, rather than trying to follow what their smaller competitors are doing. Heljan falls somewhere between the two, being an established supplier with the ability to deliver a coherent range of products, but also small enough to react quickly to opportunities as they arise.

BRM: You are obviously working on several future projects; when should modellers keep their eyes open for more developments?

BJ: We're constantly throwing ideas around. Some stick and others don't, but we are gradually developing a production plan that will take us through the next three years, and maybe beyond.

We've just made two major O gauge announcements at Telford, and we're planning more additions to the range at the Warley NEC show in November. Apart from that, we'll try and keep things interesting by announcing the odd unexpected item during the year, as we did with the OO gauge Class 25. Behind the scenes we're working on several projects that will go public later this year and during 2019; some are developments of existing products and others are completely new.

The future is limited only by our imagination and enthusiasm, and we've got plenty of both in the team. Having experienced before what it's like to take a project from an initial idea to a successful product running on layouts across the country, I'm looking forward to enjoying that sense of satisfaction again with my first projects for Heljan. ■

The 61xx Class 'Prairie' - Heljan's first foray into O gauge RTR steam locomotives. It is a thing of beauty, but how does it measure up? Turn to page 110 to find out.



AN OCCUPATIONAL CROSSING FOR YOUR LAYOUT

Words & Photography: Phil Parker

Down on the farm, Phil Parker builds a useful crossing for tractors and livestock.

We tend to think of roads crossing railways in terms of “level crossings” protected by gates or barriers and often accompanied by a crossing keeper’s cottage or signal box. Modellers love these, but for the railway operators they are a real nuisance and to be avoided if at all possible.

At the time of writing, there are around 6000 crossings in the UK, but only 1500 of these are on the public highway, or fully fledged level crossings. The rest are on private roads, mostly farms, and are “occupational crossings”. There is a similar type of crossing called an “accommodation crossing” that joins fields rather than a road.

The rules for an occupational crossing are very different than for a normal level crossing. The gates are operated by non-railway staff and they open outwards, so if they are not closed after use, they won't foul the track. Whistle boards will be sited on the line to provide a warning and, if the sight-lines are poor, a speed restriction will be in place. Ideally, a telephone is provided to contact the signal box before crossing.

For modellers, the practical upshot is that there are more opportunities for occupational crossings on our layouts and the infrastructure requirements are far less. We just need to cover the track so vehicles can drive over it and install some gates to keep animals from wandering on to the line.

Making crossing gates is a fiddly job, and for most of us unnecessary as there have been many RTR and kit crossings produced in all the scales over the years. For

my project I'm using the Ratio kit which provides the important parts. Like many of their kits, the builder can pick and choose how much to use and needs to think about the prototype rather than blindly following instructions.

My 4mm scale scene fits on an 8 inch square board left over from the Cake Box Challenge, but normally you'd build this into an existing layout. It's the ideal enhancement to a finished model. As long as you can put a farm track in place, then the crossing can be added pretty much anywhere, although a quiet branch line would be more common than a four-track mainline! ■



I lay the track on 2mm thick cork sheet to provide a nice ballast hump for the running line. At the crossing, the cork is also used to build up the level of the roadway. It's important that the posts aren't close enough to the track to catch passing trains. Using a gate as a guide should solve this problem for single lines, allow more for double tracks.

What we used

Ratio
509 Occupational Crossing kit
424 4-bar lineside fencing

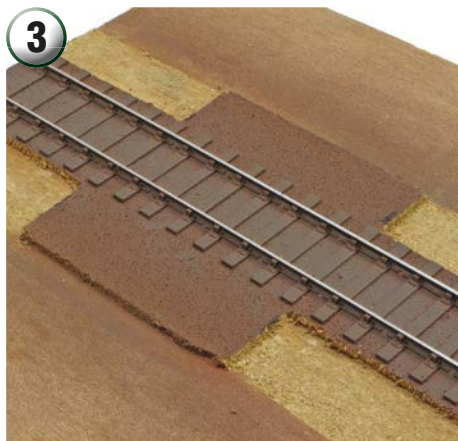
Geoscenics
PH600 Pot Hole road kit
www.geoscenics.co.uk

Tools

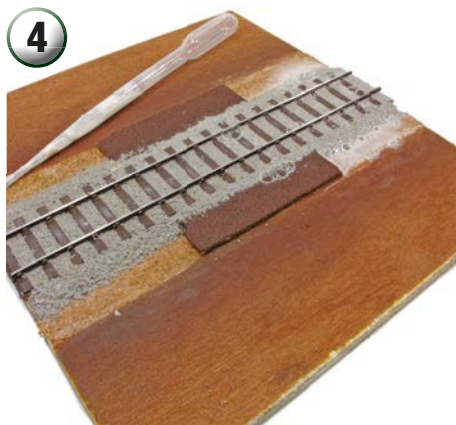
Tools & glues
Craft knife
Abrasive sticks
Pin vice
3mm drill bit
Straight Tracksetta
Small pliers
Wire cutters
Pipette
Liquid plastic glue
PVA



This track is from DCC Concepts Legacy range, although any other track will work. It's essential that the line through the crossing is straight or the flangeways will be too tight at the ends of the centre panels. A Tracksetta is the ideal way to ensure this, but a ruler would work too.



3 An area just over 70mm long is required for the crossing, so I've cut the cork back for the plain track. If your line is already in place, just add cork either side to achieve the same effect



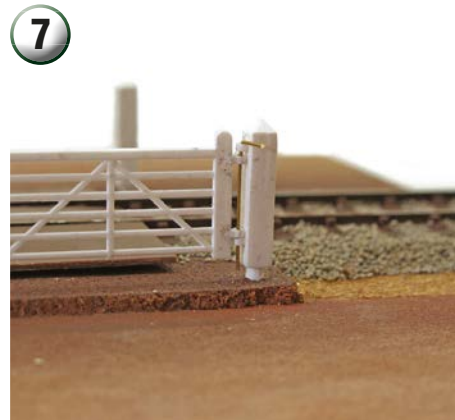
4 A quick coat of track colour paint and then ballasting can take place. I'm using Green Scene ballast, but you will probably have done this part already. The stones are held in place with a mix of PVA glue and water. A drop of washing up liquid is added to reduce the surface tension, so it flows nicely.



5 So the wooden ramps sit nice and low, the rail chairs need to be cut away from the outside of the track. The ones in the centre can be left in place as they don't interfere with the panel.



6 I found that the centre panel needed to be thinned down with sandpaper, as it's too tall for the Code 75 rail as supplied. For track cleaning, it's essential that the rails stand slightly proud of the crossing. This isn't prototypical, they would be flush, but then the prototype doesn't use a track rubber to clean the rail tops.



7 Working hinges are included in the kit. Each part is glued into holes in the gate or post and then left to harden fully before a length of wire is inserted. Posts are fitted into holes drilled in the baseboard top



8 While the gates wouldn't be swung across the track, to my eye, the proportions look better if it appears that they can, so I'm using their length as a guide for positing the posts. As I mentioned earlier, it's more important that none of the trains catch them.

TOP TIP

Applying glue

Never, ever apply glue to a model straight from the bottle. Always pour a little bit on some scrap plastic and then pick up a drop at a time using a pin or small screwdriver. You can always add a little more, but cleaning up blobs around parts is a pain.





The Geoscenics pothole road kit is made up of powders that are sprinkled over some PVA. I use the brown at the sides and grey over the middle. Pat them down gently for a moderately smooth surface. This is a farm track, so it doesn't need to be perfect.



Once the road is dry, plaster is used to build up the sides. Nothing major, just bringing the ground level a bit and to hide the flat baseboard.



By law, railway lines in the UK must be fenced in, and Ratio four-bar fencing is ideal for this job. For strength, I cut it so there are posts at the end of the baseboard. Although this isn't strictly prototypical, it's better than having the fence float in mid-air at the ends. (Note: The fencing laws for Light Railways are slightly different, but we'll assume this is a branch line)



Scenic work starts with a bit of Woodland Scenics fine turf covering the joins between the road, ballast and plaster groundwork. All the gaps disappear and the landscape starts to blend into a continuous whole.



Hedges are Gaugemaster hacked about with some scissors and then covered with green flock powder. Static grass fills the fields and a few flowers are added – a sprinkle of yellow for dandelions and stiff fibres dipped in purple flock to make hollyhocks.



I've painted the signs with some Revell Anthracite grey and once fully dry – i.e. left overnight – sand the face very gently with some very fine abrasive. Eventually, the lettering appears white against the darker background.



At some point, the rules started to insist on cattle grids either side of the road. Scalemodelscenery produces 3D printed anti-trespass kits for these. They will need to be fitted so they are just below the rail tops, but using them will be easier than scratch-building. It's likely that retro-fitting crossings took a long while so you might leave them off unless your layout is very modern image.

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VARIATIONS ON A THEME

Words & Photography: Phil Parker

Phil Parker takes a modest card kit and shows what you can achieve with a few simple modifications.

Card kits provide wonderfully adaptable ways to make model buildings. There is plenty of choice for a start. No matter what you need – station, house or shop – someone produces a kit for it. Then you can customise the model to make it fit in with your layout. To demonstrate this, I've taken the Metcalfe Models Small Cottage Card Kit - exclusive to **BRM** in OO scale and built it three times.

While the first model is as the designer intended, I've made a few modifications for the second and third iterations. None are particularly difficult and you could pick and choose which techniques you apply to your own model. I think that I've improved the look of an attractive little building, though, allowing it to find a home on any layout.

Everything I've done here can be used on any other card model too. Modifying kits involves a few basic skills, tools and materials. Once you have them, the world is your oyster. Give it a go and let **BRM** know how you get on.. ■

What we used

Metcalfe Models

Small cottage kit - available from world-of-railways.co.uk while stocks last

Peco

LK-78 Lineside building accessories pack (Front door)

Ratio

300 Gutters and drainpipes

ScaleModelScenery.com

LX163 Decorative Trellis Panels

Superquick

D1 Red Brick paper

Wills

S46 details pack (For plastic chimneys)

SSMP203 - Slate sheets



Basic build

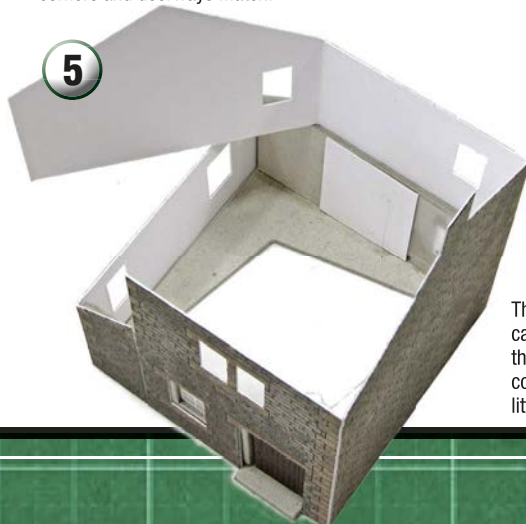
For my first attempt, I'm building the model following the instructions.



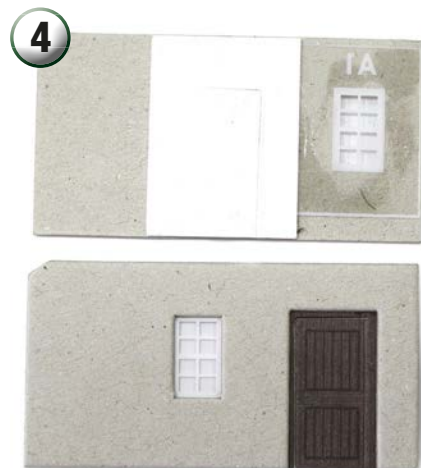
The kit comprises a printed sheet of thin card, some thicker grey card strengtheners and clear plastic printed windows.



Start by wrapping three sides of the main sheet containing the walls around the floor, which is on the grey strengtheners sheet. A little glue along the edges of this holds the walls in place, but take care to ensure the corners and doorways match.



The individual parts are released from the fret by running a knife along the cuts. Arrows on the sheet show where to cut, but I like to run the blade all the way around, just to be on the safe side.



Inner walls have the windows and doors added. These are fitted inside the main walls, making sure they line up with the appropriate holes. The inner walls extend beyond the printed walls at this stage.

The extension fits onto the extended inner walls. Take care with the join between this and the main building – there shouldn't be a gap between the two and the stone courses ought to line up. A slow-drying glue allows for a little fiddling to achieve this.



6

After adding the floor for the top storey, more inner walls are added, then the final printed wall is glued in place. It should locate into the corner nicely, as the strengthener is very slightly shorter than the outer wall.



7

I add a bit of scrap card to beef up the corner joint. Then the triangular supports for the roof are fitted. Make sure the top edges of these are flush with the top of the printed card.

8



Six rectangles of card are glued together to form a solid block around which the outer wrapper for the chimney is applied. This fits into a gap in the roof support. Finally, the roof sheets are fitted.



9

Both grey and terracotta colour ridge tiles are provided. The chimney is finished off with a couple more rectangles from the printed sheet and a pot rolled from paper cut from the instruction sheet.



EXPERT TIP: ADDING INTERIOR LIGHTS

You might wish to add some lights inside the model. This needs to be planned before you start assembly, but can look really attractive with a little care.



Use LEDs for lights. Express Models (www.expressmodels.co.uk) sells them in strips with 12V connections, so you don't even have to worry about the voltage. LEDs will last forever, so there's no need to provide access

for changing them. Since they generate no heat, your building won't catch fire! (continues next page)

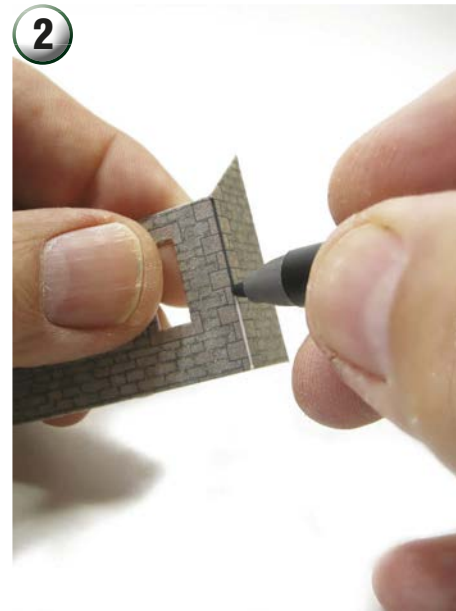
Intermediate build

This time, I make the model in the same way as the Basic Build, but with a few modifications along the way.



1

I scribe along all the lines to provide a bit of texture. Start by scribing the quoins (corner stones), then the top and bottom of the windows and doors. Next do the horizontal lines using a ruler and finally the verticals freehand. It takes a while, but isn't too bad if you don't try to rush it.



2

All the corners are coloured with a grey felt tip pen, so they don't show white when bent. You could cover these with stick-on quoins cut from card, but this is pretty effective.



3

I draw around the inside of the windows on the strengtheners and then enlarge the holes to match the printed sheet before fitting into the model. The plastic windows aren't glued in at this stage.



Planks on the doors are scribed, which allows me to paint these to change the colour. I leave them slightly ajar, as this adds a suggestion of life to the scene.



Matt varnish adds texture to the slightly shiny surface. Hold the can further away than the instructions suggest, and the varnish dries a little before hitting the model.



Opening out the windows leaves a slight gap around the printed edge of the glazing. A little white paint inside the model solves this. Don't try to paint the front face, do the back as the painting doesn't have to be so neat.



The roof and ridge tiles are scribed and then painted grey (Humbrol 69) before being fitted to the model. When nearly dry, I brush a little talcum powder up and down to give some colour variation to the grey. Downpipes are made from black-painted wire.



EXPERT TIP: ADDING INTERIOR LIGHTS



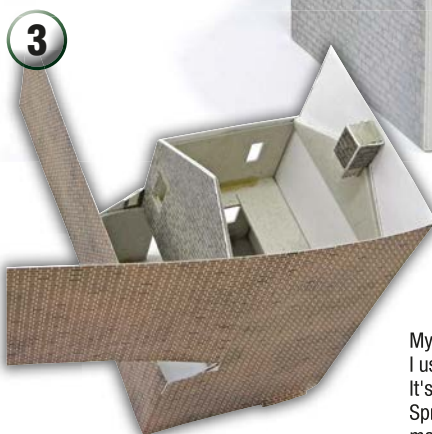
Thin walls can let light leak out where it shouldn't. Either line your building with thick card, or reflective kitchen foil to block the light.

Advanced build

To be honest, this isn't that advanced, but I have tried to make the cottage look dramatically different from the previous models.



Using some Deluxe Materials Perfect Plastic Putty, I fill the gap between the main building and extension. This is sanded down with a very fine abrasive stick so that I don't damage the surface of the printed card.



To represent a stucco surface, the front of the building is given several light coats of white primer. Don't use too heavy a spray, as this will soak into the card with the potential for damage. If the gap shows up, a little more filler and sanding will be required before another coat of primer.

My biggest change is to wrap the side and back walls in brick paper. I use Superquick weathered red brick, although others are available. It's cut roughly to size then stuck on using a Pritt-Stick type glue. Spray glue also works, but anything too wet will soak the paper and make it crinkly.

4



Once the bricks are attached, a knife blade is pushed through the window and door holes to make a cross. The flaps are bent in through the hole and glued inside so the edges are covered. Try to get a nice sharp crease around the edges – patting along each edge with a flat screwdriver helps.

5



Along the tops of the doors and windows I add some decorative vertical bricks from the bottom of the brickpaper sheet.

6



The lintels and sills are cut from waste from the printed wall fret, stuck in place and then painted. Care is required to make sure they are level, although the camera makes mine look wonkier than they are in real life (honest).

7



The roof material is replaced with Wills moulded plastic sheet, with scribed card ridge tiles. This is painted grey and dry-brushed with a lighter shade while still tacky so the colours blend. The chimney is from Wills building and details pack.

8



The new front door is from a Peco building accessories pack, but it had to be cut down slightly to fit the hole. You could easily make something similar from layers of thin paper and card using a track pin for the handle.

9

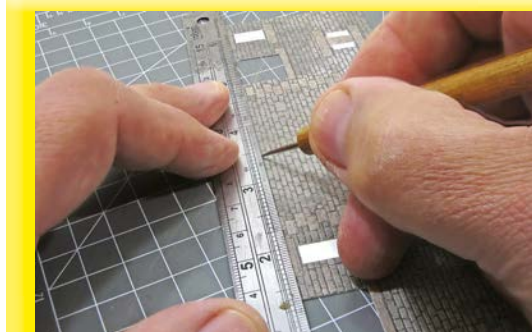


A piece of laser-cut trellis from ScaleModelScenery.com has lines of PVA drawn on it. Into these, some Woodland Scenics coarse scatter is pushed to make foliage. Flowers are red blobs of paint applied with a small screwdriver.

10



Finally, guttering and downpipes from Ratio are added. It's easier to paint these before fitting, as touching up the white primer is quite difficult and the colours don't quite match enamel.



EXPERT TIP: SCRIBING

Scribing card need something pointed and which is not sharp enough to break the surface. My scriber came from Freestone Model Accessories, but a thin and blunt knitting needle would work just as well, as would a fine ballpoint pen once the ink has run out.



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CAROLINE CONCRETE WORKS

Words: Graham Morfoot Photography: Tony Wright

Graham Morfoot's layout is a hive of heavy industry. The easy access to a local works supplied all the inspiration he needed, however



Factfile

Layout name: Caroline Concrete Works
Scale/gauge: 7mm:1ft/O-16.5
Size: 8ftx2ft
Era/region: 1990/ East Coast Mainline
Layout type: Industrial shunting
Exhibited by: Graham Morfoot

SEE MORE...
Watch this layout
in action on
the **BRM TV** DVD.
See page 80 for
details



Locomotive No. 3 pulls alongside the interchange with the standard gauge track. A standard gauge wagon has been loaded with pre-cast concrete sections.

The way it was

The model is based on the Concrete works alongside the East Coast Mainline at Tallington near Stamford. The works, then known as 'Dow-Mac', were opened in 1943, primarily to produce concrete sleepers, there being a shortage of imported timber during the war. Adjacent to the works is a large sand and gravel quarry, and a few miles away is the Ketton Cement works. Being alongside the ECML, a connection and sidings were added. Later they made concrete pillars and beams for civil engineering projects, and the first pre-stressed concrete bridge beams were made by Dow-Mac at Tallington.

I have childhood memories of seeing vast concrete beams being transported on rural Lincolnshire roads, with the lorries having to go the wrong way around roundabouts and with police escorts. After being sold to Costain Tarmac in 1988, production continued until a partial closure of the site, when sleeper production was transferred to Birmingham and Doncaster. It now has a new lease of life with a consortium planning to make the track panels for HS2 at the site.

Foundations above & below

So, with my interest in industrial narrow-gauge railways, and in living a few miles from the works, an idea was starting to take shape. My previous layout, 'Ben Moor Foot Peat Railway' (BRM September 2016), has been very successful using the O-16.5 format, so I will stick to that scale. The works never had a narrow-gauge system, although one was planned to run from the quarry but was never built, so it is a what-if situation. Fortunately, access to the site for photography is very good, with a road alongside, no fences, and a public footpath through the works.

The layout itself is built on two 4ft x 2ft baseboards made from 7mm beech ply. I find this the strongest, and most durable method, especially with the weight of plaster I used. Initially, the idea was for an 'at home' layout, but as work progressed it turned into an exhibition layout due to encouragement from an exhibition manager. For transport, the two boards fit into an area 5ft x 2ft x 2ft using a supporting frame on the ends. This means quick assembly and taking it

down, and all fits into a small hatchback. Good lighting on my layouts has always been important. Sometimes I have used LED strips, but on this layout I use LED outside floodlights (available from B&Q) mounted on a bolt on metal shelf support bar. The lights are small, low power and do not get hot. Once, a parent with a child on his shoulder very nearly gave his offspring a



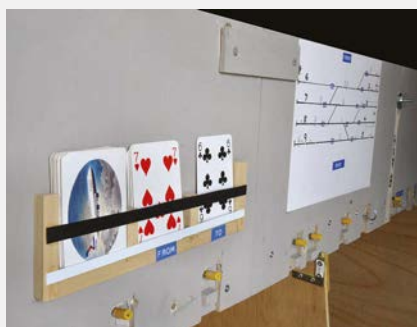
Engine No. 2, which has a '00' 0-6-0 Class 08 diesel shunter chassis, shunts the end of the casting and finishing shed. Pre-cast stair case sections and beams lay alongside the track. The loco fuelling point is at the left of the shed.



Locomotive No. 3 which is the most powerful on the site, has a Bachmann HO chassis and two 4-axle bogies with two motors. The gantry crane was made by the Lift and Nudge Co.

How it works...

To make the shunting a little more challenging, I purchased a random number generator made from a pack of playing cards. Using just numbers 1-9 (nine sidings) and two jokers. I shuffle the cards; top card is the siding number you take a wagon from, the next card is where to shunt the wagon. If no wagon is in a siding the card is turned again until you get a siding with a wagon. Two cards the same, take two wagons from siding if there are two. When a joker is drawn, exchange the loco with one at refuelling point. It can get a bit challenging when you do not have enough room to use a siding as a head shunt, but it is fun!



0-16.5 GAUGE

**Read all
about Graham's
'Ben Moor Foot Peat
Railway' – see
[www.brmm.ag/
PeatRailway](http://www.brmm.ag/PeatRailway)**



The two gantry cranes that span the tracks outside the casting shed are used to transfer and sort products onto wagons. A change of shift, as the foreman catches up on work in progress.

3 Tips for using Plaster of Paris

Preparation

When using as a fill between tracks, carefully plan the work. Paint any bare wood with emulsion paint or diluted waterproof PVA to seal it.

Point work must be protected, especially moving parts, with masking tape, and even a smear of grease will help protect and ease clean up afterwards.

Where there is a board joint, I trap wax paper or baking parchment (non-stick paper) between the joints. Shuttering to contain the plaster can be made with wood or styrene strips - use the height of shuttering and the rail head to create the level of plaster you need.

Easy does it

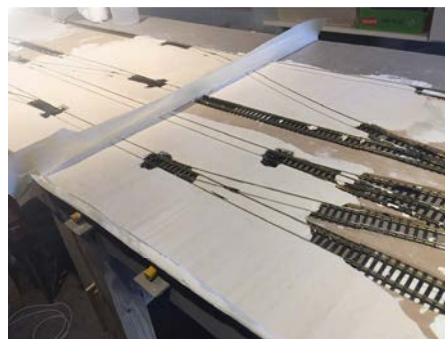
Carefully read the mixing instructions. A powder colour or acrylic artist paint can be used to colour the plaster. Mix the powder paint with enough plaster or, colour enough water with acrylic artist paint for the whole project to ensure consistent colour. Only mix small quantities, of the plaster at a time, it will start to set quickly and be difficult to work with after a few minutes. Pour the plaster onto an area then use a steel rule or, or stiff plastic strip to level it, using the shuttering or rail head as a guide. Pass over the plaster as few times as possible. Imperfections can be smoothed out with a damp finger or spatula when the plaster begins to set. That section needs to properly set/dry for about 6 to 10 hrs before pouring new plaster adjoining it, depending on thickness. Make sure the container used to mix the plaster is thoroughly cleaned between each mix, a small piece of set plaster in a new mix will leave marks on the surface that are difficult to remove.

Finishing

Before the plaster has set hard you can mark concrete joints, cracks and cobbles, and any imperfections you want with a scribe or sharp knife. The gap along the rail for wheel flanges is best cleared out before plaster completely set. Make a tool out of scrap brass with the correct depth according to the wheel flanges.

Once the plaster has completely set further levelling and imperfections can be sanded out. Filling in between the point blades can be with plastic card. If the plaster needs painting, use an emulsion paint. It will probably be necessary to clean the rail head thoroughly again especially around the point work.

Finish with ground foam and grass tufts along the cracks to simulate weeds. Mixing and colouring plaster is the same method when using it on scenery such as hillsides.



burnt head when I used halogen bulbs.

The track formation is quite simple, nine sidings, five on one side, four on the other, with points in the middle of layout. A single std. 'O gauge' line runs along the rear of the layout, which acts as a loading/unloading track with access to the main line. As well as the shipping out of concrete products, some raw material such as reinforcing steel and decorative facing materials, such as granite chips are brought in.

Keeping on track

All the track and points are Peco code 100, and control is using DC hand-held controller. After the track was laid and uncoupling magnets set under the track, a lot of trial running and adjustments were made to get everything working OK before the next stage. To simulate all the track being laid into concrete throughout the layout, I chose to fill between rails with Plaster of Paris. This proved to be not as straightforward as anticipated. I masked off all moving parts of the points, mixed a liberal quantity of plaster and started pouring onto an area. I did not anticipate how quickly the plaster started to cure; almost before I had a chance to start levelling it, using the railhead as a guide. The adjoining section could not be poured for twelve hours, so with a patchwork of small sections, it took five days to complete. I found that before the plaster had 'gone off' I needed to scrape out the flangeway with a homemade gouging tool and mark the joints in the concrete. I still needed a lot of sanding

and scraping after the plaster had completely dried. Finally I painted it all with suitable emulsion paint, and carried out further track cleaning.

Which way?

Manual point operation is employed using metal rods under the layout, with some supports to stop it sagging. They protrude from both sides of the baseboard, allowing for home or exhibition operation on either side. A brass rod is soldered onto the cross rod to protrude through the hole in the tie bar of the point. I happened to have a

surplus of used Peco code 100 flextrack, so taking off the sleepers gave some good cross rodding.

What moves

I have three locomotives, all with different chassis and body design. The three chassis are a Tenshodo two axle bogie, Hornby 08, and a USA Bachmann 70 ton switcher, which has a motor in each bogie. The bodies are all A1 models etched brass, using different designs or modifications to fit the chassis.

The wagons are all scratch-built from



Always a busy part of the works, where concrete sections are loaded onto standard gauge wagons and then, via ECML, to customers around the country.

Plastikard and wood, using USA HO bogies, and represent a variety of flat wagons made from all-wood to all-steel, and a skip-carrying wagon. Coupling is by Kadee couplers and under track magnets.

On the site

Buildings consist of a scratch-built open fronted workshop with gantry cranes running out into the yard, a portacabin office by David J Parkin, and a small scratch-built store shed. There is also a small loco refuelling facility. The figures are all from Modelu and are hand-painted.

Most of the open area contains various concrete castings - some awaiting shipment and some are rejects. A large storage area would have been located away from the loading area. An area is allocated for the storage of reinforcing bar and matting used in their production.

On the road

The layout has had one outing to a local exhibition at Stamford. It performed fine

and generated a lot of interest from people who had been employed at the Tallington works. I am particularly pleased that those who have seen it say it is a very good representation of a concrete works. It did not need much in the way of buildings and scenery to achieve the effect and all the concrete forms are made from pieces of wood and plastic water pipes, all cut and painted. The metal reinforcement mesh is cut from fly screen, and painted rust (this also makes good fencing).

Forward from the past

This is my fifth exhibition layout, the others being 'Billingborough', 'Tates', 'Boston Sleeper Works' and 'Ben Moor Foot Peat Railway'. I have used different scales/gauges - OO, OO9, O-16.5, O - and a mixture of two on this layout and 'Tates', which had OO for std. gauge and OO9 for the potato railway. I now prefer to model unusual industrial scenes, which usually means I have no restrictions, and fewer criticisms on what it should look like.

Read the digital edition to see the BRM TV DVD, bonus image galleries and much more. See www.brmm.ag/DigitalEdition

For future projects? Well, I have said "this is the last one" five times before. I am retired now but I am still active enough for more, just needing some unusual inspiration. I have thought about the paper works in Kent that had the fireless locos, or maybe a representation of the Ruston and Hornsby engineering factory at Lincoln with a narrow gauge internal system, which would be nice and local for me. ■

Looking towards the part of the yard where materials such as steel reinforcing bar and mesh are stored, also bins containing materials, such as granite chips that are used for facing decorative panels. The transport office is in the portacabin, and the foreman's restored Ford 105e in the distance.



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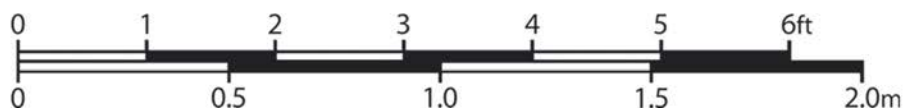


TOTNES

A famous location on the Great Western Railway's main line to Plymouth was the inspiration for an amazing N scale model railway by *John Birkett-Smith*.



A westbound train crosses the River Dart, with the junction for the Ashburton branch visible to the left.

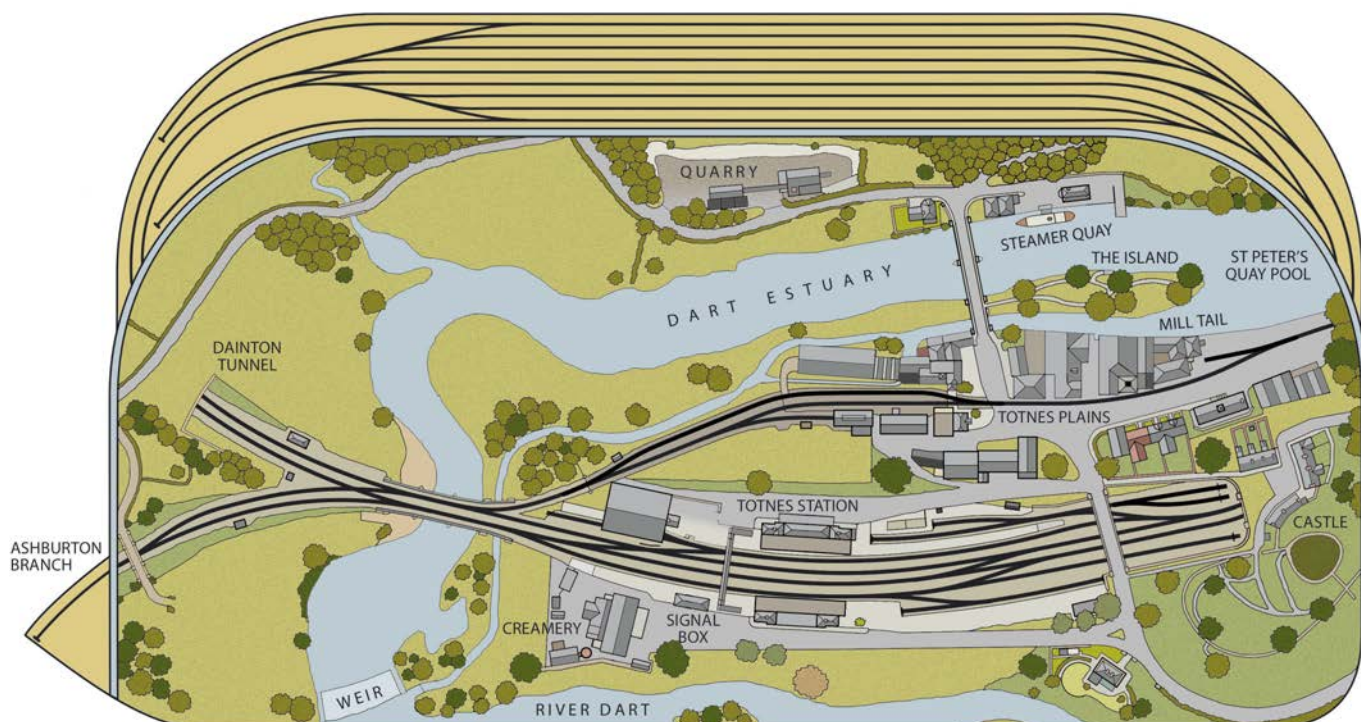


West Country locations have long been a favourite subject for layout builders. Whether it's the sea wall at Dawlish or branch lines to Hemyock and Ashburton, the region has many appealing features that just cry out to be modelled. Less common though are main line locations away from the coast, such as the former junction station at Totnes.

REBUILT AND DOWNIZED

Originally built as a 16' x 13' giant including the Ashburton branch, Dainton Tunnel the River Dart and estuary, it was downsized to its current arrangement in the mid-2000s.

In effect, it's a simple double track oval layout built across six track boards and two scenic boards to fill in the centre of the oval, plus a panoramic backscene. Although the Ashburton branch and tunnel were lost in the rebuilding, there's still a representation of the junction at the eastern end of the station and goods-only branch down to the River Dart at Totnes Plains. Behind the curved backscene



AmWilson



is a large fiddleyard with off-scene storage for at least nine trains.

Visually, it's a great example of what can be achieved with the conventional oval layout design. The curved backscene and use of tunnels at both ends of the scenic section help to disguise the sharp curves and storage sidings.

Although there's been some serious compression

of the area to incorporate the Ashburton branch junction, and some compromises on the layout of the station area to fit the trackplan, it still conveys the look and atmosphere of this well-known location very effectively.

Again, it's a plan that could easily be adapted for other locations and scales if you're looking for continuous running. **BRM**

A beautifully executed take on the conventional oval layout design, Totnes is a good example of the advantages of modelling in N scale - the ability to create realistic miniature landscapes and run authentic scale-length trains. The curved backscene and design of the scenic boards make the layout feel more like a 3-D painting than a model railway.

Many of the buildings, trees and structures were salvaged from an older layout.



FACT FILE

- ▶ **LAYOUT NAME** Totnes
- ▶ **SCALE/GAUGE** 2mm:1ft scale, 9mm gauge N
- ▶ **SIZE** 9' 10" x 5' 7"
- ▶ **ERA** 1920s/30s
- ▶ **CONTROL** 12V DC two-rail
- ▶ **LAYOUT TYPE** Continuous circuit
- ▶ **PHOTOGRAPHY** Tony Wright

FOR

- ✓ Impressive take on the conventional oval layout design
- ✓ Clever use of backscenes and tunnels for scenic breaks
- ✓ Lots of off-scene storage
- ✓ Can be adapted for other scales.

AGAINST

- ✗ Operations are a little limited
- ✗ Drastic compression of location to include junction for Ashburton branch
- ✗ Compromises in layout of station and town.

BASSENTHWAITE LAKE

The advantage of modelling in smaller scales is the amount of landscape that can be incorporated into a plan. This is demonstrated perfectly on *Don Annisson's* layout.

The station that sits on the exhibition attending layout Bassenthwaite Lake is based on a prototype on the Cockermouth, Keswick & Penrith Railway at the northern end of the lake. Bassenthwaite lake is north-west of Keswick and indeed is the only 'lake' in the Lake District - all the others being either waters or meres.

A MODERN 'TWIST' ON AN OLD CLASSIC
 Bassenthwaite Lake was built to show how

good scenic modelling can be applied to a small train-set oval layout, totally transforming it, but more importantly to inspire some exhibition visitors to have a go at home.

The scenic baseboard is only 6' 6" long by 2' 6" wide - which surprises many people, but digital cameras with the ability to take close-up pictures can make layouts appear much bigger than they really are.

The layout is a classic train-set oval - on one side a station and goods yard, on the other, a simple passing loop. However, unconventionally, the scenic scale model part, i.e. the station and yard, is to the rear of the layout and the passing loop at the front. Most of this is visible to the public, bar an area where the track disappears through a short tunnel and behind a scenic break in the form of a small hill.

All of these elements form part of the stereotypical image that springs to mind when somebody mentions the word 'train-set' - a gift at Christmas - and yet, what Don has managed to do successfully is take all of these components that form the basis of a train-set, and, with a little thought and talent, transform them into a successful exhibition-attending layout that never fails to attract a crowd at any given show.

FOR HOME AS WELL AS 'ON THE CIRCUIT'

Bassenthwaite Lake can be operated from the front and the back, so the concept is equally suitable for either home or exhibition operation. When located at home, it is placed against the wall of a spare room taking up a minimum amount of space.

The fiddle-yard can be fully scrutinised by the public gaze, but this allows the front operator to see where the trains are, in addition to having access to the switch-panels. Don feels that this isn't a problem as many exhibition visitors are just as interested in observing the design and operation of the fiddle-yard, as the scenic side of the layout.

For exhibition running, the large fiddle yard to the left of the layout provides the variety of trains necessary to entertain exhibition visitors. It comprises six 'U'-shaped loops, which can hold 12 trains, and allows through running from 'Derwent Junction' to Bassenthwaite Lake station and back into the fiddle-yard, and vice versa.

BUILT IN THE TRADITIONAL WAY

Bassenthwaite Lake was built on a frame of 50mm x 25mm softwood supporting a board of 4mm thick ply

FACT FILE

- ▶ **LAYOUT NAME** Bassenthwaite Lake
- ▶ **SCALE/GAUGE** 2mm:ft / N Gauge (9mm)
- ▶ **SIZE** 6'6" x 2'6"
- ▶ **ERA** 1948 - 1956 BR Early Crest
- ▶ **CONTROL** 12V DC
- ▶ **LAYOUT TYPE** End to end
- ▶ **PHOTOGRAPHY** Tony Wright



Some of the scenery in Scotland is spectacular. Bassenthwaite Lake's backscene instantly gives the layout a reference point, the particular green hues of the hills are like no others in the country.



The water of the lake dominates the scene so much, the necessity to get it looking right was therefore paramount.



The station of small proportions isn't entirely lost in the depths of the wilderness. Sidings allow room for shunting.

with a track-bed of 12mm thick Sundeala. The sides and back are 4mm ply, 350mm high and the fascia is 100mm x 12mm softwood, providing longitudinal rigidity.

Having an operator at the front of the layout allows the less outgoing exhibition visitors the chance to ask questions and have a quiet chat, which they may be more reluctant to do with operators stood to the rear.

Whether you operate your layout from the front or the back is another element that you can throw into the planning equation, as both methods of control have their advantages and pitfalls. **BRM**

FOR

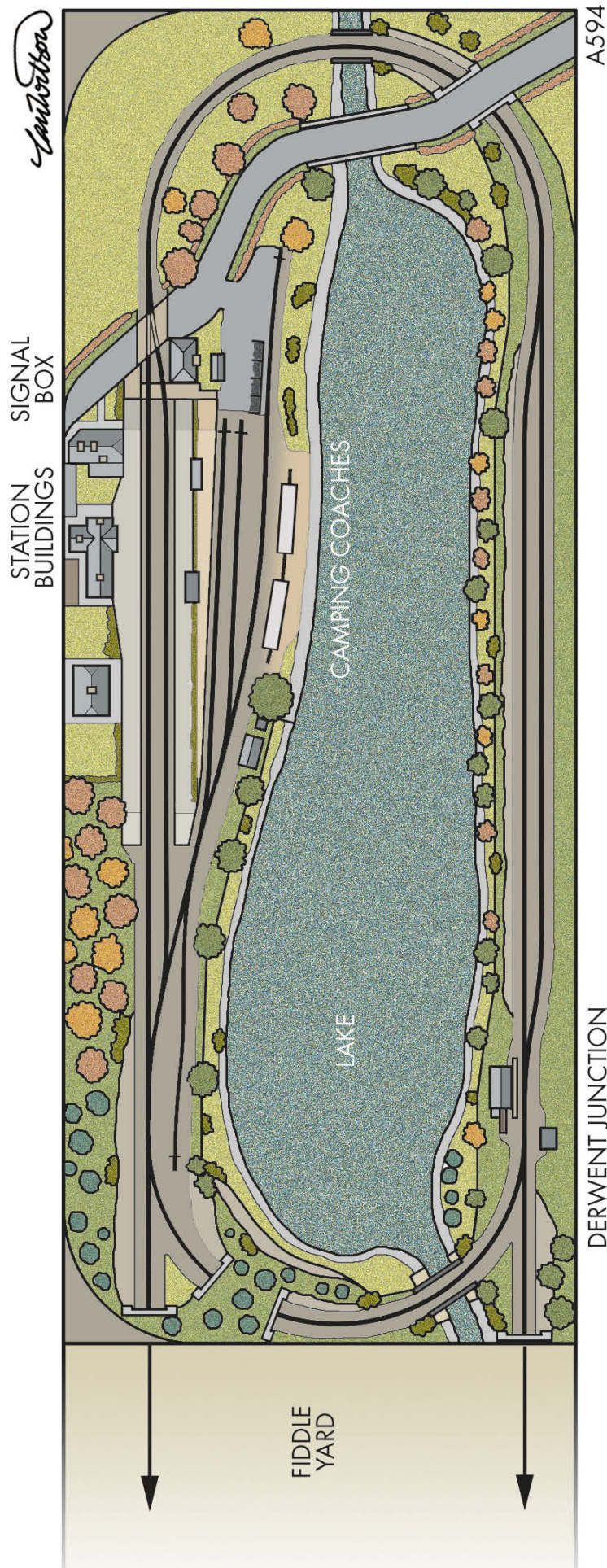
- ✓ Plenty of scope for operation with enough activity to keep two operators
- ✓ Can be easily transported to exhibitions due to its size
- ✓ A perfect concept for the beginner seeking more landscape in a confined space.

AGAINST

- ✗ Given that the majority of the layout is single track and is controlled using traditional DC by two operators, they must both ensure they isolate their tracks correctly.



Some of the autumnal shades used on the trees work very well.



CROSSFIELDS

It's comparatively rare to see an N gauge layout based around the pre-TOPS BR diesels and even more unusual to see one with high-quality weathering and detailing. **Mark Pegden** tells the story.



The early-1970s transition from BR green to blue and 'D' numbers to TOPS identities creates numerous locomotive variations for modellers of that period.

FACT FILE

- **Layout Name:** Crossfields
- **Scale/Gauge:** 1:148 scale, 9mm gauge N
- **Size (scenic area):** 2' x 5' 7" (0.6m x 1.76m)
- **Era/Region:** Early-1970s BR LMR/ER
- **Location:** South Yorkshire/North Midlands
- **Layout Type:** Continuous circuits
- **Words & Photography:** Mark Pegden



LAYOUT FOCUS

The construction of 'Crossfields' started in 2008 and was designed to be a platform to showcase the BR diesel era between the late-1960s and the introduction of the Total Operations Processing System (TOPS) computer numbers in 1973.

Although a fictitious location, the layout is intended to represent the look and feel of the Midlands/South Yorkshire industrial heartland during that period. As such, endless coal trains and heavy freight workings predominate, hauled by an eclectic mix of period diesel traction. The livery of the day is chiefly BR corporate blue

but some locomotives can still be seen sporting the last vestiges of BR green.

To re-create the atmosphere with a gritty realism, close attention has been paid to consistent weathering of, well, simply everything. In short, 'Crossfields' is no sugar-coated, cherry-on-top, 'Titfield Thunderbolt' of a layout! Think Toton and Tinsley in the early-1970s, long unfitted coal trains and British Rail as recorded in the black and white pages of Bradford Barton's finest books and you get the idea.

It first featured in the gallery pages of RMweb in April 2011 to much acclaim. At that time the layout was

very much geared to simply watching trains go by with a small stabling point and a few sidings to add variety; furthermore it was in operated by DC analogue control.

However in mid-2011, with a rapidly growing stable of locomotives, I started to ponder a redesign of the layout to incorporate a larger maintenance depot. Then one evening, following a five-minute sketch on the back of a Graham Farish guarantee card, the fate of the 'old' layout was sealed. This was also going to be the time to make the switch to DCC. Eight months later, following the great analogue-to-digital switchover, the layout is as you see it now.



Careful weathering and detailing can make the latest generation of N gauge diesels, such as these Graham Farish Class 37s and Class 24, just as convincing as those in larger scales.

KEY DETAILS BUILDINGS AND BACKSCENE



The majority of buildings are Metcalfe card models that have been kit-bashed in some way. The locomotive shed is built from two kits end-to-end with a scratchbuilt roof. The large warehouse which dominates the horizon, by far the most commented-on building, is built from a total of six kits joined together. All of the buildings are further weathered with dyes, inks and acrylic paints until the level of grime is right.

They give the illusion that the layout is much bigger than it actually is. The outer limits of the backscene are purely made up of simple geometric shapes painted in singular block colours. This unconventional approach creates the impression of depth. Hopefully the effect comes across in the photographs, after all the visible part of the layout is only 0.6m wide and 1.76m long.



LAYOUT FOCUS



It's difficult to imagine in 2015, but spotters visiting large depots in the 1970s could guarantee seeing dozens of locomotives under repair or awaiting their next turns.

A graphic demonstration of the size of N gauge models, also showing the minute detailing and weathering work that can go into making them look more authentic.





The quality of locomotives in N gauge has improved dramatically over recent years, and this isn't limited to purely main line classes. A Class 03 and an 08 await their next shunting duties.



Parked up for the weekend, BR blue Type 2, 3 and 4 designs crowd into the depot sidings, surrounded by typically grimy industrial and traditional railway buildings.

LAYOUT FOCUS

LOCOMOTIVES & ROLLING STOCK

To re-create the look and feel of the era a considerable quantity of period rolling stock was required. This was especially important as the longest of the 15 roads in the fiddleyard are capable of holding up to 46 short-wheelbase wagons. There are currently over 130 16t mineral wagons passing through 'Crossfields' to serve the local coal industry.

Every single wagon and carriage on the layout is individually weathered and detailed to some degree and no piece of rolling stock is ever run factory-fresh. And then there are the locomotives.

The post-steam, pre-TOPS period is a niche era for all gauges, but in N gauge it's very rare. Ready-to-run offerings are quite limited and more often than not are found to be incorrectly represented in some form. Getting this right was going to be a tall order.

Locomotives had to be re-sprayed, renumbered, 'domino' headcodes changed to four character displays and period details corrected even before the weathering process started. During the early days of construction I was quite happy with my weathering and detailing achievements. My buildings and rolling stock looked the part, but with the locomotives I felt things could be better. I really wanted to push the boundaries and achieve O gauge levels of detail in an N gauge package. So, I contacted Mercig Studios and the transformation of the layout began. Every locomotive you see has been researched from books and online resources and then submitted to Mercig for painstaking re-creation. No two are alike and all carry individual idiosyncrasies, just like the prototype.

To see a few examples, look carefully and you will see that none of the Sulzer Type 2s are alike; all sport varying configurations of grilles, bodyside valances, number positions and headcodes as well as the prominent snowploughs fitted to Class 24/0 D5027 and Class 25 D5166. 'Peak' D6 *Wherside* is missing a headcode disc, as seen at Toton in 1971 and D6900 can be seen as an ultra-rare example of a pre-TOPS blue English Electric Type 3 (Class 37) recorded with snowploughs and frost grilles fitted.

Capturing D6900 in this form was only made possible through **RMweb**, when fellow member

Despite the introduction of MGR operations in the mid-1960s, many traditional coal wagons remained in traffic throughout the 1970s and 'Crossfields' has hundreds of them!



Great attention has been paid to getting period details correct for each locomotive, such as D6900 with miniature snowploughs and original frost shields.

and N gauge modeller 'HealeyMills' managed to source a single photograph (thanks Lee!).

When you look at the photographs and cannot tell the scale or when you get accused of modelling in a larger scale and trying to pass it off as N gauge (true!) or when you place a coin alongside a model for scale and you're asked where you get 15' high penny pieces from you know you are looking at as close to perfection as you can get in N gauge.

These are not just models, they're more akin to miniature pieces of artwork. Recognition where it is due, 'Crossfields' wouldn't be the layout it is without the genius of Mercig Studios.

THE FUTURE

In my mind the layout is far from complete and countless details remain to be added. The variety of rolling stock is set to increase as is the fleet of locomotives, especially with the very tempting line up of new models that have been announced.

Keep an eye out on the **RMweb** Gallery pages for Deltics hauling Mk 2s, maybe a 'Midland Pullman' set and as for the arrival of more new Class 20s, I'll say no more! **BRM**



It's not all freight - the occasional parcels and passenger trains can be seen too, such as split headcode 'Peak' 95 threading its way through the yard with a set of Farish Mk 15.

FACT FILE

Dr Mark Pegden is a highly specialised Engineering Consultant and lives in North Yorkshire. His family have always been enthusiastic about all aspects of engineering, especially railways, and his father is a lifelong 3mm scale model railway enthusiast. Away from railway modelling, Mark ('Pre-Tops Blue' on [RMweb](#)) is also a keen and accomplished amateur photographer and all of the photographs submitted for this article are his own work.

Attention to detail extends well beyond the locomotives, as can be seen in this view of Class 24/0 5058 (another Mercig weathering masterpiece) alongside the shed.





HOW TO BUILD AN LNER PLATE-LAYER'S HUT

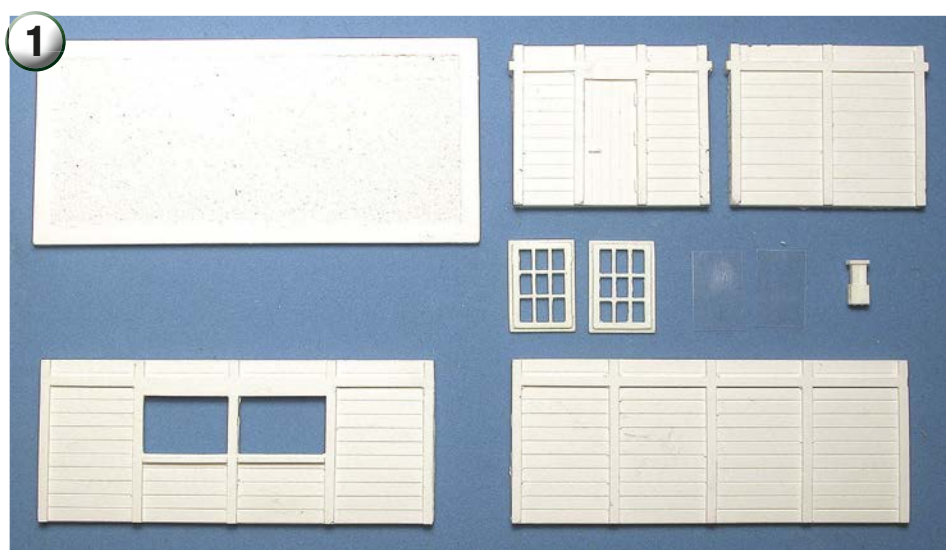
Words & Photography: Paul Bason

Paul Bason takes a closer look at this plaster-cast kit of a lineside building that saw extensive use.

The use of pre-cast concrete for railway structures isn't new. William Marriott of the M&GNR was seen as an early pioneer, employing it for a range of lineside uses. Many railway companies didn't see it as a solution for quickly and cheaply replacing time-expired lineside timber buildings until after WWII. The LNER was no exception and the subject of this feature covers one variation of the standard factory-made panels that could be moved around in 'flat pack' style by rail and craned and erected in their final positions on pre-constructed in-situ concrete bases in a matter of hours.

Many readers will be familiar with making card and plastic kits. Plaster-based material is popular with modellers who want something that looks realistic, yet is simple to assemble. In this instance the subject is an O gauge version of the same LNER platelayers hut that Ten Commandments produces in N and OO scales. The pre-cast concrete prototype lends itself well to the cast approach and is simple to construct.

The kit goes together very well and makes an interesting lineside addition. If you've a small space on the layout and fancy something different, have a go. ■

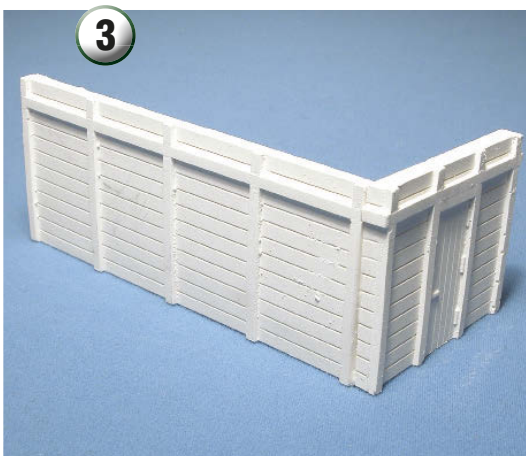


Opening the box and carefully unwrapping the contents, these are the finely-cast plaster parts you'll find. If you look carefully you'll see that the casting process can leave flash around the edges. Take a small file and carefully remove any surplus material you find. A quick rub with fine wet and dry paper, and you're ready to commence construction.

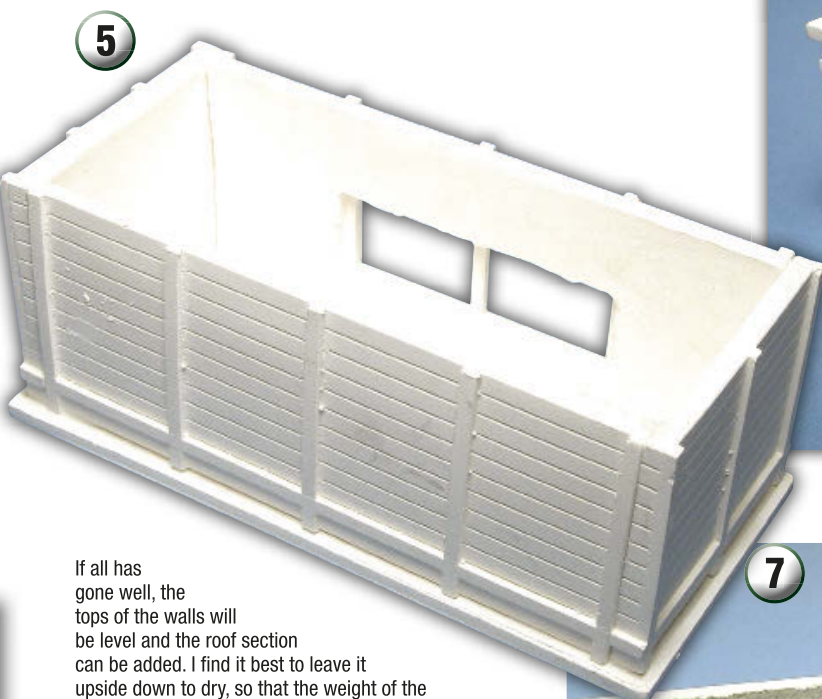
2 After familiarising yourself with the parts and having a 'dry run' through the assembly process, it's time to get started with assembly. I'm fixing one of the long walls to one of the ends using PVA adhesive. Spread the glue onto the parts before they're positioned together. I use a small engineer's square to ensure they're in perfect vertical alignment and at right angles to each other. Let individual sub-assemblies dry thoroughly before adding the next section as the building takes shape.



Discover more about the history of concrete structures. Visit www.brm.ag/ConcreteHuts



Repeat the first stage by sticking the other two walls together. If you're unsure, build up the back of the model first. This way, the front will be second nature to construct.



If all has gone well, the tops of the walls will be level and the roof section can be added. I find it best to leave it upside down to dry, so that the weight of the structure holds the joint tightly as it sets.



A prototype pre-cast modular concrete building, at an unknown location, still in use today – such is their versatility. KEITH PARKINSON



Once the glue has dried the two sub-assemblies are brought together and fixed. Check everything is square.



When the adhesive has set the hut takes shape and is now ready for the cast windows to be fitted and glued.



Paint the model with Humbrol, Revell or Phoenix Precision ranges, suitably thinned with white spirit. If you have them, matt acrylic paints are okay too. Also, light weathering makes a tremendous difference to the model. Once the paint has dried, the clear plastic glazing supplied can be fixed to the plaster using something like Evo-stick solvent-free contact adhesive. Job done!

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THE HAY WAIN



David Wright's painterly diorama is not a railway model *per se*. However, it employs techniques that have many useful applications in the hobby, and it is flat-out gorgeous however you look at it...

My model of The Hay Wain was originally designed for my latest book 'Creating the rural Scene' (Crowood Press). My idea was to create a model that would embody the title of the book, but also be instantly recognisable. I have used scrap card for most of the construction, just to show what could be achieved with low-cost materials. However, I soon realised the scale of the challenge that I had taken on.

My research began with a visit to Flatford Mill, which is the setting of Constable's work. I took many photographs and estimated the measurements of 'Willy Lott's cottage', as seen at the left of the painting. It's now a Grade 1 listed building from which I produced 1:43.5 scale drawings. This scale was chosen to take advantage of commercially available kits of farm wagons, horses and figures, all of which are seen in the painting.

Scenery

Next, I chose a baseboard upon which to set the scene. Once the mill pond and cottage were plotted out, the structural modelling started. The landscape was created using recycled polystyrene packaging, which was carved, shaped and sealed with a coat of plaster. The foundations for the cottage were formed using strips of foam board.

I added ground texture using a fine grit for the surface of the lane and the beach. Assorted materials were used for the grass and scrub, including teddy bear fur, foam flock and static grass.

I turned to nature for the tree, using an old root as a basis and flock matting for the foliage. The water in mill pond was created using three coats of clear gloss picture varnish. The reeds and rushes on the far bank are mostly bristles from an old paint brush.

The wagon parked in the mill pond was made from two kits, with a few scratch-built additions. The horses and two carters had to be modified slightly to replicate those in the painting. The dog was completely built from scratch, with a wire skeleton and a sculpted Milliput body. It was important that this was made accurately, since Constable intended the dog to lead the viewer to the wagon, which itself is the centrepiece of this famous work of art.

As a final touch, the backdrop was painted in oils on a sheet of canvas board. I tried to match the sky, fields and trees to the original painting. Careful blending of colour was needed to make sure the transition between the three dimensional model and the two dimensional back drop was observed.

The completed Hay Wain is now a major part of my exhibition display, and has become a talking point with show visitors.

Constable's curiosities

When it came to dressing the diorama, the wagon would certainly need to be replicated. It soon became obvious that John Constable had not depicted a Hay Wain wagon. I found this confusing, and investigated this further by contacting the National Gallery in London.

The explanation given was that the painting was conceived from many sketches made on site at Flatford Mill, and during hay-making all available wagons would be brought into use. It was not unusual, therefore, for other types of wagons to be converted for carrying the hay. Timber wagons were common in the area, used for bringing in the timber for the boat building yards along the river Stour.

For the model I found a white metal kit from Duncan Models of a timber wagon that could be used, although the rear wheels needed changing for larger ones and the temporary wooden rails had to be made from scratch. I managed to make these up from veneers found on an old wardrobe to replicate something like the painting.

This low angle view shows how the diorama has been dressed. Careful observation of the painting resulted in accurate positioning of the wagon, the two carters and the horses.

I have also always wondered why the wagon is parked in the mill pond. The obvious reason for this was to let the cart wheels to swell while being immersed in cold water, allowing a tight connection with the metal tyres. It was a common occurrence for the tyres to become loose when on the road for long periods.



the backdrop was painted in oils on a sheet of canvas board. I tried to match the sky, fields and trees to the original painting

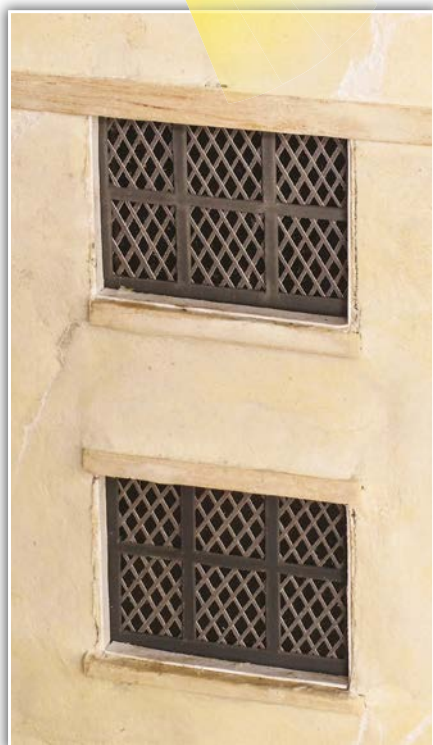


Willy Lott's Cottage

This iconic building is made from strong pieces of card, which were off-cuts from a local picture framer. With the main construction completed, a skin of Das modelling clay was applied to create the render and exposed brickwork. The building was then painted before I added the windows and doors. These too were made from scrap card, with gummed labels and clear packaging for the glazing.

The roof tiles were individually cut from old greeting cards. The chimney stacks and other final details were then added, before painting and weathering was applied, using the photographs of the building as a reference.

KEY DETAILS



Modelling Windows

The materials and techniques used on Willy Lott's cottage can be used for railway buildings as well. All the windows on the cottage were scratch-built using scrap materials. Celluloid clear packaging was selected for the glazing.

First, draw out the frame of your window on graph paper to your desired scale. The stages of constructing the window can then be assembled on top of the drawing.

A piece of the celluloid is cut oversized and taped down over the drawing. Next the glazing bars are cut from gummed backed labels. These are cut in very thin strips using a sharp blade to make a clean cut. The strips are then positioned directly onto the glazing panel, leaving the over length. I tend to use old greetings cards for the frames. First, double sided tape is fixed to the coated side of the card before the card is cut into strips to the scale width of the frames. Peeling the backing paper away these can now be

assembled onto the celluloid trapping the ends of the glazing bars. This will ensure the gummed label strips remain in position when the tack begins to dry out. Any of the extra card or label strips can now be trimmed off.

Using card makes painting simple. The card and the gummed labels were first spray painted before any cutting was undertaken. Another option is to use water-based felt tipped pens. The window frame can be coloured when assembled if this technique is preferred. The ink will soak into the matt side of the card and the facing side of the gummed labels, however it is repelled by the celluloid making the colouring of window frames easy.

The leading to the frames on the cottage was created in this way, although if the scale of the model was smaller, I would have used a pre-printed celluloid sheet, such as those supplied by Freestone Model Accessories.

Modelling Cameo Scenes

The centrepiece of the 'Hay Wain' diorama is the wagon and team of horses. This cameo was carefully copied in three dimensions from that composed on the painting. Most model railways will benefit from small cameo scenes which will greatly enhance the appearance of the layout.

Always look at photographic reference or look at works of art to position vehicles, animals or figures. As modellers we need to be aware of this to make even groups of figures standing on railway platform

look natural. Don't be tempted to over group them or spread them out equally spaced. We can learn a lot from the work of artists as we need to compose our models, just in the same way as an artist will compose a painting.





Modelling the dog

The dog is such an important element to the painting, therefore the model in the diorama needed to be right. I was left with no option but to create the dog from scratch, as no readily available casting or moulding existed. I decided to start this model by creating a wire skeleton. This was carefully shaped and assembled to replicate the stance of the dog in the painting.

Once happy that it looked right, Milliput was added to the wire skeleton. This was very carefully sculpted using a dentist's probe to match the body, head, legs and tail of this breed of dog. This took a time to apply and sculpt to the desired shape, but I was quite happy with my efforts – especially as I had never attempted this before!

Painting the Diorama

Everything on the Hay Wain diorama was painted using artist oil paint, including the cottage, dressings, landscaping and the two dimensional back scene. After all John Constable used this medium for his masterpiece, so who not use it for the model too.

This was ideal for all parts of the diorama and I found that I could mix the correct tones required to replicate those of the painting as closely as possible. The paint was applied reasonably thin, working up the colour and shades on the palette first. Even the grasses and reeds were painted

with oils using the paint as a wash, thinned down with plenty of turpentine.

Railway modellers seem to dismiss this medium in favour of working with ready-mixed paint from small tins. I would recommend trying out oil paint for all your

modelling needs. You only need around a dozen colours direct from the tube, and any others can be mixed. It can be both economical and rewarding, as I hope the model of the Hay Wain diorama proves. ■

The completed scene - a 3D rendition of Constable's artwork. See this model at the Milton Keynes show on October 13 and 14.



BRM

BRITISH RAILWAY MODELLING

TV

DIGITAL EDITION EXCLUSIVE

RIDE THE CHURNET VALLEY RAILWAY

Take a ride from the beautiful Churnet Valley up to the edge of the Staffordshire Moorlands behind a WW2 S160 locomotive including a storming run up the 1 in 35 incline from Leekbrook Junction.

EXCLUSIVE

WATCH THE VIDEO HERE

(You must have a wifi connection to stream video content)



Behind the scenes at... RAPIDO TRAINS

Howard Smith chats with Rapido's Jason Shron about his passion for modelling, his latest Chinese factory, forthcoming models and his tireless thirst for humour.



Jason is excited about his latest batch of CN 'cars'. This is the assembly room at his factory, where each technician performs a labour-intensive set task.

BRM: I suppose I should start by asking you to tell us about your team...

JS: There are now 12 people at Rapido so there isn't room to talk about everyone, but here are three interesting tidbits:

Bill Schneider is known in North America for his New York, Ontario and Western models, but he's one of the finest British outline modellers I've ever met. His Great Western 'Teesbury' layout is stunning and if he lived in the UK it would be one of those layouts at shows that you can't get near.

Gareth Bayer is even more obsessed with trains than I am. Our office is beside the Canadian National mainline and Gareth leaves work around 17:30, but can be found on a nearby bridge photographing trains for up to two hours after work. His wife is very patient.

Janet Golfman, our Chief Financial Officer (CFO), would rather be manufacturing women's shoes.

BRM: What drives your model choices, for the UK and Canadian market?

JS: It's a mixture of knowledge of the market (we're all modellers at Rapido.... except Janet), intuition and what we need for our own layouts. It's amazing how so much of the rolling stock and power that served Toronto's Union Station in 1980 is available from Rapido. Coincidentally, my model railway is based around Toronto in 1980. Amazing, that...

BRM: Your promotional online material seems 'more fun' – it's a hobby after all. Has this been 'the norm'? How did it start?

JS: I started as a railway modeller who became a manufacturer. I had to make up the rulebook because there was nobody to tell me not to do certain things. I also grew up a big fan of Monty Python and the Canadian comedic characters Bob and Doug Mackenzie, so that has influenced my marketing. As Rapido has grown I've surrounded myself with people who can be just as silly as I am (...except Janet). Some of our meetings are really very funny.

BRM: What are your thoughts on the current British model market as a manufacturer from outside the UK? Is the Canadian market for models so different?

JS: The British market is a lot bigger than the Canadian market, and you're blessed by having this thing called 'British Railways'. It

means that for anyone modelling the late-20th century, you've just one railway and can justify running a variety of things on your layout. In Canada, CP and CN spent most of the 20th century circling each other, hands on holsters, spitting chewing tobacco at each other's feet. The market is divided, so potential models have a more limited audience.

BRM: What challenges do you face producing models in China? Why setup your own factory?

JS: We recently set up our own factory because we were tired of being pushed aside for bigger clients. We also realized that the factory was adding a massive markup on tooling (the steel injection moulds) for no good reason. Our prices have only increased by about 10% in the last six years. We've managed that by controlling our costs directly. Our biggest challenge is the cost of labour. I wouldn't be exaggerating if I said labour costs in Guangdong province have gone up 400-500% since I started in this business just 14 years ago. This keeps me up at night...

BRM: You speak Chinese pretty well, so that must help... how does one setup a factory in China?

JS: Speaking Chinese is definitely a bonus. Everyone in China is surprised and impressed when I start speaking Chinese, despite the fact that thousands of Westerners speak it. It definitely gets me better prices. The only way to set up a factory in China is through something called guanxi (gwon-shee). It basically means 'relationships'. I've

built many relationships in China over the last 14 years. For example, many people I worked with at the old factory in 2008 are still working with me now, several factories later.

BRM: As a student you lived in the Birmingham area – what are your memories of that era? Has this influenced you?

JS: Absolutely! The proof is our 'Brummie' bus. I'm probably the only person on the planet who wishes he could talk with more of a Brummie accent. Living in Brum I was amazed at the incredible railway network and ease of getting around. In Toronto, all the commuter rail lines go downtown, which

is at the south end of the city. If you want to go across town instead, 'tough tooties'. That's why the 12-lane highway across the middle of the city is always chock-a-block.

BRM: Tell us about your model of a Guy Arab bus? Why?

JS: Most model buses are still diecast, which means there's little detail on them. For our Guy Birmingham New Look bus, we're bringing the same obsession with detail from our trains over to buses. We'll have nice decorated samples at Warley and delivery will be next year. We had to move the Rapido factory so it's put our deliveries a little behind schedule.

The printing room. It's here that models receive their final embellishments after being sprayed. A model will often require multiple passes through machines before each stripe, panel or lettering is applied.



Promising new levels of detail, Rapido's first British vehicle is a Guy Arab bus. Injection moulding of parts rather than traditional diecast methods has yielded impressive results, as we witnessed during a model preview.

Watch us
take a first look
at this model
Visit [www.
brmm.ag/](http://www.brmm.ag/)
GuyArabBus

HOW DID

..a Canadian manufacturer enter the British model market?

Bill and Jason both lived in the UK and Gareth is a well-regarded British modeller and journalist. They feel this gives them a better understanding of the market than other North American manufacturers. If the APT-E had been made for the North American market, its minimum radius might have been 30in - good luck fitting that in the shed!

BRM: More British model buses? What about British rolling-stock?

JS: We are working on British bus model number two, which will be announced at Warley on November 24 and 25, with a real bus at our stand! We will have 3D-printed samples at the show as our tooling shop won't have capacity until later in the autumn. As for rolling stock, it depends on what Gareth or Bill can convince me is a good idea.

BRM: Your work with retail partners to produce exclusive models has yielded great results – is this method of manufacture preferential?

JS: Making models with partners is a great way to break into a new market as you're working with people who have experience with that market. We will continue to work with partners but we can't rely exclusively on that business model because the margins are too tight. In the future we hope to have a good mixture of models with partners and models of our own.

BRM: The current British trend with some manufacturers is smaller production runs, offering buyers more variety from the



Rapido was chosen to produce Locomotion Model's 00 gauge GNR 4-2-2 'Stirling Single'. Quality control is carried out by an employee who tests the performance of each model – its running qualities and power consumption.

outset. Does this trend exist in the Canadian market? What's your view?

JS: That's a choice, really. We build our business on super-detailed models,

including the bits you can't see unless your train derails and falls down the embankment. That's simply what we want in our models for ourselves, so that's what we make. But it comes with a higher cost, so people can't afford to buy as many.



Rails of Sheffield's LNER Dynamometer car, tooled by Rapido has pushed the boundaries of RTR detail to new levels. Read our review of this model in our August 2018 issue, available from www.pocketmags.com/BRM

Watch a
guided tour of
Jason's factory
Visit www.brmm.ag/RapidoTour

When we tried doing a 'simplified' model of the General Electric Dash 8 freight locomotive for the Canadian market we got screamed at by our regular customers who told us, "We'll pay more – please make this a full-on Rapido model!" We haven't told them yet but we are looking at upgrading it to a Rapido 'bangs-and-whistles' model.

BRM: Your LNER Dynamometer Car for Rails of Sheffield and Stirling Single for Locomotion Models raised the bar for detail on RTR. Do you believe we've reached the pinnacle? If not, what would you change?

JS: We're very happy with how those projects turned out. I think there's more we can do. We're working on a North American model which will be revolutionary, but we haven't worked out all of the engineering challenges yet. If we can pull it off, some people will say "it isn't worth the cost" whereas others will say "I have been waiting for this since I was six – sign me up at any price!"

A factory engineer makes changes to a file for one of the tampo-prints on Revolution Trains' TEA bogie tankers. Note the reference charts and other on-going projects on the desk.



we are working on British bus model number two, which will be announced at Warley on November 24 and 25... with a real bus at our stand!

BRM: Overseeing how your models are made, do you believe new technologies will change the way you make your models in the near future?

JS: Not in the near future. 3D printing is a great tool for small runs or for testing ideas. We're using it a lot in developing the new North American model, but it won't replace injection moulding for the detail level and economies of mass production for a long time. I think the next major technology change will be when 3D printers can do it all from the ground up – think the replicators

on Star Trek: The Next Generation. Then we'll all be out of business as you'll be able to dial up the train you want and with a bunch of sparkles it will appear in your lush, tastefully-decorated starship quarters. I hope to be retired by then... ■

JASON IN A NUTSHELL

BRM: A train, in a basement... really?

JS: Actually, VIA Rail has called several times to complain that I don't take the train nearly as often. The basement is much closer and I can walk there in my slippers.

BRM: You own a bus?

JS: The Super Continental Limited, sister company of Rapido, owns a 1967 GM New Look bus, a 1956 Budd Rail Diesel Car, and a 1954 Pullman-Standard sleeping car. The trains are a way of giving back to railway preservation and are a worthwhile money pit. The bus is a lifelong dream. When I was nine my career plan was to be a teacher in the morning and drive the Bathurst 7G in the afternoon...

BRM: Buses or trains? (if you had to pick one...)

JS: It depends on which buses and which trains. VIA Rail Canada passenger trains win every time – no question. I have VIA Rail pyjamas. But a choice between a Deltic and a Leyland Titan PD2 would be a tough call. Remember when you could get Doctor Who underpants? Someone needs to make VIA Rail pants! With Cybermen added for good measure!

BRM: Favourite British line? (heritage or revenue-earning)

JS: Cross-Country. They all go through Birmingham, and they have HSTs. If you can splurge on first class, the trips don't smell like toilets!

BRM: Favourite Chinese food?

JS: Sweet and sour gluten balls. Yes, it's a real thing, but it takes about three hours to make. The secret ingredient is goji berries. Next time you see me ask to hear my goji berry story. Everyone should have a goji berry story!





HOW TO WIRE A REVERSING LOOP

Words : Howard Smith Illustrations : Ruth Jamieson

Adding a return loop to your layout increases operational flexibility, but can create electrical problems for the uninitiated. Howard Smith solves the puzzle...

Reversing loops are useful for changing the direction of trains without requiring the operator to handle rolling stock. In two rail systems, a reversing loop is often avoided because of installation or wiring complexities and without a clear understanding of what it entails, the track supply can be short-circuited. So, if you

aren't keen on continually picking up locomotives on your cassettes but you don't have room for a continuous circuit and you're a fan of regular running of trains, perhaps it's a solution for you. Here's a selection of issues that may arise when using reversing loops on a two-rail DC system and how they can be overcome. ■



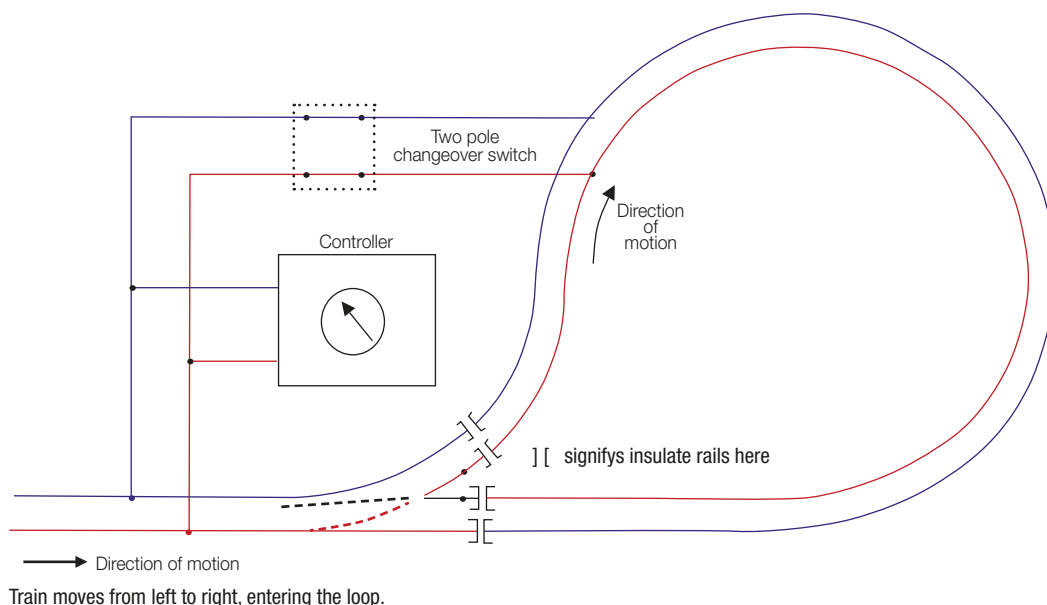
Keith Harrison and David Hampson's 'Apethorne Junction' owes its smooth operation largely to a large return loop at one end of the layout. The line in this shot runs behind the camera in a loop, returning to the right, behind the Class 20 with its rake of cement hoppers. See the trackplan of this layout on page 92.

1 - A simple loop

This basic loop requires a single point. A left-hand variant is used for the illustration, but a right-hand or 'Y' would work as well, subject to layout requirements. Regardless of whether the points are Insul-frog (insulated frogs) or Electro-frog (powered frogs) some rails in the loop must be isolated from those on the main track. In addition, a changeover switch is required. The wires are coloured differently to indicate the two poles.

HINT

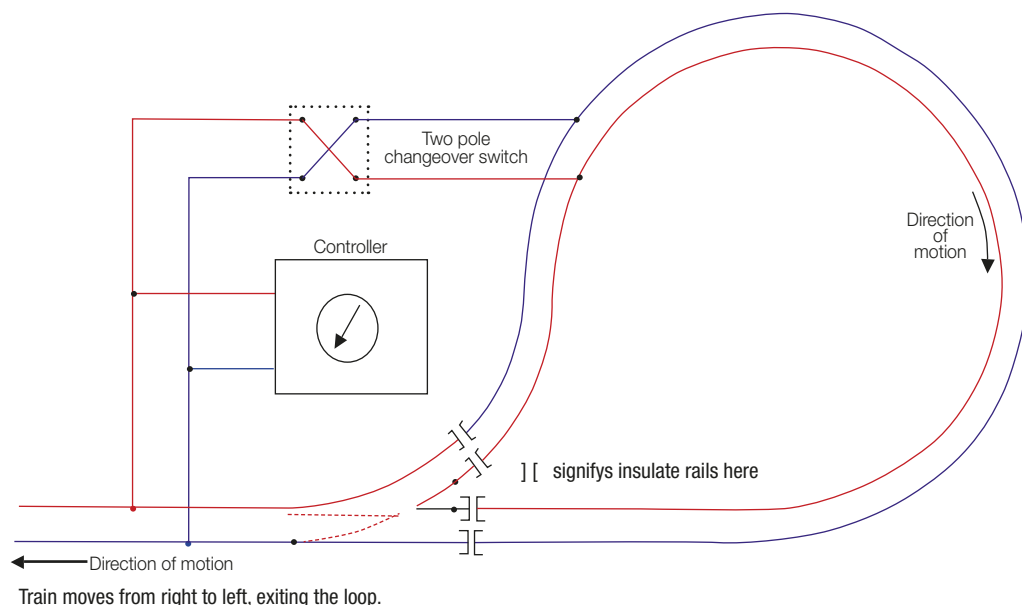
Useful for layouts where a train is hidden from sight for part of its travels, or where automated control is being used.



Operation

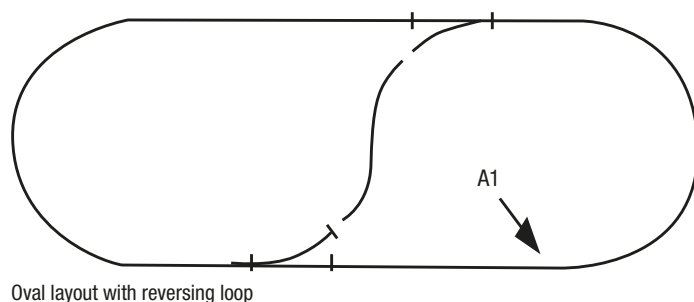
A train approaches the loop, moving from left to right along the straight track. The point is set to deviate from the running line and the changeover switch is set to keep the track polarity in the loop the same as on the main line, allowing the train to enter the loop smoothly. Beyond the isolators at heel of the point, the rails are of opposite polarity - without these there'd be a short circuit.

When the train has entered the loop, the controller is returned to zero, and the point and two-way switch are changed. The controller is turned in the opposite direction. Without the changeover switch, it wouldn't be possible to match the voltage polarities of the rails within the loop to those of the main line. Reversing the controller and changing the changeover switch ensures the polarity of the voltage applied to the rails in the loop is correct. When the train rejoins the main track, its direction is opposite to what it was initially, so the polarity of the supply to the rails of the main line has changed.

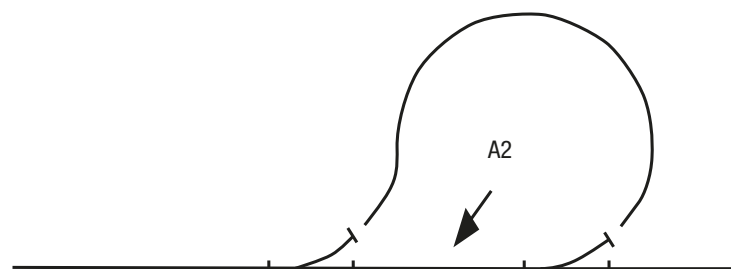


2 - A loop with points

This setup requires two points to form the reversing loop. In this case, the changeover switch becomes unnecessary because switching is carried out by the points, simplifying operations.



Oval layout with reversing loop



End-to-end layout with a reversing loop using two points

Both of these layouts look different but are wired in a similar manner. The extended loop of track in the first is reduced to a short length of track in the second.

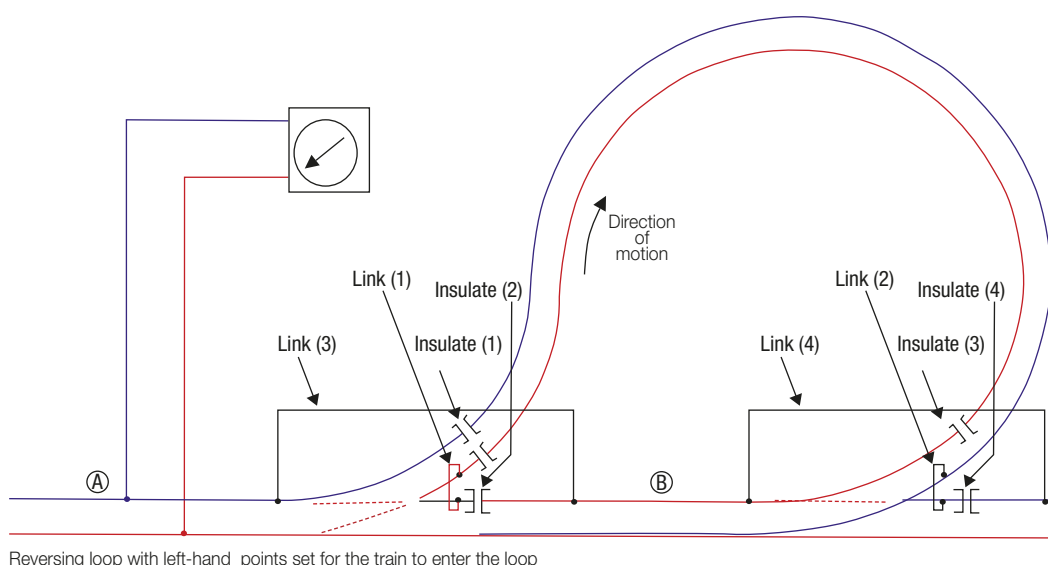
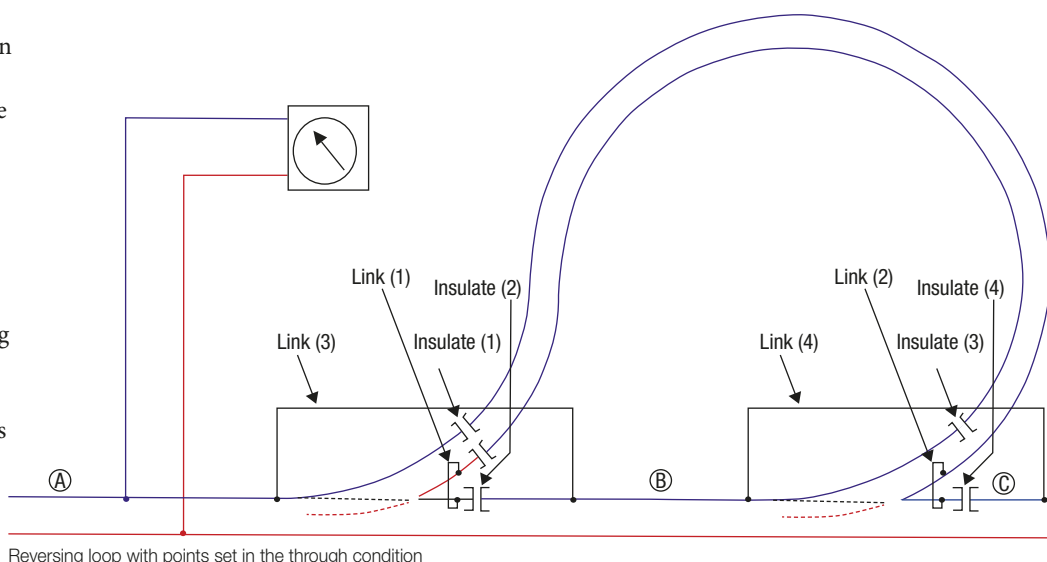
No changeover switch is required, but it's still necessary to reverse the polarity of the controller while the train is located in the loop. A change in the direction of the train always requires a change in the polarity of the supply direction on DC control.

Operation

Both points are set to the through position (figure adjacent) and the polarity of the supply to the main line rails is appropriate for a train moving from left to right.

Insulating rail joiners replace metal joiners in four places and wiring links are required between some of the points if using Hornby or Peco SetTrack. The tracks, which form the toe of the frog, must be linked as shown. Peco Electrofrog points are pre-connected so these links aren't necessary. Insulated track joiners are used at two locations on each point, as indicated.

Power can be connected to the track anywhere at A, B or C on the through-route.



The left-hand point is set to allow a train moving from left to right to enter the loop. The polarity of the supply to the loop has been set by the switch contacts on the point. With the train in the loop, the controller is returned to zero. The left-hand point is set to the through position. The train is parked in the loop and another train could use the main line in either direction.

The right-hand point is changed and the controller is turned in the opposite direction to that used on entry allowing the train to exit the loop.

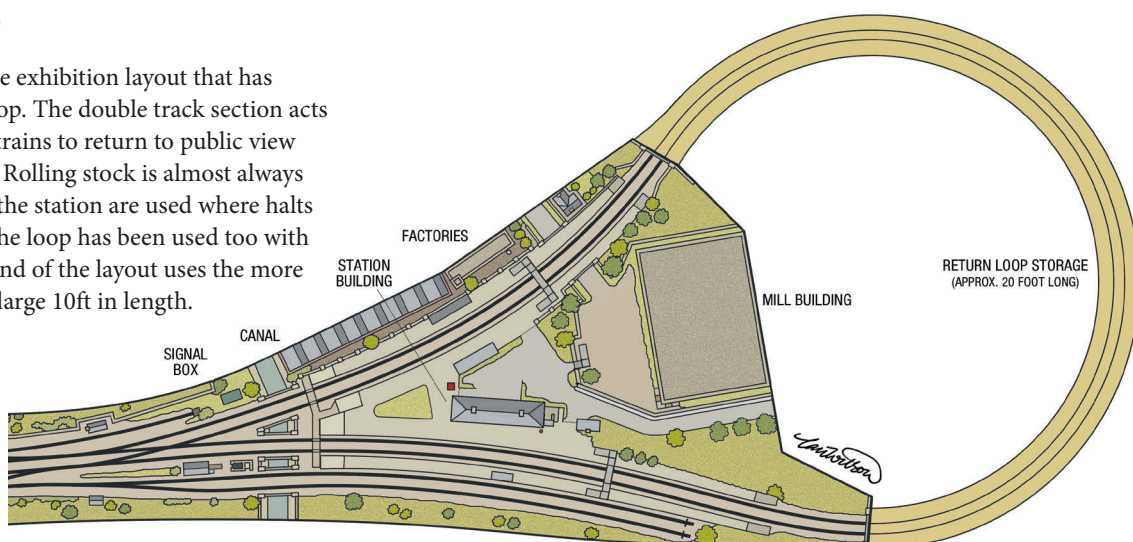
Both points can be set to the 'turn out' position with no ill effects under most circumstances, but it's best avoided – it won't cause a short on the power supply, but will once a locomotive enters the loop. The best routine is to switch a point at a time to the turnout position avoiding short circuits. The sequence of actions to operate the loop is easily mastered and mistakes are less likely than with the simple loop.

Reversing loops in use

Apethorne Junction is an O gauge exhibition layout that has made clever use of a reversing loop. The double track section acts as if it were a junction, allowing trains to return to public view quickly after they reach one end. Rolling stock is almost always on display because both sides of the station are used where halts can be performed. Space inside the loop has been used too with a large mill building. The other end of the layout uses the more traditional fiddle yard setup at a large 10ft in length.

More tips?

Discover more wiring tips in BRM and on BRM TV and if you have any wiring problems, ask me and I'll try my best to help - within reason!



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Bachmann mid-year update

Bachmann's mid-year press event on August 31 was full of modelling promise, with lots to see and an upbeat message about new production facilities coming on-stream at Gaobo in China. Bachmann's R&D manager, Steve Tooley, demonstrated how the workflow is improving, backed with the news of the many new models reaching the engineering prototype (EP) stage.

Bachmann Branchline products due for - or delivered - this year include its Class 150/2 and Class 70 with revised air intake, its BR 'Jinty' with sound and a new tender variant of its GNR Atlantic. In transit is its LBSCR Atlantic, Mk. 2f, Thompson and POTS coaches, plus the FFA/FGA container flats.

Delivered this year in 009 gauge was its 'Baldwin' tank locomotive, bogie ambulance van and open D bogie wagon, whilst its Farish range benefitted from the release of the Hawksworth coaches in maroon livery. Commissions continue to play an important role with six variants of the N gauge Societies' Carflats and 13 variants of 'Plate' flats and bolster wagons delivered for The Model Centre.

Bachmann pointed out that since December 2017 there have been 16 upgraded or new products delivered or due for imminent arrival and its narrow-gauge range has been well received and has sold out in each instance prior to arrival.

Further Engineering updates will be released at the Warley Show, at the NEC on November 24-25. To see the full extent of the update, visit our forum at www.rmweb.co.uk.

W: www.bachmann.co.uk

Branchline EPs at Stage 1



CLASS 117

- Three-Car Diesel Multiple Unit
- To be produced in 3 liveries – BR Green, BR Blue & Grey, Network South East
- Features – Directional Lighting, Interior Lighting, Speaker fitted
- 21-Pin DCC Decoder socket

Highly-detailed underframe – plated and non-plated headcode variants – earlier variants with no tail lights – square buffers and no corridor connection – later version gangwayed



DIESEL RAILCAR

- To be produced in three liveries – BR Green, BR Blue & Grey, Network South East
- Features Directional Lighting, Interior Lighting, Speaker fitted, Flexible Speedo Drive between body and bogie, 21-Pin DCC Socket

Plated and non-plated headcode boxes – highly detailed underframe – square and round buffer variants – later variant with bodyside grille

CLASS 414/2HAP

- 2 Car Electric Multiple Unit
- To be produced in 3 liveries – BR Green, BR Blue & Grey, Network South East
- Features – Illuminated and Interchangeable Head-code panels, all wheel pick up with conductive coupling, Speaker fitted
- 21-Pin DCC Decoder Socket

Flexible speedo drive – high intensity headlight – highly detailed underframe



CLASS 24

- To be produced in 3 liveries – BR Green with small yellow panel, BR Green & BR Blue
- Includes Directional Lighting, Cab lighting, Sprung Buffers and pre-fitted speaker
- 21-Pin DCC Decoder socket

Accurate cab roof and window profile – highly detailed moulded grille variants – comprehensive tooling to cover many sub-class variants – with and without underframe fairing – highly detailed bogies with etched components to enhance detail – plated and open boiler grille variants

BRANCHLINE – WESTERN PULLMAN



- Sound capability with two independent DCC sound systems, each mounted in the roof of the power cars.
- Upgraded speaker system with roof mounted sugar cube speakers and custom designed sound chamber.

Pre-orders for this premium train set have been strong, as has its version in the Farish range

Branchline EPs at Stage 2

CLASS 158

- Three Livery Variants
- Multiple detail variants
- Switchable day/night modes, illuminated destination blinds, factory fitted speaker
- 21-Pin DCC decoder socket installed

Working door interlock lights – Interior and directional lights – day/night light mode – Cummins and Perkins diesel engine variants – low profile mechanism – easy access decoder install via underframe

CAD Design stage

JOHNSON 1P

- Produced in Midland Railway Crimson, LMS Unlined Black and BR Lined Black
- Includes pre-fitted speaker, realistic firebox flicker, sprung buffers
- Variants include round top and belpaire firebox, condensing equipment for Metropolitan Railway working
- Enable with an 18-Pin Decoder socket

Number of variants have demanded two bodysell types to cover – different vacuum ejectors – different sandboxes – Salter and Ross Pop safety valves – with or without push pull apparatus – condensing and non-condensing boilers – two versions of chimney, smoke box door and coal rails

QUARRY HUNSLET

- To be produced in 4 specific Quarry liveries
- Cab or no cab variants
- Includes 6-Pin DCC Decoder Socket

Quarry Hunslet – with or without cab – different chimney heights – different buffer beams – different handrails – Ramsbottom and Salter safety valve versions with trumpet where relevant

94XX PANNIER

- To be produced in 3 liveries – GWR Green, BR Black early Crest, BR black late crest
- Body variations dependant on Swindon works or outside contractor-built locomotives
- Factory fitted speaker, sprung buffers, realistic firebox flicker
- Includes Next 18 Decoder socket

Tooling to cover GWR and BR build variants (lamp irons etc.) – different bunker step variants – plated or non-plated front valance below smokebox – coreless motor

Graham Farish EPs at Stage 1



THOMPSON CORRIDOR COACHES

- Four coach variants – Corridor First, Corridor Composite, Corridor Third and Corridor Brake Third
- Two liveries to be produced – LNER Teak, BR Crimson & Cream

Thompson Corridor Coaches – four coach types to create prototypical train

Graham Farish CAD design Stage

STANIER CLASS 8F

- Loco drive chassis with coreless motor
- Current collected through locomotive and tender
- Riveted and Flush sided tender variants
- Speaker fitted, factory installed sound on 372-163DS

Riveted and non-riveted tender types – 2-wheel designs to cover cast and built up balance weight variants – late BR variant with reduced height lamp iron on smokebox door – snow plough fitted variant – with or without AWS fitment

CLASS 31 (REFURBISHED)

To be produced in BR original Railfreight livery, BR Railfreight Petroleum Sector livery and Network Rail livery

- Multiple detail variants
- Includes directional lighting and factory fitted speaker
- Includes Next 18 Decoder socket

With or without roof cowl (hat) – side grills in horizontal or vertical position – two variants of high intensity headlight positions or no headlight – optional snow ploughs – prototypical A-1-A drive system

HATTON'S '66' – LATEST

Hatton's has shown the first running engineering samples of its exclusive Class 66 model. Just a few months after unveiling its first EPs, the weighty model bristles with fine detail, particularly below the body with the exposed pipework on these machines.

Delivery is expected to be in spring 2019 following revisions. **BRM** had access to see the model on test and initial impressions were convincing with 'Sure Sound' and 'Rail Rumble' audio developed in conjunction with model sound engineer, Legomanbiffo. The first models expected are 'celebrity' GBRf large logo blue and Biffa 'Flying Dustman' liveries. Keep reading **BRM** for updates.

W: www.hattons.co.uk



Watch Hatton's model on test, visit www.brmm.ag/Hattons66

Expo Tools 2019 catalogue

An all-new catalogue for 2019 is available from Expo Tools. The 152-page colour catalogue has all the tools you'll need with many new items and exclusives listed. Available free with orders or from your local stockist or its website.

W: www.expotools.com

Wycrail Exhibition 2018

This year's Wycrail exhibition will take place at The Cressex Community School, Holmers Lane, High Wycombe, Buckinghamshire HP12 4UD on Saturday November 3rd.

Expect 30 layouts at the one-day event, with trade support ranging from tools, kits, electronic components to RTR models and books. Open 10.00-17.00. Further information and details can be found on the Societies website.

W: www.hwdmrs.org.uk

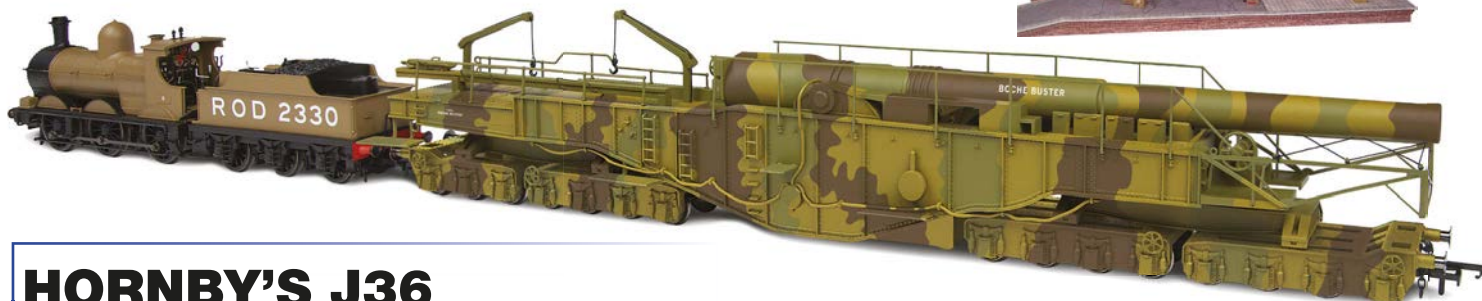
Oxford Rail's 'big gun' in production...

News from Oxford rail this month is that its forthcoming ROD WWI & WWII rail guns are in production, indicating a possible arrival for Christmas 2018, however the manufacturer hasn't provided a definitive date.

The first model for release will be its green WWII Gladiator Rail Gun (OR76B00M02) with an RRP of £49.95, behind which its WWI 'Boche Buster' gun in camouflage and ROD 2330 Celebration set (pictured) will follow. Pricing for the latter is £49.95 for the gun, or £169.95 for the set (Boom01). Alternatively, the set can be purchased sound-fitted (Boom01XS) carrying an RRP of £279.95.

Pre-ordering is advised to guarantee delivery - visit your local Oxford Rail stockist.

W: www.oxfordrail.com



HORNBY'S J36 'ON TRACK'

In this month's Engine Shed on the Hornby website it revealed the first decoration sample of its forthcoming NBR C Class/LNER Class J36. Its first sample, R3622 in BR black with early crest No. 65311 'Haig' was shown, fitted a snow plough fitted – an accessory included with the model which can be fitted if desired.

The team at Hornby has declared it is satisfied with results and there are no major concerns, though was keen to state that the model remains a sample and doesn't represent the finished version.

Pre-orders can be taken for this model at your local stockist in this livery or as L&NER black livery as No. 722 (R3621) or NBR No. 673 Maude with TTS sound (R3600TTS).

W: www.hornby.com



DOWNLOADABLE DAIRY KIT

Download and print-at-home kit specialist, 3DK has released one of its largest kits to date – a Dairy/Creamery kit, priced at £5.99. The downloadable file has a choice of brick or wooden front gable ends, a choice of doors and windows and comes with packing cases, adverts, period posters and company signage. It measures 45cm x 11cm x 10 and is detailed inside and out. The included platform can be extended to any width or length and comes with a choice of surfaces.

The kit forms part of 3DK's factory complex which uses similar brick finishes, ensuring a uniform look. See more images of this new building and others in its factory complex range on its website.

W: www.3dk.ca



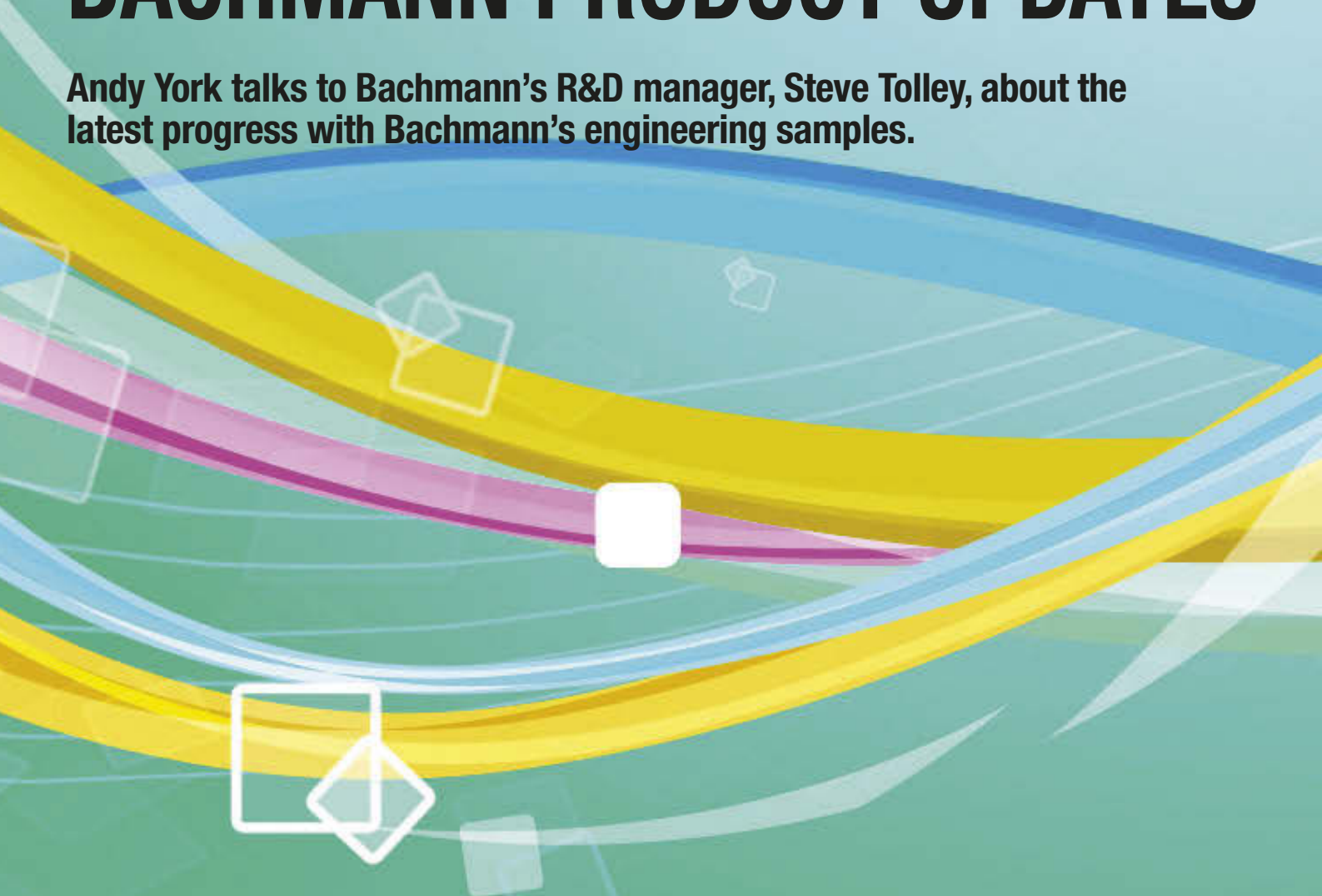
BRMTV

BRITISH RAILWAY MODELLING

DIGITAL EDITION EXCLUSIVE

BACHMANN PRODUCT UPDATES

Andy York talks to Bachmann's R&D manager, Steve Tolley, about the latest progress with Bachmann's engineering samples.



EXCLUSIVE

WATCH THE VIDEO HERE

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DIGITAL EDITION EXCLUSIVE

HATTON'S MODEL RAILWAYS CLASS 66 ENGINEERING SAMPLE

Dave Mylett explains progress on the feature-rich
Class 66 project from Hatton's.

EXCLUSIVE

WATCH THE VIDEO HERE

(You must have a wifi connection to stream video content)

BRM



Hutton

Class 66 - Engineering Sample

Heljan announces three new models in 'O'



Revealed at the Gauge O Guild's Telford show on September 1 and 2 were plans for three new O gauge models from the manufacturer, demonstrating its continuing support for O gauge modellers.

Continuing its long-established theme of large diesel locomotives in the scale will be a BR Class 56 Co-Co diesel. The first RTR model of this class in the scale is being produced based on the later Doncaster and Crewe-built locomotives numbered 56070-56135. Specification revealed thus far includes twin motors, LED light functions, see-through grilles, sprung buffers and couplings and provision for a smoke unit. The model has been designed for easy DCC and sound installation and is expected for release in 2020.

Proposed liveries are 5600: BR Blue, 5601: BR Large Logo blue, 5602: Railfreight large logo grey, 5603: Railfreight 'Red Stripe' grey, 5604: Railfreight sector three-tone grey (unbranded), 5605: Railfreight Coal sector grey, 5606: Railfreight Construction sector grey, 5607: Loadhaul black/orange.



Re-tooled Class 33 will be released in 10 guises, suitable for modellers of the 1960s to 1980s. Bold liveries include EWS 33030 and an unnumbered version in DRS blue.

Lastly, a re-tooled version of its popular BRCW Type 3/ Class 33 Bo-Bo diesel is anticipated for release in 2019. Ten new editions of this popular model featuring updated and modified tooling will allow the creation of both 1960s to 1980s and late BR/early privatisation era versions with high-intensity headlights and cab radio roof pods. Retail price is expected to be £549.00. Models being produced are:

VERSION 2: 1960s to 1980s

- 3393: Original BR green
- 3394: BR Green with small yellow warning panels
- 3395: BR Green with full yellow ends

3396: BR Blue with full yellow ends

VERSION 3: Late-1980s to 2000s

- 3400: BR Blue with full yellow ends
- 3401: BR Civil Engineers 'Dutch' grey/yellow
- 3402: EWS red/gold 33030
- 3403: Network SouthEast 33035
- 3404: DRS blue unnumbered
- 3405: Railfreight Construction sector grey

Models are available to order now from your local Heljan stockist. Look out for updates on www.RMweb.co.uk and our social media channels.



BRIAN DANIELS

To complement the growing selection of HELJAN GWR/ Western Region steam locomotives, the manufacturer is working on the first RTR Gauge O model of the classic GWR AEC railcar (Nos. 19-33). The perfect single vehicle branch line train for steam and transition era GWR/WR layouts, these pioneering vehicles were the predecessors of modern railcars and DMUs and retain a cult following decades later.

The specification of the O gauge model will include fine detail inside and out, discreet mechanism, LED lighting functions, sprung buffers and couplings and is to be designed for easy DCC and sound installation and interior lighting.

Proposed liveries are 1900: GWR chocolate/cream (white roof and monogram), 1901: GWR chocolate/cream (dark grey roof and GWR coat of arms), 1902: BR crimson/cream (dark grey roof), 1903: BR crimson/cream (white cab roofs), 1904: BR green with speed whiskers (white cab roofs) and 1905: BR green with speed whiskers (grey roof). As well as the Gauge O model, Heljan is working on an all-new version of the same railcar for OO gauge, further details of which are TBA.

W: www.heljan.dk

Seen on Heljan's stand at 'Guildex' in Telford...

Heljan's stand at the Gauge 'O' Guild's annual September event 'Guildex', yielded a glimpse of some of its forthcoming models in O gauge.

Amongst models from its range were decorated samples of the forthcoming Class 25/3 diesel in two-tone green and an engineering sample of its GWR 43XX 2-6-0 'Mogul'. Also seen was a first running sample of its Class 03 0-6-0DM to be released in 2019 in BR green (with or without warning stripes), BR blue and industrial yellow or dark blue, with both unnumbered and fully decorated versions being made available.



Seen at 'Guildex'...

The Gauge O Guild's flagship calendar event at Telford last month saw numerous new product launches for O gauge modellers, from large and small manufacturers alike. Here's Phil Parker's pictorial roundup of what was on display:



Alphagrafix

Sentinel shunter *Gervaise*. Etched brass kit. £90 plus motor, gears and wheels. The prototype is currently at the Elsecar Heritage Railway.

T: 01214 725 252



Intentio

Station shelter. Laser-cut model, only available ready built. £80

W: www.intentio.co.uk



Mercian Models

Ffestiniog Railway 0-4-0STT *Princess/Welsh Pony*

Price £95.00

W: www.modelrailways.tv



Minerva Models

Manning Wardle K Class. Due for delivery later this year, orders being taken. The model will be available in lined black, red or blue.

Price £255 DC, DCC TBC

W: www.minervamodelrailways.co.uk



PLM Castaways

Victorian 3rd Class seated passengers

Price £7 each

Figures are supplied unpainted

T: 01902 570810



Northumbrian Painting Services

Pony and Cart with Hay load. Metal pony and cart base with resin load £5

T: 01902 570810



Parliamentary Trains

Laser-cut kit for London & Birmingham Railway round-ended wagon with detachable sides and ends.

Price: £50

W: www.parlytrains.co.uk



Skytrex

Wooden wheel barrows

Price: £7.50 (for two)

W: www.ogauge.co.uk



Skytrex

PCA Cement tank wagon kit

Price: £42.50

W: www.ogauge.co.uk



Little Loco Company

3D-printed bogie prototype to be fitted to its forthcoming Class 22 diesel. Working prototypical suspension and hidden pickups.

W: www.littleloco.co.uk



White Rose baseboards

Laser-cut 6ft x 1ft 6in baseboards. 22 inches tall

Price: £450 (without legs)

W: www.whiterosemodelworks.co.uk

THE INTERNATIONAL N GAUGE SHOW

Phil and Andy went to the big event for this diminutive scale, and spent the entire day there before being chucked out at closing time. Here are a just few highlights from the show.



TINGS, as it's affectionately known, is the must-attend event for fans of 2mm modelling and, of course, great modelling in general. Indeed, we'd barely walked through the gate when we were taken aback by several stunning layouts, assorted industry colleagues and hordes of N scale aficionados. As great as it was to see layouts in reality that we'd featured in the magazine, it was also a pleasure to add a couple more to our list, including one from a chap whose day job entails designing equipment to be used on a mission to Mercury! Back to more corporeal reality, here's what caught our eyes on the day...

Langston Bridge

Some layouts need to be viewed as a whole to be fully appreciated. Such is the case with Julian Thornhill's meticulous model of this long defunct bridge to Hayling Island (pictured). Two Terriers chased each other, one being in view at all times. The rest is an

intricately modelled bridge comprising 50 identical supports with a swing bridge and a small signal box at its centre, and a short section of island scenery at one end. The sea and sky are a featureless blue-grey, and a lone yacht convincingly masks a small patch of glue spillage. The whole effect is entirely captivating, and this was our layout of the show. Look out for it in a future issue.

Burshaw North Western

Previously featured in our February 2017 edition, it appears that our photos failed to capture the Reginald Perrin-inspired buildings tucked into the far left corner – 'Sunshine Desserts' and 'Grot Industries'. Our oversight doubtless due to the fact that the rest of the layout is so utterly compelling.

Salverton

Capably proving that good things can come in small packages, Salverton not only includes operations in N and Nn3 gauge, but

features working Tomytec road vehicles to boot. All of which fits into an actual tea tray that was previously bound for the dustbin. Good job!

Wickwar

N scale allows much in the way of scenic options, of course, although Farnham MRC's 1950s layout squeezes a good deal of lush greenery within its 17ft span, with 30 scale metres of height difference across the scene, Faller System cars in operation and a finely modelled brewery as an eye-catching centrepiece. It really is lovely stuff.

N Brass Locos

A regular at many model railway events, we were nevertheless arrested by the company's new pump trolley. A thing of exquisite delicacy and delight, this item is nevertheless filled with intricate details.

Osborn's Models

A busy stand throughout the day, due to the vast array of products on show, we were taken by Osborn's laser-cut Radley Station and Creamery kits, a charming horse and cart and, topically, Donald Trump.

Revolution Trains

The big noise at Revolution was its Cargowaggon twin pack. Arriving in the very nick of time for TINGS, these handsome units caused quite a crowd around their small unit. Elsewhere, its finely-detailed VEA wagon is the company's first non-crowdfunded venture, and we were intrigued to learn that Revolution will be working with Accurascale in future. The APCM 'Cemflo' tankers they're developing together are bound to be popular and, in a second shift to a larger scale, will also be available in 00.

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HORNBY (R4873) LMS COACH THREE-PACK 'CORONATION SCOT'

00



Arriving with Hornby stockists as this issue went to press is this three-pack of RailRoad-branded LMS coaches, as used on the West Coast Mainline Coronation Scot service between London Euston and Glasgow Central between 1937 and 1939. The service was designed to compete with rival services on the East Coast Main Line, for prestigious traffic from the capital to Scotland with a journey time of 6 hours 30 minutes. Included is Brake Third 5052, First 1070 and 1071.

Price: £79.99

W: www.hornby.com or see your local stockist

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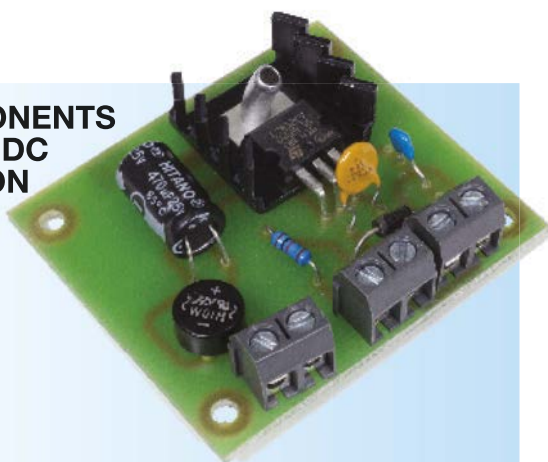


Designed and built in Germany for our smaller loading gauge, these refrigerated vans operated via ferry to the UK between 1935 and 1969. Built in two batches of 50, the vehicles would have transported goods ranging from bananas to cheese - ideal for adding variety in a wagon rake of ferry traffic.

Price: €29.99

W: www.dm-toys.de

ALL COMPONENTS 16V AC/12V DC CONVERSION BOARD



Looking to install LED lights into your buildings without buying another transformer? This pre-assembled unit from analogue layout control specialists, All Components allows you to convert a low-voltage 16V AC output, typical of the secondary outputs of model railway transformers into a stable 12VDC source. Connect the AC transformer output to the screw terminals on the circuit board, turn on mains power to the transformer and 12VDC is available at the output connector of the board. An output is provided on the board for LEDs without the need for a resistor.

Price: £12.95

W: www.allcomponentsltd.co.uk

GAUGEMASTER (GM132) TREE PACK

00

Add trees easily to your layout with this 10-pack of deciduous and evergreen trees from Gaugemaster. Small planting pins make them easier to insert into your layout or diorama, requiring a small 3mm diameter hole to be drilled. Average tree height is 12cm.

Price: GM132 £12.95

W: www.gaugemaster.com



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It's recommended that you lubricate bearings, gears and valvetrain on your locomotives at regular intervals before operating to avoid premature wear of parts and promote smoother running. This small needle oiler pen from Finescale Model World offers a more precise application of oil for those hard-to-reach places and avoids over-oiling your models.

Price: £2.50

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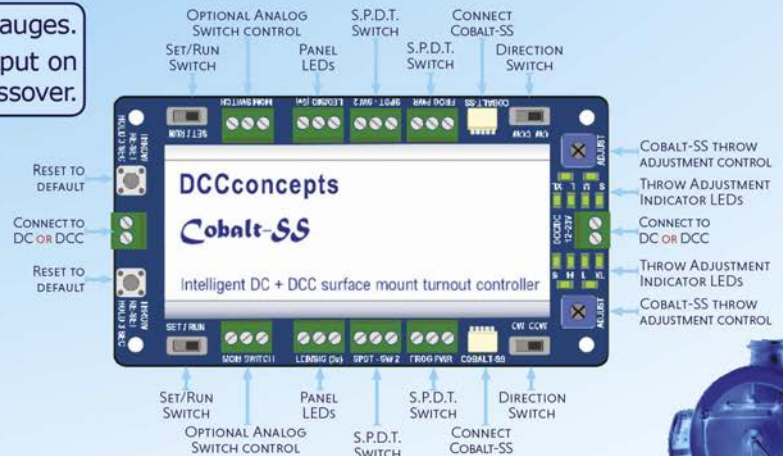
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PULLMAN, 'J' TYPE 'DEVON BELLE' OBSERVATION CAR

Words: Graham Muspratt



The return of an old favourite. Hornby's Pullman Observation Car remains a fine model. It's certainly worthy of its place in the range.

A little history...

The 'Devon Belle' Pullman service between London Waterloo and Ilfracombe with a portion to Plymouth didn't last long as named train services go. It was introduced by the Southern Railway on June 20, 1947 and lasted until September 1954. Usually the train was worked from London to Exeter with Merchant Navy class Pacifics and was then split with a four-coach portion heading to Plymouth and the remaining eight (sometimes up to ten) coaches including the characteristic observation car heading to Ilfracombe, both portions usually behind Bulleid Light Pacifics. The locomotives being decorated with the iconic Devon Belle head board and smoke deflector wing plates (which required those Bulleid Pacifics allocated to this service being fitted with horizontal brackets along the top edge of the smoke deflector to hang the wing plates from) for operating this train.

With the decline in passenger numbers from 1950, the Plymouth section ceased, then from 1952 the number of operating days was reduced to weekends only, and ultimately the final Ilfracombe Devon Belle service was run in September 1954.

After use on the Devon Belle the cars were first used on a few special trains / tours before being transferred to the London

Midland Region, repainted and renumbered 280 and 281, curiously with an 'M' suffix, despite their SR origins. M280M (ex 13) was used for two seasons on 'The Welsh Chieftain' Land Cruise train in north Wales and M281M (ex 14) on occasional charter service. In 1961 the cars were transferred to the Scottish Region for use on the lines between Inverness and the Kyle of Lochalsh, and from Glasgow to Oban.

Welcome back

Hornby first produced a model of the Pullman J Type Observation car as part of its 2009 range, as R4437.

This 2018 release, R4860 is identical to the 2009 version and includes sprung buffers; separately applied underframe details, water tank filler pipes, lamp iron, and handrails. The glazing is commendably flush and the livery application and printing is of the high standard that we have come to expect from Hornby, with fine lining, lettering and Pullman crests, even the tiny makers plates underneath the doors are readable under a magnifying glass.

Internally the seating arrangement is faithfully recreated, including the highly visible handrails behind the second row of seats. The drinks bar partitioning and

counter is also nicely moulded. Bright internal lighting is included via LEDs mounted on the underside of the roof, with electrical pickups from each axle arranged to be opposite polarity on each bogie.

Hornby has included its standard close coupling mechanism at the corridor end only. This allows factory fitting of the buffer beam pipework at the window end, but the lack of a coupling means that a shunting move to turn the Observation car on a turntable would be a challenge.

This is a welcome return to the range and enables those that missed the first release to complete their 'Devon Belle' rake. ■

Essential info

BASICS

CATALOGUE REFS:

R34860

RRP: £74.99

Gauge/scale: 16.5mm gauge, 1:76 scale
OO

Era: 3 - 4

Company/Operator: Southern Railway

Body and chassis: Body – plastic, chassis – metal

Minimum Curve Radius: 438mm (R2)

Wheel Profile: Working interior lights

DCC Provision: DCC ready

HORNBY CLASS 87

Words & Photography: Howard Smith

Hornby's new management has ambitious plans for a turnaround of the business. Should this new era be defined by a model release, this new electric is probably it. Granted, the development of its all-new Class 87 started a few years ago, but it was born in a post- 'design clever' era – remember that?

Having seen samples for a number of months, both at our shows (welcome back Hornby!) and its press events, it was obvious that extensive research had gone into the model. From up scaled 3D prints of its cab, to behind the scenes views of the design team on the roof of 87035 at Crewe Heritage Centre shared on its Engine Shed blog, Hornby has been good at updating us on progress.

Heralding a new era of detail for the manufacturer, its looks are impressive. Capturing the distinct compound curves of the cab roof – vents included – and the two spacious reclining cab windows (which differentiates it from the three cab windows on Class 81s to 86s, for non-AC connoisseurs) first appearances bode well.

Bodyside perfection

Roof and cab windows aside, the external appearance of the BREL Class 87 was largely similar to the previous English Electric/BR Class 86, it having little time to redesign and prove a new bodyside. Internally, however,

these were different with power increased to 5000hp over the 4040hp of the Class 86s.

The flat bodysides of the model with lower- and upper-curvatures are authentic, as are the locations of the grilles, with windows correctly on one side only. These are complemented by the rivet lines, highlighting the horizontal, vertical and diagonal bodyside framework construction of the prototype. Only subtle weathering of the grilles with paints or powders to an off-black colour could improve them. The locomotives were renown for passing through carriage wash plants more often than many of their diesel-electric counterparts, but dirt was still prone to accumulate in the hard-to-reach grilles.

The separately-applied door wire handrails came as a surprise, though in an era of saving costs, it could be argued that moulding these countersunk items and painting them would have gone unnoticed. It makes the model all the more authentic. Supplied with this sample, depicting 87035 Robert Burns (R3580) in BR blue, are etched nameplates that Hornby recommends should be fitted over the printed bodyside nameplates using Blu-Tack. Granted, this method leaves little mess, but I'd prefer to apply them with a more permanent adhesive, masking the outside of the

bodyside beforehand to avoid spillages of glue - it's a straightforward task.

The simplistic design of the cab fronts is pleasing, with individual handrails. The two outer jumper cable boxes are a little underscale - not by much, but enough to be noticeable. I'd be inclined to leave them as they are, however.

To the roof

West-Coast electric connoisseurs will be pleased to see the model fitted with the correct period AEI cross-arm pantograph instead of the later single-armed Brecknell Willis high-speed pantograph developed in conjunction with British Rail's Research division in the 1980s. The latter is correctly fitted to its model of 87019 *Sir Winston Churchill* and 87010 *King Arthur*. The pantograph is a sprung item, held into its lowered position by a clip. Snaking its way across the roof line are the individually-fitted depictions of the ceramic insulators – 11 in total including the four onto which the pantograph is mounted – each accurately sprayed the correct hue of maroon. Considering the orange conductor



From top to bottom, Hornby's electric is a fine model. The blue hue on this example of preserved 87035 appears correct too. Hopefully this release will 'spark' more AC layouts with overhead catenary.

wire atop these is glued into place, there's little evidence of the glue used, indicating precision and skill from the factory. Picked out in silver is the roof circuit breaker switch. Further roof arrangements are commendable with equipment boxes and panels, with moulded detail lines and what seems like more rivets than the Forth rail bridge – all very nice indeed.

Below the waist

It's the under frame of this model that is the real gem and which Hornby's design team has brought to life. Understanding the needs of modellers has led to it perfecting the BP9 bogie design in miniature, with girder detail not just to the sides, but to the front and hidden rear of these too. Sand pipes protrude beneath bogies at each end, as do the guard irons – quite solid affairs. Running the length of the bogie sides is an array of moulded pipework, which is very convincing, highlighted more so on this model having been picked out in white.

Sandwiched between the bogies and equally complementary to the model is the air braking equipment with compressor, reservoirs and a host of other electrical equipment. The etched grille placed



Essential info

CATALOGUE REFS:

R3580 87035 *Robert Burns*

R3656 87019 *Sir Winston Churchill*

R3582 87010 *King Arthur*

RRP: £170.99

Gauge/scale: 16.5mm gauge, 1:76 scale OO

Era: 6-9 British Rail & privatisation, 1973-present

Company/Operator: BR, Porterbrook, Virgin Trains, EWS, Cotswold Rail, DRS, FirstGBRF, Serco, Bulgaria

Weight: 473g

Body and chassis: Body – plastic, chassis – metal

Minimum Curve Radius: 438mm (R2)

Wheel Profile: RP25

Couplings: NEM mounted tension lock

Accessories: air pipes, buffer beam multiple control cable, nameplates

Drive System: 12V DC 5-pole motor with cardan shafts to bogies

DCC Provision: 8-pin socket and space for 23mm speaker, directional lighting including manual switching of tail lights. Switch to underside for DC users

Pick-ups: contacts to rear of wheels

beneath the white heat pipes is particularly impressive.

Verdict

Hornby and its team should be proud of this model release. Performance is excellent and smooth, detail exquisite and decoration is to a high standard, with only the white on the roof of this model showing some areas of the blue underneath. With cab and directional lighting included, it's a must for detail-seeking AC enthusiasts. Let's hope we'll continue to see its release in different guises for years to come. ■

Named *Robert Burns* after the Scottish poet and lyricist, 87035 was the first of the class of 36 to be preserved and now resides at the Crewe Heritage Centre on static display.



The cab shapes are perfect from every angle. Inside these you'll find a good representation of the control cubicle with driver and secondman's seats. Bogie pipework and springs look great too.



BACHMANN C1 'ATLANTIC' 4-4-2

Words & Photography: Andy York

Previously only available as an exclusive edition of the National Collection 251 for Locomotion Models, Bachmann's Ivatt C1 Atlantic is now available in their main catalogue in Great Northern and LNER liveries.

Tony Wright initially reviewed the model in the June 2015 issue of **BRM** and confirmed that *"checking against the drawings at my disposal it is spot-on and fully captures the impressive appearance"*. The GNR-liveried version of this model (31-761) is largely as per the preserved example in earlier form, although our review model is the LNER-liveried version. This model is not just a simple re-numbering exercise, as there are detail differences between the service locomotives of this era and the C1 as preserved in the National Collection – particularly the chimney position and safety valve style and straight buffer shanks.

The LNER apple green is a very pleasing tone and the black and white lining is executed with precision, especially around

the wheel rims, while the gold numbering has a metallic tone. Fine red lining on the tender underframe and red highlights of inside cylinder equipment are visible beneath the boiler; the backhead detail, pipes, valves and dials on the footplate are precise and accurate. The works plate on the front splashers is a printed item that might benefit from an after-market part, but I doubt it would have the clarity of the printed plate. The smokebox door does open to

pose for a shed scene, with a basic internal representation of the boiler tube ends and exhaust pipes.

There is a wealth of detail to fit dependent upon the severity of the modeller's curves, including guard irons, drain cocks, steam heat and brake pipes. A cosmetic coupling hook and screw-link coupling is included, but I feel that is somewhat overscale and would look finer with an alternative after-market part too. The cab doors should work

From front to back, the LNER livery suits Bachmann's Atlantic well - lining is particularly impressive as we've come to expect.



Bachmann's 'Atlantic' is a fine model indeed. Turn to page 41 for an idea of what you could run behind it - the daily milk train from Ingestre (near Stafford) to Kings Cross.

Essential info

BASICS

CATALOGUE REFS:

31-761 GNR Class C1 4-4-2 Atlantic 272
GNR Green
31-762 GNR Class C1 4-4-2 Atlantic 4421
LNER Green

RRP: £189.95

Gauge/scale: 16.5mm gauge, 1:76 scale O

Era: Great Northern 1904 – British Railways 1950

Company/Operator: LBGN, LNER, BR

Weight: 367g

Body and chassis: Body – plastic, chassis – metal

Minimum Curve Radius: 438mm (R2)

Wheel Profile: RP25

Couplings: NEM mounted tension lock

Accessories: vacuum and steam pipes, brake rodding, guard irons, drain cocks, cosmetic screw-link couplings, cylinder fillets, cab doors, tender vents and fire irons.

Drive System: 12V DC 3-pole motor with gears to rear driving axle (no flywheel)

DCC Provision: 21-pin socket

Pick-ups: Contacts to rear of driving wheels, trailing pony truck and to front and rear tender axles.



The smokebox door opens to reveal the cleanest smokebox in history! A little soot and texture would bring this area to life.



The tender is supplied with a generous load of plastic coal - enough for a long trip. Note the wonderful backhead detail inside the cab.

on any curvature and are a worthwhile part to add.

A running test showed how smoothly the model runs and it capably handled a load of eight Mk. 1 coaches without any trace of slippage, such is the balance of the chassis and weighting with the centre of gravity just forward of the steps between the driving wheels. No problems were experienced through short-radius pointwork. The front bogie is sprung to keep it down to the rail and the trailing axle is pivoted behind the solid side frames. Comment has previously been made about the cranked connecting rod to allow for operation around train-set curves. In my view I don't think that's wholly the issue, as it's more a case of getting the connecting rod to function between the correctly positioned motion's slide gear and driving wheels which, due to OO standards, are a couple of millimetres too close together – one of those legacy compromises we have to live with which can affect the appearance of such a fine model. Aside from that, this really is a wonderful model. ■



Compare and contrast the 2015 and 2018 models. See Tony Wright's full review of the former at www.brmag/2CITtX4

BRM

BRITISH RAILWAY MODELLING

TV

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BACHMANN COLLECTORS' CLUB DAY

Andy York spends the day talking to club members and Bachmann staff including an interview with managing director Dave Haarhaus.

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BACHMANN MK. 2F COACHES

Words & Photography: Andy York

Is it really over 40 years ago since I opened that Airfix box with the first model of Mk. 2 air-conditioned stock? Anyway, I've just had the same feeling of delight as I've unpackaged Bachmann's brand-new Mk. 2f coaches. It is funny how little things take you straight back in time.

Bachmann have a habit of giving added-value or additional features in their product range, and their new Mk. 2fs are such a case. This range of coaches is available with a DCC option, with controllable lighting for little more than the price of a decoder.

British Rail introduced the Mk. 2f variant with its plastic-framed seating from 1973 for service on express routes, and Bachmann's blue/grey models are numbered as Eastern region allocations and are thus ideal to sit behind their Deltic and Class 47 locomotives. The mid-1980s saw the introduction of the 'executive' intercity livery, which the models will also

be available in. These did not carry regional prefixes, so a little more flexibility is possible for those who don't like to renumber coaches.

The decoration of the models is flawless and attention is drawn to the distinctive dark brown underframes, which the carriages sported on introduction. There's a lot of equipment detail below the body, with brake cylinders and piping, battery boxes and air-conditioning fans; all absolutely splendid. I've spent a lot of time looking at the ends of the coach reviewed, a Brake Second Open, whilst fitting the additional detail. This does take a while to fit and it's certainly easier to remove the right-hand buffer to fit the ETH sockets and cabling and re-fit the buffer afterwards. The guard's compartment window gives a view of the fine mesh of the caged area. The handrails on the carriage end are separately fitted wire components, but the handrails and handles on the coach

sides are convincing moulded parts

That covers the basic version of the coaches, which have an RRP of £54.95, but what do you get for the additional £25 per coach with the DCC option? The roof of the interior is fitted with LED lighting, which gives a warm white light through the passenger compartment and there is lighting in the guard's compartment, both of which can be switched on or off. Each coach, with DCC, has a small light for a tail lamp at each end. Two types of lamp are included – traditional oil lamps and later square blinking electric lamps. If the latter is fitted, the switch underneath the coach body should be moved from 'On' to 'Flash'. The switch can also be moved to the 'Off' position if the tail lamp is not required, but this leaves the interior lighting operable. If the coach is not to carry a tail lamp, blanking plugs are supplied for the recess, one which is intended to remain in place



There's an admirable level of equipment detail underneath the body, with brake cylinders, battery boxes and air-conditioning fans.

datafile

BASICS

CATALOGUE REFS:

39-650 BR MK2F FO First Open Blue & Grey
39-650DC BR MK2F FO First Open Blue & Grey DCC
39-652 BR MK2F FO First Open InterCity
39-652DC BR MK2F FO First Open InterCity DCC
39-685 BR MK2F RFB Restaurant First Buffet Blue & Grey (Preserved)
39-685DC BR MK2F RFB Restaurant First Buffet Blue & Grey (Preserved)
39-686 BR MK2F RFB Restaurant First Buffet InterCity
39-686DC BR MK2F RFB Restaurant First Buffet InterCity DCC
39-675 BR MK2F TSO Tourist Second Open Blue & Grey
39-675DC BR MK2F TSO Tourist Second Open Blue & Grey DCC
39-677 BR MK2F TSO Tourist Second Open InterCity
39-677DC BR MK2F TSO Tourist Second Open InterCity DCC
39-700 BR MK2F BSO Brake Second Open Blue & Grey
39-700DC BR MK2F BSO Brake Second

Open Blue & Grey DCC

39-701 BR MK2F BSO Brake Second Open InterCity

39-701DC BR MK2F BSO Brake Second Open InterCity DCC

39-725DC BR MK2F DBSO Driving Brake

Second Open Blue & Grey DCC

39-726DC BR MK2F DBSO Driving Brake Second Open ScotRail DCC

RRP: DCC coaches £79.95, non DCC £54.95

Gauge/scale: 16.5mm gauge, 1:76 scale OO

Era: BR 1973 – present

Company/Operator: British Rail and selected privatisation

Weight: 176g

Body and chassis: Plastic chassis and body

Minimum Curve Radius: 438mm (R2)

Wheel Profile: RP25

Couplings: NEM mounted tension lock

Accessories: NEM mounted tension lock

Accessories: Oil and electric tail lamps, blanking sockets, brake pipes, dummy buckeye couplings, ETH cables and sockets, long shanked buffers.



and one with a small hook if the blanking plug is likely to be changed for a tail lamp at a future time. The tail lamp is directional and should only show at the end of the train, so it may be worth checking that if it initially doesn't appear to function (as was my case). Considering the above the premium model is good value.

Even if you are not a DCC user it's certainly worth considering the DCC version of each of the coach range, as the interior lights and tail lamp will still work, dependent on the voltage applied to the track by the DC controller. For me, the lighting shouldn't be dismissed as a gimmick and it certainly adds a lot to the enjoyment of the product. ■



At £25 extra, the DCC option offers interior lighting that works for DC users too.



BRMTV

BRITISH RAILWAY MODELLING

DIGITAL EDITION EXCLUSIVE

BACHMANN WESTERN PULLMAN – SOUND AND LIGHTS

Bachmann's Benn Pollard talks us through the amazing sound and light features coming with Bachmann's flagship Western Pullman train pack.

EXCLUSIVE

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HELJAN GWR 61XX 'PRAIRIE' 2-6-2T

Words & Photography: Howard Smith

Heljan's first O gauge steam locomotive landed on my desk this month - exciting times for O gauge modellers. When announced at the Gauge O Guild's Telford show in 2015, its 61XX captivated the minds of GWR and potential GWR modellers alike. Known as 'Tanner One-ers' to trainspotters - a nickname for a sixpence and penny at the time, the models have been released in five different guises and are now with stockists.

Seven limited-edition un-numbered livery exclusives have been made for Tower Models who are offering O gauge modellers virtually any member of the class, in any era, to be created without resorting to respraying the models - ideal. The five base models from Heljan are already numbered with the appropriate shed codes where BR liveries are concerned. Only fifty of the seven exclusive liveries are being produced.

On test

Damage problems on its previous models have led to Heljan adopting a new approach. The 61XX models are supplied with front

pony and rear trucks detached, to be fitted by customers using the screws provided. This simple procedure only required a minute in the office and guarantees a damage-free delivery of the models - quite sensible. I like the wooden base onto which the model is mounted too. It keeps the model in-situ and makes a nice display plinth.

Powered by a five-pole motor coupled with the locomotive's weight, performance from this six-coupled locomotive is more than adequate for its typical train of three to five coaches or several loaded wagons of mixed-freight and a brakevan.

Inside you'll find an ESU motherboard decoder, pre-fitted with a blanking plate for DC use. This means that if sound is required by customers, it's a simple 'plug and play' scenario rather than cutting and soldering wires. Access to the blanking plate is via the smokebox, which must be removed. Instructions on how to do this are provided with models, including a list of components if spares are required. An ESU Loksound L4.0 decoder fits with ease.

To the underside, space has been provided for a speaker, in similar fashion to its previous AC cars railbus. A blanking plate held in place with two screws keeps dust away from the chassis when a speaker isn't fitted. The model is fitted with a flickering light inside the firebox. In DCC operation it is triggered by pressing F3 on your handset.

In motion the valvegear looks great. The connecting rod has sufficient heft and I particularly appreciate the working crosshead-driven vacuum pump. Though largely hidden from view unless the model is tilted to one side, it's a feather in Heljan's cap.

The detail

Ask anyone who models in O gauge their reasons why - myself included - and one of the main factors is detail. In this department, Heljan's 61XX doesn't disappoint. Everything about it is convincing and nothing looks out



Seen from the non-vacuum pump side, Heljan's efforts are worthy of great praise. The cylinder drain cocks and brake rigging are represented in full, so handle with care to avoid damage - they're both very fragile.



Essential info

BASICS

CATALOGUE REFS:

HJ6100 61xx No. 6110 GWR livery lettered Great Western
 HJ6101 61xx No. 6106 GWR livery lettered GWR
 HJ6102 61xx No. 6144 BR Black unlined early crest (Shed 81A)
 HJ6103 61xx No. 6111 BR Green unlined late crest (Shed 81F)
 HJ6104 61xx No. 6132 BR lined green late crest (Shed 81C)

RRP: £699.00

Gauge/scale: 32mm gauge, 1:43.5 scale O

Era: Great Western 1931 – British Railways Western Region 1965

Company/Operator: GWR, BR

Weight: 1598g

Body and chassis: body – plastic, chassis – metal

Minimum Curve Radius: 1028mm

Couplings: Working sprung screw-link

Accessories: Vacuum and steam pipes, cylinder inserts, fire irons, shovels

Drive System: 12V DC 5-pole motor

DCC Provision: Loksound L4.0 motherboard

Pick-ups: Contacts to rear of driving wheels, hidden by chassis

of place. The exposed and quite accident-prone front and rear steps might have benefitted from being moulded with the chassis and you'll probably want to replace the plastic coal in the bunker with the real thing, but I can't find much to criticise.

I'm particularly fond of the correctly scaled handrails, brass-coloured safety valve bonnet, valves, whistles and cylinder drain cocks and the copper-clad colour of its chimney. Even the pipes running to the whistles are correctly painted a copper colour. The bunker numberplate is sharp and its raised edges are neat, just like those on the bunker lip, cab roof and around the running plate.

The number of rivets is incredible, all seem to appear correct when compared with photographs, though I wondered if there were too many around the bunker base - I wasn't going to count them to find out!

Inside the cab you'll find a brilliant display of dials and pipework. It's a shame that the Collett cab hides most of them from view, though it would have been greatly appreciated by the crew of these workhorses. The cab roof slides open and shut, but I found the mechanism a little stiff. The cab doors are fixed in position – one shut, the other ajar on this sample, but there is enough room to squeeze a crew through the openings with tweezers.

Livery

The tampo-printing of the 'Great Western' lettering is neat and, more importantly, is accurate in colour and scale. Heljan's 61XX presents itself well. The red of the bufferbeams has a punch and hides the base colour well. The green is too matt for my liking, but this seems common with many other RTR releases in O gauge. I feel a little more sheen is required where colours scale differently than in OO gauge. A spray with a can of satin varnish would be a quick fix before looking at weathering.

Correctly printed on the sliding cab shutter is the blue route colour classification. The 61XX locomotives were at the top end of this band which permitted a maximum axle loading of up to 17T 12cwt. Either side of the cylinders are the letters CHR – indicating that No. 5184 was allocated to Chester shed.

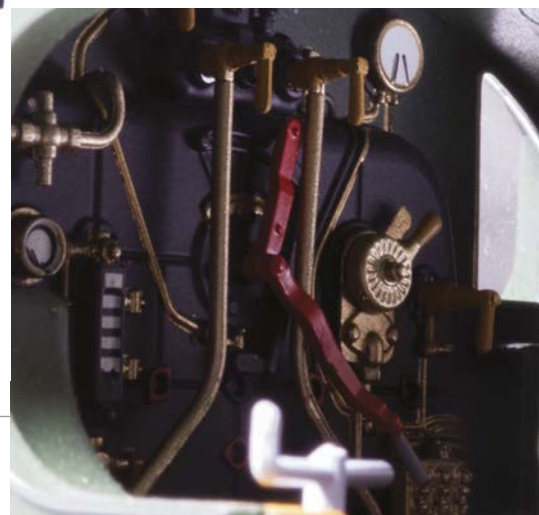
The 61XX class is an attractive class of locomotive. This model is a refreshing departure from the tried and tested release of RTR six-coupled steam locomotives in O gauge, and it's correctly proportioned for small layouts. Note the bunker steps, lamp irons and handrails on the rear of the bunker – all are applied straight and without visible glue.

Verdict

Customers who pre-ordered are probably grinning. Those who awaited before committing shouldn't hang around though, it's a great model. I'm looking forward to seeing its depiction of Churchward's 43XX/53XX soon – watch this space. ■



The shot above illustrates my point about seeing little inside the cab, but take a closer look inside and this is what you'll find – gauges with visible dials, reverser, regulator, waterfeeds and injector controls – even the boiler water level is present. Fantastic.



BACHMANN FFA/FGA FREIGHTLINER FLATS

Words & Photography: Andy York

There have been several models of container wagons over the years, although these have generally been of more recent types and we have to look back several decades to when Hornby produced freightliner wagons suitable for the 1960s to 1980s. Those models look rather basic nowadays, and Bachmann's long-awaited wagons to contemporary standards are arriving. Depicting the main large batch of Ashford and Shildon-built wagons with BR2M bogies, of which there were over 2,000 made, these are a must-have for the 1970s/80s scene modeller. The early Freightliner-branded ISO type containers were predominantly seen in early years, with a transition to the standard maritime containers over a period of time. The load bed could accept a 40' and 20' container, or three 20' containers.

Firstly, it's necessary to explain that there were two types of wagon; an outer wagon with buffers, drawgear and brake piping at one end, and an inner wagon with rigid coupling bars that could connect to the inner

end of the outer wagon. The outer wagon is an FGA and an inner wagon designated an FFA. The normal grouping of wagons after an initial period was an outer pair with three inner wagons making a group of five. A standard train would normally have three of these three wagon groups making up a train of 15 flat wagons. Look back to pictures of the era and it was common to see unladen or partially laden wagons; today most trains are more fully laden.

Bachmann have packaged the models as a pair of outer FGA wagons with an RRP of £99.95, and single packs of the inner FFA at £49.95. There is a respectable weight of 46-49g for each flat wagon due to the diecast chassis, which gives smooth and stable running without any discernible wobble to the train. There is a small amount of springing to the coupling pockets, NEM standard pockets to the outer ends and a smaller pocket to the inner ends to take the rigid inter-wagon coupling bar. The sides of the BR2M bogies have the right amount of relief and there is a good representation

of the brake gear inside the bogie. Further detail is provided with fine wire brake pipe runs to the air cylinders in the centre of the wagon.

There is some detailing to be carried out by the modeller to get the most from the model, with the most noticeable components being the etch sheet of splashers plates to be placed over the bogies. These are easily fixed in place with a dot of glue on the appropriate mounting points. There is bufferbeam detail to be fitted too – start with the air pipe mounting brackets, then the air pipes and finally the cosmetic screw-link coupling if you are not using the tension lock couplings. Finally, the most time-consuming elements is to fit the container mounting pegs. Bachmann have provided two sprues with 16 orange pegs in a raised position to match the holes in the corners of the supplied containers. Where you need to position the raised pegs depends on what size container makes up your load. Where no raised peg is needed the lowered pegs should be used and 26 of these have been



A handsome and colourful rake, by any measure. The printing on the containers is excellent, with good density to the colours used in the various owner liveries.



provided. It is a laborious process, but it does make a difference to the appearance.

Decoration is minimal on the wagon but executed with typical exactness. The printing of data on the ends of the containers is excellent too, with good density

to the colours used in the various owner liveries shown in the review sample.

All in all, this is a pleasing and welcome addition to the range, and I look forward to seeing full rakes on exhibition layouts depicting the 1970s! ■

datafile

BASICS

CATALOGUE REFS:

38-627 FGA BR Freightliner Outer Container Flats(x2) Maritime Containers

38-628 FFA BR Freightliner Inner Container Flat Maritime Containers

38-625 FGA BR Freightliner Outer Container Flats(x2) ISO Containers

38-626 FFA BR Freightliner Inner Container Flat ISO Container

RRP: FGA x 2 - £99.95 FFA x 1 £49.95

Gauge/scale: 16.5mm gauge, 1:76 scale OO

Era: BR 1968 – Freightliner mid-2000s

Company/Operator: BR, Freightliner

Weight: FGA (unladen) 49g, FFA (unladen) 46g, c110g laden

Body and chassis: Diecast chassis frame with plastic parts

Minimum Curve Radius: 438mm (R2)

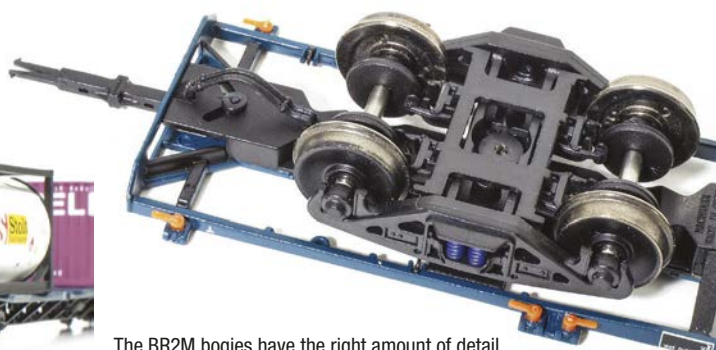
Wheel Profile: RP25

Couplings: NEM mounted tension lock

Accessories: Raised and lowered container fastening pegs, splasher plates, coupling bars, air brake pipes and brackets, cosmetic screw-link coupling



At up to 49g for each wagon, thanks to their diecast chassis, you can be sure of smooth and stable running.



The BR2M bogies have the right amount of detail, with a good representation of the brake gear.



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BACHMANN FGA/FFA CONTAINER FLAT WAGONS

Andy York details the Bachmann Freightliner wagons and looks at a couple of improvements to make life easier.

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BACHMANN MK2F COACHES – DCC LIGHT FUNCTIONS

Andy York looks at the lighting functions in
Bachmann's brand new Mk2F coaches

EXCLUSIVE

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MURPHY MODELS Mk. 2d

Words & Photography: Howard Smith



Essential info

CATALOGUE REFS:

MM5102 C.I.E. Mk 2d First
MM5402 C.I.E. Mk 2d Diner
MM5408 C.I.E. Mk 2d Diner
MM5152 C.I.E. Mk 2d Composite
MM5605 C.I.E. Mk 2d EGV

RRP: €56

Gauge/scale: 16.5mm gauge, 1:76 scale OO

Era: BR 1972 - 2008

Company/Operator: British Railways

Weight: 135g

Body and chassis: Plastic chassis and body

Minimum Curve Radius: (R1)

Wheel Profile: RP25

Couplings: NEM mounted tension lock

In 2010, we took a look at Murphy Models' Mk 2d coaches. The manufacturer has produced five variants - Super Standard, Standard, Composite, Restaurant and an Electricity Generating Vehicle (EGV). Its latest batch in IrishRail Supertrain livery is now arriving with retailers - time for another look?

Back story

It was in 1972 that Córas Iompair Éireann (CIÉ) placed an order with British Rail Engineering Limited (BREL) for 72 coaches based on its current BR Mk. 2 design. The vehicles were constructed at Derby's Litchurch Lane Works, though incorporated design changes opting for more traditional methods of construction. Key examples of this include the rivetted seam around the coach roof in contrast to the flush design of British coaches. Window seams too were rivetted, and though similar to BR's Mk. 2 design, they incorporated interior layout changes too with diagonally located vestibules. Interior fitment was carried out at Inchicore Works, not BREL, hence the use of bench seating and wood veneer panelling.

Orange - a lot of it. On this side only, the air-conditioning unit with its fan is well represented.

The models

Other liveries produced or to be produced by the manufacturer are Irish Rail, Iarnród Éireann and Galway. Though not an Irish railway connoisseur, from the box the vehicles heritage is easily recognisable. Running on B4 bogies and fitted with NEM tension lock couplings, these coaches can't be missed with their 'in your face' orange colour scheme. My attention was soon drawn however to the underscale wheels. At 10mm in diameter or a scale 2ft 4in, they're somewhat shy of the 3ft diameter wheels as fitted to the vehicles. Replacing the wheels with Bachmann 3ft wheels results in the vehicles riding a touch too high.

Underframe equipment, comprising of a host of rectangular boxes with door access hinge detail, sees parts made from quality mouldings. However, I find the sheen of the unpainted black plastic slightly off-putting. Given the unwashed nature of these vehicles, particularly below waistline, I'd be tempted to rectify this with an airbrush, followed by weathering powders for added texture - it's easily rectifiable and a great visual improvement. Brake rigging consists of the two vacuum brake cylinders with a basic outline of the mechanism.

Available too is the EGV which contained two generator sets, each supplying 220/380V AC to two buses in the train. The air conditioning loads were divided in half, each half fed from each bus. In the case of failure of one generator set, the other set would activate and supply both buses. The sets were responsible for supplying power to the air conditioning, kitchen, lighting and battery chargers. Grilles for its EGV are represented to good effect and the roof detail across all coaches is excellent - as are the separately fitted door and coach end handrails, though on occasion I found a little too much glue was used. Livery and transfer application is good throughout.

The remaining Mark 2 carriages were gradually phased out during 2007 and 2008, with the last remaining set operating its final service, the 05:05 Athlone - Heuston, on March 31, 2008. Though of a niche interest to non-Irish modellers, these vehicles are a staple to those who are into the Irish rail scene. Despite small niggles, the coaches are a commendable effort by the manufacturer. Wheels and weathering aside - neither of which are beyond the scope of a beginner - they're certainly worth a closer look. ■





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BACHMANN Mk. 1 HORSEBOX

Words & Photography: Andy York

Bachmann produced a Mk. 1 horsebox as an exclusive edition for TMC some years ago, but this has now become available as a main catalogue range item in both Eastern Region maroon and Southern Region coaching stock green liveries.

Primarily used for the transport of racehorses and show horses from areas where horse-breeding was a significant activity, the boxes were designed with express passenger rating and classified as non-passenger carrying coaching stock. The tapered side profile of wagons is a distinctive feature and is well captured in Bachmann's model. The various door and opening ramp types are represented, although they do not open like the old Hornby Dublo model did; thankfully, I say, as that resulted in horribly incongruous hinges in the bodyside.

Aside from the end handrails, the remaining surface detail is finely and neatly moulded. Just over half of the wagon area is taken up by accommodation for the horses. Adjacent to this is seating for the grooms, with lavatory facilities that includes good flush-glazing on the model. The remaining

area at the other end of the wagon was for equipment and feed. The underside of the wagon body has relief detail and separately fitted brake cylinders, rodding and brake gear in addition to battery equipment boxes. The paint density is good and the yellow lettering is fine and crisp, with a tiny data panel at each end.

Usage came to an end in 1971 and I'm not aware that any ever did wear rail blue livery. This is a good, straightforward model of an interesting prototype, which could have run as lengthy dedicated services or with one or two wagons attached to a passenger service, particularly in rural areas. ■



Essential Invo

BASICS

CATALOGUE REFS:

38-525 Mk1 Horse Box BR Maroon (ER) Livery
38-526 Mk1 Horse Box BR Green (SR) Livery

RRP: £36.95

Gauge/scale: 16.5mm gauge, 1:76 scale OO

Era: BR 1958 - 71n

Company/Operator: British Railways

Weight: 65g

Body and chassis: Plastic chassis and body

Minimum Curve Radius: 438mm (R2)

Wheel Profile: RP25

Couplings: NEM mounted tension lock

Accessories: Brake pipes, cosmetic screw-link couplings



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EVENTS

EXHIBITIONS

OCTOBER 18 - 21
Midlands Model Engineering Exhibition
 Warwickshire Event Centre, Leamington Spa, CV31 1XN
Opening Times: Thurs-Sat 1000 - 1700 Sun 1000 - 1600
Prices: Adult £9.50 (online) £10.50 (full) Senior £8.50 (online) £9.50 (full) Child £3.00 (online) £4.00 (full) (5-14)
T: 01926 614101

OCTOBER 20 - 21
Hartlepool Model Railway Show
 Hartlepool College of Further Education, Stockton Street, Hartlepool, Durham TS24 7LB
Opening Times: Sat 1000 - 1700 Sun 1000 - 1600
Prices: Adult £6.00 OAP £5.00 Child £4.00 Under 5s free Family £18.00 (2+3)
T: 07956 063807

OCTOBER 27 - 28
Cheltenham Model Railway Exhibition
 St Margarets Hall, Coniston Road, Cheltenham, Gloucestershire GL51 3NU
Opening Times: Sat 1000 - 1700 Sun 1000 - 1630
Prices: Adult/Concession £4.00 Child £2.50 Family £9.00
T: 01242 517788 **W:** www.cheltmodrail.org.uk

OCTOBER 28
Colchester & District Model Railway Club Exhibition
 Colchester County High School for Girls, Norman Way, Colchester, Essex CO3 3US
Opening Times: Sun 1000 - 1600
Prices: Adult £5.00 Accompanied Children £2.00 Family £12.00 (2+2)

NOVEMBER 3
Wycrail '18
 Cressex Community School, Cressex Road, High Wycombe, Buckinghamshire HP12 4UD
Opening Times: Sat 1000 - 1700
Prices: Adult £7.00 (inc programme) Child Free (under 16)

NOVEMBER 10
Solihull Model Railway Circle
 Exhibition St Marys Church Hall, Hobs Meadow, Solihull, West Midlands B92 8PN
Opening Times: Sat 1000 - 1630
Prices: Adult £3.00 Concession £2.50 Child £2.00 Family £8.00
T: 0781 7093264

NOVEMBER 10 - 11
Wincanton Model Railway Exhibition
 King Arthurs School, West Hill, Wincanton, Somerset BA9 9BX
Opening Times: Sat 1000 - 1630 Sun 1000 - 1600
Prices: Adult £5.00 Concession £4.00
T: 07970 113270

Blackburn & East Lancashire MRS Model Railway Exhibition
 Darwen Vale High School, Blackburn Rd, Darwen, BB3 0AL
Opening Times: 1000 - 1700
Prices: Adult £7.00 Accompanied Children Free
T: 01254 603965 **W:** www.belmrs.org

Crewe Exhibition by Alsager Railway Association
 Legends, Bentley Motors Sunnybank Road, Crewe, Cheshire CW2 8WD
Opening Times: Sat/Sun 1000 - 1700
Prices: Adult £6.50 Child £2.50 Family Ticket £15.00
T: 07747 087050

NOVEMBER 24
"Steam in Beds 2018"
 Eaton Bray Village Hall, Church Lane, Eaton Bray, Dunstable, Bedfordshire LU6 2DJ
Opening Times: Sat 1000 - 1600
Prices: Adult £5.00 Accompanied Children under 16 Free
T: 01442 244345
W: www.bag16mm.org.uk

TRAIN & TOY FAIRS

OCTOBER 13
Toy & Train Fair - Chester
 The Cheshire County Sports Club, Plas Newton Lane, Chester, Cheshire CH2 1PR
Opening Times: Sat 1030 - 1430
Prices: Admission £2.00
T: 01270 652773 Tony Oakes

OCTOBER 14
Toy & Train Fair - Leigh
 Leigh Sports Centre, Sale Way, Leigh, WN7 4JY (off the A580, on A579)
Opening Times: Sat 1030 - 1430
Prices: Adults £2.00 Children 50p
T: 0151 334 3362

OCTOBER 21
Jim Corr Toy & Train Fair - Carlisle
 The Shepherds Inn, Rosehill Estate, Rosehill, Carlisle, Cumbria CA1 2RS
Opening Times: Sun 1100 - 1500

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Weymouth MRA Model Rail 2018
 Wey Valley School, Dorchester Road, Weymouth, Dorset, DT3 5AN
Opening Times: Sat 1030 - 1630 Sun 1000 - 1545
Prices: Adult £6.00 Children £2.00 Family £14.00
T: 01305 778869

Romford Model Railway Society Model Railway Show
 Marshalls Park School, Pettits Lane, Romford, Essex RM1 4EH
Opening Times: 1000 - 1700
Prices: Adult £5.00 Children £4.00 Family (2+2) £14.00
T: 07946 615381

Renfrewshire Model Railway Club Model Railway Exhibition
 Johnstone Town Hall, 25 Church Street, Johnstone, Renfrewshire, PA5 8EG
Opening Times: Sat 1000 - 1700 Sun 1200 - 1600
Prices: Adults £5.00, Concessions £4.00, Children £2.00, Family £11.00

Prices: Adult/Senior £3.00 Child £2.00 Under 16 Early Bird Tickets from 1000
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T: 07504 035955

NOVEMBER 3 - 4
Spalding Model Railway Club Exhibition
 Springfields Event Centre, Camel Gate, Spalding, Lincolnshire PE12 6ET
Opening Times: Sat 1000 - 1700 Sun 1000 - 1630
Prices: Adult £8.00 Senior £7.00 Accompanied Children Free

NOVEMBER 9 - 11
International Model Boat Show
 Warwickshire Event Centre, Leamington Spa, Warwickshire CV31 1XN
Opening Times: Fri - Sun 1000 - 1600
T: 01926 614101

NOVEMBER 17 - 18
Thornbury and South Gloucestershire MRC 51st Model Railway and Modelling Exhibition
 The Chantry, Castle Street, Thornbury, South Gloucestershire BS35 1HB
Opening Times: Sat 1000 - 1700 Sun 1000 - 1600
Prices: Adults £5.00, Child (5-16) £2.00, Family (2+2) £10.00
W: www.tsgmrc.co.uk

OCTOBER 28
Reading Vintage Toy Fair & Exhibition
 Rivermead Leisure Complex, Richfield Avenue, Reading, Oxfordshire RG1 8EQ
Opening Times: Sun 0830 - 1500
Prices: Early Ent 0830 £10.00 Admission 0930 £7.00 Admission 1030 - 1500 £4.00 Family £8.00 (2+2)
 Accompanied children under 14 Free
T: 01270 652773 Tony Oakes

NOVEMBER 1
Joe Lock Toy & Train Fair - Theydon Bois
 The Village Hall, Coppice Row, Theydon Bois, Epping, Essex CM16 7ER
Opening Times: Thurs 1900 - 2100
Prices: Admission £1
T: 07866 641215

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Angmering Model Railway Show
 The Angmering School, Greenwood Drive, Station Road, Angmering, West Sussex BN16 4HH
Opening Times: Sat 1000 - 1700 Sun 1000 - 1630
Prices: Adult £6.00 Child £2.50 Family £14.00 (2+2)
T: 01403 266689

NOVEMBER 3

Barry Stockton Wrexham Hobbies & Model Railway Show Memorial Hall
Bodhyfryd Wrexham LL12 7AG
Opening Times: Sat 1100 - 1600
Prices: Adult £3.50 Child £1.00
T: 0151 334 3362

TRAIN & TOY FAIRS

NOVEMBER 3

Toy & Train Fair - Ludlow The Racecourse, Ludlow, Bromfield, Ludlow, Shropshire SY8 2BT
Opening Times: Sun 1030 - 1400
Prices: Admission £2.00
T: 01270 652773 Tony Oakes

NOVEMBER 11

Barry Stockton Train & Toy Collectors Fairs - Wirral Hulme Hall, Port Sunlight, Wirral, Merseyside CH62 5DH
Opening Times: Sun 1030 - 1430
Prices: Adult £2.00 Child £0.50
T: 0151 334 3362

Jim Corr Toy & Train Fair - Chester-le-Street

Lord Lawson Academy, Birtley Lane, Birtley, Chester-le-Street, Co Durham DH3 2LF Opposite Kamatsu
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Prices: Early Ent £5.00 Adult £3.00 OAP/Child £2.00
T: 07504 035955

NOVEMBER 14

Joe Lock Toy & Train Fair - Richard Hale School, Hale Road, Hertford, SG13 8EN **Opening Times:** Wed 1900 - 2100 **Prices:** Admission £1
T: 07866 641215

NOVEMBER 17

Ray Heard Train & Toy Fair - Exeter Exeter Matford Centre, Matford Park Road Matford Business Park Marsh Barton Trading Estate, Exeter, Devon EX2 8FD
Opening Times: Sat 1000 - 1530
Prices: Admission £2 **T:** 01823 480097

Jim Corr Toy & Train Fair - Catterick Garrison - NEW FAIR

Catterick Leisure Centre, Gough Road, Catterick Garrison, North Yorkshire DL9 3EL
Opening Times: Sun 1100 - 1500
Prices: Early Ent £5.00 Adult £3.00 Senior/Child £2.00 **T:** 07504035955

NOVEMBER 25

Kidderminster Toyfair Gilt Edge Leisure Centre, Zortech Avenue, Kidderminster, **Opening Times:** Sun 1030 - 1400
Prices: Adult £1.50 Concessions £1.50 Family £3.00 Tony Oakes

DECEMBER 8 - 9

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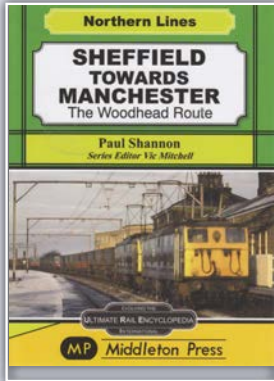


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Sheffield towards Manchester – The Woodhead Route Paul Shannon

A note of respect to Vic Mitchell of Middleton Press, in his ongoing efforts to create the ultimate railway encyclopaedia. This new book covers the Woodhead route, which traversed the scenic line from Sheffield to Manchester. With an increase in coal traffic, the line was electrified in 1953 before largely closing in 1981. Little remains of the line nowadays, with some short sections surviving for the transit of goods and others given over to the trans-Pennine cycle route. However, its glory days are captured here in a 96 page collection of photographs, detailed maps, diagrams and such. Another volume to add to your bookshelves, then, and good on you if they're sturdy enough to house the entire collection. See the website for the full, and seemingly ever expanding list.

Price £18.95

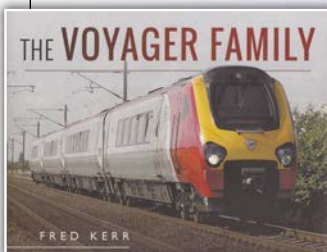
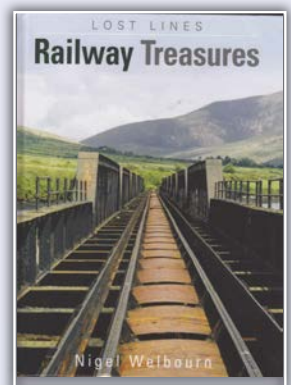
www.middletonpress.co.uk

Lost Lines - Railway Treasures Nigel Welbourn

The Lost Lines series has proven to be both enduring and popular. This latest volume, the 15th to date, delivers on the titular promise in looking back at long defunct railway lines and what remains of them in the present day. This is by turns a forlorn and fascinating read, with over 400 colour photos of abandoned stations, neglected tunnels, and other forsaken items of railway architecture and ephemera, all with interesting introductions and broken down into 25 palatable chapters. 'Treasures' might be a slight overstatement, given the parlous state of some examples, but this is a recommended read nonetheless.

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The Voyager Family Fred Kerr

One of the conditions of awarding the Inter City and Cross Country lines to Virgin Trains was the replacement of the then aged rolling stock. Two designs were thus ordered in 1998; the four car Class 220 'Voyager' destined for the newly formed Virgin Trains West Coast Line, and the five car (and tilting) Class 221 'Super Voyager' to serve the Cross Country route. Deliveries began 2001, but it wasn't long before things began to unravel, as politicians meddled, franchises changed hands and newer variations were made to the original designs. This book charts the story throughout, with brief introductions, large colour photos and short captions to each. Given its structure, the book won't occupy those seeking a weightier read on the subject, but there's enough here for fans to pore over otherwise.

Price £25.00

www.pen-and-sword.co.uk

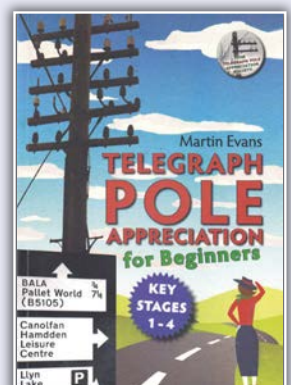
Telegraph Pole Appreciation for Beginners Martin Evans

At first glance, you might think that this book from the Telegraph Pole Appreciation Society is a bit of a gimmick. It's true that it is pretty funny, and it contains lots of pretty pictures of this most mundane of scenic features. However, hidden inside is some fascinating and perhaps unknown information about the poles themselves. If you've ever wondered what the various markings found either gouged into the wood or nailed to the surface mean, this is the title for you.

For more information, pole-related entertainment and to purchase the book, a visit to the Society website is highly recommended.

Price £8.99

www.telegraphpoleappreciationsociety.org

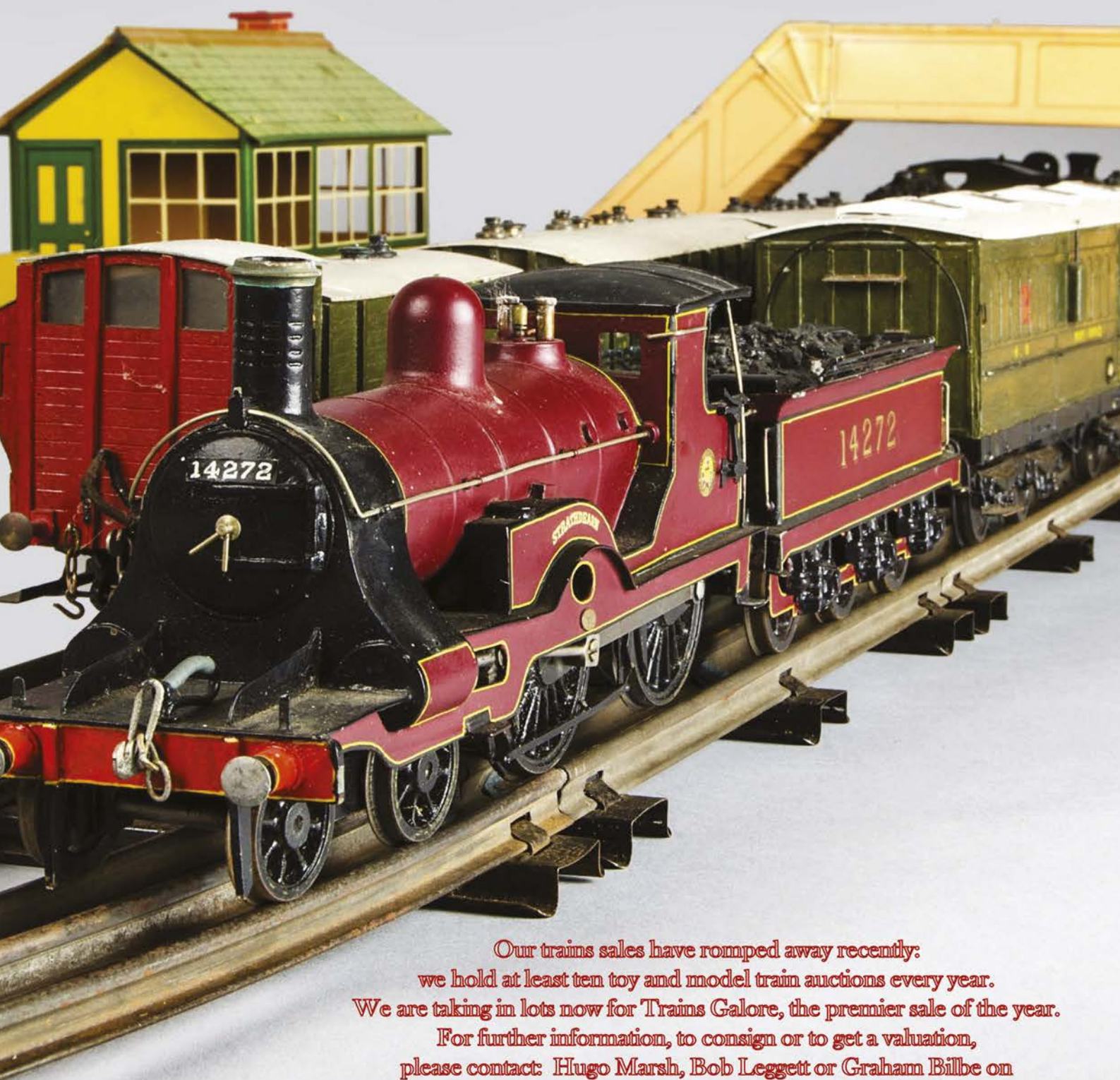


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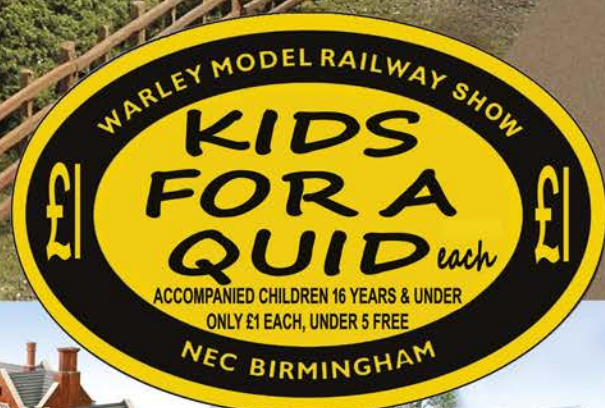
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**Squires will be exhibiting at the following shows in 2018 –
Diary updated as bookings are confirmed.**

Oct 13/14 - ALDERSHOT Farnham MRC 44th Exhibition, Alderwood Leisure Centre, Tongham Road, Aldershot, Hants. **GU12 4AS.** Sat 10-5, Sun 10 - 4.30.

Oct 20 - CHICHESTER Model Railway Exhibition, Boy's High School, Kingsham Rd, Chichester, W.Sussex. **PO19 8AE.** 10-5.

Oct 20/21 - UCKFIELD Model Railway Exhibition, Uckfield Civic Centre, Uckfield. **TN22 1AE** Sat/Sun 10 - 5.

Oct 27/28 - ABERDEEN Model Railway Exhibition, Hallmark Hotel, Aberdeen Airport, Aberdeen, **AB21 7DW** Sat 10-5/Sun 10-4.

Oct 27/28 - LEEDS The Leeds Model Railway Society, Model Railway Exhibition, The Grammar School, Alwoodley Gates, Harrogate Road, Leeds, **LS17 8GS** Sat 10-5, Sun 10-4.30. **Plenty of Free Parking**

Oct 27/28 - STOCKPORT Hazel Grove & District Model Railway Society Exhibition, Hazel Grove Recreation Centre, Jacksons Lane, Hazel Grove, Stockport, Cheshire, **SK7 5JX** Sat 10 -5, Sun 10-4. **Enlarged Show**

Nov 3 - HIGH WYCOMBE - WYCRAIL 18 Model Railway Exhibition, Cressex Community School, Cressex Road, High Wycombe Bucks **HP12 4UD.** Saturday 10-5.

Nov 3/4 - SPALDING Model Railway Exhibition, Springfields Event Centre, Camelgate, Spalding, **PE12 6ET.** Saturday 10 - 5pm, / Sunday 9.30am - 4.30pm.

Nov 3/4 - ANGMERING W.Sussex Area Group N Gauge Society "All Scales Model Railway Exhibition", The Angmering School, Greenwood Drive, Station Rd, Angmering, **BN16 4HH.** Sat 10-5 Sun 10-4 *Now 2 Day Show - Short Walk Angmering Station - Features various scales not just N Gauge!!**

Nov 10 - IPSWICH Model Railway Exhibition, Rushmere Hall Primary School, Lanark Road, Ipswich, Suffolk **IP4 3EJ.** Saturday 10 - 5pm.

Nov 10/11 - TELFORD IPMS SCALE MODEL WORLD The Telford Exhibition Centre, St. Quentin Gate, Telford, **TF3 4JH.** Sat 10-6, Sun 10-4 FREE Entry for IPMS Members.

Nov 16-18 - WAKEFIELD 57th Model Railway Exhibition, Thornes Park Athletics Stadium, Horbury Road, Wakefield, **WF2 8TY** Fri 5.30-9. Sat 10-5.30. Sun 10-4.30

Nov 17 - PORTSMOUTH South Hants Model Railway Exhibition, Admiral Lord Nelson School, Dundas Lane, Portsmouth, Hants **PO3 5XT.** 10-5 *Plenty of Free Parking*

Nov 17/18 - WORKINGTON Model Rail Show, University of Cumbria, Energuis Building, Blackwood Rd, Lillyhall Estate, Workington, Cumbria, **CA14 4JW.** Sat 10 - 5, Sun 10 - 4. **5th Year at this NEW VENUE**

Nov 24/25 - BIRMINGHAM Warley National Model Railway Exhibition, Hall 5, NEC Birmingham **B40 1NT.** Sat 9.15 - 6pm, Sunday 9.15 - 5pm. www.warley-mrc.org.uk

Coming to Warley? - Why not try Sunday?? The show is less busy - see more of the layouts AND a lot easier to get to our stand!! :-)

Been to Warley before? Didn't like it?? Found it too crowded???

Maybe you said "never again"???? Well.....

The show is now planned to have much wider aisles, larger gaps between layouts, much more seating in the refreshment areas and now with the "Kids for a Quid" Promotion - now is the time to think about revisiting Warley and see just how the show has evolved!!! Plus for this event Squires assembles the largest exhibition display stand of Modelling Tools, Materials and Accessories of any show in the country!!!! (Probably!!!!!!) :-)

EXHIBITIONS & SHOWS IN 2019

Jan 12/13 - BOGNOR REGIS Model Railway Exhibition, Felpham Community College Felpham Way, Felpham, Bognor Regis, West Sussex PO22 8EL Sat 10 - 5, Sun 10 - 4.30 **Plenty of Free Parking**

Jan 19/20 - CALNE MODEL RAILWAY EXHIBITION Calne Leisure Centre, White Horse Way, Calne, Wilts. **SN11 0SP** Free parking. Sat/Sun 10-5 - **Enlarged Show for 2019**

Jan 20 GUILDFORD - Astolat M/Railway Exh, The Surrey Sports Park, University of Surrey, Richard Meyjes Road, Guildford, Surrey, **GU2 7AD.** Sunday 10-5. www.astolatmrc.co.uk

Jan 26/27 KENDAL Mod Rail Exh Leisure Centre, Burton Rd, Kendal, **LA9 7HX** Sat/Sun 10-5

Jan 27 BRISTOL - Bristol 'O' Gauge Group Exhibition University of the West of England Conference & Exhibition Centre, Filton Road, Bristol, **BS34 8QZ.** Sunday 10 - 4.00pm.

Feb 22/23/24 GLASGOW Model Rail Scotland Scottish Exhibition Centre, Glasgow, **G3 8YW** Fri 10.30-6, Sat 9.30-6, Sun 9.30-5 www.modelrail-scotland.co.uk

Mar 2/3 - PRESTON Preston & District Model Railway Exhibition, Sports Hall, Preston College, St Vincents Road, Fullwood, Preston, Lancashire, **PR2 8UR.** Sat/Sun 10 - 5pm

Mar 9/10 - KEIGHLEY Model Railway Club 44th Exhibition University Academy Keighley, Green Head Rd, Utley, Keighley, **BD20 6EB.** Sat/Sun 10-4.30. Plenty of FREE Parking.

Mar 16 - ABINGDON ABRAIL 2018 Model Railway Exhibition, White Horse Leisure & Tennis Centre, Audlett Drive, Abingdon, Oxon, **OX14 3PJ.** Saturday 10 - 5pm.

Mar 16/17 PERTH GREEN Model Railway Exhibition, Perth Green Community Centre, Inverness Road, Jarrold, Tyne and Wear, **NE32 4AQ** Sat 10-5. Sun 10-4.

April 13/14 CORSHAM Trainwest 2019 M/Rail Exh, Springfield Community Campus, Beechfield Rd, Corsham, Wilts **SN13 9DN** Sat/Sun 10-5 *Plenty of FREE Parking**

April 20/21/22 - YORK Model Railway Show, The Knivesmire Stand, Racecourse Road, York. **YO23 1EX.** Saturday & Sunday 10 - .5, Monday 10 - 4.30.

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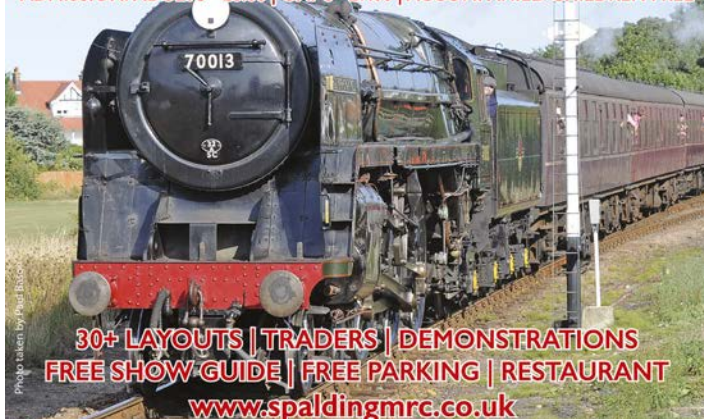
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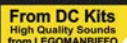
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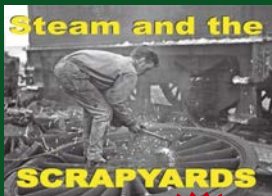
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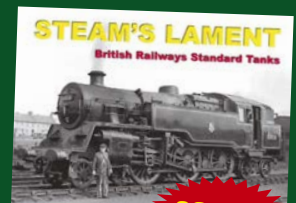
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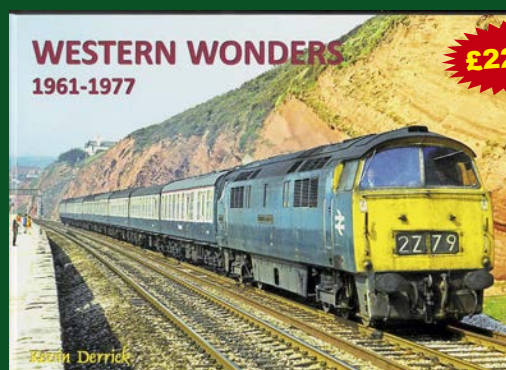
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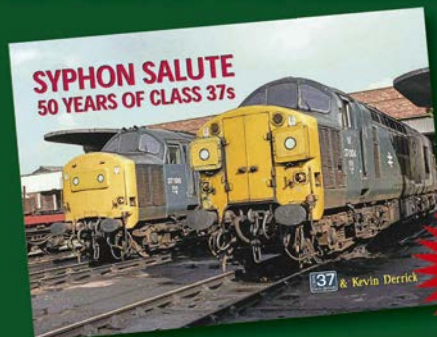


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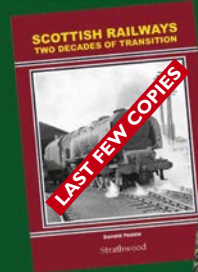
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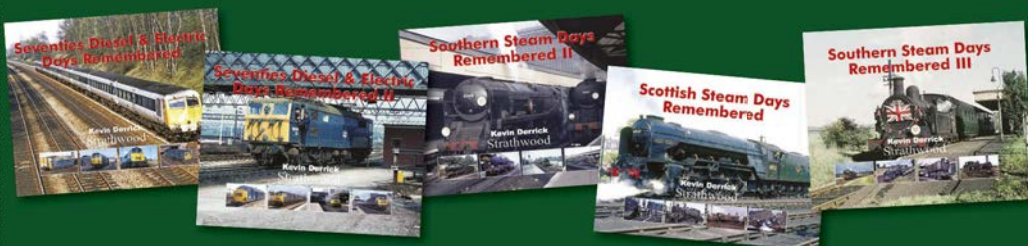


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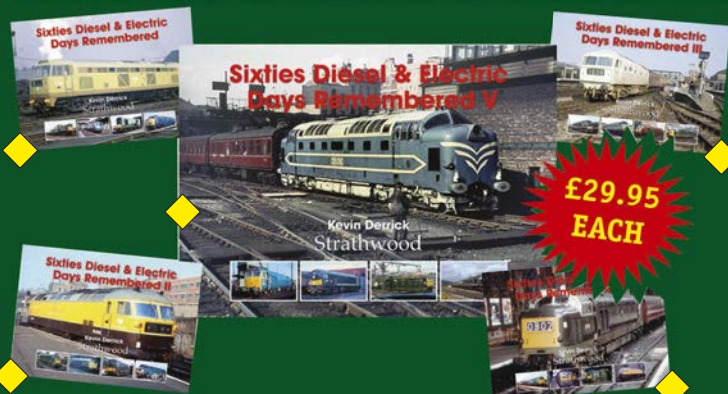
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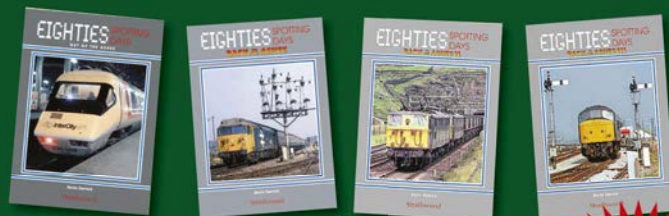
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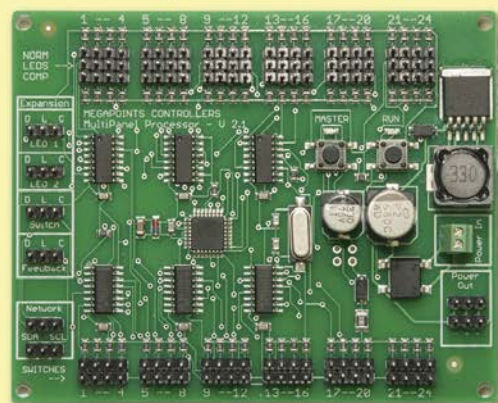
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Handy Hints – Using plaster for scenery

Sometimes it's powdered, sometimes it's impregnated into bandages – plaster is the perfect hard shell, although it can be fragile. You don't want a glaring white gash appearing in the hillside thanks to an accident. Unless that gash looks like a horse, you're not going to convince anyone it's prototypical. There are ways to avoid this, though.

Read our scenic advice

Phil's Blog - April

What does Easter mean to you? For me, it means a trip to one of my favourite model railway exhibitions in the country – York. It's a beautiful city with fascinating railway history, all of which I ignored in favour of a day indoors at the racecourse. A couple of weeks later, my destination was The National Garden Railway show at Peterborough for some large scale antics and a problem – do I need a hat?

Find out Phil's favourite models at these shows, [read on](#).



**EXTRA
ARTICLES**

RMweb - Casting plaster for buildings

Do you remember Linka? The system for constructing buildings out of cast plaster parts was popular years ago and sets still appear on the second-hand market. Actually making successful casts isn't as easy as you think. Fortunately, there is plenty of advice available from some surprising sources.

If you've ever used plaster, [read on](#).

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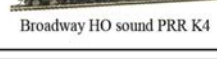
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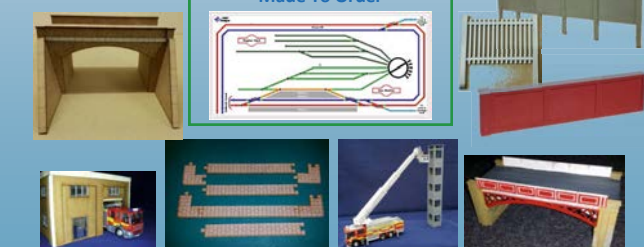
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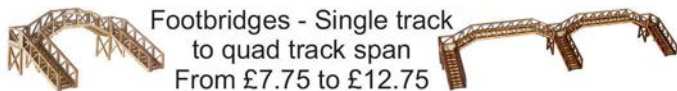
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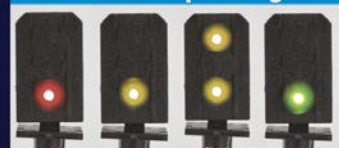
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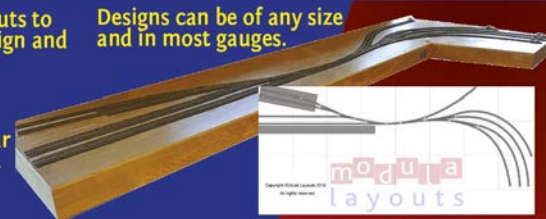
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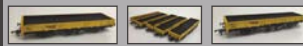


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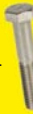
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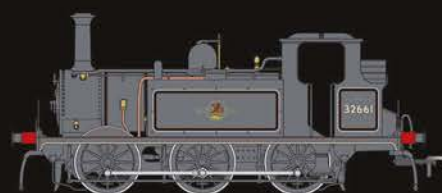
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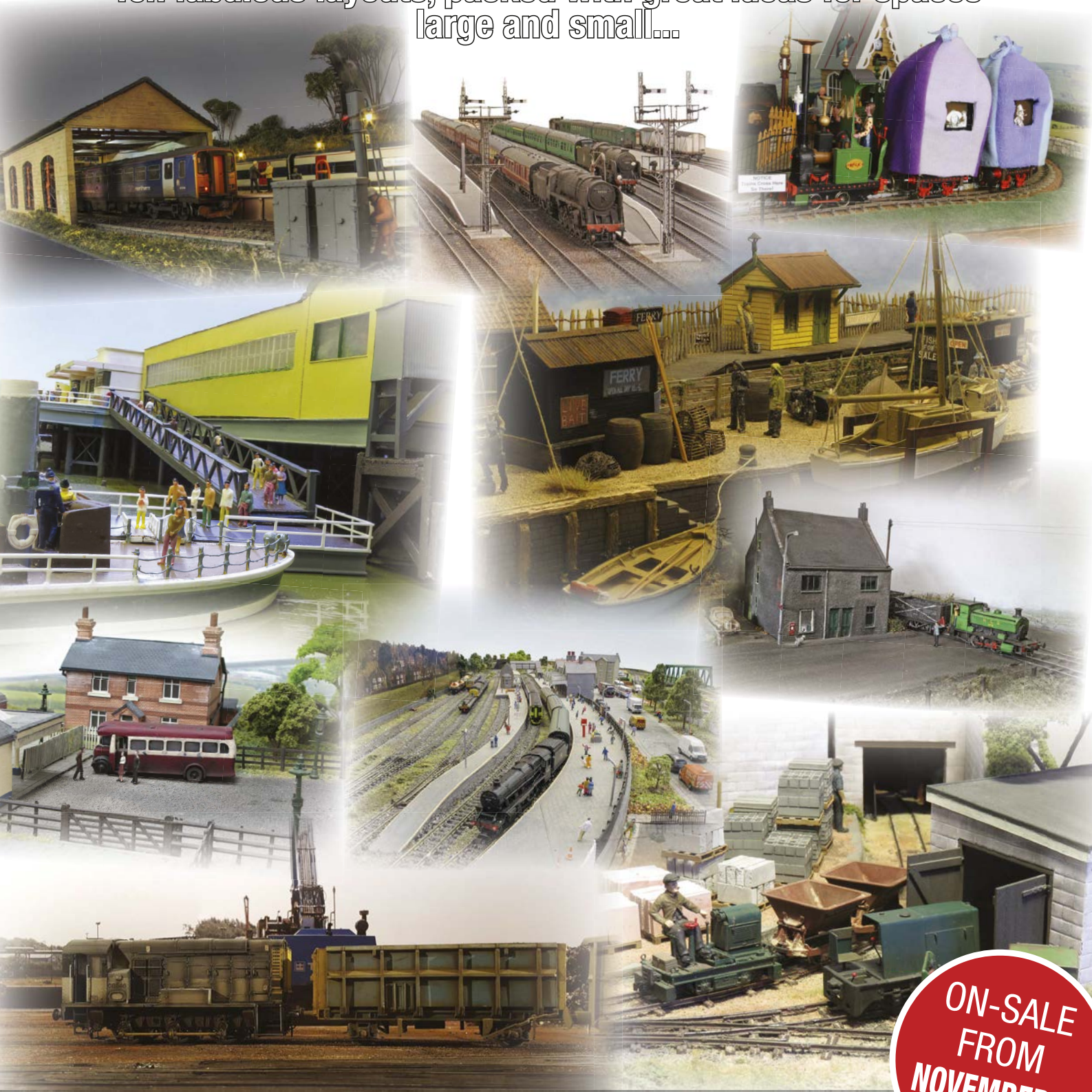
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TAIL LAMP

Richard Johnson of DCCconcepts shares a few thoughts about the railway modelling marketplace, and wonders about its sustainability. Opinions are the author's own, of course...

Isometimes wonder if the hobby will actually thrive in the way we want it to. There are so many conflicting goals at different levels of the industry, and while they may look to be interesting or exciting on the surface, they also eat away at each other underneath it. The main retail brands should lead, no matter what. Right now, though, I don't believe they are.

The average modeller is stimulated by the excitement they create. Independent retailers can plan for a greater or lesser year based on their announcements. Larger retailers can 'game plan' their business activity and promotion based around release schedules.

The reactions of modellers are keenly awaited and hopefully result in healthy pre-orders, which, in turn, gives confidence for the main brands to commit to hard tooling costs, and deliverable production schedules.

In a perfect world this would continue, but look at the past few years where we saw an increase in commissions and special editions from the major brands, which encouraged them to take on exclusive batches. That's nice for modellers, but it's perhaps a confidence blow to smaller dealers that are already struggling under the growth in web retail.

Even some magazines have started making locomotives, which isn't good for smaller or larger dealers. What were suppliers thinking, making products for the very places that charge them so much to promote their own brands to the consumer, thus further weakening their own retailer base?

Something else seemed to affect the 'majors' at the same time. The largest of them played with market and dealer policies; moved to increase direct online business and seriously de-stabilised retailer confidence, resulting in lacklustre results.

Some appeared to be backing off for a while as management and perhaps manufacturing bases transitioned. Smaller but active players delayed some new models while potential new competitors emerged.

As a result, business models for retail were challenged. The result?

- The main suppliers seem to have less confidence, as is already clear from reduced range announcements and delays in new models. They also appear to be investing less.

- Newer suppliers, already confident from overseas success, are entering the UK market and to their credit, doing good things – but this is further diluting the potential for profit, thus making critical mass for their businesses much harder to reach.

- Smaller suppliers are offering fragile special editions because they are short on resources and real depth of management experience for complex projects.

- Major retailers are having to bite the bullet and invest hugely to fill out their catalogues by becoming their own manufacturers, meaning huge investment in time, human resources and distribution costs.

- Smaller retailers are simply giving up the business, because they can only operate for so long without the profit to allow a little pleasure from the many hours spent at shows and in the store.

Coming full circle, the plethora of new releases may seem good to modellers, and the majors may do well short term, but what is the result of this diversity going to do? What of the future for us all?

Wider sourcing looks fine, but dilution of distribution means fewer models for the same investment, and wider range offerings mean fewer units produced in individual runs. Both these things will definitely increase the basic cost, so prices will continue to rise. A conflict arises if the retailers also become suppliers, but what happens to the normal price structures and can the traditional supply brands survive?

A wide range with adequate margin is needed for major brands to invest in the hobby, but with this distraction and dilution, will they achieve the mass that they need to support a dynamic program? And with

retailers now also manufacturing, can they ever get a reasonable return on their investment?

Not everyone who makes exclusive models will survive. Major retailers have far more potential because of the higher return of one-step sourcing, but those below them will see incomes drop. How much can they tolerate and keep smiling?

Right now is an 'Indian summer' in terms of product supply. Will it be followed by a winter too hard for the traditional structure to live with or will things re-stabilise? Who will our suppliers be in the future, and where will we be buying our product from?

It will be interesting to watch how the marketplace develops over the next year or two. Meanwhile, let's make the most of it. ■



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Rail



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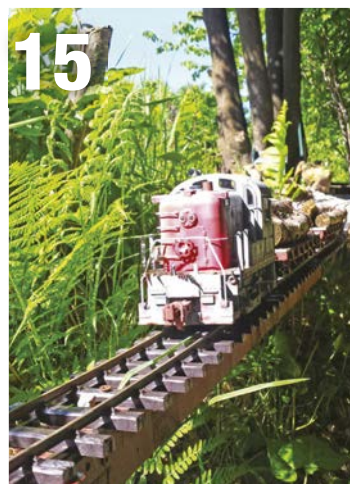
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Next Month: We preview the Yorkshire show in it's new location.



VIEW FROM THE END OF THE PLATFORM

I'm in love

HAS IT BEEN A YEAR ALREADY?

September last year saw my first issue of *Garden Rail* arrive in everyone's hands. My bosses breathed a sigh of relief that I wasn't completely useless as an editor and everyone else wondered who this new bloke was in charge of the mag.

In the last twelve months, I can honestly say that there's not been an article on these pages that I wouldn't have enjoyed reading myself. Singling out any one of them would be unfair to the other authors, all of whom I've enjoyed talking to either in person or by e-mail.

We have a growing band of writers who make this magazine what it is. Ultimately, their efforts at the workbench and in the garden are what we all wish to read about and I think you'll agree that so far we've seen plenty of terrific creativity and skill on show.

That's the joy of large scale modelling, it seems to free people from the desire to count rivets that can cause problems in the smaller scales. This end of the hobby is all about enjoying yourself.

WHAT ABOUT THE NEXT YEAR?

More of the same. We've increased the number of pages in the magazine and so far I've not had a problem filling them – but don't get complacent, I'm always looking for new articles on any large scale subject. Gauge 1 seems especially sparse, come on 1/32 or 10mm folks, let's hear from you.

It's a pleasure and privilege to edit this magazine. Thank you to those who have told me how happy or otherwise they are with it. I'm always on the end of the e-mail and try to be visible at shows too so keep talking.

Speaking of shows, a few weeks ago I visited *Tracks To The Trenches* at The Apedale Valley Light Railway. What a fantastic day out for anyone interested in small, narrow gauge locomotives. With the benefit of a press pass, I managed to take a stroll along through the engine shed before running started for a video we'll be publishing in sister magazine **British Railway Modelling**, and are trying to find a way to publish in the digital edition of **Garden Rail**.

What a selection! No two locos were the same. Some looked like the unholy product of engineering and shed building, but one stood out for me above all others.

Built in 1917 by Brush, four-wheel battery electric loco 1603 was part of a batch of 6 built for the Ministry of Munitions and allocated to His Majesty's Explosive Factory at Queensferry.

Found in a terrible state by Peter Smith, the tiny locomotive has been meticulously restored by Peter Smith into its original Admiralty grey livery.

This is a tiny machine, my measurements have it at little more than 2 metres long over the bonnets. As a modelling project in either 16mm or 7/8th scale, it would be lovely. One I shall certainly add to my ever growing list of one-day ideas.

Actually, that's the main thing about the last year, I've not got enough modelling done. Must do something about that... ■



Above: 1603 at *Tracks to the Trenches*.

Left: At least electric drive would be prototypical for a model, the driver has to sit on the motor!

Right: If you have a spare skip wagon chassis and a large barrel going begging, how about this?



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Kati-Ann

Unsatisfied with steam loco designs available ready to run, Steve Howard combines two classic models to produce one.

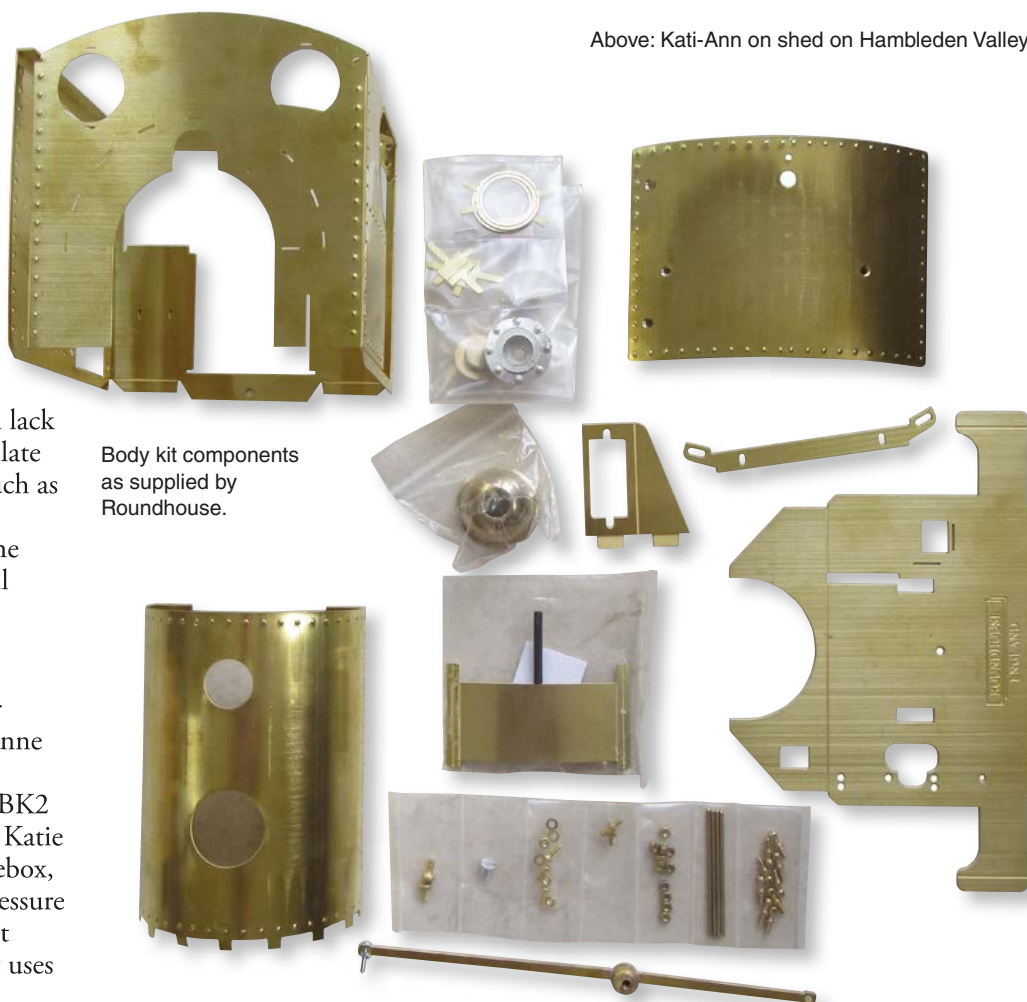
I had looked at the Roundhouse Lady Anne and Katie models for a while, trying to decide what I liked and didn't like about their designs.

My problem with Lady Anne is that the chassis is too long and it probably ought to be shortened or converted to an 0-6-2. The problem with Katie was the open back left nowhere to store coal on board. Other minor problems with both were a general lack of detailing, a lack of a front footplate and other missing minor details such as sandboxes and pipework etc.

Owning both models gave me the opportunity to study both in detail along with the technical drawings on the Roundhouse website and the idea came to me to build an amalgamation of both, ie, a longer Katie body on a shortened Lady Anne chassis - a Kati-Ann

I duly ordered a Roundhouse HBK2 Lady Anne chassis kit, an HBK16 Katie Boiler Kit (this includes the smokebox, gas tank, lubricator, gas burner, pressure gauge etc), HBK17 Katie Body Kit and an HBK12 R/C fittings kit (it uses

Above: Kati-Ann on shed on Hambleden Valley



Body kit components as supplied by Roundhouse.

a different regulator valve from the manual version and includes a servo bracket etc.)

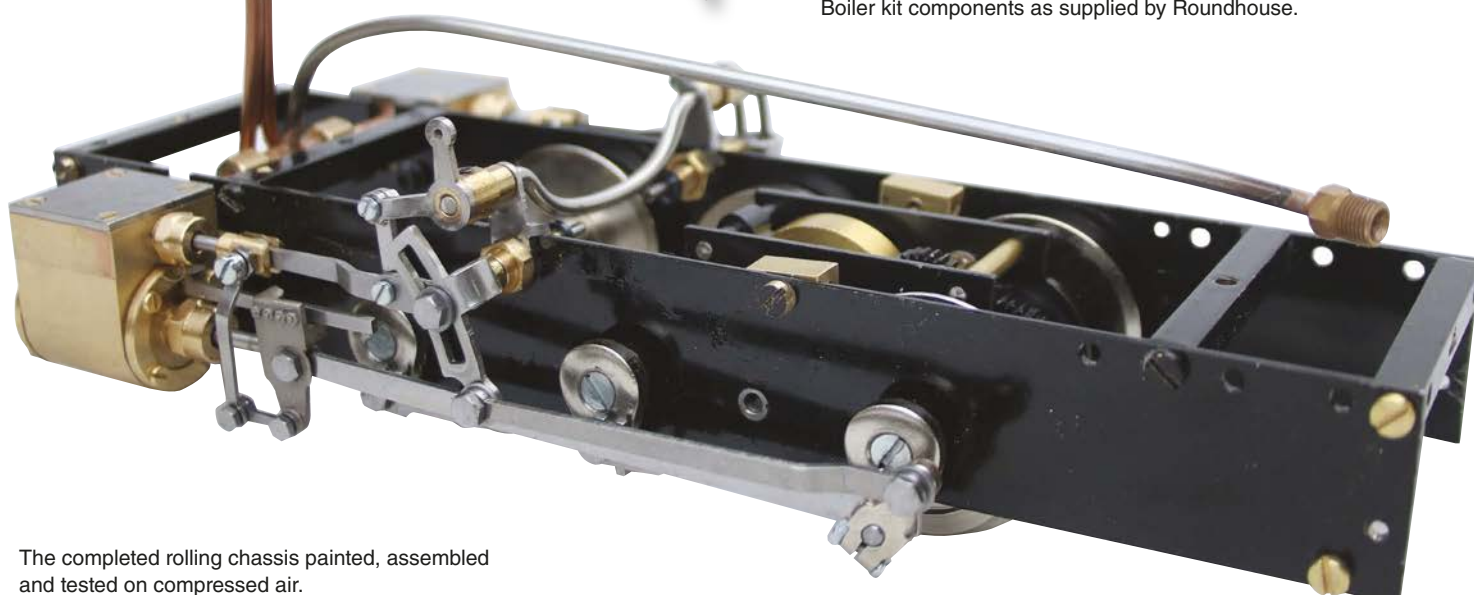
All the components in the kits are individually sealed in polythene bags and the main body components such as the cab and saddle tank are pre-formed so no difficult bending of brass is required. The boiler kit comes with a Roundhouse boiler and gas tank certificate.

All the kits come with detailed instructions and are quite straightforward to build with nothing more than a screwdriver and Allen keys.

The chassis was tackled first, but before assembly began, the two side frames were reduced in length by 35mm overall. 8mm was cut from the front and 27mm from the rear. The first and last frame spacers were relocated by drilling new holes in the frames so that the square spacer bars lined up with the end of the frames.



Boiler kit components as supplied by Roundhouse.



The completed rolling chassis painted, assembled and tested on compressed air.

The construction was then carried out as normal, the cylinders are supplied ready assembled and the instructions supplied are clear and comprehensive.

The only difficult part of the build is to correctly align the valve cranks and drill and pin them in place. I suggest not drilling them until the chassis has been completed and test run after the valve timing has been set and tested. I test ran the chassis on compressed air from my airbrush compressor as it is much easier to make adjustments when there is no boiler in the way and nothing to burn your fingers on.

Another option I always fit, is an SSP Slomo which transforms the

performance of the loco into something more akin to the real thing and enables me to shunt wagons on my end to end exhibition layout – Hambleden Valley.

The Slomo is simple to fit and a full video guide to fitting it is on the SSP website.

Boiler, smoke box, gas tank and all the associated fittings were then assembled as per the instructions and without any modification, to make a completed and functioning loco that could be steamed and run, albeit still without a body.

As all this is standard Roundhouse kit construction and not specific to this model, so I have not gone into any detail here nor included any photos

of its construction as there's no need thanks to the instructions and simplicity of the job.

If the assembly makes you nervous, Roundhouse can supply all this ready built and tested. The only work then required would be to reduce the lengths of the side frames and relocate the two spacers and this would be slightly more difficult to do on a fully constructed chassis, but

still possible with care.

Next, work started on constructing the body which required soft soldering using a large 75watt iron or a small gas torch.

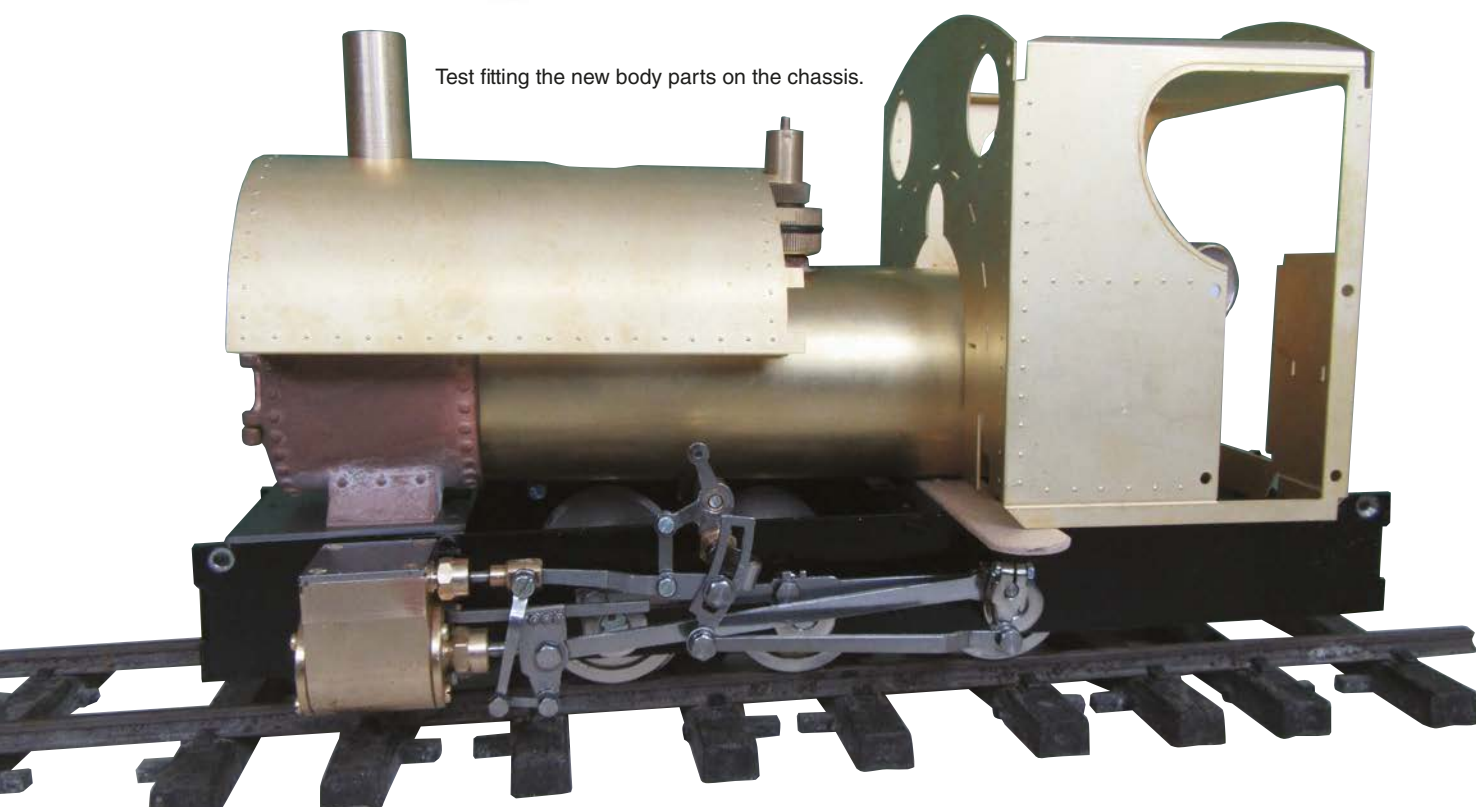
The first job was to create a rear cab plate and coal bunker. This was made from 0.5mm nickel silver sheet, but you equally well use brass sheet. A pair of spectacle rims were ordered from Roundhouse for the rear windows and these were drilled and fitted with protective coal rails.

The bunker was folded up from nickel silver sheet and coal rails made from 3mm strip were soldered to the top. (The coal bunker on a standard Lady Anne is the same size and only held in place by the handrail knobs and it might be possible that Roundhouse would supply a Lady Anne bunker ready-made, but they build in batches and you might have to wait some time.) I have subsequently removed the bunker from my Lady Anne and could have used this. As Lady Anne also has coal bunkers on top of the side tanks, I didn't think it needed both. It also helps to shorten the appearance of the loco.

A door was also made for the right hand side only (the side normally seen by the public on my end to end layout. The door was held in place using the handrail fixings either side of the opening. This also enabled me to fit the



New cab rear and coal bunker.



Test fitting the new body parts on the chassis.



Cut tank and new wrapper.



Modified cab roof and new roof vent & rails.

top half only of a loco driver mounted on top of the regulator servo.

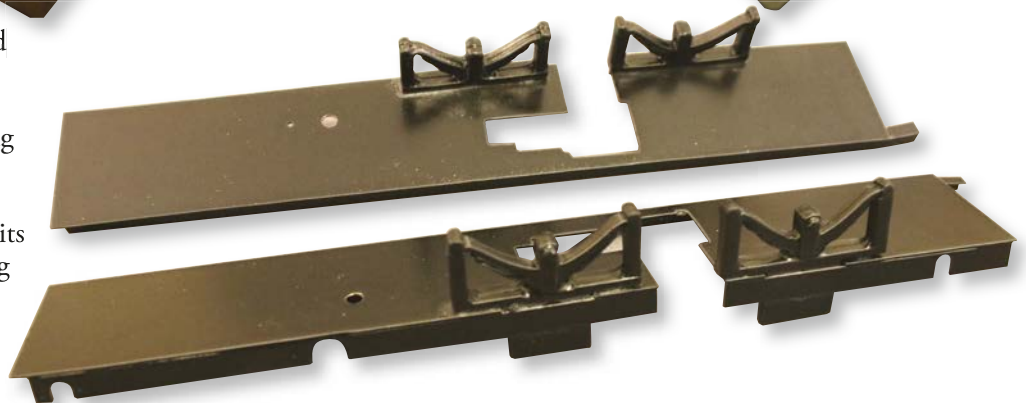
The left hand side has the displacement lubricator and drain plug in the way drain and provides better access without a door.

The saddle tank is fitted forward of its normal position, such that the existing hole for the filler cap is now used to encompass the chimney.

The saddle tank was then cut in half between the holes for the safety valve and the tank filler and a new filler piece fabricated. This lengthened the tank to enable it to encompass the smoke box.

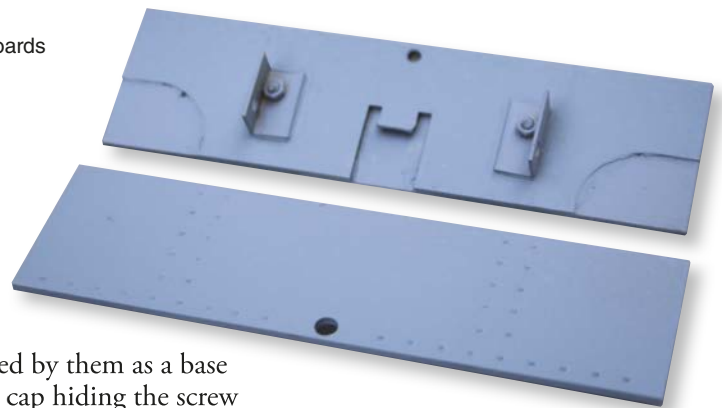
A new tank wrapper was then formed to cover the whole tank in one piece. This was made from nickel silver sheet and does require some bending bars to form the curvature. Someone in your local club may have a set of these or they can be purchased from various trade stands at shows or on-line.

The height of the chimney was reduced by 10mm to the same height as the cab roof and gave it the short stumpy look appearing out of the top of the saddle tank. The chimney top was left as a press fit only as it needs to be removed in order to remove the body from the loco. At the base of the chimney was a white metal casting supplied by Roundhouse on request.



New front running boards and leaf springs.

New front and rear buffer beams.



This casting is used by them as a base for the tank filler cap hiding the screw that is used to secure the body to the boiler band.

The roof vent is poorly modelled and stems from the days of 27Mhz radio control, where the hatch cover was mounted on sticky pads to insulate it from the cab and could be used as the radio aerial, something not needed for current 2.4Ghz systems. Also the

runners are too short to represent a sensible sliding arrangement of the hatch cover. This was corrected by soldering the cover to the roof along with correctly sized rails

New front running boards were made from brass strip and angle with cut-outs to clear the expansion links. The rear spring



Rear sand boxes, GRS white metal parts.



would be inside the cab so isn't fitted

Replacement buffer beams were made and fitted using small angle pieces to secure them to the frames.

Other details were added such as front and rear sand boxes, toolboxes and vacuum pipes.

The rear sandboxes were fitted to a small brass angled plate that was then screwed to the side frames. A small clip was made to hold the vacuum pipes as you'll be able to see in the photo.

A Summerlands Chuff Pipe was added as I like the sound, especially when under load and sound adds another dimension to the models. I've noticed how many smaller gauge locos on DCC now have sound, even if just a recording. It never sounds as good as real steam power of course.

I use chopper couplings rather than the standard whitmetal centre buffer as I use automatic coupling and uncoupling with track magnets on my layout. The couplings are basically Accucraft, but I have replaced the hook with a Tenmille one which has a tail to which I glued a small piece of right angled steel wire (fine welding rod)



This is pulled down by the track magnet when the coupling is not under tension.

A 2.4Ghz radio receiver and servos were fitted

The body was sprayed LSWR pea green and then weathered down with dirty black (I rarely use pure matt black) and dark brown. The brass chimney was chemically blackened with Carrs brass black. The bright and shiny stainless steel motion was sprayed dirty, rusty brown mix and the overall loco made to look a bit grubby and oily. I don't like clean or shiny locos.

Next month, Steve takes us through the construction of fellow locomotive Billy. ■

Jack

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I.O.M. 'E' Van



W&L Coaches



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L&B Bogie Van



1:13.7 Bagnall 0-4-0ST



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1:32 'Victory' 0-6-0T



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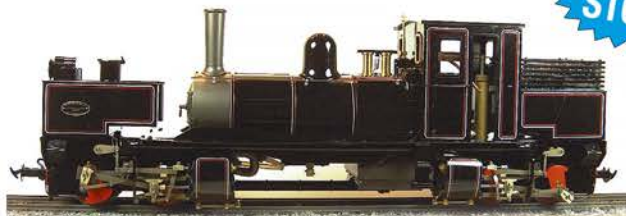
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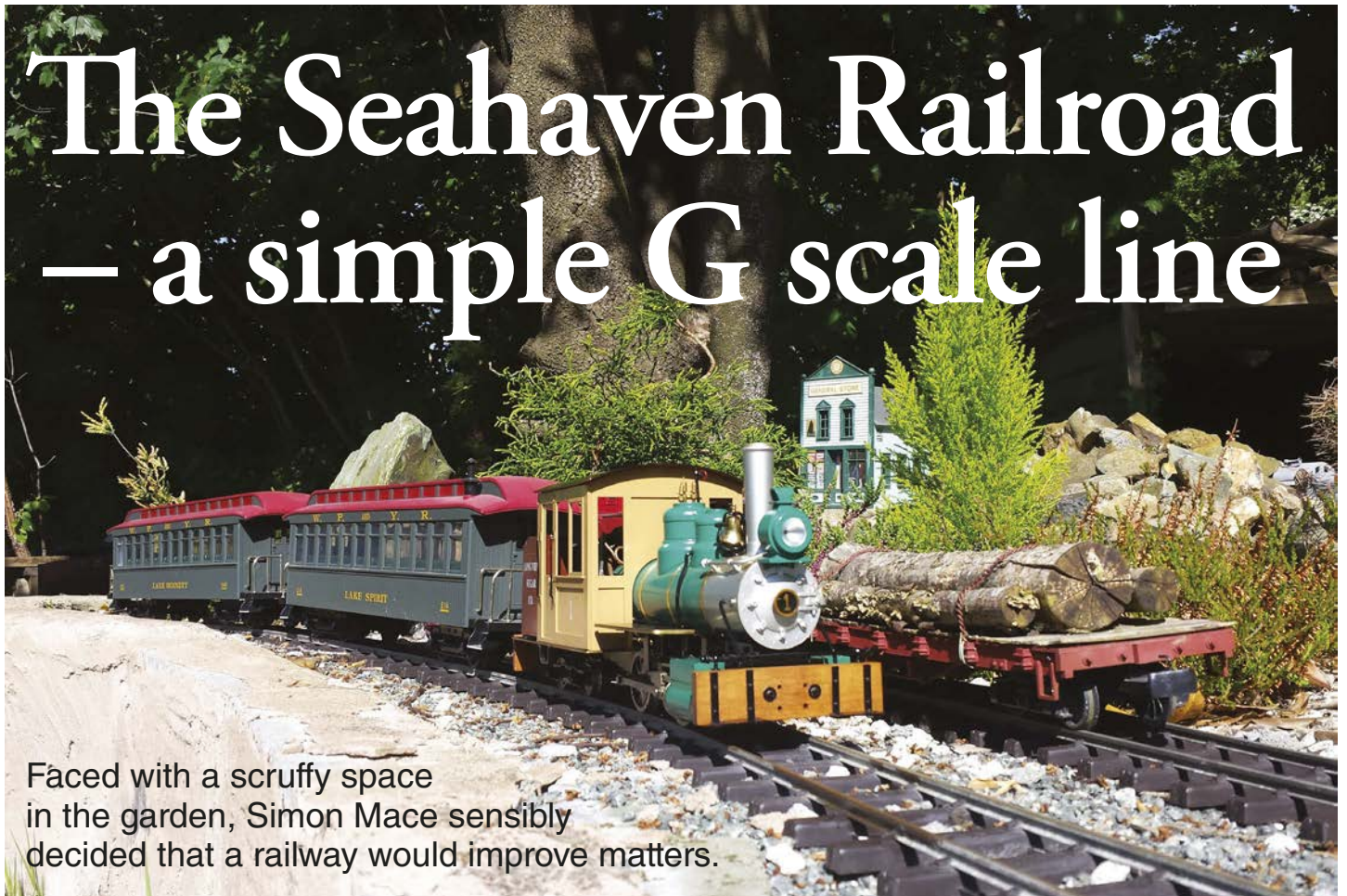
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The Seahaven Railroad — a simple G scale line



Faced with a scruffy space in the garden, Simon Mace sensibly decided that a railway would improve matters.

After pulling up my original G scale garden line to make way for the 7¼" gauge Apple Valley Railway, I was left with a surplus of G scale stock with nowhere to run. As one end of the 7¼" track formed a 20' diameter loop, with an untidy area of under-developed garden within it, I

decided to kill two birds with one stone by building a very simple raised track to sit back and watch the trains pass by.

The railway is entirely contained within a raised planter constructed from two rows of concrete blocks, and forms a squashed oval shape. As everything within this planter exists in (roughly)

The Forney rounds the East curve with a freight working on a bright spring day.

1:24 scale, it reminded me of the closed-off fictional town in the film "The Truman Show", and as all of my stock is American outline, the name of the Seahaven Railroad feels appropriate.

The railway occupies a space of roughly 8 by 16 feet, although it is significantly narrower at the west end. A large Bay tree is also within the planter (it was there before the railway) and despite the problems of annual leaf fall provides pleasant shade across one end of the layout. The tightest curve is 3' radius, and the track plan is a simple loop with a pair of sidings.

Building the perimeter wall did not involve any real civil engineering, a level trench was dug and a few inches of mortar laid into this. Two rows of concrete blocks were then built up, taking care to keep the top surface as level as possible. A 4' section of this wall was intentionally left out to provide a reason for a bridge.

An overview of the railroad from the train-watching bench.



The planter was filled with rubble obtained from other work in the garden, and topped off with topsoil. I was fortunate in that the garden had one been laid out with several rockeries; whilst these were swept away in the creation of a new lawn, the rocks were carefully saved, and utilised to create a central raised area such that trains pass in and out of view as they circle the track.

This raised central area also serves a second purpose, one that integrates well with the railway; it forms a course for RC rock crawling. For those unfamiliar with this hobby, it involves driving specialised 4 wheel drive models over challenging obstacles – a G scale mountain range is ideal! The rock crawling course loops within the railway, and determined the positioning of the largest rocks. Incidentally, while the pictures show a 1:10 scale rock crawler, 1:24 scale versions are also available....

The route of the track bed was scooped out to about 3" deep, and wooden pegs set in to determine the final track level. The pegs are widely spaced on the straighter sections, and closer on the curves to allow the track some room to move as needed with expansion. The trench was then filled with mortar, and topped with small (10mm) limestone chippings. The track was then laid (Peco G-45 flexi track is used throughout), with screws holding the curves into place on the wooden pegs. Final ballasting was undertaken with fine "alpine green" chippings sold for topping pot plants. Keeping



Above: The Alco diesel idles by with another load of logs for the mill.

Right: Brushing through the overgrowth, the Alco diesel rumbles over the bridge.



Below: The Shay shuffles past with a load of logs.



G scale, 7 1/4" and radio control cars in perfect harmony.

the track screws loose allows for fine adjustment of levels where needed, and in the 4 years that the track has been in place very little maintenance has been needed.

The bridge is simple a length of 2"x2" timber painted a suitable ruddy-brown and supported with a couple of steel brackets. It does its job and allows an unobstructed view of passing trains.

Planting uses a variety of conifers and thymes, laid out however looked best. The tallest growing varieties were placed in the centre of the planter to prevent them taking over the railway too quickly (although I realise that the bigger ones will have to be felled & replaced eventually). There are a couple of scale buildings and road vehicles placed around to set the scale, but I keep these to a minimum to avoid the "model village" look.

I built a simple bench alongside the railway from which to sit and watch, it also makes a good spot to store all of the supplies needed when running live steam.

Rolling stock is mostly ready to run Bachmann and LGB, although all locos have been converted to battery power. Most of these are fitted with simple forward/reverse switches only and run at a single (slow) fixed speed – as the



main purpose of the railway is to leave an unattended train quietly trundling through the scenery no further complication is really necessary.

I do also have a single live steam loco (an Accucraft Forney), which is radio controlled and runs very well. However, it is only brought out very occasionally, with the battery locos doing the vast majority of the running (I have a coal

A 4x4 tackles the rock crawling route while the porter saddle tank trundles by with a rake of work weary tippers.



Shay No 6 waits for number 11 to pass with the morning passenger train.





Shay No 6 prepares to head out with a passenger excursion.

fired loco on the 7¼" gauge for the real "hands on" steam experience...).

As the railway is well away from the house, I keep a couple of cheap (Chinese) flat wagons out on the track

The railway is surrounded by my 7 ¼ scale line, The Apple Valley Railway.

all year round. This means all I have to do to run is carry a loco out and switch it on. The wagons have been planked with lolly sticks and have real wood log loads. After a couple of years outside, these have taken on a fantastically authentic weathered appearance that looks just right.

Future jobs include cladding the concrete block wall to make it less obtrusive (my amateur rendering has not been entirely successful).

So there it is; a straightforward scenic garden railway with the minimum of complication. Maybe less really can be more... ■



An EMU from Tesco



Take one cheap train set. Garnish with some inspiration and serve on your Gauge 1 layout. John Perkin shows us how.

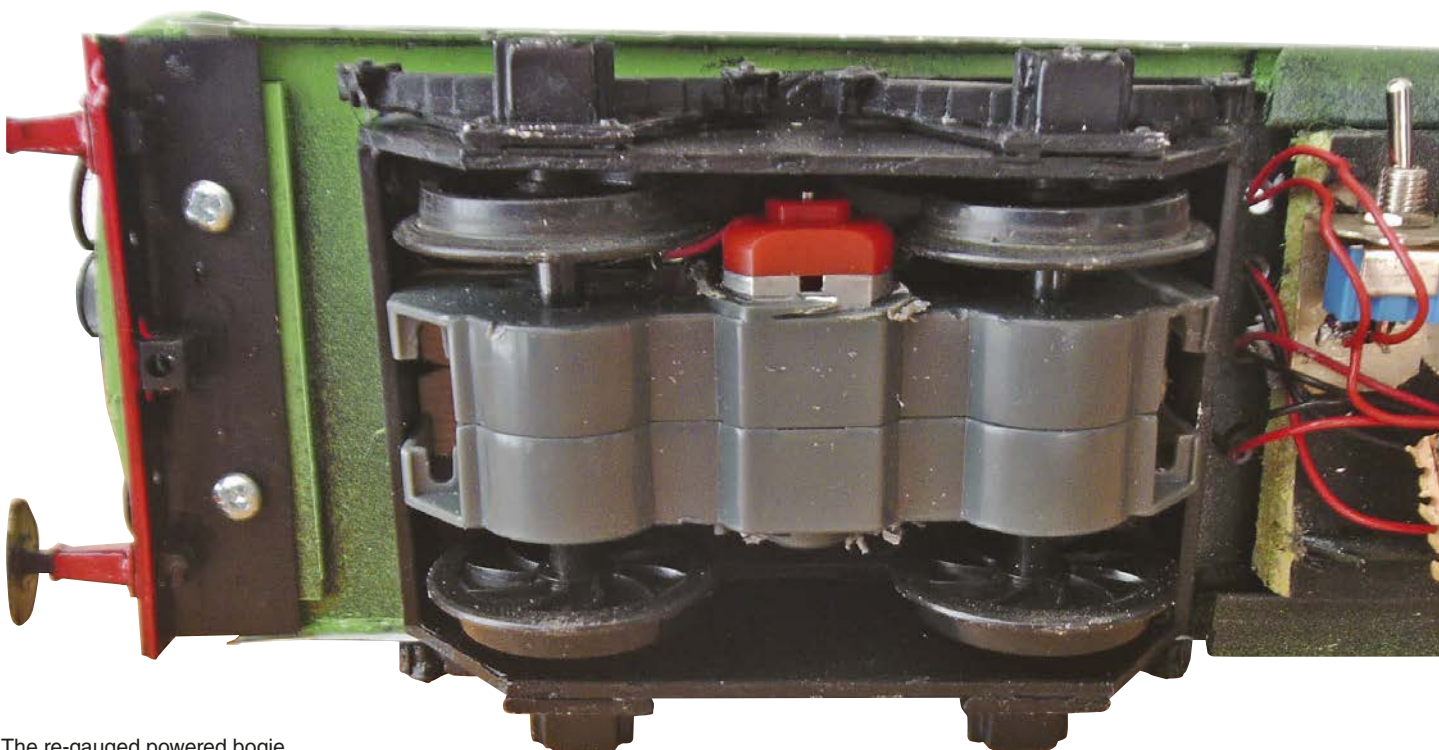
Many years ago, in my HO and OO era, I converted two Kitmaster and two Hornby coaches into a four car BR (SR) EMU. This model was subsequently sold to Stephen Knight, the secretary of the Kitmaster Collectors Club.

During my "0" Gauge modelling days I always wanted to build an SR EMU in that scale but never located suitable a two or four coach set for the conversion.

Now all of my modelling is in Gauge 1 with some limited Gauge 3 and G scale items.

Anticipating the forthcoming Accucraft Gauge 1 to 1:32 scale coaches, which I hope to convert into a 2BIL, I built a trial 1BIL using the low-cost Tesco Train Motor Bogie.

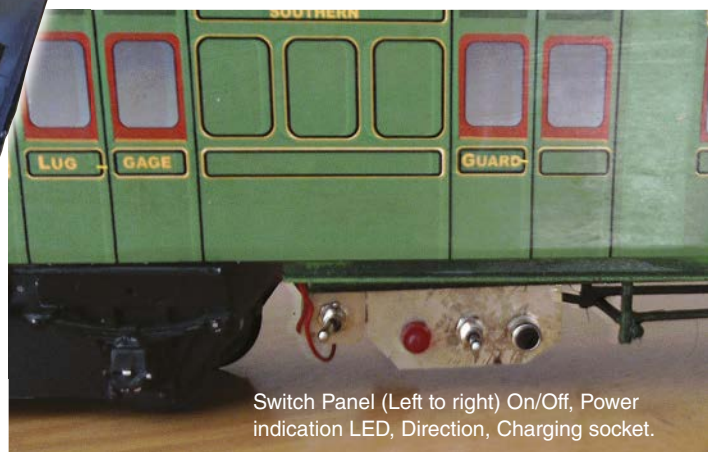
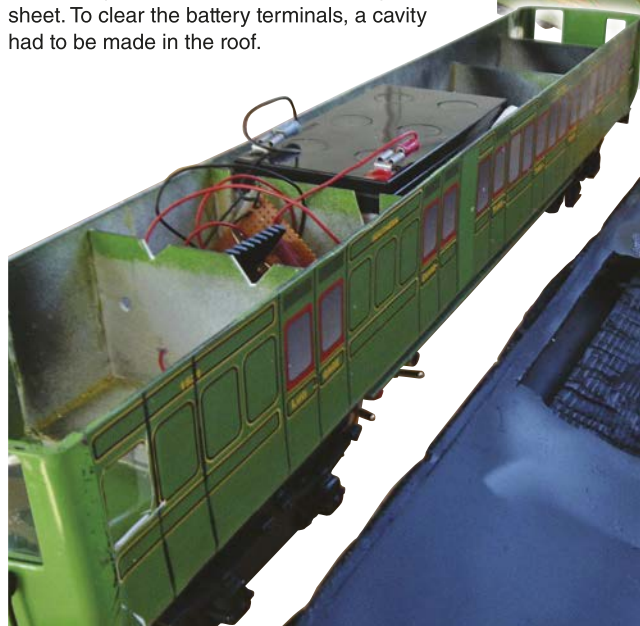
The Tesco "0" gauge motor bogie was easily re-gauged for Gauge 1 45mm



The re-gauged powered bogie.

Power comes from a Yuasa 12V 2.8AH lead-acid battery fitted inside the body connected to a 317T Voltage circuit board.

Sides are printed out then laminated to plastic sheet. To clear the battery terminals, a cavity had to be made in the roof.



Switch Panel (Left to right) On/Off, Power indication LED, Direction, Charging socket.

track. Carefully remove the four wheels from the Tesco motor bogie. I buy second hand Bachmann G Scale wheels on axles from GRS for £1 per axle, remove the wheels and cut down the length to give a track gauge of 45mm. Push the prepared wheels onto the Tesco axles of the motor bogie and hey Presto!

The trailing bogie came from the spares box. Brass oval buffers are from GRS in Princes Risborough. The underframe is constructed on a ply base with Waitrose cooking sticks.

As most of the members of the G1MRA South Oxon Group only have steam garden railway tracks, the model was equipped for battery powered radio control. The first run early in May showed the limitations of the low-cost radio control transmitter and receiver. Subsequently the model has been rewired for switched directional battery power only. Speed control may be added later.

Under one side of the coach is mounted an single pole ON/OFF switch, a red LED to show when the power is on, a two pole Forward/Off/Reverse switch and a charger input socket.

The 10mm scale Southern coach sides were computer generated in colour by a G1MRA member in Henley on Thames, fixed with PVA to a styrene sheet frame, and subsequently varnished. Only the drivers windows were opened out otherwise the strength

of the model may have been reduced. The 3D printed 10mm scale 2BIL ends, electrical connections and roof sections from another member in Canada.

A Yuasa 12V 2.8AH battery is mounted inside the coach towards the motor bogie for maximum traction but leaving room forward for the Veroboard mounted electronics. This uses a 317T integrated circuit chip to convert the 12V from the battery to 6V for the Tesco motor bogie. The 317T has a heat sink.

When finances permit I hope to obtain two Accucraft Gauge 1 1:32 scale SR Green Brake Seconds for the proposed 2BIL. This will also depend on the member in Canada being able to amend his 3D printing 10mm scale files to 1:32 scale. ■

The ends are 3D printed by a G1MRA member in Canada.

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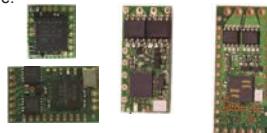
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R/C Receivers

The range of R/C receivers covers all scales and gauges; from N to SM32, Gauge 1 and beyond with motor currents from 0.5A to 6A. The smallest receiver, suitable for N and 009, measures 9x9.6mm. A selection is shown here.



All Deltang receivers have multiple auxiliary outputs for controlling lights, coupling actuators, sound modules or whatever on-board function your imagination wants to implement.

Batteries

On-board batteries can be NiMH or LiPo for best size/capacity ratio. LiPo cells can be charged in the model and frequently topped up when the loco is resting. Most locos do not need the full 12V - 4V or 8V from 1 or 2 LiPo cells is usually sufficient. For space restricted installations, a single LiPo cell can be used with a small upconverter to give 9V or 12V.



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Live Steam

The Rx102 receiver has outputs for servos to control regulator and reverser servos plus on/off outputs for lights or sound module. The Rx102 can also drive an external ESC for high current motors.



Sound

Mtroniks or MyLocoSound sound modules can be used to complement your R/C installation. Receiver outputs control motor sound and trigger bell, whistle, horn...



Installation

Receiver installation is easy - disconnect the wheel pickups, locate the battery, receiver and on/off switch and attach the motor wires. Micron provides an installation service if you don't feel up to doing it yourself. Contact us for details.

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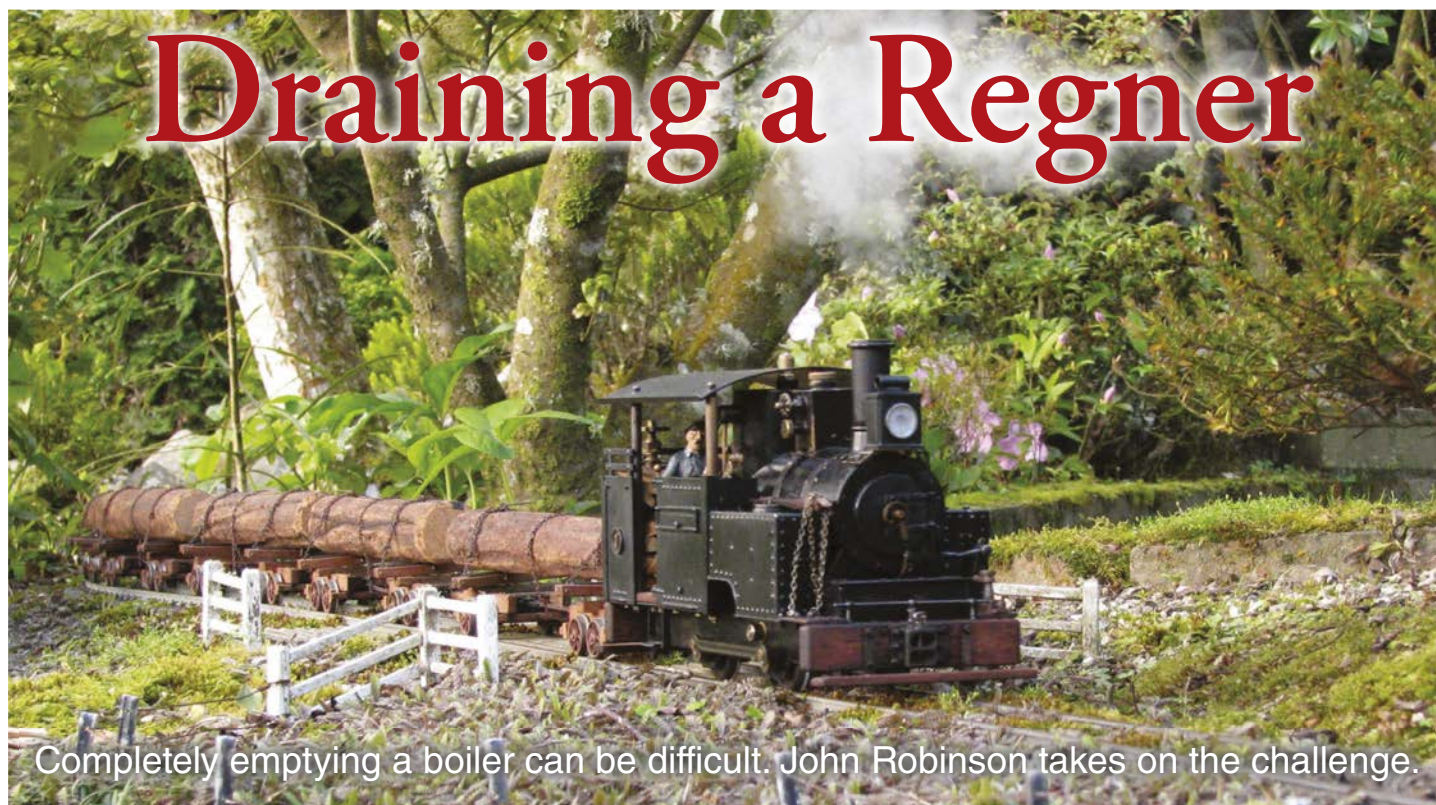
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Draining a Regner



Completely emptying a boiler can be difficult. John Robinson takes on the challenge.

I have two Regner live steam locos and while I thoroughly enjoy operating them they are an absolute pain to drain their boilers at the end of a run. It is always my preference to drain the boiler of any live steam loco after a run, and preferably while the loco is still warm so the residual heat may help dry the last dribbles of water remaining in the boiler. While it's an easy job on my Accucraft locos, just remove their Goodall valves and gently tip the loco up, the opening being wide enough for water to flow out and air in. Unfortunately the same doesn't apply

on my Regners, a Lumber Jack and an Otto.

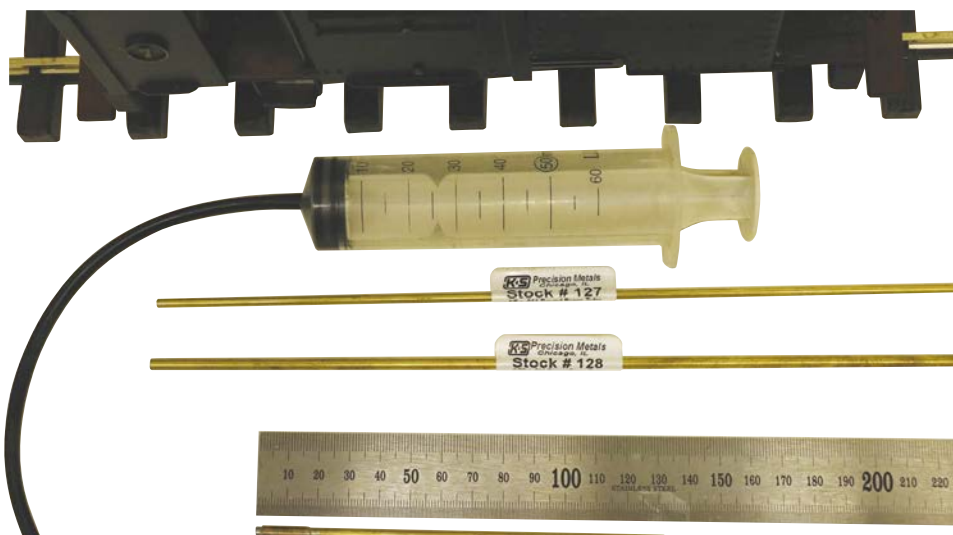
Starting with the Lumber Jack, mine's called Manawanui. It was built from a kit with a degree of customising. Filling the boiler is still as Regner intended, by removing the safety valve, which threaded at 6mm diameter, doesn't leave a very big clear opening, about 5mm diameter in fact. It's big enough to squirt in water with the squeeze bottle that came with the kit but too small to allow free draining of any water left at the end of a run. I've observed a similar arrangement on Regner's Konrad and

Vincent locos. It may be the same on other Regner locos but I don't know them well enough to comment on.

My first method to empty the boiler, with the safety out was to a kind of tip up, rock back, tip up and jiggle, getting a drop or two out at a time and never being sure it was truly empty. Oh and that method could be accompanied by the odd drip of hot water down one's wrist. The second method with a couple of varied attempts was to tip part way up and to the side then, while precariously holding the loco, insert a small diameter styrene tube into the opening and trying to hold it out of the way allow air in as water drained out as the loco was tipped further over. It worked, but get it wrong and hot water ran down my arm and the parentage of the loco was verbally questioned.

The third method was to use the filler syringe that came with my Accucraft locos, pushing the black plastic (I assume it plastic) through the safety valve opening and suck out the water. Worked after a fashion but the tube was such a tight fit it can't have been good on the tube long term, perhaps leaving plastic scraped off on the thread the safety valve screws into. And if the water was too warm as it was sucked out the tube soften and collapsed on itself.

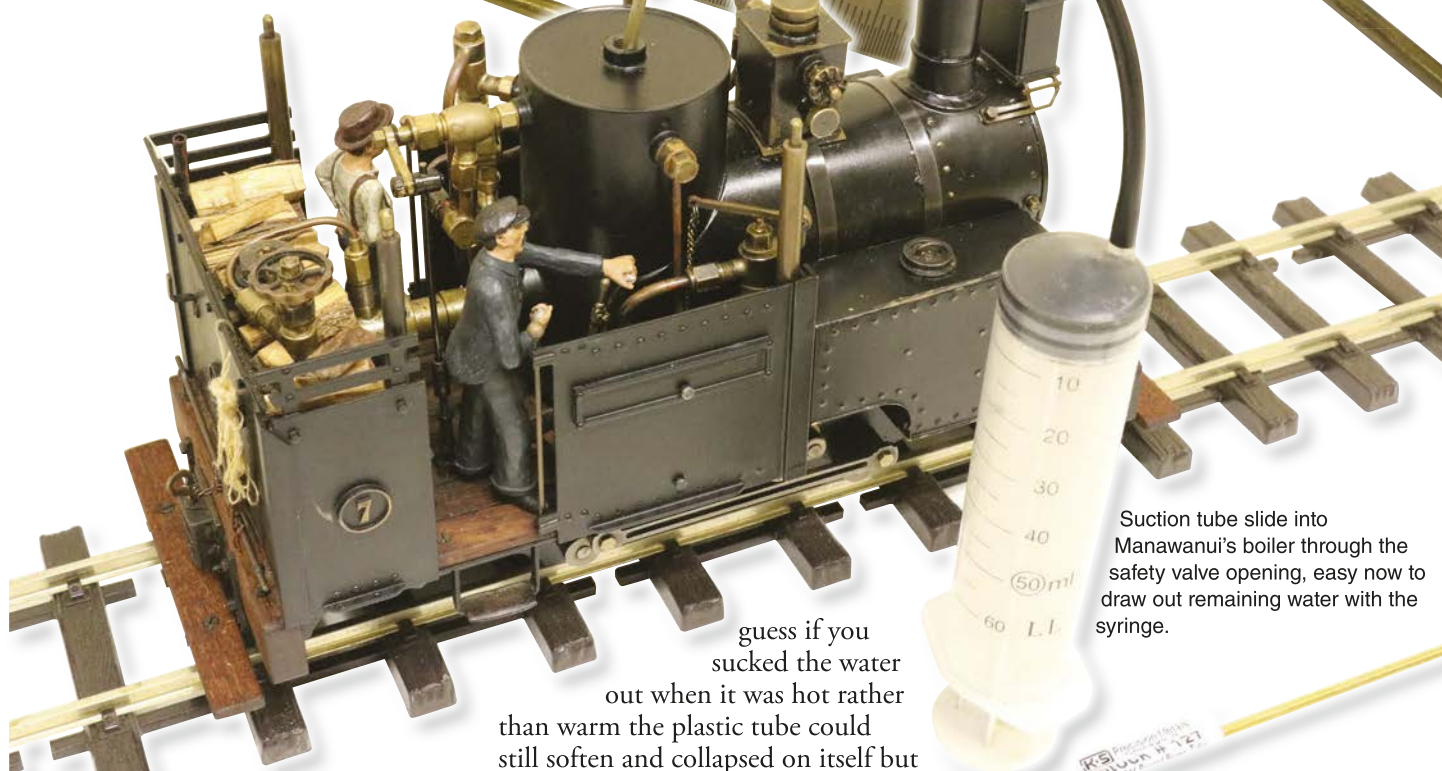
Finally the penny dropped. Make a suction tube! Using a length of 1/8th inch (3.18mm) OD brass tube (K&S



From top to bottom, syringe with plastic tube that came with my Accucraft Leader. 1/8th inch (3.18mm) OD brass tube (K&S stock number 127). 3/16th inch (4.76mm) OD tube (K&S stock number 128). The completed suction tube.

Close up of the suction tube.

Suction tube is a snug fit inside the end of the Accucraft syringe plastic tube.



stock number 127) 135mm long, with a 15mm length of 3/16th inch (4.76mm) OD tube (K&S stock number 128) slid over and solder onto one end, push the above mentioned syringe tube over the 3/16th tube end and now the suction tube can be easily dropped in through the safety valve opening and water simply sucked out with the syringe. I

guess if you sucked the water out when it was hot rather than warm the plastic tube could still soften and collapsed on itself but so far this hasn't been a problem. So now in a jiffy I can drain Manawanui's boiler without the indignity of tipping the loco upside down and without dribbling water on myself.

My other Regner, Otto, a vertical boilered loco, is simple enough to drain by removing the safety valve and one of the blank bungs on the side of the boiler. That is if you don't mind having to remove a bung every time, but I saw that as a potential long term maintenance issue. The solution

was relatively simple by installing a Regner M5 globe valve (part 50815 Steam Valve) into the bung. Thus remove the safety valve, open the globe valve and gently tip Otto on its side and water drains out the globe valve. There is a bit of a knack to tip Otto over and hold securely but it works well enough. Only hitch is the removable roof doesn't fit on with the handle on the globe valve in place, so for now I screw the handle off each time. As I will be building a new body with a NZ bush tramway feel about it for Otto I will design around this when this project reaches the workbench. Regardless, I feel it's better removing the valve handle each time than removing the bung!

I trust you'll find these ideas of use and I'd love to hear of any other methods you have to drain a Regner. ■



Otto with globe valve (Regner part 50815 "Steam Valve") fitted into spare boiler bung. Globe valve handle is leaning against the funnel. Note I have fitted Regner's water top up system into the top of the sight glass. Otto's instructions suggested using the bung I used for the globe valve to fit the water top up system but I prefer it into the top of the sight glass anyway leaving the bung spare.

The Reluctant Woodworker

Mick Hoyland claims to be uncomfortable working in wood, but he's still made an excellent job of this Corris brake van.

Give me a piece of nickel silver sheet, or maybe some brass bar or silver steel rod and I am quite happy to work with them. I find styrene sheet a little more difficult to work accurately, but wood -oh no. As a DIY'er of many years I have learned that wood is very different. It bends, it twists and shrinks or expands at the first change in the weather, so when I first contemplated a move up from 16mm to 7/8 scale, I knew that to make rolling stock, I would probably need to use wood. I have made a few very nice laser-cut wooden kits for 16mm with no trouble, so surely wood would be OK.

One of my favourite narrow gauge wagons is the Corris Railway brake van, so I thought that would be a good place to begin. I have Bernard Rockett's "Corris Railway 16mm Drawings" to work from, and a lovely scale rule from the 16mm association, so scaling up would be straightforward.

Where to buy suitable wood? I have a branch of Hobbycraft nearby, so that sounded like a good place to start. With some help I found the corner with the

The completed van with the working door slide open.

balsa wood, but that is too soft – the first minor collision and it dents or breaks. Next to this I found a display full of something called "bass wood" which seemed to be what I needed, so I bought a variety of sizes that I thought would be useful. I also found some 3mm "craft ply" which looked ideal but worryingly marked "no aircraft use". (Editor's note: Bass wood is the American name for Lime wood.)

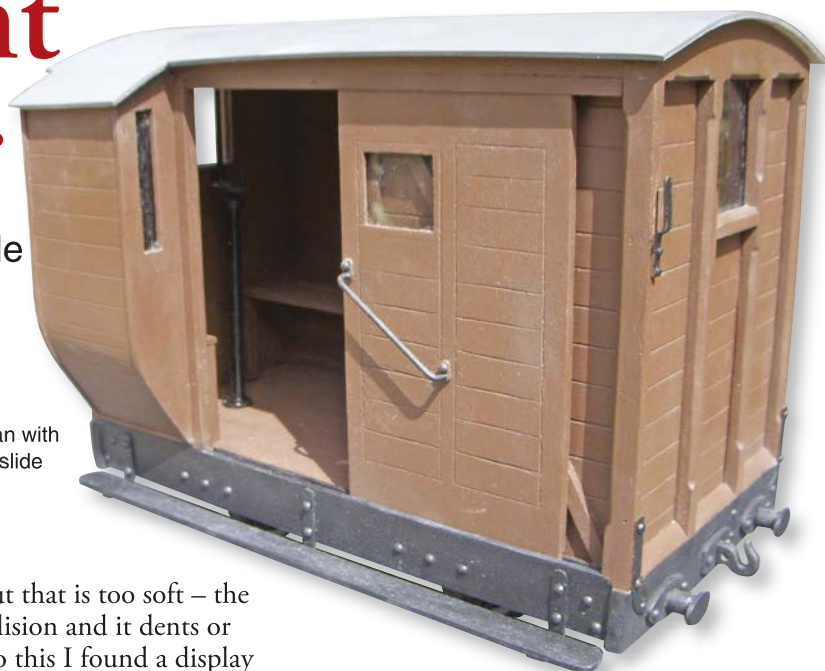
To start building, I cut out a base from the ply, using a Stanley knife and rule which nearly sprained my wrist, but was quite accurate. I soon learned that using a junior hacksaw slowly and carefully, I could get an accurate cut, and with some filing and sanding an acceptable result was obtained. Using some of the 12.5 x 5mm profile I constructed the rest of the chassis and glued the base on. But of course this is wood, so the chassis now had a small

but discernible twist. I thought this could be corrected as the box of the wagon was being built, and so it proved.

I cut out the shapes for the ends in ply and created the planking effect by using a scribe to make a shallow groove and making it more pronounced by gentle use of a Swiss file. The most difficult part of this was marking the planking up so the correct number of planks were made and that they ended in the correct position at the end of marking out.

A word here about the whole process. I was taking my time with everything, if I felt I was in any way rushing, I would

Careful examination of the prototype showed some interesting chamfers which had to be recreated on the model.



Plywood sides and basswood framing. Measure at least twice and cut once...



immediately stop and come back to the build later. With the marking out, I did this for the planking about five times until I was satisfied with the result. I measured everything at least twice and often more than that. Later in the build, I threw away some parts I had made which I was not satisfied with. No timescale to rush for, just make it the best I can.

Next I cut out the windows using the same method as for metal. A small hole drilled near each corner, cut the core out with a piercing saw and file to shape. I then turned to what would be the frame of the real thing. I found the 5x5mm wood was just right and thought with careful marking out and cutting, I would soon have it done.

But no, on careful inspection of the drawing and referring to photographs I saw that these pieces had chamfers in them. How was I going to get this effect? Eventually I made the ends with a half round Swiss file and using a much large file cut the chamfers to match the ends I had made. This is not perfect, but anything more than a foot away seems to look right.

And so to the ducket. I had cut the sides using ply but needed to cover it. The drawings, and one tiny view in a minute photo seemed to confirm that the ducket was covered in planking. I eventually decided to make the shape using some very thin ply (used for aircraft I noted with some dismay) and then scribed in the planking.

Now a confession. In one photo you will see some brown paint on the ducket. This is just a guide coat to see that the shape was correct, the same process used with car bodies when filling dents. So why on the model? Well

one of the best aids I have used is called "Ronseal High Performance Wood Filler". It goes off quickly when the hardener is added, files and sands beautifully and sticks to the wood very well. Ideal I found for those annoying tiny gaps and smoothed out the bend in the ducket a treat.

Moving to the sliding door, the photos and the plan were of little help in understanding how it all worked. At the top there is room for a sliding mechanism, but at the bottom whatever is there needs to be small as the guard needs to step on or over it to get inside. I used a length of 3mm "U" brass channel at the top which seemed to fit with the drawing, but I struggled for some time with the bottom. Eventually I very carefully sliced two small sections from the basswood and glued these down to form a small channel. For the door I used the 3mm ply, carefully filing a piece top and bottom until it was thin enough to run freely in the channels. As you can see from the photographs, I think I have reasonably captured the look of the original.

So from now on it would all be straightforward – heard that somewhere before? Well actually it almost was! The chassis was formed simply with two basswood sections, fitting sprung axle bearings by bolting them in place as in the photograph.

The axle boxes, wheels, couplings and other ancillaries came from Simon Harris at Model Earth Design. I cannot recommend Simon highly enough, a couple of hours over a cup of tea and I had nearly all I needed to complete the model, and a great chat about our hobby while I was there.

All I needed now was a hand rail for the door fabricated from brass rod and nickel silver for the brackets. (Knew I could use nickel silver and brass somewhere!) . The buffers proved more difficult. The originals are quite small and I was at a loss for some time as to how to construct them. I suddenly had a brainwave. If they are so small then perhaps another scale buffer might help. After checking with an "0" scale class 37 I found that the buffer heads were about the correct size so I ordered a set of Heljan buffers from Howes Models. The oval bases I made from styrene sheet and

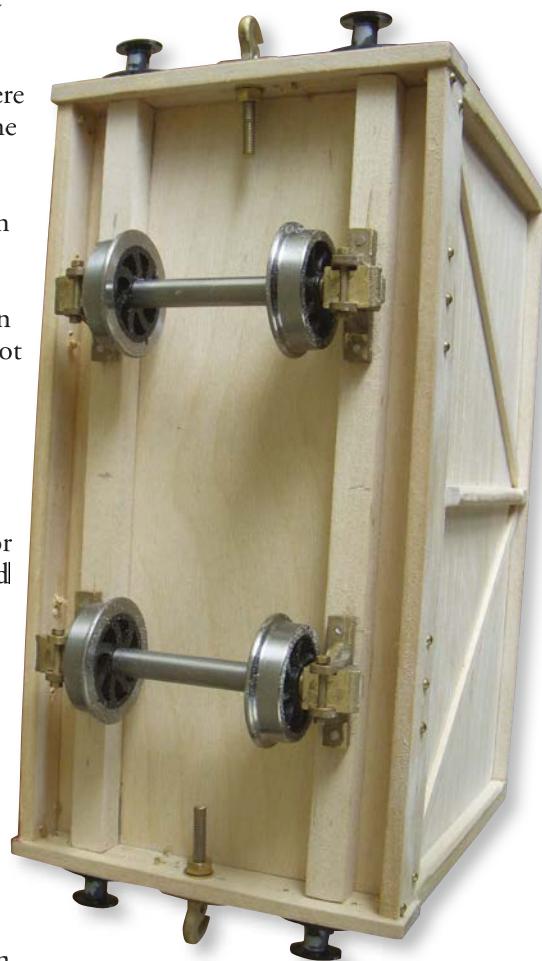


Painting the duckets revealed any fillerwork required.

although not perfect I hope you agree, are a reasonable representation of the originals.

To paint the model I used my usual technique of a number of the thinnest coats possible with a light sanding between each coat and when satisfied with the coverage, gave a very light coat of Humbrol satin enamel spray varnish.

So after initial apprehension, once I got into the build, I found it surprisingly satisfying, and I think it came out looking OK. So what next? Well there are some other tempting items of rolling stock from Corris, but we shall see. ■



Underneath, the chassis is simple, more wood and some Model Earth axleboxes.

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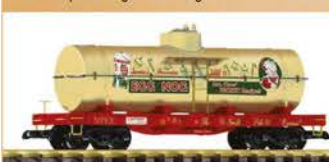
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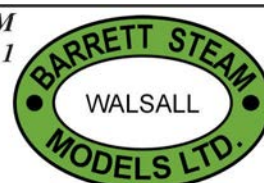
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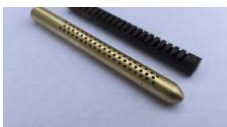
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Relocating a G scale garden railway

Steve Gravett turns a house move into an opportunity for an even better railway.



Planning a move closer to ones nearest and dearest, after a lifetime serving the interests of an employer, often follows retirement.

As if the stress of buying, selling and moving a considerable distance is not enough, this is compounded by the need to carefully pack and transport a prized garden railway, as described in **Garden Rail 257**.

However, a fresh start is an opportunity to learn from previous experience and build an improved layout. The opportunity to redesign and integrate the layout seamlessly into the garden is an exciting challenge. The opportunity to build on previous experience, learn lessons and design your ideal layout is irresistible.

Some of the criteria I considered to be essential, and lessons learned, are as follows:

- a) Construct a large enough shed within the constraints of building regulations, in this case 16 x 10 feet, to house all the 'ready to run' trains in sidings, but to include a circuit within the perimeter of the shed enabling winter running and testing of trains in inclement weather.

Above: Sitting in the sun watching the trains pass by. A perfect reward for all the effort moving the railway.

Left: The completed railway.



Above: That tree is in the way of my railway!

Right: Excavating the foundations

- b) The shed to include mains electricity, lighting, heating and other creature comforts.
- c) Ensure all curves and points are the equivalent of a minimum of LGB R3 radius, both within the shed, to enable any size of locomotive and rolling stock to run around the interior.
- d) Use LGB R5 curves wherever possible outside.
- e) Ensure the operating area does not take up the whole of the garden thus ensuring domestic harmony, but aim for an enclosed rear garden of approximately 40 x 20 feet.
- f) Continue to run an analogue layout but ensure all points and isolating loops and sidings are electrically operated and wiring is concealed from sight.
- g) Incorporate rail clamps to guarantee the integrity of electrical connections in critical areas of the layout.

With these points in mind we set about looking for a new property, which also had to incorporate a set of fairly specific domestic criteria. Living in a field with a shed was not considered conducive to domestic bliss!

A suitable property was eventually found coincidentally alongside the Ryde Pierhead to Shanklin railway line on the beautiful Isle of Wight with an enclosed garden of 37 x 29 feet, of which a relatively modest 25 x 19 feet was earmarked for the garden railway including a summerhouse.

The garden, whilst large enough for our joint needs, presented a number of challenges as it sloped towards the house



Ensuring level foundations.



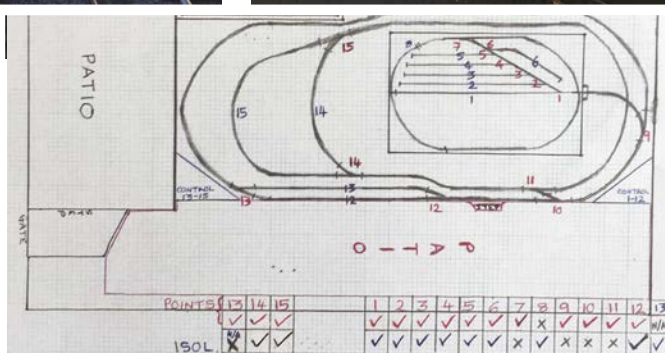


and from left to right. Furthermore there was a 40 foot mutilated sycamore tree in the garden, which was liberally sprinkling sycamore wings everywhere, and was growing in the optimum place for the summerhouse.

The first priority was to cut down the tree and have the roots removed in order to accommodate the concrete base. This involved employing a man with a digger, as the soil was compacted chalk and a pickaxe made no impression on it.

The slope on the garden was so steep, approximately 1 in 12, that no trains would be able to operate at ground level, so the solution was to construct a raised level surface of between 12 - 18 inches above the planned patio level.

It is not unusual to encounter sloping gardens but they are demanding in terms of labour and materials. However, they provide an opportunity to anticipate future physical needs and construct the layout above ground level; a fact appreciated by creaky limbs! For



Top Left: Inside the "man cave," trains wait in their storage sidings.

Top Right: The control centre with excellent views but safe from any weather.

Above: Track plan and electrics.

Right: Laying the track foundations.

Below: Laying blocks for the inner track circuits.



home' it was the view of the valued wife to have the summerhouse professionally installed. A suitable waterproof aperture was added for trains to access/leave the structure and power and lighting added by a qualified electrician (given safety is paramount). In due course shelves, a heater and cooling fan appeared to cater for seasonal variations. The outcome was a comfortable 'man-shed', which meets the needs of even the most discerning train enthusiasts.

Before work could commence on constructing the layout base, an extensive patio alongside the proposed layout would need to be constructed. A competent professional also installed this and domestic harmony was maintained together with a comfortable viewing area in the sunshine.



Concrete platforms installed, the station area can be detailed and everything stuck down with Gorilla glue.

Right: Graphite grease and over-joiners help maintain electrical connectivity.

The plan was to have long sweeping curves nearest to the house, which would accommodate LGB R5 large radius curves for the best visual effect, and a foundation of concrete to accommodate the building blocks, was constructed.

The availability of interlocking Bradstone blocks meant that an attractive dry built wall could be easily assembled and acts as a secure retaining wall for the garden. Minor adjustments to ensure it was level for track laying, was easily accomplished using a spirit level and placing thin plastic wedges between courses obtainable from hardware stores.

Another advantage of using dry built walls was that upper courses could be temporarily removed to lay cables to the summerhouse from points and isolating tracks to where the switches and controls are located.

Once the outer circuit of dry walling was constructed, two inner walls of lightweight breeze blocks were added to make an inner circuit with a passing loop. The enclosed areas were filled with hardcore, topsoil and compost, to ensure good drainage and plants and shrubs were added later.

Three sides of the summerhouse are fitted with pressure treated decking in the form of 5 metre planks 10-inches wide x 2-inches thick. Previous experience had highlighted the limitations of traditional decking, which quickly deteriorates as it flexes and cracks over time.



Although the initial cost of substantial planking was greater it proved to be far more rigid and required fewer supporting towers to support the decking securely. The greater outlay on the planking was counter-balanced by a requirement for fewer breeze blocks, concrete and 4 inch x 4-inch timbers, the latter being used to anchor the structure to the base of the summerhouse.

Prior to track-laying a curved concrete station was built on one of the inner passing loops. It is noticeable that nobody manufactures curved station platforms, the assumption being that everybody has lengthy straight runs to accommodate a ten-foot long platform!

However, it is relatively simple to build a curved platform having purchased a number of straight concrete pieces some years earlier. First mark out the desired position of the station, using track as a template. Take care to allow sufficient clearance and that the overhang from your rolling stock does not scrape the platform. Once you apply the mortar and it sets, it becomes difficult to make adjustments. The ends of the platform can be beveled using bricks as a template and applying mortar with a small builders trowel.

Once firmly set, paint the platform with two coats of a concrete paint and apply white 'go-faster' stripes to

the platform edge, obtainable from Halfords.

Finally, station buildings can be positioned and appropriate figures and accessories fastened to the platform using blue tack. Walls or fencing can be glued to the platform using Gorilla glue.

The inner circuits comprising breeze blocks should then be painted Matt Black with masonry paint, which conceals the mortar, joints and creates a seamless appearance.

Track laying can now commence using the largest diameter curves you can source. Ideally use LGB R5's large radius curves and avoid using anything of a tighter radius than LGB R3 curves outside. This will ensure the largest passenger trains and locomotives can be accommodated without the risk of derailments occurring. Those belonging to the G Scale Society for instance, can hold garden railway 'meets' for a running session with fellow enthusiasts, in the knowledge their prized possessions are unlikely to derail or uncouple on sharp bends.

Another consideration is to check there is sufficient clearance between adjacent tracks, signals, buildings and other railway furniture before finally fixing the track to the decking or breeze blocks. Unless you want to drill and raw plug track to the dry walling blocks, a satisfactory alternative is to use Piko



Universal Rail Clamp Over-Joiners (Piko 35294). They are suitable for all Code 332 rails including all LGB and Piko track. I have found they maintain electrical integrity and keep the track rigid without any further fixtures being necessary.

Track can be fastened to the breeze blocks and the decking using normal track fixing pins or screws.

Consider using the longest straights you can source. 1200mm and 600mm tracks are ideal, although 300mm tracks are quite suitable and freely available on the second hand market. Lengths of track 150mm and under should be reserved for filling gaps on the main railway.

The use of large radius points and curves in the garden is highly desirable, although smaller radius track, LGB R2's, can be used satisfactorily in sidings and within the summerhouse, given that running speeds are slower.

Problems of electrical continuity can be virtually eliminated if fishplates are greased with graphite paste prior to assembly and track-clips or over-joiners are used liberally.

Effective track cleaning is essential before running sessions and regular maintenance of locomotives and rolling stock is necessary.

There are several effective ways to keep the track clean, LGB produce a Track Cleaning Loco (LGB 20670)

and Piko have just released their own battery powered 'Clean Machine Track Cleaning Loco (Piko 38501).

Other options include the Piko Track Cleaning Car as illustrated (Piko 37720) or the LGB Track Cleaning Attachment, which is designed for attachment to rolling stock (LGB 50050).

Cheaper for those not averse to using elbow grease is the LGB Maintenance Set (LGB 50023) or the Piko Track Cleaning Set (Piko 35411).

After construction of the garden railway is complete, suitable plants chosen and accessories added, the garden scene is complete.

Top Left: Testing, testing. You can't do too much testing to eliminate any running problems.

Top Right: Use the longest lengths of straight track that you can.

Once satisfied all is working as intended, the time to sit back and enjoy your garden railway with your family and friends has arrived. ■

Even with all this planning, some barriers beside the track to catch derailed trains are a good idea. Using strings of garden lights looks nice when the sun sets.



Working Wagons: the Camera Wagon

Move over Spielberg, Dave Skertchly is shooting movies.

In the late 1960s, before the invention of Computer Graphics, there was a golden age of model making in films and TV. Who among us were not thrilled by the excitement of Gerry Anderson's *Thunderbirds* or Ray Harryhausen's *Voyages of Sinbad*?

There were also lots of smaller films made on a budget for TV which were produced by iconic personalities such as Oliver Postgate and Peter Firmin. One production that sticks in my mind is *Tales of the Riverbank* by Canadians David Ellison and Paul Sutherland in which Ratty and Hammy (a rat and a hamster obviously) play out their stories using models positioned in a real Riverbank environment. The plot was aided by one of those wonderful narrations by the iconic Johnny Morris. In many ways it may be this series which most influenced me to place my models in the garden and then to try to film them.

Film making is a hobby, which is in its own right as absorbing and fascinating as model railways. Combine the two, as I have, and making films of the Vale of Weedol Tramway has become an enduring pleasure. That is

The camera set up and the shot captured by the video camera of a train taking coal to coking ovens.





Continuous running is not always an option with a camera mounted outside the loading gauge.

naturally along the train. This requires a hefty counterbalance, and consequently the truck is somewhat top heavy on 32mm track and prone to derail.

From this it is obvious that the

loading gauge will be compromised and continuous running is only possible on tracks with a generous clearance. Such tracks do exist and I have some spectacular shots of high speed running behind a beautiful L&B steamer and behind several wonderful G Scale models, alas they were shot in too low definition for these pages.

For tighter tracks we must make our film in a series of shots pasted together to give the appearance of a continuous run, or better still to fit a story narrative. In order to cut out the starts, stops and

The camera wagon close coupled and shunted gives a great view of Stanley Baldwin the driver of Penelope as they pass Lost'n Bodge Works.





I like this shot over the coal wagon into the cab of Penelope. The camcorder depth of focus has covered wagon, loco and the works in the distance at Lost'n Bodge.

accidents it is necessary to paste together the shots in the right order. To do this we will have to use editing software. Editing software is readily available,

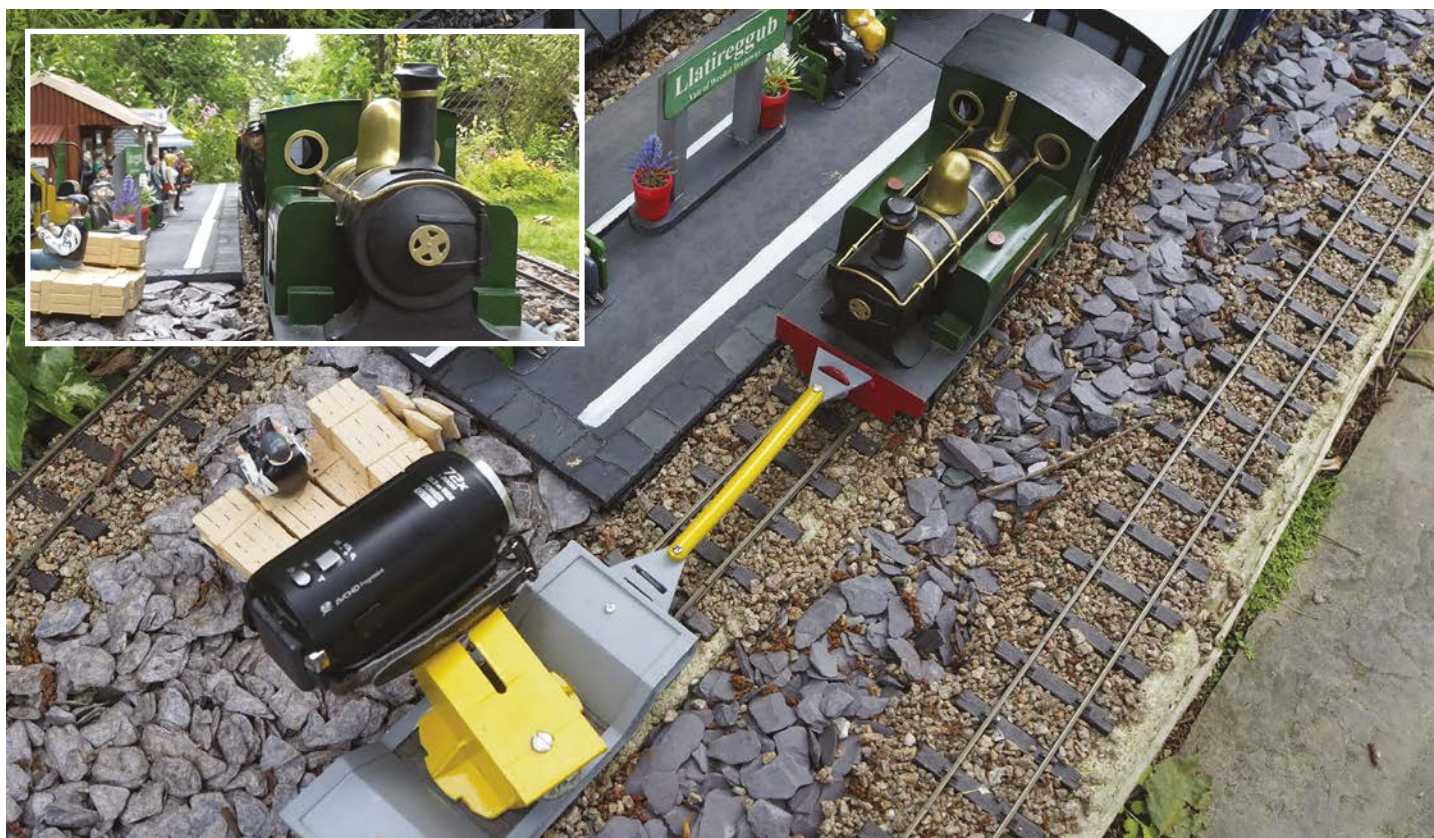
some of it free. I use Pinnacle on a PC which is as frustrating as it is capable, but I won't bore you with the detail on these pages.

The first question you are bound to ask is what kind of camera should be used. I chose to test 5 of the most common cameras and 3 of them got as far as a comparative test.

The test was in 3 parts and video is available on the **Garden Rail** pages on RMweb.co.uk.

Each camera was mounted to the wagon and pointed at a squared screen at a standard distance from the lens

Shunting with an extension bar provides a great view of Duncan in action



The whole reason for the project was to get shots along the train as though leaning out of the carriage window. Care with continuity is needed as a carelessly discarded screwdriver is revealed on the platform.

which equated to one VOW bogie coach length. The squared test card was used to test field of view, focus and distortion. I then removed the test card and carried out a short standard run to check the anti-shake, depth of field and automatic focus.

The first camera tested was my camcorder with the anti-shake enabled and in fully automatic mode. All the results were, as expected, perfectly adequate.

I then fitted an iPhone to the wagon using one of those mounts from a selfie stick and again good results were obtained, with the merest suspicion that the anti-shake wasn't quite as effective.

The GoPro was then fitted using a rather large bracket. The field of view was enormous as was the barrel distortion which makes everything



appear twisted. This is a feature of the Go Pro which is intended to be used by sportsmen who do not use the viewfinder, the wide angle has the huge benefit of making it immune to shaking and having a massive depth of field within which everything is in focus.

The last 2 cameras included my SLR which when mounted on the wagon

fell over due to excess weight, and the pocket SLR which could not be persuaded to work. All 3 of the tested cameras produced good results and which you choose is simply a matter of artistic taste.

If we are to make a step into structured film making then we can start to use a range of different angles including close up shots with the wagon closely coupled and maybe even through the cab, mid shots with the wagon separated with a tow or push bar, and long shots taken from the surrounding countryside. Even long shots benefit from being steady and not shaking so I made a simple tripod which has proved to be a boon, even on holiday for those inevitable selfies. I have included a range of set ups with their associated screen shots for inspiration.

No doubt you will all be asking whether it is possible for us to ride in our trains and even drive them on film using special effects and I can confirm that this is indeed possible using chroma key (green screen) effects. Building miniature film set interiors for these type of shots is a great pleasure, but that as they say is another story, which perhaps the editor could be persuaded to allocate space to tell at some point in the future.

So as I sit on my rustic park bench outside the Seep Shearers Arms I can sip at my 13th pint of fine Auld Phagbutt and contemplate the star



Cut away shots are required if the video is not to be just a procession. The camera was mounted on the mini tripod for a shot as Duncan slows to give passengers an unforgettable view of Gartons Falls.

Each camera was mounted to the wagon and pointed at a squared screen at a standard distance from the lens which equated to one VOW bogie coach length. The squared test card was used to test field of view, focus and distortion.

struck members of the Vale of Weedol community.

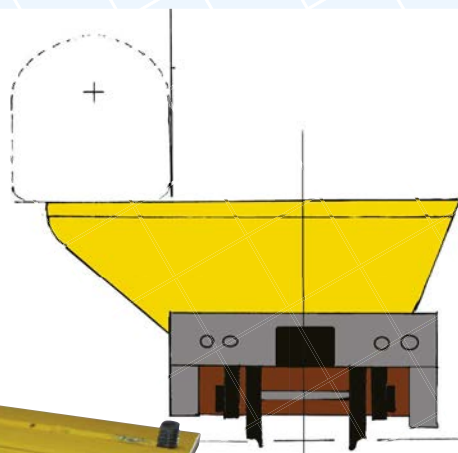
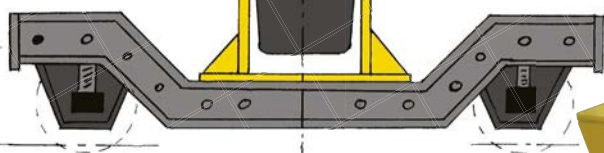
There is Chantelle Topnote who aspires to become a Bollywood Film Star and to dance to Chaiyya Chaiyya (walk in shade) on a narrow gauge wagon just as they did in the Hindi film Dil Se. Then there are the gnomes Snotty and Gobby who failed their auditions for Snow White and the Nine Dwarves and have survived on bit parts ever since.

Most of all I rejoice in my collection of films and happy memories stretching back over 40 years of **Garden Rail** nostalgia. ■



1. and 2.

The camera wagon is based on a Welsh Highland coal wagon, honest, and uses Binnie 16mm (1ft 10inch) 5 curly spoke wheels.



3.

The camera wagon is built on a low loader. The camera is mounted on a rotating bracket with a slot cut to allow adjustment. A hefty balance weight is required to prevent the wagon tipping over.



4.

iPhone mounted on the camera wagon using the adaptor from a selfie stick.

5.

The Go-Pro is mounted on a strange screw arrangement and bracket which is a disadvantage.



Win a Helmsman controller and radio control handset



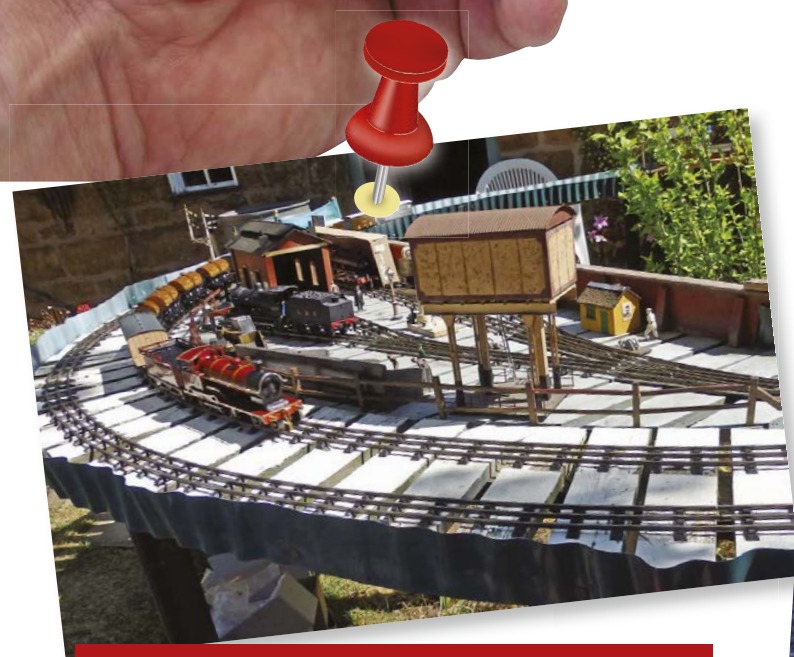
To celebrate Garden Rail's 25th Anniversary, and thanks to the generous support of Helmsman Model Rail, we are giving away a controller suitable for large scale models and the radio control handset – full details of both can be found on pages 38 and 39 of this issue. The prize is worth over £300!

To win, all we are asking you to do is send in your best photograph of a garden railway subject. Locos, rolling stock, buildings – the choice is yours.

Don't worry if you don't own a fancy camera, we are looking for an interesting picture so even a mobile 'phone will do the job.

Simply e-mail your entry to **phil.parker@warnersgroup.co.uk** by the 5th October and then we'll put them all before our panel of judges to decide the winner.

The winning photo will be published in the November issue of Garden Rail along with some of the runners up.



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A simple loco stand

Les Fordham builds a simple cradle to hold a live steam locomotive

As a new recruit to garden railways and live steam locos I was looking for a simple stand to put the loco on to test and learn a few things about controlling my new engine. I decided it would be far easier to get some practice with the controls when the loco was sitting there in front of me, and not chuffing along on the track.

Accuracy, woodwork and assembly do not all seem to come together when ever I have a project that requires some measure of accuracy. After a few sketches and more thought I came up with this idea which does the job quite easily.

My main concern was to make a frame that was adjustable to fit a number of locos, even though I only had one, and was sturdy enough to hold a live steam loco.

In the end I settled on 90mm by 12 mm dressed pine and some 25mm aluminium "L" section. Once the required length for the base was determined, two pieces of timber were cut to the same length. Two pieces of the aluminium section were then cut to the same length as the base.

The base was then made by glueing and sandwiching the two pieces of aluminium between the two base pieces of timber. The base pieces were then clamped to hold everything together

so the aluminium angle was hard up against the sides of the timber base.

This results in a base plate with two parallel sides to slide the moveable stand piece in. Once the glue had dried and the clamps were removed, the length of the fixed end piece was calculated and a piece cut. I made mine high enough to allow a small metal cake tin to sit under the loco to collect oil and hot water. The end piece was then glued and nailed to the base section and a short piece of 12mm by 12mm section cut to fit between the two rails. Before the glue dried everything was checked with a square to ensure that the end was vertical. This was then glued up against the end piece to provide more strength to the join.

After this was completely dry it was time to cut the upright timber for the moveable end stand piece. Another piece 50mm wide was cut and glued to

the moveable upright timber and then reinforced with some 12mm by 12 mm section as per the fixed end.

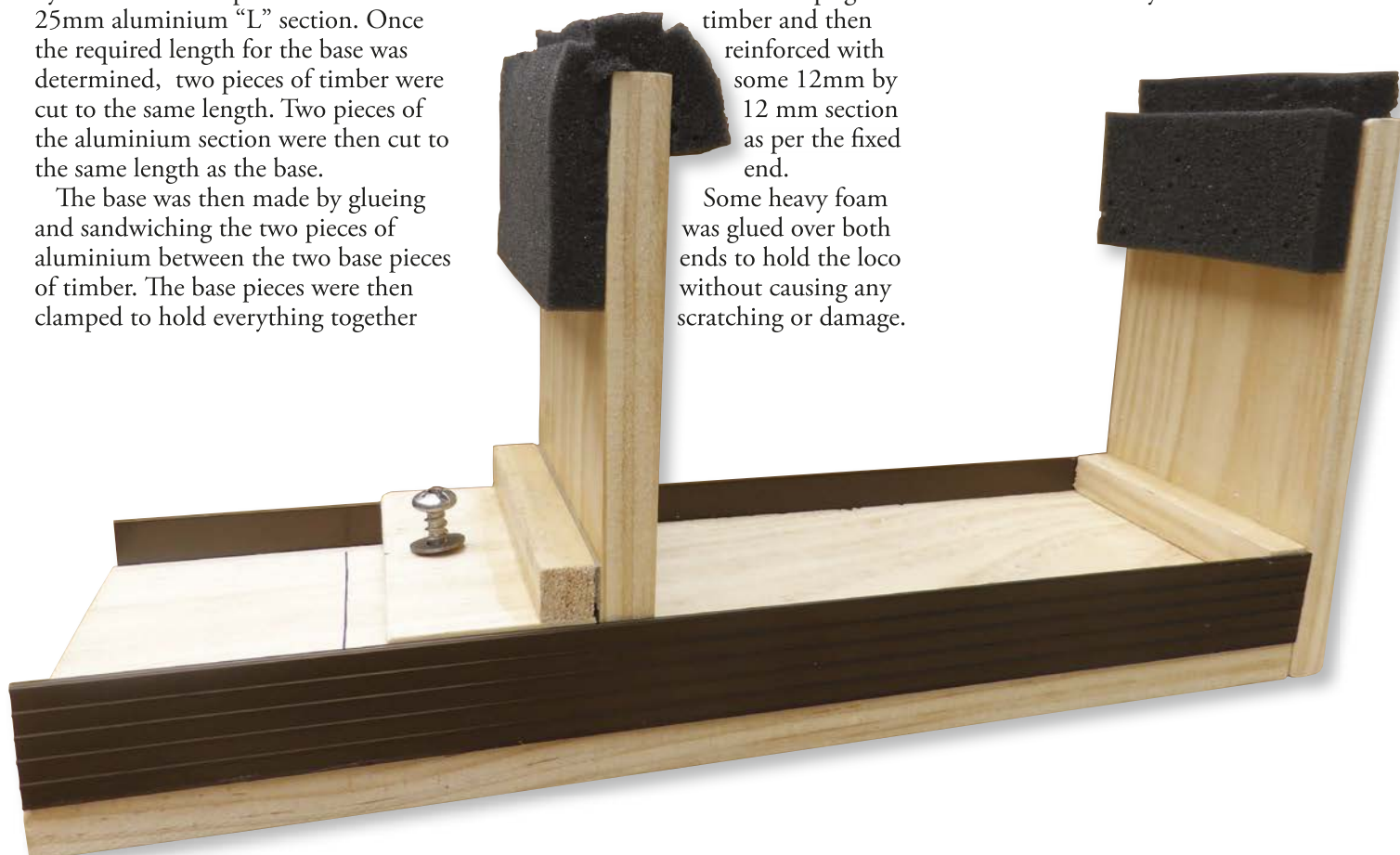
Some heavy foam was glued over both ends to hold the loco without causing any scratching or damage.

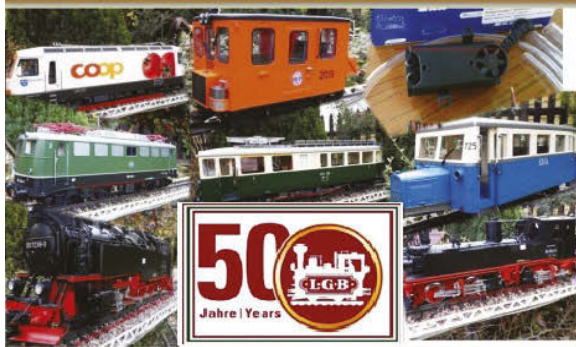
The whole stand was then sealed with a couple of coats of clear sealer.

Once everything was finished the prize loco was placed on the stand and the base was marked with a pen line to show where the moveable upright should be when the loco was placed on it. A hole was drilled centrally on the slider piece of the moveable end to closely clear a self tapping screw and a small hole was drilled in the base so the self tapping screw had something to hold onto.

As I have access to a label printer on my computer, I printed a small label with the engine's name and affixed this on the base at the marked line. The line and the label were applied to the base before the base was varnished so that they were protected and permanent.

As can be seen from the photo, the stand is relatively simple to make, and even someone with a little patience can achieve a satisfactory result. ■





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A Terrier's story

Dagnall Clutterbuck adds to his locomotive stud with the aid of a 3D printer.



Freshwater pulling a fully 3D printed set of wagons.

When we moved to Hayling Island I became increasingly aware of the interesting stories about Colonel Stephens and the Terrier locomotives. The Hayling Island Branch line was originally served by these interesting little survivors, and so when I was looking for a subject to build for my garden light railway, the Terrier was an obvious choice. Web searches introduced me to the Col Stephens museum and society, and I copied a drawing of “No3” “Bodiam” from the web. Using this as a guide, I effectively traced the drawing in Fusion 360 to produce a series of 3D bodies that formed my model. Now, with what looked like a reasonable model, it was time to start printing the parts.

My first prototype revealed all sorts of issues. Some were expected, as I use the prototype to fine tune the position of fixing screws and the like. Some issues were unexpected, but I am sure that more experienced railwaymen or modellers would have avoided these.

Firstly, I had taken the wheel to wheel spacing from the drawing. This was OK, but it meant that the spacing front to centre and centre to back was not identical, which meant the con-rod was not symmetrical as I had made it. More irritatingly, I had not allowed enough room for the con-rod to pass the steps. So that is why they had a circular cut out!

The changes to the CAD model were not difficult, but now I realised that my boiler features were incorrect, and as I had now seen a video of the Dapol model realised that my cab interior needed some serious modifications.

My firebox had originally been designed to allow a large LIPO battery to fit in the boiler, but the production cab would only have room for a smaller battery. After some re-design and a few eBay orders later, new parts arrived. It was time to print the revised version. Of course, at this point my printer broke down, which added a delay whilst I

printed some new parts on a smaller 3D printer. (Note: If playing with home 3D printers the first thing to do is print a spare printer to print replacement parts!).

I used the spare time to play some more with the CAD design, and added some exterior features that should help lining, and I also painted the prototype in BR black, which produced a pleasing effect. I would have liked a brightly coloured version, but my painting is not up to scratch. Some printed logos were cut out and added, along with some brass handrails.

To control the test Terrier, I used a



Component parts for one Terrier locomotive

1/32nd scale Terrier		Body	Alternate Electronics		
	Q	£ (typical) Body	Node MCU	WEM OS	Notes
3D parts (body, buffers, wheels etc)		20			for 1kg of material
DC Geared Motor Gearmotor for ARDUINO Robot Smart Car	2	4.82			eBay (Make sure it's the double output shaft version)
683 zz Ballbearing 3*7*3	2	4.06			
Pan head M3 *6mm	14	1.89			for 25
3mm shaft (52mm)	1	1.99			cut from 100mm
M1.7 Black self Tap 12mm	8	7.32			M1.7 x12x3.2 (bag of 1000)
2S 1000mA Lipo	1	7.49			typical
Lipo Balance Extension Lead Cable JST-XH 20cm	1	1.99			"2S" type for above battery
Speaker 20mm 8 ohm	1	1.95			for 4!
M3 x 4mm x 5mm Bushing Threaded Brass	14	0.99			for 40!
0.7mm brass wire	2	3.2			300mm *10 pack
O gauge handrail brass knob long	8	3.9			pack of 12
WEMos D1 Mini	1			5.99	
20A Brushed ESC Motor Speed Controller No Brake	1			5.39	
NodeMcu ESP12E	1		5		
TB6612FNG Dual motor drive	1		2.95		
Resistor 100k	1		0.99		for 10
Capacitor 10uf	2		0.99		for 25
Paint, wire etc		10			est
Total		£69.60	£9.93	£11.38	

conventional RC system, with a DC servo motor controller. For the second model, I decided that a more capable control system was required, so it could run on my DCC controlled automated track (See Garden Rail 288).

I spent a few months modifying my WiFi control system to add motor control and added sampled sound effects. The result is my "ESPMQTTrocnetSound" hardware, which at a cost of less than £20 per loco is, I think, the least expensive way to add DCC sound to a loco.

This system works with the RocRail DCC computer control system, and means that my Terrier is a fully DCC controlled loco, with sound effects and engine "chuffs". Of course, for £20 the sound will not match a £100 professional decoder, but I am using real sound samples, and the chuffs are matched to the motor speed. You can play whistles and hoots at the same time as the chuffs. The code is runs on readily and inexpensive available hardware and is available for free at <https://github.com/dagnall53/ESPMQTTrocnetSound/blob/master/README.md>.

Having decided on the control hardware, some small modifications were needed for the loco so I could put the electronics in the coal bunker. At this point I was sharing some details of the project with a colleague on one of the forums when he pointed out that most home 3D printers can only print about 200mm by 200mm. I realised that the frame on a "proper"

1/32 Terrier would be slightly too big to print, but by slightly reducing the "underhang" at the front and back, I could reduce the frame to a printable size. I hope that the Col. Stephens Society will forgive me!

With all parts printed and painted, assembly is a simple matter of inserting some M3 bushings into the holes in the body parts and then using 8mm M3 bolts to screw the body to the frame. The wheels need some assembly to hubs before fitting to the motors, and again M3 bushings and 8mm M3 bolts connect the con rod to the wheels. Making sure that the wheels are correctly quartered, they then press fit to the motors. A pair of ball races are fitted to the 3mm shaft connecting the flangeless centre wheels and these bearings fit in cut outs in the frame. The motors are held simply with a short rod of 3D printing filament going through some location holes in their bodies.

As drawn, the loco has hook and loop connectors, but it also has a removable "LGB" compatible connector interface, so it can be used with hook and loop or knuckle connectors.

A small "BR Crest" and number was printed and pasted to the side to finish the black model. I then got keen and made a second one, in Southern green. My line painting could be improved, but I think the result is acceptable from a distance, and at less than £100 per loco including the electronics, I think they are great. ■

Testing the prototype on my garden line. This version is manually radio controlled but the "production" model runs on my automatic system.



From the Works

Trade information on new products for the garden railway modeller...
If you are a trader with any new product, then contact phil.parker@warnersgroup.co.uk
Please mention **Garden Rail** when contacting suppliers

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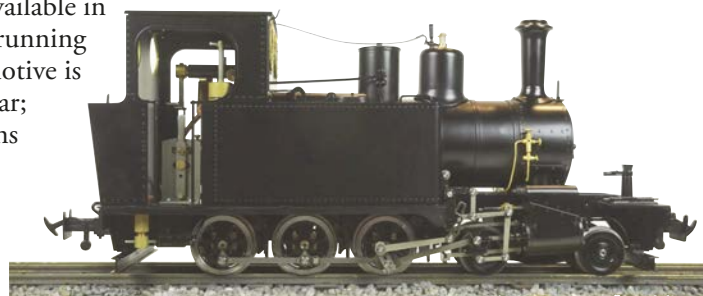
WD HUNSLET Live Steam 4-6-0T

Hunslet produced 155 of these 2' (60cm) gauge locos during WW1 for service behind the trenches in France, sharing their duties with Baldwins and Alcos procured for the same role. After the war they were sold out of service, examples ended up in South America, Australia and Palestine as well as England and Scotland.

In 2005 The War Office Locomotive Society repatriated No. 1215 from Australia and its restoration is now complete, the locomotive making its debut at the "Tracks to the Trenches" event in July. A percentage of the retail profit from each UK sale will be donated to this locomotive, a greater percentage if ordered directly from Accucraft (UK) Ltd.

The model is internally gas fired and has slide valve cylinders. The boiler is fitted with a water gauge with blow down valve, lubricator with drain and pressure gauge.

It will be available in either 32mm (gauge 0) or 45mm gauge (gauge 1), the latter as per the 3' gauge locos supplied to Balfour Beatty in Scotland. The model will only be available in satin black (with no running number). This locomotive is expected to be popular; place your reservations early!



Specifications:

Scale: 1:19 (16mm: 1ft)

Gauge: Either 32mm or 45 mm

Construction: Brass & Stainless Steel

Mini. Radius: 54 in. (1.4 M)

Length: 13.8 inches (350mm)

Width: 3.9 inches (98mm)

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Each one is built to order and a price list (.doc and .pdf formats) can be sent in the post (please send an SAE) or via email: nlrww@dalega69.plus.com

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Dimensions: 150mm overall length x 70mm Overall height x 90mm wide.

Tool chest dimensions: 75mm long x 45mm wide x 33mm high and features a working hinged lid.

Body colour grey or bauxite (pictured), tool chest black.

Also included is an uncoupling hook for use with 304.8mm/foot scale hands

(shunter's pole) which lays inside of the wagon when not in use.

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Permanent way tool van with hinged lift up lid features brass hinges and handle Dimensions: 150mm overall length x 105mm wide x 85mm high (approx) £35 inc. postage.

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Lister 2-Cylinder Diesel Engine

The new product is Lister 2-Cylinder Diesel Engine, available in both 16mm scale and 7/8ths scale.

It's a scale model based on a real locomotive belonging to Ripon & District Light Railway, designed using photo's and dimensions of the real thing in conjunction with a scale drawing of a similar loco.



The product is a kit with just 6 parts to assemble the engine and has locators to enable easy assembly, it also comes with an optional chain guard that can be cut to the desired

size. Instructions are available to view and download on the product page of the website.

The parts are 3D printed in black plastic

to ensure that the hard to paint places (between the cylinders) just look like shadow.

16mm scale is £15, 7/8ths scale is £20

If anyone would like a slightly different exhaust then they can contact SLR and they will see what they can do.



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WOODBURY MODELS

1:32 Platform shelter

Cambrian Railway platform waiting shelter. Laser cut in birch ply and MDF. Includes interior detail.

Where possible buildings are produced from original architects drawing or detailed research and are designed as detailed models and not garden ornaments. As such they are not designed for permanent outdoor use, but depending on the finish applied by the constructor they are rain proof and will be a graceful addition to any garden railway.

Price: £38.50

10mm scale Planet SCW class Industrial Diesel Shunting Locomotive

Woodbury are taking no obligation orders for their next batch of Planet locomotive kits. Please let them know if you would like to be added to the pre-order list.

The kit has been designed to ease construction, and comprehensive instruction to assist the constructor. The intention is to produce a model that can be assembled with a basic level of skills and tools similar to assembling an Airfix type kit making it ideal for starters in G1 while retaining a reasonable level of prototypical detail, but allowing easy enhancement and improvements for the more experienced constructor.

The Model is made to 10mm scale and based on extensive running of the prototype development model is capable of handling 10 wagons at scale speeds.

The current proposed specification is as follows:

- Machined cast iron wheels and steel axles with large brass bearings by Walsall Model Industries



- Ready folded laser cut steel frame and motor mount.
- High quality machined 1:50 worm (Nylatron GS) and worm wheel (brass) manufactured by Gear Services (Letchworth) Ltd. from their Ultrascale Products range, both axles driven by Acetal molded plastic lubrication free light power chain and sprockets as per prototype locomotive.
- Machined sprung buffers with scale oversize heads.
- Laser cut body and underframe from 'Rowmark' with tab and slot construction for easy of assembly.
- Vacuum formed bonnet and cab roof.
- Etched brass makers plates.
- 8 x AAA NiMH rechargeable batteries.

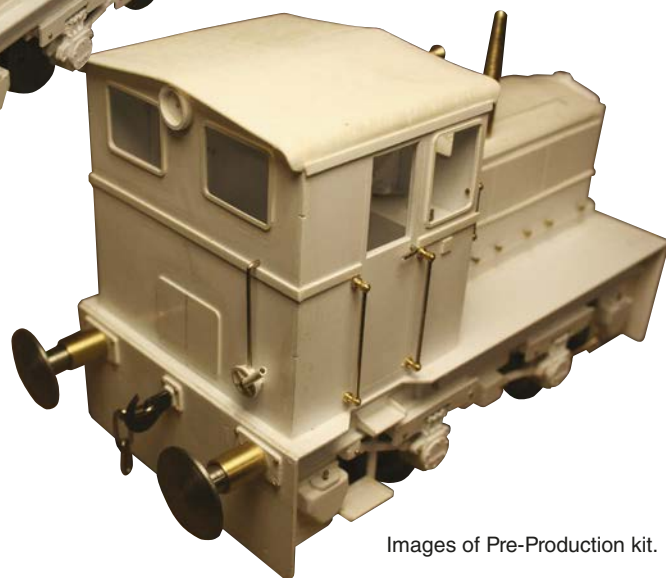
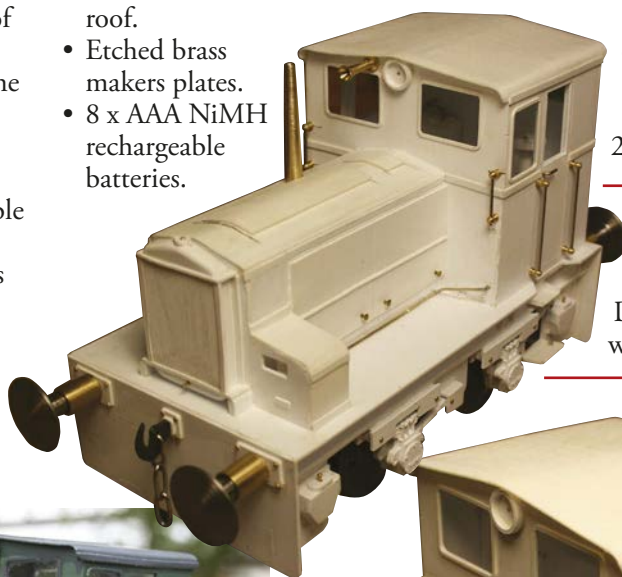
Woodbury Models are pleased to be working with Peter Spoerer Model Engineers radio control specialists to equip this model with a bespoke 2.4 GHz Radio control (complete with single knob transmitter, receiver, electronic speed controller and plug and play wiring harness with fuse, charging socket and on/off switch), radio control handsets are Spektrum compatible and can be used with and other models once bound to a receiver. (Radio control free option will be available for constructors who wish to build this as a two rail locomotive or have there own preference for RC equipment)

Basic loco kit without batteries or radio control £145.00

Complete with batteries and 2.4Ghz radio control £245.00

Woodbury Models

Foxwood, 8 Mears Coppice, Brierley Hill, West Midlands. DY5 2PH
www.woodburymodels.co.uk

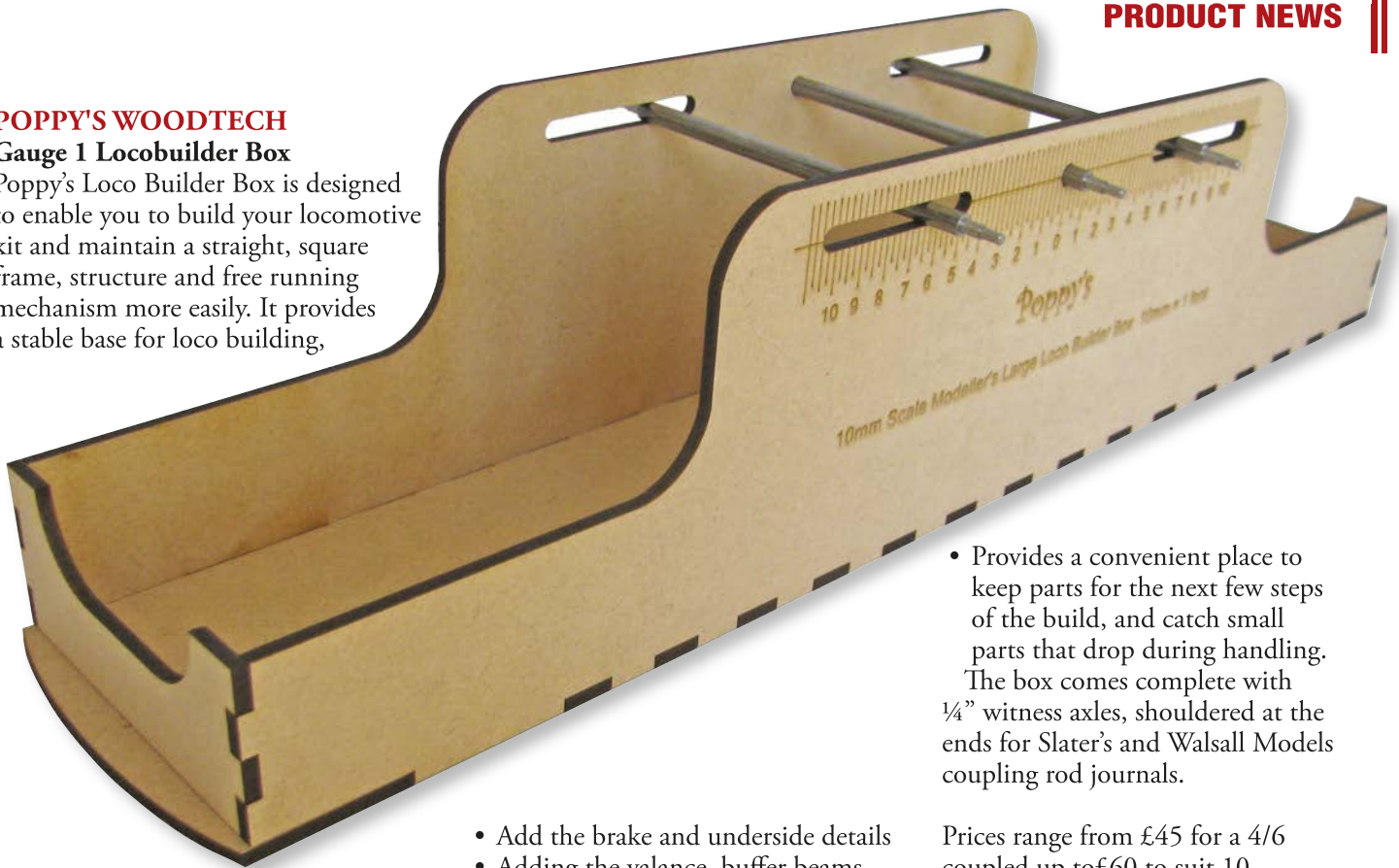


Images of Pre-Production kit.

POPPY'S WOODTECH

Gauge 1 Locobuilder Box

Poppy's Loco Builder Box is designed to enable you to build your locomotive kit and maintain a straight, square frame, structure and free running mechanism more easily. It provides a stable base for loco building,



freeing your hands for those trick and hard to hold parts.

There are many stages the Loco Builder Box can help you:

- Hold chassis parts and build the basic chassis and coupling rods

- Add the brake and underside details
- Adding the valance, buffer beams, steps and other details to the footplate
- Build the body
- Hold the assembly firm (either non-slip or bolted down) and freeing hands to work more easily

- Provides a convenient place to keep parts for the next few steps of the build, and catch small parts that drop during handling. The box comes complete with 1/4" witness axles, shouldered at the ends for Slater's and Walsall Models coupling rod journals.

Prices range from £45 for a 4/6 coupled up to £60 to suit 10 coupled locos, including the popular 9F kit.

Poppy's Woodtech
www.poppyswoodtech.co.uk

ASSOCIATION OF 16MM NARROW GAUGE MODELLERS

Accessories for discerning modellers

Visitors to the 16mm Association stand at exhibitions will be able to avail themselves of a new range of merchandise to enhance their appearance and more importantly, make drinking tea and shopping a lot easier.

The enamelled metal mugs hold 370ml, or just under 3/4 of a pint, of liquid when filled to the brim. Both green and cream colours include the Association logo on the front. Price £7

A jute "bag for life" is 34cm tall and wide, opening out to 24cm wide and is decorated with the Association logo on one side and Roundhouse logo on the other. Price £3 or 2 for £5

Metal badges 2cm square feature the

loco and are available in gold, silver, enamelled red or green. Price £1.50 each or a set for £5.

Please note, due to prohibitive postal rates, these items are only available from the stand at shows.

Association of 16mm Narrow Gauge Modellers

www.16mm.org.uk

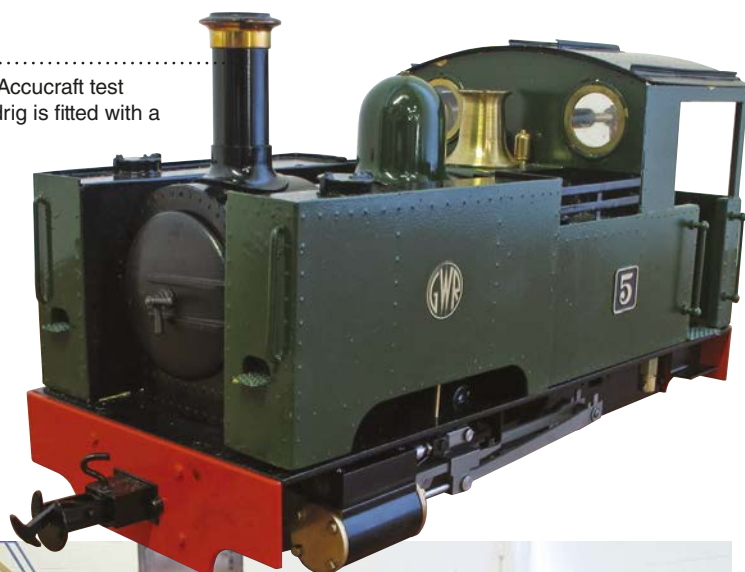


From the lineside

The Editor's roving camera captured a few scenes from the Accucraft UK open day and Butterley Garden Railway Association Open Weekend in July.



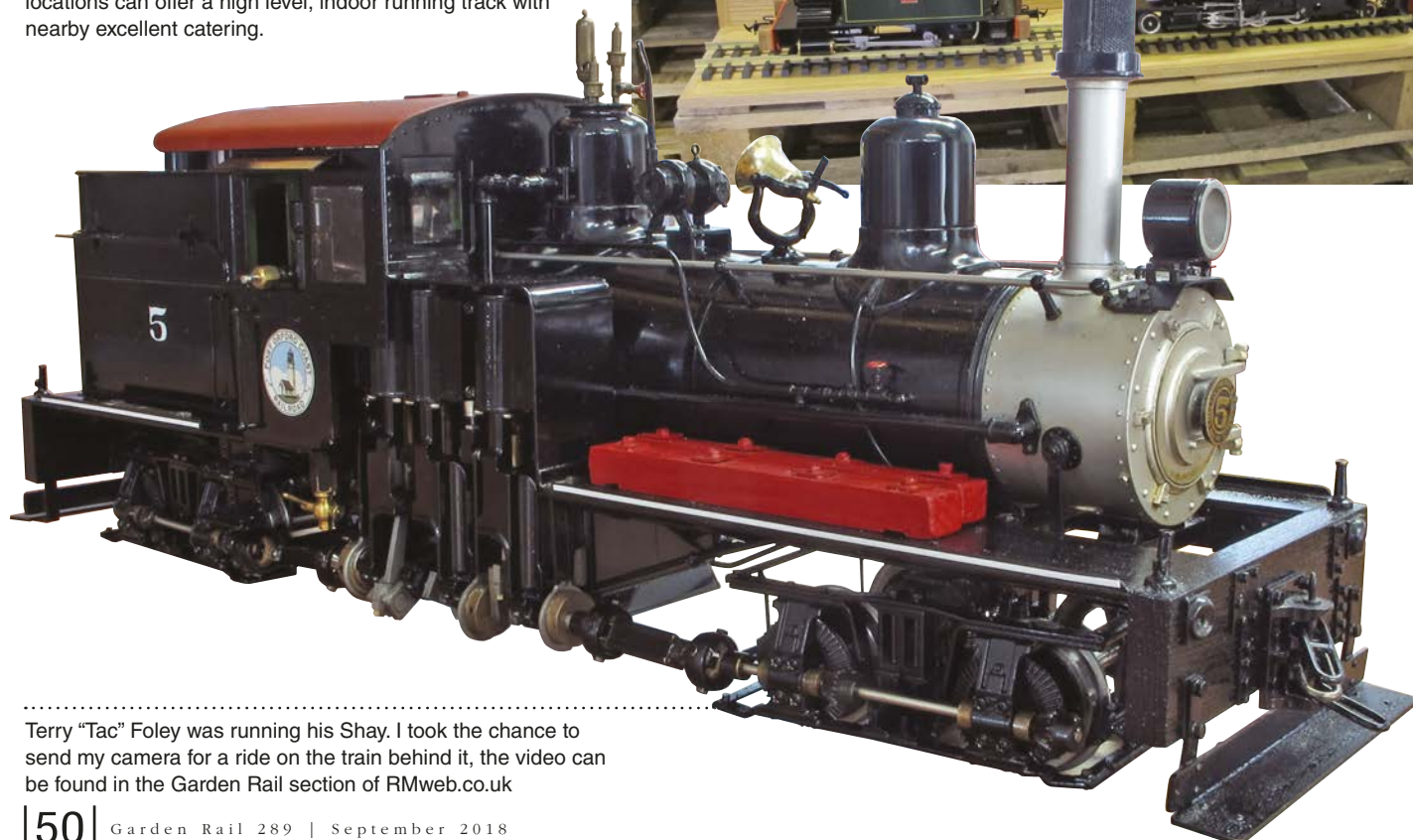
John's son, Geoff has modified this Accucraft Baguley to represent Talylyn Railway Number 10



Waiting its turn on the Accucraft test track, John Loynes Jedrig is fitted with a Swift 16 body kit.



More locomotives awaiting their turn on the track. Once the initial shopping is done, the running session is the main event of the day and enjoyed by everyone. Not many locations can offer a high level, indoor running track with nearby excellent catering.



Terry "Tac" Foley was running his Shay. I took the chance to send my camera for a ride on the train behind it, the video can be found in the Garden Rail section of RMweb.co.uk



Left: Butterley saw some blistering weather and a clash with football which reduced the attendance a bit. However, John Sutton's Garratt was particularly eye-catching.

Below: A 7/8th scale Regner run by Phil Hemingway circled the track smoothly in the sunshine.



Left: It wasn't all steam, this scratchbuilt battery powered diesel was hauling modern wagons based on WHR prototypes.

Below: Vintage Archangel owned by Alex Gordon. This loco is a bit of a mystery, can anyone tell us a bit about its origins. The tender appears scratchbuilt, but we know no more.



Above: There always has to be a Ragleth and this one was performing sterling work on a hot day.



Above: Andrew Tynham built "Sam Lord" from a Roundhouse kit.

Left: An interesting permanent way train – hopefully details of its construction will appear in a future Garden Rail.



The background of the advertisement is a dense, overlapping collage of numerous tablet devices. Each tablet screen displays a different issue of the 'Garden Rail' magazine. The covers feature various railway-themed illustrations and headlines, such as 'SIMPLY Charming', '71 MILES OF TRACK? NO PROBLEM.', '17 YEARS OUTDOORS AND STILL RUNNING...', 'TOY STORY', 'GARDEN RAILWAY SUPERPOWER', and 'IT'S SNOW'. The tablets are arranged in a way that creates a sense of depth and repetition, emphasizing the digital nature of the subscription.

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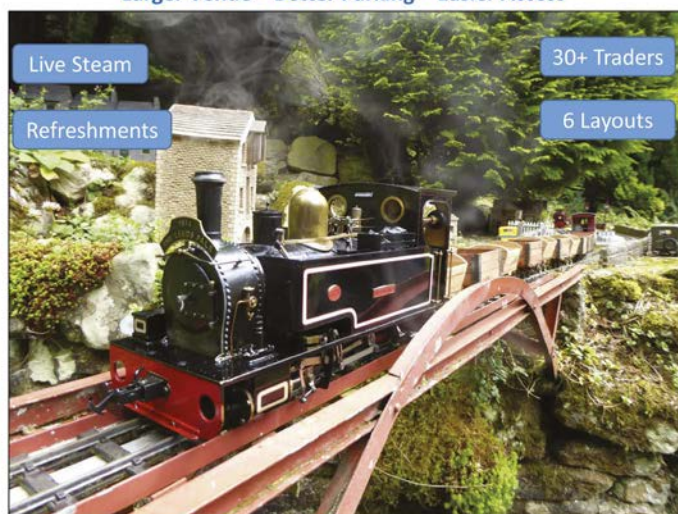
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Sunday 7th October 10:00 – 16:00



The Yorkshire Group of 16mm Narrow Gauge Modellers Limited
www.yorkshire.16mm.org.uk



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Once upon a time and a long time ago, there lived a layout owner who had a penchant for things that were a little obscure. He also liked Purple Moose beer - a taste shared by many of the respected railway community of Porthmadog. So our hero built himself a special bogie wagon to transport a bottle of his favourite beverage.

The wagon was appreciated by the great and the good villagers at model exhibitions and they pleaded with him to make them one for their own railway (well, those as daft as him did).

He made many of these wagons until they were all gone and everyone lived happily ever after.

That's how Timpdon Models was born.

Recently we've been getting enquiries about this wagon as people again wanted the chance to buy one. So we've just reintroduced it.



It's available in satin purple with a free bottle of Purple Moose Snowdonia Ale (empty) (sorry) for £39.00, finished and ready to run. Alternatively you can buy it as a kit (includes everything except a bottle) for only £29.00. This allows you to paint it in your favourite brewery colours and replenish essential liquids on your own railway.
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See this
and more at: www.timpdonmodels.co.uk



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3D printed samples shown

Each locomotive will measure around 50cm in length and weigh in excess of 2kg.

Variations available to order

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- H7-A3-004** 60072 "Sunstar" in BR Express blue
- H7-A3-005** 60035 "Windsor Lad" in BR green with early crest
- H7-A3-006** 60077 "The White Knight" in BR green with late crest
- H7-A3-007** 60103 "Flying Scotsman" in BR green with late crest



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- H7-A4-009** 60008 "Dwight D Eisenhower" in BR green with late crest



For more information check out our website at: www.hattons.co.uk/recordbreakers



Letters are welcomed on any aspect of large scale railway modelling. Please e-mail the Editor:
phil.parker@warnersgroup.co.uk
or post to The Editor, **Garden Rail Magazine**,
Warners Midlands, West Street, Bourne,
Lincolnshire, PE10 9PH

RULES FOR GARDEN RAILWAYS

I sympathise with John Rogers as I to prefer not to attend organised steam get togethers because of the bureaucracy that is now involved.

Certificates are only valid at the time they are issued. Every Club has a "fiddler" who will negate the certificate next day.

On another subject I have just been to the Perth Model Railway exhibition and noticed that the Gargoyles were admiring the layouts! Me included.

Jim Goodall

DRAWINGS

I read about people scratchbuilding locomotives, carriages and wagons and would like to have a go myself, but there is a stumbling block – finding a drawing to work from. On a second-hand book stall, I managed to find a book of Glynn Valley Tramway drawings, but otherwise am drawing (sorry) a blank.

Can any readers help? Could the editor publish some drawings in the magazine?

Ewan Cooke

Editor: There are a few drawings on the 16mm Association website, but otherwise most seem to be published for space reasons in smaller scales. If any reader fancies getting their drawing board or CAD system fired up to produce a drawing or two then I'll certainly find space on the pages. Locos, rolling stock, buildings and lineside furniture would all seem to be useful subjects. Over to you.

HEN EFAIL

Great to see my article in the magazine, and receive a copy! Unfortunately someone has credited me as 'Hen Efail' rather than James Hilton, i.e. The first line of my address!

James Hilton

Editor: Sorry about this, even our designer mentioned this but I didn't twig. I just thought it was a Welsh name, which technically it is if you are called "Old Forge". For those who don't know James's work, you should head over to his excellent blog: paxton-road.blogspot.com which covers both large and small scale modelling.

GARDEN RAILWAY OPENING - A REPLY

I was interested to read Steve Howard's letter (Mailbox GR 288) in which he raises some interesting and valid points. The editor too. I was sorry to read that Steve wouldn't be opening up his garden railway again. My article wasn't intended to illicit such a response or to generate any fear, quite the opposite.

I agree that it is sad that we have to take even measured, appropriate precautions when inviting the general public into our gardens to view our railways - but that is the real world in which we live. To reiterate Risk Assessments not only protect the visitors but also the owners/operators. In addition, in the event of an insurance claim then the owner also has to prove to insurers et al. that all practicable measures have been taken so as to safeguard visitors, operators/owners and property and that the Terms & Conditions (T&Cs) of one's insurance policy have been complied with etc.

Steve's idea of visitors signing a binding document before setting foot on the property may have some merit for small numbers of visitors. For our open days for the public we had to cater for the 'lowest common denominators' (as common sense isn't always common) and without too much red tape (but some red and white tape and a sprinkling of signs!). In addition apart from some tape and a few signs everything was very relaxed for the visitors, seamless from their point of view. On certain open-events we had over a thousand visitors across a two day event and as they were for charity, to get that volume of people to sign, date, add address/contact details to a document would have been a prohibitive bureaucratic



nightmare - although we did consider such. In addition as such events were for charity we didn't want to scare folk off with onerous T&Cs that they would have read and sign up to at the key bottleneck area (ie. the gate/entrance), doing so, would have also caused queues and maybe loss of footfall.

Whilst some aspects of Steve's sample 'notice' are valid (and some aspects tongue-in-cheek?) his closing comments could be deemed as 'exclusive' as opposed to 'inclusive'. AND, in this day and age, of, sometimes over zealous, PC sensibilities,

such 'exclusions' could be deemed to be a 'hate crime', now that is a scary thought, yet such seems to be becoming a reality in this day and age - I'd rather complete a few simple H&S and RA forms and put up a sign or two, than deal with the former.

Please, please enjoy sharing your gardens and railways, it needn't be difficult.

Martin R. Wicks

DIARY DATES

Date: 1st and 2nd September 2018

Event: Llanfair Garden Railway Show

Venue: Llanfair Careinion Leisure Centre, SY21 0HW

Times: Sat 10am-5pm Sun 10am-4pm

Exhibitors: Layouts in 16mm and G scale. 40+ Traders. Refreshments. Free parking. Free bus from Welshpool & Llanfair Railway gala.

Date: 1st and 2nd September

Event: Hollycombe Steam in the Country Model Weekend

Venue: Hollycombe Steam in the Country GU30 7LP

Times: 11:00 to 17:00 (Rides operate from 12:30)

Web: <https://www.hollycombe.co.uk/>

Exhibitors: Hampshire Area Groups of the Association of 16mm Narrow Gauge Modellers modular layout will be operating. Other exhibits include miniature traction engines, fairground models and toy steam.

Additional Information: Free car parking, refreshments

Date: 9 September 2018

Event: White Horse Model Engineering and Garden Railway Show

Venue: White Horse Country Park, Coach Road, Westbury, Wiltshire, BA13 4LX

Organiser: West Wiltshire Society of Model Engineers

Web: www.wwsme.org.uk, www.whitehorseshow.org

Times: 10am - 4pm

Admission: £5.00, children under 16 free

Exhibitors: See website for full details

Additional Information: Free parking, refreshments, bar, engineering society displays, train (5 inch gauge) and traction engine rides

Date: 6th and 7th October 2018

Event: The Yorkshire Garden Railway Show (formerly Elsecar Garden Railway Show)

Venue: Richard Dunn Sports Centre in Bradford BD6 1EZ

Organiser: The Yorkshire Group of 16mm N.G. Modellers Ltd

Web: www.yorkshire.16mm.org.uk/

Yorkshire16mmShowhomepage.html

Times: Sat 10am - 4.30pm Sun 10am-4pm

Exhibitors: See website for full details

Date: 27th October 2018

Event: Exeter Graden Railway Show

Venue: The Matford Centre, Matford Park Road, Marsh Barton Ind Estate, Exeter EX2 8FD

Organiser: South Devon Garden Railway Group

Web: <http://www.exetergardenrailwayshow.com/>

Times: 10:30am - 4.30pm

Admission: £7.00, Concessions/OAPs £6.00, accompanied children free

Exhibitors: See website for full details. Second hand stall. Additional info - Free car parking. A proportion of the show proceeds are donated to The Devon Air Ambulance Trust.

Date: 24th November 2018

Event: Steam in BEDS

Venue: Eaton Bray Village Hall, Church Lane, Eaton Bray, LU6 2DJ

Organiser: 16mm Society Bedfordshire Area Group

Web: www.bag16mm.org.uk

Times: 10am - 4.30pm

Exhibitors: Full trade support and at least 3 live steam layouts. See website for full details

Date: 6th April 2019

Event: National Garden Railway Show

Venue: Peterborough Arena, East of England Showground, Peterborough PE2 6XE

Organiser: 16mm Association

Web: www.nationalgardenrailwayshow.org.uk

Times: 10am - 5pm

Exhibitors: See website for full details.

All events are published in good faith. Please check with the organisers before travelling a significant distance as Garden Rail can't be responsible for changes or cancellations. To submit and event for publication, please e-mail phil.parker@warnersgroup.co.uk

SUBMISSION NOTES

Garden Rail welcomes articles submitted via posted disc, e-mail, Dropbox (or other large file sending system on-line). Please ensure that your name, e-mail address, telephone number and postal address for payment on publication are included. Send to phil.parker@warnersgroup.co.uk or to the contact address on the Contents page.

Articles should be submitted in MS Word or other word processing format. Please do not use fancy formatting or embed photos in the piece, these should be sent separately at the highest resolution possible and in JPEG format. Printed photos of a historic nature will be accepted. Captions for all photos should be included as part of the submission. You must own copyright to any material submitted.

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Farmer Thompson's Trusty Tractor



Farmer Thompson with his trusty Grey Fergie and his companion Chip the Westie.

While planning his new railway, Daniel Cousins brings in the harvest with a new tractor

I started modelling in the garden around mid 2012 and The Lavender Line was born. Due to a house move a Mk2 version of the Lavender Line is in the planning stage, but that's another story.

My railway is mostly 1:19 scale and quite a bit of the rolling stock consists of I P Engineering's Ezee Range. The main locomotive is a Roundhouse Little John diesel locomotive. Those who are aware of these products will know that the rolling stock and the diesel are not very large or very wide, the rolling stock being around 70mm wide and Little John being about the same width. This means when they are put next to 1:24 scale people the size difference isn't as noticeable.

I do have some 1:19 scale people mostly from Model Town but I tend to keep them separate from the 1:24 scale folk. The 1:24 scale folk were used in some Ezee Range carriages and look just fine to me.

I have been finding it hard to find suitable vehicles for my garden railway and so far have on my modelling desk, awaiting attention a Tri-ang lorry and a Bedford OB Coach from Rail-road Models.

During a visit to my local model shop, Prams and Toys in Wisbech, a 1:24 scale model kit of a grey Ferguson TE-20

by Heller caught my eye and one came home with me.

The 128 piece kit builds into a nice model of the Little Grey Fergie and has plenty of detail. All the engine details are there, control levers, gear levers and rubber tyres. Transfers for the lights, dials and badges are included as is an alternative exhaust.

I modelled my Fergie with a exhaust going straight up above the bonnet but could of easily have opted for the exhaust that runs underneath towards the back like tractors built to work in orchards.

Tractors for orchard work are usually have a narrow wheel base to

enable them to travel up and down the narrow rows of trees so I feel this model wouldn't look too out of scale as an orchard tractor on a 16mm garden railway.

If the model is built carefully the wheels can be made to turn and the drawbar made to move up and down.

On my daily commute to work I pass a Grey Ferguson in a field that seems to have seen a fair bit of work by the look of it and it always seems to be in the same spot, I modelled my model to have the same look. A bit of dry brushing rust and grime I think I have achieved this. ■



Completed model of the Grey Ferguson.

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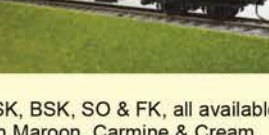
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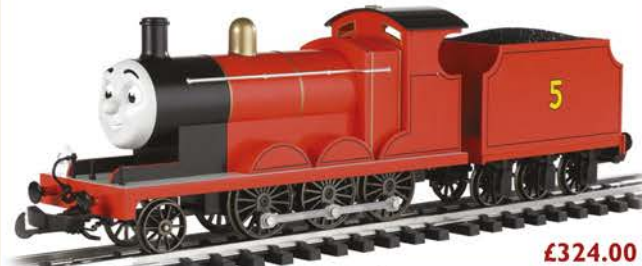
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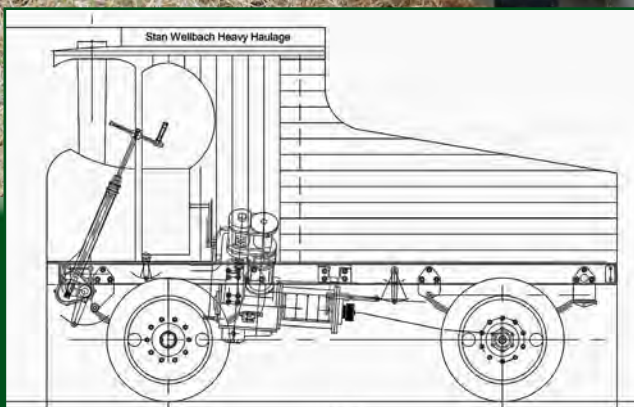
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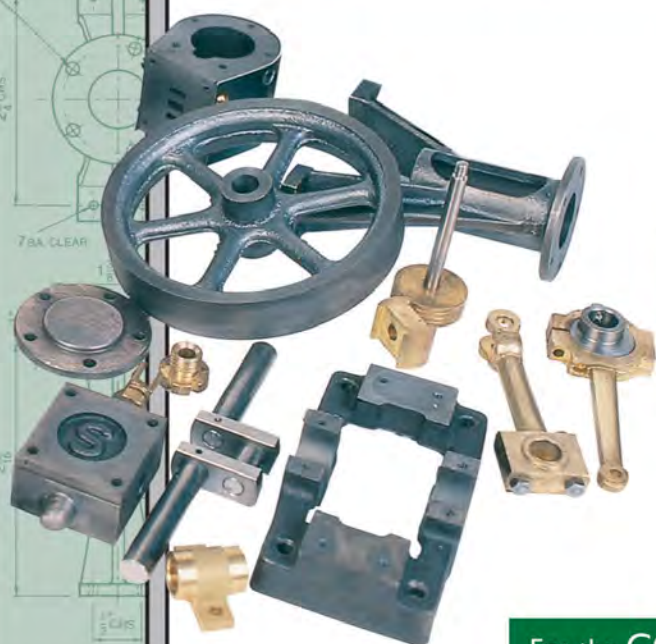
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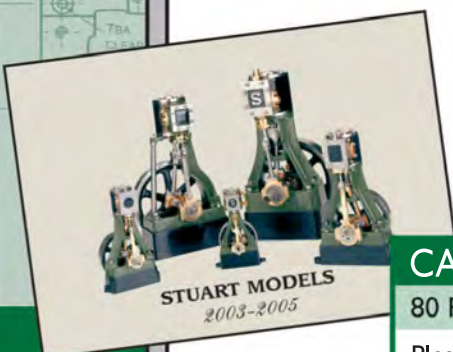
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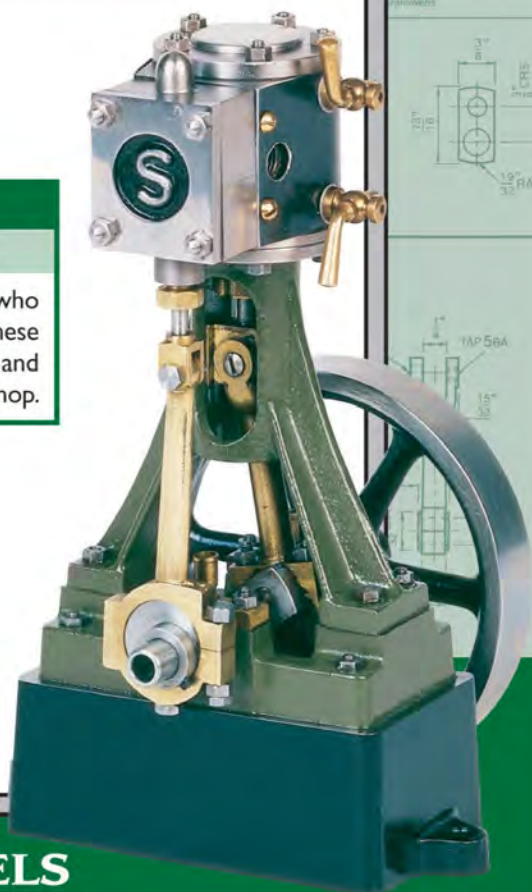
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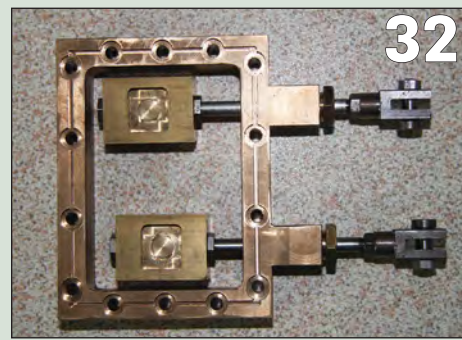
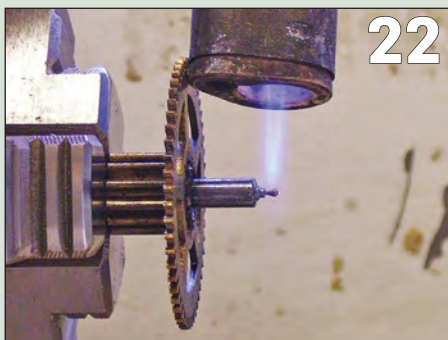
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FRONT COVER

Smiles and waves from the dignitaries as the newly-named 'The Brigadier' takes the first official passenger train around the North Wales Model Engineers' completed new track at Llandudno. More on page 40.

Photo: Andrew Charman

EDITORIAL

Enjoying a day out at a new track...

Welcome to this edition of **EIM**. It's been another busy month, and a definite highlight was on 21st July when accompanied by my good lady I headed directly north from **EIM** Towers to the seaside town of Llandudno, and the official opening of the new and impressively long track of the North Wales Model Engineering Society.

We live in times of challenge for all clubs in our hobby – attracting new members is a



constant concern, as is the cost of maintaining tracks on land that is often eyed greedily by property developers. So what made the visit to Llandudno particularly enjoyable was to hear how closely the North Wales club, which lost its previous site seven years ago, has been able to work with both the county and town authorities to establish the new site. In fact both the Conwy County and Llandudno Town councils regard the new track as an attraction, an asset to the local

area. With support such as that it can only prove a success... I'm delighted to be able to tell you that Martin Gearing met up with me at the Welshpool & Llanfair Light Railway recently (having a steam railway just down the road is a very handy location in which to conduct the business of a model engineering magazine...) and delivered the entire series describing the boiler that he has constructed to power his Steam Plant serialised in **EIM** last year. So if you have built a Steam Plant, ready your workshop, as we will start describing the boiler in next month's issue.

Meanwhile you will hopefully find plenty of interest in these pages this month, from a fascinating large-scale steam lorry project, through some long-overdue horology, to one of Jan-Eric Nyström's typically engineering-centric solutions to stabling his rolling stock. Enjoy the issue, and if you've built something to interest your fellow model engineers, then send some words and pictures in!

Andrew Charman – Editor

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Building a large-scale Fowler Steam Lorry

Martin is part-way through his major project in the unusual 7-inch scale. This two-part feature reveals his thinking behind the build and his fascinating design conclusions.

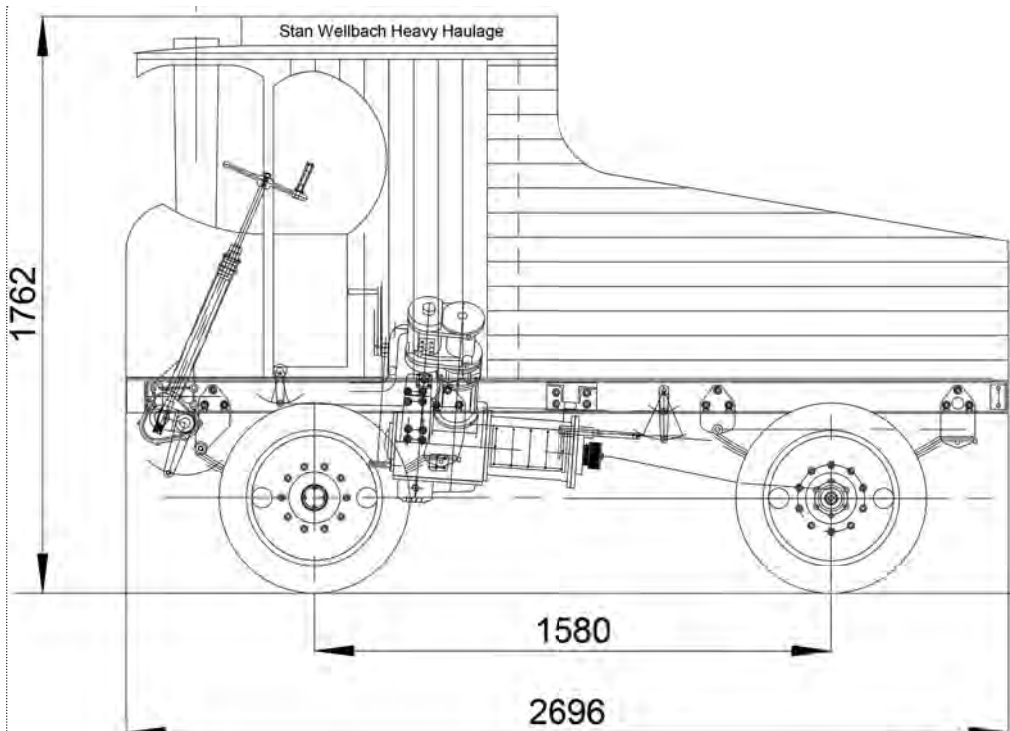
BY MARTIN JOHNSON

The rain came down in sheets as a few die-hard rally visitors huddled in the model and beer tents. Meanwhile, I sat at the controls of 'Charles III', put a few shovels of coal on, and wondered if we would need towing off the site as the rain dripped down my neck in an attempt to meet that soaking upwards from my boots.

Of course, on a sunny day the Burrell and its trailer is a wonderful thing and even short road runs are possible provided the road is quiet. Building the Burrell had occupied me for some 16 years, and I was at that 'in between' stage searching for a new project. I had been thinking about the 6-inch scale Garrett 4CD traction engine as a challenging project, but had not committed.

Through the rain I looked over to the crew of a full-size Sentinel lorry warm, snug and smug in their cab, and it became clear – what I wanted was a steam lorry with a sit-in cab for two people, and with sufficient speed to make road runs feasible and relatively safe.

I had always admired the Foden steam wagon and had considered building the published 4½ or 6-inch scale designs. However, both of these would still have me out in the rain on a day like this and even the larger scale could only accommodate one person at the controls. I had also for many years admired the 9-inch scale Foden wagon design by Mick Cox – a wonderful vehicle seating two in the cab but somewhat beyond my ability



ABOVE: This drawing shows the look of the finished lorry.

BELOW: The Burrell 'Charles III' – fun, but exposed...

BELOW RIGHT: Multiple seats ensure full enjoyment.

to build, transport and afford. I had also seen various other 6" to 9" scale underframe wagon models over the years, some of which were clever designs but too many of which appeared to be manufactured from bitsajunkium. I resolved therefore that my project must have some engineering integrity.

Later in the day, as I winched Charles III onto the road trailer for the journey home, a few other thoughts struck me. The logistics of

rallying a larger model are onerous. There is a lot of 'miscellaneous stuff' needed, such as riding trolleys, tools, lubricants, blowers, coal, extension chimneys, overalls, wet-weather gear and a substantial trailer to worry about. At the time, I was also rallying a 4in scale timber trailer for the Burrell to pull, which made the job even more onerous and my ability to lift and shift that lot might not last forever. If I were to build something on a larger scale, it would need to be



an integrated project that would be self contained and avoid all the loading/unloading problems associated with half a ton of engine, half a ton of road trailer and a quarter ton of miscellaneous. A large model of half to three-quarter scale might be feasible if it was 'self loading and carried the miscellaneous on board.

Back at home, I tried paper engineering exercises on a few existing designs – the Atkinson undertype by Ray Prime, the Clayton by Robin Dyer and the Foden by Terry Morris were all considered for 'enlargement'. All would pose major problems in manufacturing crankcases, crankshafts and back axles on my machine tools. At this point, maybe I should explain that I live in the Scottish Highlands and access to large machinery is a problem; no evening classes and the local club workshop a mere 90 miles away. That being the case, the lorry would have to be built on my 5½-inch Kerry lathe and a Tom Senior M1 mill.

At that stage, I was considering using an A-frame tow for transport, so anything with a chain transmission would probably not survive being towed at up to 70mph, and pneumatic road legal tyres would help as well! Subsequent changes to road vehicle braking legislation means that towing by A-frame is not likely to be feasible, and a bespoke vehicle trailer will be manufactured instead.

Making the decision

I finally looked at a 3-inch scale Fowler steam lorry described by Tony Webster in *Model Engineer* starting in Volume 192, Issue 4213, as a basis for an enlarged model. The Fowler has a V-twin engine, driving through a gearbox via a cardan shaft to a 'conventional' back axle. The boiler unit was a vertical fire tube unit while the chassis and cab were quite conventional for undertype designs of the 1920s.

Choosing this prototype solved quite a few of the manufacturing problems mentioned above:

- The back axle could be adapted from a present-day car axle
- The crankcase was quite small for the size of engine, hence easier to machine. However on the debit side, the Fowler crankcase was a very complex casting and would need re-designing for simplicity
- The crankshaft was also short, bringing it within the scope of my lathe. This shortness would also help in machining the crankcase.

Another very attractive feature of the design for my purpose was that the cab was unusually wide; the Sentinel and Atkinson cabs taper in at the front of the vehicle, which would be very

restrictive for massively over-scale feet.

The design specification for the model was starting to become clear:

- 1) A model based on the Fowler steam lorry in as large a scale as could be manufactured 'in house'
- 2) The vehicle to seat two persons (driver and stoker), preferably inside the cab, but at least under cover
- 3) The vehicle to be capable of a reasonable turn of speed for use on busy roads. It should also be equipped with hazard beacons for high visibility, hence a 12 volt system would be included
- 4) The 12 volt system also to supply an integral low-speed vehicle mover – to avoid the strenuous manhandling of such a large model
- 5) It would have pneumatic tyres and wheels of correct scale appearance for HGV wheels
- 6) Brakes would be provided on all four wheels. Steam vehicles can be near silent and pedestrians seem to develop blindness and suicidal tendencies when among moving steam vehicles
- 7) The boiler would have a Bar-Litre rating just within the 500 limit that could be tested by our club inspectors. Anything larger would require testing by a professional inspector, and a major increase in running costs.

The design phase

The design would be my own, based on Fowler's lorry. Design takes quite a lot of time, but I looked forward to having total control – and not having to blame another designer for the errors in the drawings. I was also keen to explore some of the more theoretical aspects of engine and vehicle design.

The full-size Fowler lorry had a 'reputation' of the wrong sort, and many were part exchanged or scrapped within just a couple of years of new. I would have the opportunity to find and sort out Fowler's design mistakes along the way. The late Curly



ABOVE: The magnificent 9-inch scale Foden built to Mick Cox's design. It was big, but a bit too big for Martin.

BELOW: This wooden half-cab mock up was built on the tailgate of Martin's road trailer to test his theories.

BELOW RIGHT: Inside the half-cab mock up shows how clearance for the cab, steering column and boiler can be an issue.

All photos and illustrations in this feature by M & P Johnson

Lawrence also enjoyed this type of re-engineering exercise. I shall discuss the various aspects of the design work below under separate headings, but in reality they are all connected and were tackled together.

How Big to go?

Initially, I tried to work out a design based on the Fowler in 9-inch scale. I even cut some metal, but it soon became clear that this scale was not going to work for me. The route out of this problem was found by reducing the engine and gearbox unit to 6-inch scale, but revving it somewhat faster than 1920 steam practice would suggest, thus getting the proverbial quart from a pint pot. I felt comfortable that 1000rpm was probably still quite conservative and this had the added bonus of leaving more room in the cab for the over-scale driver and mate.

The next problem was to see how small the chassis and body could be made and yet still accommodate two people. I estimated that something around 5/8ths to 2/3rd scale would do the job. I then constructed a mock-up model of the half cab in 7-inch scale, and adjusted it to suit to ensure clearance particularly for heads and



feet. I also found that a somewhat higher and longer cab than scale would be needed to sit in, but that these changes could be worked in without unduly compromising the appearance of the vehicle.

The 7-inch scale also works very well for tyres. A common space saver tyre size is 125/85 R15; scaled up this works out equivalent to a 40 x 8.4 tyre and the heavy goods vehicle tyre of the day was 40 x 8, which is certainly near enough for me.

Outline Design

There was an outline design phase prior to detailing to ensure that steam demand of the engine and predicted boiler steam production would match. Noted model engineer Jim Ewins addressed this type of problem with his Ee factor; however, his correlations are of 5-inch gauge rail practice which is clearly not directly applicable to larger scale road engines, although the principles certainly are.

It seemed to me that there are two conditions to satisfy:

- Maximum torque – starting the vehicle from standing against the worst conditions, fully loaded uphill, on soft mud, in a rut for a road vehicle. Equivalent to tractive effort in a rail-based application.
- Maximum power – running at speed fully laden uphill. Equivalent to maximum draw bar horsepower in a rail-based application.

In both cases the resistance will be proportional to vehicle weight, so the two ratios tractive effort/vehicle weight, and power/vehicle Weight, will need to be similar to on other steam vehicles.

Fortunately, I had some published test data for a Sentinel wagon (Steaming Magazine, Summer 1987), the full-size Fowler wagon (Fowler Steam Road Vehicles, by W. J. Hughes) and I had also done some simple tests on my 4-inch scale Burrell which gave me some benchmark values. To estimate horsepower generation, I analysed some results in *A Traction Engine Miscellany* by R H Clark to derive an indicated efficiency, which worked out at 50 per cent based on the available enthalpy drop across an engine.

The ability of a boiler to provide sufficient steam must also be considered, so I calculated the grate loading required to produce the steam assuming (rather conservatively) that 1lb of coal produces 6lb of steam. The results came out as in Table 1.

Estimating weights at design stage is always a tedious and approximate job, so there is uncertainty there and using a 50 per cent indicated engine efficiency without taking account of superheat is also a gross

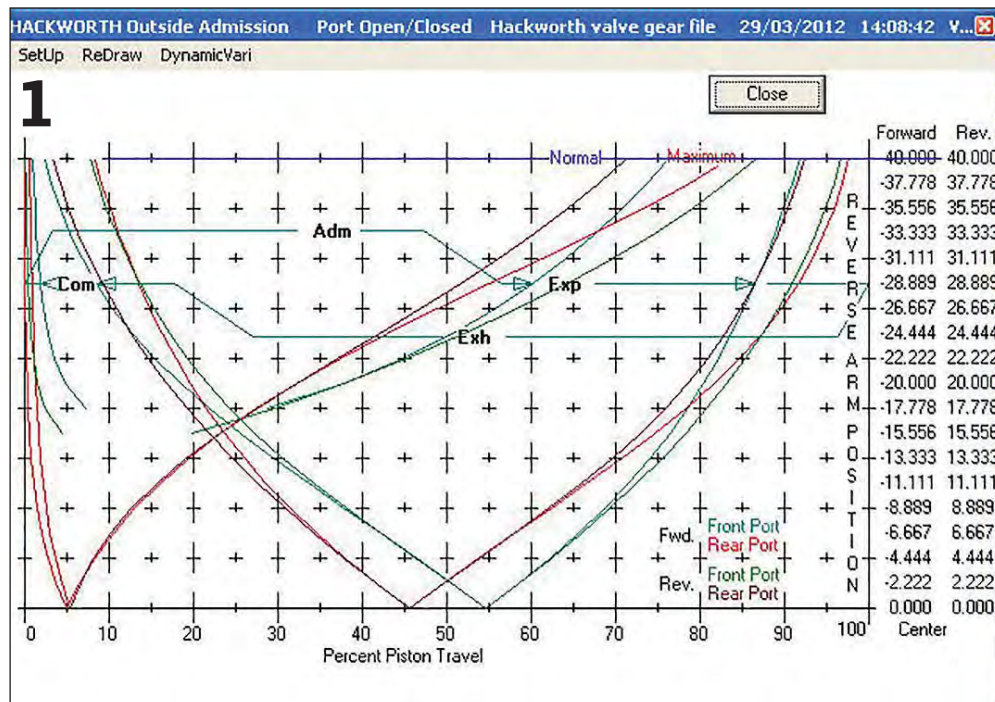


TABLE 1

	4" Burrell + Trailer	Fowler Full Size	Sentinel Full Size	Fowler 7" Scale
Estimated Weight lbs	1707	37649	52885	3659
Tractive effort in Low gear lbs.	590	5631	5620	594
TE / Weight	0.346	0.150	0.106	0.162
Estimated HP	1.82	30.61	34.47	6.63
HP / Ton	2.39	1.82	1.46	4.06
Firing Rate lb/sq.ft/hr	21	24	32	31

FIGURE 1 & 2:

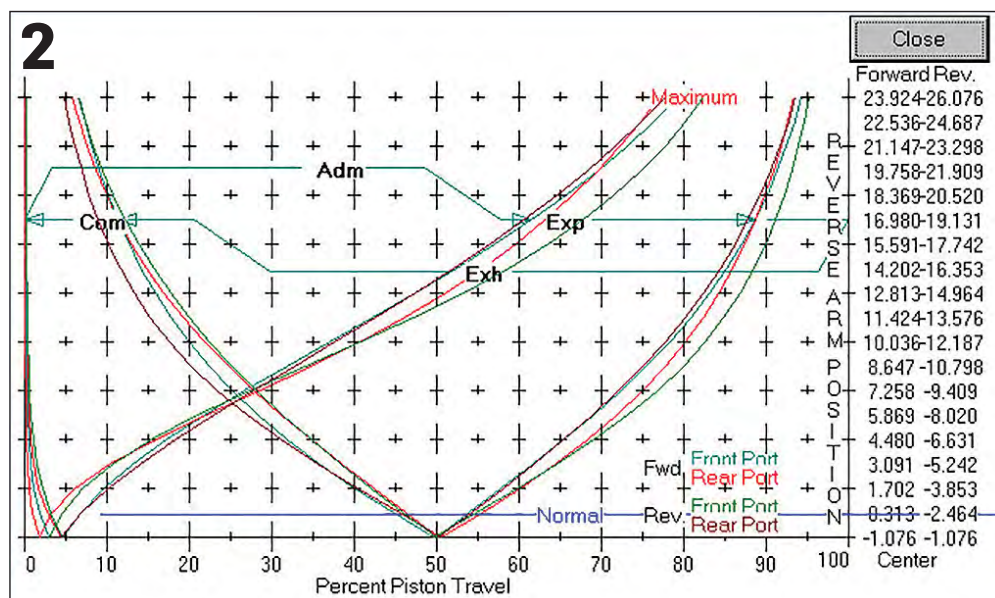
Screen shot of analysis for Hackworth valve gear (Figure 1) and Woolf gear (Figure 2). Full details are given in the text.

approximation. In addition, a 6:1 ratio of evaporation to coal is usually conservative, but it rather depends on the boiler design. However, the table shows that the proposed miniature should have plenty of starting effort compared to its weight and the power per ton is generous.

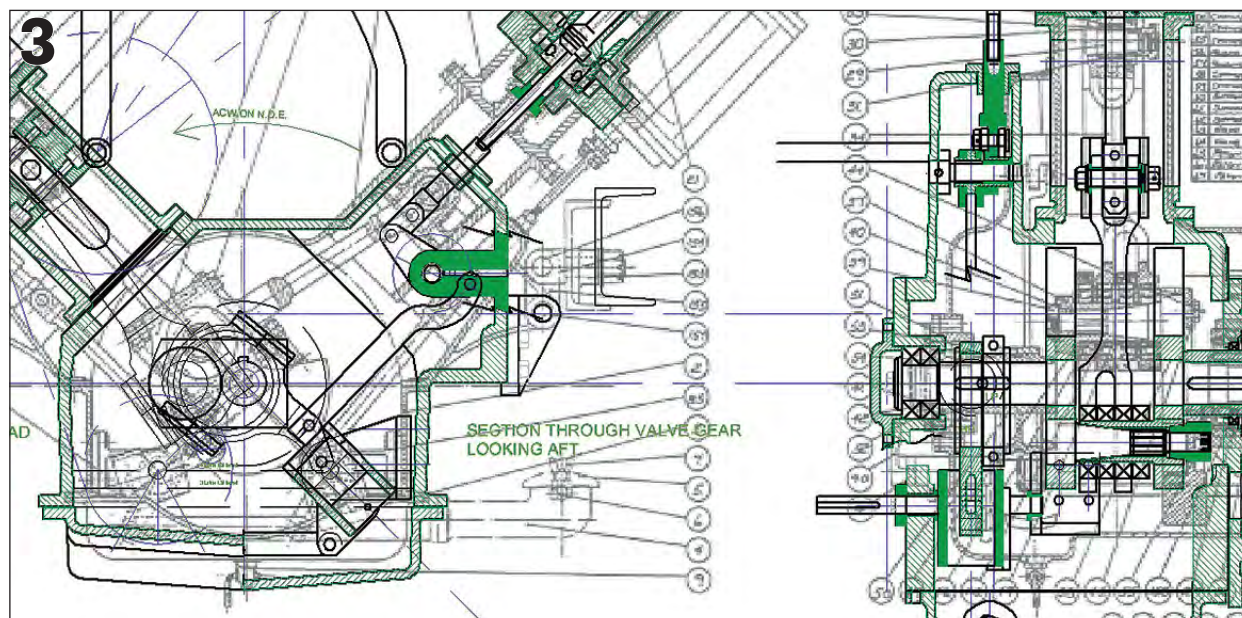
The grate loadings are all modest compared to my analysis of IMLEC results which shows typical grate loadings of 40lb/hour for 5-inch gauge locomotives. In short, the overall

design looks feasible, but there was a lot more detail design and analysis to be done.

As part of the above exercise it became apparent that duplex cylinders in the model would make better use of the available boiler power, which is discussed in more detail below. I notice that most of the model Foden steam wagons have duplex cylinders (the full-size ones were compound) but they run very well from a scale-size boiler.



"The ability of a boiler to provide sufficient steam must also be considered, - I calculated the grate loading required assuming that 1lb of coal produces 6lb of steam..."



Engine Valve Gear

I soon found major problems with the Fowler incarnation of Hackworth valve gear. The Fowler engine is of 'V' configuration with short connecting rods and each cylinder is a mirror image of the other; this means that one cylinder is going forward while the other is in reverse. Therefore, the valve gear has to give good events in both forward and reverse. Hackworth valve gear can be made to give reasonable results with relatively long connecting rods (as in the Sweet Pea locomotive), but with the short rods in the Fowler engine the problems become acute. Analysis of the design using Dockstader's program gave the rather disappointing results shown in **Figure 1**. It will be seen that there are large deviations between the forward and rear conditions.

I substituted Woolf valve gear for the Hackworth - they are both radial gears, the Woolf having an extra linkage to reverse the travel and hence cancel out some of the inherent errors. I have to acknowledge significant help from Simon Bowditch and Don Ashton in this department, but after some development the results were as shown in **Figure 2** which shows much better grouping of the curves, indicating a more consistent performance for both ends of the cylinder in both forward and reverse gears.

Using the Woolf valve gear meant another linkage to design and make, but solved an awkward problem of aligning the cylinder blocks at a strange angle as done on the Fowler.

Boiler & Superheaters

The original boiler was a vertical firetube unit of 3.8 sq. ft. grate, and 85 sq. ft. heating surface supplied via a vertical stoke chute. The smokebox was water/steam jacketed and the

tubes were fully submerged. An extra large diameter steam space helped to ensure dry steam. A superheater coil of 12 sq. ft. was fitted in the smokebox space. Blow off pressure was 225 psi.

The evaporative capacity of the boiler should be similar to the Sentinel product - the grate area of the Sentinel and Fowler boilers are identical. I have calculated evaporative capacity for the larger surface area of the fire-tube Fowler and the smaller

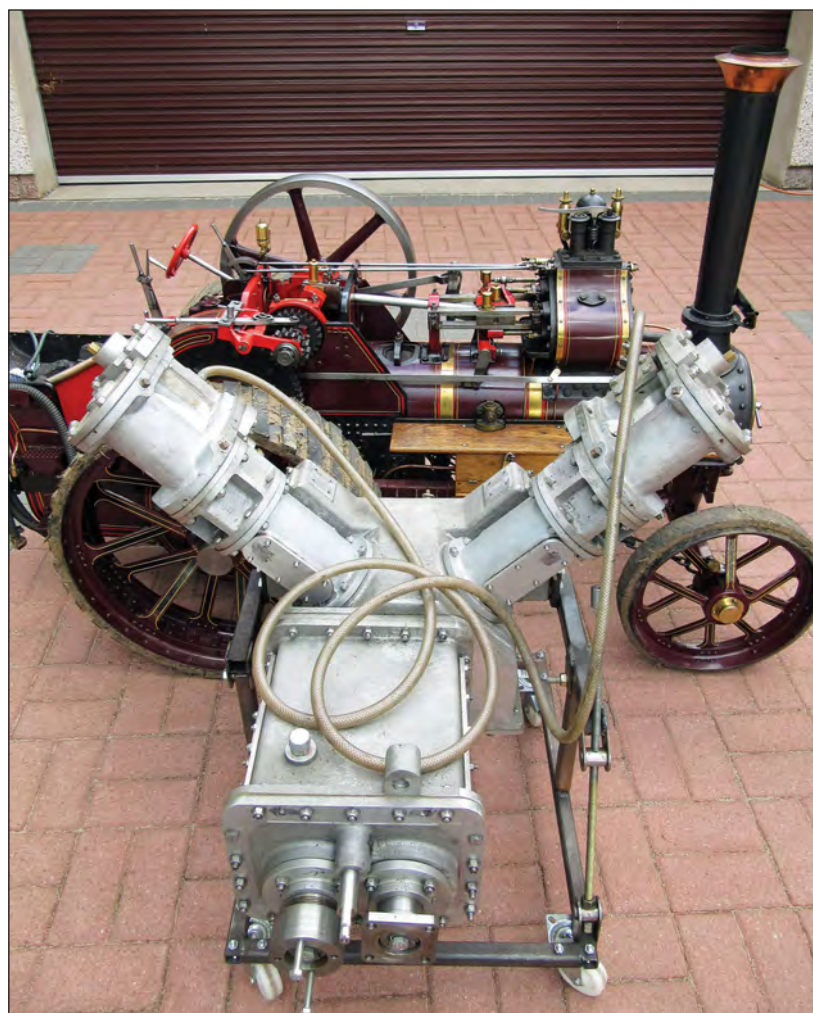
area of the Sentinel water tube and they come out approximately the same. Cylinder sizes for the Sentinel are similar to the high pressure ones of the Fowler, but of course there is only one high-pressure cylinder taking steam on the Fowler compared to the two cylinders of the Sentinel. This indicates the Fowler boiler output was underused, by a factor of around two, thus confirming my decision to make the Fowler miniature ►

FIGURE 3:

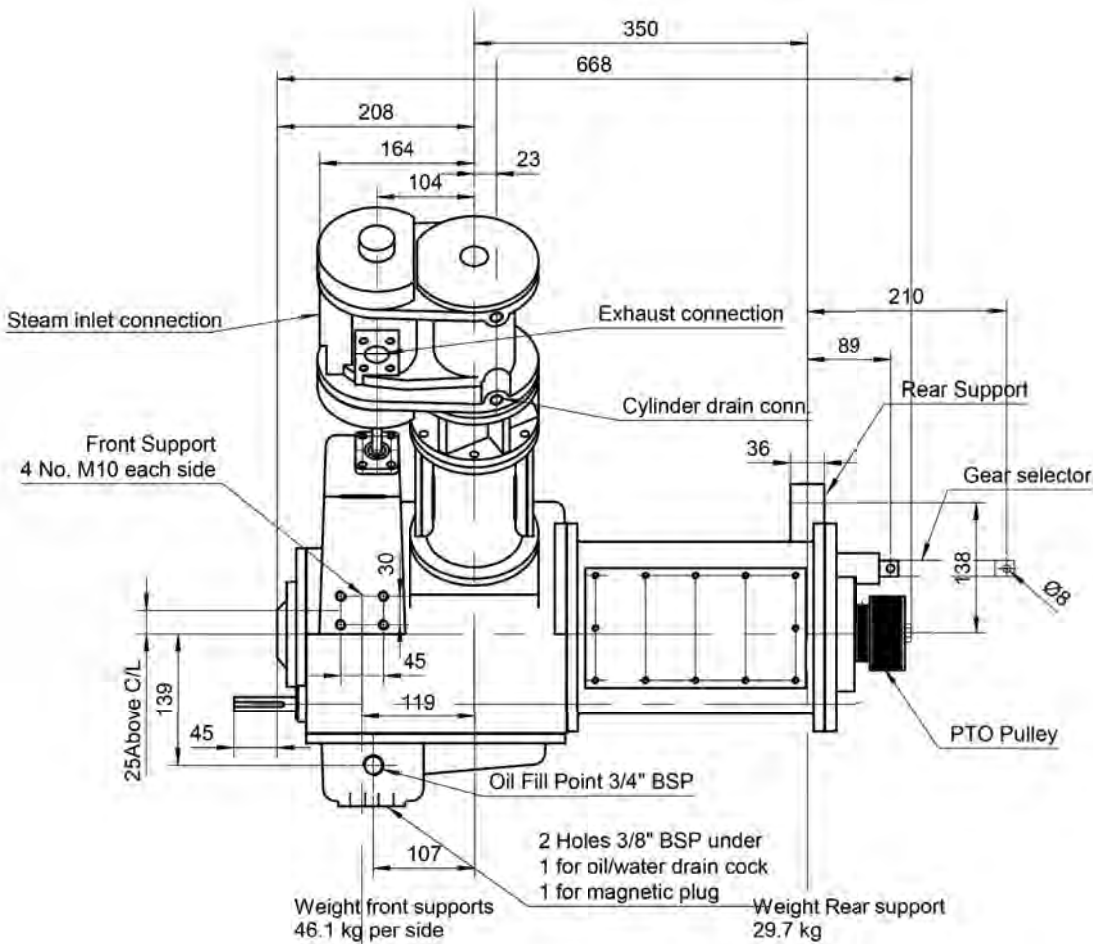
Screen shot of the miniature design overlaid on an original works drawing in TurboCad.

RIGHT:

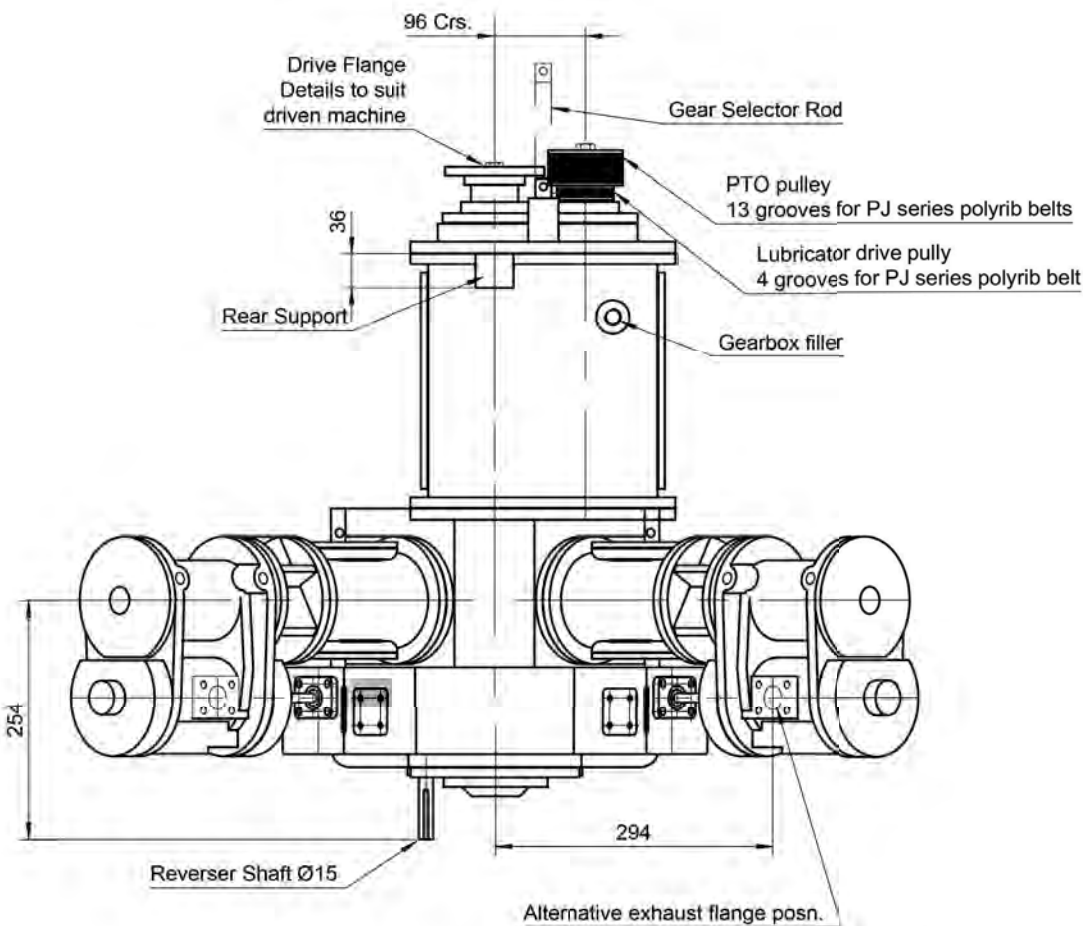
The size of the lorry's engine can be gauged by this picture of it posed against Martin's Burrell. Details of the construction will be in next month's **EIM**.



GENERAL ARRANGEMENT - SIDE VIEW



GENERAL ARRANGEMENT - PLAN VIEW



a duplex or double-high design.

The Sentinel S series had some 24 square feet of superheater, so would have had a much higher superheat than the Fowler, and this seems to be key to a successful design in any scale. Fowler claimed its engine could develop 55 bhp, but the Sentinel developed 130 bhp at peak from an identical grate area!

Following on from the above observations I have undertaken more than two years of work on the thermal design of miniature boilers. This has resulted in a computer program which will predict performance (quantity and temperature of steam) from the geometry of the boiler; an article describing this work is ready for publication. I plan to undertake further work to predict engine performance, picking up where Professor Bill Hall left off and have made a start on this, but the work is nowhere near finished.

Detail Design

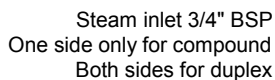
Bolstered by the knowledge that a 7-inch scale model seemed to have significant advantages and could probably be machined in house, really serious detail design work started in July 2010.

I design in 2D and use TurboCad for design and have found a useful method of working that may be of interest to others. It is possible to scan a drawing of a prototype (in my case cross sections of the engine and gearbox unit) which can then be placed on a layer of the CAD drawing. The scanned image is then adjusted for size until key dimensions of the scan match the proposed scaled dimensions. Design work then proceed on other layers which can be viewed with or without the prototype drawings.

The advantage is that the design can proceed using readily available sizes of material, fasteners, bearings, seals and the like, but all the while keeping a reference of how this compares to the scaled prototype. **Figure 3** shows part of the engine cross-section with the layer containing Fowler's engine cross-section visible showing how the model design follows the original, but not precisely.

My own practice is to then copy relevant parts of the design over to detail drawings where the design is refined and fully dimensioned. Once that has been done, all the component parts are copied back to the assembly drawing or cross-section and 're-assembled' to build up the final cross-section drawing. This is an excellent way of discovering foul-ups before they reach the phase of 'Scrap due to D.O. Error'.

GENERAL ARRANGEMENT - FRONT VIEW



Note:
Engine can be built as duplex or compound
Rotation either direction.

Throughout the design I have tried to reflect real drawing office practice in that each component or assembly has its own drawing and all components are listed on a parts list, which is essential for keeping track of materials to be ordered.

Pattern making commenced as soon as enough parts of the design were crystallised and engine patterns were despatched to the foundry in March 2012.

The engine design

Since the engine unit might be of interest to others for cars, lorries or

“This is an excellent way of discovering foul-ups before they reach the phase of ‘Scrap due to D.O. Error’...”

steam boats perhaps, I include here cross-sections and dimensioned general arrangements.

The engine as built is a double-acting duplex unit of 70mm bore and 100mm stroke. I have also made patterns for a compound version which would have a high pressure of 60mm bore and a low pressure of 90mm bore, both on the common 100mm stroke. All components for the compound cylinder version are identical except the cylinder block, end covers and piston.

The engine is designed for up to 1000rpm on steam at 160psi although

the calculations indicate it could be pushed further if required. Castings are 'double handed' so can be machined for the high-pressure cylinder to be on either side; the exhaust can also be directed outwards or into the centre of the 'Vee' on the duplex model.

The total engine weight is 125kg, due mainly to the extensive use of aluminium components and rigorous attention to weight reduction. Bearings are ball or roller type with the exception of the valve gear and little ends.

For steam boat applications, I

GENERAL ARRANGEMENT - DRIVE END VIEW

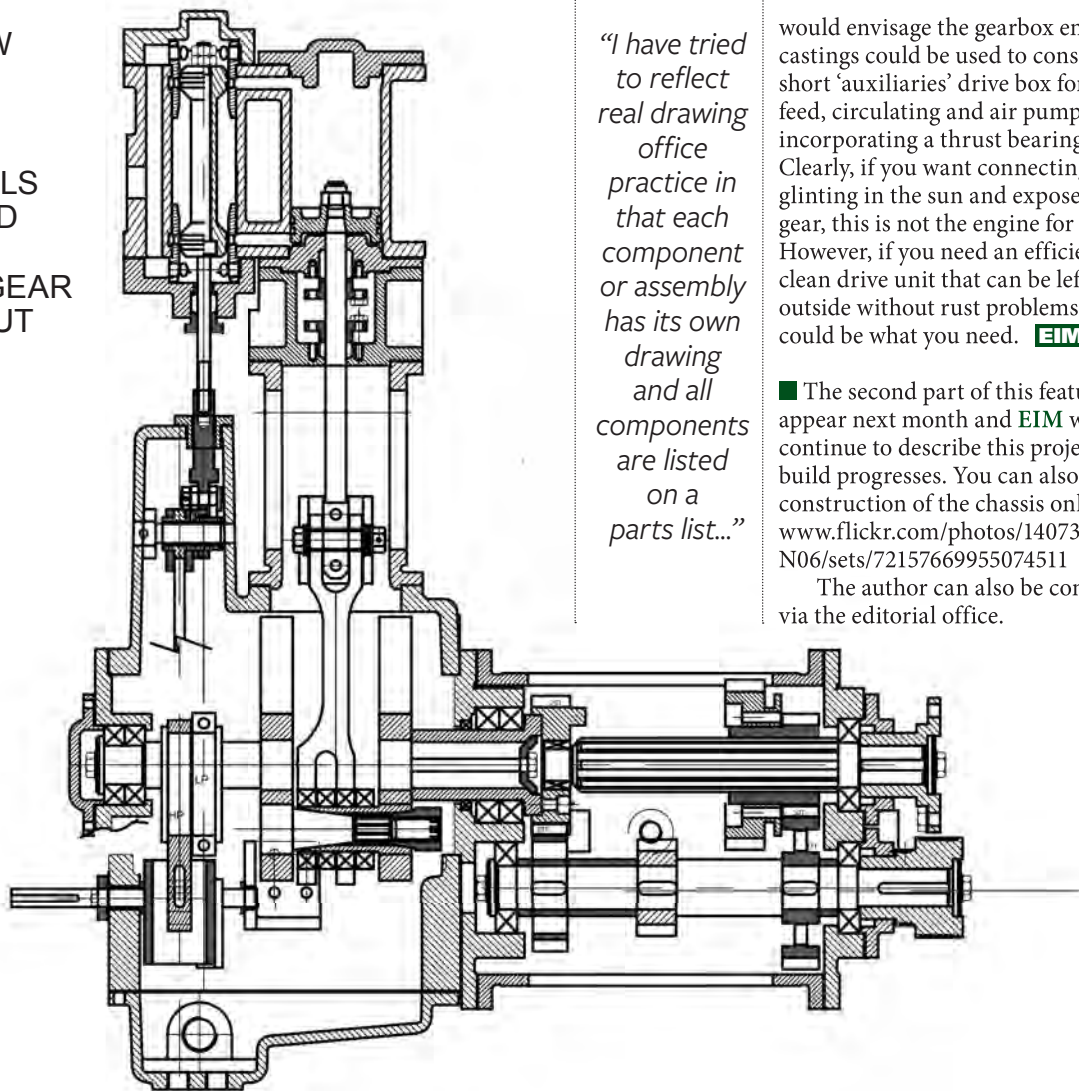


All dimensioned drawings reproduced approx one-eighth full-size.

SECTIONAL VIEW
THROUGH ONE
CYLINDER

GEARBOX DETAILS
SHOWN ROTATED

SUMP & VALVE GEAR
ALSO SHOWN OUT
OF PLANE



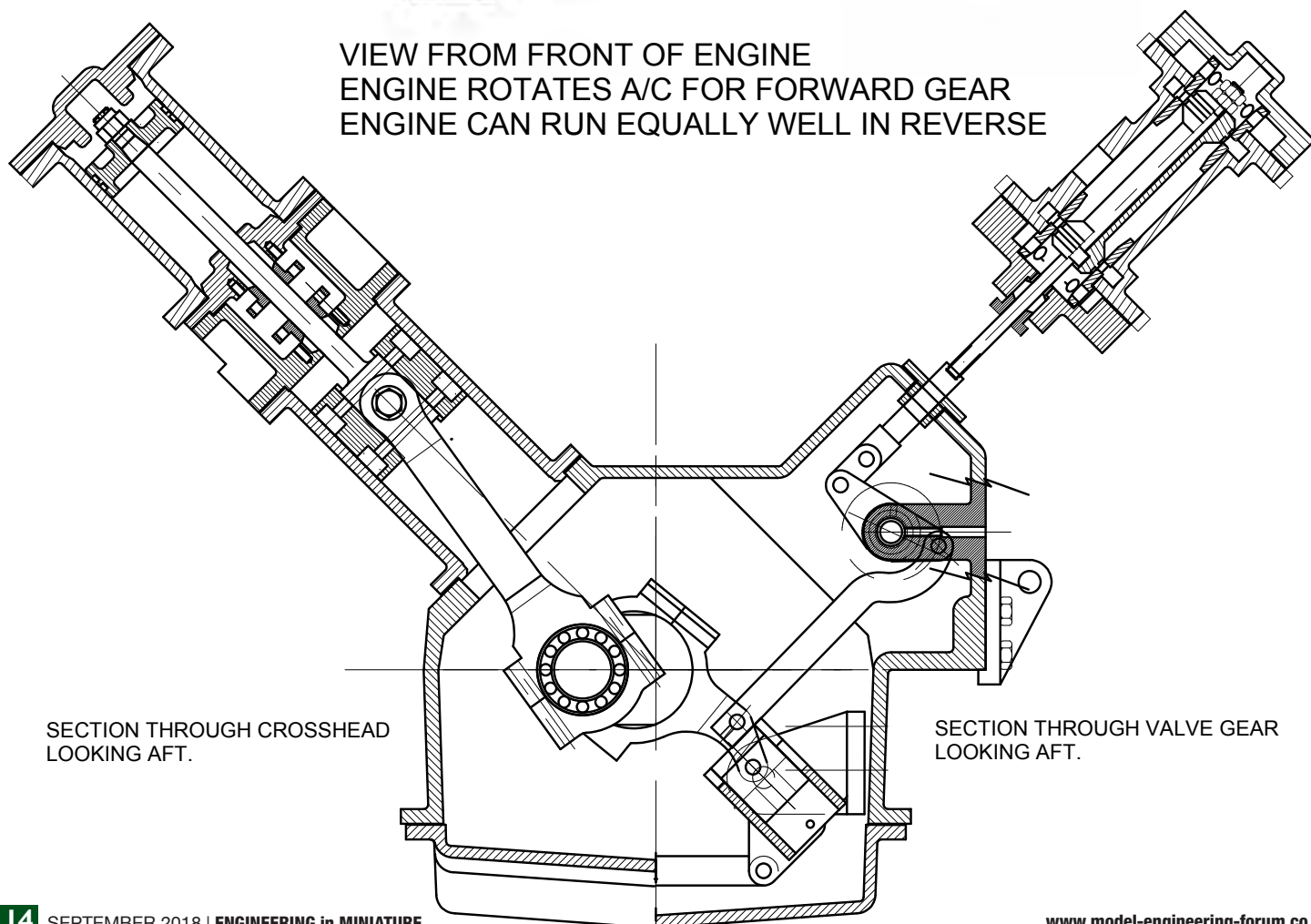
*"I have tried
to reflect
real drawing
office
practice in
that each
component
or assembly
has its own
drawing
and all
components
are listed
on a
parts list..."*

would envisage the gearbox end-plate castings could be used to construct a short 'auxiliaries' drive box for boiler feed, circulating and air pumps and incorporating a thrust bearing block. Clearly, if you want connecting rods glinting in the sun and exposed valve gear, this is not the engine for you. However, if you need an efficient, clean drive unit that can be left outside without rust problems, well it could be what you need. **EIM**

■ The second part of this feature will appear next month and **EIM** will continue to describe this project as the build progresses. You can also follow construction of the chassis online at: www.flickr.com/photos/140734312@N06/sets/72157669955074511

The author can also be contacted via the editorial office.

VIEW FROM FRONT OF ENGINE
ENGINE ROTATES A/C FOR FORWARD GEAR
ENGINE CAN RUN EQUALLY WELL IN REVERSE



SECTION THROUGH CROSSHEAD
LOOKING AFT.

SECTION THROUGH VALVE GEAR
LOOKING AFT.

Slides or Pistons?

Our beginners series considers the two major ways of admitting steam to the cylinders

This month we move away from the boiler and to the next major point in the path of the steam, the cylinders. We will be looking at the cylinders themselves in detail later in the series but this month we will focus on something that often confuses novices – the two major types of valves, the devices that control the admission of steam into the cylinder and the exhaust out once its work is done.

These valves are mounted either between or on the top of the cylinders within what are known as the steamchests, and are controlled by part of the motion – another subject for a later edition. The vast majority of valves are either of slide or piston format – slide valves came first, these being the usual format employed in locomotives built throughout the 19th century, before being gradually superseded by piston valves in later-built engines.

A slide valve is a flat, boxed-shape casting that moves over the ports cut into the wall of the cylinder, alternatively opening and closing those ports and letting steam in and out of the cylinder – steam is admitted from the outside of the valve, the process known (not surprisingly) as outside admission.

The D-valve

You will also hear the slide valve referred to as a D-valve, because if you cut it in half the inside profile of the casting loosely resembles the letter D. Its interior forms a chamber for steam to collect in as it is exhausted from the cylinder. From this chamber the exhaust steam passes to the blastpipe and out through the chimney.

The more modern piston valve works in similar fashion to the piston in the cylinder. It consists of two circular heads mounted on a single spindle in a cylindrical steam chest, and these move along the chest opening and closing ports to the cylinder, again letting the steam in and out.

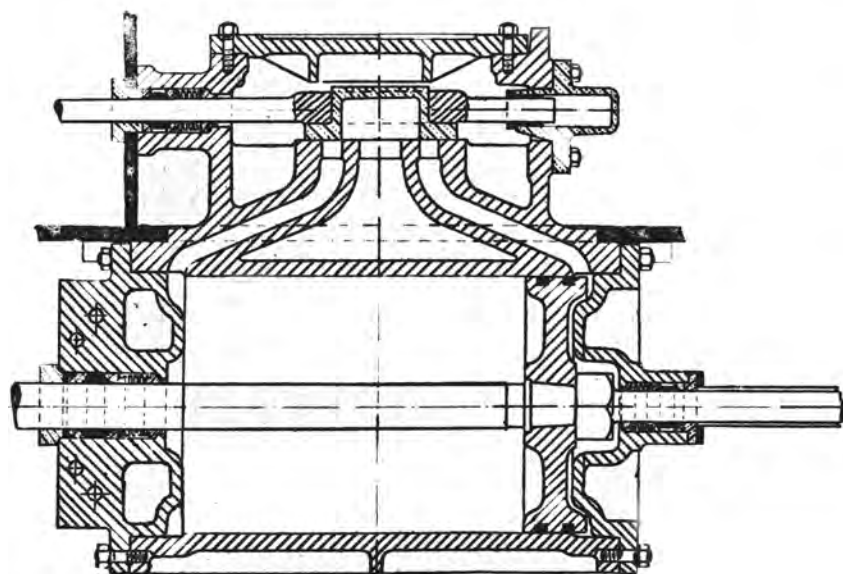
Piston valves are more complex but also regarded as more efficient than slide valves – the pressure acting on one piston balances that of the other, and so these valves can be more accurately set.

Outside admission piston valves are possible but generally they are of inside admission, injecting the steam between the pistons. This works well

RIGHT: There are clear differences between the cross-section of a slide-valve cylinder...

BOTTOM RIGHT: ...and a piston-valve variant.

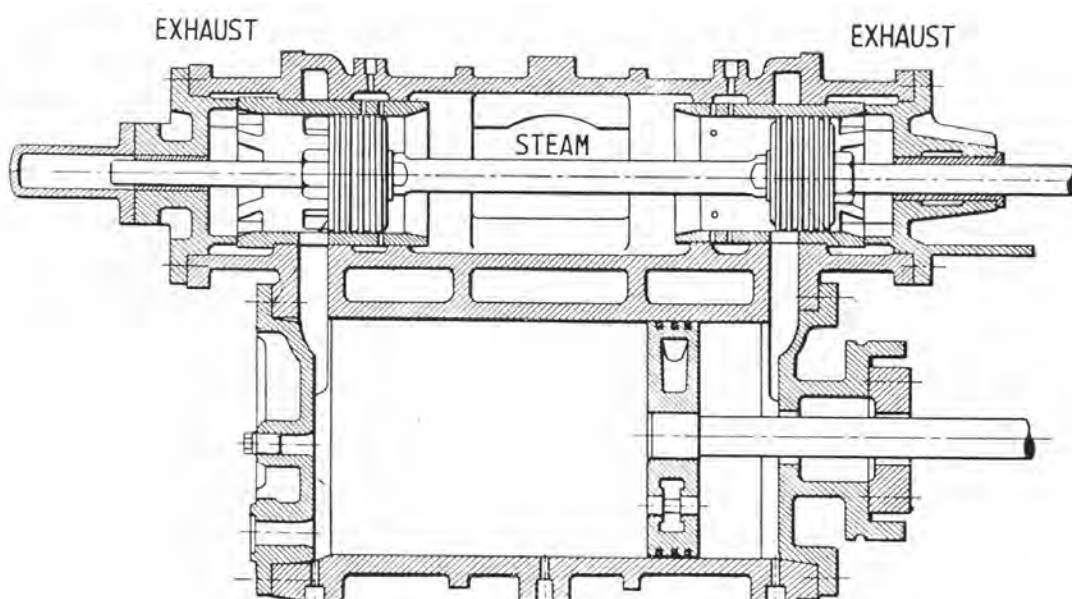
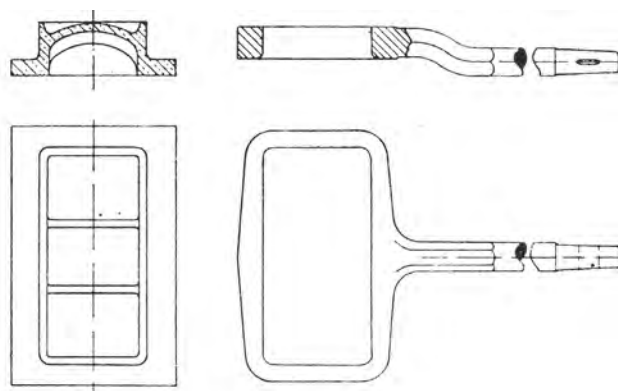
BELOW RIGHT: A view of the slide valve from above reveals why it is also called a D-valve.



with superheated steam, as the higher pressures in an outside admission design would place great strain on the point where the valve spindle exits the steam chest, known as a stuffing box. In an inside admission design the stuffing box is exposed only to low-pressure exhaust steam.

Generally piston valves are a more complex design than the slide valve and overall the latter design was used by more locomotives.

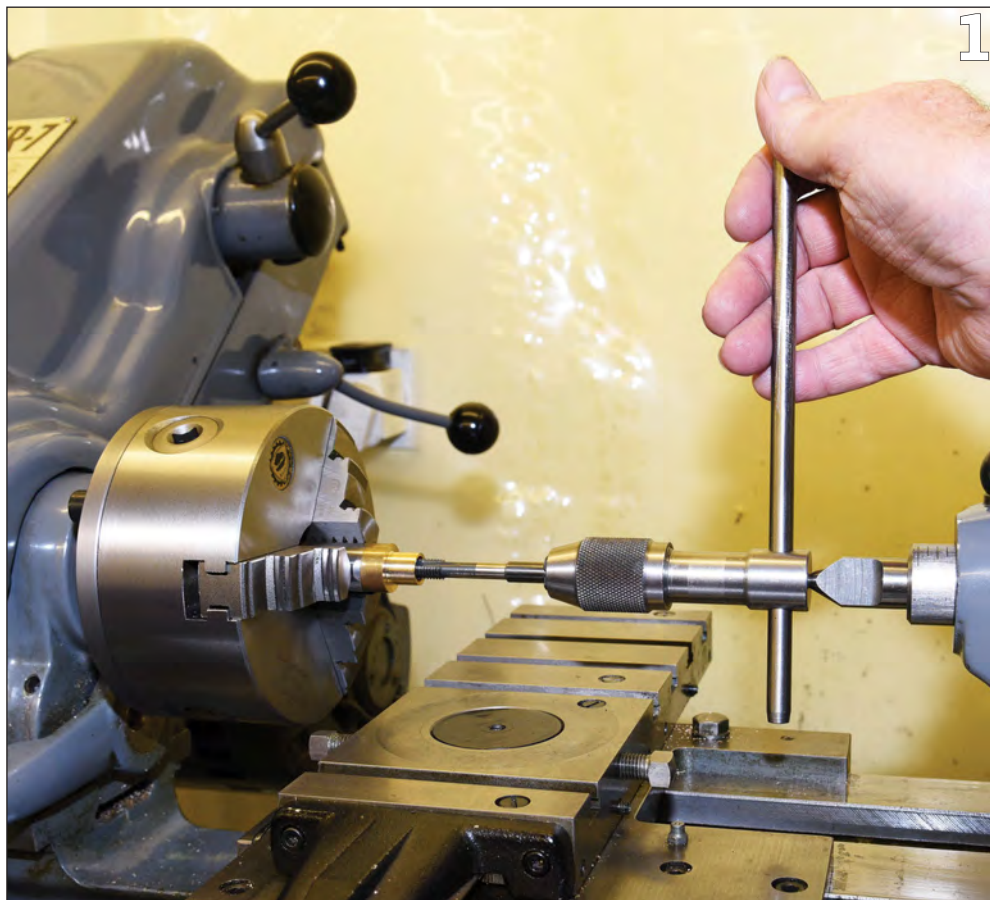
We said the vast majority of valves were slide or piston. There is a third, the poppet valve, fitted to later BR standard engines, and we'll look at these in a later issue. **EIM**



Tips for top tapping

John continues his series of best practice techniques by cutting a thread...

BY JOHN SMITH



1

The first necessity when tapping is to ensure that the tap is coaxial with the hole to be threaded. In the lathe, this is easy to achieve. For many years I used Moore & Wright T-handle, chuck-type tap wrenches. These can be supported on a tailstock centre and will give good results (Photo 1). I believe that these are still available from Eclipse and other manufacturers.

To use them, put the lathe in back gear so that the chuck does not rotate, twist the tap holder half a turn while turning the tailstock hand-wheel to keep the centre engaged.

I then bought an Arrand threading attachment (Photo 2) which features a 2MT shank, to fit the lathe tailstock, and a $\frac{5}{8}$ in diameter spigot. A carrier or body is provided, to which a number of different die holders can be bolted. A chuck holder and a small chuck to hold taps is also provided.

I purchased an additional body and chuck holder to which I attached a $\frac{1}{2}$ in/13mm drill chuck for cutting larger threads; this is the body on the right in Photo 2. I never use the attachment under power; I am happier cutting threads by hand. Put the lathe into back gear and pull the lathe belt by hand to turn the workpiece after each cut of the tap or die.

Squares and rectangles

These threading attachments are excellent, but most of the holes we need to tap are not on the centreline of the lathe, so we need a means of holding taps coaxial with holes when we are tapping holes in rectangular components, bar and plate. It can be done by eye, but that is not a wholly satisfactory method.

Photo 3 shows the simple attachment you need to transform your drilling machine and lathe threading attachment into a sensitive, hand-operated tapping machine. The attachment takes just a few minutes to make, but you will use it time and time again.

Photo 4 shows the attachment in operation. Use your precision 'tapping machine' for cutting the first 3 or 4 threads only, then transfer the work to the vice and use a traditional chuck-type tap wrench.

When tapping, we have to remove the tap occasionally to clear swarf from the flutes of the tap. Failure to do



2

this can cause damaged threads, taps which become stuck and even broken taps. When you tap, advance the tap half a turn, then reverse it for one turn to break the swarf and bring it back to the point where the tap begins to cut again. Repeat this sequence for three or four turns before removing the tap from the hole for cleaning.

Swarf must also be removed from a die during the cutting of a thread. A cutting fluid is helpful. I have found that Treflex works well for threads of 6mm or larger. For smaller threads I use Dormer Super Cut.

Plumbing the depths

Now to the topic of 'depth of thread'. Most engineers' reference tables will give one size of tapping drill, but not necessarily the same size. For example for M6 x 1.0mm ISO metric coarse, some tables specify 5.0mm as the tapping drill for mild steel and some specify 5.1mm. In fact, there is no one correct tapping drill. It depends on the material and the quality of work required.

For steel I usually use a depth of thread of 75 per cent; for cast iron 70 per cent; and for brass 80 per cent. With very small threads, and for hard materials such as silver steel, I reduce the depth of thread, to avoid tap breakage. It's a fact that depths of thread of 60 per cent provide more than sufficient strength.

Every thread defined has a major diameter and a minor diameter. For example, an M6 x 1.0mm ISO metric coarse thread has a major diameter of 6.00mm and a minor diameter of 4.884mm. The percentage depth of thread (D) is calculated as:

$$D = ((D_{\text{major}} - D_{\text{tapping}}) / (D_{\text{major}} - D_{\text{minor}})) \times 100 \text{ per cent}$$

It's a bit of a nuisance to have to calculate the drill size needed for a specific depth of thread. It will probably turn out to be a size like 5.05mm, which you will have to order in specifically.

To avoid all this nonsense, can I recommend a book? It's the *Guide to World Screw Threads*, edited by P A Sidders and published by Industrial Press Inc, ISBN: 0-89381-1092-9. Not only does this book carry full details of any thread we are likely to come across (including BA and ME threads), it also gives nut and bolt dimensions and tables of tapping sizes.

For example, for M6 x 1.0mm ISO metric coarse, it offers the following tapping drill sizes, each with the corresponding depth of thread: 4.8mm (98%); 4.9mm (90%); 5.0mm (82%); 5.1mm (73%); 5.2mm (65%). This saves an awful lot of time.

On the subject of how deep the tapped hole must be for acceptable strength, most experts advise that the

PHOTO 1:

Using a tailstock centre to carry out accurate tapping in the lathe.

PHOTO 2:

A threading attachment adds more versatility.

PHOTO 3:

This simple attachment enables the threading attachment to be used with a drilling machine.

PHOTO 4:

The threading attachment in use on the drilling machine.

All photos by John Smith



3

depth of the threaded hole for mild steel should be at least 1.0 times the major diameter; that for cast iron, brass or phosphor bronze should be at least 1.5 times the major diameter; and that for aluminium should be at least 2.0 times the major diameter. I generally make the threads as deep as possible, whilst realising that this does not increase the strength of the fixing by very much at all.

Should a tap break in a component in which you have invested a lot of

time, a friendly local engineering firm with a spark erosion machine will be able to cut the tap out without damaging the threaded hole. **EIM**

NEXT MONTH – MILLING

John's Tips for Model Engineers have appeared every month in **EIM** since March 2018. For digital or printed back numbers go to www.world-of-railways.co.uk/engineering-in-miniature/store/back-issues/ or call 01778 392484.



4

A Distinguished Gentleman

After much planning Mike commences the build of his 5-inch gauge London & North Western Railway Claughton 4-6-0 No. 650 'Lord Rathmore', beginning with the frames.

BY MIKE WHEELWRIGHT – Part Four of Five, Construction

EDITOR'S NOTE: Mike is keen to emphasise that this is not a traditional 'blow-by-blow' account of the loco's construction but a description of what was special about the prototype and how he addressed replicating it in miniature. Included are some drawings, addressing particular areas and prepared strictly for Mike's own use and therefore not necessarily adhering to all conventions!

The original locomotive's frames were designed in two parts overlapping between cylinders and driving axle – I believe this was due to the size constraints of the planing machine at Crewe, but the saws, files and elbow grease in my workshop imposed no limits.

I saw no need to narrow the frame spacing at the front so mine are each a single $\frac{1}{8}$ -inch plate and merit no further comment. Stretchers were silver soldered from plate and more or less followed the original arrangement. I assumed that the usual front-heaviness in our gauges would be a particular problem with four cylinders so I made sure to put a bit of ballast at the back in the form of a drag box fashioned from a lump of steel that I had acquired somewhere in the past (you know, just in case!).

The middle and trailing horn keeps were connected across the frames by hinged stays following LNWR practice. I cheated a bit with the 'bogie' as the full-size engine did not have one, officially it had a 'double radial truck'.

To all intents and purpose this was a normal Adams bogie but instead of rotating about a central vertical pin it slid sideways in curved guides. Webb

ABOVE RIGHT:

Mike's LNWR Claughton.
Photo: David Baldwin

BELOW: The chassis of the Claughton, with the 'double radial truck' to the fore.

All uncredited photos and drawings by Mike Wheelwright



had pontificated extensively in support of radial axles vs bogies (he held a patent for a radial truck), a position difficult to abandon without losing face, so when the inevitable happened and four wheels at the front of an engine were eventually required it was known at Crewe as a double radial truck.

Although the 'Etna' plans showed the correct truck I felt happier knowing that my pride and joy would be guided into curves by an Adams bogie complete with several pounds of side-control spring force. They really do work well if properly loaded.

Coupled axleboxes were based on what I had seen on various models, being split on the horizontal centreline. The lower part of each cast-iron box was machined away beneath the axle and replaced by a brass block held by steel pins pushed in through the sides. The bearing holes were bored half in each material then the brass keeps were removed and

small recesses were machined in the bottom to accommodate scraps of felt.

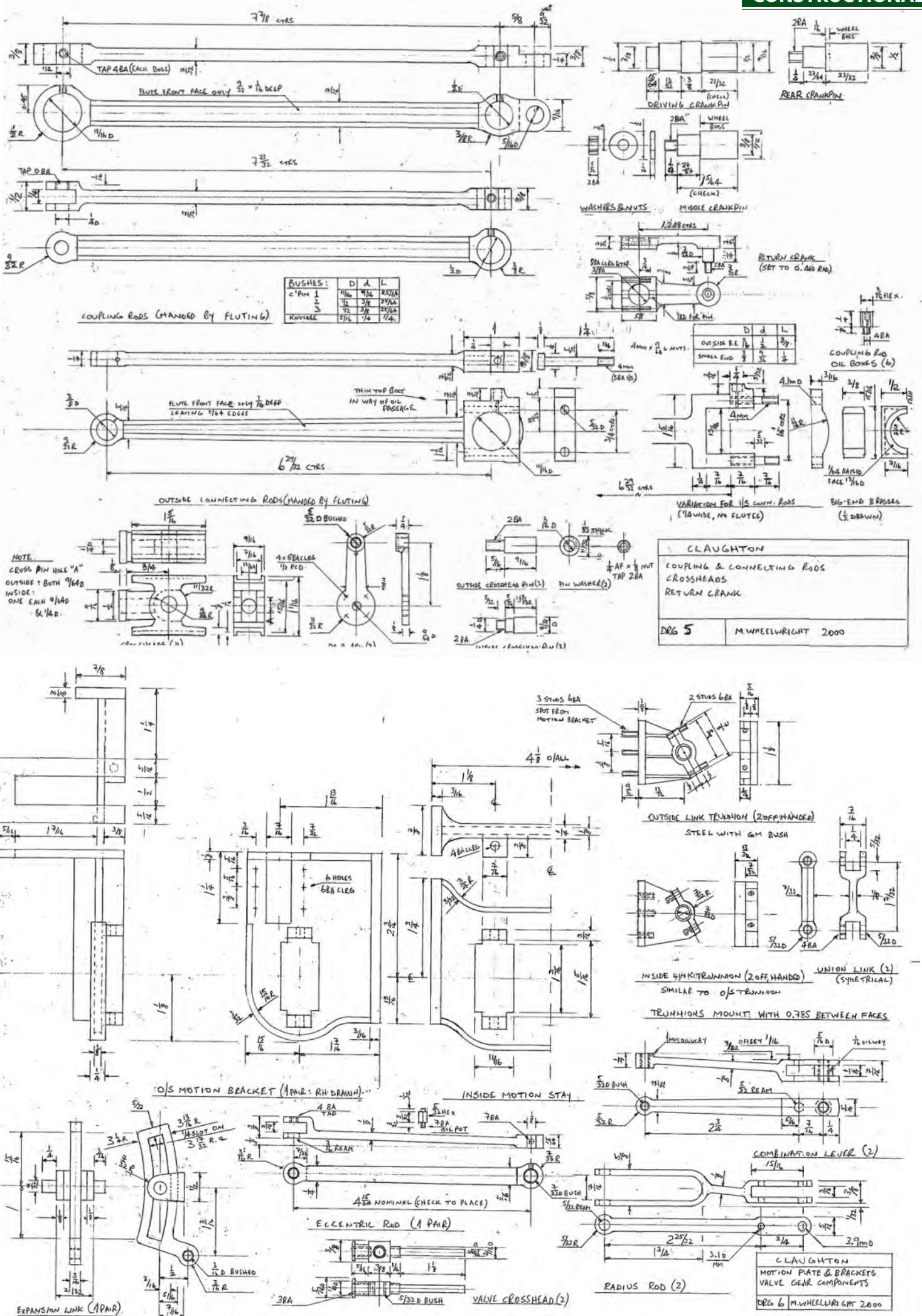
This is a simplified copy of the Swindon horse hair and spring arrangement in which oil is retained and swept up by the rotating axle. I have used this on other heavy haulers and on the odd occasion when axleboxes have been removed they showed no discernible wear.

Brass is of course a satisfactory material for keeps as the load is taken on the upper cast-iron surface of the box. The felt pads are charged with oil though the axle centres and small cross holes in line with the keeps, one squirt per run does the job. Oil boxes just inside the frames feed the sliding faces of the axleboxes, the rear ones are under the cab floor and have steel pipes passing between the frames and firebox, I remembered that the rear boxes of the big Claughtons suffered greatly due to pipes getting crushed.

Springing broadly followed the prototype with a pair of helical springs under each axlebox of the front axles and leaf springs at the back. The official general arrangement showed this arrangement but the drawing in *The Engineer* had compression springs for all axles and this also appears in a photo of a later engine in the works in LMS days.

I spent hours looking for photographic evidence when the engines were new and I found one picture taken low down with the sun shining through the wheels in which leaf springs at the back can be seen, good enough for me. I think riding would be a bit lively without any leaf springs to dampen out rolling at the







back. As the springs are almost invisible I used just a few leaves of spring steel to give me the deflection required without putting in dummies, Tufnol was out of the question with the ashpan for a neighbour.

Manufacture of the wheels was quite straightforward once in possession of the proper castings, more so since it was Don's custom to simplify castings by supplying them without balance weights (the balance for driving and coupled wheels is usually different).

I used car body filler to put in the

correct pattern of balance weight for each wheel without the chore of filing out the one supplied. I expect everybody knows that in $\frac{1}{12}$ th scale real balance weights are unnecessary: mass goes down by a factor of 12^3 and acceleration falls by 12 so the forces to be balanced are only $1/20,000$ of the full size.

Actually it was not easy to find out the shape of the weights, all posed photos were 'rods down' with balance weights hidden under the plating and action photos were usually too indistinct, only an amateur's picture

"I think riding would be a bit lively without any leaf springs to dampen out the rolling at the back..."

of an engine left at random would do. Luckily I found one, eventually.

The coupling rod throw of the prototypes was 12 inches with the connecting rod at 13 inches so driving cranks were eccentric, I compromised by having everything at $1\frac{1}{8}$ in radius and found the extra $\frac{1}{16}$ in no problem in the big wheel centre. Following my usual practice I fitted the return cranks as soon as the driving wheels had been finished and then Loctited the crankpins into the wheels using a simple jig to set the correct angular position of the return crank pin relative to the main crank. After removing the jig things were made permanent with a pin from the back halfway into the wheel.

Cylinders and Valves

Having put in overtime designing the cylinders their manufacture was uneventful, just one pair of typical outside cylinders and one inside cylinder block. The valve liners of cast iron were in two parts pushed in until they met, this simplifies inserting the valve heads with their rings.

My machining skills are definitely amateur and I make parts to fit each other (do I hear tut-tut?). Obviously a special effort was needed with bores as I was using standard-size rings but the actual distances of the steam edges of the ports from each outside face was accurately measured and recorded before assembly with each liner being numbered (1F, 1B ... 4B). Knowing the distance of the port edges from the datum surfaces was vital in centralising valves easily so the figures are not only kept with the drawings but a copy is filed with important household documents, just in case. Liners were a light push fit assembled with Loctite and fixed with $\frac{3}{32}$ in pins.

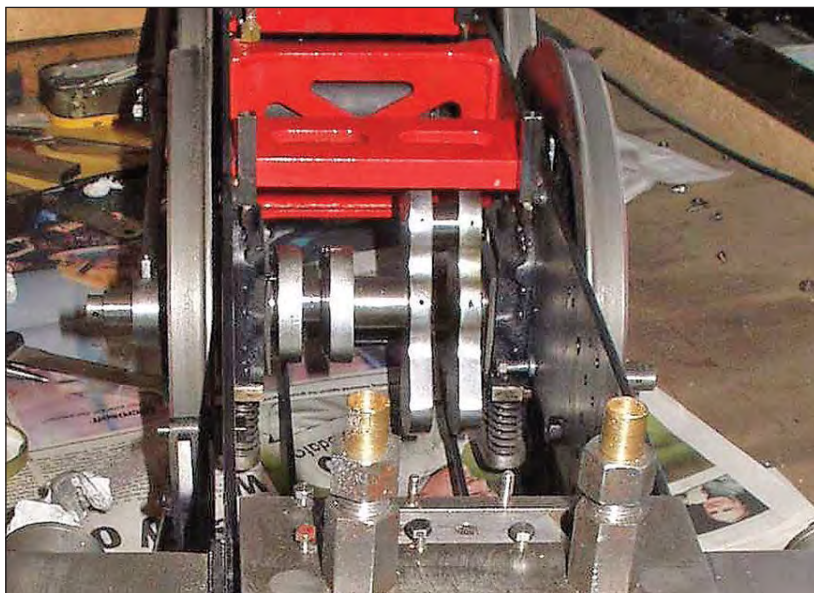
The manufacture of the valve gear was also straightforward as there is nothing unusual about it. When marking out the frames I had put in a small hole on the centre line of the expansion link bearings, this was used to locate the centres of the trunnions supporting the expansion link so the correct positioning of the link was assured. I left the finished length of the eccentric rod until the moment of assembly of the valve gear when it was quite easy to determine it correctly for each one.

The expansion link is clamped at mid-swing, in other words. the radius rod can be run forward-to-reverse with zero movement at the combination lever, and the motion is set to Front Dead Centre, the centre distance from return crank to link drive hole is measured and the whole is repeated for the wheels at BDC, made even easier by using a telescopic dummy eccentric rod with which I

ABOVE LEFT:

View from above the frames, with the stretchers in view.

LEFT: Close-up view of the driving crank.



have previously set up several engines.

If the return crank has been set to the correct angle vis-à-vis the main crankpin the distances at FDC and BDC will be the same, in practice by using the crank setting procedure mentioned a difference of less than $\frac{1}{32}$ in ought to be achieved, and the rod proper is made to the mean length. Once this has been done there is only one possible setting remaining – centralising the valves to the steam ports, I chose to go for equal leads.

Peering down sighting holes is not for me, it's easier to use a Vernier depth gauge between the front face of the valve liner and the front of the bobbin. Adding the width of the valve head to the 'depth' of the front face of the bobbin tells me where the steam edge of the head is, a comparison of this with the recorded position of the steam edge of the port shows how much steam opening (or steam lap) there is.

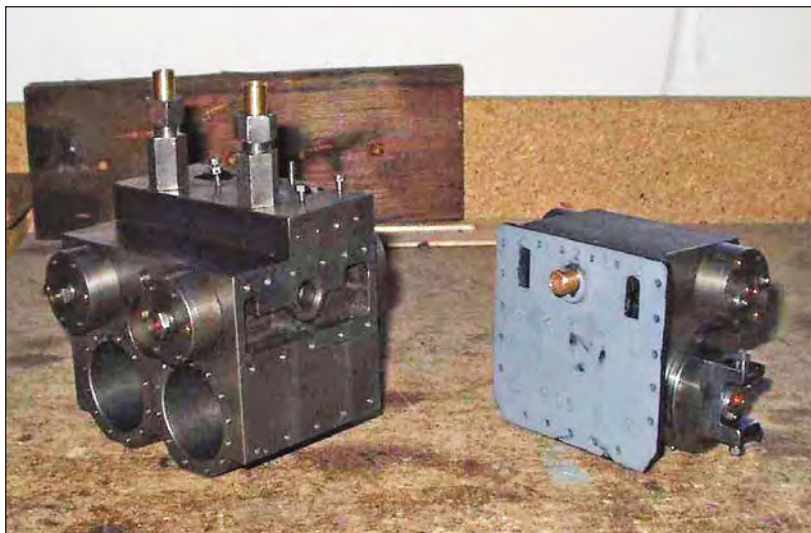
The position of the other steam face is calculated knowing the bobbin separation so openings at each end can be compared and the setting of the valve on the spindle arranged to give equal leads. I held my breath while checking if the leads and full gear openings were as expected, it is an interesting moment. I have yet to be disappointed with the result.

Testing on Air

With motion assembled and valve gear adjusted comes the moment of truth: do the wheels go round? I usually pack the axleboxes to working height, put a bit of compressed air into the steam pipe and see what happens, actually it is somewhat more complicated with a multi-cylinder locomotive but not especially so with the Claughton.

The inside valves are driven from the outside valve gear and it seemed pointless to deal with them until the

"My method of setting everything to calculated angles and lengths does require getting everything 'right first time'..."



outside motion had been checked so I dismantled the inside motion and clamped the valves in mid-position, i.e. ports lapped, and I also restrained the piston rods from moving. Then I tested the engine on air just like a two-cylinder version, everything was satisfactory and it ran for a couple of hours lifted above the rails: it rocked away steadily like they all do.

Of course with virtually nothing capable of being 'reset' I would have been in trouble if things had not been correct, my method of setting everything to calculated angles and lengths does require getting everything 'right first time'.

Satisfied with the outside setting I reassembled the inside motion and centred the valves. The engine then resumed its running in on air but with the noticeable difference that it no longer rocked back and forth: of course the adjacent motions at 180 degrees to each other were in balance, it was a good demonstration of why the Great Western Railway's chief mechanical engineer Churchward turned away from his policy of two cylinders at least for his Saint express engines, and

ABOVE RIGHT:

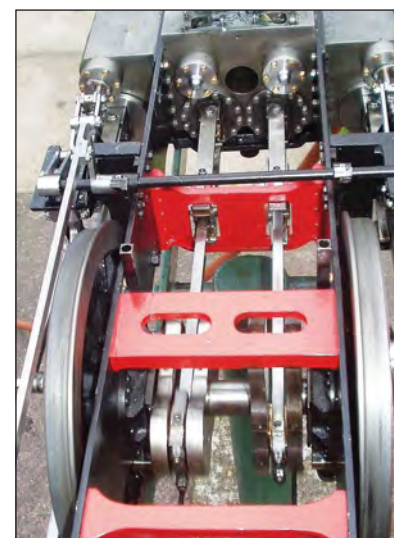
The cylinders took a lot of designing but very little manufacturing.

RIGHT:

Another view between the frames with the motion complete.

BELOW:

It all works! The chassis being tested on compressed air.



accepted the complication of four cylinders on the Stars. **EIM**

■ The first three parts of this series appeared in the June, July and August 2018 issues of **EIM**. Digital copies can be downloaded or printed versions ordered from; www.world-of-railways.co.uk/engineering-in-miniature/store/back-issues/ or from 01778 392484.



Refurbishing clock pivots

Mark reveals a vital maintenance and repair task to keep a clock running smoothly.

BY MARK BROCKLEY

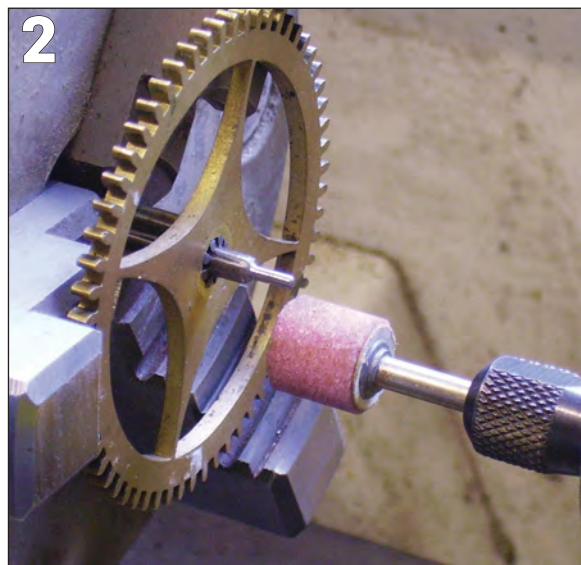
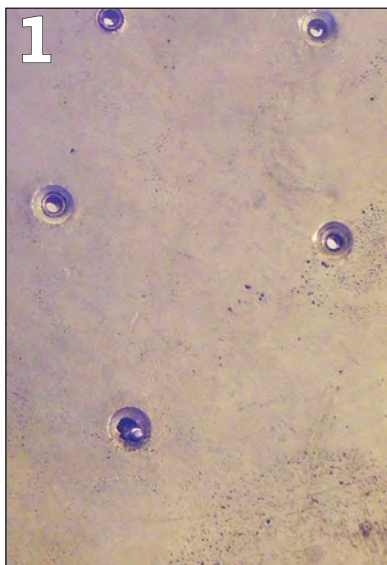


PHOTO 1: An example of pivot wear – a pile of brass at the base of the clock is a major clue.

PHOTO 2: The pivot is ground using a Dremel and a lathe.

PHOTO 3: This picture shows the setup for mounting the Dremel in the lathe toolpost.

One of the most critical parts in a clock that aid its smooth running are its pivots. They need to be parallel and polished to a mirror finish. After time the combination of pivot oil, dust and fine particles of brass and steel (from the pivots and clock plates) all act as a grinding paste and wear the pivots as well as the clock plates.

The quality of the original pivot will determine the amount of refinishing that will be required. Old English clocks have generally good quality steel used in them and of a suitable initial diameter to cope with several good refinishings. I have found that the more modern foreign-made clocks don't take to much refinishing and can then wear out very quickly indeed. Some have been known to only last six months! When this happens a new pivot will be required.

I recently received a call from a client who wanted me to take a look at his long case clock as it kept stopping. I was also informed that there was a neat pile of brass at the base of the rear plate. **Photo 1** shows the reason for this pile of brass, the centre wheel pivot had worn the clock plate by an extreme amount.

Worn and rough

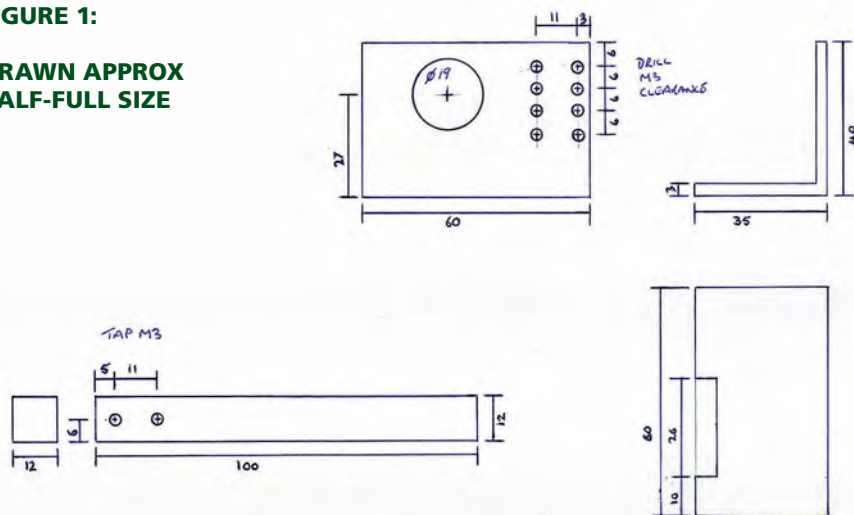
After dismantling the clock the pivot was inspected and found to be worn and extremely rough in places. After setting the wheel up in the lathe chuck so it ran true I then mounted my Dremel multi-tool in the lathe tool post to cylindrically grind the old pivot. **Photo 2** shows the pinion after grinding and **Photo 3** the setup for holding the Dremel in the tool post. This consists of a piece of angle iron and a piece of 12mm square bar. **Figure 1** gives the dimensions and general arrangements for my tool post holding attachment.

After grinding the pivot needs to be finished to a bright mirror finish. **Photo 4** shows my selection of tools used to polish pivots. Item 1 is a selection of home made burnishers, these are thought to be the best way to polish a pivot. They are made from worn-out needle files with the teeth ground off then polished on fine emery cloth.

It is claimed that burnishers harden the pivot as well as polish them. I frankly don't have much luck

FIGURE 1:

**DRAWN APPROX
HALF-FULL SIZE**



MULTI TOOL TOOL POST ATTACHMENT

with burnishers, I don't feel they give a good finish and can't see how just polishing with the burnisher can harden steel. There are burnishers available commercially however they are of a high price and usually in several grades.

Item 2 is a good quality pillar needle file and used with a little oil can be a good start on a rough pivot (Photo 5). Item 3 is a carborundum stone and used to give the initial polish to my pivots. I prefer to dip it in water before use but it can be used dry. Item 4 is a Water of Ayr stone and must be used with plenty of water. This stone tends to give a fine but dull finish to your pivot.

Item 5 is a rubber block impregnated with carborundum powder and polishes the pivot to a nice bright finish. Items 6 are a piece of oak with leather glued to one edge, and pots of Diamantine polishing powder that is mixed with methylated spirit in small quantities to form a paste. Dip the stick in water and spread a little paste on to the leather and polish.

Item 7 is another oak and leather stick but used with jeweller's rouge powder in exactly the same way as the Diamantine powder (Photo 6).

I forgot to add my final step of pivot polishing tools to the selection photograph – this is a small felt polishing wheel from my box of Dremel accessories (Photo 7). Wet it with a little methylated spirits and buff up the pivot with it.

Clean to keep smooth

I should mention that between each step the pivot should be cleaned of any residue left behind to prevent a coarser polishing agent from contaminating the progressively finer agents and causing scratches in the final finish.

Photo 8 shows the completed pivot after the polishing process. All that is needed now is to reverse the complete wheel assembly in the lathe and support with a lathe runner to polish the front pivot (Photo 9). All that was required to clean this pivot

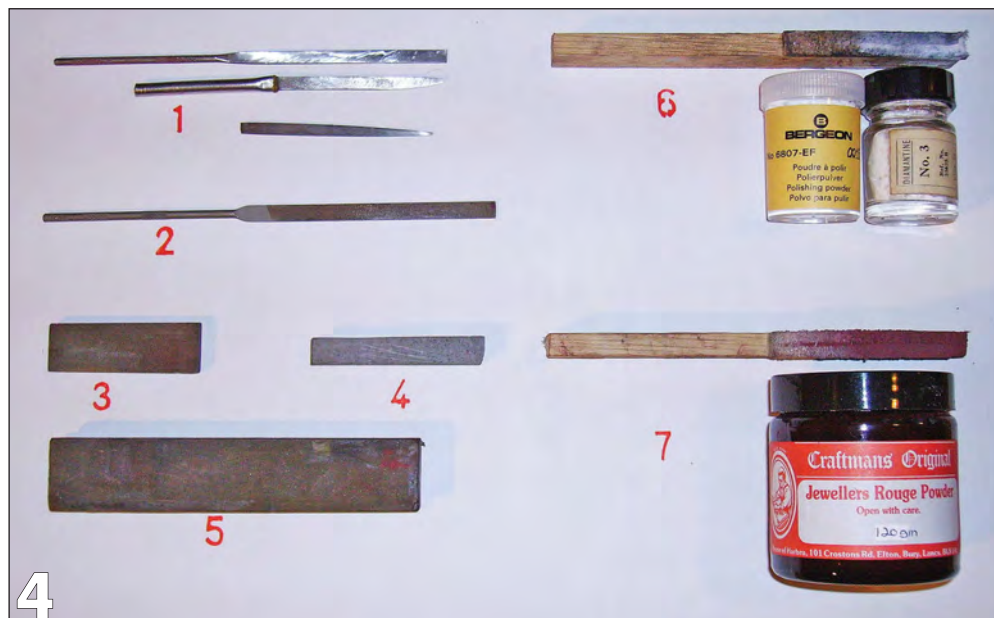


PHOTO 4:

Mark's tool selection for polishing pivots, details in text.

PHOTO 5: A good start is to use a needle file.

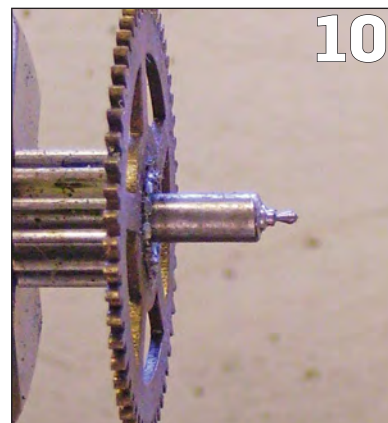
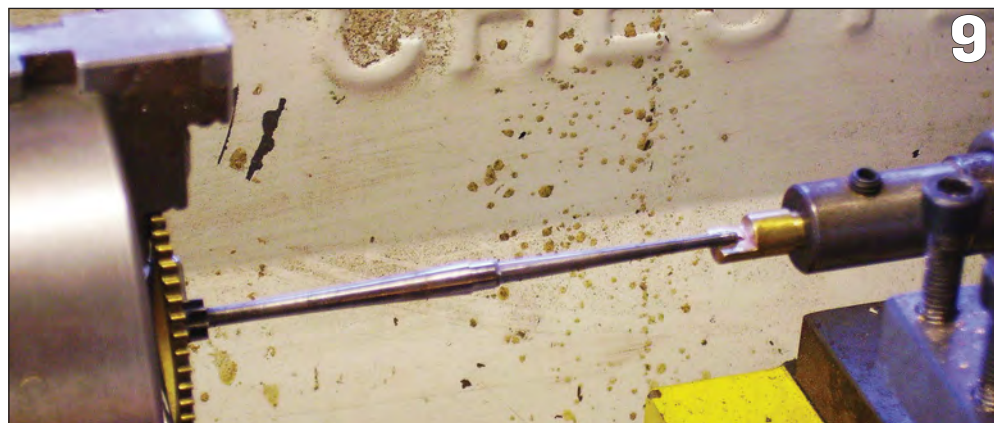
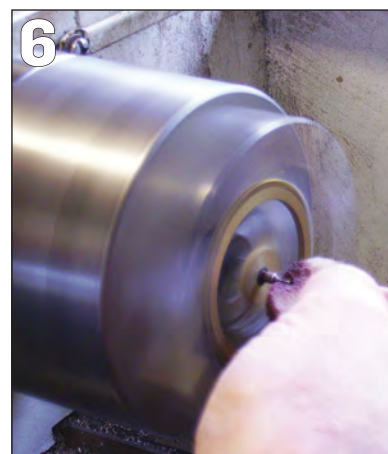
PHOTO 6: Oak and leather stone used with jeweller's rouge.

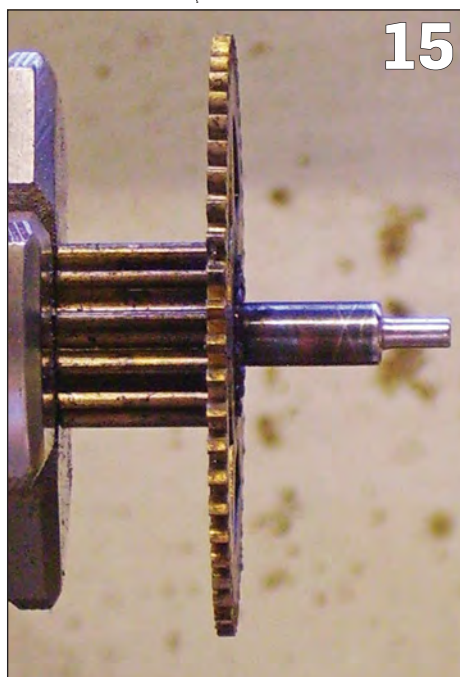
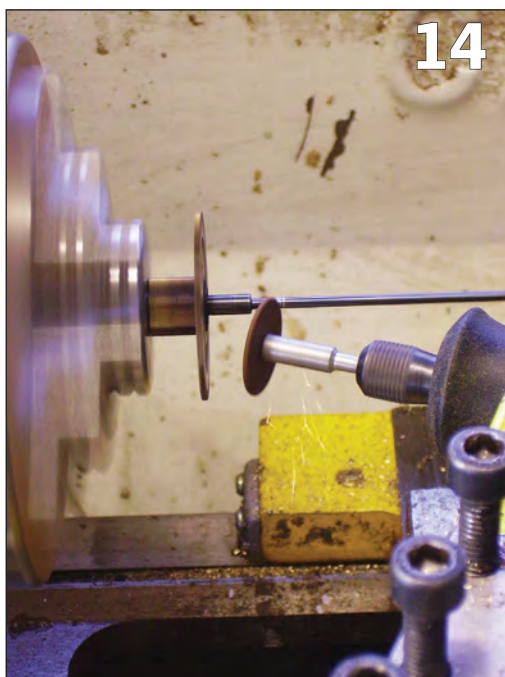
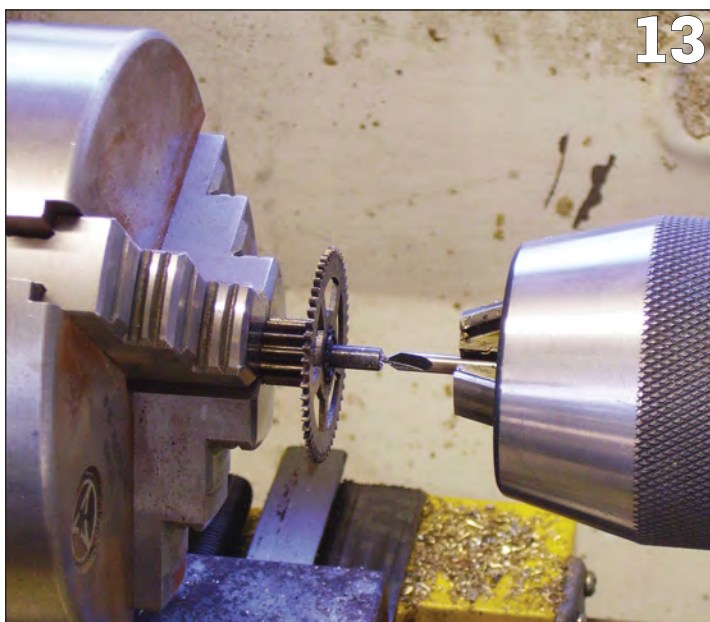
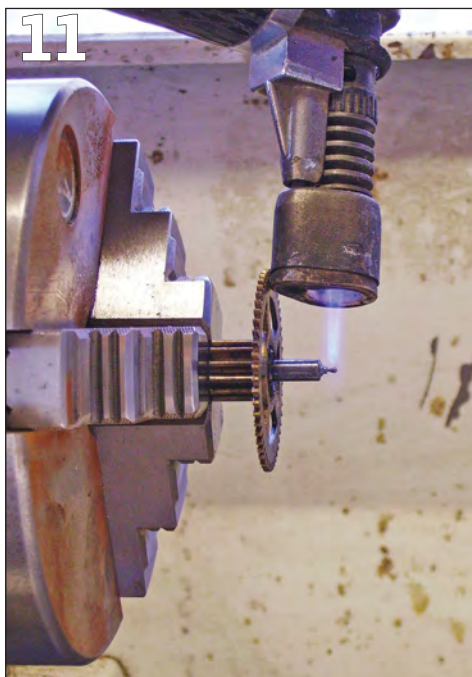
PHOTO 7: A small Dremel felt polishing wheel provides the final touch.

PHOTO 8: The completed pivot after polishing.

PHOTO 9: To polish the front pivot support is needed.

PHOTO 10: If the pivot is as badly worn as this, a new one is required.





up was to start by using the carborundum stone then move on to each of the previously mentioned steps. When this has been done the clock plates can then be re bushed to suit the new pivot sizes.

Making a new pivot

If a pivot is extremely worn as shown in **Photo 10**, there is no substantial metal to dress up and polish so a new pivot will have to be made and fitted to the arbour.

The first step is to anneal the old pivot. I prefer to set the arbour running true in the lathe first as the old pivot helps as a guide to the arbour being central. A small blow torch with a precision flame is ideal to quickly heat the pivot (**Photo 11**). It's important not to transfer heat into the lathe and the use of these lighter re-fill blow lamps are great for this kind of work.

The next step is remove the old pivot after checking its original length and to make sure the shoulder is square (**Photo 12**). Select a small centre drill – 1mm is about the smallest that is available so if the new pivot is 1mm or under it is best to just use the tip of the drill and only put a shallow depression on the cleaned-up arbour as shown in **Photo 13**. Next drill into the arbour with a drill that makes a tight push fit of the pivot steel being used and to a depth of at least twice the finished length on the pivot.

Know the drill

Blued pivot steel is available from a variety of suppliers and is a good investment. However if clocks are not a regular project in your workshop and replacing worn pivots likely to be a problem encountered once in a blue moon, another good source of pivot steel is the end of the drill shank used to drill the arbour.

I know it could be frowned upon to use a drill in this way but 10 to 15mm off the shank won't destroy the drill – it can still be used and the cost of small drills from shows and the internet is fairly reasonable for an occasional repair.

Photo 14 shows pivot steel being cut down to length with the Dremel after it has been fixed into the arbour. Traditionally the new pivot was soldered into the arbour but with the development of Loctite and Super Glues I find these quicker and easier to secure the new pivot.

The new steel should be ground and polished to a bright mirror finish as described earlier in the article.

Photo 15 shows the finished job ready to go back to the clock plates for re bushing, making the clock run like new again. **EIM**

PHOTO 11: Small blow torch is effective for rapid heating of the pivot.

PHOTO 12: Ensure that pivot shoulder is square.

PHOTO 13: Small centre drill used to make a depression in the arbour.

PHOTO 14: Cutting the pivot steel to length using a Dremel.

PHOTO 15: The finished new pivot – it should be polished to a mirror finish before refitting.

All illustrations in this feature by Mark Brockley.

BY JAN-ERIC NYSTRÖM





Notes for builders

■ In order to build carts like these, it is not necessary to have access to a welder; the fastening of the ties between the rails can be accomplished with pieces of angle iron assembled with bolts and locknuts, instead.

The mounting plates for the wheels can also be bolted to the legs, or wider flat iron could be used.

These carts are of course only one solution to my own particular live steam storage problem. This article is intended only as an example, and as inspiration for your own design. Requirements do vary, so for this reason, no exact measurements have been indicated. Adequate strength should always be of prime importance.

Many improvements could also be made to the design – for instance, using wheels with built-in brakes, or adding permanently attached, hinged ‘flip-away’ wheel chocks for securing the rolling stock.

in order for them not to buckle, they must be of sufficient cross section. I’ve used flat, hot rolled iron, 25mm wide and 5mm thick. The cross bracing will only take a tensional load, and can thus be of lighter material – 15mm wide and 3mm thick was quite enough for my needs.

Building the carts

First, the track top – as mentioned, I used angle iron, but I also needed ‘ties’ between them. The same flat iron used for the legs is strong enough, and two pieces were formed so that when welded between the pieces of angle, the distance between the angles corresponded to the track gauge (7¼-inch in my case).

It is necessary to shape these ties so that the wheel flanges won’t be obstructed; the blue arrows in the sketch show the two cut-outs needed.

Also note that the ties have chamfered corners; the inside of hot-rolled angle iron is never square, it has a small radius. By cutting away the top corners of the ties, they will fit all the way into the angle. Small ‘forks’ made of two short pieces of flat iron, and a bolt and nut function as hinges for the cross braces (green arrows in the sketch).

The construction of one of the ties and its hinge is seen in **Photo 3**. Since there is no sideways force when the rolling stock is simply pushed onto the track, two ties are enough.

Originally, I had planned to have one central tie, possibly with a downward-pointing brace attached to the cross braces, but this proved to be unnecessary – the angle iron tracks are sturdy enough, they can even take the weight of two adults sitting on the cart, without any significant flex.

The legs are made from three

pieces of flat iron each. The two vertical parts are bent near the top and welded to the ‘foot’, forming a trapezoidal shape. This strengthens them; straight legs would be more prone to bending or buckling sideways.

In addition, the legs tilt outward by ten degrees; this, in combination with the cross bracing, avoids having them wiggling lengthwise. All in all, using angled elements throughout makes the design more rigid.

Protracting...

It is of course important that the chosen angles are adhered to properly; all angles should be identical, otherwise the cart will be very skewed and ugly...

I happened to have a protractor available, and using this, it was easy to cut and weld everything correctly.

Photo 4 shows how I checked that the flat iron for the legs was properly cut. The scale shows 80 degrees, even though the actual angle being measured is 100 degrees. This is because most protractors have scales going from zero to 90, and then back down to zero again.

Fastening the legs to the rails, using bolts and locknuts, I could again check that the angle was correct, **Photo 5**. This ensures that the rails and the feet will be parallel.

The feet are made of the same flat iron as the legs, with a couple of extra pieces welded to the ends, to form a wide enough area for the attachment

PHOTO 3:

One of the ties – note cut-outs for wheel flanges.

PHOTO 4:

Protractor used to check cuts made at the correct angle.

PHOTO 5:

Protractor also sets and checks angle when welding legs.

PHOTO 6:

Cross brace welded to small tab attached with a single bolt to one leg of the cart.

PHOTO 7:

Wheel attached with bolts and washers to welded leg extension plate.

PHOTO 8:

Collapsed cart is less than 100mm high, lightweight and easy to transport.



of the wheels. Or, you could use larger pieces of steel plate, if you wish.

The cross braces were marked and cut while the legs were in their correct, final position, and then welded to small tabs bolted to the middle of each leg in their final position, **Photo 6**. These tabs are marked with red arrows in the sketch.

I was fortunate to find swiveling industrial cart wheels, 75mm in diameter, costing no more than £2.50 apiece – a real bargain! These were attached to the feet of the carts with four bolts each, **Photo 7**. Due to the surprisingly large holes in the wheels' mounting plates, washers were needed.

With all four wheels attached, the cart was finished! By unscrewing just the two cross brace bolts from the feet, it collapses to less than 100mm high, **Photo 8**, so several carts can be stored in a relatively small space, and, if necessary, transported together with the rolling stock.

Opening up the 'package' and attaching the cross braces to the feet works best if the cart is upside-down, as in **Photo 9**. Since it weighs only a few pounds, it is easy to turn the cart around, **Photo 10**, after which it is ready to accept its load, as in **Photo 1**.

Securing the load

One more important thing: the load must somehow be prevented from rolling off the cart when it is moved around, especially if the rolling stock has no brakes.

This is easily accomplished, either by using some form of clamps, clipped to the rails, or by simple wheel chocks. An example of the ones I made is shown in **Photo 11** – at least two of these are needed, on each side of a wheel, as in **Photo 12**. The chocks have triangular pieces welded on top, and short lugs, i.e. pieces of flat iron welded to the bottom of a strip that spans the width of the track.

The chocks are positioned with their lugs between the rails. If you intend to attend a rally with the cart, you'd better also have some way of securing the chocks to the rails – but for normal moving around in a garage or workshop, the loosely placed chocks have been good enough.

With these rollaway carts, I have solved my storage problem! But you may ask why I built them at all – can't I just store my rolling stock on the garage floor?

Of course I could, but these carts have a definite purpose: they enable me to move my live steam equipment around, and into the boot of my car, or onto a trailer without having to lift anything! The whole idea is to store the rolling stock at the same height as the floor of a trailer or the boot of a minivan, as seen in **Photo 13**. **EIM**

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PHOTO 9:
Opening up the 'package'.



PHOTO 10:
Turned the right way up, and ready for use.



PHOTO 11:
A simple wheel chock, welded from pieces of flat iron.

PHOTO 12:
Two chocks slipped in between the rails and under a wheel prevent rolling off.

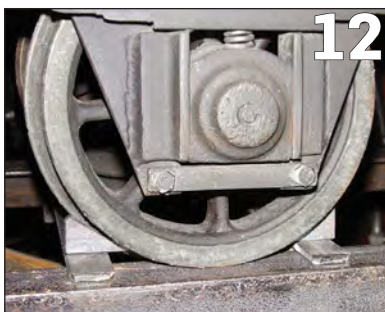


PHOTO 13:
Loading rolling stock into a car or onto a trailer is easy and requires no lifting. A simple collapsible ramp spans the distance between the cart and trailer.



13



A new museum for the Ravenglass line

Mark describes several developments on this most evocative of 15-inch gauge operations.

BY MARK SMITHERS



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The last five years have seen important developments on the 15-inch gauge Ravenglass and Eskdale Railway – some as a result of the fire of 28th March 2013, which destroyed the line's workshop and damaged much of the equipment within, including components of the then under-overhaul locomotive 'River Esk'. Other additions and improvements have been undertaken to assist the railway in maintaining and consolidating its position as an important regional heritage attraction.

Probably the most noticeable of all

of the recent developments has been the building of a new museum. The original museum at Ravenglass station was established in 1978 adjacent to the 'up' platform. By 2014, it was felt that this building was showing its age and that a replacement was required.

A Museum Management Committee, comprising representatives of the railway Company, the R&ER Preservation Society and the Eskdale Cumbria Trust was established to oversee the project and source suitable funding. In this latter connection a successful application was made to the

PHOTO 1:

The improved museum is now a fine venue for exhibitions, such as this one of Bassett-Lowke locos.

Photo: Gigantic locomotive Co

PHOTO 2:

The museum features displays covering the R&ER's history right back to the line's opening as a 3ft. gauge system in 1875. Fragments of the equipment associated with this period of granite mining, comprising rails, incline pulleys (ex-Nab Gill) and a 2ft gauge wagon, have survived and are illustrated here.

All photos by Mark Smithers unless stated.

Heritage Lottery Fund for assistance.

The display and interpretation sphere of the project was seen as an ideal function for the R&ERPS. There was a desire to incorporate interactive exhibits and avoid any hint of the 'dumbing down' that it was felt had crept into other similar projects.

By late 2015, an advertisement had been placed for the appointment of a project and activities manager to oversee construction of a new train shed in which to display the exhibits, along with the necessary detailed design and interpretation work inside the building once construction work was complete. Additionally, the manager's responsibilities would include organising a volunteer and activities programme to run the museum after its opening.

Throughout 2016, much time was spent on getting the exhibits ready for their new home. This included the restoration of a Theakston four-wheel granite wagon to a suitable display condition and sectioning, sand-blasting and priming of River Esk's original boiler in readiness for its use in the production of a new interactive display demonstrating the modus operandi of the steam loco boiler.

By September 2016, site clearance was in progress and on 31st October 2016, construction work began in



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earnest. The building's steel frame was completed on 25th November, whilst the roof had been erected by 16th December. Construction continued steadily during the early months of 2017 and by the end of April all of the internal track had been installed and its surrounding concrete laid.

On 12th-13th June Headland Design Ltd installed the new displays and on 14th June the project saw an important milestone with the arrival, from Station Road Steam Ltd of Metherington, Lincs, of reconstructed Heywood 0-4-0T 'Katie'. Some ten days later, the new museum was opened to the public by Paul Atterbury, railway author and star of the BBC's *Antiques Roadshow*.

Wide ranging

The new museum includes a wide range of exhibits covering the line's history, from its period of operation as a 3ft gauge system from 1875 to 1913, through the pre-preservation 15-inch gauge era from 1915 to 1960 and culminating in the preservation era.

A few relics survive from the 3ft gauge period: the largest is the body of the locally-built 'Big Saloon' carriage, reconstructed with the aid of an Arts Council PRISM grant (obtained in 2017), from 'kit form', having latterly functioned as a garden shed. There is also a reconstructed four-wheel tipper wagon of 3ft gauge incorporating a superstructure recovered from Fisherground granite quarry.

The Bassett-Lowke 'scale model' locomotives used in the early 15-inch gauge days on the R.&ER are no more, but fortunately two sisters of the first such specimen, Atlantic 'Sans Pareil', survive. The earlier of the two, 'Synolda', (works number 30 of 1912) has been part of the museum's collection since restoration by British Nuclear Fuels apprentices following recovery in a derelict state from Belle Vue Zoo, Manchester in 1978.

This locomotive was originally

PHOTO 3:

Two carriages were provided for 3ft gauge passenger traffic. Much of the body of the locally-built 'Big Saloon' survived as a garden shed and was rescued by the museum.

PHOTO 4:

The body of this reconstructed 3ft gauge tipping wagon was recovered from Fisherground granite quarry.

PHOTO 5:

Also extensively restored is this four-wheel Bassett-Lowke carriage, one of a dozen used by Narrow Gauge Railways, original operator of the 15-inch gauge R&ER.

PHOTO 6:

'Stretched' 20-seat 1969 version of Dawson bogie carriage, built by Myers and Bowman.

PHOTO 7:

This Heywood four-wheel wagon with detachable 'top', was built at Duffield Bank Works in 1895.



built for Sir Robert Walker's first estate line at Sand Hutton near York. It is in working order and sometimes works specials on the R&ER system. During the 2017 season, some of these were undertaken in tandem with visiting sister 'Count Louis' (32 of 1924).

Until the arrival of Katie, no complete Heywood locomotive survived on the R&ER (though much

of the chassis of 'Muriel' survives, having been incorporated into 'River Irt' in 1927), but some Heywood components have become part of the museum's collection.

These include the side tanks of 'Ella' and Muriel (currently stored at Murthwaite); Ella's well-worn mainframes (this locomotive's axles and five of its flycranks are currently



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part of diesel locomotive 'Shelagh of Eskdale'), and rolling stock-related items including an 1895-vintage ex-Eaton Railway four-wheel wagon; a wooden-framed carriage bogie; a replacement carriage door and a carriage end rail.

A few other Heywood items are in the collection, such as casting patterns for track components, locomotive flycranks and a firebox backhead.

The 1920s are well represented in

the museum and the interactive display constructed around River Esk's boiler has already been mentioned. The decade saw some interesting experiments on the R&ER in the field of internal combustion motive power and two units in the collection are interesting survivals from this period. 'ICL No.1' was constructed in 1926 using Model-T Ford transmission components recovered from a re-gauged 'Crew

PHOTO 8:

While well-worn, the historic value of the frames from Sir Arthur Heywood's 1881-built loco 'Ella' cannot be underestimated

PHOTO 9:

'ICL No. 1' was built in 1926 utilizing Ford Model-T components and a bogie from an ex-Sand Hutton Railway carriage. It holds the speed record over the length of the line, having once done the trip in 15 minutes.

PHOTO 10:

'Katie' ran short return trips during its rededication on 28th April, the author here on the footplate.

PHOTO 11:

Three Muir-Hill tractors were purchased for stone traffic in the 1920s.

Tractor' whose engine had met an untimely and unfortunate end.

Despite needing a new body following a collision with 'ICL No. 2' (which incorporated Ella's mainframes) in 1927, ICL No. 1 (also known as 'Bunny') remained in use as a locomotive until 1962, after which its engine was removed and it was used as a tool van. It was restored during the 1990s using a suitably acquired Model-T engine and was filmed running under its own power again on 3rd January 1999. Currently not in running condition, the unit has undergone some cosmetic restoration in 2017 immediately prior to entering the museum.

Mineral haulers

In order to handle granite traffic that was very much a feature of the line's operating practice during the inter-war period, World War Two and immediately afterwards, three Muir-Hill-Fordson four-wheeled tractor locomotives were purchased. The oldest of these, dating from 1926 and now known as 'Quarryman', is part of the museum collection and remains in working order, seeing occasional outings. The mainframe of its cannibalised sister is also part of the collection, whilst the third classmate has been extensively rebuilt with a modern diesel engine and runs today as 'Perkins'.

Rolling stock from the 1920s is represented in the collection by two carriages erected at Ravenglass using bodies supplied by Dawson of Barrow. The earlier of the two is a 1922-vintage four-wheeler, originally 'open' and built as a more austere version of the original Bassett-Lowke carriages. It was fitted with a roof in 1961. The other is a 1927-vintage open bogie 'four-compartment 'sixteen seater'. The influence of its design on subsequent R&ER carriage design can still be appreciated today.

Smaller exhibits in the museum range from builder's and name plates to relics from the line's connection

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with the ironstone mining and granite quarrying industries. There is also a large photo archive and an illustration on display even shows one of the original 3 ft gauge Manning Wardle locomotives prior to its being fitted with a side hinged smokebox door.

Despite the relatively short period of time that has elapsed since the museum opened, it has already been recognised by the Heritage Railway Association Awards, named 2017 winner in the Large Groups category.

The rebuilt Katie (which contains the side mainframes of the 1896 original) is in working order and it is envisaged that it will see occasional use, particularly on 'Driver for a Fiver' duties. It was officially 'launched' on 28th April 2018 in the presence of an invited party of those connected with its reconstruction. The day's proceedings included a nameplate unveiling ceremony and a return trip (in open carriages despite the atrocious weather!) from Ravenglass to Dalegarth during the afternoon.

Legacy of the fire

The consequences of the 2013 fire were far-reaching and the destruction of the old workshop building and its lathes, milling machines and drills resulted initially in work having to be taken off-site. Space and machine tools had to be rented from Numech Engineering Ltd at Workington until the new workshop was ready.

Damage to equipment was made worse by the fact that sea water was used to put out the fire, with all of its attendant corrosive properties. At the time of the fire, River Esk's chassis had been stripped down and new wheels, axles, axleboxes, tyres and crankpins fitted. These items were safe as they were on a flat wagon, which was simply pushed out into the open when the fire started.

The boiler and tender were stored in the carriage shed, and the boiler cladding in the locomotive shed and all were also safe. Unfortunately, the cylinders and refurbished valve gear were in the workshop with some components close to the hottest part of the fire. These were thus written off.

The overhaul of River Esk has therefore been somewhat protracted,

PHOTO 13:

The sectioned 1923-built boiler of 'River Esk' is now an exhibit in the museum.

PHOTO 13:

The 2013 workshop fire badly set back the major overhaul of River Esk, the engine's cylinders and refurbished valve gear components lost. Finally in April 2018 the loco was nearing a return to service.

PHOTO 14:

The import and return to steam of Krauss-built Pacific 'Whillan Beck' has been a major advance of recent times. Ahead of the public launch date of 5th May 2018, the loco worked several passenger trains, seen here at Ravenglass with driver Anna Tilsley.



but by April 2018 the work was almost complete in the new workshop, with the replacement cylinders and valve gear very much in evidence. River Esk returned to traffic in July 2018.

Largely owing to the demands of normal routine maintenance, the need for an additional steam locomotive for day-to-day passenger duties on the R&ER has been sorely felt in recent years and thought was even given at one stage to constructing a new unit. Eventually, word got around about 'some engine in a shed in Spain that had not turned a wheel in 80 years'.

The locomotive in question was a 15-inch gauge 4-6-2 'Pacific' built by Krauss of Munich (W/N 8457 of 1929) as Pinta for the Ibero-U.S. Exposition of 1929. After a three-year period of occasional use, this engine was stored for a further three decades until purchased for a projected railway in Madrid. After changing hands again, this time in connection with an abortive scheme in Barcelona, the loco remained in store until 2015.

Following inspection by R&ER staff, who viewed its potential favourably, the Society's Council convened an EGM to propose to the membership the loco's acquisition, repatriation and restoration. The proposal received 95 per cent approval

and a 'Train from Spain' appeal was launched to fund the project.

The Krauss arrived at Ravenglass in February 2016 and much of its first year on British soil was taken up with various tests, such as for compatibility with the R&ER loading gauge. It first moved under its own steam at Ravenglass in late 2016, but it needed a new tender, air braking system and regulator, together with alterations to its wheel profile, before entering regular service on a very snowy 17th March 2018.

Painted in a crimson livery at the time of its acquisition, a ballot of the members decided that a Caledonian Railway-inspired blue livery should be carried by the locomotive at Ravenglass, along with the name 'Whillan Beck', after a watercourse situated close to Dalegarth Station.

Several sister engines to Whillan Beck operate on miniature railways in continental Europe. Representatives from some of these railways were present during at the official naming ceremony, which took place on 5th May 2018. The unveiling of the nameplate was performed by retired R&ER general manager Trevor Stockton, whilst chairman Peter Hensman thanked the members for their efforts in fundraising. **EIM**



Dougal - a 5-inch Barclay

Young Sussex engineer Andrew focuses on machining the steam chest of his entry-level locomotive project.

BY ANDREW STRONGITHARM – Part Six of a series

The steam chest casting is a gunmetal rectangle roughly $\frac{7}{8}$ in thick with two valve rod guides cast on one of the long edges. These guides also partially double up as the valve rod packing glands by threading the first part to take the gland nuts.

There is also a steam chest cover casting which is bolted to the main steam chest by the same bolts which hold this to the port and saddle block. Having a removable cover is useful when setting the valve timing as it provides easy access to the steam chest and port face.

All faces of the main steam chest were initially machined on the Bridgeport mill to the dimensions shown on the drawings. This includes all the internal and external faces, as well as three of the four side faces. The fourth side was also machined square, however it contains the valve rod guides and so care had to be taken to machine around them.

Next, I drilled one of the holes for the valve rods 4.6mm and reamed it to $\frac{3}{16}$ in through the valve rod guide. It is important for these to be drilled at exactly the right height into the steam chest as this determines the height at which the valves are above the ports.

Prior to moving the bed of the mill across to drill the other valve rod hole, I bored an 8.5mm x $\frac{3}{8}$ in deep counter bore into the end of the valve rod guide. I then part threaded this counter bore $\frac{3}{8}$ in x 32tpi with the tap held in the mill's drill chuck, whilst

The prototype 'Dougal' loco is a 2ft 6in gauge Barclay 0-4-0 built in 1946 for the Provan Gasworks in Glasgow and today resident on the Welshpool & Llanfair Light Railway in mid Wales.



the mill was still set up for drilling the original hole to ensure that it was threaded straight.

This counter bore is designed to accept the valve rod stuffing gland, however I decided to adapt the design to accommodate an O-ring to seal the valve rod. I therefore made the threads on the valve rod glands $\frac{5}{16}$ in deep instead of $\frac{3}{8}$ in which left $\frac{1}{16}$ in at the bottom of the counter bore to insert a 1.8mm section silicone O-ring. As the valve rod gland is tightened up, the O-ring is compressed against the valve rod, thus preventing steam leaking from the steam chest.

Several holes

Next, I needed to drill the 14 clearance size 4mm holes around the outside edge of the steam chest which would bolt it down to the corresponding holes on the bottom of the port and saddle block. Starting at a datum point in one corner of the steam chest casting, I used the DRO (Digital Read Out) of the mill to centre drill each of the 14 holes first to confirm the position of each one. I then checked them all using a dial caliper before drilling them out in turn with a 4mm drill. One final pass was used to counter bore each of the 14 holes to a diameter of $\frac{1}{4}$ in and a depth of $\frac{1}{16}$ in.

The steam chest is effectively sandwiched between the port and saddle block and the steam chest cover and therefore I needed a way of sealing steam from escaping through these joints. The solution came in the form of 1.78mm section silicone O-ring cord, which would be gently pushed into a slot between each of the aforementioned counter bores. This was achieved by using a $\frac{1}{16}$ in slot

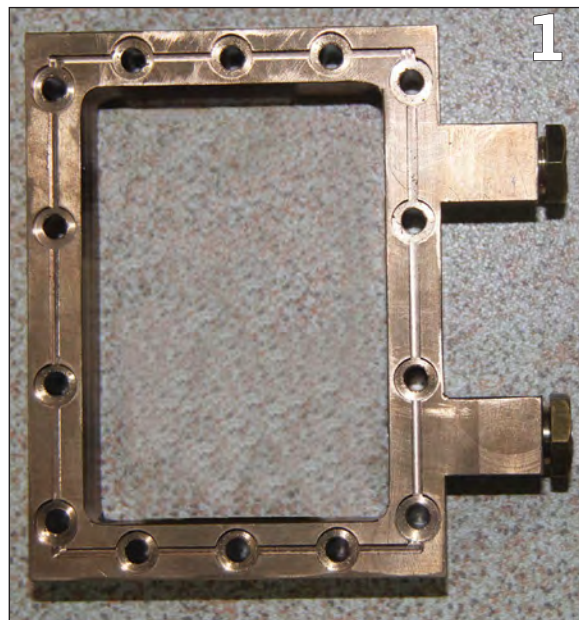
drill to carefully machine a $\frac{1}{16}$ in wide by $\frac{1}{16}$ in deep slot between each counter bore. This was a slow task as I only took 5 thou cuts with each pass of the slot drill.

The depth of these counter bores and slots was determined by the thickness of the O-ring cord, as it was necessary for this to protrude by a good 5 thou to allow sufficient compression when the entire assembly was bolted together.

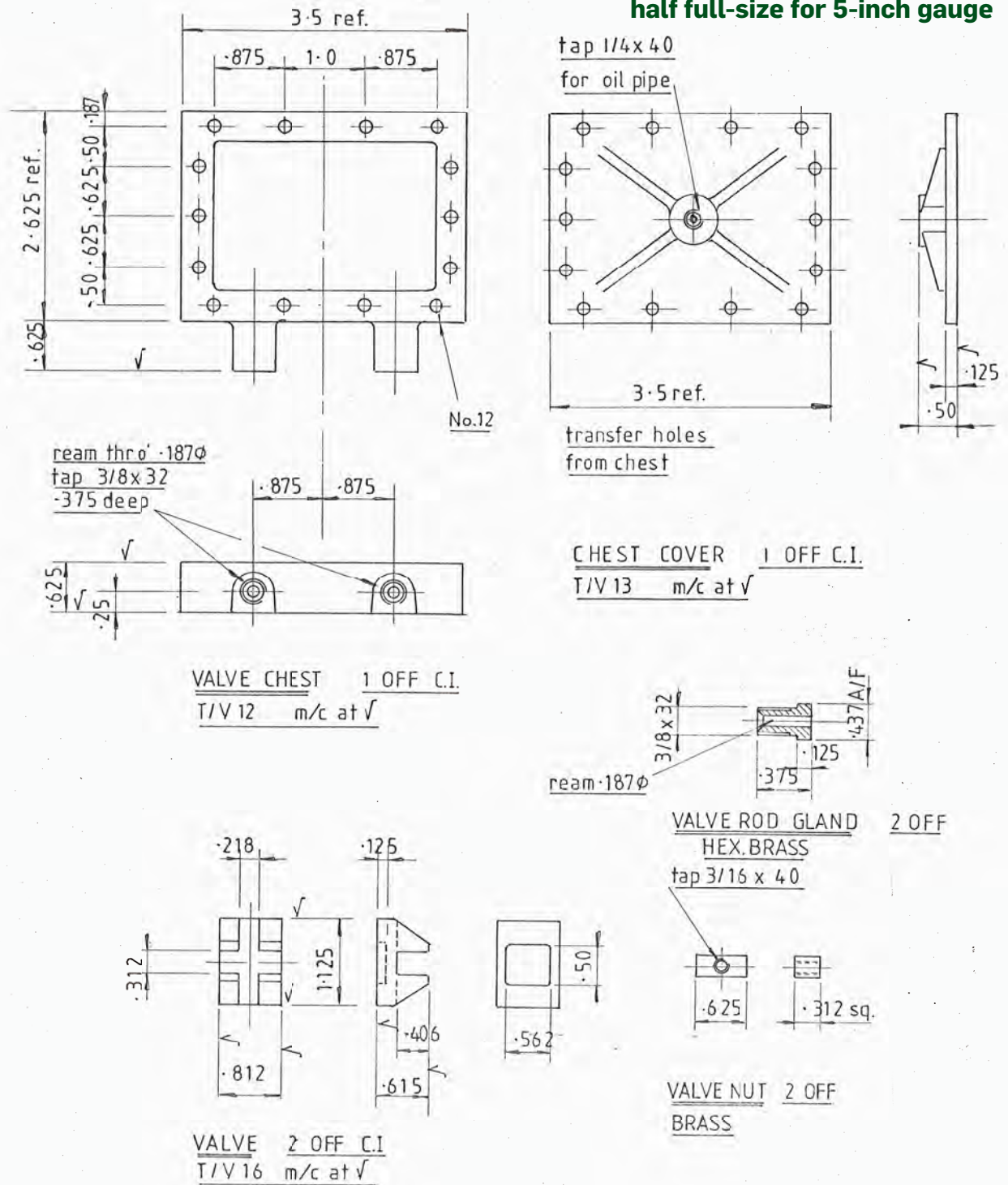
I now had to remove the steam chest from the mill vice, turn it over and repeat the counter boring and slotting process on the other side. This was slightly more complicated because I had to reset my datum point. When machining the first side I was careful to ensure that the outside of the steam chest casting was exactly in line with the side of the mill vice. This meant that as long as all of the holes are symmetrical I could simply turn the casting over on its long edge and by aligning the edge of the steam chest casting with the edge of the mill vice my DRO settings could be retained. To confirm the centre of each hole prior to counter boring, I used a 4mm drill blank held in the drill chuck to double check the centre of each hole again (Photo 1).

Again using the Bridgeport mill, the steam chest cover was relatively simple to machine as the four sides just needed squaring off and the inside face given a quick skim to remove the rough cast finish. On the outside there is webbing cast into the cover to support a central raised boss where the lubricator feeds into the steam chest.

The top of the boss was machined flat and an $\frac{1}{8}$ in hole drilled right



"Having a removable cover is useful when setting the valve timing as it provides easy access to the steam chest and port face..."



ABOVE LEFT:

The finished Dougal loco – this month's build focuses on some unseen components.

PHOTO 1:

The steam chest following the boring and slotting process.

All photos in this feature by Andrew Strongitharm

through the cover for the oil way. The top 1/4in of this hole was then counter bored with a 7/32in slot drill and threaded 1/4in x 40tpi for a fitting for the oil pipe to screw on to. I then machined a 3/8in wide band around the periphery of the outside face of the steam chest cover to give the bolts which would hold it and the steam chest to the port and saddle block a flat surface to tighten up against.

Next, I had to drill the holes to the same spacing as those drilled previously in the steam chest and port and saddle block. These were again drilled out 4mm using the same datum technique as described

previously. Once this was complete I inserted the 4mm bolts to check that all the holes lined up correctly.

I used 4mm cap head bolts to initially hold the steam chest assembly onto the port and saddle block, as I knew that I would need to take the steam chest cover on and off many times whilst setting the locomotive valve timing. This was why I chose to use the O-ring cord as it made the removal of the steam chest cover quick and easy, whilst also providing a seal. The other option would have been to use Loctite 574 flange sealant, but this takes time to set and the faces it is applied to have

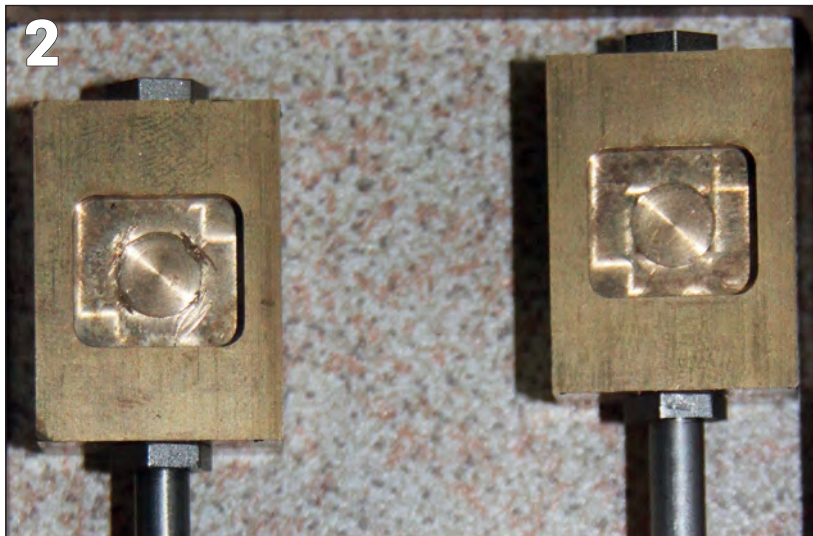
to be thoroughly cleaned every time prior to reapplication.

Fiddly but clean

I will admit that the O-ring cord was very fiddly, however the number of times I had to take the cover on and off more than made up for the time I saved not having to clean off flange sealant. The downside of using the O-ring cord was that it had a tendency to jump out of its slot and regularly required pushing back in to it.

It was also difficult to remove the cover without dislodging the O-ring cord, as once the bolts were removed the cover and steam chest itself were

2



loose on the port and saddle block. I attempted to rectify this by making a batch of stainless 4mm studs that would be permanently fitted into the port and saddle block and which contained a plain section of shaft through the steam chest.

A problem with this method emerged after taking the steam chest cover on and off a few times, the difficulty in aligning all 14 studs through the steam chest whilst ensuring that the O-ring cord was not dislodged in the process. I therefore took the studs out and replaced them with a batch of homemade stainless hexagon-head bolts.

A fellow club member donated the material for the two valves. Nothing strange in that I hear you say, however the gunmetal was in the form of a wash-out plug from a full-size British Railways standard locomotive! This did the job perfectly following lengthy machining down to the correct $\frac{13}{16}$ in x 0.615in dimensions. The reason for

the height of the valves being 10 thou under $\frac{7}{8}$ in is because $\frac{7}{8}$ in is the finished height of the steam chest and therefore the valves need to be slightly under this to allow room for them to slide back and forth. It is worth noting that should your steam chest casting be less than $\frac{7}{8}$ in thick do ensure the valves are reduced accordingly.

I then machined a recess into the underside of both valves, which consists of a $\frac{9}{16}$ in x $\frac{1}{2}$ in x $\frac{1}{8}$ in deep rectangle. The function of this recess is to allow exhaust steam to pass from one end or other of the cylinder via the exhaust port to the blast pipe and then up the chimney. Whilst the top of the valves are directing the exhaust steam, the front or back edges expose the other inlet port that is filled by steam which surrounds the valves in the steam chest.

I made another deviation from the drawings at this stage as they show the valves with a cross shape machined into the underside and a nut located

“The gunmetal was in the form of a wash-out plug from a full-size British Railways standard locomotive...”

PHOTO 2:

Close-up of the finished valves.

PHOTO 3:

Valves in place with studs and O-ring chord running in its special slot.

PHOTO 4:

Forked valve rod ends for connecting to eccentrics.

PHOTO 5:

Completed valve chest setup – one more build job ticked off the list.

within the cross which is threaded into the end of the valve rod. Instead, I made them with an elongated hole through the middle which allows the valves a small amount of room to move up and down within the valve rods. This means the valves are able to wear into position as they slide over the port face.

After drilling a $\frac{3}{16}$ in hole lengthways through the valves on the Bridgeport mill, I exchanged the drill for a long series $\frac{3}{16}$ in end mill. Then, and in 5 thou increments, I elongated the holes vertically downwards by 15 thou so that as the valve face wears against the port face the valves are able to move around the valve rod.

Next, I cut and roughly faced to length the two valve rods out of $\frac{3}{16}$ in stainless rod. One end of each was then threaded $\frac{3}{16}$ in x 40tpi by a distance of just over 1 $\frac{1}{4}$ in, which is the overall length of the valves. I then made four very slim nuts out of stainless steel hexagon, two of which were threaded $\frac{3}{16}$ in x 40tpi while the other two nuts were threaded 6BA.

The first two nuts were wound down the valve rods and locked up tight against the end of the $\frac{3}{16}$ in x 40tpi threads. I then pushed the valve rods through the valves and measured the distance of valve rod protruding from the front of each valve.

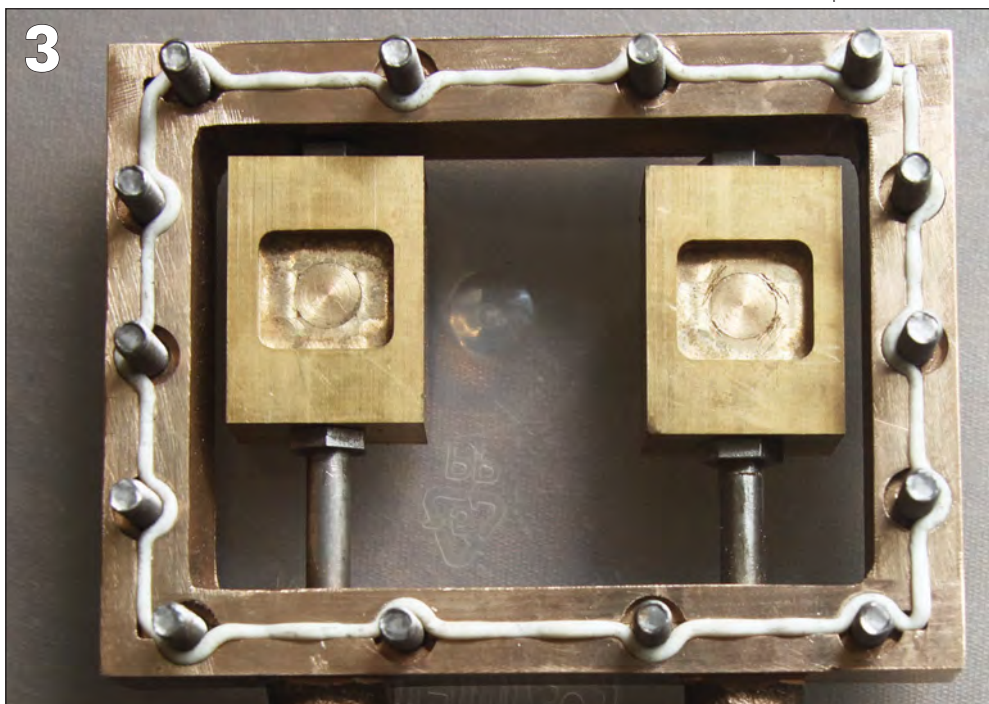
After taking everything apart, I turned the end of each valve rod down by the length that I had just measured, to 0.110in and threaded them 6BA. I put the valve assembly together again, this time screwing the two 6BA nuts onto the end of the valve rods as well, and checked the clearance between both nuts on the end of each valve. The valves need to be free to move on the valve rods (ideally no more than a couple of thou), so it is important that the locking nuts do not do up tight against the valves.

Space challenge

The downside of making the valves in this way is that there is hardly any room to fit the pair of locking nuts either end of each valve. I only just managed to achieve this as the available space inside the steam chest once the valve travel had been taken into consideration was extremely limited. For added piece of mind when I finally assembled the steam chest and valves, which I will describe later in the build, the locking nuts were secured in place using Loctite 271 (Photos 2 & 3).

The steam chest was now essentially finished, so I continued to manufacture the remaining motion components that are situated between the frames, starting with the valve rod fork ends. I began by cutting two pieces of $\frac{3}{8}$ in square mild steel to

3



form the valve rod fork ends. These were initially held in a self-centring four-jaw chuck on the Myford lathe and both ends were faced off.

I then turned down one end of each by $\frac{1}{4}$ in to a diameter of $\frac{5}{16}$ in and drilled a $\frac{5}{32}$ in hole the full length of the steel. Next, I threaded these holes $\frac{3}{16}$ in x 40tpi to accept the valve rods, before taking them out of the chuck and setting up the vertical milling attachment on the Myford lathe. I used this to machine the $\frac{1}{8}$ in slot into which the yet to be made eccentric rods would be fitted. After this I used a needle file to remove the burs left by the slot drill.

Centre of attention

I now had to carefully drill the cross holes into the fork ends for the valve gear pins that hold the eccentric rods in position. This hole was supposed to be drilled and reamed $\frac{3}{16}$ in, however I didn't get the hole quite central and therefore I had to file it over and drill it out slightly bigger. Luckily I was able to borrow a 5.2mm machine reamer and this solved the problem.

Next I made a pair of mild steel locking nuts to secure the fork ends in position on the valve rods. These were $\frac{3}{16}$ in thick and I chamfered the front edge of each nut with a 30 degree taper. The finished locking nuts were screwed onto the valve rods first, followed by the fork ends themselves. The exact number of turns they were screwed on would be determined once the motion was complete and when I began the process of setting the valve timing. This was why I used a 40tpi thread as this gave me fine adjustment on the valve positioning.

The final task on the fork ends was to turn a couple of shouldered silver steel pins and 4BA stainless steel nuts to hold the eccentric rods in place. The pins themselves were machined from $\frac{3}{8}$ in diameter rod turned down to an accurate 5.2mm over a length of 0.380in to suit the fork ends and latterly the eccentric rod bushes too. A further length of $\frac{5}{32}$ in was turned down to 0.140in to be threaded 4BA.

The reason for making the overall length of the main body of the pins 5 thou over $\frac{3}{8}$ in is to ensure the nuts do not clamp the pins across the fork ends. Proper shouldered bolts should allow for a few thou of side play, particularly when used across a fork end to prevent the fork from becoming compressed.

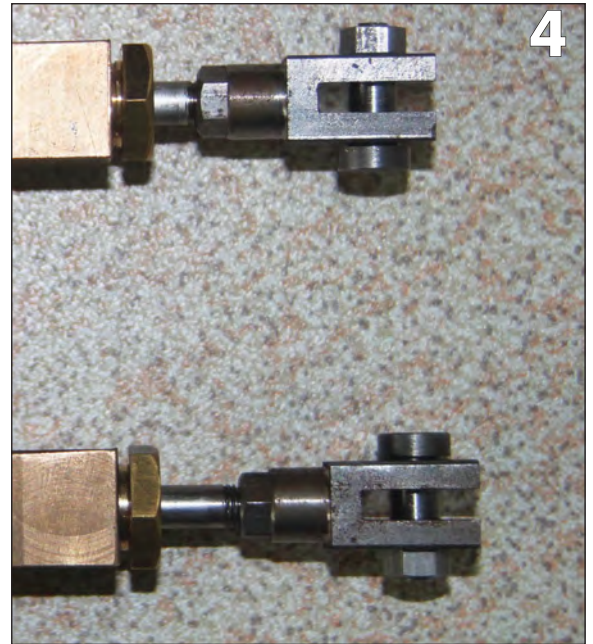
In addition, I also undercut the end of the 4BA thread nearest to the shoulder using a slim 30 thou wide High Speed Steel (HSS) parting tool. The parting tool needs to be inserted by the full depth of the thread plus about 5 thou more. Once this has been achieved, it is good practice to run the

die back up the threads again and then repeat the undercut process one final time. The undercut will allow the stainless steel nut to lock hard up against the shoulder of the pin. Bear in mind that the width of the undercut for coarser threads will need to be larger depending on the thread that is being machined.

With the pins now turned, I cut each one off the rod leaving just over a $\frac{1}{8}$ in head, turned them around and then faced the head back to $\frac{1}{8}$ in exactly. One final task was to machine two spanner flats on each head so they can be tightened up. To achieve this, I made a jig which consisted a piece of $\frac{3}{4}$ in mild steel square with a 5.2mm hole drilled vertically down through it and about $\frac{1}{2}$ in inward from the end. The overall length of the $\frac{3}{4}$ in bar is not critical but for the purposes of this exercise needs to be a good 3 or 4 inches long as a minimum.

Using a 12in hack saw, I then cut a slot centrally from the end of the bar and parallel to the already drilled hole. Once the hack saw had broken through into the hole, I then continued to cut by a further $\frac{1}{2}$ in beyond the hole and I now had the beginnings of a basic clamp. I re-drilled the hole to remove any hack saw burs and mounted the jig in the vice on the vertical slide.

Next, I inserted one of the pins into the jig leaving the head proud by about 30 thou and tightened the vice. The clamp compressed well and firmly held the pin in place. Using a $\frac{1}{4}$ in end mill, I then machined the top and bottom of the head by a $\frac{1}{16}$ in to leave an overall width of $\frac{1}{4}$ in across flats (AF). I repeated this process for the second pin and with this these were now complete. The fork part of the fork ends are supposed to be rounded off, however I must admit that I have never finished mine off (Photos 4 & 5). **EIM**



Drawings in this series reproduced with kind permission of A J Reeves. Drawings, castings and material for this build project are available from A J Reeves.



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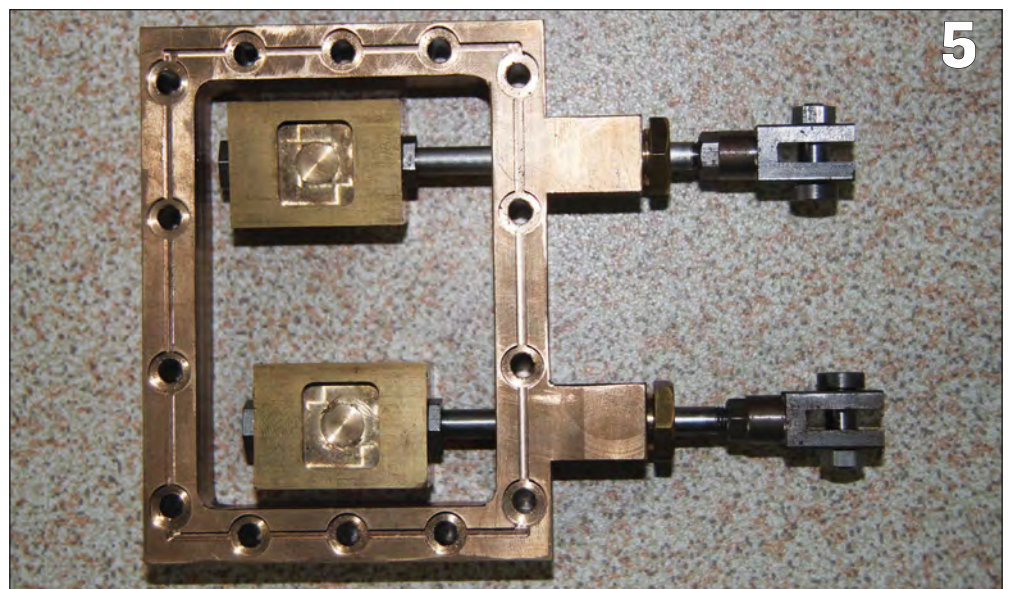
Previous Episodes of the build...

Introducing Dougal, April 2018; Building the boiler, May 2018; Frames, axleboxes, June 2018; Wheels, eccentrics, July 2018; Rods, boiler saddle, August 2018

Digital copies of previous issues can be downloaded or printed versions ordered from www.world-of-railways.co.uk/engineering-in-miniature/store/back-issues/ or by telephoning 01778 392484.

Next Month...

"The first use of soft solder on the project was an interesting comparison to the silver solder I had used building the boiler..." Andrew connects his eccentrics.



Restoring a Sevo 2 machine vice

For Brian the desire to own an unusual vice meant restoring one from derelict condition...

BY BRIAN WOOD

An opportunity for me to buy one of these rather unusual vices, which make gripping odd-shaped work an easy procedure, came recently. I had only earlier that week seen one during an invited tour of a local workshop and was impressed by both the quality and design, thinking at the time how useful one would be in my own workshop.

The one on offer was filthy, neglected and somewhat rusty, but the photograph advertising it showed it was undamaged and was clear enough to confirm the vice had all the potential of being worth the effort at bringing it back into use again.

Having done some work for the seller in the past I was offered it at a favourable rate which made it even more attractive

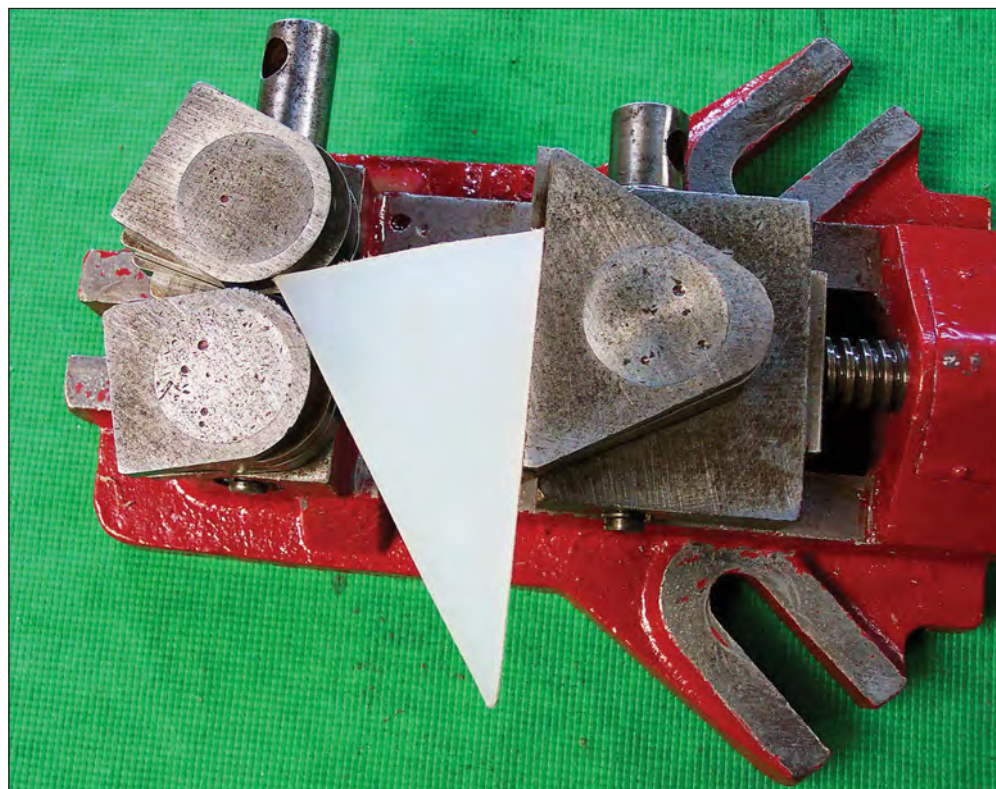
Design philosophy

These vices were made in Sweden but that is about as far as it seems possible to trace their origins. Internet searches failed to list the maker or add much more information other than the UK agents are Spencer Franklin Ltd, who seem to be based in the USA.

Up to the level of the jaws, these vices are of completely traditional design. The jaws are however quite different to the rigid hard blocks that are so familiar. They are made up of self-aligning hardened steel plates, carried on substantial section hardened posts. These are pulled down onto the flat surfaces of the lower sections of the vice body by the action of pins running through them with eccentric cams engaged in holes in the posts. The three lower plates of the set of four in each position have oval holes to allow float on the posts, while the top plate is a close fit onto the flat top of the post which when pulled down by the eccentric clamps the short stack of plates below it.

There are two such posts on the non-moving jaw and one with triangular plates on the moving jaw. These features make it possible to grip odd shapes securely that would be difficult in other designs.

The vices were made in two sizes; this one opens to a little over 50mm capacity, the Sevo 1 to nearer 125mm capacity. The larger version has two



ABOVE: The restored Sevo vice showing its party trick on a dummy triangular work piece

PHOTO 1: Top view of the vice on receipt.

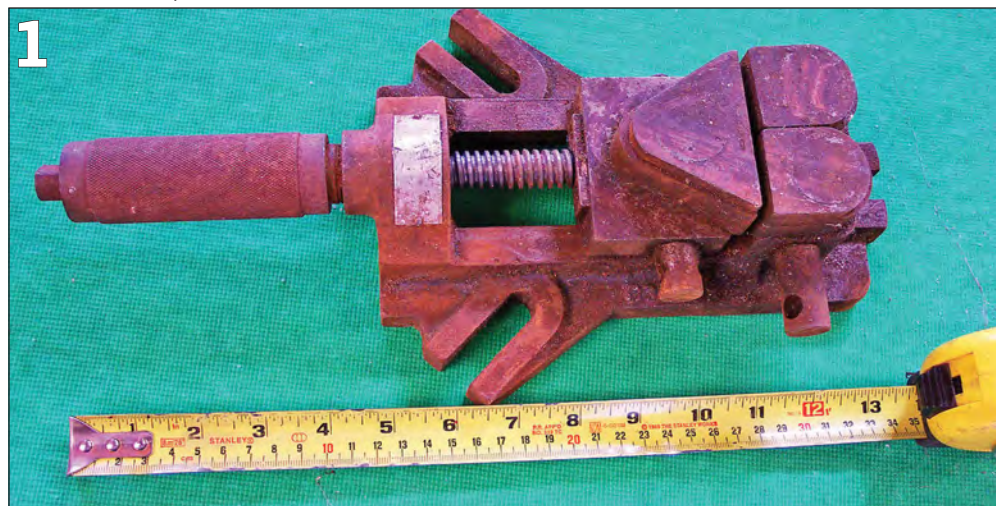
sets of opposed mounting feet on the extremes of the body, in this smaller model the mountings are in a Y formation with the single mounting point at the non-moving jaw end.

The operating screw thread is left hand, 16mm diameter with a pitch of 4mm and being metric it will be of 30 degree trapezoidal form. The Imperial equivalent would be an ACME thread of 29 degree included angle

Restoration work

Photo 1 shows what the vice looked like on arrival from the seller in Dorset. The underside view is shown in **Photo 2** and **Photo 3** is the view from the operating handle end.

On receipt, I filled a plastic box with kerosene and then submerged the vice in it for the night to help soften the dried lubricants and free off the moving parts – these had



become quite stiff from lack of use.

The following day I began the work of brushing it down with an old paint brush whose bristles had worn down beyond use as a working brush. An old toothbrush got into the corners and before very long the worst of the muck was cleaned off, enough at least to make it more pleasant to handle.

At this stage I began dismantling the vice into its component parts; the hardest items to shift oddly enough were the two small slotted countersunk-head screws holding the plate to clamp the operating screw into the moving jaw which then allows it to be drawn backwards.

The swelling for the nut part of the operating screw prevented straight access for the screwdriver blade and was badly angled to only give a partial grip in the slots. Tapping the end of the screwdriver with a nylon-faced hammer at the same time as unscrewing gradually released the grip of the screws, after which they came out easily.

The two spring clips on the end of the jaw operating pins were carefully eased out of their grooves with opposed flat-blade screwdrivers and gripped firmly with nail pincers to wriggle them off over the ends of the pins. Such clips can so easily go 'ping' and never be seen again; I had no wish to try and find them if that happened. If they had escaped I would have made replacements by cutting down a suitable spring lengthwise to separate out a pair of coils to use instead.

Cleaning process

With all the working parts freed off and removed, it was then a question of drying them off and laying everything out in the right order. A wire brush was used to fetch off the remaining rust and dirt from the body.

Photo 4 is a view of the whole vice laid out with some of the jaw segments separated to show the method of fitting. The various components were cleaned of light rust with the careful use of a tired pad of Scotchbrite and a similarly tired foam rubber-filled abrasive block to leave the surfaces just lightly stained. I took care to avoid thinning the sections of the jaw parts and moving jaw carrier, these were all hardened parts and they cleaned up very well.

The jaw edges were also carefully lapped on a fine stone to remove burrs where gripping hard surfaces in the past had raised some bruises. Other than vigorous use of the wire brush along the knurling of the operating handle there was little more to do.

After that treatment, the sharp knurling profile was rejuvenated and gave a very good grip in the hand. The end of the screw shaft protrudes from

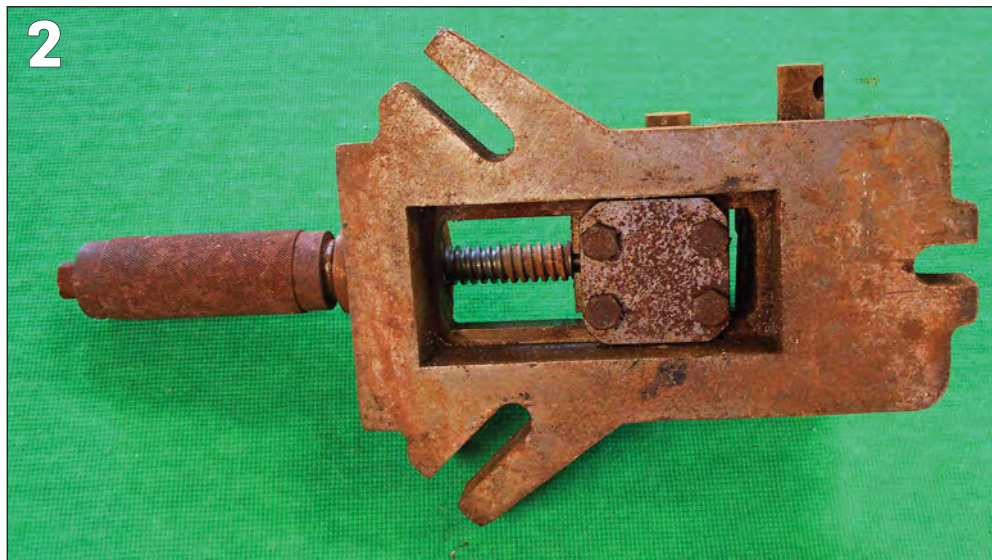


PHOTO 2 & 3:

Underside and end views of the vice on receipt – its careworn condition can be clearly seen.

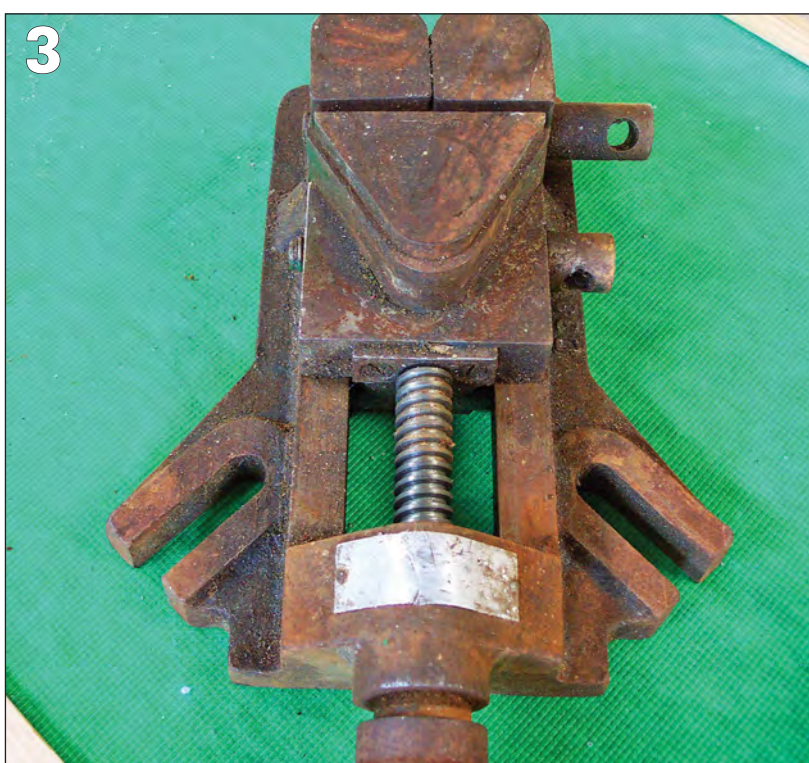
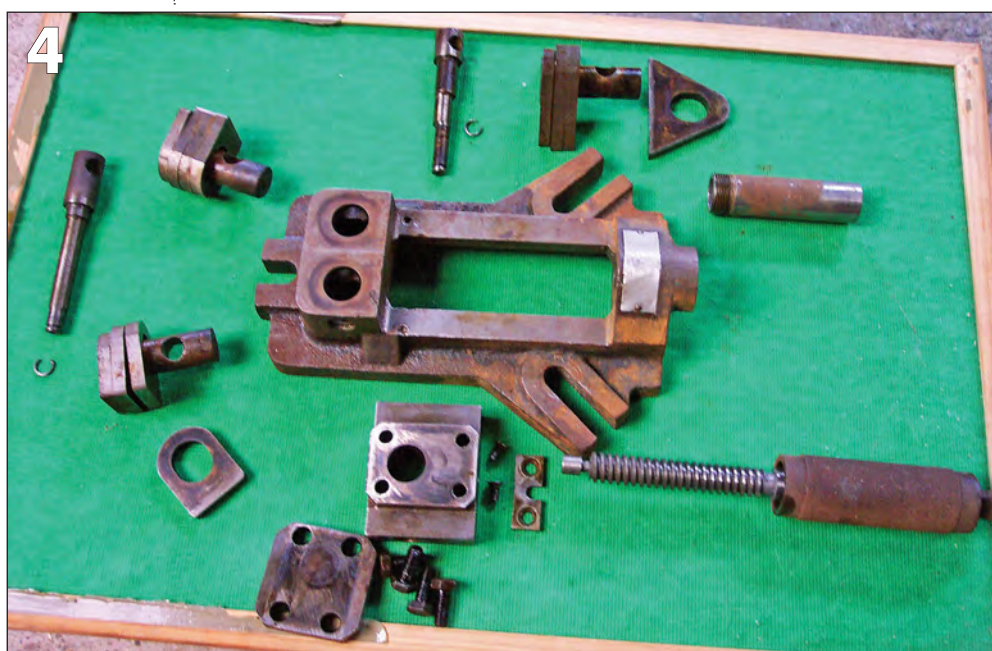


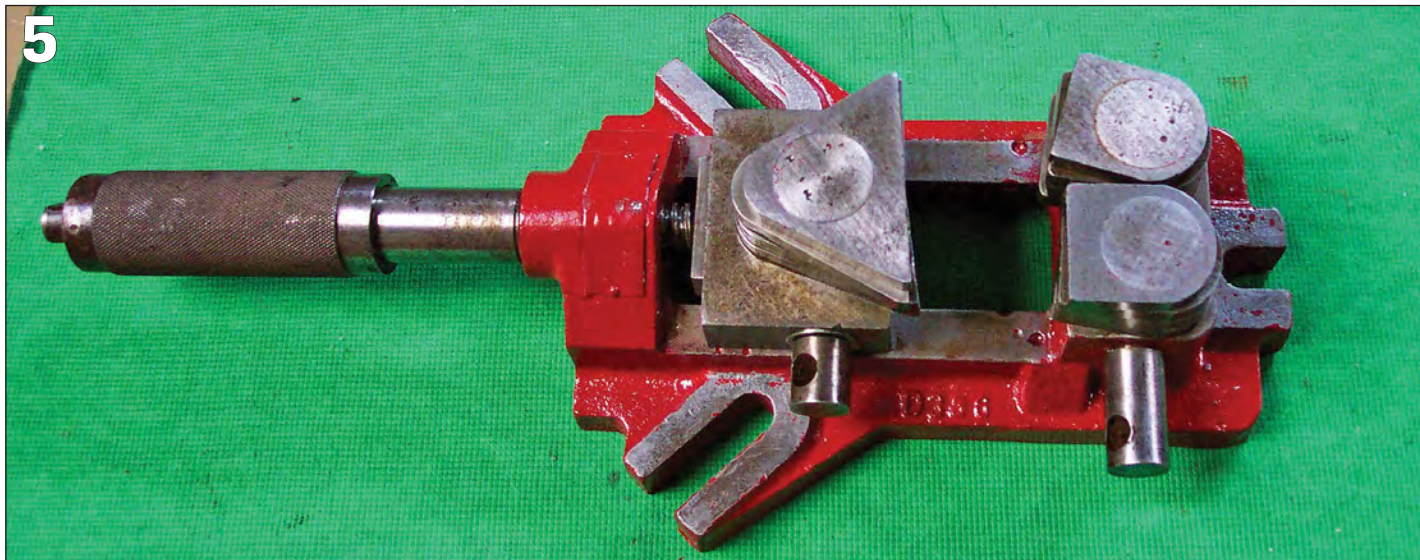
PHOTO 4: The

vice once it had been stripped down to its component parts, laid out for inspection.

All photos by Brian Wood



5



the knurled portion to finish in a short milled section with spanner flats in case of need, which is a thoughtful design feature.

The mounting holes for the jaw clamps were carefully cleaned out. Those in the fixed jaw are blind, and the one on the moving jaw had a raised

PHOTO 5:

The finished job, taken from the same viewpoint as Photo1.

PHOTO 6:

Underside view of the finished job, which again can be compared with Photo 2.

PHOTO 7:

Versatility of the vice, here gripping a washer for countersinking.

burr internally caused by a step in the jaw operating pin. Together with float in the pin this had allowed the step to rub on the wall in one place.

A thin washer was made to fit the thick outer section of the pin to limit that movement in future. As the hole for this jaw clamp was bored clear though the burr was carefully removed with an adjustable reamer.

With all the parts cleaned and oiled ready to refit, the next stage was to repaint the body. The raised faces for the holding-down bolts were lightly oiled, similarly the guideways for the moving jaw along with the whole of the flat underside of the vice to prevent the paint getting a grip. The surfaces onto which the jaw segments are clamped were similarly treated. The body was then given two spray coats of grey primer and left to harden overnight.

This was followed by two spray coats of a deep red top finish from a rattle can and that too was left to harden up overnight, after warming the body with a hot-air paint stripper gun. The necessary bare surfaces were easily revealed again with a flat-bladed paint scraper and given a light burnish with the Scotchbrite pad.

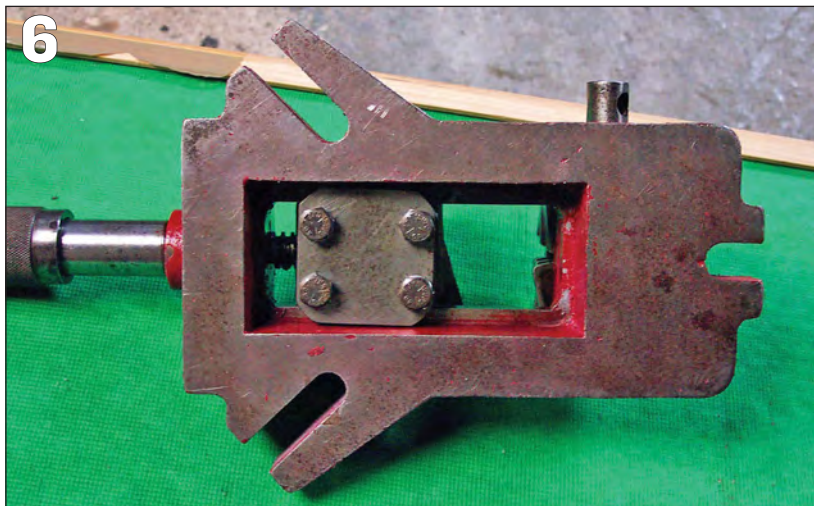
The finished job

Photo 5 and 6 show the finished vice. The operating screw moves with an easy action and the whole accessory is now a pleasure to handle and use.

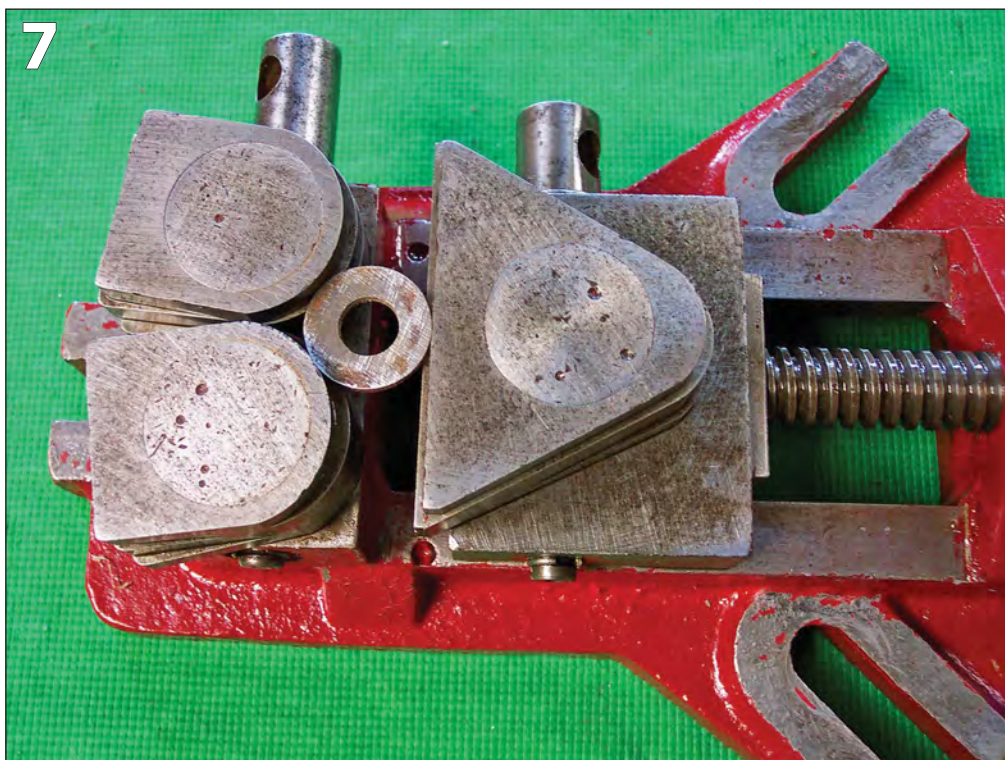
Photo 7 shows the vice holding a typical washer so that the central hole can be countersunk; it is a tedious job on a lathe trying to grip such items in the chuck without a wobble and with enough grip to stop it being forced into the jaws.

The vice is designed to give a washer-like workpiece edge support on three positions, this it does very well. The heading photo is a staged picture showing the type of piece the vice was designed to hold so effectively. **EIM**

6



7



PHOENIX



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Shore Party in Wales

The official opening of a new track celebrated seven years of hard work in Llandudno...

BY ANDREW CHARMAN

There was certainly an air of celebration around when EIM joined members of the North Wales Model Engineering Society in Llandudno on Saturday 21st June.

The official opening of the West Shore Miniature Railway, coinciding with celebrations marking the 70th anniversary of the club, marked the culmination of seven years of hard work by members.

Planning had commenced on the new site in early 2011, after the NWMES had been required to remove its track from a field on the other side of Llandudno due to plans by the adjacent school for expansion.

The new site is adjacent to a beach and in the shadow of Llandudno's famed Great Orme (not far from the Great Orme Tramway), and with a large car park and cafe adjacent. On it the club has been able to construct a raised 3½-inch/5-inch gauge track that loops back on itself to give a total running length of some third of a mile.

The track was actually completed in 2016 and the club has been holding Saturday public running sessions since then, while improving the facilities to the point where the official opening ceremony could be scheduled.

Speaking to EIM at the opening day, NWMES chairman Dennis



ABOVE: Centre of attention, the first official run.

BELOW: 'Miss Alice' Carys Lambe was kept busy opening the track and naming a loco.

Postlethwaite said that he had only accepted election as chairman on the basis of a promise. "I told the members I wanted to be running my big red engine around the track at West Shore within five years," Dennis said. "They managed it in four..."

Dennis was full of praise for the support given to the club by local authorities, both Conwy County Council and the Llandudno Town Council. Both bodies had helped the NWMES find a suitable new site and develop it, and Dennis added that both consider the West Shore Miniature Railway an added attraction for Llandudno and an asset to the area.

This was clearly evident by the

roll-call of local dignitaries at the opening event, which as well as offering rides to the public throughout the day also included displays of model engineering work by members and friends, and a couple of model road engines in steam.

Loco naming

Guests included the local MP Guto Bebb, the vice-chairman of Conwy Council Brian Cossey and the Mayor and Mayoress of Llandudno, David and Amanda Hawkins. Assisted by the Mayor the club's 5-inch gauge Speedy locomotive was officially named 'The Brigadeer' by year eight student Carys Lambe, who is currently serving as





'Miss Alice' celebrating Llandudno's connections with the classic *Alice in Wonderland* story by Lewis Carroll (Alice Liddell, the 'real' Alice who inspired the character in the story, holidayed in the resort several times in the late 1800s).

Carys then helped Cllr Cossey cut a ribbon across the track, declaring the line open, before joining a train of dignitaries for the first run hauled by The Brigadeer.

The event represented a milestone for a club that was originally formed as a result of three like-minded enthusiasts meeting in a café in Llandudno. Currently the club boasts a membership in the region of 70 with a range of interests which it hopes to develop at West Shore. The present clubhouse is a temporary structure but future plans include a permanent building, and funds raised from the public running days are being put towards this aim.

Public running continues between noon and 4pm on Saturdays and bank holiday Mondays until the end of October, and those wanting to visit will find the track at Trinity Crescent, Llandudno, LL30 2PQ. For more details go to <https://nwmes.org.uk>



ABOVE LEFT:

You can't have a birthday without a cake....

ABOVE & RIGHT:

This is very much a coastal location.

BELOW & BOTTOM RIGHT:

Plenty of loops to exercise locos on – note the temporary clubhouse.

BELOW LEFT:

The displays included some historic models – more on these in future issues.

BOTTOM:

The inaugural run passes the steaming bays.

Photos: Andrew and Rosemary Charman



Federation heads East

The big Southern rally in Cambridge heads this month's round-up from the clubs...

COMPILED BY ANDREW CHARMAN

We start this month's round-up with news of the popular annual rally of the **Southern Federation**, which this year is to be held at the **Cambridge & District Model Engineering Society's** track on 7th-8th September.

The CADMES's pleasant part-wooded site extends to over two acres. It is easily accessible by road, only a mile or so from junction 12 of the M11 on the western edge of Cambridge city, itself a significant tourist centre with lots to see and do in the area – useful for family members who might not share the model engineering passion...

The ground-level main line circuit caters for 7¼-inch and 5-inch gauges, and extends to one kilometre in length, mainly laid with steel rail on recycled plastic sleepers. A large part of the layout also accommodates 3½-inch gauge. There are two off-loading and steaming areas, both with hydraulic lifting tables and line-up systems, making it easy to unload from estate cars, trailers or vans. Each area has a number of steaming bays, with supplies of 12-volt and 24-volt DC power, and soft rain water available at each for boiler filling. CADMES also caters for smaller gauge fans with an extensive tabletop 32 mm gauge layout.

All types of models

The Federation tells us that a small boating pond will be set up for the rally and all types of model, railway locomotives, rolling stock, traction engines, boats, aeroplanes, stationary engines and others will be welcome at the event. Show models will be exhibited in a marquee and prizes will be awarded in various categories.

Both 7¼-inch and 5-inch gauge riding trolleys will be available. As usual, current boiler certificates will be required for steam models, and all running models will need evidence of public liability insurance. Static models of all types will also be very welcome. Space is allocated for those wishing to camp overnight, or to bring caravans, although power and water facilities are limited on site.

Further information will be in a pack sent to those who register for the rally, which you can do by contacting the rally secretary Colin Bell on colingb50@gmail.com or on 01480 880665, for a registration form.

Sounds a fun event – the editor is

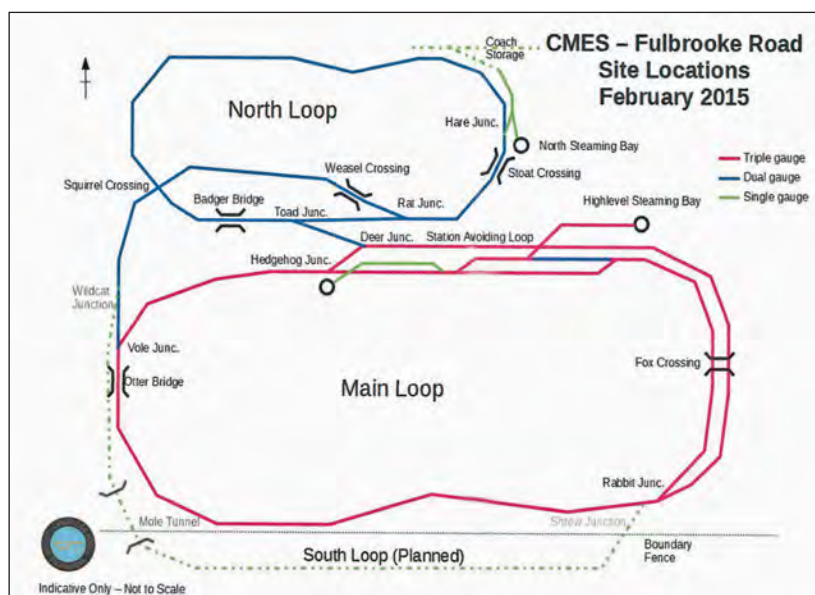
“Des reckons he’s been an inspector almost as long as he’s been a member of the club, and he joined in March 1966...”

ABOVE RIGHT:

The Cambridge track should offer plenty of interest for Southern Federation Rally participants.

BELOW:

Expect busy steaming bays at Cambridge MES during the rally on 7th-8th September.



supposedly not available, due to be working in his other career that day, but he's trying to juggle!

First show

Returning to the definite Welsh theme of this month's club goings-on, some news from the editor's own club, the still very-new **Cambrian Model Engineers**, formed less than a year ago. Fellow member Martin Rant writes; "We were invited to attend the Tregynon Fun Day on 7th July and to exhibit some of our models.

As the day was hot and sunny (at that time most unusual for mid Wales) we chose to have our display in the field behind the community hall. There was a good turnout of members

to help, and a fine mix of models was put on show for the spectators.

Notable items on display included Geoff Bentley's animated club logo, Dewi Williams' collection of farm implements, a fine 2.5-inch gauge 'Purley Grange' under construction by Steve Terris and James Buxton's skeleton clock.

Also on show were several stationary engines, including a fascinating hit-and-miss engine, and a clever skein holder and wool winder.

The day was enjoyed by all, but we felt that it would have been better had the event been better attended. For the club's first venture into showing it was deemed very successful and it just remains to thank the folks of





Tregynon for their hospitality, and for keeping us fed and watered."

The **High Wycombe MEC** produced no less than 11 locomotives for its first public running day on 27th May, probably a record according to the club's David Savage. The numbers were fortunate, both due a possibly record number of niggling mechanical issues during the day, and very many visitors, particularly in the morning. These included a birthday party group of 50 children, and two trains were kept busy running continuously until 5pm, often joined by a third.

Popular events

The latest edition of the **Romney Marsh MES** newsletter reveals a series of successful events at its track on Rolfe Lane in New Romney, Kent – shame you didn't send us in some photos folks!

The annual open day on 19th May saw 14 visiting engines with members from five different clubs, with no suggestion the excellent turn-out had anything to do with avoiding the coverage of a certain Royal Wedding on the same day...

Similarly the annual Small Locomotive Rally on 27th May saw an increased level of interest after several years of decline. Correspondent Bobby Jones reported that it was like the old days of 2½-inch Gauge

ON THIS PAGE:

Martin Rant sent in a selection of photos from the first show outing by the Cambrian Model Engineers. Clockwise from above they include the club's display, an impressive collection of farm implements made by Dewi Williams, the tender of Steve Terris' 'Purley Grange' and a skeleton clock from James Buxton.

Why not send in some pictures from your event?



Association rallies with seven steam and one diesel loco running and a further two steam locos on display. However Bobby added that it would have been nice to see some 3½-inch gauge locos in action. One of the visitors to the event came all the way from Antwerp, Belgium.

Sticking it out

An important if perhaps thankless job in any model engineering society must be that of boiler inspector – with the role comes huge responsibility including if necessary having to tell members their hard work simply doesn't come up to scratch.

Well the latest *Conrod* newsletter from the **Otago MES** in New Zealand reports the resignation of one of their boiler inspectors, Des Burrow, who is also stepping down from inspecting driving licences. Why? Well Des reckons he's been an inspector almost as long as he's been a member of the club, and he joined in March 1966! We think he deserves some form of long-service award at the very least...

It may be still feel like summer as you read this but don't forget that this magazine is titled September, which means that it's just one month to the

Midlands Model Engineering Exhibition, organised by TEE and sponsored by ourselves.

As ever this is the Autumn show to be at, with almost 1000 models on display at the Warwickshire Exhibition Centre over the four days. There will be some 35 clubs displaying their efforts, and of course all the vital suppliers will be present so you can pick up all you need for your project.

Talking of your own projects, there is still time to enter your model for one of the many competition classes at the show – prizes are on offer and you will receive a commemorative plaque just for exhibiting. Full details and an entry form can be found on the website at www.midlandsmodelengineering.co.uk

The vital show dates you need to know are Thursday to Sunday, 18th-21st October. Next month we will be carrying our traditional four-page pull-out show guide.

And as you have your diaries out, the dates of the 2019 London Model Engineering Exhibition at Alexandra Palace have been announced – it will be held on 18th-20th January.

Keep sending those reports in – and how about some photos too? **EIM**



Help needed for a lorry project

Hunting a Foden

Between December 1985 and October 1989 **EIM** carried a series on building a Foden (an STG Timber Tractor in 4-inch scale) by Ray Prime.

I for my sins bought the castings, or a large bulk of them, from Reeves as a Christmas present to me in order to build something different. But I have hit a few snags along the way, some easily overcome as certain imperial items have been superseded by metric, but....

I can't work out how the electric starter is fitted or where to get the front wings from to name but a couple of things.

I have asked Reeves but they have only bought the rights to make and sell the castings and to date have no one building a model. Is Ray still around? Where did the finished wagons end up?

I have made the steering box, chassis, springs and am well on my way with the front axle. But any assistance or advice from others would be very welcome.

Darren Saunders

To be 3 is not new...

Dear all at **EIM**. You provide articles on so much that is interesting in the world of making model steam locomotives that I am not keeping up to date with my reading! But re-reading the May issue I saw something that I must protest about.

On page 36, in the caption for photos 2 and 3 it states; "2½-inch gauge (now known as Gauge 3)."



Locos hauling their drivers on this gauge have been called 2½-inch for more than my lifetime. Locos hauling trains on this gauge, with their owners looking on, are referred to as Gauge 3.

This gauge has two associations that cater for those interested in it. I would not go to a meeting of the Gauge 3 Society with a riding truck under my arm, and I would not like to see locos at a meeting of the National 2½-inch Gauge Association running without a driver!

John Meaford

Andrew C replies: I subscribe to the view that you learn something new every day and I did not know that! John and possibly others may be pleased to hear I have recently commissioned a piece on the history of 2½-inch gauge for a future edition of the magazine, which will no doubt be informative to me!



LEFT: Darren is making solid progress with his Foden tractor, but needs some help from **EIM** readers...

Bisschop by any chance?

I have just found an article in the March 1992 issue of **EIM** by a Cedric C. Mell describing his build of a Bisschop engine.

I fully realise that 26 years have passed, however I am hopeful that there may be records of Mr. Mell, or possibly a club he may have belonged to. I have built a Bisschop to the same stage that Mr Mell's article describes although to half full-size of the engine in the Museum of Science & Industry, Manchester and like Mr Mell I cannot get it to run.

So obviously I am seeking out a possible solution to the problem. His article is the only one I have found that refers to a model of this engine. My model is based on both the MOSI engine and one which is in a private collection here in Victoria Australia. I can be contacted on stewartian8@gmail.com. Thank you.

Ian Stewart

Opinions or information to share? A point to make? **Engineering in Miniature** welcomes letters on all model engineering subjects. Send your letters to the editor at the address on page 3.

PRODUCT NEWS

Silvertown Lubricator detail from 17D

Latest additions to the already extensive range of detailing parts offered by 17D Miniatures are these fine examples of the Silvertown automatic lubricator, reproduced in 7¼-inch scale.

The Silvertown lubricator was designed and developed by the Midland Railway in the early 20th century and later used by locomotives built for the London Midland & Scottish and for British Railways.



The 17D Miniatures detailing parts are available in both eight-feed and 12-feed variants of the lubricator, and each is supplied as a simple kit of four parts in lost wax cast brass, requiring only minimal work to complete and add to one's model.

Both versions are available to order – the eight-feed example costs £86.00 and the £12-feed £92.00, and also available to complement them are both two-feed and three-feed oil boxes.

Already producing a wide selection of detailing parts amongst an extensive range of rolling stock and accessories for both 5-inch and 7¼-inch gauge modellers, 17D tells us that a range of cast and machined parts for BR Standard locomotives are under

development and will be available shortly.

Like the entire 17D range these parts will be wholly manufactured in the UK. More details are on the firm's website.

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SEPTEMBER DIARY

EVERY SATURDAY

(Weather permitting)

Burnley & Pendle MRS public rides, Thompson Pk Rly, Burnley, 12-4pm

North Wales MES, public running, West Shore, Llandudno, noon-4pm

South Lakeland MES Public running, Lightburn Park, pm.

Sussex MLS, public running, Beech Hurst, Haywards Heath, 2-5pm

EVERY SUNDAY

(Weather permitting)

Bournemouth SME Public running in Littledown Park 11am – 3.30pm. (Also Wednesdays)

Bradford MES public running, Northcliff Woods, Shipley, 1.30-4pm

Burnley & Pendle MRS public rides, Thompson Pk Rly, Burnley, 12-4pm

Canterbury SME (NZ) Public running from 1pm at Halswell Domain

Chingford ME public running, Ridgeway Park, Chingford E4 6XU, 2-5.30pm

Fylde SME Public running at Thornton Cleveleys from 1pm.

Grimsby & Cleethorpes MES public rides, Waltham Windmill, DN37 0JZ, noon-4pm

Harrow & Wembley SME public rides, Roxbourne Park, Eastcote, 2.30-5pm

Kings Lynn & District SME, Lynnsport Miniature Railway, 11am-4pm

Kinver MES Public running at Kinver 2pm – 4pm.

Lancaster Morecambe ME public running, Cinderbarrow Railway, Tarn Lane, near Yealand Redmayne, from 10am

Portsmouth MES Public running, Bransbury Park, 2pm-5pm

Rochdale SME Public running in Springfield Park from 12 noon.

Ryedale SME public running, Village Hall, Pottergate, north Yorks

Sale Area MES Public running in Walton Park from 12 noon.

Southport MES Public running at Victoria Park 11.30am – 4.30pm

Sussex MLS, public running, Beech Hurst, Haywards Heath, 2-5pm

Urmston MES Public running in Abbotsfield Pk 10am – 4pm

Vale of Aylesbury MES Public running, Quainton Rly Centre, from 12 noon.

Wirral MES Public running, Royden Pk, Frankby, 1-3.30pm.

1 Tiverton MES Steam Up, Worthy Moor from 11am.

2 Frimley Lodge MR Public running 11am– 4pm, Sturt Rd GU16 6HT.

2 Pietermaritzburg MES (NZ), Public running, Pietermaritzburg 3201

2 Plymouth Miniature Steam public running, Pendeen Crescent, Plymouth. PL6 6RE

2 Tyneside SMEE Public Running, Exhibition Park, Newcastle upon Tyne, 11am-3pm

5 Bradford MES meeting Live skills demonstrations, 7.30pm.

7 Portsmouth MES diorama building, Tesco Fratton Centre, 7.30pm

7- Southern Federation Rally,
8 Cambridge MES, Fulbrooke Road Cambridge CB3 9EE

8 Bromsgrove SME open day. 16mm, G1, 2½in, 3½in, 5in tracks. peter.maybury@outlook.com

8- Sale Area MES Annual Open
9 Weekend, Walton Park from 12 noon.

9 Bracknell RS Public Running, Jocks Lane, RG12 2BH, 2-4.30pm

9 Bristol SME Diesel & Electric Gala, Ashton Court, BS8 3PX

9 Cambridge MES public running, Fulbrooke Rd, Cambridge CB3 9EE, 1.30-5.30pm

9 High Wycombe MEC Bacon Butty Morning, Watchet Ln, Holmer Green, 10am-noon

9 Welling DME public running, next to Falconwood rail station, 2-5pm.

9 High Wycombe MEC meeting, Rossetti Hall, Holmer Green, HP15 6SU, 8pm

14 Tiverton MES meeting, Old Heathcoat School Community Centre, 7.30pm

15 7¼in Society AGM and Gathering, Perth

15 Cardiff MES Steam Up and Family Day, Heath Park, 1pm-5pm

16 Bristol SME club day, Ashton Court, BS8 3PX

16 Chichester ME Public Running, Blackberry Lane, PO19 7FS. 1-5pm

16 Plymouth Miniature Steam public running, Pendeen Crescent. PL6 6RE

16 Tiverton MES Steam Up & visit from Brean Steamers, Worthy Moor from 11am.

17 Pietermaritzburg MES (NZ), Meeting, Pietermaritzburg 3201

18 Grimsby & Cleethorpes MES monthly meeting, Waltham Windmill, 7.30pm

18 Model Steam Road Vehicle Society meeting, Fielding & stationary engines by Robert Jackson, Longford Vil Hall, Gloucester, GL2 9EL

23 Bristol SME public running, Ashton Court, BS8 3PX

23 Cardiff MES Open Day, Heath Park, 1pm-5pm

23 Pimlico Light Railway Public Running, Helmdon, Northants, 3-5pm

23 Polly Owners Group Rally, Romney Marsh MES, www.pollyownersgroup.org.uk

23 Welling DME public running, next to Falconwood rail station, 2-5pm.

30 Bristol SME Club Day, Ashton Court, BS8 3PX

Your club's events not listed on this page? Send details to andrewcharman@warnersgroup.co.uk or the postal address on page 3 (at least two months in advance)

Details for inclusion in this diary must be received at the editorial office (see page 3) at least EIGHT weeks prior to publication. Please ensure that full information is given, including the full address of every event being held.

Whilst every possible care is taken in compiling this diary, we cannot accept responsibility for any errors or omissions.

Coming next month in...

THE MAGAZINE FOR MODEL ENGINEERS
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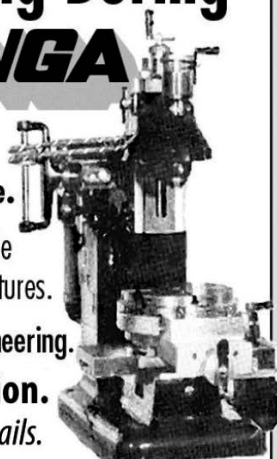
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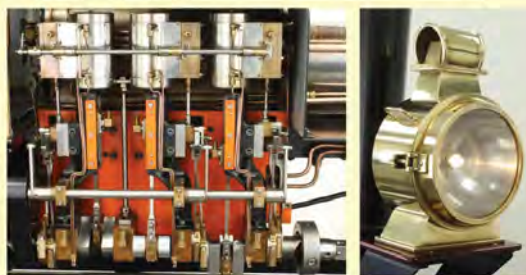
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2 INCH SCALE DURHAM & NORTH YORKSHIRE
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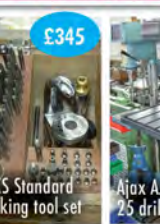
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MKS Standard staking tool set



best one yet!

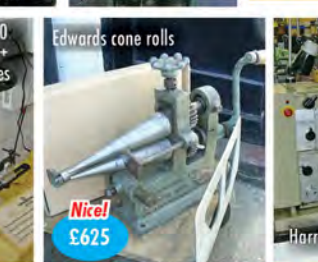
£4450

Colchester 1800 Student



£2450

Emco FB2 mill powered + DRO



£625

Edwards cone rolls



£425

Clarke 917 vacuum forming machine



£30 each

Myford ML7 Super 7 lathe

Please PHONE 0208 300 9070 to check availability or to obtain our list
DISTANCE NO PROBLEM! • DEFINITELY WORTH A VISIT • ALL PRICES EXCLUSIVE OF VAT
Just a small selection of our current stock photographed!
We are currently seeking late 'Myford Super 7B' & 'Super 7 large bore' model lathes!



£625

Micrometers Various! 0-16" / 300mm



£2450

RJH 240V finisher



240 volts!

£5950

Myford Super 7 Sigma Big Bore lathe + Tesla 750 inverter, excellent example



240 volts!

£6950

Myford Super 7B Plus Big Bore lathe + Tesla 750 inverter, cabinet stand excellent example



£3750

Harrison M300 lathe + gap



£345

Waltons jenny



£20 each

Pratt/Burnerd chucks various



£20 each

Myford ML7 Super 7 lathe



£725

Loco 5" pass. Washington



Myford ML7B

£2250



£625

Wickstead 8" hacksaw



£325

Hegner Multicut-1 + blades



£345

Blacksmiths anvil (tinmans) stakes!



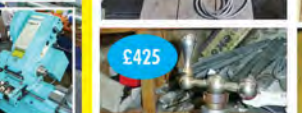
£345

Britan bank of grinding wheels



£425

Hofmann 8" rotary table



£140

Edgewick 4" vice



12" x 12" x 24" Angle plates (pair)

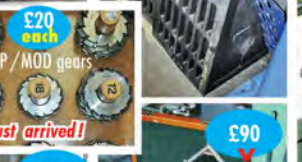
£345

Harrison lathe vertical slide



£950

Startrite 18-5-10" 10 speed steel cutting bandsaw



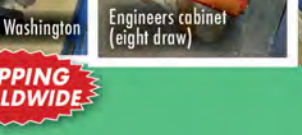
£2250

Elliot Progress 4E 3MT drill



£675

RJH vertical finisher + extractor



£3950

Denford Turn 270 Pro CNC



£545

Rednal 4HP 12BAR 200 Litre tank compressor (2010)

SHIPPING WORLDWIDE

