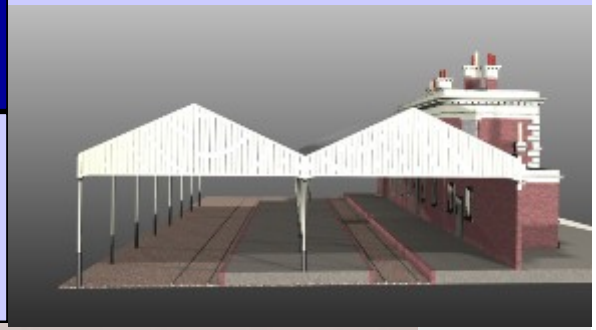
The L.B.& S.C.R. Modellers' Digest

Issue 15

Summer 2022

Contents on page 2

A journal of the Brighton Circle, for those modelling the "Brighton" in all scales and gauges.



Contents

Contents - continued

Contents - continued

Editorial

Welcome to Issue 15 of the LB&SCR Modellers' Digest.

Pre-group modelling is almost becoming 'mainstream', with the release of an increasing number of ready to run locos in 4mm scale. However, for me at least, one of the fascinations of the period is the sheer variety of different designs, both within and among the various companies. However, Terriers, E tanks, Radials and Atlantics will only take you so far down the path towards a Brighton layout - and that is before you even start to look for suitable rolling stock! Many of us have been down a slippery slope that started with adapting what was available (anyone still have their Tri-ang clerestory conversions?), kit building and scratch building, in order to get the period and the atmosphere that we have been striving for. How far down this slope you go is entirely a matter of personal choice and there is nothing to say that you have to go the whole way (or indeed that you will not discover that the slope is actually endless!).

The point of the Digest is to help all those who are setting out on that journey - and much of what follows will be relevant to all pre-grouping modellers, not just followers of the Brighton. I am always happy to have articles from those who are starting out, as that gives encouragement to others to follow the same path. Short cuts that produce something 'good enough' are welcome, as the ability to get something running is important to maintain motivation. We have all been there!

Membership of the Circle will help and there is an active Facebook page which will be of interest.

Eric Gates

Modelling Steward, The Brighton Circle

ericgates1310@gmail.com

Return to contents page

Hayling Island in 7mm scale

Richard Barton

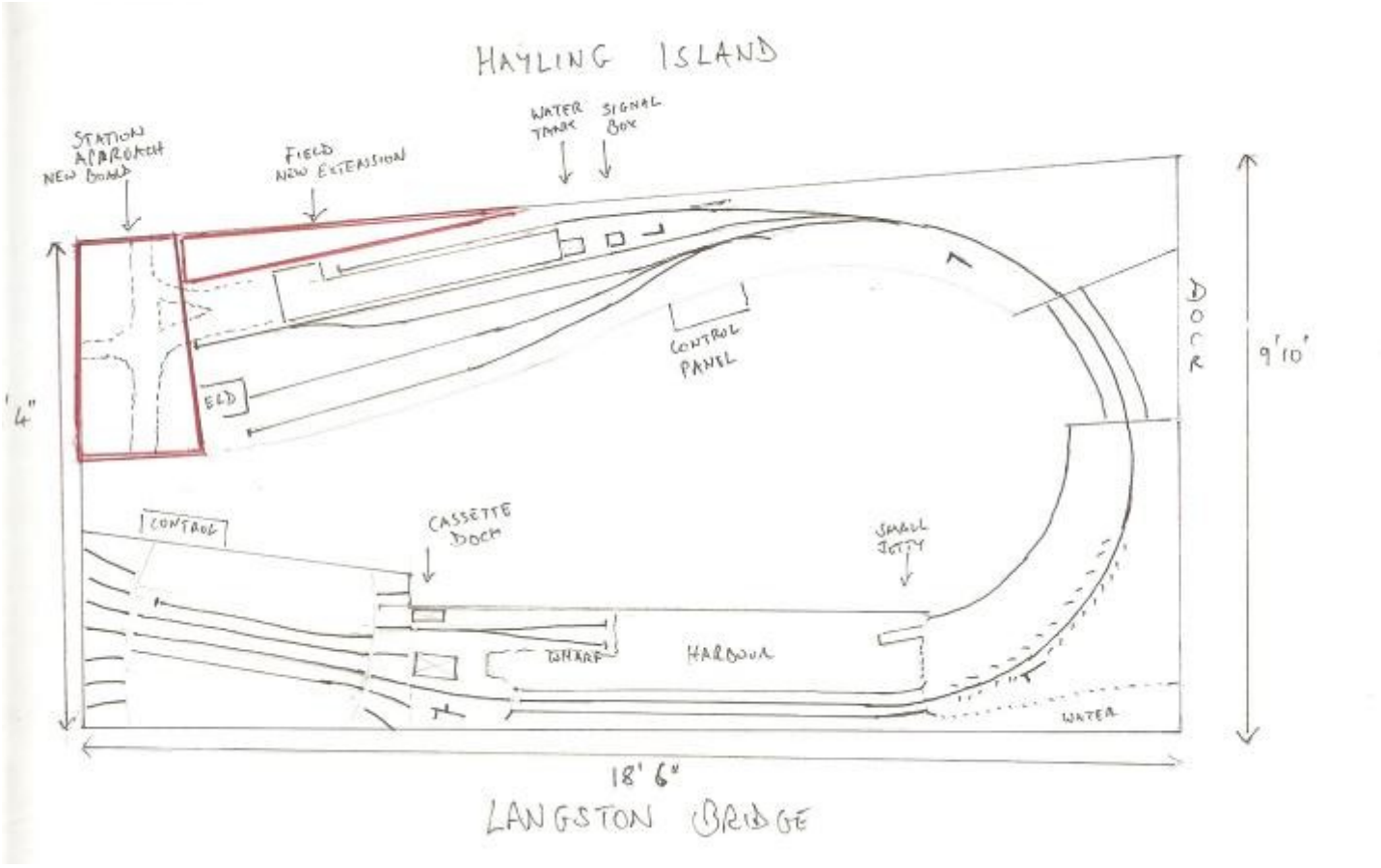
Modelling an LBSCR terminus in 7mm in limited space is difficult. Many branch lines connected with main lines at each end: where there was a terminus, such as at Seaford, too much space would have been required. The Dyke was scenically attractive but I do not like a terminus where a train arrived and the same train departed. Hayling Island had two platforms after 1900 but I wanted to avoid that rather dominant brick goods shed. My copy of an LB&SCR official track plan dated early 1900 appeared to show that the bay platform in existence before the goods shed had been built, but the Engineering Committee Minutes confirmed that the changes happened simultaneously. Until 2012 the only known photograph of the terminus prior to 1900 was the well known NRM one, probably dating from before 1880, but two additional photographs of about 1895 appeared recently (see Brighton Circular Vol. 39 No 2 Summer 2013). These photographs showed detail of the single platform and this decided me to set the model just prior to 1900. The former loco shed siding had been extended by 1898 - it later formed the bay platform - and this could provide somewhere to park special workings between the normal branch services.

Overall view

The layout was originally housed in a shed 16 feet by 12 feet and the first compromise was the engine release turnout had to be placed at the platform end, rather than beyond, so that the loco had to set the train back along the platform in order to run round (see below): the track plan was correct though foreshortened. The second compromise was to use two ready-to-run Marcway curved three-way turnouts, as I had them in stock and was uncertain of the configuration of an LB&SCR interlaced three-way. C&L flexible track was used elsewhere with the hope that the depth of ballast would disguise the incorrect sleeper spacing. The exit from the station led directly to a very abbreviated Langstone Bridge on a sharp curve, while on the opposite side of the shed there were two sidings either side of the track leading into a four road sector plate.

The original layout

The layout was nearing completion when a move of house in 2015 meant dismantlement, with only the two station boards and the fiddle yard able to be reused. Its new home was a garage 19 feet in length but only 9’8” in width. To maximise the radius the whole station was swung out into the room, to bring the station throat close to the wall. Rather than reposition the loco release turnout the station approach road was modelled, together with a field behind the station, highlighting its very rural location. Both these wedge shaped additional boards, marked in red on the plan, are removable for access. Operating this turnout is a ”Williams” point lever: the turnout was normally set for the loop, so that any vehicles left in the headshunt would be protected by the catch point at the exit to the goods yard. The weight of the locomotive passing through the turnout changed the sprung blades, whereupon the fireman reset the point blades for the loop. It wasn’t feasible to replicate this in 7mm on the model. The sharply curved eight feet of track beyond the station throat has a lifting section for access and represents the three and a half miles leading to Langstone Bridge. The bridge is now almost straight and could be constructed exactly like the prototype, though only 7’ 6” long instead of the scale 25’!



The landward end of the bridge did not lend itself to be modelled, so buildings were constructed to hide the exits to the fiddle yard. The two sidings on the quay are to provide extra interest, when the fiddle yard is run by a second operator, though in fact the Langstone coal wharf had silted up by about 1890. The four road sector plate has six stub sidings at each end- in principle this minimises stock handling, though laziness usually wins! Peter Korrison always kept rolling stock, which featured only occasionally in his operating sequence, in cassettes stored under the fiddle yard and I followed this sensible idea. The cassettes plug into the fiddle yard and have access to either of the two front fiddle yard roads. Layout operation is DC using Gaugemaster controllers and there are operating positions at each end of the layout. Either panel can be switched out, so that a train is always driven towards the operator and both are equipped with bells, for when the grandchildren come to play trains.

The sidings in the terminus are hand operated but the other turnouts have Tortoise motors operated by a manual lever frame. The slotted signals were built from parts kindly supplied by John Ritter and the home and starter are operated by relays attached to the underside of the signals, so they can be assembled and adjusted on the workbench before installation. I don't know if those two signals are correct: early OS maps mark only a signal post in the position of the starter and another a few hundred yards in the direction of Havant, which must have been a fixed distant. Peter Paye thinks he can detect two arms on the starting signal in his copy of the 1890s photo: if that is correct then prior to 1900 they may have been operated by a lever at the foot of the signal post, rather than from a signal box. I did, however, model a signal box, the one which appeared later beside the bay platform starter as a staff lobby. I don't know where this came from or if this ever served as a signal box at the terminus. It is, however, identical to the box at Langstone Station. The up and down home signals for the bridge are "switched out".

I made the 5 plank fencing by hand but have not been able to obtain further supplies of stripwood since the pandemic. Instead hedging is used, which is much less susceptable to damage when the hinged access section is raised. It also helps to divide the agricultural area around the station from the contrasting approach to Langstone Bridge.

To add operational interest there are three separate periods for the coaching stock: Craven, Stroudley oil lit and Stroudley gas lit. There is an excursion train of similar stock to that hired from the LSWR pre 1872 and a South Eastern Railway private working and other saloons that can be added or taken from the branch set to add interest. Francis Fuller, who was instrumental in the completion of the branch, operated a short lived racecourse on the Island. “Modellers’ License” allowed the race meetings to continue, so a horse box special could appear in the timetable from time to time. Goods traffic to the Island was very limited and was carried by mixed trains. As the fiddle yards are only 4 feet long mixed trains are limited to three coaches and three wagons, or alternatively separate goods trains can be run.

Discovery of the seasonal movement of young oysters between Whitstable and Hayling Island adds a further special working. The purchase of a number of goods consignment notes from the 1890-1895 period (Circular Vol. 46 No. 1) has enabled specific wagons to be modelled, including the load of chalk from B. J. Forder's Buriton Lime Works. Locomotives include the three known to have worked the line prior to the arrival of Terriers: the Sharpies "Hayling Island" and "Fratton" (the latter still in its original condition as "Bishopstone" until I can build another, having guessed how it might have been modified for passenger working) and the Kitson 0-4-2 "Bognor". A newspaper reported in 1904 that the LB&SCR intended to strengthen Langstone Bridge to take main line trains, so I have an excuse to run any of my larger Brighton locos, even though that strengthening never happened.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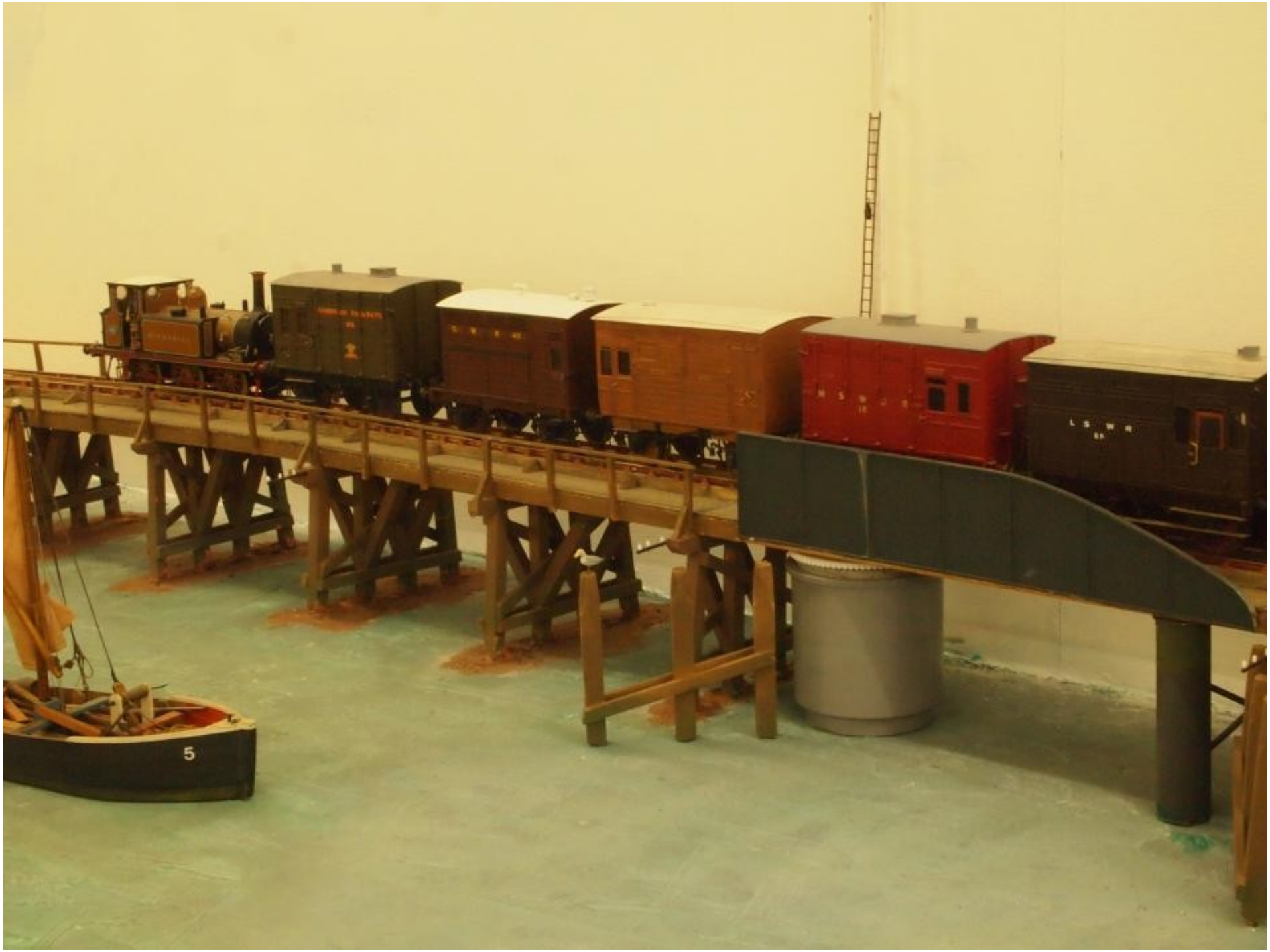
HAYLING ISLAND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A lack of space has meant rather more compromises than I would have liked but I am pleased with the overall effect and the track plan has made the best use of the space. Sound would have added interest but I did not want the trouble (and expense) of converting to DCC control. By placing Langstone Bridge close to the wall there is a distinct difference in the noise of a train, as it passes over the bridge. There is still additional detail to add but then there always is! Finally I would like to record the help and encouragement given by the late Peter Korrison and a few items of his rolling stock and his two superb Arun barges can be seen in some of the photos.

Return to contents page

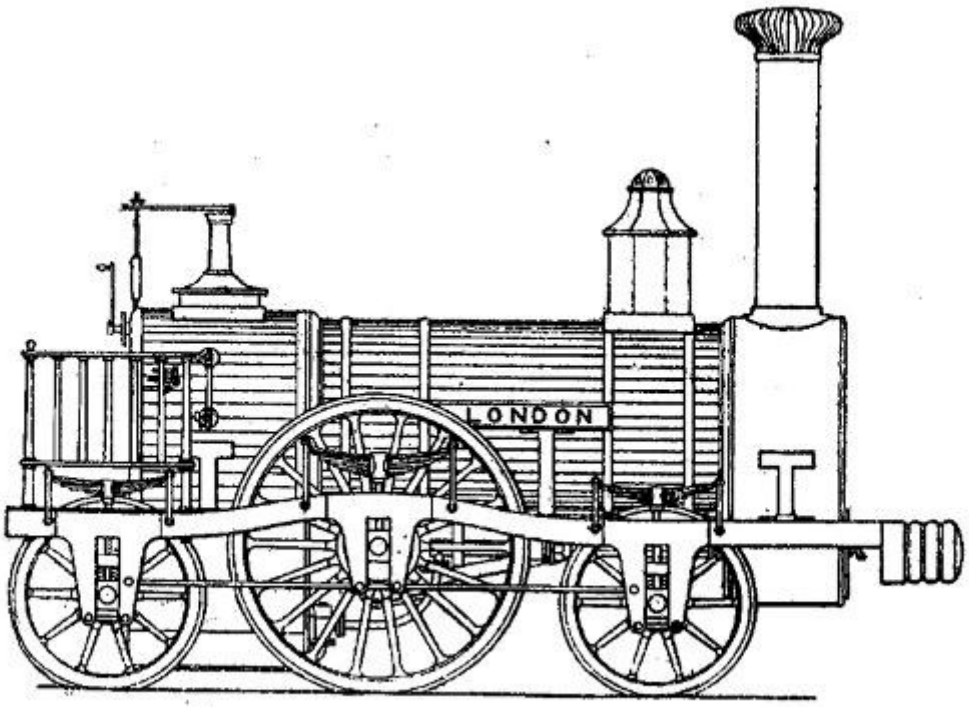
Modelling Satellite and Croydon, Rennie 2-2-2 locomotives in 4mm scale.

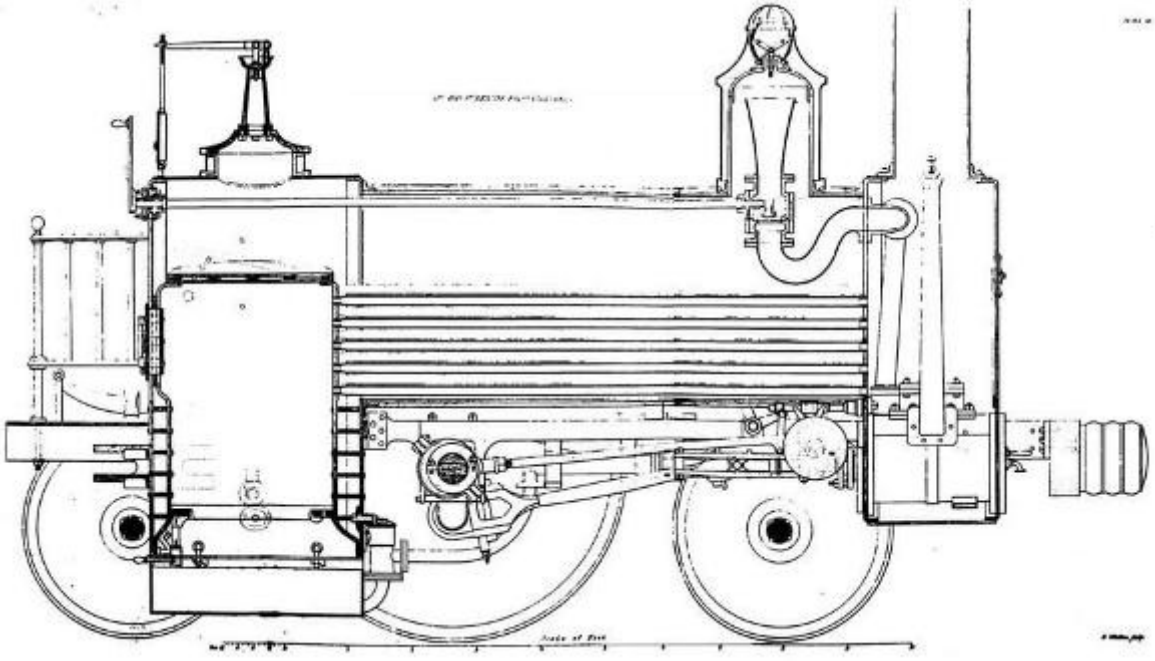
Chris Cox

The customary way to begin the construction of a new locomotive in any scale is the time-honoured ceremony of the cutting of the frames. A Rubicon is crossed once this task is complete. There can be no more expectant sight than freshly cut locomotive frames carefully shaped and fettled ready to receive the myriad fixtures and fittings that together create the foundation of any locomotive. However, for the construction of Satellite I intended to eschew this tradition, and the reasons for this I hope to justify with the following description.

Satellite was one of a dozen or so engines constructed by George and John Rennie at their Blackfriars workshop over a period of five years. My interpretation of the design development undertaken by Messrs Rennie is laid out in a prelude to this article recently published in the Brighton Circular. Therefore, I do not intend to repeat my thesis here but instead invite the reader to ensure their subscription has been renewed in order to receive the Spring edition.

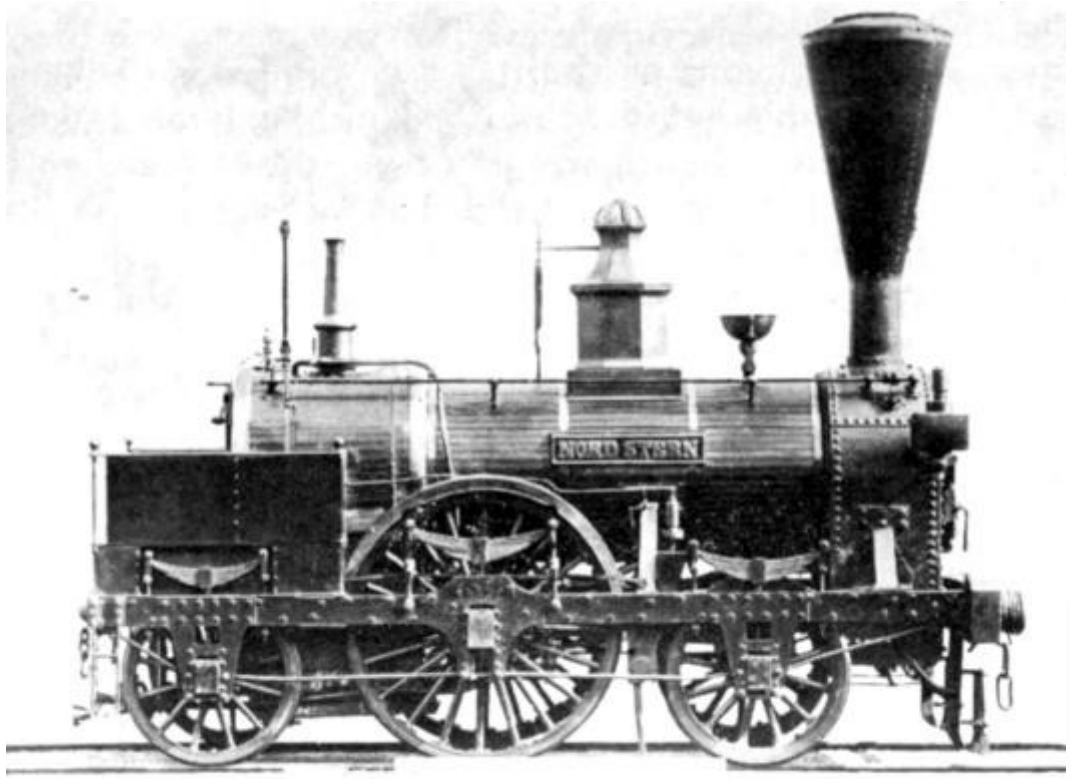
Despite the obvious similarities to a Star or Firefly of the Great Western broad gauge (Messrs Rennie built two of the latter, Mazeppa and Arab), Satellite was a very diminutive locomotive, certainly no bigger in stature than its contemporary stablemates from Sharps of Manchester. In model form, this presents a challenge in that the boiler and firebox are not commodious enough to conceal a gearbox and motor of sufficient chutzpah to divest a proverbial rice pudding of its





The evolutionary path.

London of 1837 built for the LSWR.



„Nordstern", Rennie London 115/1839, Nr. 17.

Above - Nordstern of 1839 built for the Kaiser Ferdinand Nordbahn of the Austro-Hungarian Empire.

Right - Satellite of 1841 built for the London and Brighton Railway

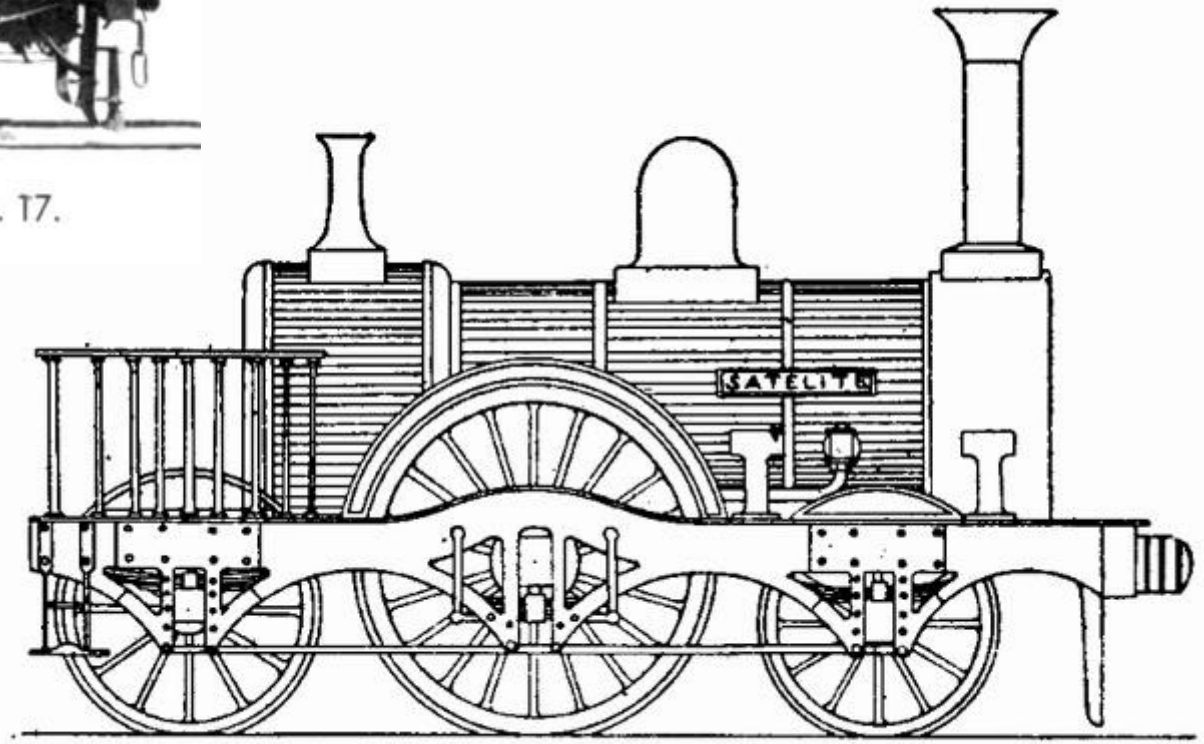


Fig. 3.

congealed crust.

Therefore, one is left with two options.

A: to mount a motor in the tender and via a flexible shaft or universal joint drive a gearbox in the locomotive.

B: to shoehorn both motor and gears inside the tender and have the engine shoved around like a mid-19th century perambulator.

A little research and sample procurement confirmed my initial suspicions that whilst the drive shaft diameter was acceptable, a universal joint would be too bulky to squeeze into the slim space between the trailing axle and the underside of the footplate. Other locations for this joint moved it too far away from where it would need to be to function properly whilst both locomotive and tender negotiated points. Clearly, I was left with option B and therefore my logical starting point for Satellite would be to design a tender drive unit that could be to a certain extent ‘universal’ and perhaps be employed on future projects. At this point no doubt many readers will be mindful that there are several excellent small drive units on the market which would be eminently suitable, Branchlines and High Level to name but two. However, I have a small box stuffed full of motors and gears and, whilst my middle name is not Ebenezer, I do enjoy building locomotives as cheaply as possible and relish a certain schadenfreude when I note the ever-increasing price of ready-to-run locomotives, although admittedly this is a shameful trait to which I would certainly never confess.

Patterns for the frames and the mould for casting.

If you want to scratchbuild lots of the same prototype, the best thing to do is create a kit.....

After playing miniature chess with a motley assortment of small motors and gears over a scale drawing of a Rennie tender, I settled upon a combination of a 10T spur on the motor shaft, driving a 30T spur secured on a drive shaft carrying two worms, which in turn drive small gears on a pair of 2mm axles bearing the 3ft. 6in., or 14mm tender wheels. The worm and gears have a ratio of 39:1 and therefore taking into account the 3:1 reduction at the motor, a gear ratio of 117:1 was arrived at. This ratio is very slow but in my defence most locomotives of the period would be bowling along nicely at around 30mph, and since my layout is end-to-end and set almost entirely within what can be considered to be the station boundary, top-link express speeds will not be required. All gears were sourced several years ago from Branchlines at a model railway exhibition. A further advantage of my budget drive unit was that it would be cast in white metal, thereby providing a dead weight for traction purposes.

A fortnight's worth of 1-1/2 to 2hour sessions hunched over the dining room table with vernier, blades and styrene yielded a selection of casting masters for the tender itself and the drive unit to be ensconced within. After double and then triple checking to ensure that all parts of the three-dimensional jigsaw fitted together, the parts were set in modelling clay and the rubber two-part mould was cast. It is always exciting to fire up the crucible and pour molten metal into a new mould for the first time, and the emotions of many a childhood Christmas are relived when the mould is opened, and a new 'kit' revealed. The Rennie tender was no exception and the body itself was assembled with very little fuss. In fact, bathed in confidence, I chose to make four simultaneously. Three of these would be paired with Croydon, Satellite and Kentish Man built to EM gauge, the fourth for another Satellite to be finished to OO standards and it is this last one in particular that provides the fuel for this article.

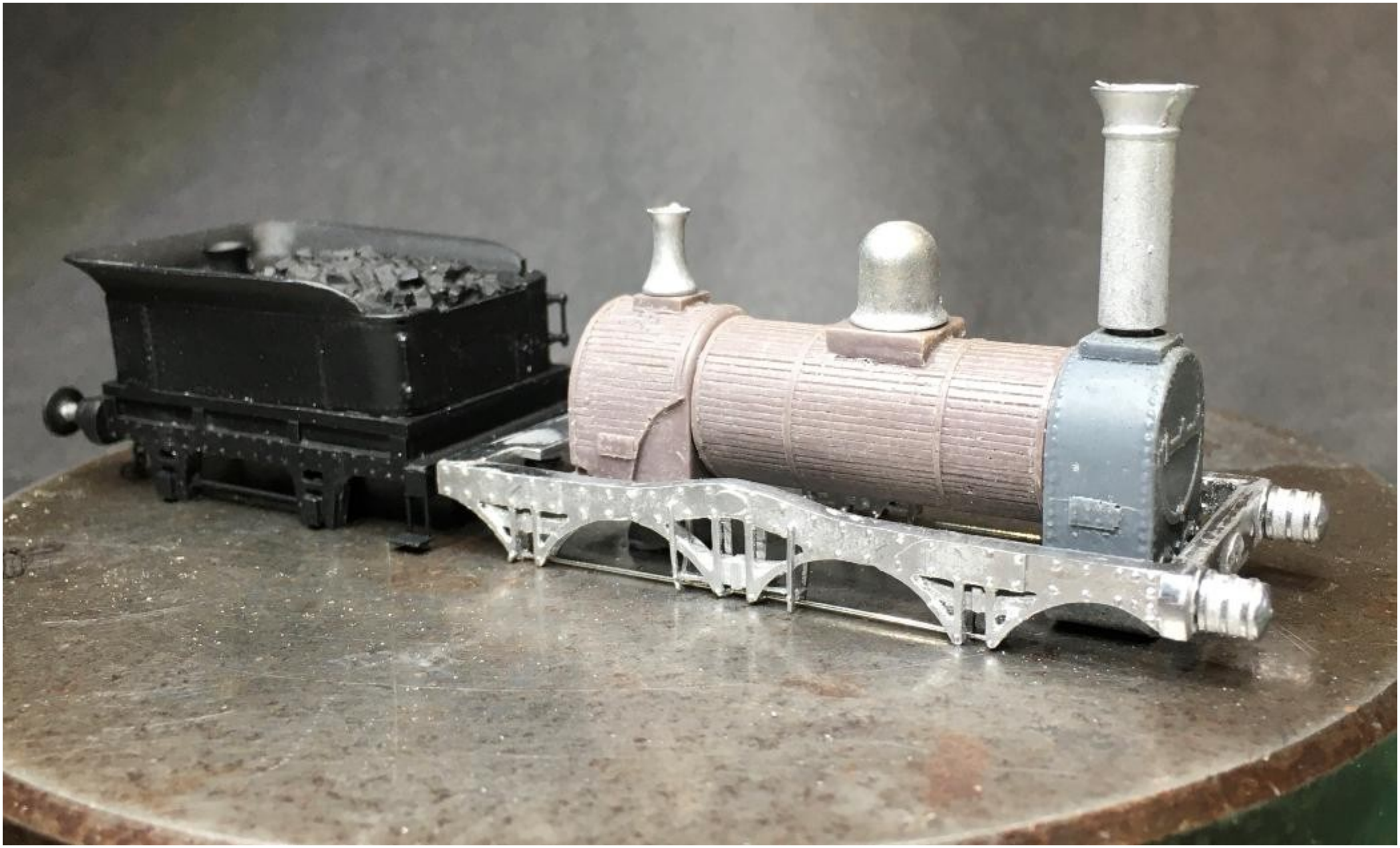
One point worth highlighting is that according to the limited evidence, Messrs Rennie placed their brake handle directly above the brakes, a simple pulling and pushing mechanism around a threaded shaft being sufficient to apply and release the brake shoes. This required the tender to be almost empty of coke at all times in order that the fireman could access the handle. Since the tender contains the motor, this space could not be left open and so I modelled it piled with coke which in reality would have been carried in sacks to prevent the light material from tumbling away on route. The result of this concession is that a mid-position brake handle would be all but unreachable by even the most lithe of footplate crew, so a good dollop of modellers licence was served up and a more familiar forward position was found for a brake stanchion.

However, pride must inevitably precede a fall and I discovered that despite my closest attention to the masters, the motor did not sit low enough to fit inside the tender body. I had missed a beading strip off the front edge and furthermore, the body itself sat too high, a scale 4ft from the top of the rail to the buffer centres was not going to be acceptable. Following early retirement to bed in disgust, the next evening was spent reinforcing the Golem stereotype of the finescale modeller,

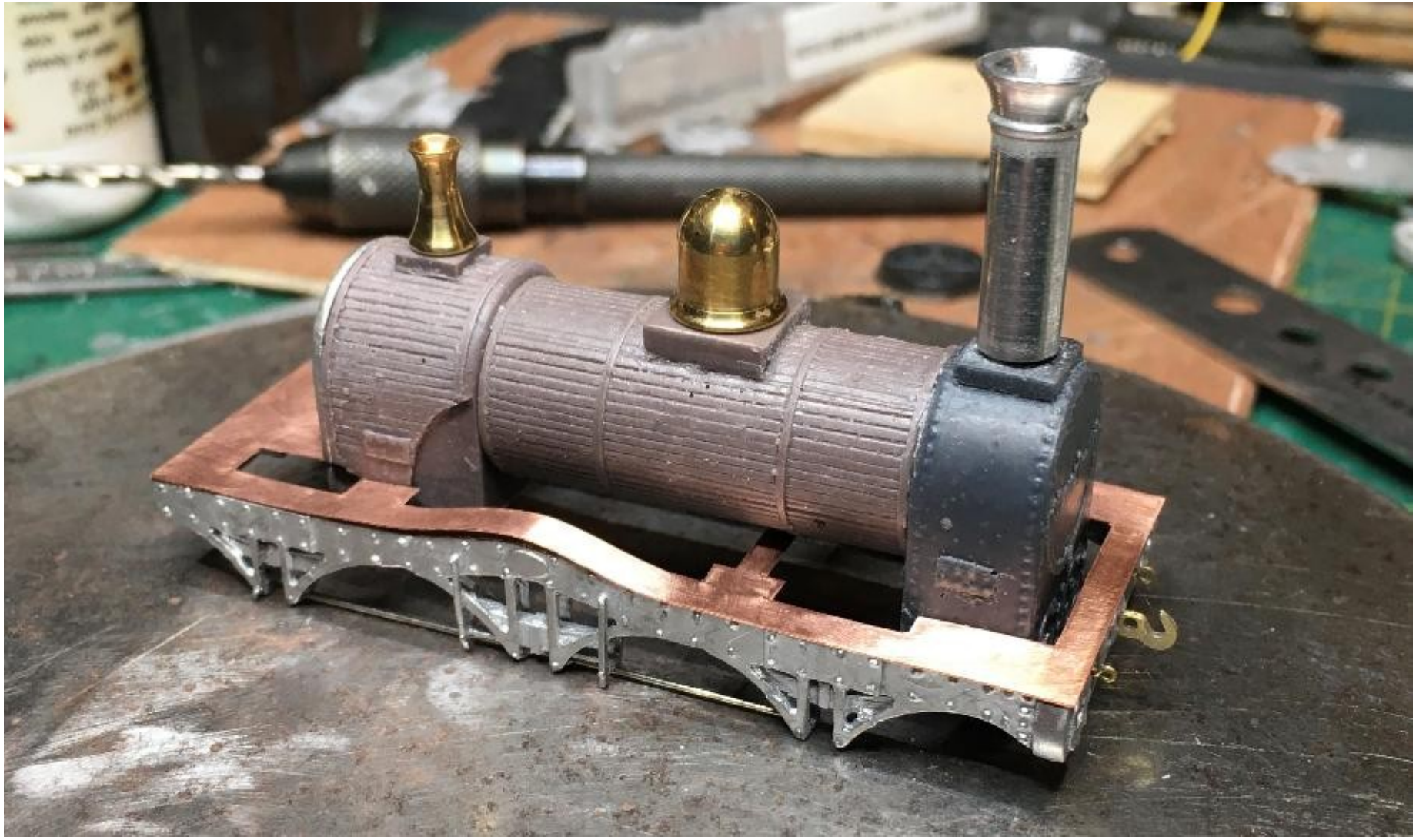
wringing my hands, and trying to deduce what exactly had gone awry with ‘my precious’. Whilst the mesh of the gears was spot-on, the worm gears were decidedly too large in diameter, as if they had grown whilst my back was turned. A search on the highly informative Ultrascale website provided an alternative option for the worm gears, a smaller 30:1 pairing seemed to answer, an order was duly placed, and my thrifty concept of a budget build began to wither. Contrary to cautionary notices on the Ultrascale webpage regarding long lead-times, an exceptional level of service resulted in my replacement gears arriving within the week. The new gearset was offered up and confirmed that new sides for the motor unit would have to be made whilst the existing ends would suffice. New masters were fashioned and set in a mould with a quantity of lathe-turned components prepared for the three engines, namely the assorted domes and safety valve bonnets. The trio sported different domes, but it appears Croydon and Kentish man had at least similar ornate safety valve bonnets and one chimney casting would suit them all. The side frames for Satellite and Croydon were also included in this mould. These were made as two sides of one frame in order that the sandwich construction (timber between two plates of wrought iron) could be reproduced. Both sides were furnished with rivet heads which meant that the frame sides would be identical, and the one master could be used for both left and right-hand frames.

More often than not, the first castings from a new mould yield poor results and serve only to indicate where further feed lines should be cut, and existing ones opened out. Thankfully, it was not long before I had some very respectable castings, certainly enough to officially commence construction of the locomotives. The new tender chassis sides were also calling to be assembled and this time everything was precisely where it should be, or perhaps should have been in the first place had I paid attention in class. A set of frames was eagerly fettled and soldered together and assembled with drag beam and buffer beam to form a sturdy but elegant foundation. At this point curiosity got the better of me and a test assembly of frames, completed tender body and boiler with cast fittings was balanced together for a photo opportunity. This also served the dual

purpose of checking that everything was correct and providing a little peace of mind that I was at least heading in the right direction.



The next stage involved the delicate cutting of a footplate from 5thou copper. I would like to think that the choice of this material was because it is conveniently supple and with an etch primer takes paint perfectly well, but the more prosaic reason is that I had run out of 5thou brass. The cutting and shaping of the footplate took some considerable time but the end result was pleasing and once again a test assembly provided a boost to moral especially with the correct turned brass boiler fittings in place.



My intention to model three Rennie locomotives at the same time may on the face of it seem absurdly complicated, as if modelling one 1840s loco wasn't challenging enough. However, there were certain advantages in terms of producing the boiler, firebox and smokebox for all three in that at least dimensionally they were all the same. With this 'make one, get three more half price' special offer in mind I made a master for one timber lagged boiler with no bands and purposefully too long (since I also have my eye on Stephenson long boiler 'White horse of Kent'). I selected a length of slightly undersize brass tube, wrapped it in double-sided sticky tape and laid on tiny strips of 5thou styrene. The ends were then plugged with modelling clay and a one-piece rubber mould cast around it. Using this mould, I was then able to cast in resin multiple boilers, each of which was cut to length and treated with boiler bands in the correct position for each model, the positions of these bands varying according to the size and position of the domes on each loco. Dome bases were also added to the front for Croydon and in the middle for Satellite and Kentish Man. The firebox and smokebox were created from styrene with moulds and castings being produced in the same way.

The resin I used initially was past it's best and tended to foam which created a casting with a decent enough surface but a core like Swiss cheese. I then tried a resin I had stashed away for several years and despite it having been opened a long time ago, it behaved itself and to my surprise produced much better results. The resin was also coloured appropriately using some ceramic stains from work which proved an advantage when it came to painting.

Boiler fittings were turned from brass rod on the lathe, and these were included in the mould for casting the frames but comparing the turned brass fittings with cast ones there was no contest, so I returned to the lathe and turned some more. On Satellite I chose to off-set the safety valve lever and balance spring which looks a little odd at first but reference to drawings and photographs of early locomotives showed that this was in fact common practice in order that the spring balance didn't fight for space with the regulator lever and/or the whistle. The other consideration may have

been moving it a little further out of the reach of the driver lest he be tempted to screw it down and blow himself up!

The next stage was one which I'm sure all modellers experience, the making and fitting of all the minor details which seem to take forever and appear to yield few visible changes. The exception to this was the fabrication of the footplate railings which were formed of 0.45mm wire with a slightly fatter 0.7mm wire for uprights each end. The handrail was cut from brass and drilled to take each railing. This was then used as a template to mark and drill corresponding holes in the footplate, tedious but sturdy. Another dull task was the cutting and bending of the boiler and smokebox supports consisting of a short strip with a plate top and bottom forming a sort of double ended T. Six of these were required per loco and after two locos worth I gave up and provided a sketch to fellow Circle member Mike Waldron to convert into artwork for a brass etch. The reversers were also dealt with in this way as a couple of different styles of early reverser and quadrant would always be a useful thing to have for this and future projects. Motion detail was tackled next and was disappointingly fiddly. I already had some etched frets for a generic motion produced by Mike to suit his loco kits, but my initial hopes were dashed upon realising that because they were made for Stroudley locomotives they were at least twice the size required for the Rennies and unfortunately of no use at all, so it was back to fudging something together from scraps of brass and wire.

Satellite has a fixed front axle and a kind of bogie for the driving and trailing wheels resting on a central pivot point under the firebox. This creates what I would call three-legged stool compensation and seems to work well. The wheels for all four locos and tenders were tackled all in one batch, Gibson 5ft 6in drivers had their crank bosses filed away and each wheel de-greased and treated to a coat of green with tyres picked out in black, finished with a coat of satin varnish. I chose to use 14mm coach wheels for the leading, trailing and tender wheels since 14mm loco wheels are much too chunky for the 1840s and can spoil the look of an otherwise dainty engine.

This required a little extra work to cut off the pointed axle ends and also open out the bearings slightly as for some reason 2mm coach axles are larger in diameter than 2mm loco/tender axles. Perhaps there is a quirky reason for this or perhaps it is done just to be awkward.

With the wheels complete I turned my attention to the splashers. Since Satellite appears to be a smaller version of a Firefly or Star broad gauge engine, I felt it was not unreasonable to reproduce the bold brass driving wheel splashers of its cousins on the GWR. These were formed by cutting a strip of brass the depth of the splasher, wrapping around a tube to obtain the appropriate curve and soldering in a piece of brass cut as an arch. A further strip of brass wire was soldered on the lower edge of the arch and the whole lot was sanded and buffed to a good finish. Trial fittings of wheels and splashers soon revealed that large chunks of the boiler and firebox would need to be cut away to allow for the inadequate back-to-back measurement of the OO wheelset. Thankfully cast resin is soft enough to cut into with a sharp blade so I had to be very careful not to cut too much away, which unfortunately is precisely what I did.

Having carved away too much of the boiler and firebox to accommodate the OO driving wheels, the only remedy was to prepare some Milliput epoxy filler and mould it into the gap. However, this could not be done until the boiler, firebox and smokebox assembly was fixed in place, and this could not happen until it was fully painted since the underside would be tricky to access with a brush with the motion in the way. Furthermore, the boiler could not be installed until the frames and footplate etc were painted for the same reasons of limited accessibility.

Satellite's frames and footplate assembly was degreased (I favour Carrs Acidip for this but I'm sure other methods are just as effective) and set aside to dry. The boiler was not prepared in this way as I felt it unnecessary and was unsure of the long-term consequences of using Acidip on resin parts, although it's very weak and I'm sure it's probably fine. A coat of etch primer was then sprayed over the frames and footplate followed by a coat of matt black, both rattle cans from Halfords. I took care to mask off the top surface of the brass splashers prior to painting but in other areas like the top surface of the handrails I just scraped the paint off and polished with a tiny piece of 1600 emery paper. I don't mind this process as it's a useful test to see if the paint has taken well or not, although I'm not quite sure what I'd do if it hadn't. The tender body was similarly treated with the etch primer and coat of black.

The timber lagging of the resin boiler had a base coat of Humbrol matt 160, (all numbers refer to Humbrol matt enamel unless stated otherwise), the firebox backhead was a casting from one of my many spares boxes and received a coat of matt black along with the smokebox and chimney. I can't help but feel an intense dislike for the first paint coat as without fail it looks inadequate, bland and creates a feeling of a good model completely spoiled by a bad paint job however, the following stage always seems to rescue it. Using a fine brush, I painted in a much-thinned blend of matt black and 98 (the colour of a piece of chocolate of indeterminate age and origin you might discover under the fridge) into corners and joints and around each side of the boiler bands. This serves to highlight detail and give a slightly used look reminiscent of the real thing. The lagging

Above - Satellite

Right - Croydon

was then dry brushed with a blend of 160 and 63 to highlight the strips, and the boiler bands picked out in gold as I find the brass paint to be a little too ‘coppery’. Frames were painted 70 and splashers 88 which is a reasonable take on sea green although the exact shade is not known and like any other colour for locomotives of the 1830s and ‘40s is open to interpretation. Once thoroughly dry, both boiler and frames received a coat of satin varnish and after a couple of days of drying were united with the assistance of a little epoxy glue. At this point the gap above the splashers was more apparent than ever so filler was applied, sculpted to suit, and left to dry before being painted to match the rest of the boiler. The tenders for Satellite, Croydon and Kentish Man were also painted at this stage, the only difference being the careful application of thin black lining in the form of Modelmaster transfers applied to a base coat of gloss varnish and sealed with satin varnish. Buffer beams were painted with a mix of Precision Paints vermillion and the frame colour 60. The vermillion on its own looks positively fluorescent against the muted shades on the rest of the model so blending with a dull red/brown calms it down, numbers were hand painted in 121 rather than white for the same reasons.

Prior to the advent of 3D scanning willing volunteers to produce model figures, I might have chosen crew from a few Aiden Campbell castings in my scraps drawer, however ModelU now print a fantastic range of incredibly lifelike figures. Driver and fireman for both Satellite and Croydon were chosen from their Industrial Loco Crew range and painted in their undyed fustian jackets, black trousers and caps. I prefer to glue the figures in place since the aim is to make good use of these Rennies at exhibition and a steam locomotive on the move without its driver and fireman can be alarming.

Whilst Satellite was completed and delivered to its customer, there remain a few minor finishing jobs to tackle on Croydon and ,at the time of writing, my own Satellite in EM and Kentish Man are both still merely a set of frames and completed boiler assembly requiring much work yet. However, the tender drive units are complete and the tender bodies likewise so, as long as I can resist any other modelling distractions, they may yet be outshopped by the autumn.

For comparison, Croydon stands next to a G class single.


SATELLITE


SATELLITE

....and Croydon

Return to contents page

Lewes First Station (1846-1857)

a 3D CAD Model

By David Rigler

I have spent many years now modelling the main structures of the second Lewes Station (1857-1889). Whilst looking in a little more detail at the goods yard and river side buildings of that time my attention was drawn to the first Lewes Station.

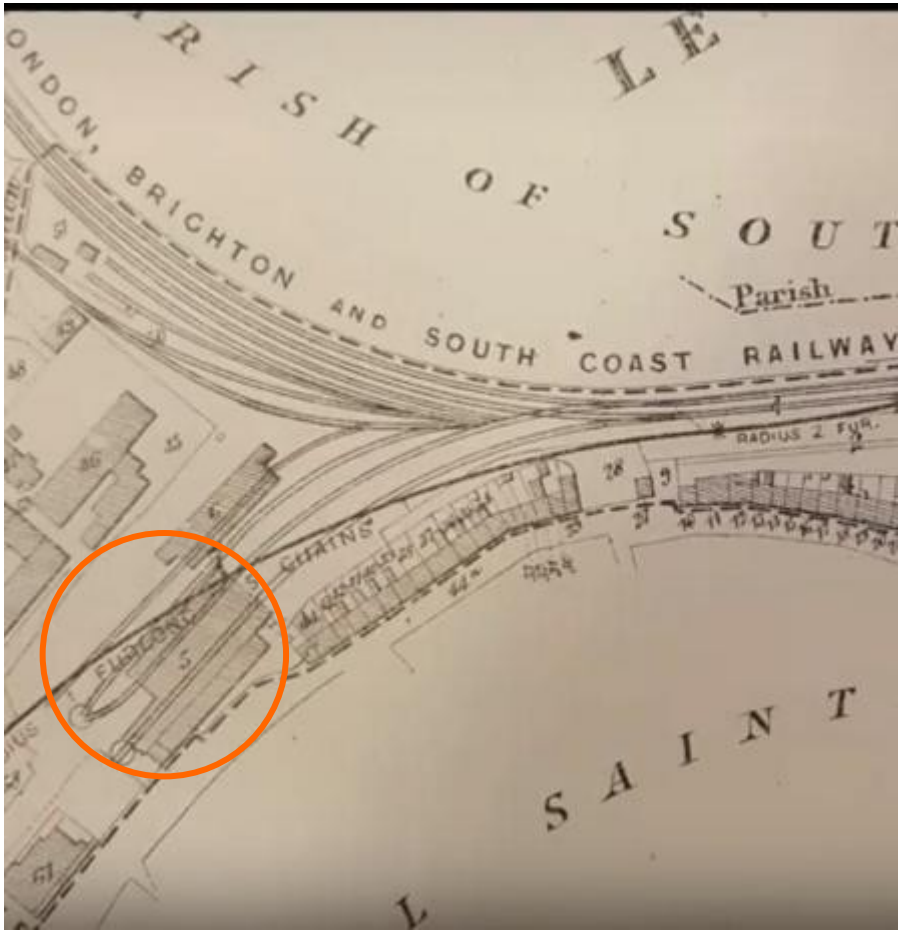
This station was ill conceived and short lived, being a terminus with awkward working onto the main line toward London and Hastings. However the station building survived into the 1960's.

I have memories of the building from my early days growing up in Lewes but have never had a clear idea of how the complete station looked, so I set about modelling it.

I gathered together a good collection of photographs of the main building but the detail of the canopy and platform area was very limited.

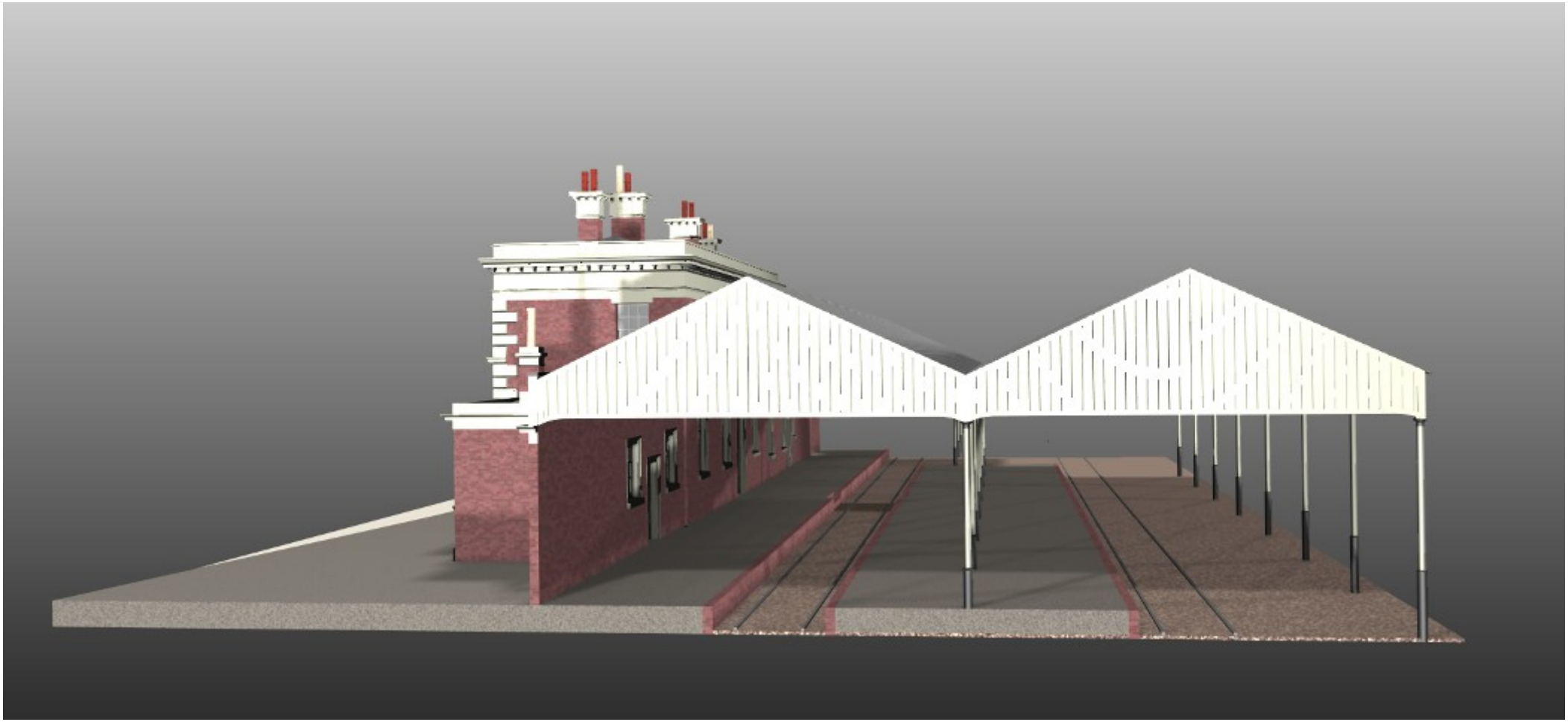
Once I started on the station building it became apparent just how much architectural moulding and cornicing of different shapes and sizes there was, making what I thought a straightforward piece of modelling quite challenging. All the profile shapes are my interpretation and approximations from the photographs.

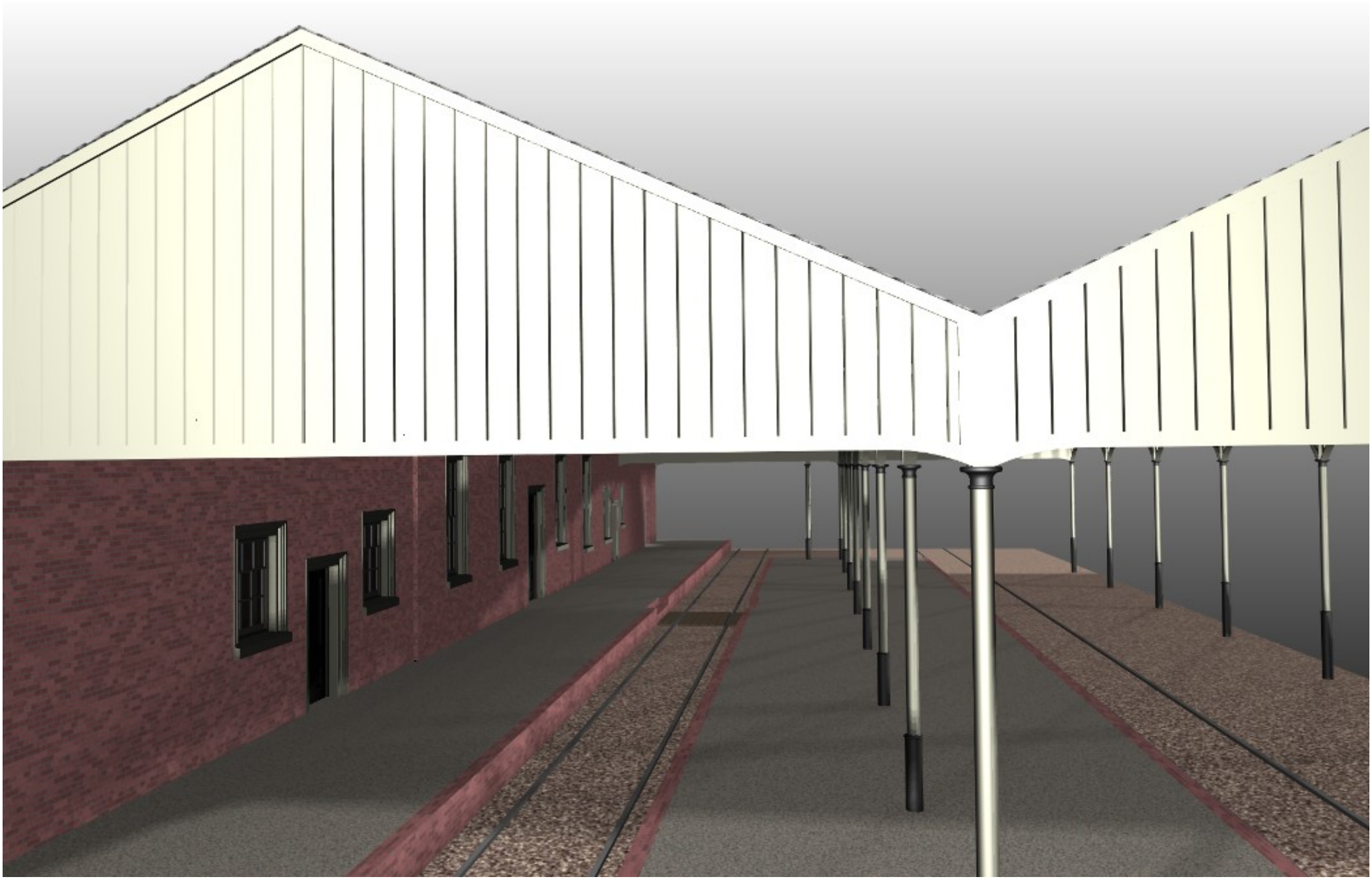
The information available to me for the canopy boiled down to a footprint on a map and a photograph catching the corner of the canopy . By laying down the sight line from the camera position of the photograph onto a large scale map, I concluded there were two gables and worked from there.



I pondered on two possible platform interpretations. For the main thrust of modelling I assume that the exit from the building was directly onto an 18” high platform. The next question was how access was gained to the island platform. There isn’t a footbridge, so I have speculated steps down onto a boarded foot crossing in line with the exit door.

I show an alternative at the end of the article of the building exit being at ground level with just an island platform at 18” high.



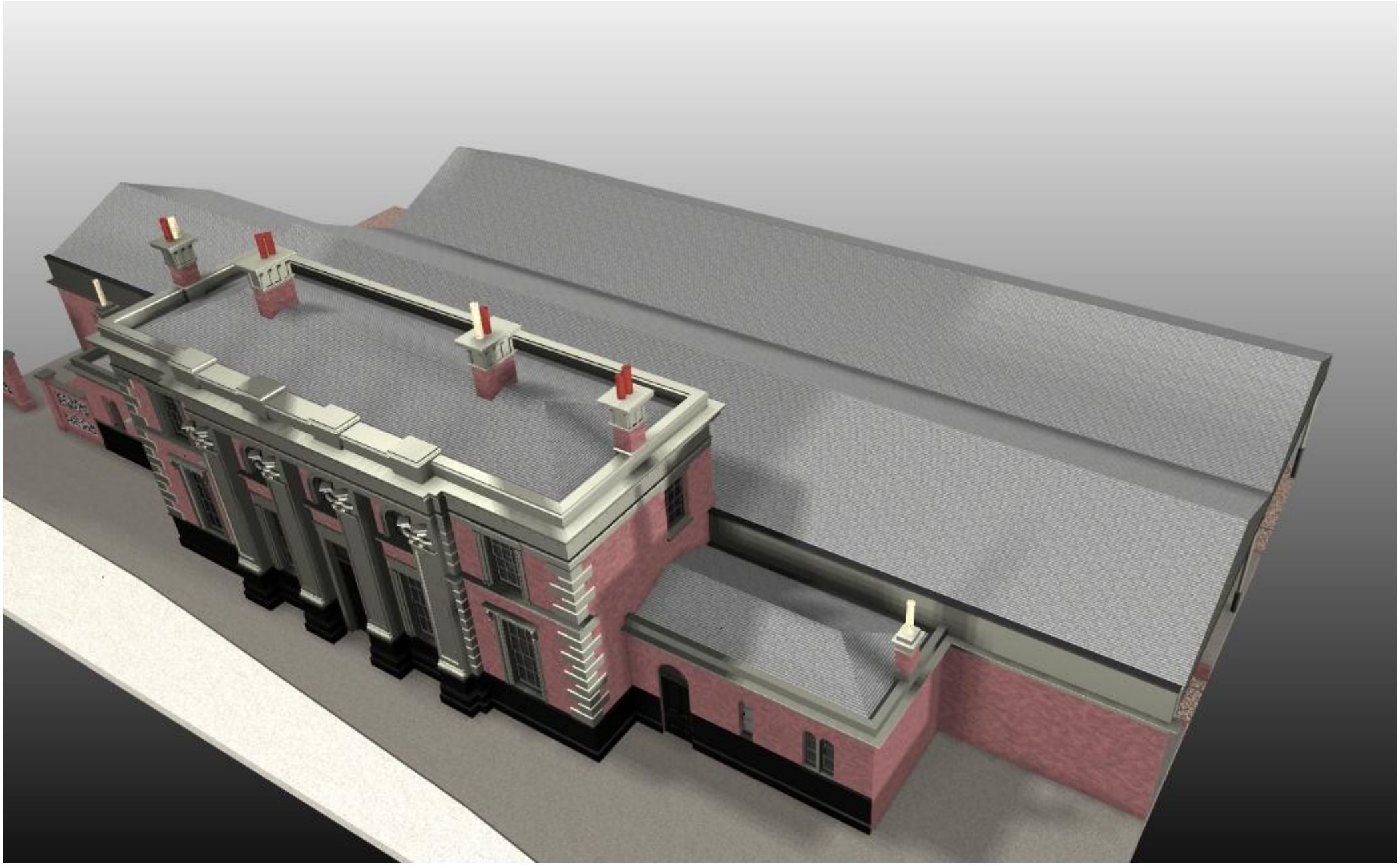


The photograph suggests to me round iron columns and iron girder work along the side. I have modelled this on pictures in LB&SCR Carriages Vol 1, Page 70 showing Redhill and Hastings stations which show some similarity.

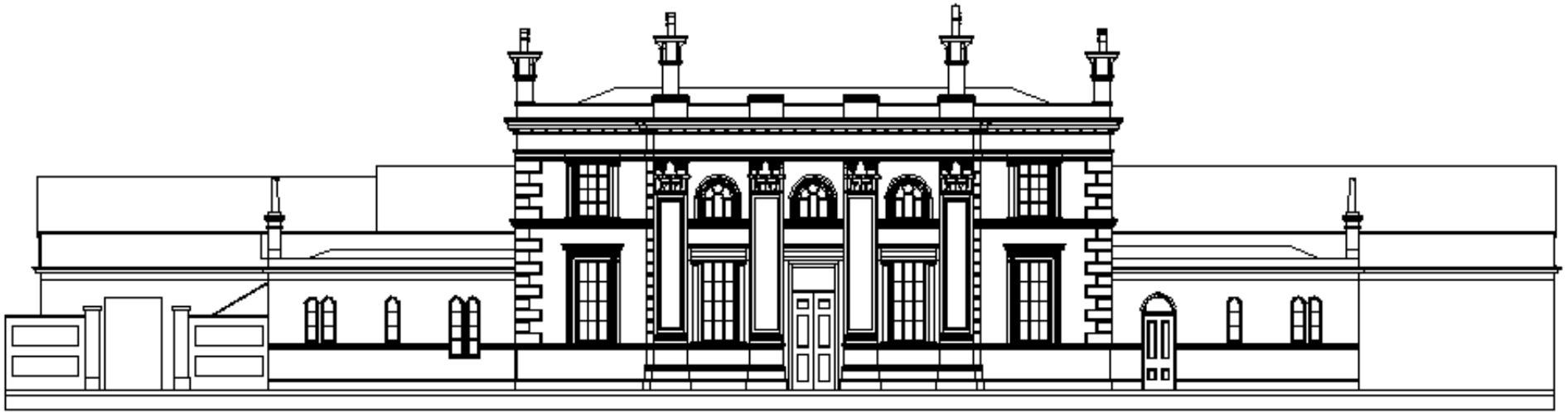
The canopy footprint on the map is not very precise but does indicate that the section closest to the building extends further and in the extended area is narrower than my assumption of two equal width sheds. I have modelled two scenarios—The primary one is two equal width and length sheds with an narrower extension covering just the line closest to the building. The alternative assumes the map is not precise and the shed closest to the building is just longer.

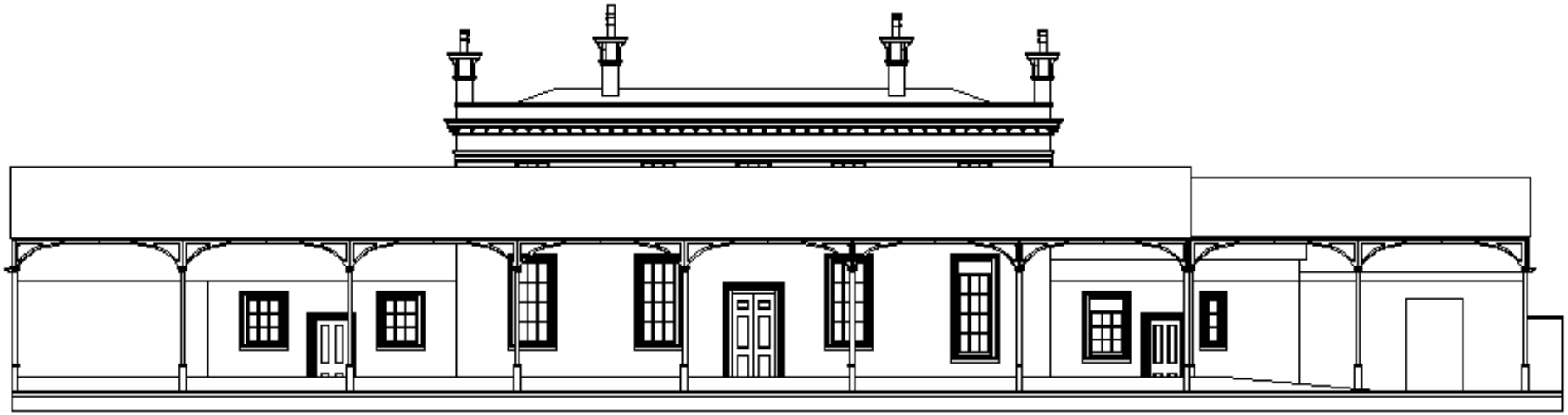
This view shows the alternative of the extended shed and the exit from the building being at ground level with only the island platform raised.

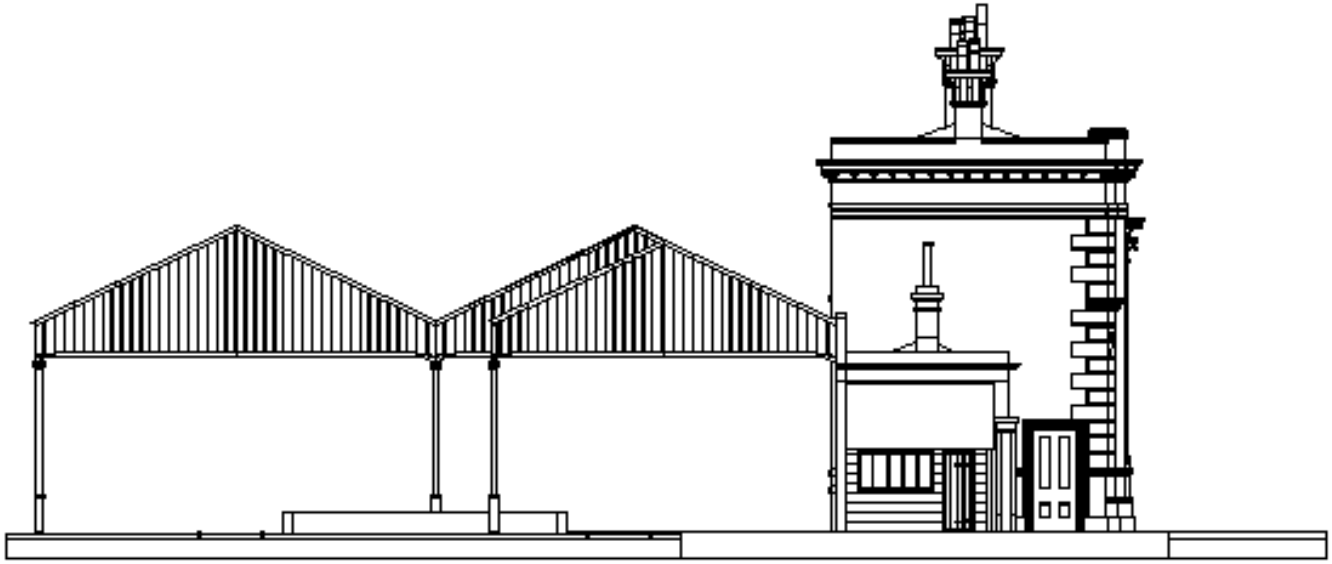
To finish two aerial views of the station building and canopy.

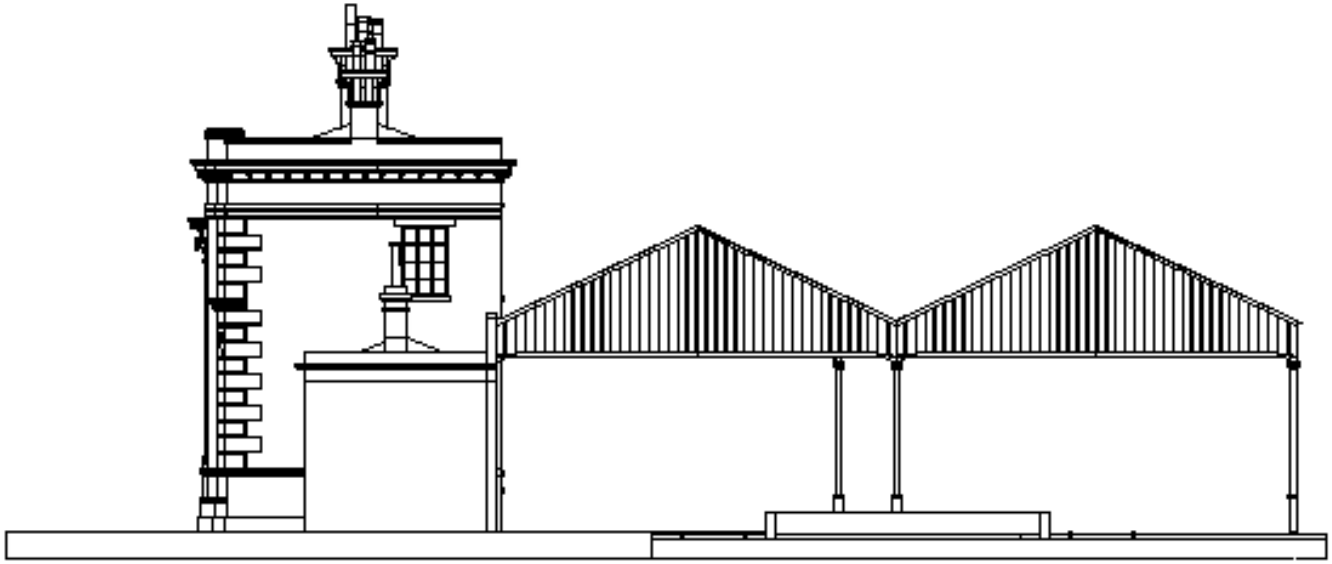


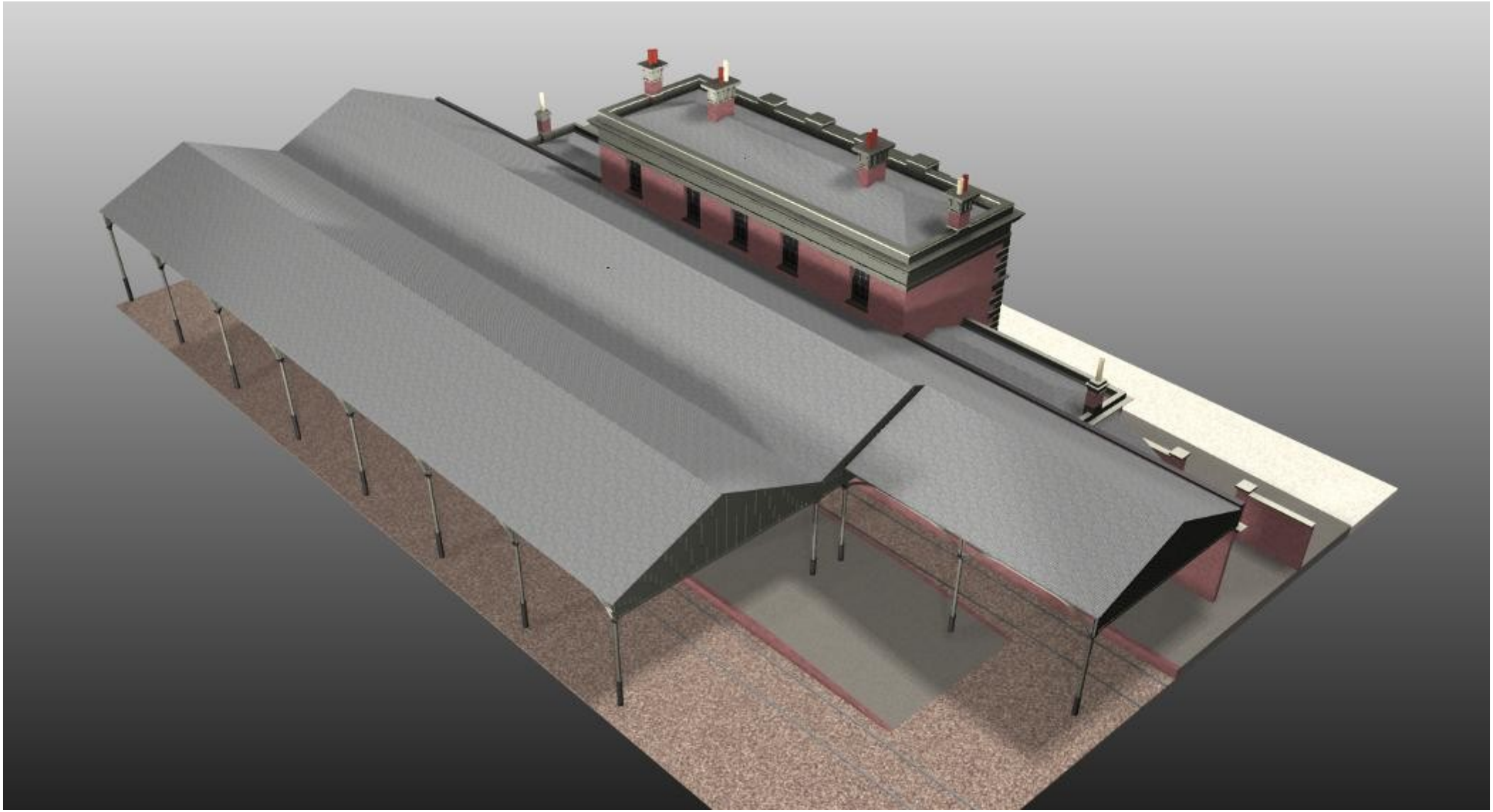
For those like me who like a drawing the next two slides show the standard elevations











I would like to thank Ian MacCormac for supplying me with additional information and a useful discussion on a mysterious chimney.

Return to contents page

L.B & S.C.R. Balloon Trailer

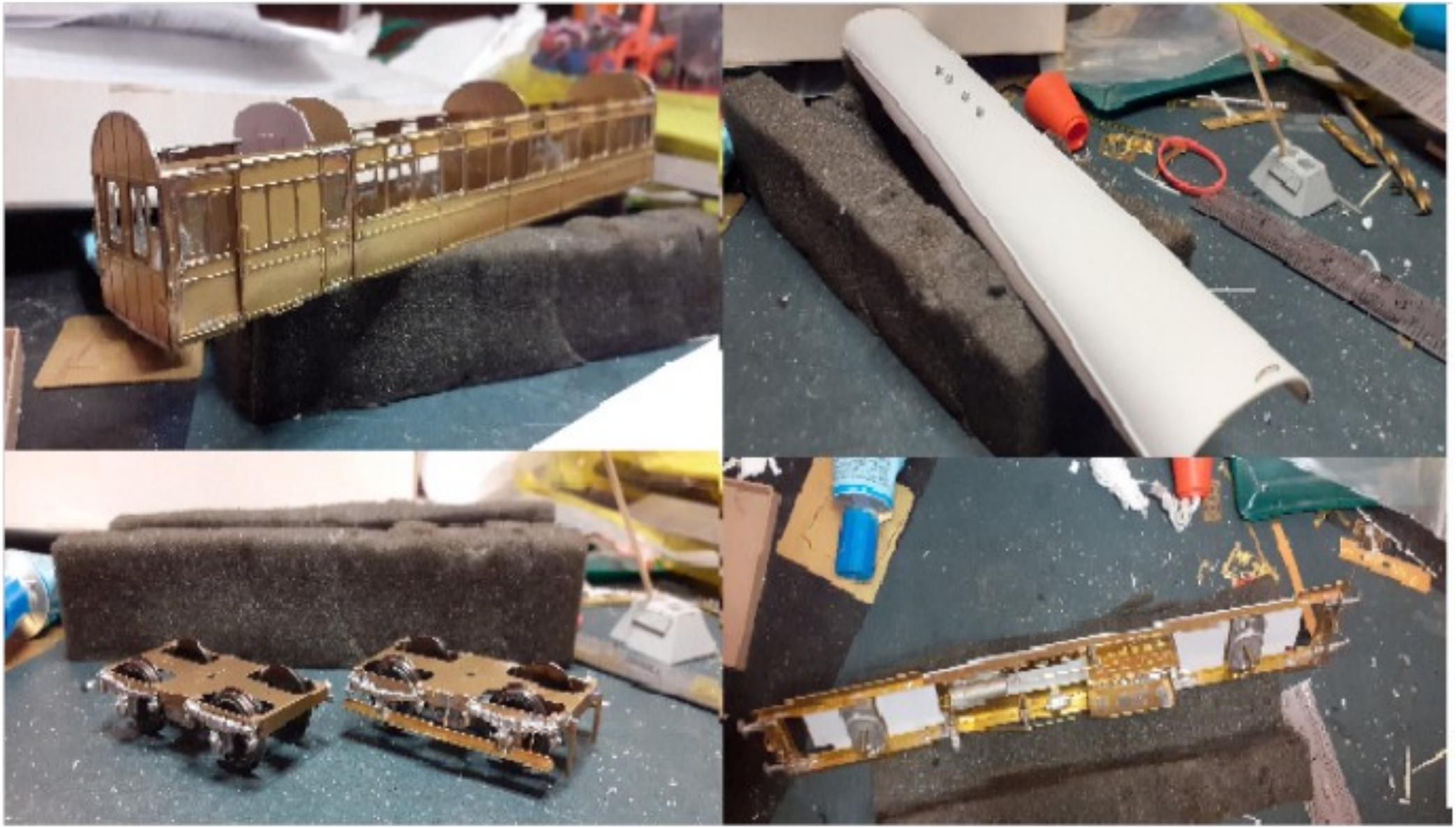
Richard Heasman

This article records my build of LBSCR balloon driving trailer, LBSCR diagram 181, built from Roxey Mouldings kit 4C48.

The balloon trailers were built from 1907. This one, numbered 1338, was originally based at Tunbridge Wells West, which was close to where I grew up - but six decades after the trailers were based there!

This is a mainly brass kit, which can be split into four main parts; body underframe, bogies and roof.

The body is etched brass with the floor and one partition made from plasticard.



All holes were drilled for door handles etc and the tumblehome was rolled onto the sides before folding and soldering. The droplights, partitions and the driver/guard doors, with small brass fillets on either side of the doors, were soldered in. The plasticard floor and partition were then glued.

The underframe is also etched brass, plasticard and white metal fittings. It is probably one of the more robust underframes that I have built. All the white metal parts are super glued, as this is only the second soldered kit I have built and I am not brave enough to solder white metal parts yet.

The bogies are also etched brass with white metal parts. One part I found useful was the brake gear; it is simply a fold down component of the bogie body and required a little solder for re-enforcing the bend in the brass. The wheels I have used are Bachmann coach wheels with the Dart Castings white metal Mansell wheel inserts for the correct look. I have used these wheels and inserts because the trailer will run on Peco track and they add more weight which lowers the centre of gravity for coach stability. I have used an NEM pocket on the non driving end. I could also fit one to the driving end bogie if required in the future and I will use magnetic coupling to the Terrier.

When I put the wheels in place for the final time with any of my rolling stock I spin a sharpened 4B pencil in the bearing cup which seems to 'lubricate' the axles.

The roof is plastic with a few vents down the centre line and a grab handle at the non driving end. The roof needed cutting down to fit and I took my time with this, carefully cutting back a little at a time. There are eight magnets on the underside the roof to hold it in place, which means it will be held firmly but will give easy access for the lighting and anything that may come loose in the future.

A test run to ensure that the vehicle runs on all sections of the layout.

Painting

All the paints I use are acrylics, manufactured by either Vallejo or Citadel/ Games Workshop.

Everything apart from the roof was sprayed with a black undercoat/primer and the roof sprayed an off-white.

For the body I used a couple of coats of Vallejo leather brown then gloss varnish, the white panels were painted with several coats Vallejo off white and gloss varnish.

Next, all of the handles were painted brass, and then the windscreen wipers, lamp irons and foot steps at the end of the trailer were painted black.

After all the painting and varnishing, I applied transfers for the lettering and numbers. The whole coach was then given a coat of satin varnish, both to seal in the transfers and give the desired final finish.

The underframe and bogies stayed black with a satin varnish finish, with the foot boards painted a very dark brown.

I lost count of the number of coats of white that I applied to the roof, to get a smooth opaque finish: it was certainly more than six!

Inside the driving end and Guard's compartment, the walls are Vallejo Pale Sand and the floor Vallejo Mahogany with Vallejo Wood Grain over the top which gives a wood grain effect when brushed in one direction.

The passenger area has a grey floor. This was a guess in regards to the colour and the material, which I think may be a form of linoleum. In the black and white photos I have seen, the floor is light in colour with darker worn areas. The walls and partitions are painted in the same way as the floor of the driving end and Guard's compartment, with the very top of the partitions off white.

This picture illustrates the interior colours. The eight brackets on the wall are there to hold the magnets which hold the roof in place.

Glazing was fairly straight forward after I bought "The Chopper II" for cutting the glazing pieces (I do not know why I did not invest in one sooner!) and using UV glue which dries clear and does not mist like normal super glue. Each side in the passenger compartments was glazed with a single piece of clear plasticard and all the other windows individually. Where the glazing came down below window level I painted it with the wood grain paint so the unsightly edge of the plasticard would not be seen.

Interior fittings

The picture on the right is my interpretation of the controls for the trailer, which I have tried to copy from one of the photographs from the internet dated 1905. This is two years earlier than the build date of this diagram of trailer, but it was the only source of information I found, so I hope it is correct, or a least a close approximation of the controls used in this diagram of trailer.

As you can see from the photograph on the right the controls are made from some scrap materials. The driver's seat (far right in the top picture) is made from plasticard. In the next picture down, the controls have been installed, along with a driver and 3D printed brake assembly. The driver's seat is positioned in front of the driver out of sight in this picture.

The seats in the trailers are described as tram style, which means that the backs of the seats can be moved from one side to the other, so that the passengers can always face the direction of travel if they wish.

The seats and luggage racks are my design using photographs and scale drawings to get the right look and measurements from the etched partitions. I then printed them using a resin 3D printer. Unfortunately I could only print the frame of the luggage racks, so I added some fine wire mesh to the tops.

The seats were under coated with a light grey spray (Citadel Grey Seer). The seat base and back were painted with a Citadel contrast paint called Nazdag Yellow, which gives varied depths of colour when applied. The frame and armrests were painted dark brown and gloss varnished, while the metal struts seat edges and luggage racks were painted silver.

I have made loops to go on brass rod to represent the leather straps that standing passengers would use when there were no seats available (going to this level of detail had my son questioning my sanity!).

These two pictures show the seats, luggage racks, standing passenger loops and passengers in place.

The gap at the top of the partition is where the lighting bar sits.

The seats are placed randomly facing forward or back as I did not want them facing all one way. I could not find any posters, that I was happy with, to put in the spaces on the partitions, so I copied and pasted the posters from a photograph of the original interior, printed them onto photo paper, used a brown felt tip pen around the edges to give the impression of a frame and glued them in place.

The luggage racks on the coach sides are glued in between the toplights.

The LED lighting strip is produced by Train-Tech (traditional warm white). The spacing of the LEDs on the strip worked out very well, with two LED's in each passenger compartment and one in the driving end.

The trailer weighs a total of 220 grammes. This is 80-100 grammes heavier than ready to run coaches but, as it will be the only trailer in the train, it will not be an issue.

My thanks go to Alan Budgen and Ian White for their help with links to more photographs of the interior and Eric Gates for helping to source the correct transfers.

The books I used for more information were:

- LBSCR Carriages, Volume 3
- Southern Push/pull Stock
- Southern Style, Part Two, LB&SCR

We have two threads on RM Web, Modelling Layout.

Return to contents page

Starting from Scratch - An occasional series

Part 1 Getting started – tools, equipment and basic marking out.

Terry Bendall

This article is one of a series that first appeared in Scalefour News, the journal of the Scalefour Society. Following a suggestion that the content might also be useful to members of the Brighton Circle it is reproduced here in a modified form with the permission of the Scalefour Society. If found useful to members and with the permission of the editor, further articles in the series will follow.

Although ready to run models in some scales are now becoming more readily available, for those who choose to model the pre-Grouping railway period, some elements of making things for ourselves will almost always be necessary and the use of kits in a range of materials, or building from scratch is bound to come along sooner or later. Brighton Circle members will work in a range of scales and gauges and depending on the choices that we make about such things, using the tools and materials that will be described will often become necessary.

In recent years the development of new manufacturing techniques such as three dimensional printing (3D printing), various types of computer aided manufacturing (CAM) and the greater availability of etching has made some things easier to achieve and the use of such techniques has been featured in previous Digests. This may cause some people to wonder if traditional hand skills will no longer be needed by the railway modeller. Some would go as far as to suggest that

this is a retrograde step. Such comments may well be true but probably most of us will still need at some time to get involved in some aspects of using hand tools. In addition some will want to develop their skills to achieve those aspects of railway modelling that recent techniques are unable to achieve or even for the satisfaction of saying “I made that”.

This series is intended to give a basic introduction to the use of hand tools for scratch building, mainly in metal, but many of the techniques will apply to working in plastics as well. Over the course of the series we will cover the purchase, use, care and maintenance of some basic tools and the techniques of measuring, marking out, cutting, shaping and finishing of metals, making and using screw threads and soldering.

A bit about my background may be useful to give the context of what is to follow. I started my working life in 1967 as a teacher of what was then called woodwork and metalwork. At school prior to that, I had the good fortune to spend two hours every week from the age of 11 doing woodwork and from 14 doing metalwork, so I know a few things about the materials and how they like to be worked. In addition my father had a small engineering business and a lot of what I know came from working with him from an early age. Whilst such background is helpful, it is by no means a pre-requisite to successful railway modelling and with a bit of care and effort over time the necessary skills can be developed.

The tool kit

The first thing to make clear is that no one needs a vast collection of expensive tools in order to get started. A very basic tool kit will suffice and sound advice is to buy things as you progress and always buy the very best that you can afford. Like anything else, cheap tools are a false economy and will soon become worn or broken. There are many sources of supply – the exhibitions that many of us attend will usually have at least one supplier of tools and often more and there are numerous sources via the internet. There are still a few old fashioned tool shops about, although

these are rapidly closing, so if you find such an establishment nearby try to patronise it so it keeps going. Model Engineering exhibitions will often have one or two stands selling second hand tools and often these will have come from people who are now working in that great workshop in the sky and will have been well looked after. If you are not sure what you are looking for, take along someone who knows and can give advice. It may not be our scale of model railways but you can be sure of seeing some great craftsmanship.

Some tools such as files do, of course, wear out and will need to be replaced and others, such as scribers and punches, will need sharpening and will in time get to the stage where a replacement is needed but for most of us that will take a long time.

Just to prove the point, picture 1 shows my work bench with most of the model making tools on display. Some of these are close to 50 years old and some are even older, being inherited from my father, but they are still perfectly usable and capable of doing good work. Whatever you do buy, look after things and keep them dry and in good order.

Picture 1

1

A place to work

The next basic point is that no one needs a large and fancy workshop in order to do good work. We might all long for the large centrally heated room with space to build the layout and all that that entails, and to do all the making processes for rolling stock and layout building, but few of us have that luxury. The basics are a flat surface on a table or similar stable structure, good lighting and somewhere to keep all the bits and pieces, both whilst work is in progress and for all those kits that you are going to build one day and the bits that will come in useful at some time in the future. Some people will be able to find a space indoors and, for those who live in flats or apartments, that will probably be the only space available. An indoor space has the advantage of being warm and dry, although activities such as painting may not meet with universal approval from others in the household and the amount of space may be limited. Picture 2 shows a possible solution from a Scalefour Society member where a small bureau has been adapted to create a

Picture 2

useful working space of modest size.

The alternative to a space indoors is to use a garage or outbuilding or perhaps a wooden building in the garden, although again those who live in a flat or apartment are unlikely to have access to such a facility. Garages, usually without a car inside, can be good if they are warm and dry, whilst a wooden building in the garden can sometimes give more space than is available in the house, assuming of course that the garden is large enough in the first place. Those who choose to model in the larger scales will often have garden layouts and some sort of outside building for the main station area for storage of stock will almost always be needed, even if the actual workbench is somewhere else.

A wooden building in the garden has always been my solution and these have been wooden workshops – basically a reasonably smart shed. My first two garden workshops were built very much from scratch – buying in the timber and building the shed from there. My present building is 24 feet long and 8 feet wide and was built from a kit of parts. It allows space for the sort of woodworking needed for baseboard construction as well as space for building a layout and all the model making needed. I find that having everything that is likely to be needed in one place is a considerable advantage and work in progress can be left out ready for the next session. The disadvantage of a garden workshop is extremes of temperature, but a suitable lining to the inside and some insulation means that the workshop is usable all the year round, even if in winter a heater has to be turned on a short time before work commences. The smart garden offices that are now available are usually better insulated but this comes at a cost.

Keeping things safe

Having started to build up that collection of tools and equipment, it is important to keep things in good order. A jumble of tools on the work bench means that things get misplaced and whatever it is you are working on can easily get lost in the clutter. Storage for the host of small bits and

pieces that soon accumulates is also needed. Picture 3 is a closer view of a simple rack made about 20 years ago for those tools that are in frequent use and this was recently extended to take some additional files that were found to be useful. Other tools are kept in the wooden tool chest shown in picture 1 which was one of those things inherited from my father and is now probably about 85 or 90 years old. Such tool chests can sometimes be found be found at model engineering exhibitions on second hand tool stands, but there are of course modern equivalents including a wide variety of plastic and metal tool boxes.

Picture 3

Holding things

The need for a way of holding things firmly will soon become apparent and some sort of small bench vice is a fairly essential item. Picture 4 (on the following page) shows a collection of vices that I have used over the years. Starting from the left is a very small and fairly cheap bench vice,

bought when funds were limited and fixed on to a piece of plywood which is then clamped to the work surface. I find that a movable vice is a better option then something fixed in one place, since it can be moved to suit what is being done, or even taken off and put out of the way if something large is being done, although those working in the larger scales may need a vice that is fixed permanently in place. This little item served me well for many years until it was replaced by the larger one next to it. This again has given many years of service, although the clamp frame has become distorted and the threaded holes for the holding screws for the jaws have lost part of their thread meaning that longer screws have had to be used.

Picture 4

The black finished vice next in line is a better quality item, which I had the good fortune to pick up from a second hand stand at a model railway show a few years back, and has the advantage that the clamp frame allows for a thicker top than other makes.

Picture 5 shows an Eclipse 110 instrument vice which seems no longer to be in production. This is something which I had not seen before and was obtained from the same source as the black finished vice. A quick check recently showed some for sale on an internet auction site. It does not get used often but it is very useful for small parts. Lastly, is another Eclipse product - a model 110 pin vice acquired a long time ago and again useful at times.

Picture 5

Marking out, measuring and testing

Moving on to actually using the tools, before anything can be made, the material to be used has to be marked out and, for work in metal, there are a few simple tools that will be needed. The basic ones are shown in picture 6 and consist of steel rules, a scriber, try squares and punches. For most of what we do, a 150mm/6inch steel rule will be sufficient but for larger work, for example construction of buildings, a 12 inch/300mm rule will be needed. It is worth buying a stainless steel rule and one with a matt finish that does not reflect the light. The measurements start from

Picture 6

the very end of the rule so it needs to be kept in good condition. Note the correct name is a rule, not a ruler which is the wooden or plastic item used for drawing lines on paper. Next we have a try square so called because it is used to test or try that something is at right angles. Some people will refer to this as an engineer's square although it will answer to either name. Note this is never a set square which is the triangular plastic item used for engineering drawing. One with a 2 inch/50mm blade and one with a 4 inch/100mm blade – the blade being the thinner part are sufficient for the smaller scales but those working in larger scales might want one with a 6inch/150mm blade.

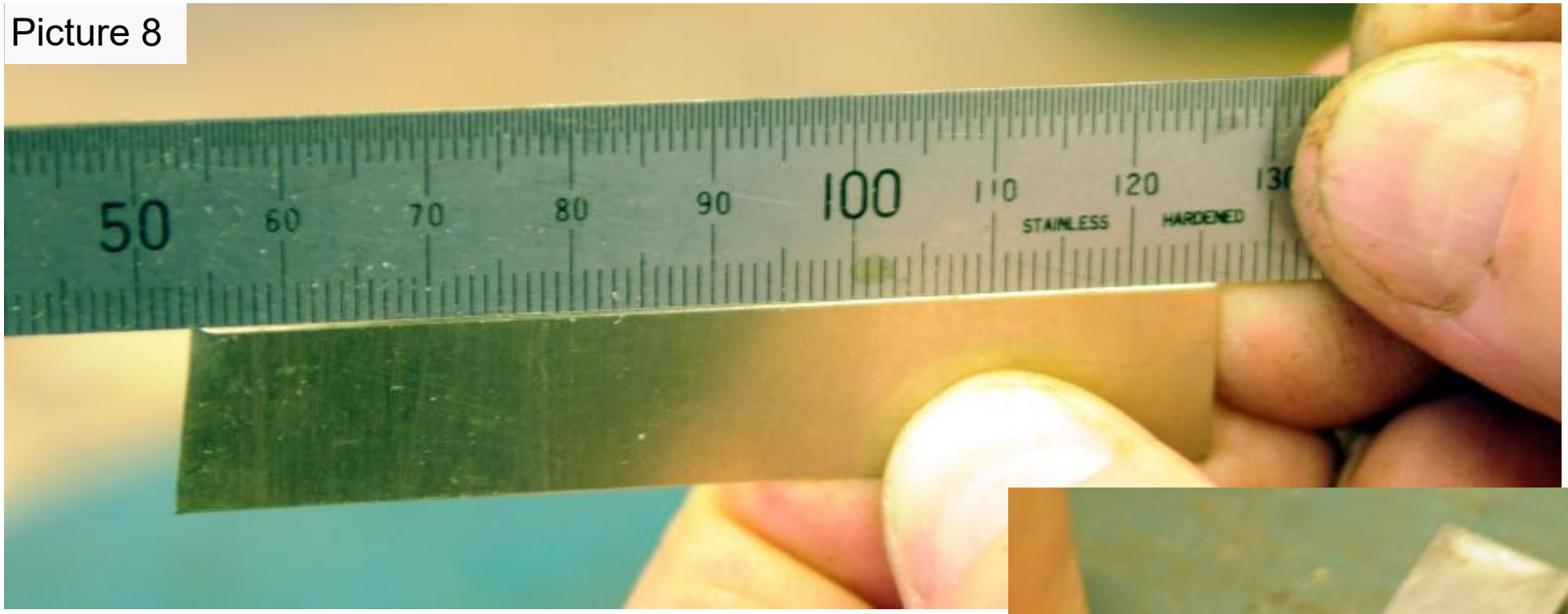
The scriber is shown at the bottom of the picture and is the engineer's pencil. It needs to have a sharp point and this will need sharpening at times. Scribers and punches are made of hardened steel and can only be sharpened on a grinding wheel and picture 7 shows how this is done. The point angle for a scriber should be 30 degrees and the best way of sharpening is to use a bench grinding machine.

Picture 7

In the absence of such a machine, which not many may have, a grinding wheel held in a small hand-held mini-drill will be an effective substitute. Note that the scriber is held at an angle to the grinding wheel which gives a stronger point. If the scriber is looked after it will not need sharpening very often.
Next we have punches; the one with the round top is a dot punch which has a 60 degree point angle and it used for marking the centre for a circle. It can also be used for making a dot mark for drilling a hole, although more correctly a centre punch, with the square top and which has a 90 degree point angle should be used for this job. This is because the 90 degree point angle is closer to the 118 degree point angle of a drill bit. Some tool suppliers may call these items by the same name but the point angle is the key difference. The dot punch and centre punch are sharpened in the same way as the scriber but, since these tools have a larger point, sharpening is best done on a grinding machine. Something to note when buying punches is that suppliers may not make a distinction between a centre punch and a dot punch and both may have a round top. The key difference is the point angle. When I was teaching, it was helpful to have the punches with the different shape of top so that pupils could easily identify which was which.

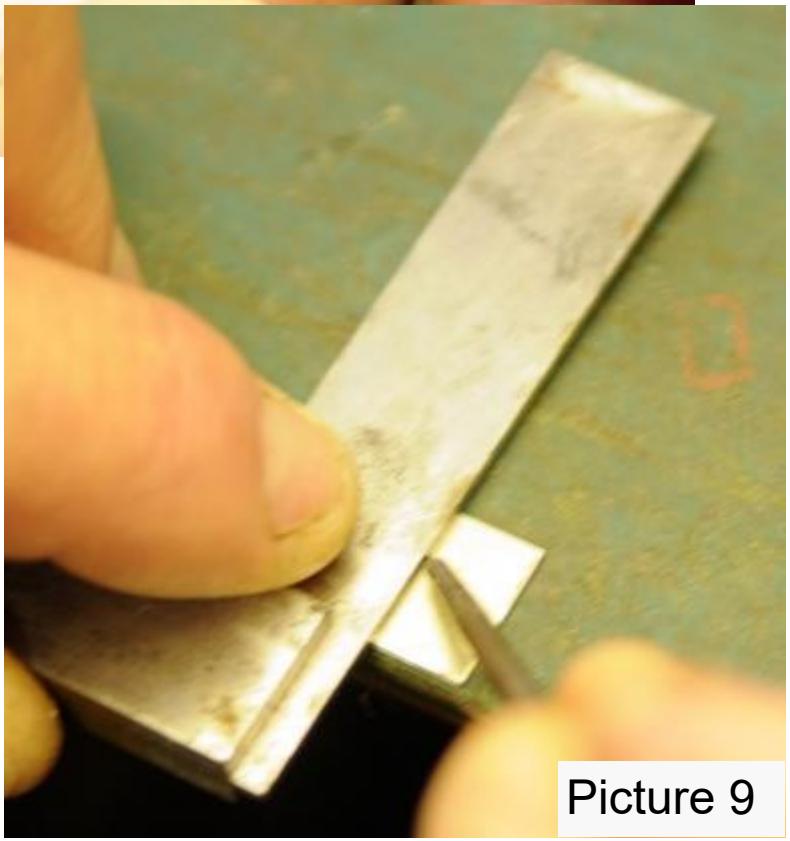
For most of what is done in 4mm or even 7mm scale, a dot punch will suffice for most of what we need, but again those working in the larger scales may find it better to use a centre punch for marking the centre of a hole.. Note that when drilling metal a punch mark should always be used to avoid the point of the drill slipping off the required position. For very small holes, e.g. less than 0.5mm diameter, pressing the point of scriber into the metal is an alternative way of making the centre. The use of these tools will be made easier and more accurate with a few simple techniques.

Picture 8



A steel rule can be used to check that an edge is straight. To do this, hold the rule and the material up to a light source as shown in picture 8. Light will show through the hollows on the edge.

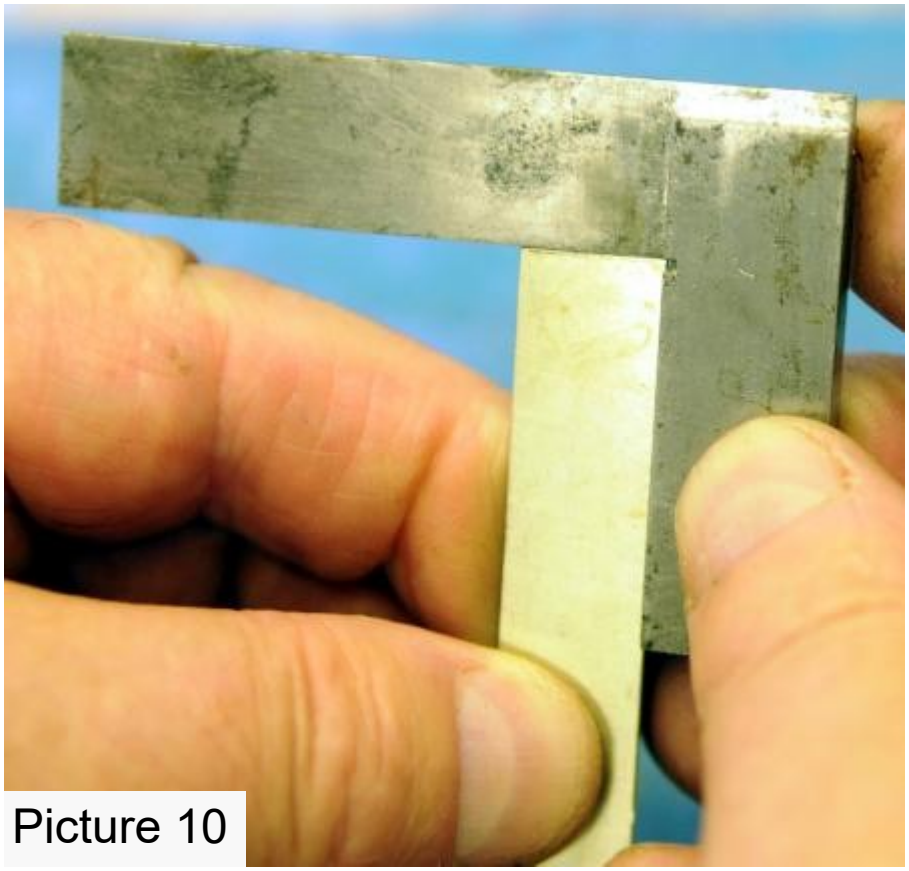
Picture 9 shows the way in which a try square is held against the edge of a piece of material for marking out and also shows how the scriber is held at an angle both the get the point next to the blade and to mark a line easily. If the metal is thin, it is easier to do this on the edge of the bench so the stock of the try square can overhang the edge.



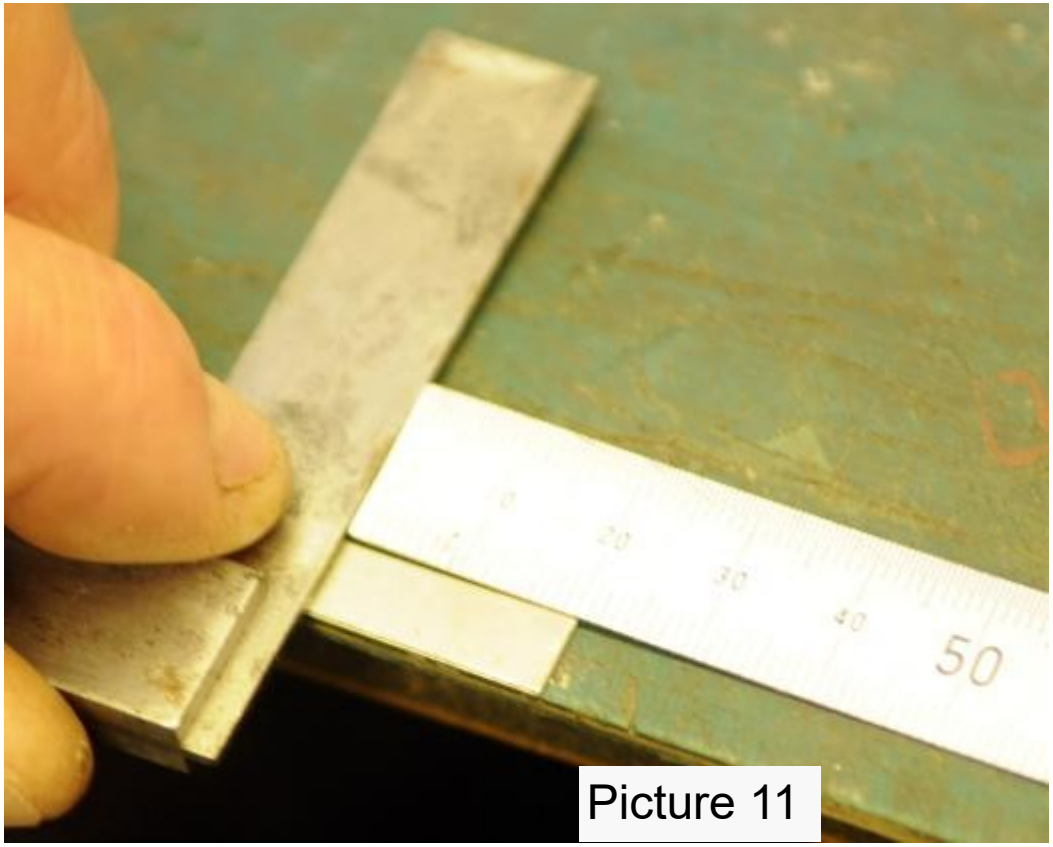
Picture 9

Picture 10 (right) shows how the try square is used to check that the end of a piece of metal is “square” or at 90 degrees to the edge. Again hold the metal up to the light.

Picture 11 (below) shows how the rule, try square and scriber can be used to make off a length of metal to be cut from a bar and how the end of the rule is used. The rule held with the required distance, in this case 20mm, at the end of the squared off end of the bar. Slide the try square up to the end of the rule and hold it in place.

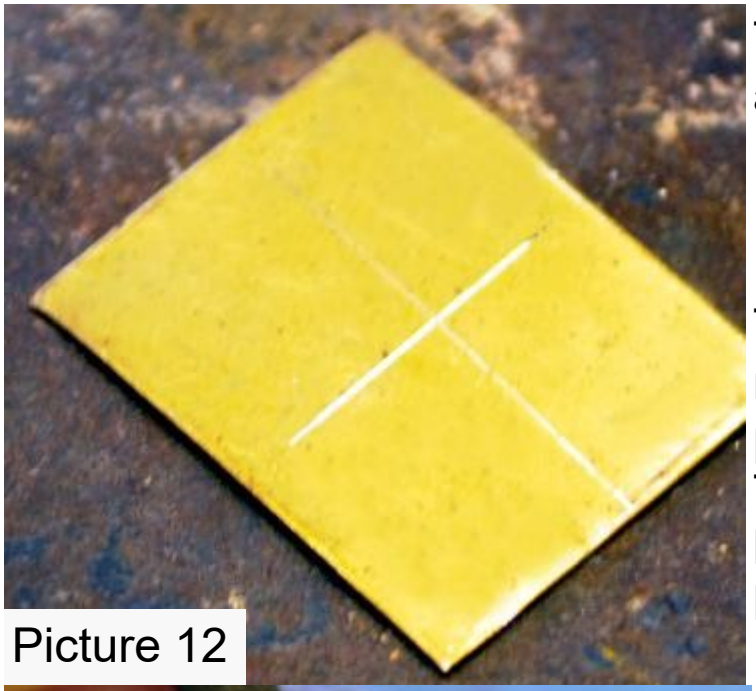


Picture 10



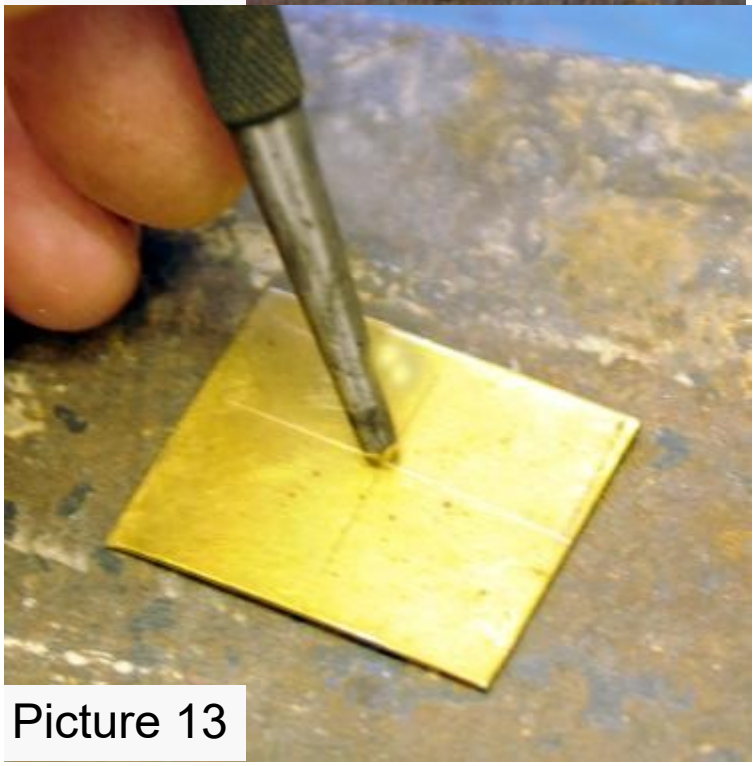
Picture 11

Remove the rule and use the scriber as shown in picture 10 to mark the line. This method avoids the need to make a mark and then position the square separately so reduces the possibility of an error. This is why the end of the steel rule needs to be kept in good condition since if the end is worn the first division will not be accurate. Don’t be tempted to use a rule as a scraper or glue stirrer!



Picture 12

To mark the position of a hole, two scribed lines at right angles are needed as shown in picture 12 (left).



Picture 13

To use a dot or centre punch, the metal to be marked needs to be placed on a hard metal surface. This might be the back of a bench vice, which will sometimes have a smooth metal surface designed for the purpose, but the alternative is a suitable lump of steel. A lightweight hammer is needed and pictures 13 (below left) and 14 (right) show how the punch is used. The point of the punch is held at an angle on the intersection of the lines – if the punch is sharp you should feel when it meets the intersection of the lines. The punch is moved upright to be hit with the hammer. One light tap is normally all that is needed.

Picture 14

A further marking out tool is shown in picture 15 which shows two pairs of spring dividers, a small 3 inch pair and a larger 6 inch pair. Note the correct terminology again – two points, so a pair of dividers!

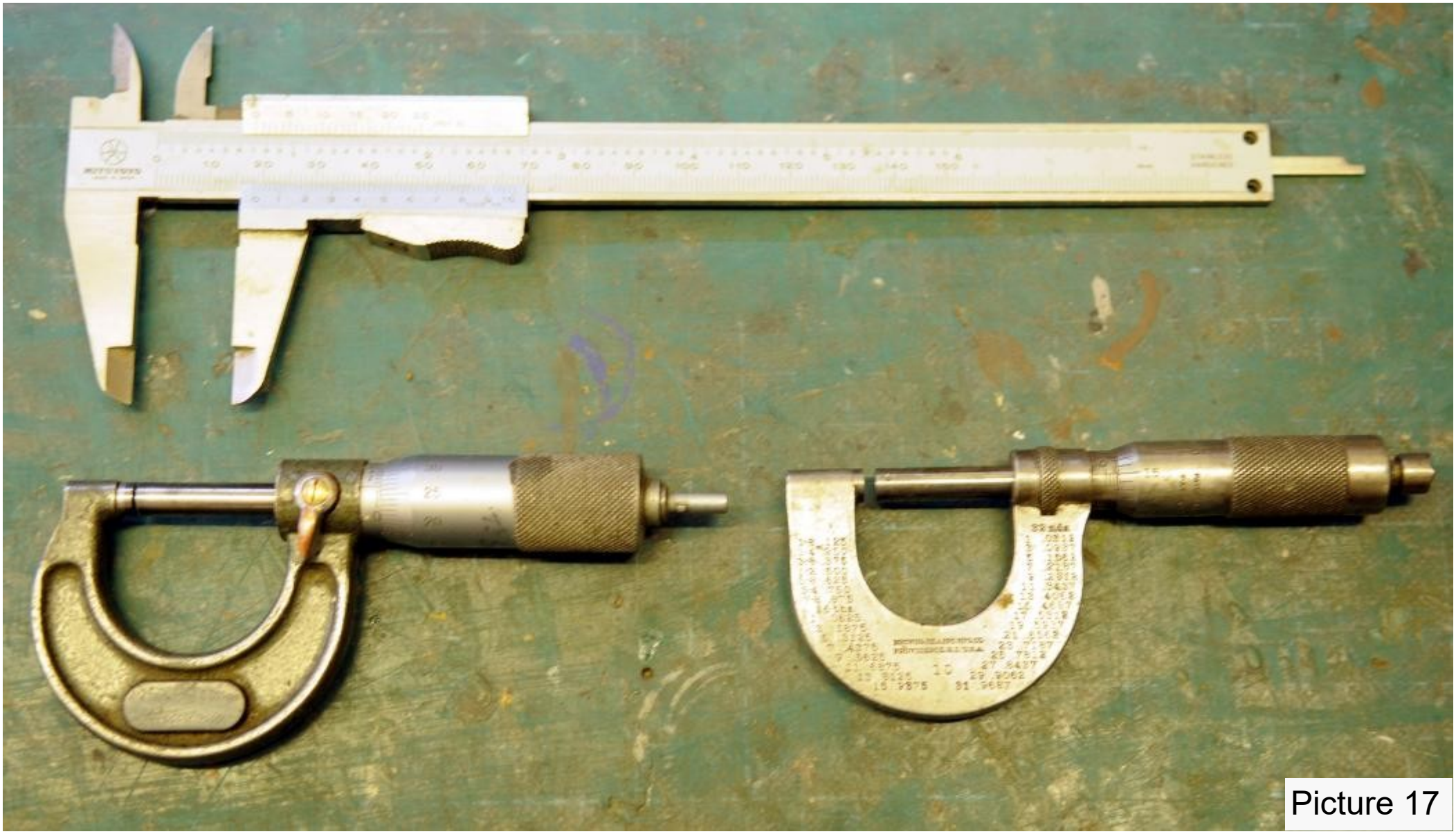
The screw adjustment makes setting the dividers more accurate. For most work the smaller pair will do all that is needed but, for jobs such as building construction, a larger pair will be useful for marking out things such as arched windows. To use the dividers a very light dot punch is made for the centre point. The tool is set to the required distance and then used just like a pair of compasses, leaning slightly in the direction of turning.

Picture 15

A useful marking out tool, which may be unknown to some people, is the odd leg or jenny callipers shown in picture 16. This tool allows a line to be marked parallel to the edge of a piece of metal. To set the distance, the end of a steel rule is placed against the step and the callipers opened to a little more than the measurement required. Lightly tapping one leg on the bench top will close the distance to that required.

Picture 16

For more accurate measuring we need to move into the realms of a vernier calliper or a micrometer, although it is important to emphasise that the beginner is unlikely to need either of these tools at the outset. When you find a need to measure to an accuracy of 0.01mm, that is the time to buy a vernier but only then. Picture 17 shows a manual vernier which will read both



Picture 17

imperial and metric measurements and separate imperial and metric micrometers. The imperial micrometer on the right dates from around the mid 1930s but is still accurate. Both the micrometers have a capacity of one inch/25mm which will cope with almost everything in the smaller scales although it is possible to get larger capacity micrometers.

A more recent development are digital versions of both devices which make the use of them easier since less thought is needed when taking the readings. I learnt how to use the manual versions a long time ago so their use is second nature to me, but some may prefer the digital versions. One thing to remember is that the battery of a digital instrument can lose its power and give inaccurate readings so take care. I tend to use the vernier when I need accurate lengths on metal or plastic items, including such things as scratch building wagons or buildings when even a small variation in length can cause problems. Micrometers can be adjusted by fitting a special C shaped spanner to the barrel - the fixed part with the main measurements - and twisting slightly. A vernier will easily read to 0.1 mm and a metric micrometer to 0.01mm. The imperial one will read to 0.001 inches. Not something that everyone will need but those who get into scratch building locomotives may find such a tool useful.

To be continued.

Return to contents page

Converting a Bachmann Atlantic to P4

Hywel Rees

The Bachmann Atlantic runs well straight out of the box and I made a short video as a reference for when the conversion work was completed.
In summary I replaced the Bachmann OO wheels with Alan Gibson P4 wheels spaced out with washers in the original cast chassis. I bored out the brass driving wheel chassis bushes and gear wheel from 3mm to 1/8” so I could use standard Alan Gibson axles. I used the 6’ 6” driving wheels recommended by Mike Ainsworth of the Scalefour Society, as we reckoned that, even with P4 flanges, a 6’ 7 1/2” driving wheel on a 6’ 10” wheelbase might be pushing it!
Terry Bendall was kind enough to centre pop the axles and do the initial fit of the driving wheels on his lathe. Clearances inside the splashes are OK, but clearances around the slide bars, rods, steps and speed recorder are a nightmare. I shortened the crank pins as much as I dared and the connecting rod still has the shallow S bend set up used by Bachmann. The connecting rod could be massaged into a more prototypical shape but, as it is a cast mazak like material, it might snap. Reversing the Alan Gibson crankpin nuts helps with clearances. The holes in the Bachmann rods are larger than the Alan Gibson crankpin bushes, so there is a degree of slop but it runs OK in both directions, so I am reluctant to do further work in this area in the short term.
Like many RTR tender locos current from the loco pickups (driving wheels only) is fed to a blanked off DCC ready plug in the tender and back to the loco motor, so the loco won’t run unless the tender is plugged in. As supplied the front and rear tender wheels are live to the axles with a centre insulating muff and phosphor bronze pickup wipers on the axles. Unlike Mike I didn’t want

to recreate this system, so I bent the pick ups to bear on the rear of the wheel flanges.
I haven't done much to the body or tender yet in terms of adding details, including those supplied, except that I have added a crew and given the tender top and cab roof a dilute wash of Humbrol 66 to tone down the brightness of the paint finish as supplied. I also painted the coal load a dull black and fitted an Alex Jackson (AJ) coupling to the tender rear. I used part of the mounting for the plastic coupling to mount the AJ so I can unscrew it and use a hook and screw coupling when required without the AJ hook getting in the way.
I ran the loco on the Clarendon layout at the Leamington and Warwick club recently and was pleased with the quiet performance. It negotiated the relatively sharp curve in and out of the station without a problem and doesn't seem to "hunt" from side to side despite the short coupled wheelbase and generous standard side play on the front bogie mounting. The cone shaped spiral spring fitted on the bogie pivot screw by Bachmann may help here. This loco really needs the pickups on the tender to work reliably to enable it to negotiate crossings, etc. without faltering, unless of course your trackwork is smoother than mine! Next step is find out what it will pull!

 Return to contents page

The Spring Modellers Meeting of the Brighton Circle.

Traditionally, the Brighton Circle has held a Spring meeting for modellers, which took place at Blatchington Mill near Brighton. Lockdown prevented this meeting happening in 2021, but the Circle instituted a series of on-line meetings under the title “Virtual Blatchington”. These are likely to continue, since Zoom meetings have created valuable opportunities for the widely dispersed membership to meet. However, for Spring 2022, the ambition was to reinstate the live meeting and it was held at Patcham on 30th April.

The main feature of the meeting was a presentation by John Minnis, but, along with a buffet lunch and the opportunity to socialise, there was also a display of members models which are illustrated on the following pages. Some images show stock that was exhibited, but in better lighting conditions.

Photographs copyright Colin Paul

Colin Paul's model of the Directors' saloon.

Photograph copyright Ian MacCormac

Some forthcoming attractions from EBM

Trial print of a low ended open A in 7mm scale

Colin Paul’s Hangleton station - aka Fittleworth. See the following article

Photograph copyright Ian MacCormac

The Lewes Road viaduct diorama by Huw Evans

Above - a trio of Smokey Loco kits belonging to Nicholas Pryor

Above - a Craven standard 2-4-0 from the etchings by Ian White and

Right - a Craven goods from the EBM kit.

Both belong to Nicholas Pryor.

Cliff Pester's model of Gladstone class "Croydon".

Photographs copyright Cliff Pester.

Peter Warren's Pullman set

You do not often see a model of a complete London and Brighton Railway train!

Chris Cox’s Satellite, with appropriate carriages.

Eddie Carter’s pair of Craven tank engines, numbers 98 and 231.

Colin Hayward's model of Hove, illustrating the difference that bright sunlight makes to Improved Engine Green.

Colin Hayward's brace of Terriers

Whitford Green - on display in Canada

Mike Watts

In the Spring of every second year (even dates) we have held a model railway show here in a suburb of Toronto, Ontario. Unfortunately we missed 2020 because of Covid, so our show this year was most welcome for all of us. The show dates back to 1984 although its present format dates back to the 1990s.

There has always been a very strong contingent of British railway modellers in the southern Ontario area and my membership of our society, The Platelayers, goes back to its beginnings. In addition to holding various official position in the society over the years, I have also been Show Manager for several shows in the 90s and 00s, In the last 10 to 15 years I have handed over to others in the society but I have managed to exhibit at most of our exhibitions since then, including showing my S scale Wandle Valley Railway for several shows.

This year I showed my Whitford Green layout, my WVR successor, in its present form. It is all scratch built to S scale (1:64) and forms a fairly simple branch line terminus, fed by a fiddle yard, but supporting a new feature at the end of the terminus, a village green. This has been provided to illustrate the ‘Green’ in the title.

The layout is 22 feet long and 2 feet wide, comprising of 5 boards 4' x 2' and right-hand end board of 2' x 2'. The 2 boards at the left end, facing from the public side, form the fiddle yard, but can be seen by the public. The functioning terminus is 2 feet long with the 2 foot square village green added to the end.

It is meant to represent a slightly fictional branch line terminus, somewhere in Surrey, roughly in the years 1906 to 1912. This enables me to run older locomotives in IEG livery but also a few more modern ones in Umber livery.Of course such a small branch line would never have seen such large locomotives as my H1 no. 38, nor even my B4 no. 55 ‘Emperor’, but modeller’s Rule No. 1 applies.

B4 class, The Emperor

It is also doubtful that such a small line would have seen a wide variety of locos, such as a Craven tank no. 373, although any of the Stroudley Terriers, a D1, a later D3 or an E4, all in Improved Engine Green, would have been possible. In addition, later an umber E4, or an I3 would have been possible.

The passenger rolling stock is fairly authentic. It is mostly made up of Stroudley 6-wheelers and later 51ft bogie stock, all in umber and white livery. The good stock covers a variety of LBSCR wagons and brake vans, as well as a few PO wagons.

Control on the layout is by simple 12volt DC,with all points motorised and operation is fairly simple running of out-and-back trains, from the fiddle yard, with passenger trains running around at the main platform or by push-pull coach in the bay platform, using the D1 or the A1.
Unfortunately the loco turntable is not powered, so I tend to use it very sparingly for turning locomotives.
Most of the buildings are either based on actual railway buildings, such as my (former) Mitcham station building, my station platform building based on the up side platform building at Mitcham and the signal box of Mitcham or random non- descript railway buildings, such as the good shed. But the village green/town square has authentic models, such as the White Hart pub at Mitcham Cricket Green

This one is very special as, at the show, yes, here in Canada (!), a member of the public recognised it as The White Hart. In conversation with him it turned out that he was from Carshalton and it brought back memories. The bank is based on one at Mitcham Fair Green and the corner greengrocer is based on one my great- grandfather ran**!**

To add to the period atmosphere I decided to scratch build a London General B type bus, only to find that the B type bus never ran south of Clapham before 1914!

Return to contents page

Forming Stroudley Cab Roofs in Brass (the old way)

Cliff Pester

Recently I followed a string of emails regarding the production of the domed section of Stroudley Cab Roofs on the Egroup. I made a comment that sometime ago I made a press tool to produce these sections, and was asked for details and a description of how it worked. It occurred to me that this might make an interesting article for the Modellers Digest.

The Press Tool consists of two parts - The master and the former.

Firstly, the master which is a piece of 3 mm steel flat filed to the shape of the roof dome section. Only one end section is required as this will produce a cab roof dome for a tender loco. By making two pressings and joining them together you can make a tank loco roof. This joint can be reinforced by using an external strip across the centre of the roof. There is a corresponding strip on the prototype, so the roof looks correct. No dimensions have been given as this is a very generic tool with no sophistication at all.

The basic master

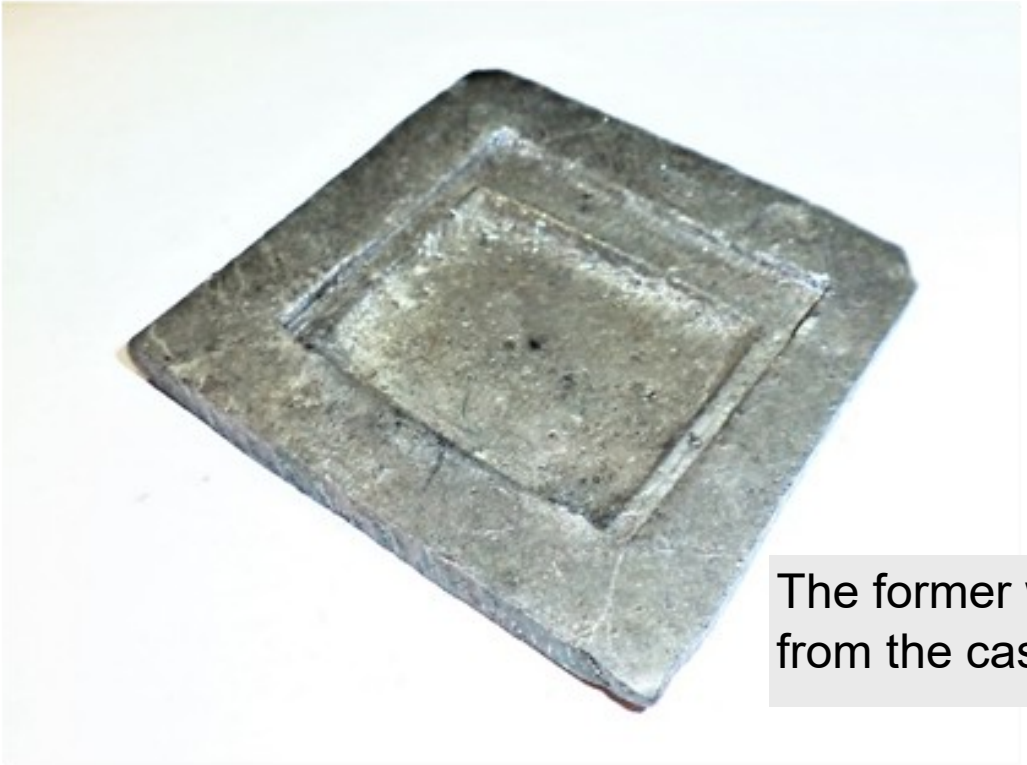
Just follow the readily available Stroudley roof drawings and dimensions for the scale of your choice.

As the dome is actually around 6” high according to the drawings I have consulted, I used 3 mm steel to give a dome of approximately 6” scale height in 7mm scale. The same process can be used for any other scale by using an appropriate thickness of steel flat sheet. This ‘master’ was then attached to a backing plate also made from 3 mm steel flat (two 8 BA screws).

Master attached to the backing plate.

The second part of the tool is the former; the part that the master fits into to form the dome section. This is made from lead, and is simply old unused white metal castings from kits, or alternately, you could use casting metal which will work just as well.

ALL NECESSARY PRECAUTIONS MUST BE TAKEN WHEN HANDLING THE VERY HOT MOLTEN METAL.



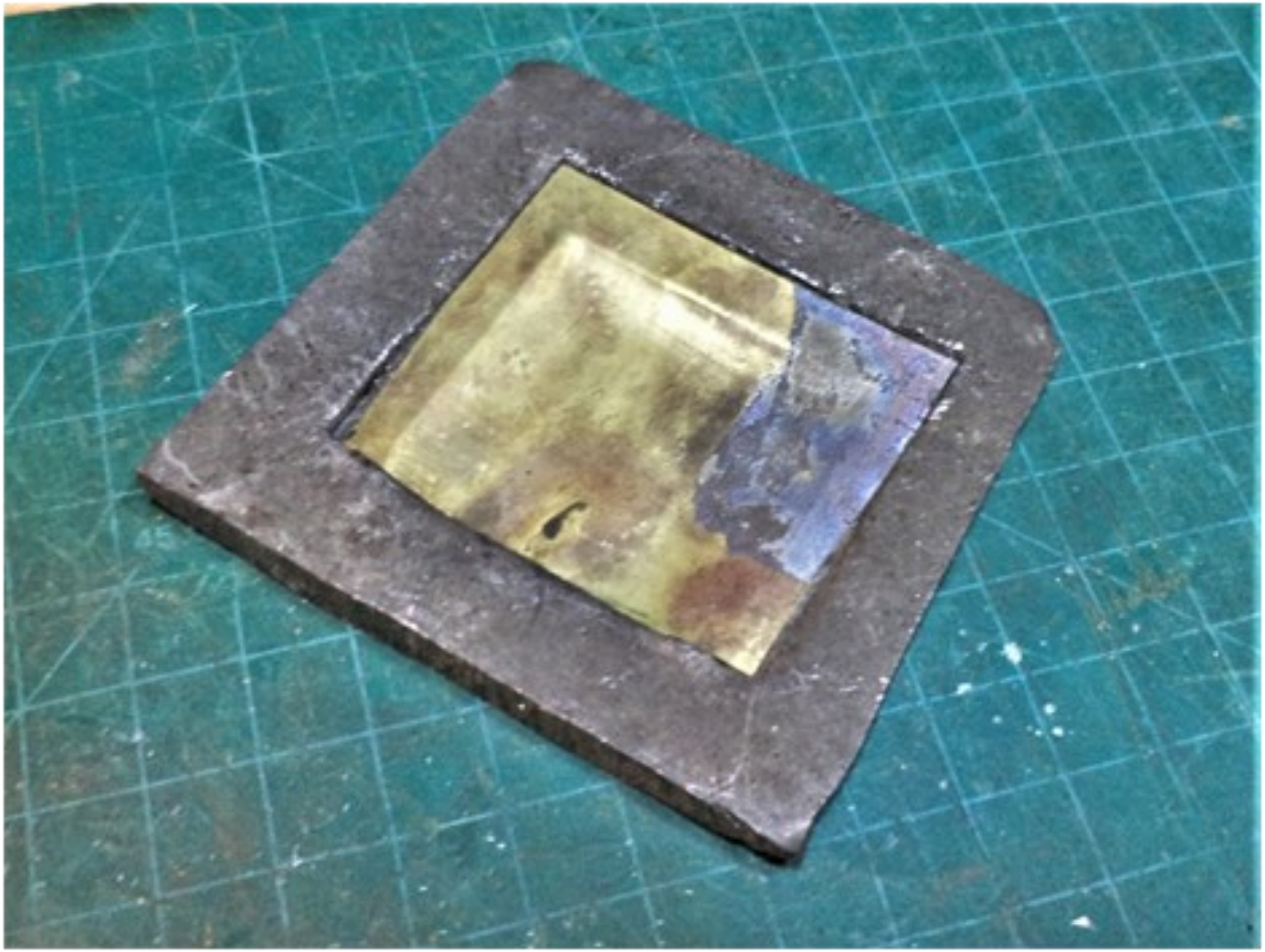
The former when removed from the casting container.

You will need a suitable heat resistant container; I used an old tobacco tin. The master is placed into the container: there needs to be at least 10 mm clearance between the sides of the container and the master. This is required to give the former the strength needed when being squeezed to form the dome section. Pour the molten white metal over the master and wait until completely cooled. Remove the former from the container, which will most likely destroy the container.

Production Procedure

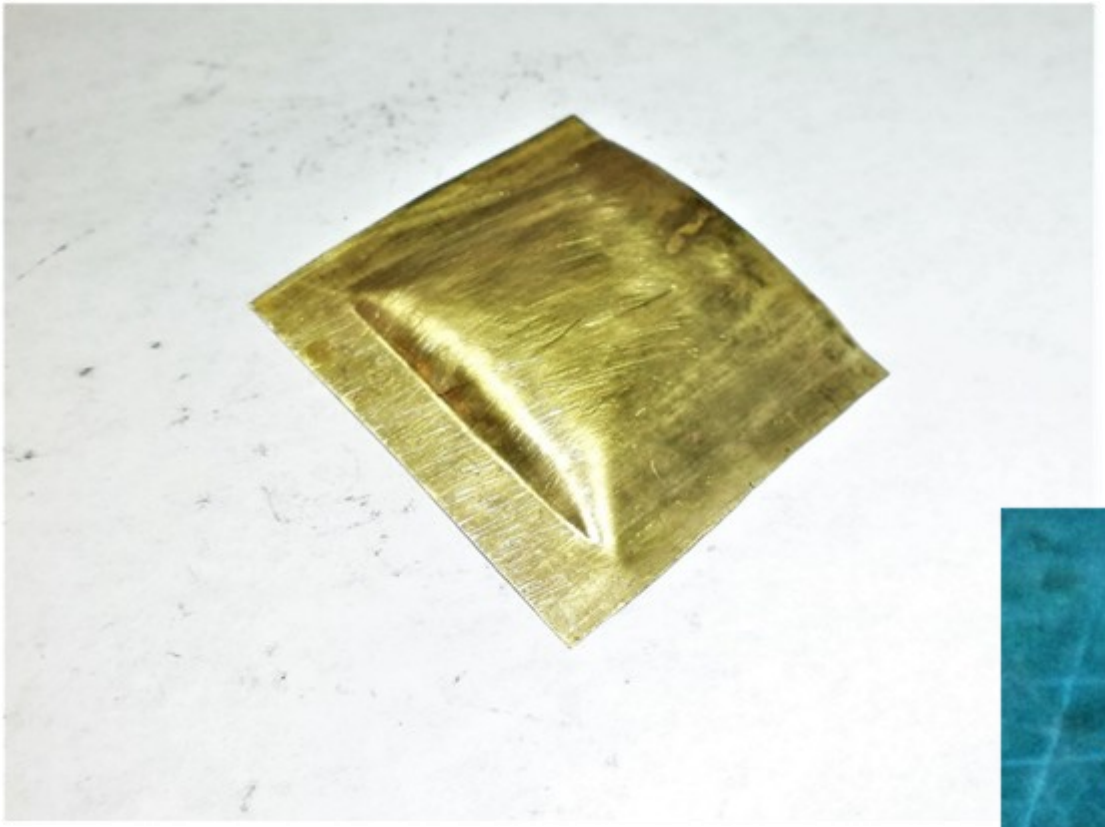
The production procedure is very simple. I cut a brass section to the same dimension as the backing plate. This brass section must be annealed by heating to a low red heat and allowed to cool. This brass section is then placed onto the former and the master placed on top. An elastic band can be placed around the assembly to keep it together. This assembly is the placed into a vice and SQUEEZED as tight as possible.

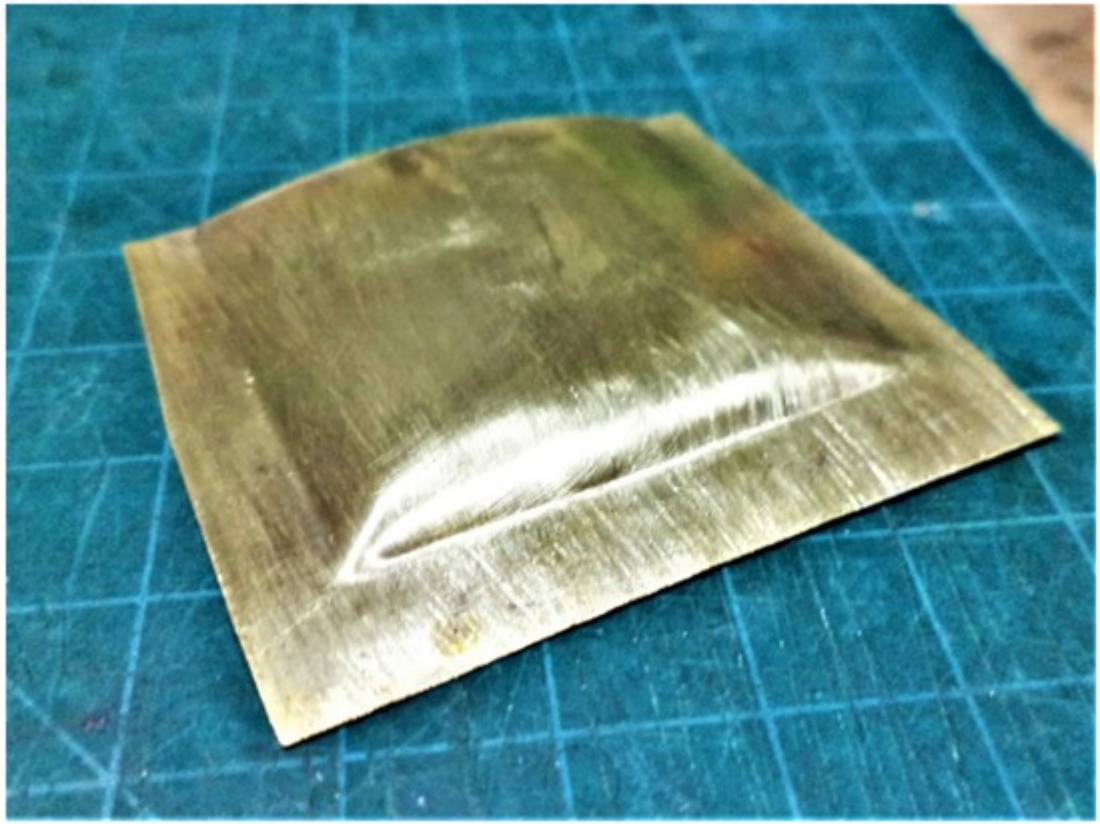
Remove the assembly from the vice and open. The brass section should now be in the basic shape of the Stroudley roof dome section. It will be necessary to cut and trim the dome to produce the particular roof required.



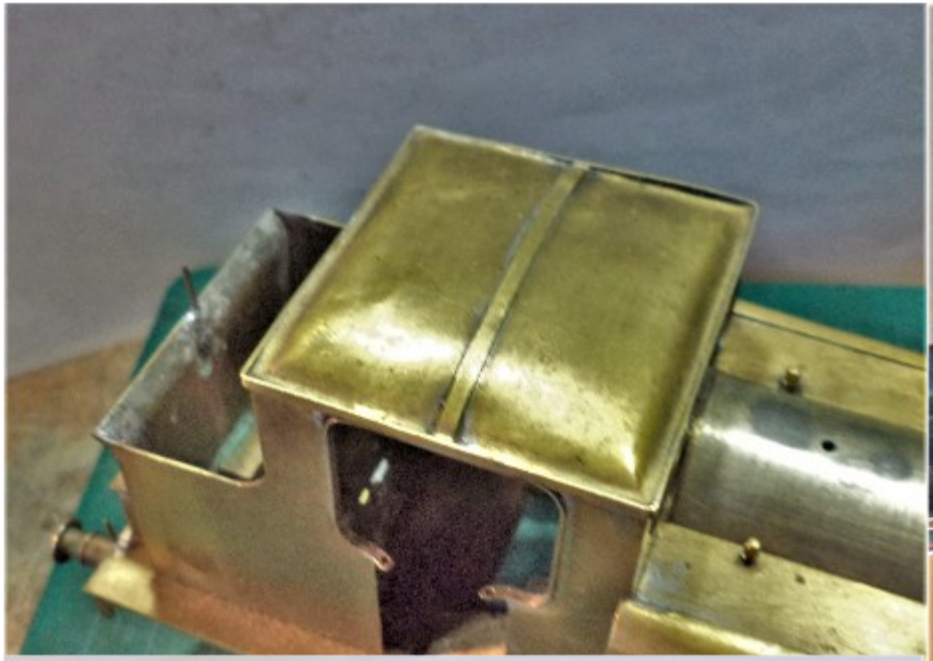
The brass plate still in the former.

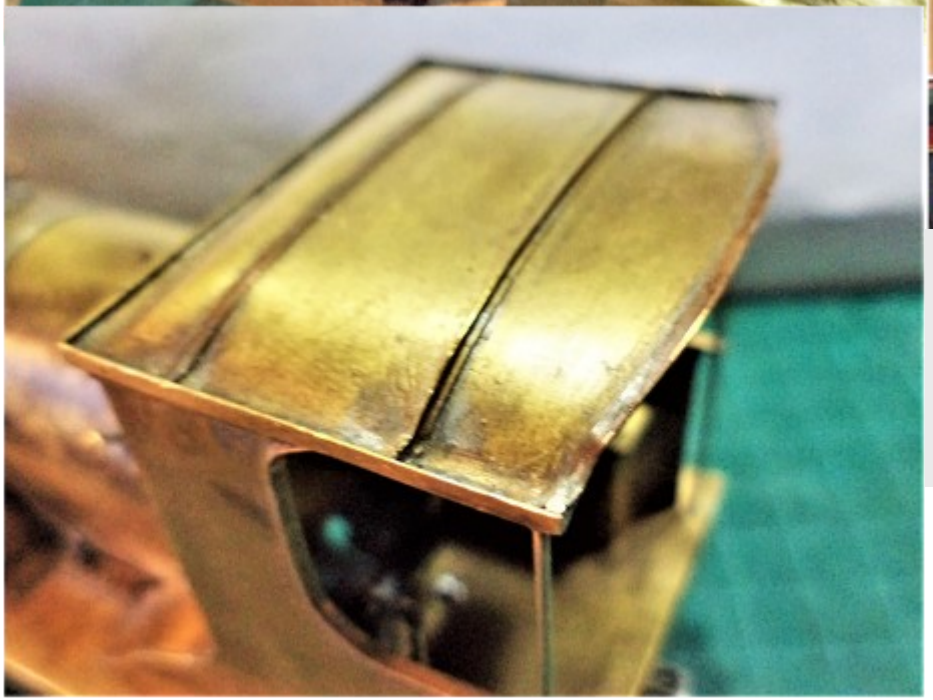
The end results.





The following images show some of the cab roofs I have made using this process.





Top left - E tank

Top right - Gladstone

Lower left - C class goods

Return to contents page

Loco Chassis - Hints and Tips

Mike Waldron

It occurred to me, as someone who is privileged to have a modicum of mechanical knowledge and skill, that sharing this with fellow modellers might be A Good Thing.

Those of you who are already au fait with all this can skip these pages, for fear of appearing to be being taught to suck eggs!

Some while ago, I put fingers to keyboard, as one does these days, with an article entitled ‘Workshop Hints and Tips’, to disseminate all sorts of handy bits of information for both those who have yet to set to the task of scratch building, and also to augment the existing base of knowledge, ideas and ways round problems that face those of us already experienced on the modelling bench or layout.

Recently, I have been reading and re-reading several very excellent and helpful articles:-

- Scalefour News 2 part articles in no’s 201 & 202 by Steve Duckworth re ‘A Trio of CR 0-6-0s - with tender drive’ (which sparked off my final EBM project of the Single’s gearbox system)
- The 2 part article on using Resistance Soldering Units by David Brandreth - S4 News 206 & 207 - the latter of which shows Barry Luck giving his Award Acceptance Speech (not doing Karaoke, as I first imagined!)
- Downloads from Alan Goodwilllie’s lengthy articles on the S4 Forum about chassis building for Scottish beginners. Rather lengthy but hugely valuable - even for kit building.

Printouts of Sid Stubbs' original article and Bill Newton's revamp, from MMRS and CLAG websites respectively, about making metal wheels - which have been my main references on the subject

Less relevant, but no less good, a printout of the MMRS articles on the Alex Jackson coupling; equally as inspiring.

Why am I mentioning all these? Well, in case you haven't yet noticed, they're all mainly about elements of scratch-building and (with the exception of the 3 Caley Goods) not primarily about kit building (he says, being personally responsible for a large number himself!)

In conversation with folks - even Circle ones - the complaint often surfaces about building a *successfully working chassis* (as opposed to a working chassis). This reveals a major area of angst, and probably frustration.

Plain basic 00 modellers have it easy, if Ian Wright's videos on Loco Building are to be watched (and believed) - with the luxury of squared axles that effectively self-quarter, top hat bearings that merely have to be inserted in already truly located holes in either RTR or kit chassis, with the merest twitch of a broach and/or reamer, and not a hornblock or axlebox in sight!

Believe it or not, building my own Belgravia kit (twice) recently has revealed similar needs in my own repertoire - especially when it comes to the setting up of a pair of chassis with extended axles, round-holed outside cranks that needed to be quartered, ensuring clearances with both inner and outer frames - while, at the same time, ensuring sufficient side play, maintaining properly insulated wheels and ensuring efficient picking up of current is maintained … not to mention making sure the axleboxes move up and down unhindered, whilst not slopping backwards and forwards off the vertical axle centre line!

Simples!

No wonder it causes angst!

So those of you who work (or want to work) in P4, understandably, need every bit of assistance you can get, with regard to the creating or arranging of the various moving parts that constitute some form of Compensation. You can also be excused for wanting simply to re-wheel RTRs…. only we're LBSCR modellers, and that means very little RTR, and that which is available may be of debatable authenticity and quality….at least it was so. So it's rather back to square one.

Firstly let me say that most of what I am about to impart is learned from others - and much of that quite recently. So I will advise the following bits of preparation:-

Firstly, go to the C.L.A.G. (Central London Area Group [P4]) website and read / download / print out the 'Principles of Locomotive Suspension'. It is long - very long - but you can extract the useful from the merely interesting, and it leads on to setting out the bases of all the methods of compensating. Bless CLAG for doing us such a great service! (If you're not a Scalefour Society member, I can oblige - strictly for personal research, you understand!)

Secondly, get hold of the articles on Scalefour e-forum by Alan Goodwillie from the West Scotland Group - who offers a great deal of information about how to scratch-build a chassis. (I have saved them as 6 .pdfs on my iPad so can send them to you if requested). They are really valuable, and the two mentioned blend together, with Russ Elliott of M.M.R.S. inputting and questioning Alan at various points. Alan was a teacher too, so, having been a D&T teacher myself in a former life, I fully understand his desire to pass on skills, and, while his spelling is atrocious at times, the articles are excellent.

Thirdly, read them - possibly several times! They form the foundations that underpin what tips and observations I offer here.

I will look at things in their respective groupings by type:-

Flexichas style beam compensation

Springing

Continuous Springy Beams

As many of us will have come into P4 chassis building via this route, this comes top of the list. It breaks down into two styles, as illustrated in the CLAG article - fixed driving axle beam compensation, and full compensation - with every axle moving. Barry Luck is our resident expert in this field - look at his website www.lbscrmodels.co.uk click on the 'Locos' button and then the sub-button 'Chassis Construction' then follow through with each 'Next' button. It's a very helpful read. Much of this will already have been read in the CLAG Loco Suspension article, so you will see actual examples of the full compensation being explained and shown on real loco models. It also formed the basis of a most helpful talk at Scaleforum a few years ago. Note the jig that Barry uses - jigs are very prominent in Allan Goodwillie's building methods, and will reinforce the need for them, however simple, to ensure consistency, accuracy, and repeatability - all indispensible in building chassis and their components.

Springing was once the road that I fully intended to go down, as it seemed more authentic than flexichas - which I had already used in one form in a clutch of three C class locos I had built for others… Until I read the CLAG article on CSBs - of which more anon. I had also bought several of Gordon Ashton's individual springing units, but have not got round to using them as yet.

So to **Flexichas**:

It is the **simpler version**, with the 'common sense' decision of having a fixed driving axle, using top hat bearings soldered directly into the chassis, as do the non-compensating 00 modellers.

The advantage of this is that no vertical movement is required on the axle on which hangs the both the motor and gearbox - with only one point of retention needed at the rear of the motor to stop it ‘bucking’. Having said that, many do use things like bath sealant to adhere the motor on to its seating, as noiselessly as possible!

A beam, as specified by Mike Sharman in his designing of the Flexichas system, supplies pivots in the centre, is located on the centre line of the chassis, whilst bearing down on two adjacent axles, which it equalises. Its function is to enable / permit these axles to rise or fall with any track unevenness, and keep the loco on the track, whilst providing the best possible current collection. The 3 legged stool principle is used - consisting of the two fixed top hat axle bearings and the beam pivot.

Having already looked at both the CLAG article, and Barry’s website, you will know that the **fully compensated** system involves 2 beams, similar to the single one above, but both immediately adjacent to the frames, and bearing on the tops of two pairs of adjacent axleboxes thereby controlling two per side. They are combined with a rocking third axle - arranged with some form of rocking pivot. The (reasonable) claim is that this reduces the bumping of either front or rear of the chassis where the fixed axle would otherwise have been, thereby giving a smoother ride.

Springing:

Apart from the articles by Chris Pendleton in early copies of MRJ in which he explored the use of tiny rubber pads as a means of suspension (which appear now to have been consigned to history) - with which I experimented myself in the late 1980s - springing usually involves the use of either coil or leaf springs.

It is generally accepted that coil springs are the less desirable of the two systems - though Brassmasters use a system that does supply small coil springs, quite successfully, and with a minimum of parts and fuss. They also use a cunning system of reversible axleboxes whose slide

grooves are slightly offset. That means that turning them round vertically, positions them either narrower or wider in the frames.

Leaf springs, on the other hand, are slightly more complicated by nature - though not greatly so. Leaf means steel music wire, in this case - as a single strand of guitar / music wire - between 0.010” and 0.015” in diameter. It is proper steel spring wire, so is the correct and consistent material.

Springing usually entails single fittings surrounding each axlebox - ideally, each of which is adjustable. The biggest difficulties in this system (one shared with beamed Flexichas) are axlebox accuracy and movement, and an even springing rate on all axles.

Dave Bradwell’s system is/was obtainable from the Scalefour Stores. It involves ‘hornblock plates’ that solder around each axle cutout in the frames. These plates have a choice of spring locations - above or below the axle - and provide a means of adjustment for each spring at one end by means of a grubscrew to raise or lower the spring. This increases or decreases sprung pressure downwards on the axlebox.

CSBs

These are relative late-comers into the arena, and I am, even more so, a newcomer to them - though they have apparently been around since the late 2000s. Will Litchfield of CLAG has put together a CSB gallery, which is regularly updated - showing pictures of locos and tenders with CSBs in various states of build, and as well as publishing a full CSB ‘Handbook’ online, on the Scalefour website E-Forum.

The principle is simple, though not necessarily easily comprehended at first (I’m in that learning loop myself at present, so explaining it ensures I understand it first.) One long spring wire is used on each side, with each axlebox being attached to it in such a way that each one moves independently of the others, but at the same time, the long spring wire acts to equalise the quite

complex forces on each axle throughout all the wheels and, in fact, the whole chassis. The wire is retained against the frame sides by small pieces of metal (called fulcrums) (drilled/etched angle or boiler handrail knobs), known as a fulcrum pivots, between each axlebox, through which the spring wire passes, with two more - one at each end - to complete the setup.

In each case, the spring wire is loosely retained, rather than actually fixed. At each end, a retaining method is used to keep it from dropping out, as well as enabling removal / adjustment by varying the spring diameter.

The complexities of deciding where to locate the fixings, and at what height, are all catered for in XLS spreadsheets into which you can enter wheelbase dimensions, and expected %age weight distribution - with the output of figures and dimensions indicating where to place the fixings. It also enables Stroudley's springing principle of having a longer centre spring to avoid the loco pitching as it passes over irregularities. This is all pre-determinable through use of the spreadsheet(s) - there are 3 versions!

In effect, this is combining the two previous systems by letting the long spring wires do what both beams and springs would otherwise have done.

At this point I will halt the descriptions, as you will either be already aware of the details of the three systems, or can read up in the articles above how each one works, and accumulate a wider understanding than I can give here.

What I want to look at here is the mechanics of what makes for successful operation of the various parts. Also have a look back at my previous article at what I said about tools.

Firstly certain principles apply to all three systems:-

Absolute **accuracy** - as a personal value. By this I mean not letting yourself get away with 'that'll do, it's near enough'. A right angle must be a right angle, not 89.5 degrees. Your try

square is your best friend here. Both scratch-building and kit building will require a lot of bending, so learn how to flatten metal that becomes distorted, using a smooth faced soft hammer with flat smooth support - ***not*** your DIY garage hammer with dents all over the face. Gently tap it in a circle, working around the crease, until it becomes flat. Springy metal makes the job more difficult – that is why I advocate annealing parts to be bent in my kit instructions - (softening) brass or nickel silver when rolling boilers or Stroudley splashers. Working it - especially brass - will slightly re-harden it (called 'work hardening') - which explains why nickel silver fractures more easily because it is harder than brass). Repairs to dented metal is ***not*** at all impossible - just practise on fret waste, just like you did when you learned soldering!

Finish is something I learned at college during training. Spending a little longer going through grades of files and abrasive papers gets the results desired. (There's no such thing as sandpaper - except in budgie cages!) In our sizes, grades of Wet and Dry from 240 down to 1000 (if you can get it. I have 1500 and 2000 as well) are essential, even if only to polish the sides of axleboxes. Halfords and Wilkinson's stock most of what we need, otherwise get it from eBay. Even High Level hornblock sets need a bit of that, but I'll come on to details of these later.

After soldering, dunk the items you've been working on into a bath of washing soda to neutralise the phosphoric acid flux, which, left as is, will leave a green powdery residue that is hard to get off later. My early Roxey carriage builds of the 1980s showed such excrescences, which took a lot of removing. It's due to the acid carrying on working after you have stopped!

Finish includes removing the crud that accumulates with soldering and shaping areas like smokebox / front splashers with scrapers, including the inevitable surplus solder on the places you can't do from inside. Ian Rathbone uses an old flat needle file with the teeth

ground off and about a 10° bevel ground on the end. It is then sharpened on a smooth oil stone giving an edge that would slice your knuckles badly. With it, you can then lift the surplus solder, and even scrape or cut 'rags' of brass/ n/s off. Even though this leaves a visual mess, and it must be a smooth mess, it will disappear under the first coat of two-part etch primer airbrushed on. Fibreglass brushes will both remove (gradually) and polish both solder and whitemetal (castings). Don't leave lumps - get them flat.

Did you know that you can get different cuts of needle files? I didn't until I asked at a Squires stand once, and was told there are 2nd and smooth cut just like with hand files, so get some to avoid leaving file marks on your loco bodies. They leave fewer 'rags' or rough ends on what you have been filing. Especially with what should be polished brass. (Editor's note Precision needle files, such as Vallorbe, can be had in cuts 0, 2, 4, 6, 8, and even 10. The higher the number, the more teeth per inch and smoother the result.)

A **digital vernier caliper** is pretty much essential these days - measures wheel back-to-backs, track gauge, wheel diameters, lengths, depths of holes, the width of your thumb - in fact anything within its size capacity (usually 100mm). ***Do not buy the plastic ones!*** They are useless; the jaws damage easily, and the sliding jaws stick and jerk. Apart from which, they only measure to one decimal place - which seems fine - but the 1/100th tells you whether you are nearer the higher or lower figure - 10.0 or 10.1 - might just be 10.09 rather than 10.01 - it does make a difference, so is worth knowing, and then providing for that.

Careful **marking out** is vital. A very sharp scriber, with a good quality try square (it's not a set square) give proper right angles. A pair of school spring bow dividers are ideal for marking a line parallel to an edge as well as circles. Use a dot punch - 60° point for margin where holes go, and a 90° centre punch for lightly hammering the cone-shaped indentation you then drill. Then when you work to that line - either first trimming by sharp snips (Expo) then filing down

to the line but not going beyond it! Ensure the result is flat - file the edge with the file being run along the edge. Check with a rule on its edge against the light to find any lumps you've missed.

Those constitute some simple principles that are about a state of mind to learn as a means to producing better models. Much above sound like it refers to bodywork, but the principles are universal.

However, there are some ways of handling and working with parts that will increase accuracy and consistency.

The axleboxes (or horn blocks) & hornguides

They ***must*** be parallel on opposite sides and square at each corner - all four. The holes ⅛" or 2mm must be central. They must be **smooth** in order to slide smoothly up and down the hornguides, and errant solder must be avoided. The horn guides also! This has been a real problem area for me in the past.

I etched some hornguides using the similar principle to Gordon Ashton's, but I used nickel silver - as I always try to avoid ***similar metals*** running on each other, as they tend to stick - mild steel being the worst offender. I want brass axleboxes to run on n/s hornguides - not brass on brass. This may be an eye-opener for some. It might even be a fix for your sticking axleboxes.

Another thing that spoils even the brilliant High Level hornblocks is stray solder. In my own horn guides, this was the major problem. I hadn't credited just how far solder runs in these small parts. It was the needle file scraper that came to my rescue. Running it very carefully parallel along the cheeks, I found that quite a bit of solder had leaked through. This scraper can completely remove it. This might be another fix for someone!

I know that you are not supposed to solder up HL hornguides after bending, but I do put a small blob on to hold the ‘catch’.

You also need to understand what ‘burrs’ are - or ‘rags’, as they are sometimes called. These are the small ‘extension’ pieces of metal that you can find on almost all machined surfaces at the far ends, and on items you have filed up, or even scraped. It happens because some metals are soft enough to be pushed rather than cut by the cutter being used - be it end mill, drill or file.

These can be a major hindrance to parts seating flat or square, and can stop axleboxes from sliding. This is why Chris Gibbons tells you to polish the sliding edges of his. I use a cut 4 or cut 6 Valorbe needle file (yes, I know they are wickedly expensive, but they are excellent) which leave a beautifully smooth surface. These, or course, must be held totally flat against the surface - so develop the skill of so doing, or find a way of holding the (small) axlebox so it won't snag and turn head over heels on the file. Finish with a 1200 grade wet and dry polish. You’ll be astounded at the difference!

You must have a reamer for each axle size you use. Here’s a tip for cheaper reamers - you can save yourself around £10 each time. They are called ‘Toolmakers’ reamers’:

Buy a length each of 1/8” and 2mm silver steel (guaranteed to be dead size tool steel, and supplied in a relatively soft state), and file (or grind) and oilstone a shallow c10° angle across the end. Heat to red hot and quench immediately in cold water, straight down and then circle it round in the water until cold. Clean up with wet and dry to remove the black scale and burrs (see above!), then, to temper it and avoid it snapping, very gently heat up the end away from the slant you have filed until a pale brown/yellow creeps towards the slant. The second it almost reaches the slant, quench it immediately. Oilstone the flat slant until a sharp edge is formed on the sides of this oval face - you now have a toolmaker’s reamer. Use in a metal handle. You now have two cheap but dead accurate reamers. I have made three such 1/8” reamers - one dead 1/8”, and two

more approximately 1 thou (0.025mm) larger in each case. I turned these down from the next size stock up. This can sometimes correct running fits, when axles are slightly oversize (and they can often be), but I only use them very occasionally. Using 1/8” silver steel - the same as the reamers mentioned above, gives a very close running fit, which a dab of oil loosens with twiddling in the fingers. They will last and last.

The Hornguides

These must be individually matched to the specific /cleaned up axleboxes, and allow them to easily slide up and down. Check which way they fit best - they may look exactly square, but may not be. Mark them (1-3 L & R) ***so that axlebox only returns to that particular hornguide, the same way round each time***.

High Level ones are about the best, though I have used MJT ones - both detailed and simple. There must be no rough edges or solder creep, so carefully plan and execute exactly where you intend to put the solder. A reel of solder wick is useful to suck up excess – it is braided copper that you flux and put over the excess solder and then reheat with a sturdy iron - minimum 25 watts, but 40 watts is better.

Never scrimp on heat or flux - that just ensures soldering problems. If you have items that need soldering close together, consider using different temperature solders - do the higher temperature first (I use Ersin multicore), then quickly solder with the lower temperature solder (145°) after - that ensures you don’t loosen the first item. Even use low-melt if you need to. It came as a revelation to see Ian Wright using it for attaching brass chimneys to brass boilers - but you must ‘tin’ both sides first. I had never thought of it!

Ensuring the working edges of the hornguides are exactly at 90° to the footplate edge is absolutely essential, otherwise when the axleboxes slide up the guide that is at an angle different to the others, it will try to stretch or squash the coupling rods and cause a jam up! Logical.

If there is no practical straight edge at the top of the frames, you may have to use a rule lined up with the axle centres (which aren't there yet!!) if this is the case, and it probably will be, then use the tips of the horn block cutouts. Mistakes have to be corrected when they occur or when you run a necessary check after fitting. Instant rectification is also vital to avoid errors compounding.

Coupling rods

They are the first items that need to be constructed on building a chassis, and exactly identical, to locate the axles, so a jig has to be used. The simplest one I ever saw was for the I1 tank in S4News (Terry Bendall?): two holes drilled on a pillar drill (some form of this is a Must for good chassis work) in a piece of Tufnol at the (2) axle spacing and two such drill bits implanted for soldering the halves of the rods together. Much cheaper than the expensive 'Chassis^2 jig' - though I do have one.

There is an excellent jig described in Allan Goodwillie's article - made from B&Q small aluminium angle. This material is very useful.

The jig is made from two pieces of the angle edge on, with bolts through the other sides, and two pieces of tube as spacers Two pieces of screwed rod are reduced on the ends, and held in the gap with nuts and washers.The rods are held securely while you solder them, as you haven't got the needed 3 hands. Self-locking tweezers are also vital to keep the halves together, and avoid bulging while soldering them, or perhaps better, aluminium (ex-Dinky) hair clips (sold by London Road Models if you can't find them in Boots).

You will also need some small broaches to open up the holes in the ends ***after soldering together*** if they need it, to fit on the crank pins and jig ends. It might seem obvious, but these

must be coordinated, if you hadn't thought about that. Make no assumptions here. Kits don't necessarily a) provide crankpins b) use the same sizes in the rod as commercial crankpins. Either 1/16" or 1mm. 1/16" is about 1.5mm! Therein lies the difference. The Chassis^2 jig sold by Eileen's Emporium uses 1mm pins. That means you can use larger diameter crankpins, opening up the rods later.

Never make the holes in coupling rods oval - it sorts out nothing. It merely adds to the problems.

When you use the properly prepared, identical rods to set up the hornblocks, they have a chance of working. Let them wander out of true, and they won't! Guaranteed!

Frames

Next is the chassis jig - a means of aligning the frames exactly right - parallel in both planes, level at each end, and level on a dead flat surface. Get a piece of mirror or plate glass - you must have a true surface to test on.

The chassis jig can be as expensive and all-round as the Chassis^2 sold by Elieen's Emporium, or imitate the one Allan Goodwillie builds - all details in his article from S4 forum. The use of readymade aluminium angle provides the necessary right angle - ***but don't take it for granted****. Take a try square with you when you buy it.* I have bought some with just that problem, but have managed to correct it by draw-filing on the high edge, once the parts required are cut off the metre length.

There's much to be said for what I call a 'square corner'. By this I mean a piece of known-to-be-flat plywood, on to which is glued two blocks of 2" truly square timber, at right angles to each other. Beech is best, as it is more stable, but knot-free straight-grained pine will do. This greatly assists both setting up both chassis frames square and parallel, as well as acting as a carriage side-to-end soldering jig. Most useful.

Spacers must be identical and L shaped, as the ‘L’ imparts much needed rigidity to the chassis in two planes at once. Don’t cut them and then try to file them to width, it introduces other influences, and usually doesn’t work. If you are building them yourself, then cut a long, dead parallel strip to your chosen width - c15mm for EM, 16mm for P4 - with some possible variation depending on the curves your stock has to go round. Then cut and bend them, as needed, to an exact 90^0 and solder them at strategic positions, based on the space your motor and gearbox needs, the type and location of your pickup system, and any other considerations such as body - chassis securing system.

Bending ‘L’ shaped spacers (or parts in general) requires a plain jawed vice (or smooth jaw inserts), a small try square and a 12” stiff rule, or strip of steel.

Mark your bend line with the dividers to guarantee it is parallel to the edges, then align the line with the top of the vice jaw. Place your rule or strip of steel behind the brass / nickel silver part and pull it evenly downwards towards you, thereby imparting an even bend all the way along the line. Press slightly over 90° as the metal will ‘relax’ back to an exact 90°.

Practise this essential skill and get to know the very different characters of both metals. The parallelism of the initial long strip ensures the spacers are consistent, and the edges are parallel, and your accurate setting out, setting up and executing the bend completes the job. Check also that the bend is not twisted - it is easy to lose the accuracy at this point.

Allan Goodwillie stresses the importance of checking each stage, and it is wise advice. I know when I have made the least checks, I’ve made the most mistakes. The more I take for granted, the more goes wrong!

Strategy

What do I mean by this? Well the more you plan what you intend to do at each stage, the clearer each stage becomes and also what its short term goal is. Check you understand what you need

to do, why and especially how that will be achieved. If you aren't sure, now's the time to ask the questions, or do a bit more investigation.

It simplifies and clarifies thinking, and allows success to be sequential: all contributing stage by stage, to a well constructed, smoothly working chassis

Pickups.

Again, planning is vital here. If you don't know what you plan to achieve, it will be hard to get there, and you won't be sure when you have!

There are two completely divergent schools of thought here: 'Rim-scrapers' and Split axles/ chassis.

Barry's MRJ articles and website illustrate his modus operandi, favouring split axles and an insulated set of spacers.

You have to ask yourself - can I successfully and consistently produce parallel strips of gapped PCB to solder between the frames as spacers or not? If you don't have a circular saw with a fence, the vital question is really, 'can I cut and file strips of PCB parallel?'

Cutting and filing them one at a time is a recipe for failure. Cutting and filing a parallel strip - even if a fraction narrower - means when cut up and soldered together to form an 'L' ***in a jig*** - even if only a piece of wood/MDF glued to another to form a truly 90^{o} 'wall and floor' (my square corner jig) - so long as they are the same length and level together, a pair of these L's at each end will guarantee the frames are parallel.

That then enables others to be prepared equally as carefully and fitted in between these two. You are compounding accuracy not error!

The requirement for separating the polarity of the pickups has very far-reaching implications - depending on which system you adopt.

Standard dead-chassis pickups require insulation at wheel level - usually already supplied by the plastic centres of the wheels you buy. Sadly Mike Sharman's excellent efforts of the 1980s were squandered by the 1990s. Alan Gibson's wheels go a long way to fill some of the resulting gaping void, but nowhere near as much as the superb range that Mike produced for us Brighton modellers. Not a plain single 6' 6" driver in sight!

Split frames, on the other hand, will require split axles, non-insulated wheels, and separate side frames of opposite polarity - which, while its major advantage is that it loses the usual form of pickup, it requires successfully produced split axles and wheels that conduct the current instead of insulating. Commercial offerings are available, from Branchlines, though they are an added expense.

Barry's expertise here is illustrated on his website, and the supply of necessary parts - especially the jig to hold the parts aligned while you produce them - is given. If you have a lathe, and a set of (becoming gradually cheaper) collets, the job is well within DIY capability. There are a number of interesting lathes on eBay! The Sieg CO baby lathe being one, though discontinued by Arc Euro trade in the UK. They are still obtainable.

Wire pickups

A small piece of single sided PCB glued to the underside of a deliberately (note) placed spacer will enable nickel silver wire of 0.45mm diameter or brass to be soldered, and carefully bent to bear against the inside tread or flange of the wheels (once referred to as 'rim scrapers'). Pickups need to bear lightly but positively against the respective wheel, and all of them. Tender engines can have the rear ones alone as collecting current in this way, thereby spreading the breadth of opportunities.

The only two things you need to be concerned about is whether adequate spring pressure maintains contact at all attitudes of each wheel, without applying a braking force, and ensuring insulation from brake gear (which may not yet be attached) and any other part of what should be electrically dead frames.

Split framers do not have this to worry about - here at least - so long as brake hangers are not soldered right across the chassis. Their chief concern comes when the shroud of an etched body approaches the two sides of the frames and their wheels. Insulation concerns spread in a very 3D way all round these items. Therefore some physical means of introducing an insulating barrier is essential.

Sid Stubbs was of the Tufnol brigade - and early resin and cotton fabric or paper sandwich material, which you can machine in a lathe. Eileen's Emporium supplies flat sheets - which is fine for 'pads' of insulation laid across the two ends of your chassis - with the necessary reduction in the top edge to compensate, but no one produces ⅛" diameter rods - the smallest is 10mm at daft prices - most of which would be wasted - if one is considering using it to insulate the 2 or 3 parts of split axles.

Quartering

Assuming you have put the frame together, clear in the knowledge it is executed as planned, and the hornguides soldered accurately and efficiently in place - using what? Jigs of course! - the next thing is to get the wheels correctly located in relation to each other so that each crank pin is at 90^0 to its opposite neighbour, and exactly the same with each other axle.

Here I eschew the rustic way of peering through spokes and twisting the wheels bit by bit onto the axles in the correct place and accurately quartered. It's too hit and miss for my liking. I suspect,

once you have freely-sliding (but not slopping) axleboxes and exactly mirrored coupling rods, this is the next largest cause of failure of mechanisms.

Add a simple jig, remove the jerky and hard way of having to twist the wheels in place, and it becomes very much easier.

I have scrounged various excellent ideas and combined them into my own back-to-back gauging & quartering jig.

My wheels are adhered, so do not grip the axles as plastic centred ones have to. Instead they are glued with either Loctite or Araldite on to the axles. Immediately after this has been applied to the first wheel on the axle in one jig (!) that holds the axle exactly at 90° to the wheel, the axleboxes, spacing washers and gearbox are mounted, along with the second wheel, and placed in the combined jig that holds the wheel at back to back, whilst then enabling twisting until the crankpins bear against the two outer pin supports.

Lightly clamp until set, and two awkward jobs have now been completed outside the chassis.

That, of course, presupposes you have planned the clearances needed, and built the chassis with clearly numbered drop-out axle/wheel units.

I think you can begin to see how necessary the planning and preparation stages are.

All my chassis failures were because of one, or a combination of these areas that were not adequately planned or rigorously executed.

Jigs:

In conclusion, I must revisit the matter of jigs. They are simply a device that enables both hands to be free to bring both parts together in an accurate and repeatable fashion. Anything that works will do. It’s down to your imagination, reading and scrounging skills!

For example - a means of fitting a wheel to an axle at exactly 90° merely needs a piece of flat aluminium drilled at 90° to the face - i.e. in a drilling machine. If needed, pressure can easily be applied by a vice with protective jaws to press the wheel on - avoiding any twisting because of the crank boss or pin. This is basically what the George Watts wheel press jig does, as well as setting the crank pins in the right place at the same time.

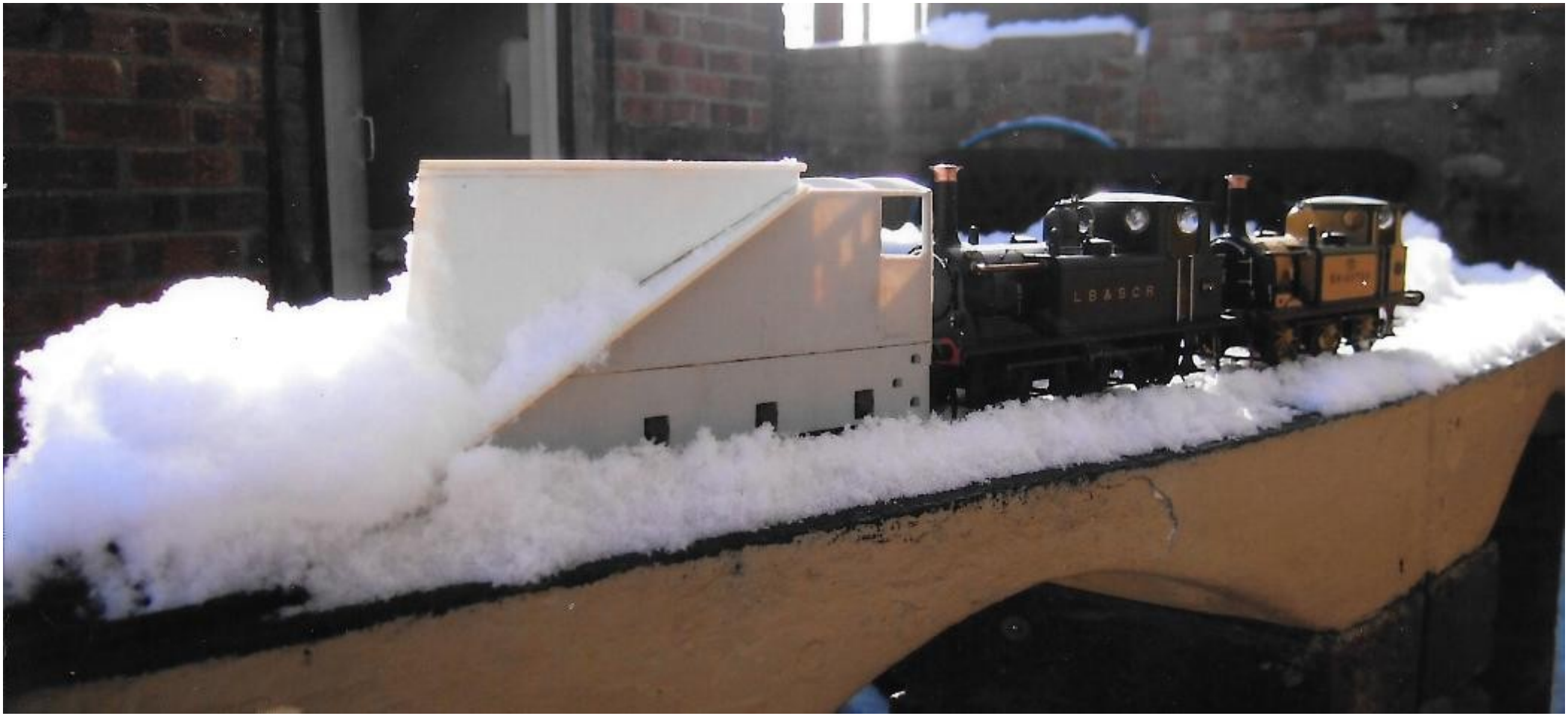
A simple back-to-back jig can be made from aluminium angle and held apart by pairs of nuts on a M4 / M5 stud or long machine screw: for an 0-6-0 jig four is ideal. So long as they hold cleanly, and the nuts don't have slanted faces, which you do need to check(!), this will suffice to measure 17.75mm for P4 BB, 16.5mm for EM, and 14.5(?) for 00.

I am currently working on a jig to enable all my D1s to have their condensing pipes enter the smoke box at the correct angle - which ended up completely parallel to the platform, after the 90° bend towards the smokebox, although plans and drawings suggested otherwise.

Return to contents page

Ashcombe Down revisited

Mike Cruttenden



They say that dogs like snow, so here we have two Terriers that appear to be enjoying themselves! The snow plough was built as a wager to prove that it would work properly. It has taken four and a half years to claim the winnings, as this was the first snow of sufficient depth in Brighton to prove the point satisfactorily. You do, of course, need to have the right kind of snow to make it work.

Outdoor modellers are a hardy lot!

...and Open Day at Ashcombe Down

Mike Cruttenden hosted an open day at Ashcombe Down on 28th May for members of the Brighton Circle.

Access to the site has been adapted to assist those with reduced mobility.

Left - an overall view

Above - the water tower and pumping engine house.

Some of the motive power available for the day.

Colin Paul’s Inspector

Manning Wardle goods loco by Peter Wisdom.

Stroudley's prototype radial tank by Peter Wisdom.

David Lowe’s prototype, 3D printed Open D.

Note the convenient O gauge spaced slats on the table top!

The loco shed and turntable.

When things do not go quite according to plan....

Rolling stock by Arch Overbury.

Return to contents page

Brighton - Lewes Rd 1908 - N Gauge

Update June 2022

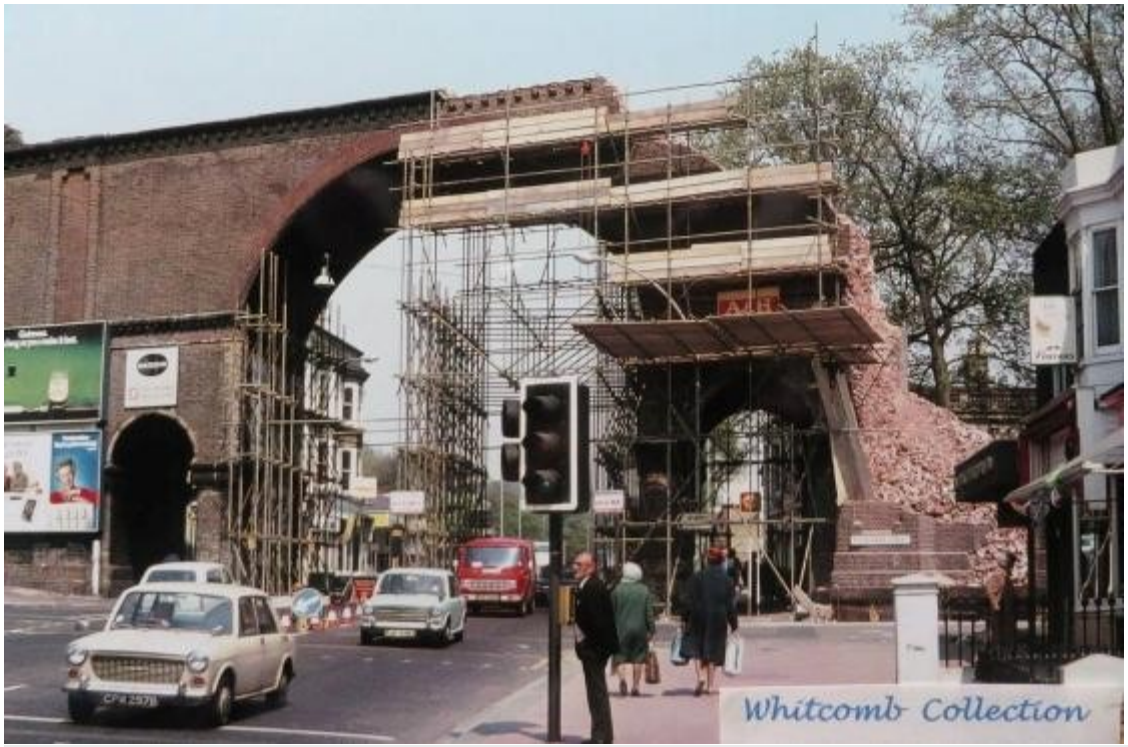
Huw Evans

Progress is continuing (albeit not as quickly as hoped!), on my N Gauge model of Brighton's Lewes Road railway set in its Edwardian heyday*. The last six months have been spent modelling the core viaduct itself, with the N gauge model comprising 10 arches truncated down from a prototype of 14. This includes; the main road and pedestrian arches crossing "Lewes Rd", together with a girder bridge and further brick viaduct over the adjoining "Melbourne Street".

Lewes Road and bridge 1869 - photo copyright the Regency Society, James Gray collection.

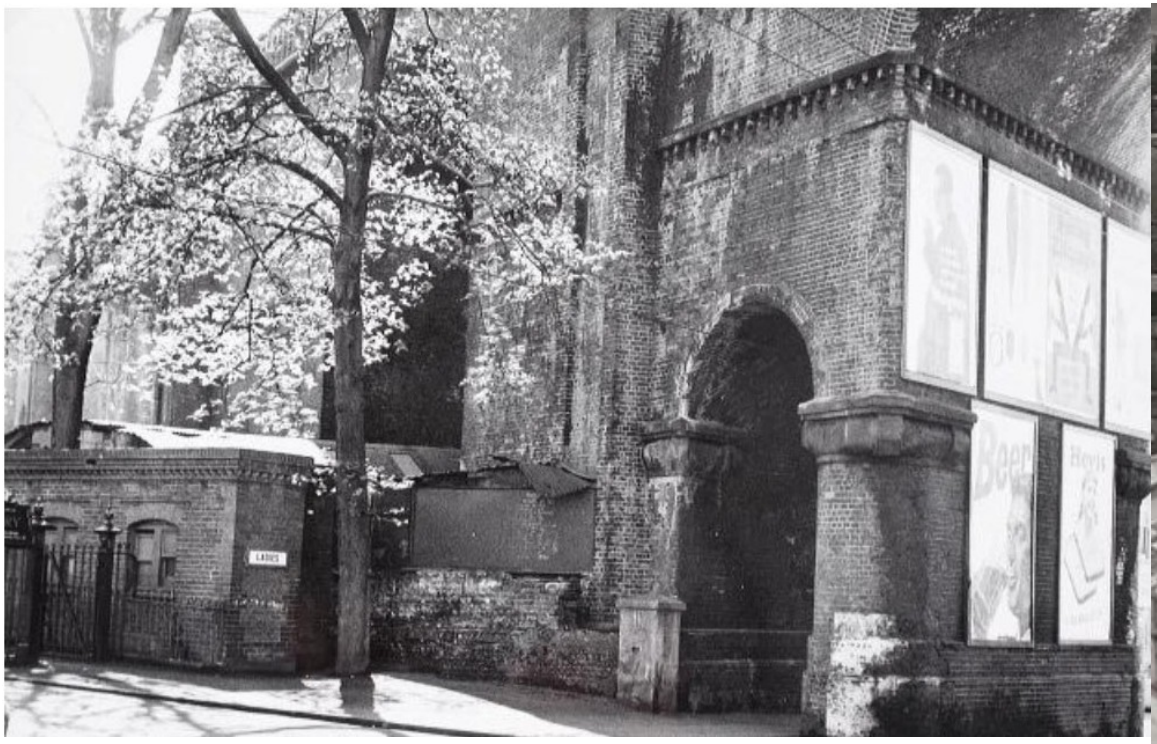
Viaduct History

Built in 1865 as a key part of the Kemptown branch line, I think its fair to say that its design is more monumental than elegant (unlike those of Balcombe and London Rd Brighton). I'm guessing this reflects the commercial rush to complete the branch line into Kemptown and possibly requiring relatively more expensive labour, being built over 20 years after the mainline?



Above - the main bridge 1975- copyright Whitcomb collection

Right - the girder bridge 1975 - photo copyright the Regency Society, James Gray collection.



Top left - pedestrian arch detail 1960

Left - Lewes Road pedestrian entrance c. 1934 - both photos copyright the Regency Society, James Gray collection.

Top right - Cox's factory and viaduct 1948 - photo copyright Arthur H Cox archives.

Modelling Features

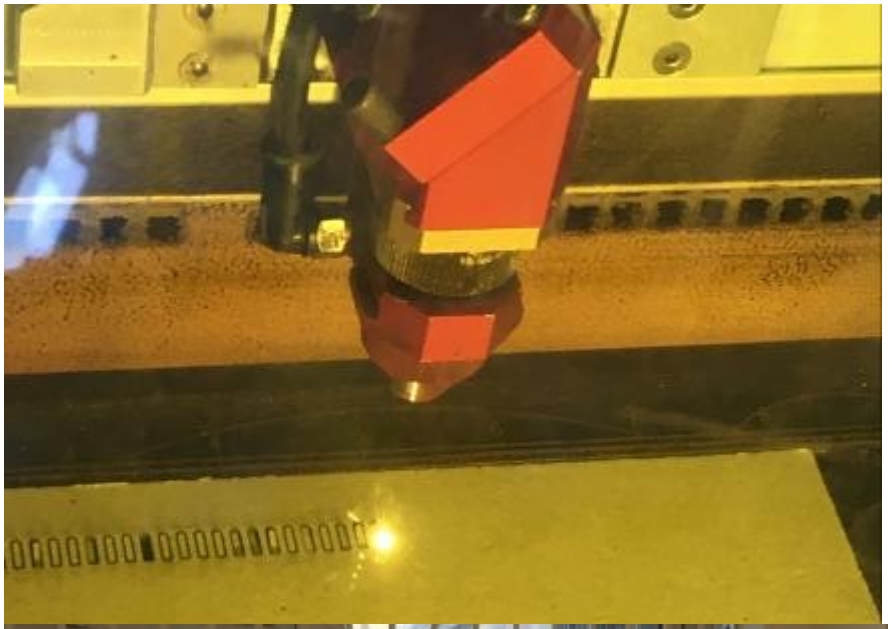
As in my previous update #1 (Cox's factory), all modelling has been based on mount board / card, overlaid with layers of brick effect papers and plasticard detailing. However, the trackbed itself is a separate detachable single piece of 3mm plywood following the curve of the line.

Viaduct brickwork design was significantly aged with damp 'stains' using Photoshop 'bucket / fill' settings, though this was only possible with the incredible subtle variations in the original "Scalescenes" brick design, which the Photoshop package could then increment.

*In hindsight, I made a bit of a planning error. I'd based much of my viaducts ageing/weathering on 1970's colour photographs, by which time the viaduct was 105 years old. If my model is to be set in 1908, the viaduct would only be 43 years old and so presumably, not so weathered!

Similarly, as per later photographs, I'm tempted to add copious overgrown vegetation on and around the tracks, firstly to add a touch of colour and interest, but also to bury any flaws around modelling edges. However, in reality, with cheaper labour in 1908 would this actually be the case and everything be cut back and much more pristine?

One key feature of the model is the brick balustrade comprising 500 x mini arches each 1.5 mm diameter. After considering; hand cut, 3D printed or cast options for this component, I eventually decided to laser cut these on 2mm card. I'm very grateful for the assistance of Barclays business centre in Brighton for this. FYI You may be interested to know that these facilities (and there a number across the UK) have a number of 3D printing and laser cutting machines which can be hired, with or without operative. I understand this service is primarily for new business start-up / prototyping, but in my case they were happy to support my project as ultimately this should be of local community interest / display. In the end, I was able to complete discussion, design and cutting of the design at the centre with assistance in a single hour of work and therefore free of charge.

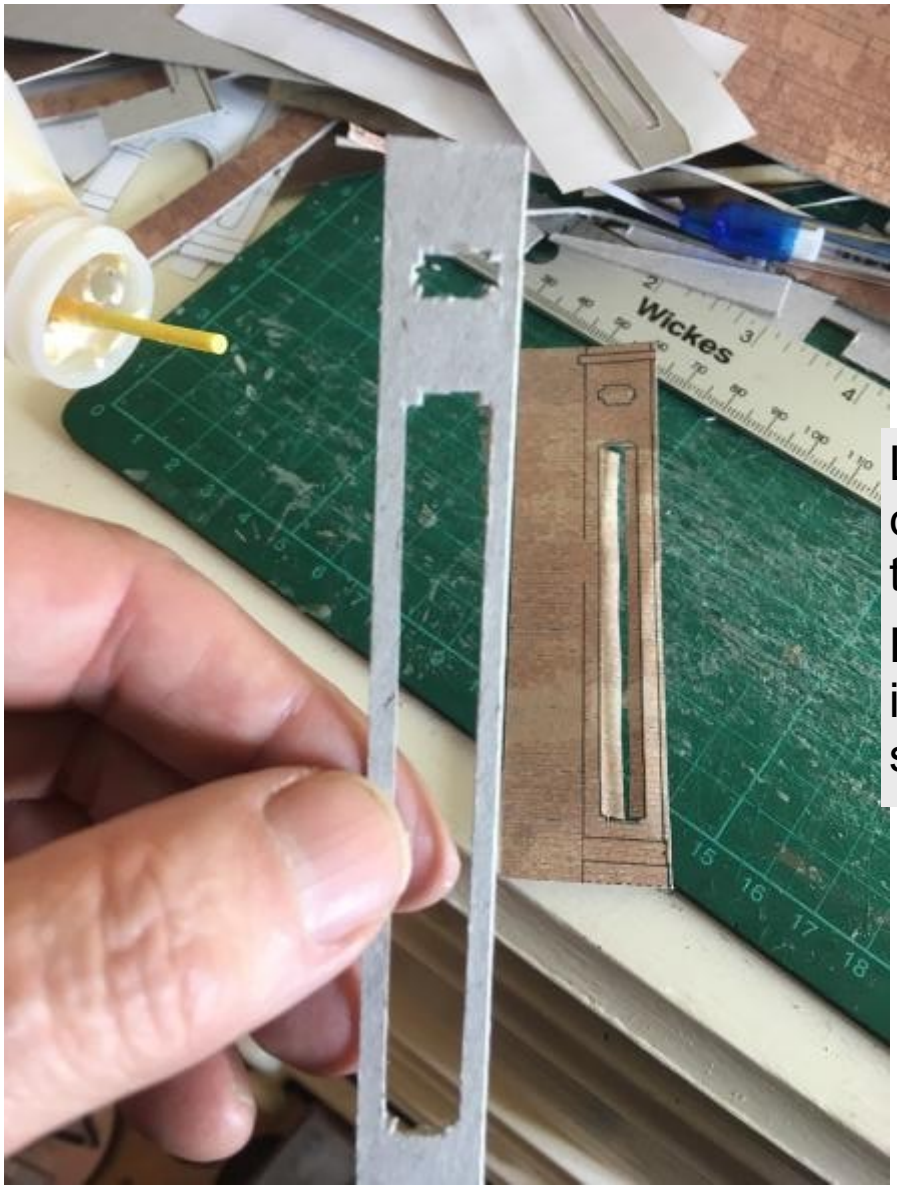


Top left - laser cutting balustrade.

Left - laser cutting machine at Barclay's Business Centre.

Top right - author with laser cut balustrade!

A second feature is the additional decorative brickwork on the viaduct sides comprising over 1,000 pieces of 1, 1.5 and 2 mm plasticard, spray painted then glued on with tweezers. Very much a labour of love and certainly not completed in an hour of work! In hindsight I should have again produced these using a simple laser cut design, but hindsight is a wonderful thing.



Left - constructing the columns.

Right - the interior of the skewed arch.

Left - the traditional soaking of ballast in PVA.

Centre - the separate track bed in 3mm ply.

Right - cutting 1,000+ tiny brick details.

Above - the underside of the three viaduct components.

Right - the brick detailing.

The girder bridge section is a combination of proprietary laser cut bracing by “Scale Model Scenery” plus girder sections & timber sides from “Scale Scenes” kits.

I also managed to squeeze in one modelled example of an internal lateral arch within an arch, as can still be famously seen on the Balcombe & London Road viaducts.

One particular complication for the modeller, is that the overall viaduct curves, so that inner and outer arches are of subtly different sizes, with skewed internal brickwork.

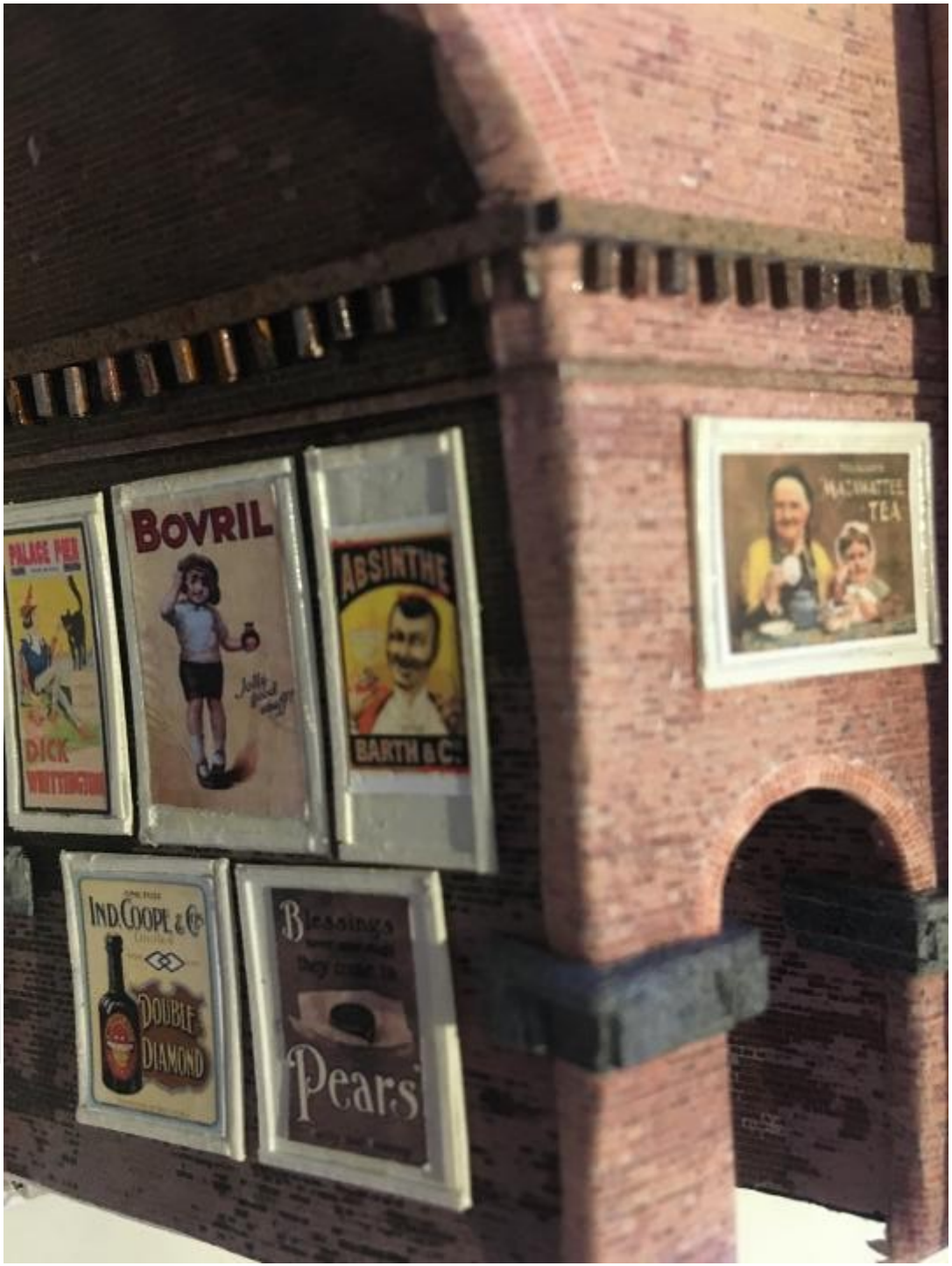
A more extreme complication, is the road layout on the right / “Melbourne Street” side of the diorama. As per the prototype, the road takes a 90 degree bend under the viaduct, with the girder bridge and adjoining arch being particularly skewed as a result. See the photograph of the impact of this on the arch lining.

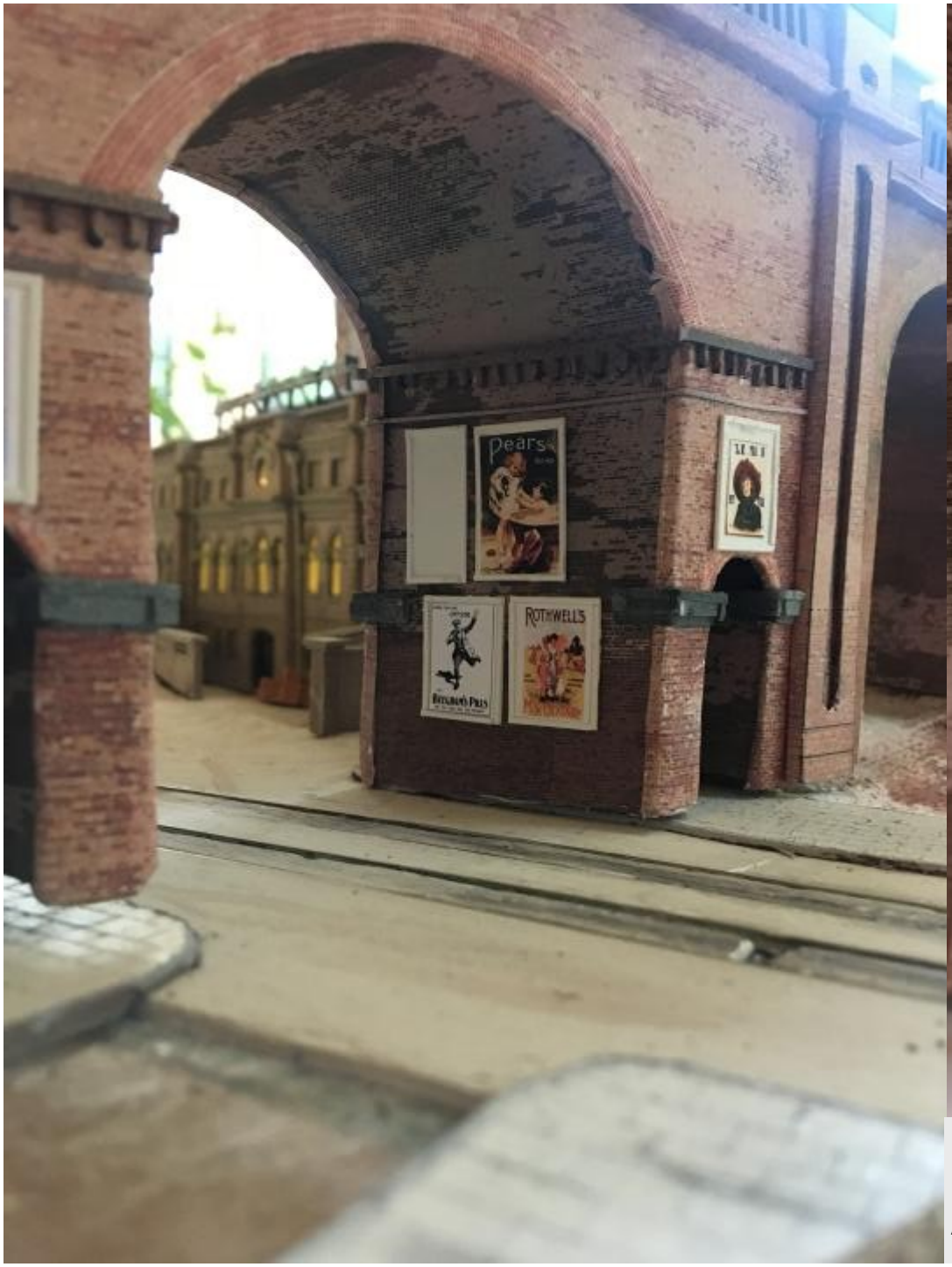
The overall meter long viaduct is built in 3 sections, which slot down onto wood blocks screwed onto the layout. Sitting on top of this, is the track bed which is a single piece of 3mm ply cut to the curved shape, overlaid with 0.7mm cork tiles before peco N gauge code 55 flexitrack was glued into place, weathered and ballasted. I was very conscious this track bed had to be constructed away from the cardboard viaduct itself due to the flooding by watered down PVA glue involved in the ballasting process.

In theory, the track bed and 3 arch sections are removable, particularly if future adjustment is needed to the “DCC Concepts” point motor built under the track bed at the West end of the diorama. However, as more surrounding vegetation is gradually added, any such maintenance will be increasingly painful in practice.

My planned tasks over the next 6 months are to bed-in the viaduct footings into the diorama more accurately; model the 'covered pedestrian walk way' to Lewes Rd Station; build the station masters house and a further 5 suburban houses in the raised hill part of the model, together with a complex design of back gardens and yards. However, the overall diorama I can't see being completed until end of 2023. If you recall, after this, the ultimate plan is for this to be one of three dioramas modelling the entire branch line from London Rd tunnel through to Elm Grove tunnel in a continuous 9 foot panorama.

Lewes Road poster detail.





Left - Cox’s factory, through the viaduct.

Above - the girder bridge

Main Lewes Road component.

Left - overview of entire diorama

Above - lateral arch - internal view

Girder bridge above Cox’s factory.

Cox’s factory and viaduct.

Return to contents page

More Modelling Ideas from a Photograph

Nick Holliday

This photograph, taken at Barnham Junction around 1913, has appeared many times in publications, but it is usually heavily cropped to feature the Terrier and its rather unorthodox train. Coming across an uncropped version, I noticed that there were many other details worthy of note.

Getting the train out of the way, the loco is Terrier No. 650, ex *Whitechapel*, based at Bognor, and the headcode appears to be Bognor to Barnham. The make up of the train has provoked comment over the years. It probably comprises all third D131 Motor Trailer No. 1342, followed by Set Train No. 69, or perhaps No. 65, Bognor based, which consisted of two full brakes, two full thirds and two composites, all six wheelers to Billinton design, the full brakes conforming to the earlier Stroudley influence D27/232. Sandwiched between the two is a pure Stroudley six-wheel D46 full brake. Roxey Mouldings do a kit for the D46, which can also be used to create the later D27/232 using the ends available separately from Ian MacCormac at EBM.

According to the programme of passenger coaches, set No. 69 had travelled from Three Bridges to Bognor, arriving at 11.10 a.m. It then seems to have to travel empty to Littlehampton, but there are no times given. Meanwhile, Motor Working No. 3 shows a motor train leaving Bognor at 11.27, and also making its way to Littlehampton, and returning therefrom as an empty car to Ford. This seems to suggest that this train was a regular event to allow the movement of stock between Bognor and Littlehampton, and not the result of an engine failure on another train.

No. 3.

MOTOR WORKING.

7.45	a.m.	On duty.			
		Bognor	8.30	a.m.	
8.37	a.m.	Barnham Junction ...	8.53	a.m.	
9. 0	a.m.	Bognor	9.35	a.m.	
9.42	a.m.	Barnham Junction ...	9.44	a.m.	
9.50	a.m.	Ford Junction	9.52	a.m.	
9.57	p.m.	Littlehampton	10. 5	a.m.	
10.17	a.m.	Barnham Junction ...	10.40	a.m.	
10.47	a.m.	Bognor	11. 0	a.m.	
11. 7	a.m.	Barnham Junction ...	11.20	a.m.	
11.27	a.m.	Bognor	11.50	a.m.	
11.57	a.m.	Barnham Junction ...	11.58	a.m.	
12. 8	p.m.	Littlehampton	12.35	p.m.	Empty car.
12.42	p.m.	Ford Junction	12.47	p.m.	
12.52	p.m.	Littlehampton	1.30	p.m.	

One of the more conspicuous items within the photograph are the extensive timber runways. At first glance they would seem to be to cover the point rodding, as seen at places like Hailsham, but closer inspection reveals this is not the case. They seem be providing a timber walkway adjacent to the tracks. For example, there is a standard timbered crossing at the end of the platforms, but there are three short extensions running westwards, ramping down to ballast level.

Where the pathways cross rodding runs there are short ramps, but looking further west these planked paths appear to run some distance, to another foot crossing. As the photo was taken shortly after the revised junction arrangements came into use, perhaps they were something to do with the construction works.

Looking at the new signal box the large opening under the platform is an unusual feature, and we have a clear view of the way the brickwork edging to the platform is corbelled out at the top. Note the very simple handrail to the rear of the platform ramp.

This is a good view of the arrangements for the Facing Point Lock. There is a locking bar just visible beside the nearer rail. Note also the five point stretcher bars, apart from the actual operating bar at the toe of the point rail.

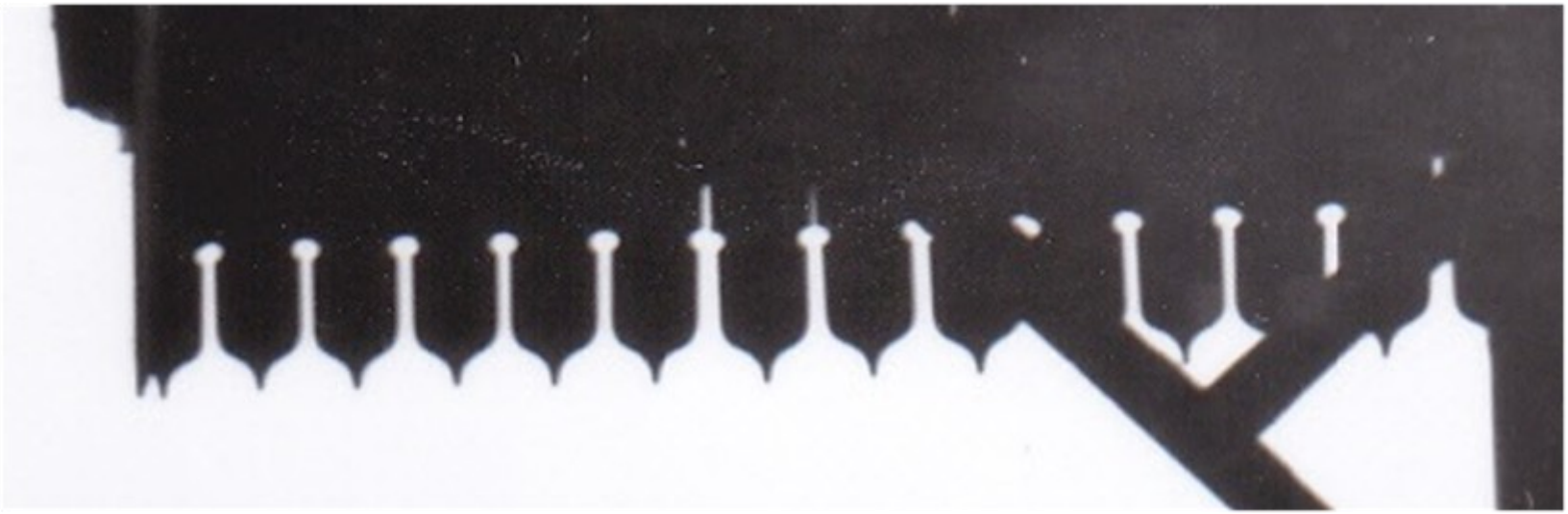
This view of the toe of the turnout of the up, east -bound line junction clearly shows the neat alignment of the slide chairs, although this is rather spoilt by the random lengths of the timbers used; presumably the presence of the platform prevented the platelayers evening the differences out on both sides.

Note that the point blade does not look as tight against the stock rail as a modeller might expect.

Although the curve is no doubt much shallower than most modellers can allow, note the check rail on the Bognor branch.

There are three of these signs at the end of each platform emphatically declaring PASSENGERS ARE STRICTLY FORBIDDEN TO CROSS THE LINE.

Note the darker paint to the bottom section of the post.



Most views of station valancing are taken from the opposite platform, but this picture, silhouetting the fancy outline, highlights the complexity of some of the LBSC designs.

Although there is a tandem point, followed immediately by the trailing crossover, there are only two ground signals to control three movements, according to Wagstaff. As the toe of the branch turnout is before these signals, it has to be assumed that any reverse movement in that direction was controlled by hand-signals from the box. Their location, tucked away at the end of the platform would seem to reduce their visibility somewhat.

A bit of a rare bird is one of the mobile goods cranes and its match truck. There are few photos of these useful beasts, and most seem to show two toolboxes, with a space between for the crane jib. Here it appears as if the toolbox is continuous across the vehicle.

Note the pair of sheeted open wagons, of different heights, in the background.

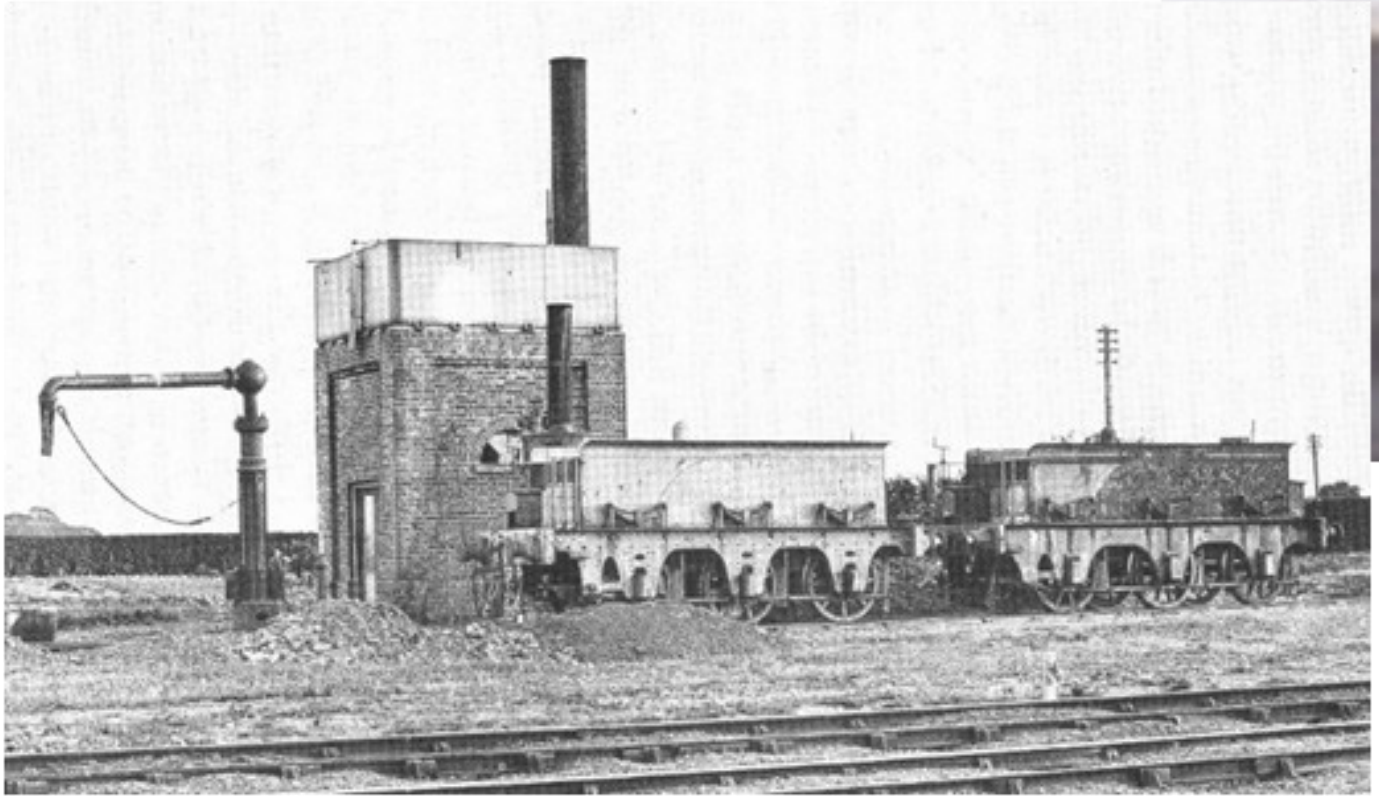
Just visible is a horse box of the 14’ Stroudley type. The unusual angle emphasises the various levels of panelling and ironwork. Note that the planking to the upper section of door is almost invisible.

The construction of the cattle dock is very different from that used for the passenger platforms, using different materials and being vertical with no overhang at the top.

Heaped between the tracks, at the end of the platform, is this pile of material, probably sand. Could this be left over from the building works, or does it have another function?

In the background we can see the water tower. This area at Barnham seems to have been neglected by photographers, but this earlier view shows that it has been considerably enlarged over the years.

Adjacent to the water tower, in the V between the branch and the main lines there was a 42’ turntable and loco siding, not visible in this photograph. There must have been photographs taken of locos on the turntable, but I have no idea whether it was a fully covered type or open pit version.



Return to contents page

Building Lewes Road Signal Box

Andrew Garrood

As part of my continuing interest in the history of Lewes Road Railway station on the Kemptown branch, with plans to build a 4mm model of the station, I was keen to find a suitable signal box. Whilst the Kemptown Junction signal box is well photographed, no images exist of either of the two signal boxes that were at the station during its lifetime.

According to SRS records, the second box, built in 1895, was a Saxby and Farmer Type 5 design and thus would probably have looked similar to that at Bognor Woodgate or Drayton and have been of similar size. Lewes Road station signal box was constructed of wood and the dimensions were; length 12'0"; width 11'0"; operating floor height above rail level 6'6". The staircase and entrance were on the western, Brighton side of the box.

When I came across a downloadable card kit of Drayton this seemed a good opportunity to attempt to build the 1895 Lewes Rd Signal Box.

The kit itself was obtained from Model Railway Card Kits (amodelrailway.uk) and was their LB&SCR Signal Box Card Kit (amodelrailway.uk) kit.

What follows is a review of the kit, built with some modifications, to make it more like Lewes Rd Signal Box than Drayton. To set expectations this will not be an article about an amazing piece of modelling, like Colin Paul's Hangleton Station, but more of a review of a kit quickly built and the lessons learned.

Ordering

During the purchasing process you can choose between LBSCR or Southern colours as well as the Signal Box name. I chose not to purchase the interior kit as I already have one from Wills. Once you have made your purchase, using PayPal, the PDF files containing the kit are emailed to you. At this point it's a good idea to save the files to a location you will remember rather than having to search your email every time you need them.

The kit developer also offers to sell the materials you will need which were

2 x 750 micron (0.75 mm) A4 Grey Board.

3 x A4 Sticky Backed Paper for Ink Jet or Laser Printers.

1 x 99 mm x 210 mm x 250 micron (0.25 mm) Transparent Sheet.

150 mm x 0.6 mm Diameter wire.

60 mm x 1 mm diameter wire.

70 mm x 1.3 mm diameter wire

I purchased my materials separately via eBay or used items from my bottomless box of bits. Hoarding does pay off.

Amongst the tools that are useful to have handy are wire cutters, sharp X-Acto blades, tweezers and a hole punch (single hole type best). A magnetic gluing jig or similar tools to hold pieces at right angles during gluing are also useful. Lots of patience was also recommended by the vendor.

Modifications

As designed the kit features mainly brick walls and therefore, I needed to convert the kit to a wooden structure.

To do this I used the freeware Photoshop clone, GIMP (www.gimp.org) into which I imported the PDF files. Once there I used the Layers feature to first remove the brick walls from the kit template and then added in a cream wooden board layer to give me the clapper board wooden walls. Once complete the changed file was saved to the Gimp .XCF format to allow for later manipulation. Standard JPEG format would not be possible to adjust again so easily.

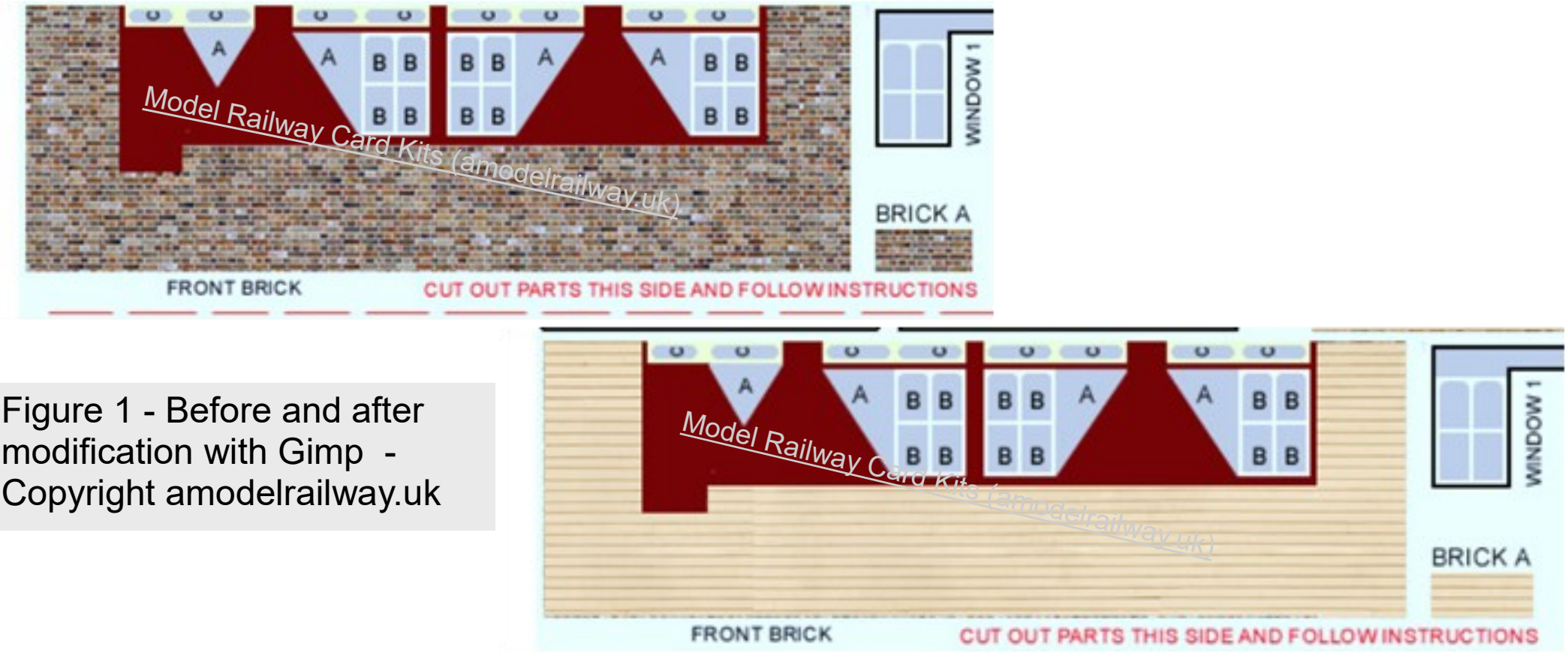


Figure 1 - Before and after modification with Gimp - Copyright amodelrailway.uk

When the adjustments were complete the files were printed onto the A4 sticky backed sheets. One of the files should only be printed onto plain paper but this was all in the instructions. Something else to be careful about at this stage is to keep an eye on which of the sticky backed sheet sections should be put onto the card and which should be left on the sticky sheet. I wasted a few sheets having to re-print things because I didn`t pay attention.

Construction

The kit components were well designed and simplified the construction of some of the more complex parts. For example, the roof supports were made to be attached to a larger piece of card which acted as a grip whilst you clipped out the corner to create the distinctive rounded edge. Lacking a single hole punch I had to cut them out more crudely.

The instructions were fairly clear, although at some points it is worth reading them through 2-3 times to ensure you really get how the

Figure 2 - Building the body, showing how the outer layer folds in through the windows and door.

parts will go together.

I also found that not all steps had to be done in sequence and therefore you could jump ahead whilst something dried. For example, the roof and stairs can be worked on as independent pieces, whilst the main building shell was drying.

When building the walls, I found the interior wall components probably needed trimming a little more than instructed as they did not fit perfectly. This made it harder to fit the roof later, for example, and its difficult to trim them in situ.

The guttering was also difficult to do well as it involved turning up the roof edges into a U shaped gutter. My effort resulted in more of a pagoda roof effect with pointy turned up corners. I wouldn't use that method a second time.

Probably the hardest part to get right was the cutting out of the window frames. This definitely required reading the instructions several times to get right. This was because you had to work inside out on

Figure 3 - View from the outside. the door needed to be wider to allow the door frame to wrap around more symmetrically

some of the window sections and you had to get the orientation right in your mind before attempting. In addition, it was sometimes a battle to keep the thin window frame stickers from gluing themselves to your fingers whilst trying to lay on the clear plastic sheet. This is when fine tweezers and non-caffeinated drinks come in handy.

I also chose to keep the roof removable. This did affect how well it fitted and the overall look, with some of the supports looking out of position depending how much you press the roof down in a photo.

Whilst I built the kit over about a month whenever I could find the time, it was probably a day's work if you got stuck in. So not an unreasonable amount of effort was required.

Figure 4 - Assembled roof as glue drying. Roof struts were flimsy card, should replace with plastic struts

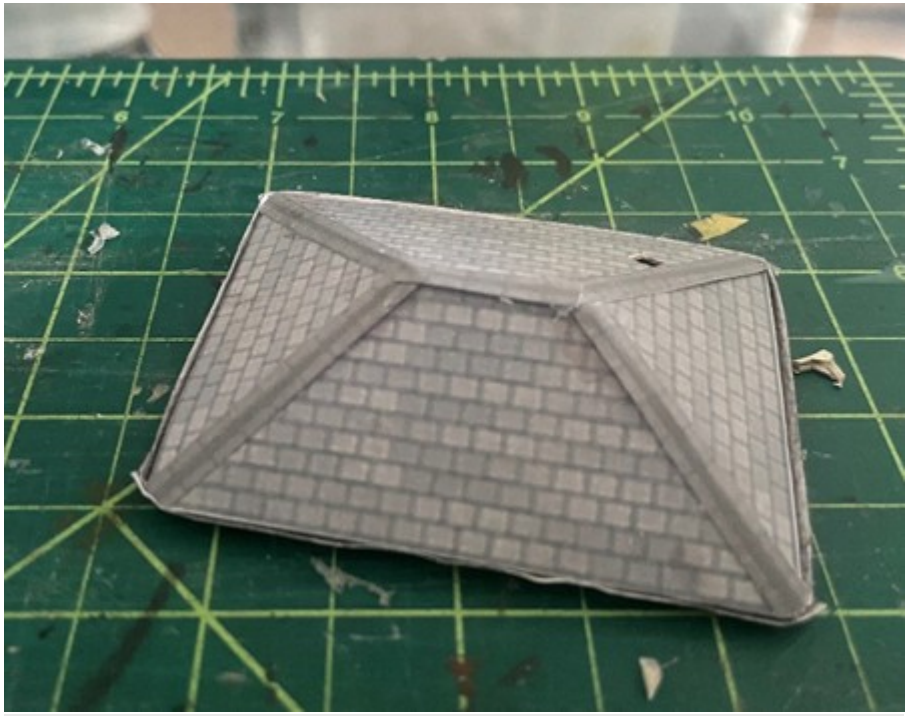


Figure 5 - Top of roof view showing the upturned paper gutters effect

Future development

Whilst it's possible to make a nice little model the greater potential of this kit is as a template for construction with more realistic materials. If the templates were printed on to sticky sheets, then applied to Plastikard, a very good cutting guide would be created. Evergreen or Ratio components could be used for the stairs, piping and gutters. The stairs in particular are probably better made using the kit to create a jig then building up with wood strips, Plastikard or Evergreen components. The large distinctive windows would still be challenging. Perhaps 3D printed or etched brass windows would lead to a better result. Given the windows are fairly typical of Saxby and Farmer signal boxes perhaps a vendor would find a good market for them. For the roof, again the printout would work best as a template, then using either a plastic roof material, for example from Ratio, or building up with card tiles is likely to give a better result than I achieved. Also add separate plastic gutters not U shaped card.

Figure 6 - Staircase assembly, the balcony struts had to be cut out from the cardboard, hence ragged appearance.

Figure 7 - Almost complete, roof does not sit down well and pagoda effect guttering shows clearly.

Figure 8 - With final addition of balcony rails.

Summary

From fairly on in the construction I realised this wasn't going to turn out to be a work of modelling art but decided to plough on to create a rough Mk 1 representation of the Lewes Road signal box.

The kit build turned out better than I expected and from a distance looks ok. The close up photos are much less kind. Dimensionally its 2ft too long as built but is the correct height and width. Its probably 90 years since anyone saw the real signal box and therefore it was enjoyable to see it appear from the past. For now it can sit in place on my Lewes Road diorama until I build Mk2. Its already taken 15 years to get this far though so don't expect something in the next edition of the digest !

I look forward to the feedback from Brighton Circle members on how close they think my attempt resembles how the signal box would have probably looked.

Figure 9 - Lewes Road Station, diorama in a box, showing where the Signal box should go according to the plans. Whilst photos exist of the station from this angle, none show the signal box.

Overall, this kit is a good, and cheap, way of getting a typical LBSCR signal box, with the potential as a scratch builders aid to build a more precise model.

More details on the buildings at Lewes Road station, including the signal box, will appear in a future edition of the Brighton Circular.

Figure 10 - Another view of the diorama.

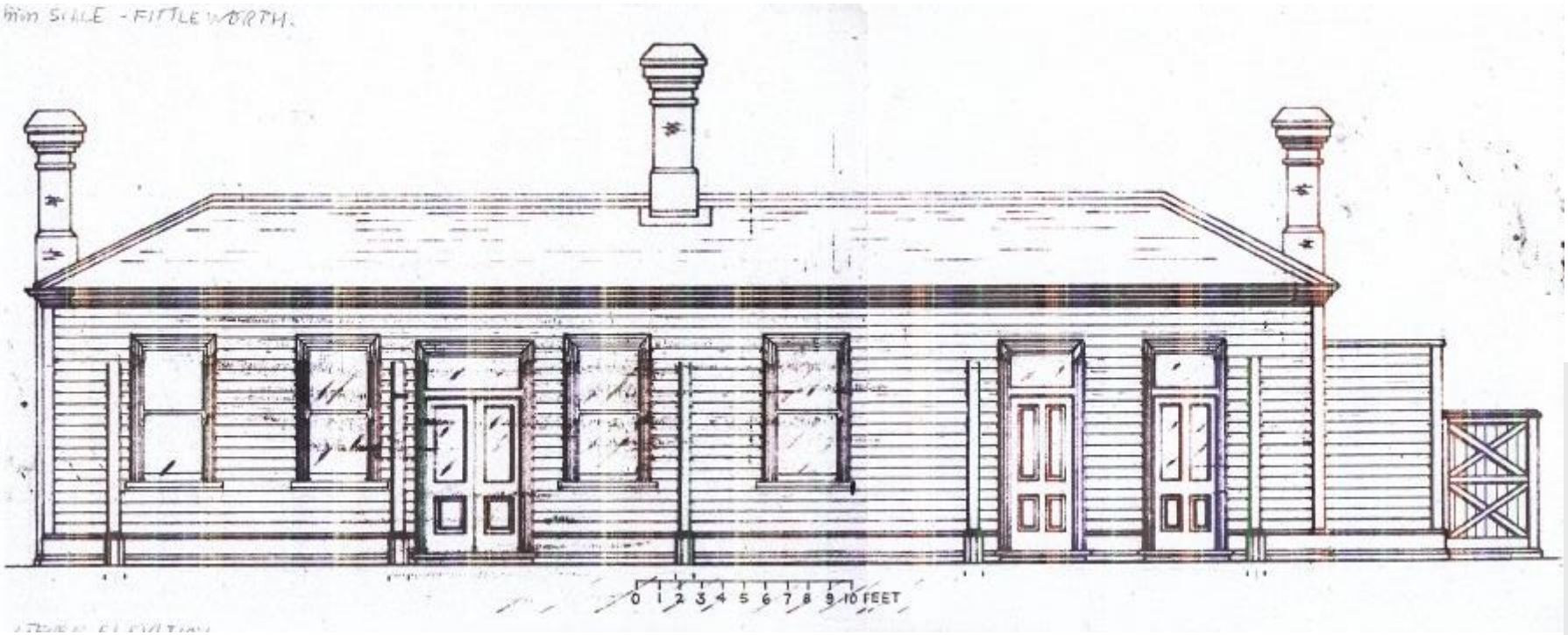
Return to contents page

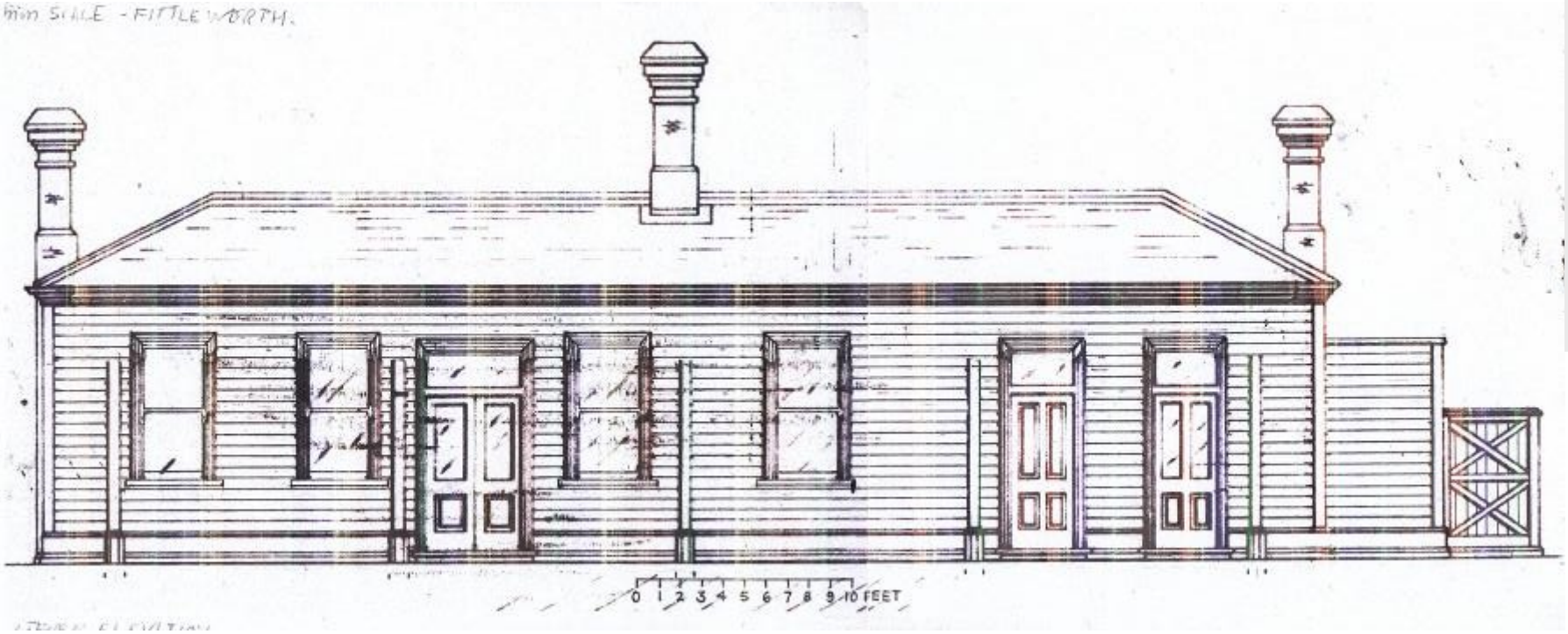
Hangleton Station Building in 7mm scale - based on Fittleworth.

Colin Paul

When I was a child in the mid 60's and living in Portslade, Mum and Dad would take my sister and I on summer outings into the countryside with a picnic along with a bat and ball. Inevitably we would end up at Petworth, Shimmings or Fittleworth for the day. On the way home Dad would take us down to the old railway station at Fittleworth for a look around, as he travelled there by train from Brighton as a young boy. Being so young at that time, I personally cannot recall the station at all. When I was older, and taking more of an interest in railways, especially the LB&SCR, I visited a few times with the view to constructing a model of the station. It was in a terrible state by the early 80's and completely derelict. Several trips later, I took a small number of photos and measurements and left it at that.

Wanting a small station for my garden railway, Fittleworth was the obvious choice. Scale drawings of a possible layout were made well before the first sod was cut, bricks ordered and wood sawn for the baseboards. Before any track was laid though, cardboard mock-ups were made of the main station building using the drawings from Vivien Thompson`s Period Railway Modelling Buildings book (Peco Publications 1971), along with cardboard platforms, just to see if it all fitted in without compression. Eventually the layout was completed taking some five years and is fully operational.





from Vivien Thompson`s “Period Railway Modelling Buildings”

Ever since the official opening of the garden railway some 6+ years ago, the cardboard mock-ups of the station building, goods lock-up, cattle pen and signal box have been in constant use and were beginning to show their age. Friends who have visited have suggested that they need to be replaced by proper buildings. This series of articles will address their comments and mine.

Being based on the real Fittleworth Station in LB&SCR days, I first had to collect as much information as I could. The only pre-grouping photos are those few found in the Middleton Press books and a small number on the internet. Most were from the Southern/BR days. Recently I found a nice clear 1974 view of the approach road, a rare shot taken from underneath the canopy and archive 1950's film footage of the Pulborough to Midhurst Line. There is a split-second glimpse of the tiny goods lock-up, clearly showing the single door on the siding side.

As mentioned, the 2mm Vivien Thompson drawings were a starting point, along with my photos. It wasn`t until last year that David Lowe (current Brighton Circle Editor) kindly emailed me the drawings published in British Railway Journal No.14, Christmas 1986 (not scaled).

Looking at the two drawings after they were scaled and printed off to 7mm, I wasn`t very happy with either when comparing them with photos etc. They seemed to contradict one another in a few areas. The main errors were with the planking. There was one plank more on one drawing than the other. Some planks were not equidistant. Window positions were not high enough and the heights of the windows over each door and paired doors were too low. Thinking these errors would bug me, I decided to redraw them in their correct positions (Figures 1-3). I also took the opportunity to re-draw the ladies WC and gents urinal windows (road approach side) which were way too small on the Thompson drawing. Luckily for me, I took a photos of them so I knew their correct height and widths.

A splendid photograph of Fittleworth station soon after opening still in pristine condition from which the model of Hangleton has been constructed. The station was located on the Midhurst to Pulbourgh line and opened in September 1899. On a glorious sunny day, the station staff of four pose for the camera. They would include the Station Master, Porter, Signalman (note, he is not in the signal box) and young lad. The station is so new the running in board has yet to be erected. It would eventually be located to the right of the last platform lantern in the distance. Note also the absence of the small goods lock-up which would be built directly behind it. It is my assumption the siding has been laid behind the platform (up to the Gents urinal) via the single point just visible in the far distance in front of the occupational bridge. Eventually a second point would be located adjacent to the Signal Box forming a run round loop.

Photograph from the John Minnis collection

An external approach road view looking into the ticket office. The window sashes have gone but the top left-hand strip seems intact. Looking closely at the panelling and architrave, there seems to be little rot. Mind you, looking at the hole in the internal ceiling, it hints some of the roof slates above have been removed.

A view looking though into the ticket office from the platform elevation. By this time both of the window sashes have been removed. Inside, the chimney breast is still intact missing the mantlepiece and surround. Brickwork of the chimney breast is also visible. Clearly shown are the vertical panelling strips and dado rail. The counter shelf and cupboards (on the far side) have also been removed, as noted by the unpainted areas they once covered.

The booking office looking towards the central chimney breast. The vertical panelling and skirting boards are still intact. The unpainted 'T' area once had a bench fitted around the room with vertical supports. The bench carried on up to the double doors gaining access onto the platform. The door on the left would gain access into the ladies waiting room which was locked. Note the lath and plaster showing through the flacking wall plaster.

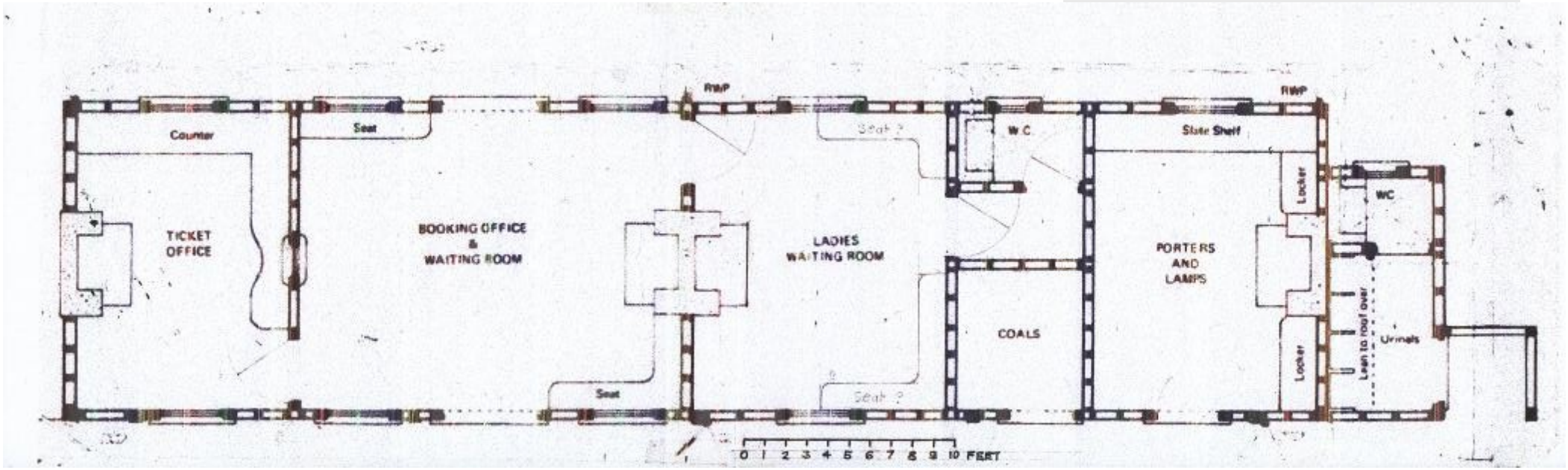
Sadly no other room in the building was accessible with more external locked doors. Almost all of the windows were boarded up with, wait for it, canopy valencing.

With the two double doors removed on the platform elevation (left-hand side of the photo), I gained access into the booking office and waiting room. The view looking towards the ticket office window - all of the original vertical wood panelling was still intact along with the deep skirting board and ornate carved architrave still evident.

The floor towards the right has dropped quite significantly and beginning to rot away.

A view looking towards the gents urinal from the old goods yard. The woodwork seems in good order but is gradually being invaded by trees and shrubs not unlike the Ta Prohm Temple in Siem Reap, Cambodia. The end chimney breast has been removed and the hole covered with slates. The central and end chimneys (just visible) are still standing.

Redrawn plan of Fittleworth



TEST PIECES

Ever since I started railway modelling seriously, I have never previously constructed a building. I have scratch built several locomotives and carriages, and loads of goods stock, but not a single building to my name. With this project, I was going in completely blind not knowing a thing about the techniques or materials - plastic, foamboard, wood, or a combination of all three?

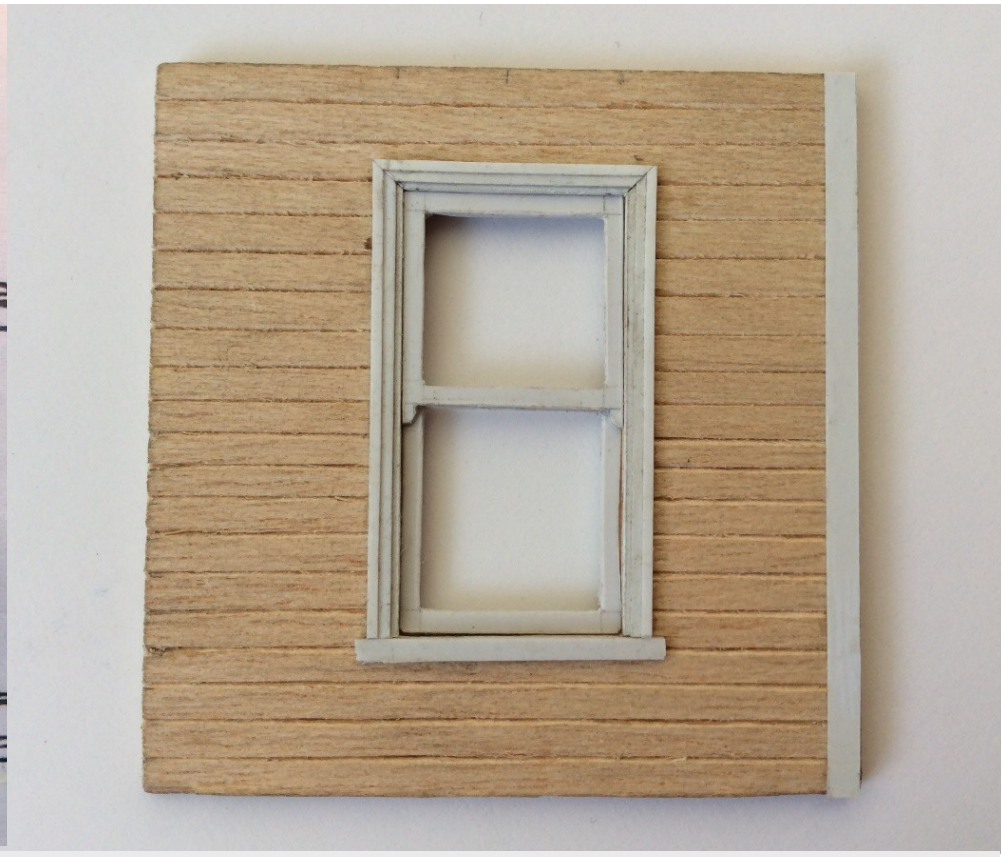
Two test pieces were tried out first: one with a single window, the other a single door. If there were any mistakes, the pieces could be thrown away. Having several thicknesses of plywood to hand and not a great selection of plastic sheet I thought I would try wood. Hopefully it would not bend or bow in a hot summers running session, whereas plastic might (guessing here).

Overlaying different thicknesses of ply on the birds-eye plan, 1/8" 5 ply matched the overall wall thickness. Planks were scribed on with a bradawl then the apertures cut out from the drawings. Top and bottom window sashes were cut out of solid 40 thou plasticard. Door (different layered thicknesses), architraves, window sills, etc were fabricated looking at the photos.

The modelled window sashes are roughly 2mm wide all round, which in reality should be narrower, but I have got to glaze them somehow. I have also compromised with the overall thickness of the bottom thickness of wood on the top sash, again 2mm wide, to match the sides etc. In reality they should be a lot narrower at 1mm wide. If modelled correctly, there was no way of glazing them without glue seepage. I also thought it would be an idea to use white coloured plasticard to save painting them later.

The brick base/plinth was built up from Slaters English bond red brick sheet (Ref:0400).

Lastly, I carried on and detailed the inside of the door section and internal panelling etc just to see what I could achieve using plasticard. All in all, I was pretty happy so I was confident to continue.



PHOTOS 1 & 2

Being a complete novice when it came to modelling buildings, two trials segments were made first just to see how good my modelling skills actually were. From scrap plywood sheets, a door and window section were prepared first. Carefully measured from the master drawing, pencil lines were first drawn onto the wood then scribed followed by cutting out the aperture openings (due to the angle of the camera, the planked lines do all line-up). After various trials with differing thicknesses and widths of Slaters Plastikard, the architraves doors and windows were built up as shown. Once I was happy with the results that matched both the drawings, but more importantly, my own Fittleworth photographs, did I feel confident to transfer them onto the real model. It is worth noting though I did not add the bottom three rows of brickwork leaving it blank.

PHOTO 3

Just to see what the building would look like finished, the trials were painted in Railmatch 203 rail white and 650 Midland Railway red along with the brickwork and threshold. Even at this early stage, a brass doorknob was turned up and glued in place. The sash windows were left unpainted and unglazed.

MAKING A START

N.B. All subsequent calculations are based on my redrawn plans and not the published ones previously mentioned.

The measurement from the base of the building (i.e. platform height) to the top of the guttering is 13’ 0” (90mm all around). The overall length of the platform elevation including the gents’ urinal is 458mm long (65’ 9”), and 419mm (60’ 0”) for the road approach elevation.

Two lengths of 1/8” 5 ply were prepared but were left 10mm over length (5mm over each end) for trimming to length later in the build. 3.5mm spaced planking marks were added then the whole scribed with a bradawl. It was inevitable some of the wood grain ends spilled over into some of the planking’s recess which I accepted.

Door and window apertures were marked but were cut out 1mm larger all round.

Each of the window openings were standardised at 24mm (W) x 45mm (H). Double doors (x2) at 34mm (W) x 66mm (H), and single doors at 25mm (W) x 66mm (H). When the eventual architraves would be added (as per the drawing), the slightly over sized windows and doors would fit snuggly behind.

The overall width of the building measures 15’ 0”(105mm). Two pieces of ply were cut again over length and prepared in the same way as for the sides.

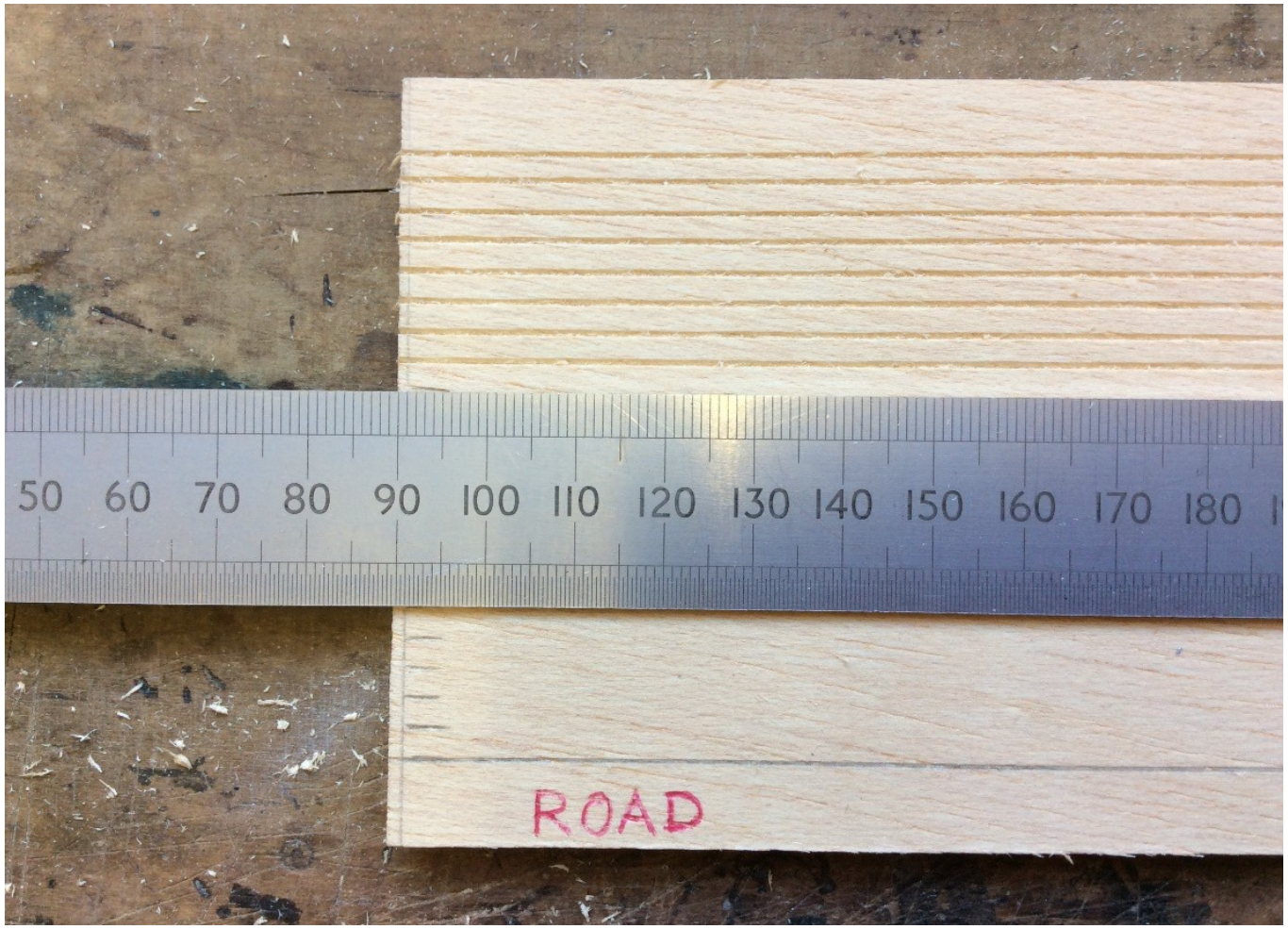
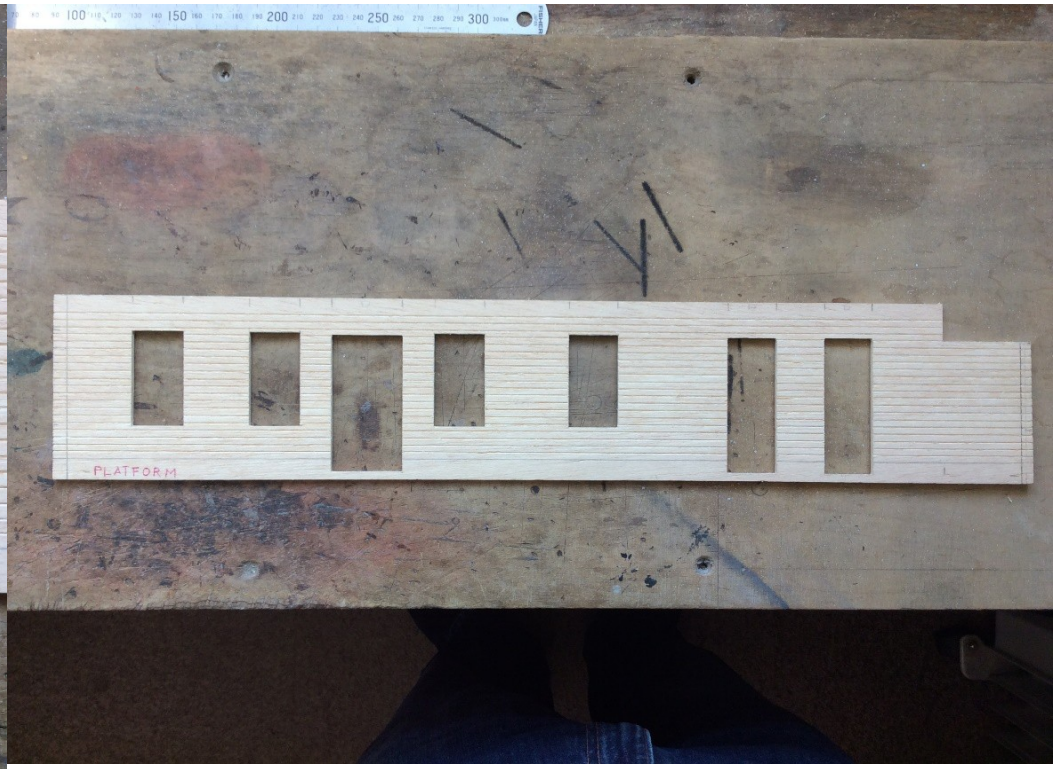


PHOTO 4

Having cut an over length piece of plywood, the plank lines were marked on in pencil. With very careful alignment with the ruler all of the planks were scored on using a thin diameter bradawl. The line with 'ROAD' written below will eventually be hidden by the three courses of brickwork. The top 2/3^{rds} of the plain wood above the highest scored planked line will have the guttering strip glued on.



PHOTOS 5 & 6

Platform elevation. Having carefully marked where the window and door apertures are positioned as noted by the small pencil lines along the top. The ply I obtained from Sussex Model Centre (www.sussex-model-centre.co.uk) is not very hard and can easily be cut with a scalpel/Stanley blade. After cutting, some of the cut lines were at a slight angle which were subsequently filed square. The overlength vertical pencil lines can just be made out which will be cut off later in the build. The small cut out area on the extreme right is the wall in front of the semi external Gents urinal.

ARCHITRAVES/SILLS

The architraves were painstakingly built up from three layers of 10 and 15thou plasticard in 1mm, 2mm and 3mm widths. I know they are not exactly the same as on the real Fittleworth station, but they look perfectly acceptable. Each one was very carefully measured to fit its respective location, cut to length then mitred in the corners for a perfect fit. Remember, each architrave had to have a 1mm overhang for the recessed widow/door placed behind. Each one was then superglued in place using a T square.

Window sills are made from solid strips 1.5mm x 1.0mm plasticard.

WINDOW SASHES

Each window is made from white 40thou plasticard, cut into a long strip between 25 and 26mm wide. Once fitted in their respective openings and with careful measuring in from the architrave's edges (2mm all around), the openings were marked and cut out. With slight filing here and there, all of the edges were exactly the same. Placing them in position again, I was very pleased with the result. The bottom recessed sash looked prototypical and matched the photos. This first pair of sashes were then Mek'd together in situ and left to dry. Prizing them out was not too difficult but tricky, so I filed the edges slightly down for a looser fit and rounded off the corners. To stop the bottom sash from moving forward within the opening, a thin 1mm x 1mm strip of plasticard was inserted behind the window sill for the bottom edge of the sash to rest against.

The remaining eight windows were completed in the same way.

The two very small ladies' WC and gents' urinal windows were made slightly differently, in that the sides were narrowed slightly by 0.5mm on each side.

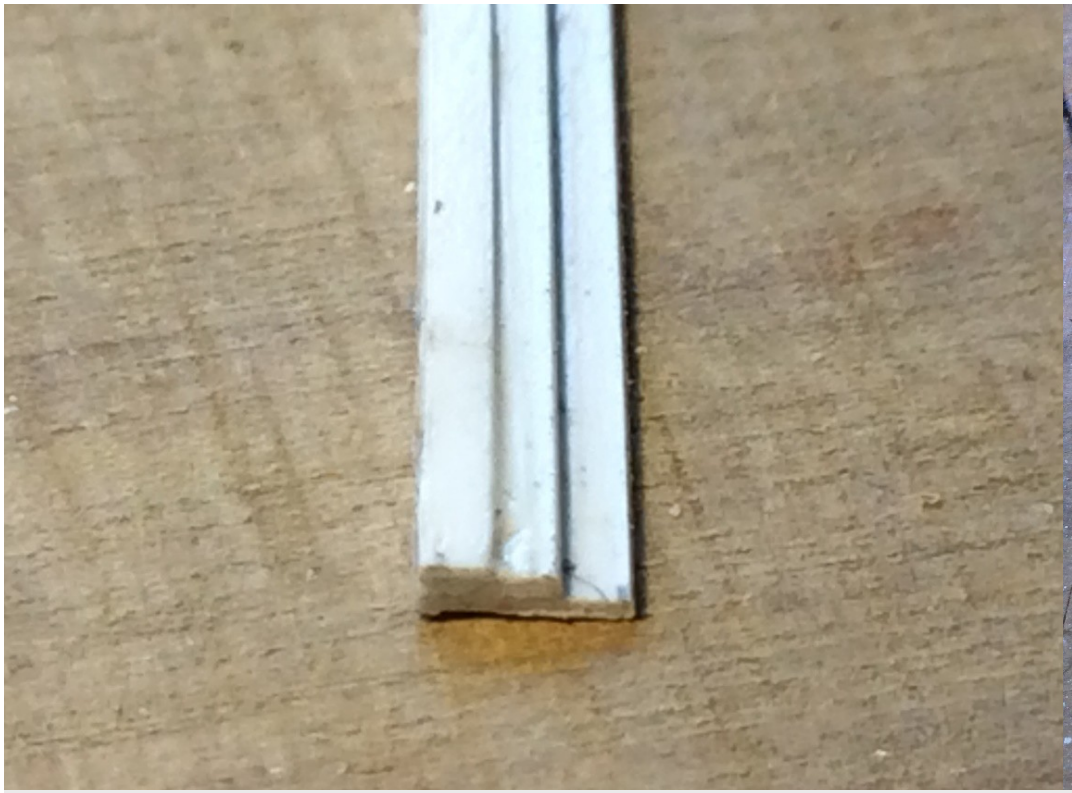
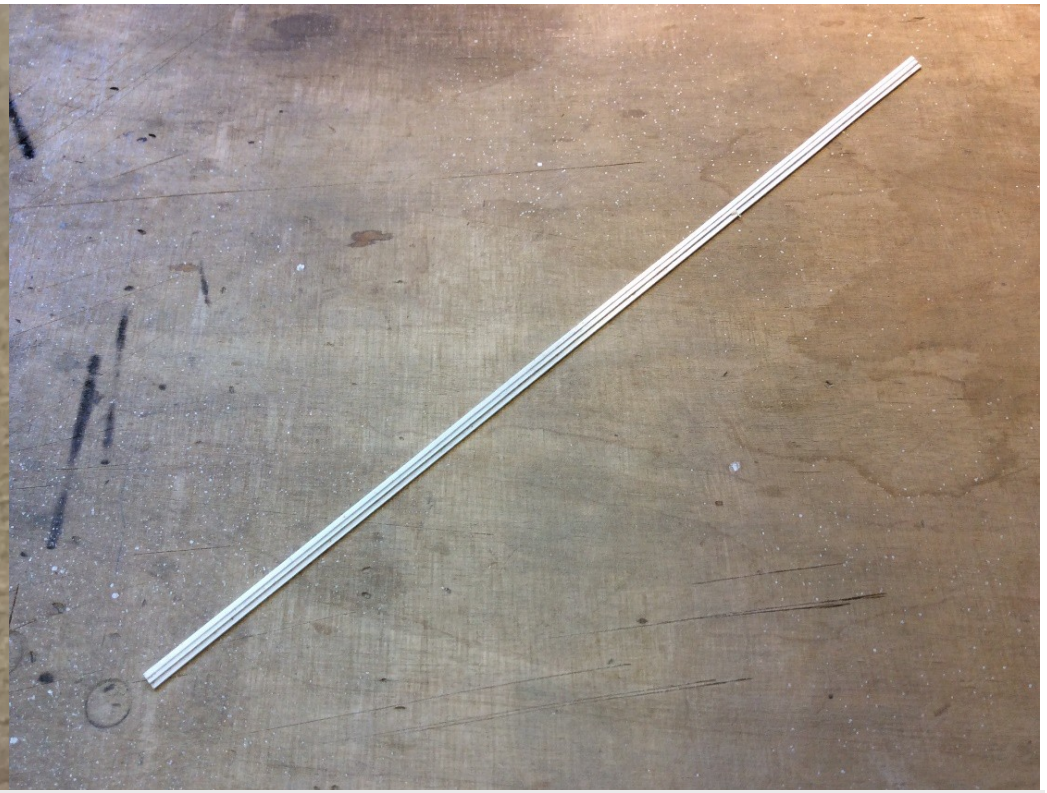
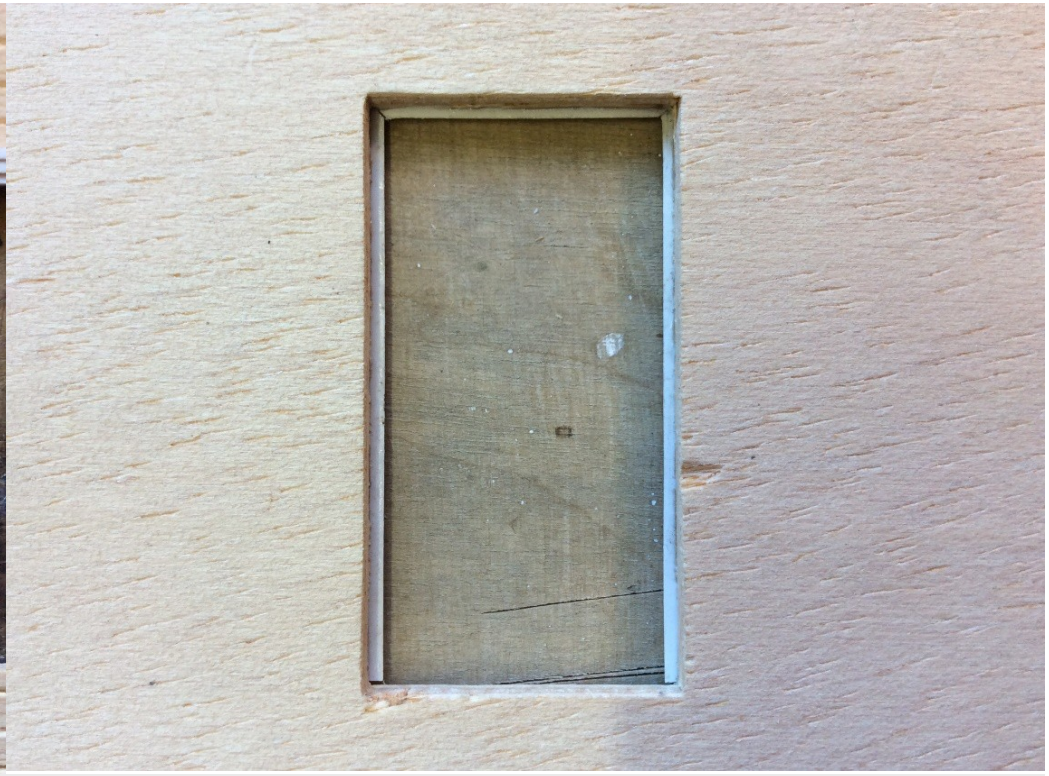



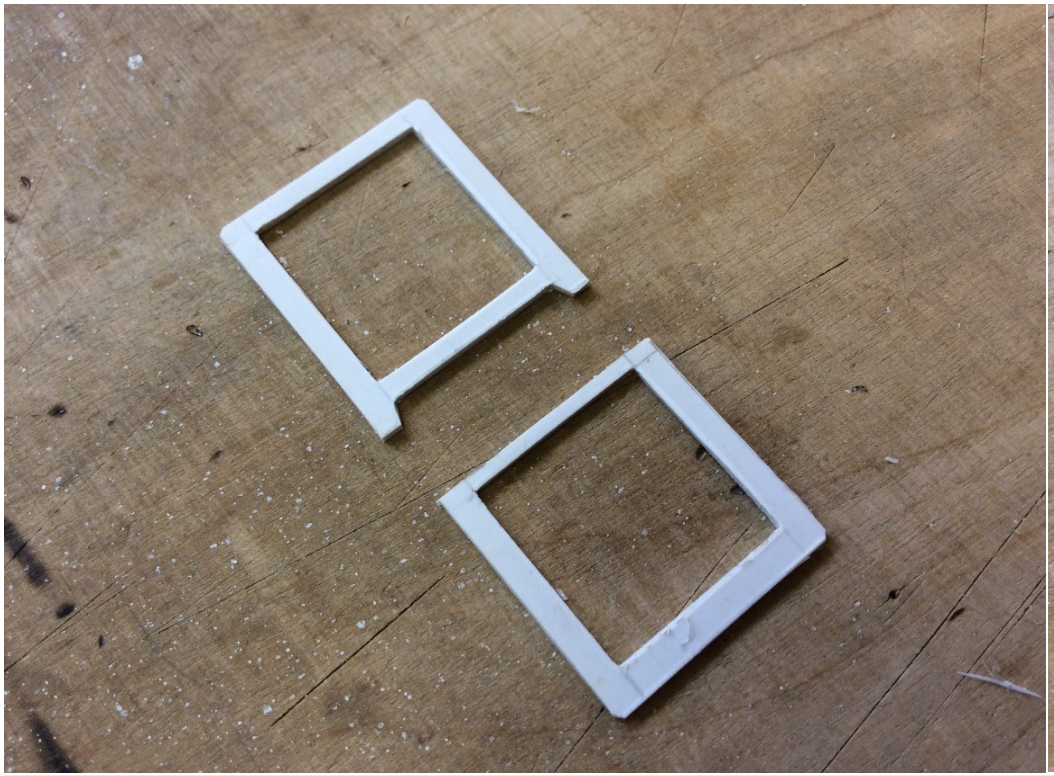
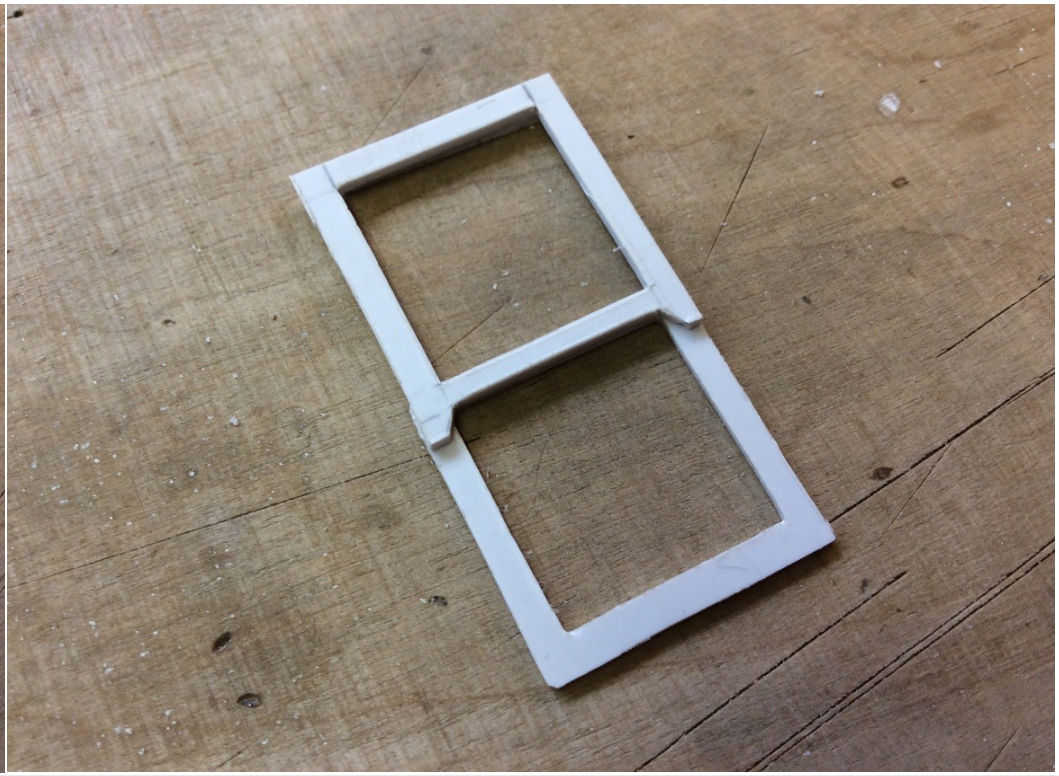
PHOTO 7 & 8

The architraves for both the windows and doors look exactly the same compared to my photos taken at Fittleworth. I came up with this design which matched them pretty closely. Not quite 100% but they give as near a representation as possible. The bottom 3mm wide base strip is 10thou Slaters plasticard, followed by two layers of 15thou on top which are 2mm and 1mm wide. I made enough strips for all of the windows and doors in advance.



PHOTOS 9 & 10

The opening distance in between the architrave of all standard sized windows (9 in total) I set at 24mm wide throughout. This gave a 1mm rebate for the sash windows to sit against when fitted. The sides were all prepared first mitring the ends at 45 degree angles then cutting them to a length of 48mm. With the aid of a T square, the first vertical one was superglued in place making sure there was the crucial 1mm overlap projecting out from the opening. The top horizontal architraves were then cut to a length of 30mm, mitred, and fitted.

PHOTOS 11 & 12

The sash windows were made in two halves using Slaters Plastikard 40thou (1mm) sheet. The square holes were cut out first followed by the outer edges. The top (drop down) sash near enough matches to real Fittleworth windows but has a slightly wider (horizontal) bottom portion of 1.5mm instead of 1mm. This is due to the glazing having to be hidden behind. When assembled and dry, a small amount of filling had to be done for a snug fit within their respective openings. The glazing would be added much later after the inner panels were installed.

TRANSOMS

Above each of the doors, there is a borrowed light (window) split by a horizontal timber beam or to give them their correct names ‘transoms’. They were cut from 3.5mm (W) x 40thou (1mm thick) strips of plasticard, glued in place 50mm (a door height) up from the thresholds behind the architraves. The borrowed lights were made from 20thou (0.5mm thick) Plasticard with a 1mm border showing.

COAL STORE DOOR

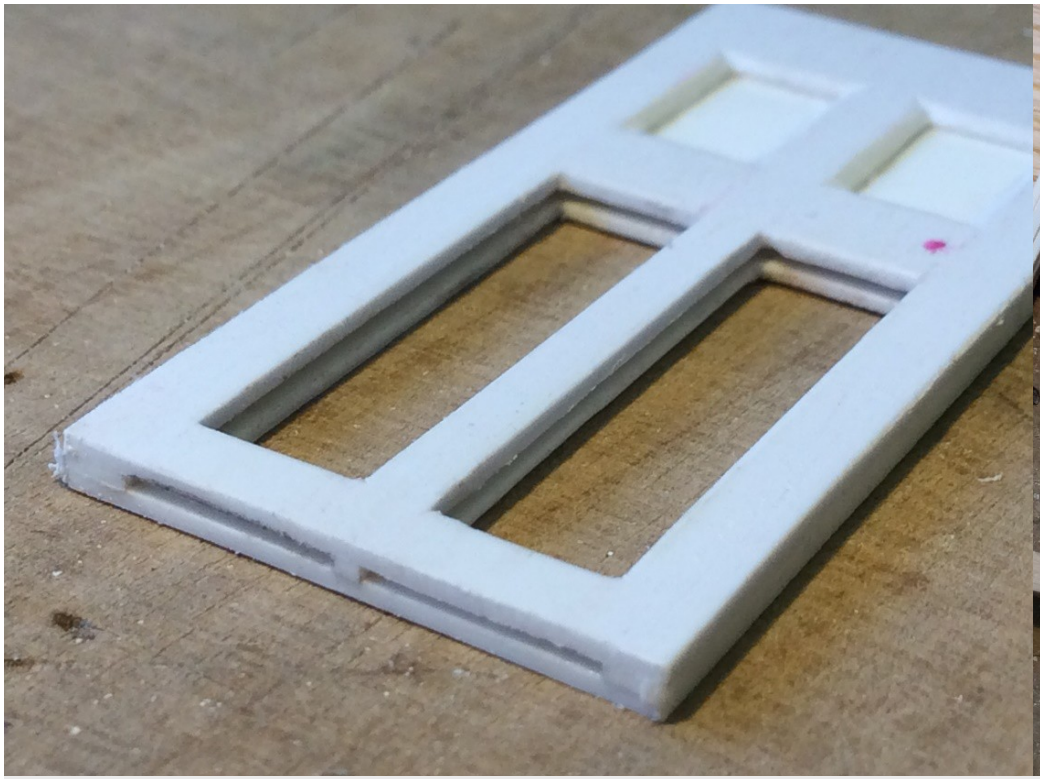
The coal store door was made first which was relatively easy as a solid door with recessed panelling. It was made from a solid piece of 40thou (1mm) plasticard which was trimmed to fit within its respective opening. The outer panelling is 20thou (0.5mm) plasticard. The four recessed areas were chamfered at a 45 degree angle then Mek’d over the top of the solid piece.

PORTERS & LAMPROOM DOOR

This door required a completely new approach because of the two windows. Wanting to glaze them after painting, I copied my scratch built carriages approach with a slotted space in between an inner and outer panelling piece. The glazing simply slides into the gap. After a couple of trial doors, 20thou plasticard was used for the middle panel. The area around each window was cut further out by 0.5mm (all round) for the glazing to hide behind. The inner and outer panels (again of 20thou) were made in exactly the same as for the coal store door.

DOUBLE ENTRANCE DOORS

Fortunately, the double doors that gain entrance to the booking office and waiting room are identical to the platform entrance, so they were made in pairs. They were built up in layers as for the single doors.



PHOTOS 13 & 14

The doors both single and double were designed so the glazing could be slid in after painting. Barring the single coal door with solid panels and no windows, the other followed a sandwich of three layers of 20thou (0.5mm). The window openings were cut out first followed by the recessed panels making sure the openings were smaller by 0.5mm inwards all around. This allowed me to file the beading at approximately 45degree angles. For the photo, I have glazed the windows. Also visible are the transoms which are located above each door, which have been Mek'd in place. Throughout the building, all are 3.5mm wide x 40thou (1mm). Above them borrowed light windows can just be made out which were cut from 20thou (0.5mm). The thresholds have still to be fitted.

CUTTING SIDES TO LENGTH

As mentioned earlier, the sides were 5mm too long over each end. This was to protect the end grains from splitting. In hindsight the ends were fine but I did not want to take chances. Having already pre marked the ends (in pencil) both sides were cut to length (entrance side 419mm and platform side 458mm).

BRICK PLINTH

On the drawings two plain bases are shown, both with an angled, mortared top edge. The one attached to the building is 9.5mm high, whereas the lower one in front is 3.5mm high. On the test piece, I used 40thou (1mm) plasticard on both, which looked fine. I have since found a photo on the internet taken from underneath the canopy, looking towards the booking office and waiting room, clearly showing a single course of brick above the platform surface and three courses high for the inner course. Using 40thou again, they were cut into strips (over length again for trimming back later when assembling the carcass) then chamfered on the top edges. The deeper inner strip was superglued directly onto the building followed by the outer single layer. Slaters Flemish bond (Ref: SO410) was then cut into three and single courses then Mek'd in place. I noticed the top edges of the brick sheet were a bit too thick, so these edges too were chamfered at an angle.

ENDS

From the outset, I wanted to mitre the sides and ends for the construction of the carcass, but this would involve precision filing of all corners. In the end I plumped for butt joints, which I have done successfully with my 7mm scratch-built plywood wagons and vans. The corners will have strips of plasticard (wood on the real building) added, hiding any unsightly joins.

The overall width of the building measures 105mm (15' 0"). Taking away the two side thicknesses of 3mm each, each end worked out at 99mm. Each pre scored end was then cut to length.

PHOTO 15

From what can be gleaned from photos, the building is built up upon a brick base in the Flemish bond style. There is one course of bricks above the platform height followed by three courses. Having some sheets of Slaters Flemish (Ref:0410) in stock I used them. Thinking the brick sheet was too thin, I mounted each strip onto 40thou (1mm) then chamfered the top edge trying to replicate the photos. The chamfered top would represent the mortar joint. When enough strips were prepared, they were cut to length then superglued in place.

The over length wall (on the left) has been cut and filled to length and has a strip of 4mm x 20thou (0.5mm) corner strips added. Also shown is a window sill made from a length of 1.5mm x 40thou (1.0mm) plasticard.

The brick base plinths were then built up as for the sides, but before attaching, a 35mm (5’ 0”) gap was left for the chimney breast width.

Making sure the brick courses lined up with the plinth, a brick chimney breast wall (ticket office end only) was cut and superglued in place. An outer, protruding brick layer 16mm (2’ 3”) wide was cut and Mek’d to a base of 40thou. Again making sure the courses lined up, it was Mek’d in place over the chimney.

Because the gents’ urinal chimney breast is slightly different, it has been left off for the time being.

GUTTERING

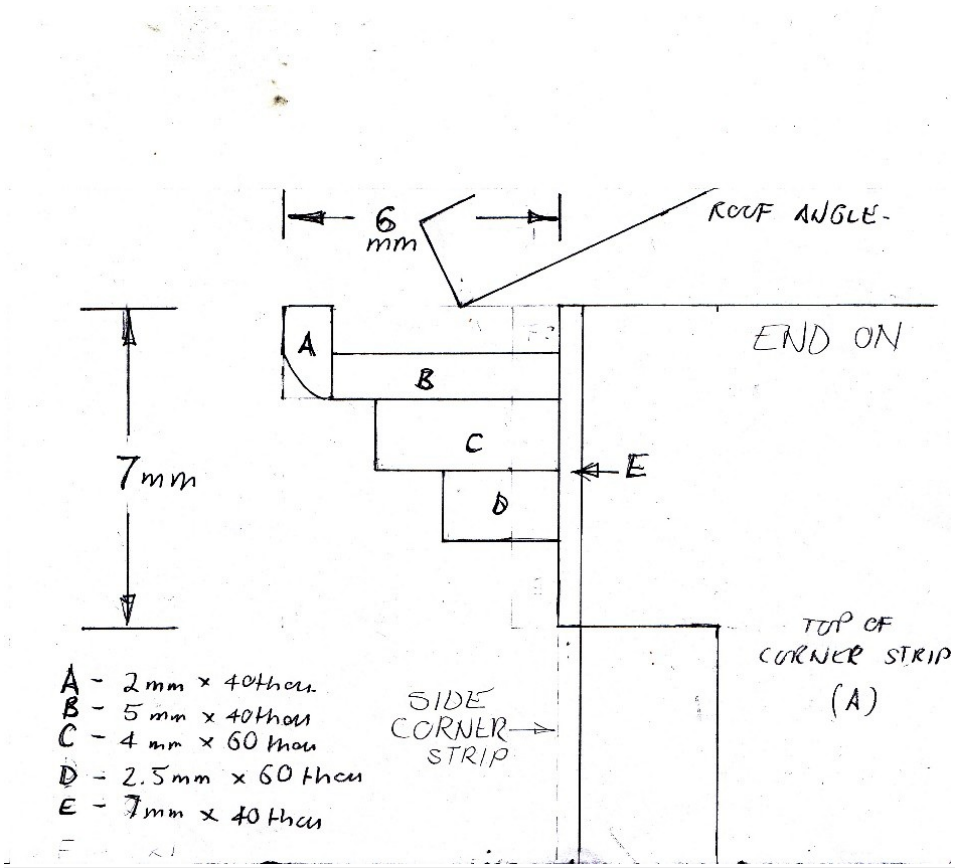
This has been my Achilles heel from the outset, along with the roof design. The latter would have to be detachable and to incorporate the three chimneys (more anon). Clearly shown on the drawing, there are four distinct horizontal lines which make up the guttering. This is not very clear on any photos I have collected so far, with one exception. Even this photo is not very clear. After several scale drawings and a couple of aborted prototype mock-ups, I finally came up with one that worked. It was imperative the gutter had a proper gully (as on the real Fittleworth guttering) which would be visible, but more importantly the corners had to mitre correctly.

The successful trial piece consisted of the following Plasticard strips:

8mm x 20thou (0.5mm) backing piece (which is attached to the building).

60thou (1.5mm) strips of 3mm, 4mm and 5mm wide laminated together, 1.5mm x 1.5mm square gully top edge.

Having successfully worked out how to make the guttering, I made three long strips in advance,



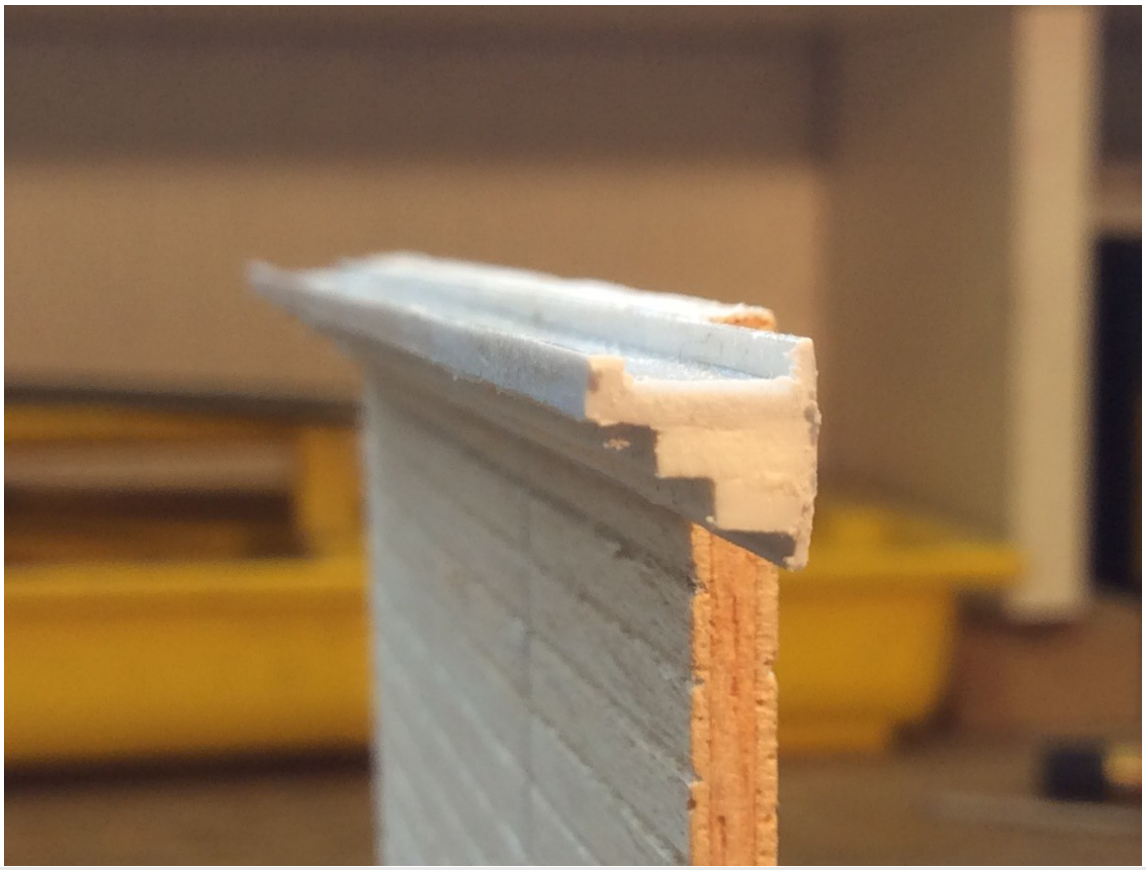


PHOTO 16

As mentioned in the main text, I had a problem in how to replicate the buildings complicated cast guttering. After several scale drawings and attempts, I came up with the design as shown. Again, it isn't perfect but visually acceptable. The area I wanted to see was an actual gully and not a flat top. Not the best (temporary staged) photo taken, but I hope it shows how the layers were built up.

which will be more than enough for the whole building. I thought it best to glue them in place after the carcass is made fearing damaging the edges.

Looking very closely at the ends of the canopy, it appears the guttering butts directly up to the side of the valancing. I assume the water from the rear of the canopy roof would flow into a hidden gutter behind and abutting onto the building's frontage. Water would then enter downpipes through to soakaways.

INNER WALL PARTITIONS

Having the 7mm scale birds eye plan of the interior, it showed all the internal wall positions. It was relatively easy to transfer them as noted by the vertical hashed lines onto the inside face of the two sides. For precise location of the walls, small cubes of wood (4mm x 2mm) were superglued on either side of the hashed lines for the partitions to (eventually) slide into.

BASE

Working out the base was relatively straightforward. Taking the thicknesses of the two ends and sides, the overall length (including the gents on the end) worked out to 450mm x 99m wide. A piece of 2.5mm ply was cut. I made sure that each edge was a perfect right angle. While I was at it, four 99mm (W) x 84mm (H) inner partitions were cut out in readiness. The overall height of the internal walls was deliberately cut too low by 4mm, so the roof fits snugly into the recess. I was thinking of cutting out the door apertures and making plasticard doors to fill the void but decided not to. Even at this early stage I planned on fitting out the interior with completed sub panels built up of layered plasticard which included the panelling, doors, architraves etc which could be glued in place later.

PHOTO 17

The road approach end wall under construction. Having scored on the planking, the outline of the external chimney breast was marked on. The brick base is nearing completion barring the single row of bricks along the bottom. Each end is a couple of millimetres too long at the moment and will be filled back accordingly when married up the side panels. The guttering has been placed in position just for the photo showing a 45 degree mitred corner on the left. The corner strips, chimney breast wall unit and guttering strips will not be added until the main carcass has been assembled.

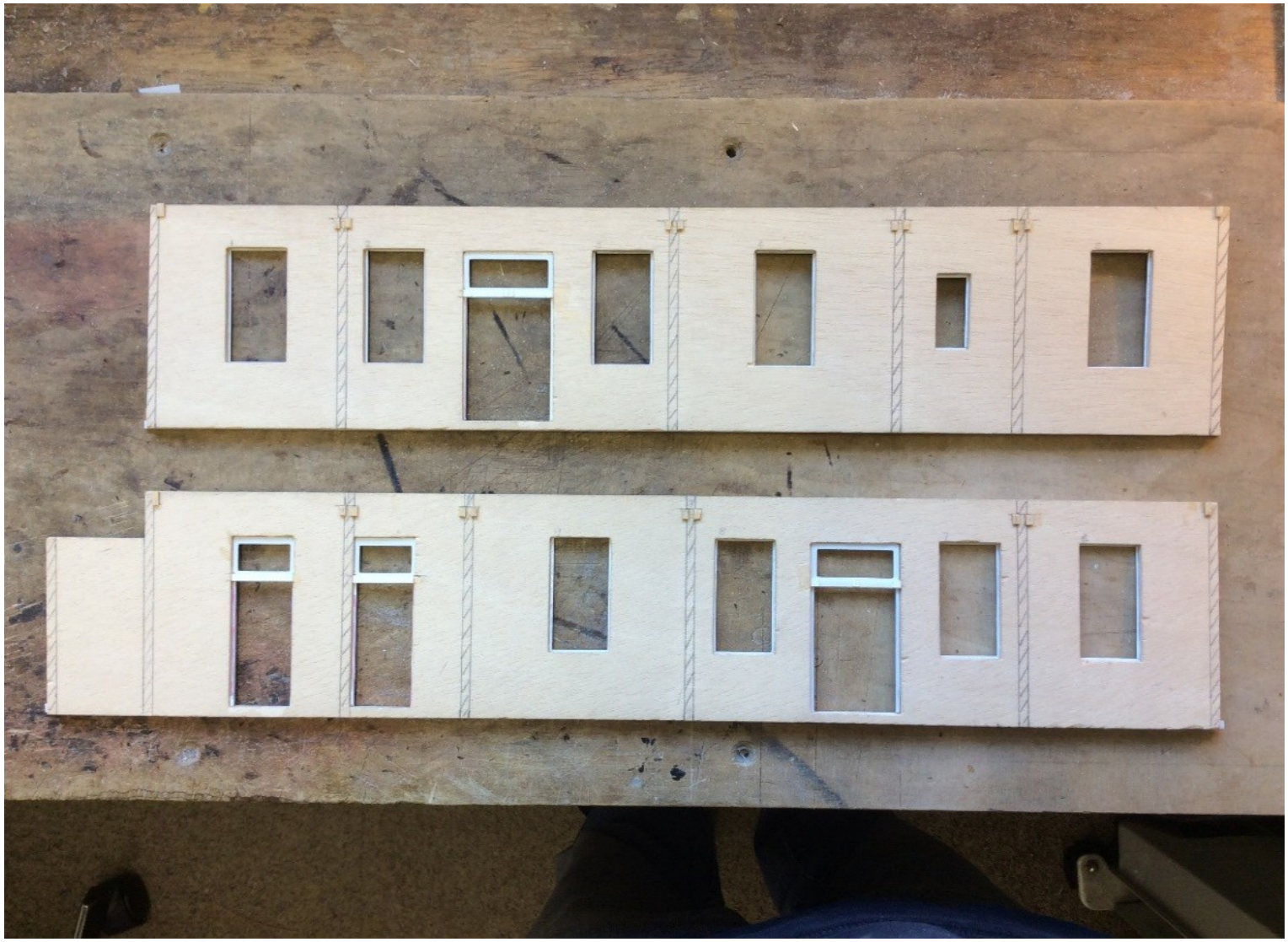


PHOTO 18

The inner and outer wall partition lines were marked on corresponding to the drawing. To keep the partitions at right angles when the carcass is built up, I glued on small lengths of square wood (just below the bottom of the roof line) with an 1/8" gap for them to fit into. The single ones on the extreme ends are for the outer walls to lean against.

FORMING THE CARCASS

Each internal wall was glued in place on the base using Evostick wood glue. Each one was braced making sure they were upright whilst drying. After drying, all five internal partitions and the two ends were dead vertical.

SIDES

It was then time to glue on the first completed side panel (the roadside first). First, everything was checked and rechecked, making sure everything was still flat and square. One internal panel required filing as it was slightly out of square on a top corner, but otherwise everything was in alignment. With a handful of bricks to hold everything together, it was glue time. The bottom edge was glued first with Evo-stik wood glue, which gave me time to align everything together before it dried fully. The following day the bricks were removed. Everything looked fine. Fearing Evo-stik would not hold the panels until they had completely dried, I decided to use superglue to glue all of the panels. Working along each individual panel at a time, superglue was run down the joins. One end of the side had bowed outwards slightly but required a firm finger hold before the glue set. When placing it on a flat surface, I found there was a very slight twist within the frame but nothing excessive. The other (platform) side was done in exactly the same way. To my amazement, the twist in the frame was eliminated.

For my own piece of mind just in case the superglue joints start to break over time, I hammered in tiny Peco track pins near the top of the sides as noted by the small dots.

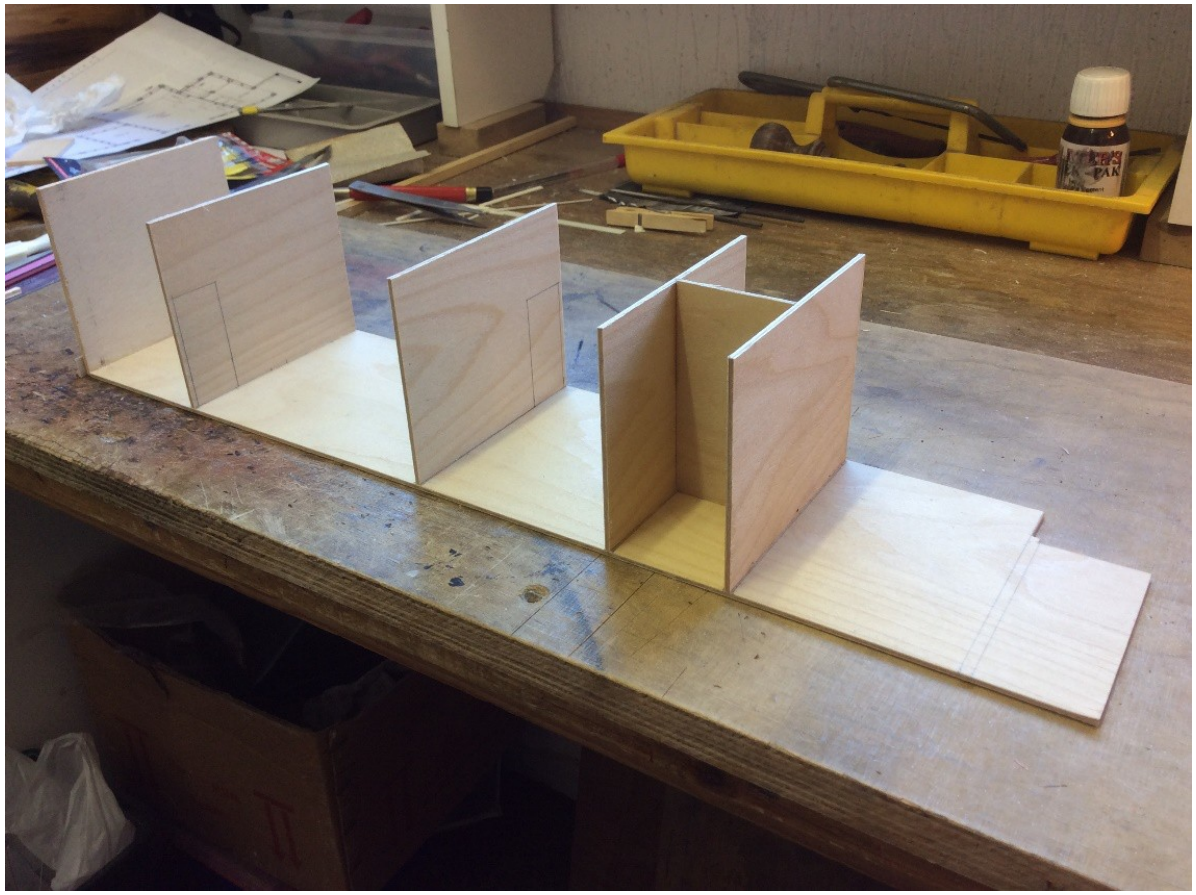


PHOTO 19

A base was cut out after very carefully measuring. Corresponding internal wall partition lines were then marked on that lined up with the inner wall partitions in Photo 18. Working from left to right, the finished end wall (as shown in Photo 17) was glued on first using Evo-Stik contact adhesive making sure it was at a perfect right angle. After drying, the other panels were glued on again making sure they dried at right angles. I decided to segregate the coal store and Ladies WC with a small length of wood for strength. A pair of lines can just be made out on the right where the end wall will be located in conjunction with the Gents urinal (as noted by the cut-out area). Up until the photo was taken, I wasn't quite sure how it would be designed so it was left off.

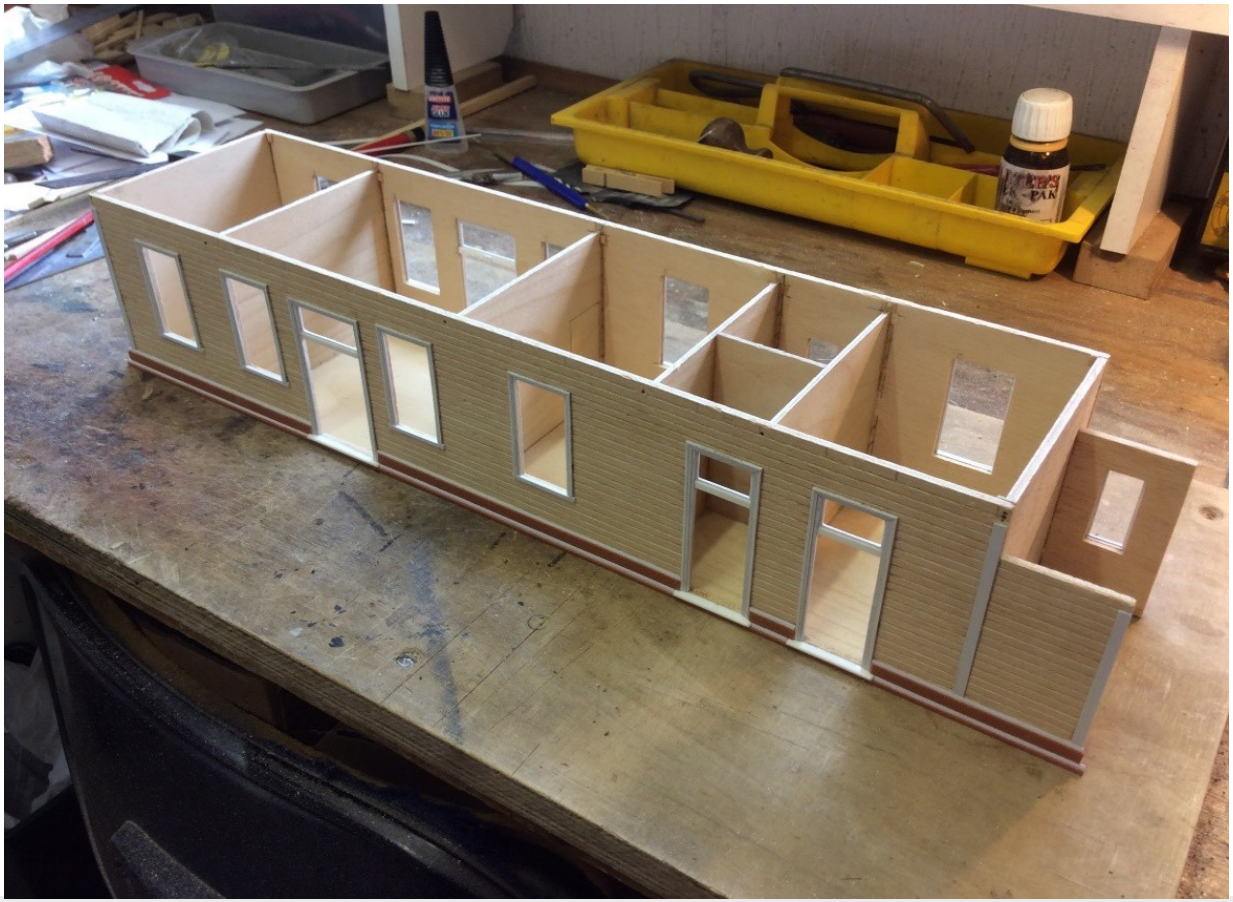


PHOTO 20

The main carcass assembled and by now quite ridged. The sides were glued on first using superglue and not contact adhesive for quickness in drying along the bottom edges of the base. Superglue was used again and allowed to trickle down in between the ends of the inner walls securing them in place. It did not matter about glue seepage in the inside faces knowing the inner walls would be covered with plasticard sub panels later in the build. For extra security, small Peco track pins were them hammered and glued in place corresponding to an inner wall panels along the top edge behind the guttering. This was just in case an inner walls panel parted company (over time) with the sides and ends.

PHOTO 21

With the main carcass now assembled the 4mm wide corner strips were then added. Being wider than the 1/8" plywood thickness, they hide all of the butt joins. Their overall heights are slightly too long at the moment and will be cut short for the guttering thickness. The brick base too has also been trimmed back and made good blending in for a seamless joint on the corners.

GENTS

The pre made gents' window panel was then trimmed to size, checked, then glued in place. As the superglue was so successful on the sides, I used it again throughout the rest of the building.

The end gents' outer panel was measured and cut out from the same 1/8" plywood. Knowing there was a doorway leading into the area (left hand side), I calculated it was the same size as the single doors on the sides at 22mm x 50mm. When cut out and scored for planking it was glued in place.

CORNERS

With the main carcass successfully glued together, the gaps in each corner of the brick base were filled in and made good. This took some time. The missing corner timbers on the ends were cut into 4mm wide strips from 20thou plasticard and mitred accordingly, then glued in place. Each edge required filing smooth, hiding any rough edges.

ROOF SUPPORT PANEL

Thinking ahead about the roof and its design, I cut out a plywood top that fits within the recess of the frame. The superstructure of the roof proper can be glued to it.

SEMI OPEN GENTS' URINAL

Around the top of the gents' top planks of wood, there is a thick band of metal (possibly lead?). Comparing the photos with the model, 40thou (1mm thick) looked suitable. Width wise it had to be slightly wider than the 1/8" wall thickness at 4mm wide. Before gluing in place, I positioned each of the 3 individual pieces on top and viewed the building from different angles just in case it didn`t look right.

An external door was made from 40thou plasticard. On just one photo that I have found of the door, two very faint blurred vertical planks can just be made out. Up until then, I thought the door

would have recessed panelling like the main single doors. I calculated 6” wide planks which were scribed on. The door has not yet been glued in place until the inside has been completed.

On the drawing, there is a clearly defined, hashed line depicting the lean-to roof, with a combined roof over the separate WC. The partition between the WC and the urinal was cut first from thin ply which fitted snuggly within the area. A slight slope was made, running away from the building. A door aperture was cut out going by the single door measurements of 22mm x 50mm of the sides. Having ample leftover architrave strips, the surround was glued on. A slightly shorter door, leaving a slight gap on the top, was cut out from plywood, then the same 6” wide vertical planking scribed on. It was superglued in place. A small turned brass doorknob was made and glued in a pre-drilled hole. Evo-stik wood glue was used to glue the partition in place which gave me extra time to tweak it perfectly square and vertical.

The roof was cut to shape which will eventually have paper glued on top to simulate lead. It is a very snug and quite tight to fit, so I may not glue it in position.

URINAL

With the open roof placed in position, the open void below is in full view, so the urinals would have to be made. On the drawing it had four separate sections pointing toward the buildings end. From memory of the actual gents (on several visits), I remember them just, but I did not take photos at the time. Searching the internet, I could only find one photo of a railway urinal. Drawing rough sketches etc, I thought it best if it was a ‘drop-in’ unit which could be painted before fitting. It was subsequently made from various thicknesses of plasticard with guesstimated dimensions. Pipework for flushing is 0.6mm brass rod bent up. The ends were glued in with superglue. A cistern was made from 3x80thou plasticard blocks 10mm square. With everything in place, it looks prototypical. A sink with tap is being made.

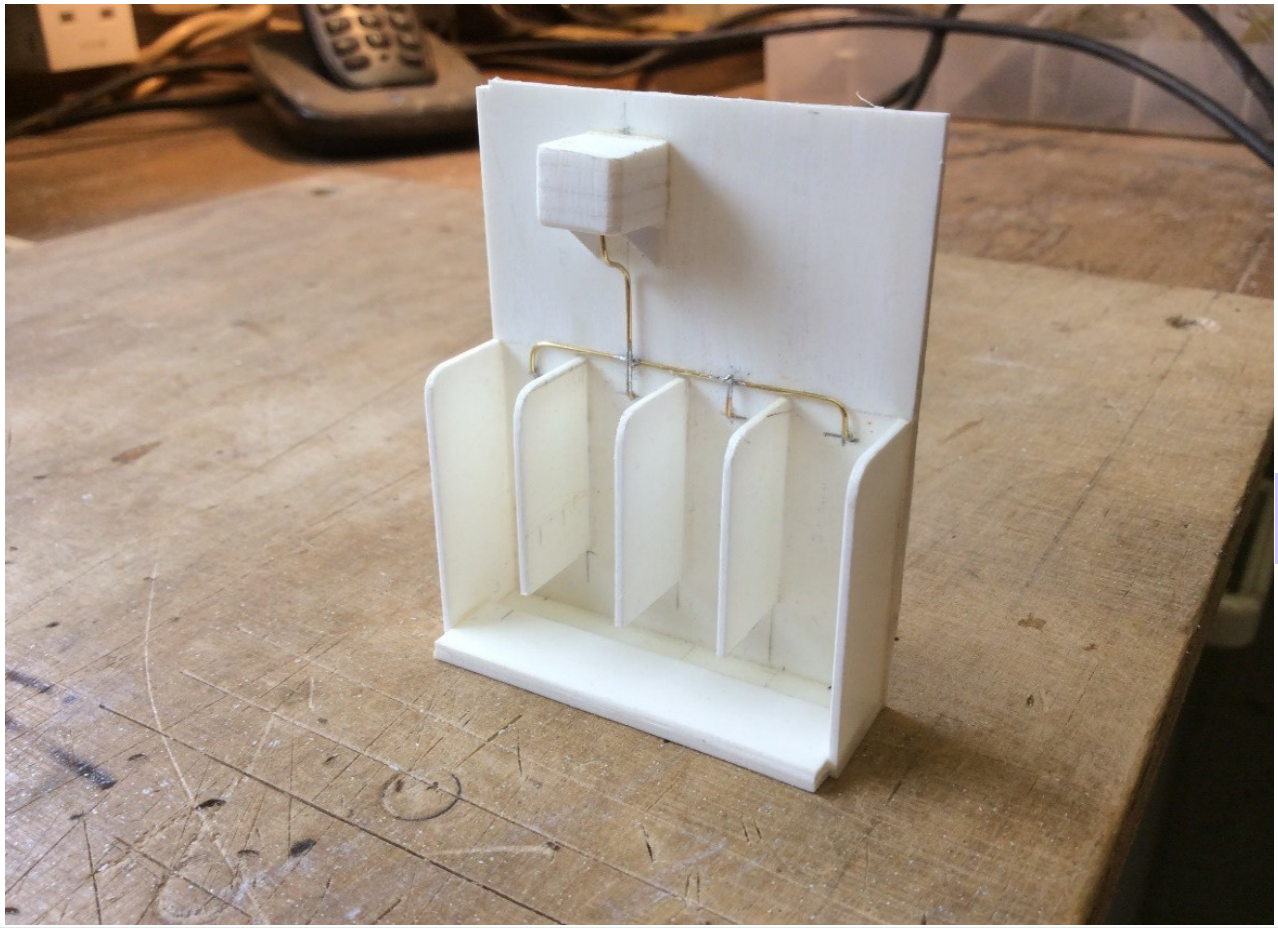
WOODEN ENTRANCE INTO GENTS

Although simple looking i.e. two sides having the same dimensions (and a possible floor section?), it could be easily knocked up out of wood. How difficult this simple structure was to work out! Again, only two photos confirm it had external vertical wooden slats. No photos are known to me showing the inside face, other than the two cross bracings on the drawing. From personal experience of the cardboard mock-up over the years it is very vulnerable. I know 4mm thick cardboard is quite strong, but it is easily bent with handling. Thinking plywood would be adequate and strong, I also thought it would be a good idea if it was positioned in place when the building was set-up.

1/8" square wood was used for the three posts. The post that is attached to the end wall was cut and filed first to the shape of the brick base, then cut to a length of 48mm. Thin 1/16" plywood was used for the slats and scribed both sides at 6" intervals and cut to a length of 46.5mm high. With careful positioning and spot supergluing, the first panel was made up as per the drawing except for the bottom of the base area. Two 0.6mm holes were drilled into the post for n/s rods that locate into the space where the door architrave would have been. The remaining panel was made in the same way, but it was a bit more tricky not having the corner post which was on the first panel. Although quite strong when completed, I still felt it required strengthening on the base area. Thin 1/16" plywood was used again for the base which was superglued in place. The end fits snuggly underneath the doorstep. Finally, the edge facing the platform edge was filed at an angle disguising the raised floor.

PHOTO 22

The Gents urinal is now virtually complete missing the external chimney breast wall and internal fittings. A scribed internal wall panel (just visible) with door has been fitted underneath the semi open removable roof (not shown). The corner strips have also been added along with a door and architrave surround (note a turned brass door knob). A windbreak surround has been built from off cuts of ply as per the drawing. Being very vulnerable to damage, I have decided to leave it as a separate plug-in unit.



To be continued

PHOTO 23

The urinal has been designed as a slot-in unit which can be removed. Although it matches the drawing, I am not completely sure of its overall design which might have changed. To me this is plausible. When visiting Fittleworth, I have a vague recollection that the heights of the segmented off panels were very high. This is made from off-cuts of differing thicknesses of plasticard with 0.6mm brass rod for the piping. The roof will eventually sit on top of the wall just above the cistern.

Return to contents page

Review of "The Brighton Line Brighton to Coulsdon North – a signalling perspective" by Chris Durrant

Terry Bendall

A new book on things related to the LBSCR would normally be an essential purchase for me although full book shelves and a significant price gave some pause for thought. However the second matter was taken care of by an anniversary where a present would normally be forthcoming and there is usually room on a shelf somewhere for just one more book. Having received the book I was glad that that the investment was made since it is a mine of valuable information and the range and quality of the pictures alone, many of which I have not seen published elsewhere, justifies the price.

The author is a retired signal engineer who started his working life as a signal engineer on the former Southern Region of BR in 1972 and spent his entire working life in that area of work until retirement in 2009. He is therefore very well qualified to cover the subject. In writing the book the author has drawn on a wide range of well known authors and signalling experts including help from members of the Brighton Circle. The book includes images from the photographic collection of Edward Wallis who was a signal engineer himself working on the then new Southern Railway and these, together with images from the Laurie Marshall collection appear regularly throughout the book.

The main focus of the book covers the introduction of colour light signalling to the Brighton Main line in 1932 with the format being a review of the semaphore signalling that preceded the colour light system and the changes that the new system bought. Signal diagrams before and after the changes are included together with photographs of signal box interiors. Although the book is primarily focussed on the 1932 changes, pictures are included from later periods, including up to the 1980s, which allows comparisons to be made between the various signal and track layouts over time

Although the focus of the book is obviously on the signals and the signal boxes, many of the pictures unsurprisingly include locomotives and trains as well as the track and other infrastructure and these provide a very valuable reference for the railway modeller seeking that elusive detail. For me one of the most impressive was a picture of Redhill station, undated but probably pre 1914, showing carriage trucks attached to the rear of passenger trains together with some other fascinating details. Another shows the slipped portion of a train approaching Preston Park with the Worthing bound train disappearing into the distance – a nice challenge for the modeller!

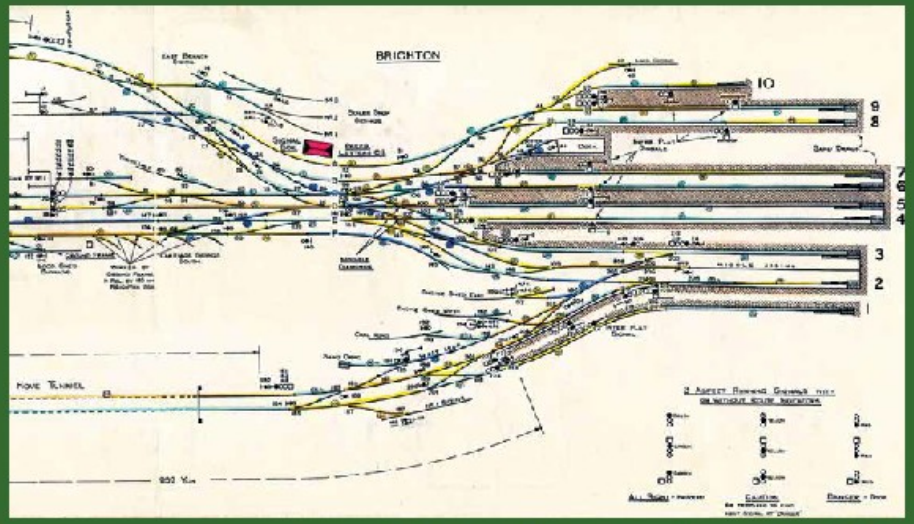
Fairly obviously the book starts with Brighton and all its complexities including the massive South box of 1881 and its 240 lever frame but being very strict, since the book covers the Brighton main line only, the West box at Brighton only gets a mention by virtue of the fact that it could signal trains from the main line via platforms 2 and 3. The new box introduced in 1932, and built into the wall of the locomotive works is covered in detail with one picture showing the box in 1983 with the works demolished apart from the section of wall needed to support the box. The book then proceeds to cover each signal box in turn with pictures and signal diagrams before and after the change to colour light signalling included and old and new signals photographed from similar viewpoints.

There are eight appendices included in the book which add to the collection of fascinating information about the Brighton line signalling. One of these is a reproduction of a booklet published by the Westinghouse Brake and Saxby Signal Company in 1933 which describes the new system to which the company contributed components. One picture shows the subway built under Brighton station to provide a route for signal wires which was later used for signal cables whilst another shows the mechanical connections under one of the old boxes.

A further appendix is a reproduction of an article written in 1932 which describes the process of the actual switch over from mechanical to colour light signalling from Coulsdon North to Balcombe tunnel which took place in just six hours from 2.00 am to 8.00am on a Sunday morning by 257 staff and which needed a diagram on paper 13 feet long to plan. One is left to wonder at the complexities of the planning needed in a pre-computer age as well as the diversionary route that was possible to allow the main line to be taken over. It did of course all work successfully.

In conclusion, a very useful source of information for those interested in the LBSCR in all its aspects, and a valuable resource for the model maker.

Published by Lightmore Press ISBN 9781 911038 96 2 £45.00



This book charts the developments of the London, Brighton & South Coast Railway through the Southern Railway to British Rail, from Brighton to Coulsdon North, with particular focus on a signalling perspective. With a wealth of illustrative detail, the historical progress of the railway is recounted – from steam to electric motive power, and mechanical to colour light signalling – using original documents and photographs from national and regional archives, supplemented by material from personal collections including the author's own. Whilst the author's technical and professional expertise as a signalling engineer is employed to the full, this book is also about a way of life. Giving access to the proudly polished interiors of historic signal boxes with glimpses of signalmen's domestic routines, the triumphs and tribulations of life in the S&T (Signalling and Telecommunications) maintenance department, and the liaisons with fellow departments, this book is as much a history of railwaymen as of the railway. The story of the surrounding landscape encroaches, too: the railway adjusts from racegoers to airport traffic at Gatwick and accommodates the building of a motorway; signal boxes encased in brick protect against wartime air raids; elements of the skyline change whilst others remain. Documenting a time before passengers became customers, when performance targets and train operating companies were unheard of, this book celebrates the work of the engineers who built the railway, recognises those whose aim was to maintain and run an excellent service, and honours the photographers who took time to capture evocative images of architecture and infrastructure from construction to demise. While thoroughly research-informed, it is threaded through with the author's inimitable personal commentary.

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ISBN: 9781 911038 xx x

Lightmoor Press

THE BRIGHTON LINE

BRIGHTON TO COULSDON NORTH

A SIGNALLING PERSPECTIVE

CHRIS DURRANT

THE BRIGHTON LINE

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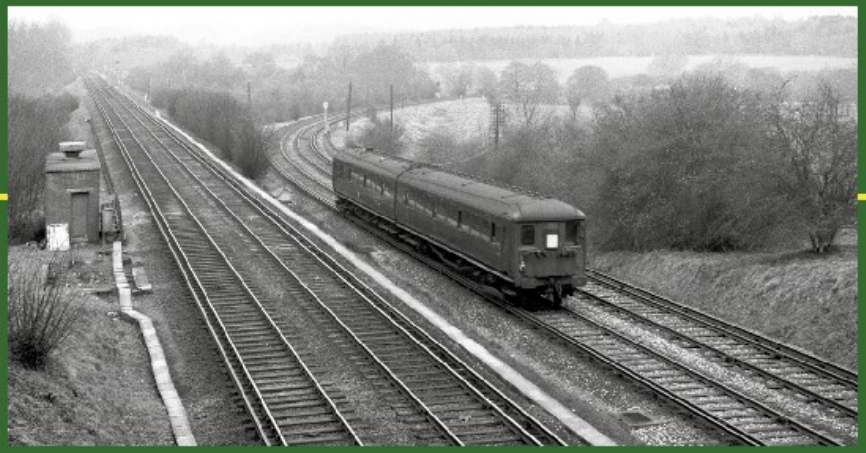

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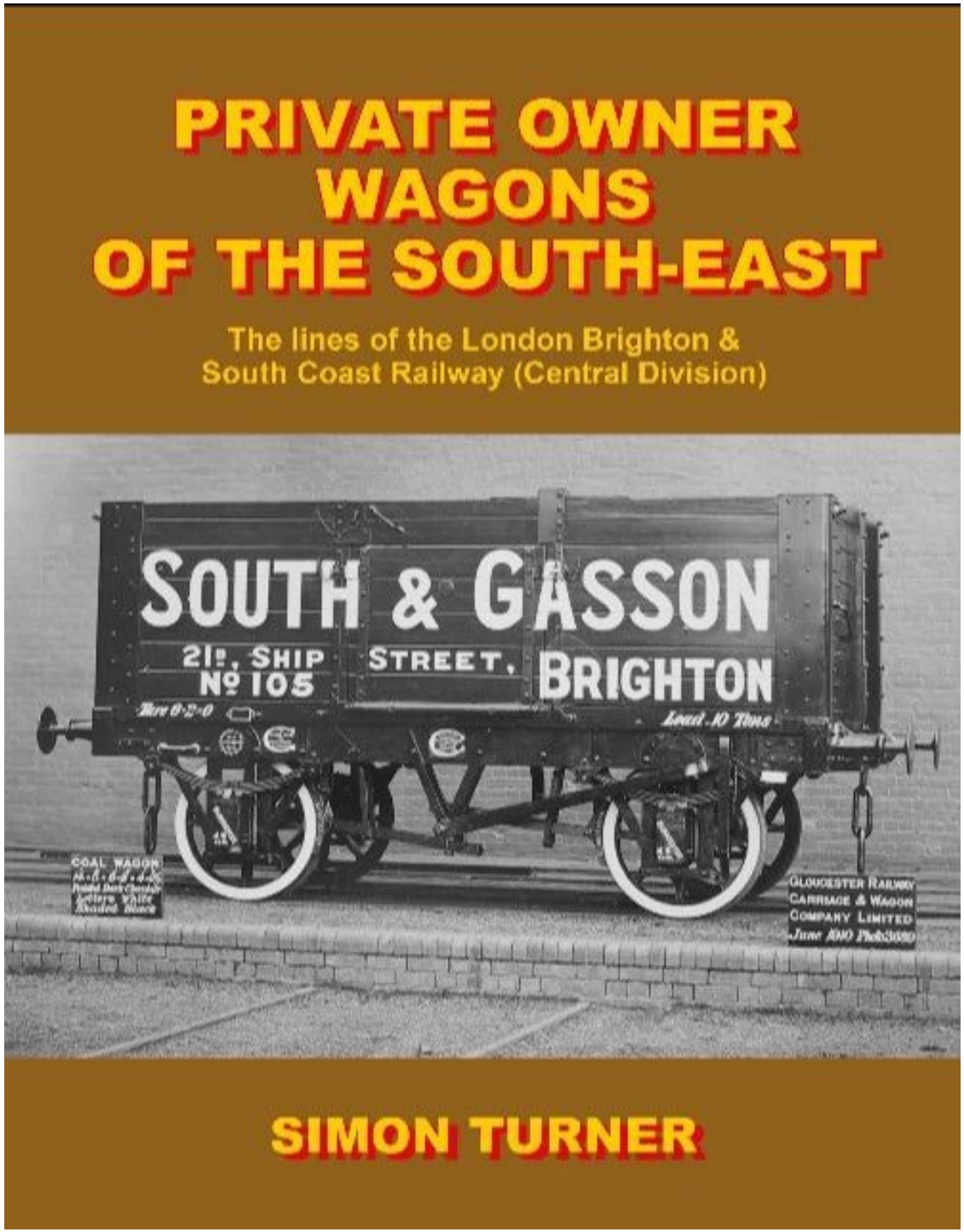
Return to contents page

Coming shortly from Lightmoor Press

By Simon Turner

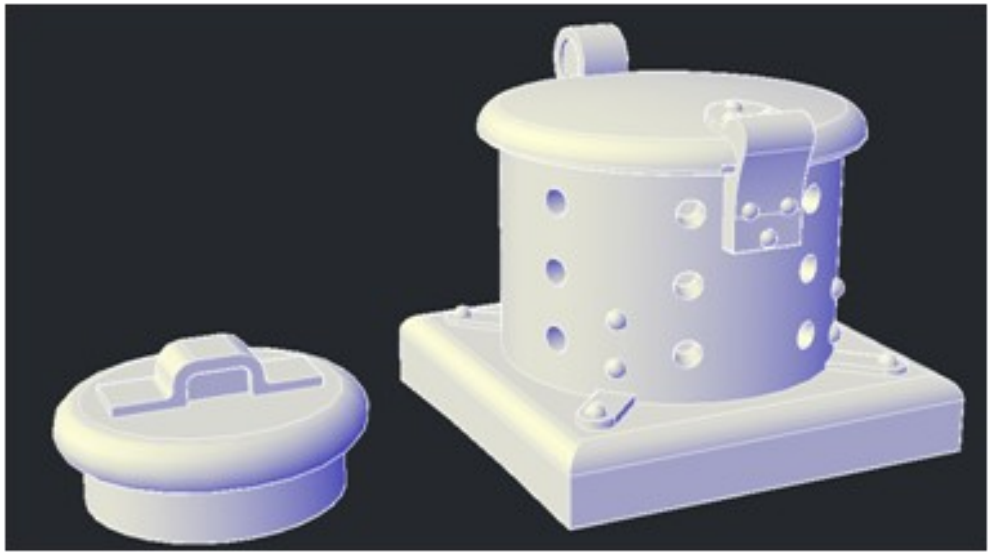


A ‘Football saloon’ -
and other 3D printed items

Javier

Several new items are now available on the Barm Models Shapeways store page for the LBSCR modeller. All new coach bodies for the D46 luggage along with Family saloons type D23 & D24 available in OO & HO. Work is being done to see that the latter two are interchangeable with the new Hornby 4 wheel coaches. Work should conclude on this effort within the following weeks.

Included in the range are a few new accessory items, including few in the O gauge range. Leaf & coil sprung W-iron sets for wagons have been available in the Frosted Detailed Plastic. Also available are some Stroudley-centric accessory items, including oil & electric lamp sets for carriage roofs and Stroudley pattern loco lamps.



For inquiries, please contact via Barmmodelproductions@gmail.com. Be advised I ship from the USA.

You can also reach me through my Shapeways store: https://www.shapeways.com/shops/caliper-s-paradise-models

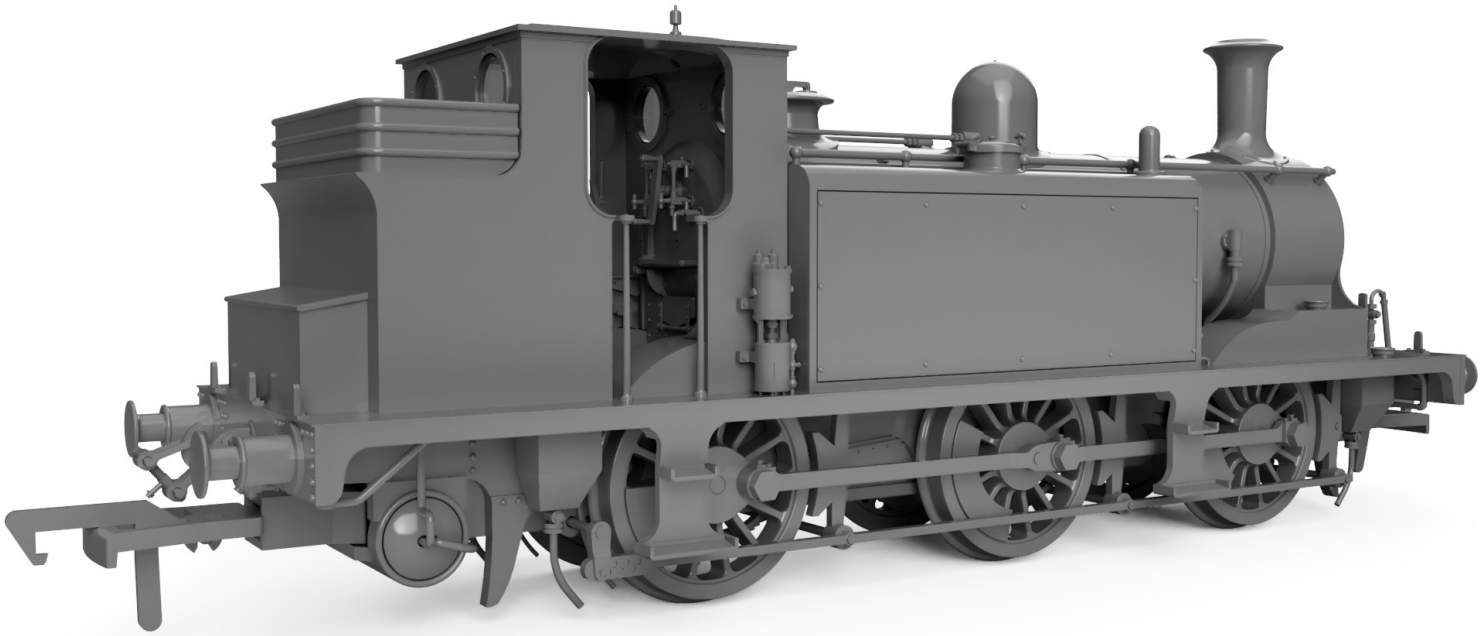
Second class saloon, known as ‘football saloons’.

Editor’s note: can any football fans advise what teams might have been using a vehicle like this when they were built?

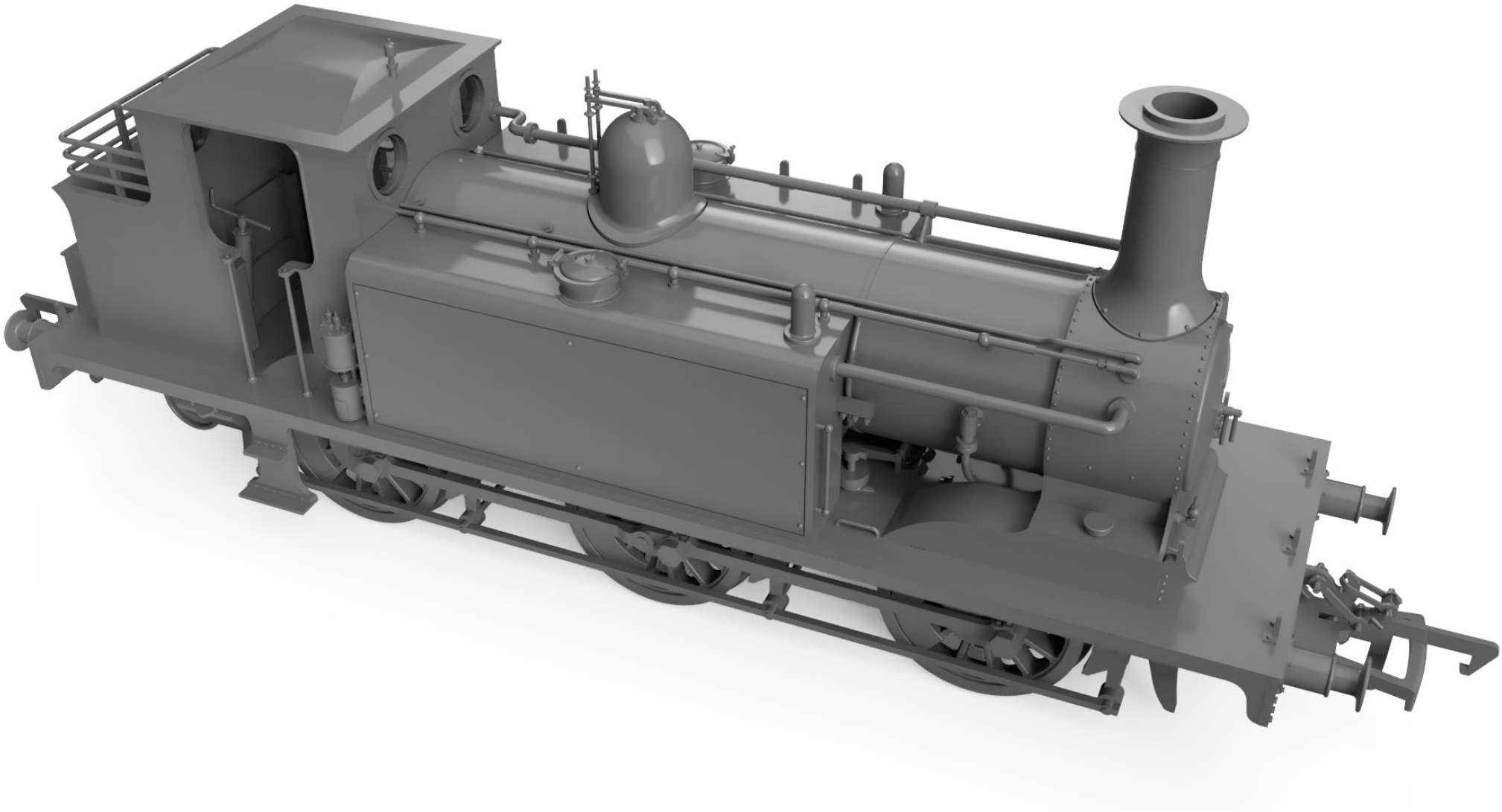
The E tank in 4mm scale

Rapido UK

Latest 3D renders from Rapido, showing the current stage of design work on the E tank. The factory has devised a modular system so that it is possible to offer the Stroudley, Billinton and Marsh dome positions. Tooling will allow a large number of different detail configurations, so Rapido is confident that this will be the definitive E tank.



Working towards an Isle of Wight 'E1', with extended coal rails, extra steps, different chimney and additional sand boxes.



The recess on the top of the side tanks will be featured! Note that the images shown do not yet reflect the final version of any one of the models to be produced.

Watch the Rapido website for developments.

Work in progress, so please ignore the combination of different parts from different eras. There is a lot still to do, but the images show the progress that Rapido is making!

Images courtesy of Rapido UK

Brighton Layouts that you may see at Exhibitions

The following LB&SCR themed layouts which you may see at forthcoming exhibitions

PLUMPTON GREEN (P4 scale Marsh era c1910)

PULBOROUGH (P4 scale Marsh era)

Return to contents page

The Brighton Circle Facebook Group

There is a Facebook page (search for @LB&SCRBrightonCircle) and a lively and growing associated group, which currently numbers over 350 members.

See https://www.facebook.com/groups/249226986001750/

These are aimed at giving a presence on social media for the Circle. It is a place for people, including non-members of the Circle, to post material, find out about the Circle, see some local history and to ask questions.

Please do visit the page if you are on Facebook.

The Brighton Circle

The Brighton Circle is the Historical Society of the London, Brighton and South Coast Railway (L.B & S.C.R.). It is dedicated to the research and publication of information about the company and it produces a quarterly newsletter and a historical journal entitled the Brighton Circular, which is published three times a year.

While the Circle is primarily focussed on railway historical research, there has been an important interaction with preservationists, particularly on the Bluebell Railway, and with railway modellers. The Bluebell line provides an important source of original artefacts, which contribute valuable information about the company's practice. Modellers have benefitted by access to data about the physical appearance of the company and its operations and, as a result, members of the Circle have been able to produce scratch builder aids, kits, paint and lettering on a limited run basis, which are made available among other members.

Membership of the Brighton Circle for 2022 is

£20.00 for full membership

Applications should be sent to

secretary@lbscr.org

The Circle is also in contact with local historians, industrial archaeologists, family historians and other groups whose interests intersect with those of the Circle.

THE BRIGHTON CIRCLE

Dedicated to the furtherance and publication of original research into the history of the London, Brighton and South Coast Railway

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MEMBERSHIP APPLICATION FORM

To the Hon. Secretary, Nicholas Pryor, 19 Sotheby Road, LONDON N5 2UP

I hereby apply for membership of the Brighton Circle.

NAME.....

ADDRESS.....

.....

.....POSTCODE..... (BLOCK CAPITALS PLEASE)

EMAIL ADDRESS.....

Or telephone number if you do not have email

What are your interests in the LB&SCR? Are you a modeller? If so, please give details.

Please enclose a cheque for £20.00 to cover twelve months membership/ £10 to cover six months membership (if joining after June 30th) of the Circle for the current calendar year. Cheques should be payable to '**The Brighton Circle**'. Please send this form and your cheque to the Secretary at 19 Sotheby Road, LONDON N5 2UP

Alternatively, complete and sign this form and send a copy by email to the Secretary at secretary@lbscr.org who will contact you to arrange payment of your membership fee, either online or via PayPal.

Privacy statement

The personal information provided above will be stored on a computer database of members' details and used for administration purposes by the Circle's appointed representatives. By signing this form, you indicate that you agree to give the Circle permission to use your personal information for membership purposes, to communicate with you as a Circle member and to send you general information about the Circle.

You can request that your data not be used for any of these purposes at any time by contacting the Membership Secretary at the above address or by email:

secretary@lbscr.org

Signed..... Date.....

Return to contents page