

ASSOCIATION OF SHREWSBURY RAILWAY MODELLERS



Tornado at Durham, Friday 18th June 2021 – photo by Gordon Woods

JULY 2021 NEWSLETTER

At the moment, this will be the last of the monthly newsletters. We will endeavour to move to a quarterly newsletter from the autumn. Please continue to send in your articles. Thank you to all of you who have sent in photos and articles to help keep the Association going.

July Outdoor Meeting, Wednesday 7th July. This will be our first face-to-face meeting and will be at our house in Broseley. We have a garden railway which will have 16mm scale battery and live steam trains running and a circular 0 gauge layout operating in the garage. If appropriate, bring something to run. Being outdoors, there should be no need for anyone to wear a mask unless you feel more comfortable doing so. We will have a gazebo in case of inclement weather. Tea, coffee, cold drinks and cakes will be provided and there will be ample seating. Please come if you possibly can as it will be so nice to meet up after such a long break.



We live at

Coming from Much Wenlock through

Please let me know if you intend coming so we know how many to cater for.

Nick Coppin

Diorama update

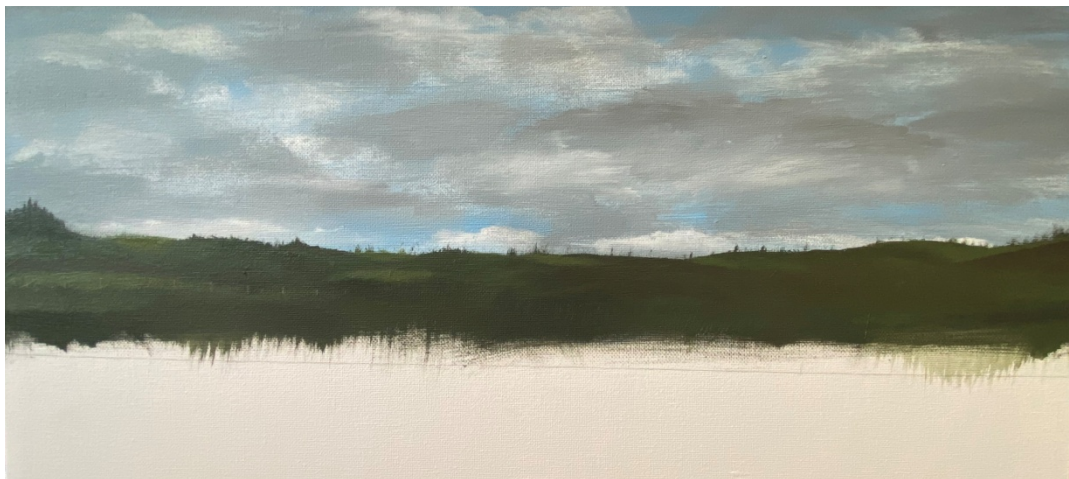
After reaching a point in wanting to try another area in my project, I instead I decided to have a good go at painting my own back scene, inspired from our group meeting in 'Scenic modelling and back scenes' talk by Mike Raithby back in October 2018 (back in the good old days).

It was quite tricky to say the least, as I wanted to capture a potential heavy grey day to capture the 'wet damp' look I was going for.

Using a canvas I had tucked away from months ago, I started with the sky and whilst it looked almost too blue, I knew this was going to quickly lose itself behind the stormy clouds.



Mixing and matching grey and white acrylic paints, I started with some white clouds and after lightly dry brushing them so they didn't look so bold, I quickly applied the different shades of grey to capture the heavy dark clouds that you'll often see dominating over the white clouds (which we certainly had seen during all those heavy downpours we had last couple of weeks).



Then after letting it fully dry, I moved onto the distant countryside. This perhaps was the more trickier part of the task at hand.

Trying to capture the different shades of greens and brown fields whilst not making it look too forceful was a challenge, but by using only small light handed brush strokes and occasionally dry brushing over to blend it more naturally in (a little trick I tried to use after watching way too much Bob Ross YouTube clips), I finally settled on how it was turning out. Overall, I'm quite pleased in how it turned out.

Next hurdle was how to attached the canvas and the diorama together. Thankfully with a bit of help from my dad, we managed to glue and nail the two pieces together without too much issue.

The result was a small gap between the two pieces which I quickly covered/filled in with some shrubbery.



It then occurred to me that my dirt path was looking rather 'feeble' and the puddles didn't quite look authentic enough. So I decided to elevate it a bit more with some texture. This I achieved (funnily enough) using grounded coffee! I applied a small amount of glue to the certain areas, sprinkled over the coffee and carefully applied a bit more glue to cement it into place. I also sprinkled over a small amount of loose grass over the pre glued areas to give off the look of a moss-like effect.



Overall, I'm very pleased with the end result. Now that I've finally completed the scenery, all that is needed is some figurines and begin weathering my rolling stock.



Sam Ryan

Graphite on the rails

A question occurred just recently about the effectiveness of using a graphite pencil to coat the rail head in the hope that better reliability of running will ensue.. There seems to be a difference of opinion on this and it has been suggested to me that a discussion of some of the more technical details may be in order. I write this with a long history of exhibiting layouts in front of the general public and have learned, sometimes with some embarrassment, what will work and what will not.

Graphite is a crystalline form of carbon , extremely inert, with very good heat and electrical conduction. It also acts as an excellent dry lubricant.

Dirt build up on the railhead is a function of running. A laboratory analysis many years ago by the Rochdale Group, established that the residue was dust and cotton/wool/man made fibres, together with iron, nickel and quartz particles bound together with mineral oil. Dust, by the way, is mainly composed of human skin tissue.

The residue was fixed in place by the electrical discharge between wheel and rail as power is applied to the locomotive.

There is also a secondary problem caused by oxidation of the rail surface over time. This oxide coating is less conductive than the bright metal and causes an even greater electrical discharge , thus accelerating the process described above.

The build-up of dirt in this way affects locomotives in different ways. If the rail head is perfectly horizontal and the tyre profile has a 1 in 20 conicity then it follows that the wheel will only run on the inside corner of the rail. If the track has been laid with one of the scale chaired systems then we may find that the rail is canted over by this same 1 in 20 or some approximation to it. The wheel tread now bears more fully on the rail head and we would expect that reliable pick-up will be of longer duration.

We should also consider the effect that rolling stock has on this problem. All stock wheels will act as a reservoir for dirt. If you follow a regime of track cleaning before each running session, then it is galling to find that the layout will perform badly again, often after only 30

minutes running time. If this becomes a problem then all of the stock will need attention.

Perhaps it would be best if this dirt build-up could be avoided or slowed down to a substantial degree. This is what the advocates of the graphite coating method have in mind. I will admit that I have tried the system and found that it offered no advantage, however I know of others who have found it to work extremely well. There is obviously something there.

At present I am not sure how the mechanical and electrical properties of our layout are modified by the carbon film on the railhead.

Perhaps the inert graphite prevents the oxidation of the rail surface. This can not be applicable to exhibition layouts where the show is over before any tarnish would have a chance to appear. So perhaps the improved electrical properties will reduce the power in the electrical discharge and slow down the rate of dirt build-up. Perhaps also the heat dissipation will be improved, although we are only concerned with minute wattages it could be a step in the right direction.

Perhaps the lubricant properties inherent with the use of graphite would prevent the residue from attaching itself to the rail surface in the first place.

I know that the advocate for the system tends to run short trains in a larger scale, it would be interesting to hear of anyone with a large "N" scale layout where the power to weight equation is much different. It may be that the locomotive will slip to a greater degree on graphite lubricated track.

The use of DCC must also be considered. We know that our DCC track supply is a varying square wave DC output which to all intents will look like an ac signal. The voltage is 12v peak to peak in N gauge 15v or 18v in the larger scales. The signal is modified by a binary bit stream of which the "1" bit is around 100 microseconds in length. At this sort of frequency the non-conducting film on the rail head must appear as a very small dielectric loss and be of relatively little concern to the control system.

Is this something that is borne out in operation ?

(Do we remember the Relco units of the past ? These worked by detecting the oxide film and injecting a 24v pulse at around 30kilohertz. The intention was to create a conducting path through the film to allow the passage of the DC control voltage.)

I have been in correspondence with Mike Bennett on this subject of graphite and I believe that he is going to try the system on his layout, but at my suggestion will apply the coating only to one line. So we will be able to see if the "Up" line performs better than the "Down" line.!

It will be interesting to hear of any other members who have tried the system.

Trevor Hughes

Not much to do with railway modelling!

This is not much to do with railway modelling, instead it's a follow-on to the Zoom talk I gave earlier in June to do with laser cutting and engraving. In the talk I mentioned I had purchased a NEJE Master 2s to both cut and engrave acrylic sheets to be used to make model buildings for my garden layout. I also briefly mentioned that lower power lasers are

better for engraving and higher power ones for cutting, but I didn't say why. The main reason lower power lasers (3.5 watt and 7 watt) are better for engraving, is that they can be focussed to produce with more precision than a higher power laser, so can engrave in greater detail.

I already owned a 7 watt laser head which I could substitute for my higher power laser head. Swapping them over is relatively easy; unplug the wiring harness from the laser head, undo two screws and remove the head, then, substitute the 7 watt laser head for the higher power one, and reverse the process. It only takes a couple of minutes but, after doing a few times, I became aware that the plug on the end of the wiring harness was starting to look a little battered and clearly wasn't designed for frequent plugging and unplugging.

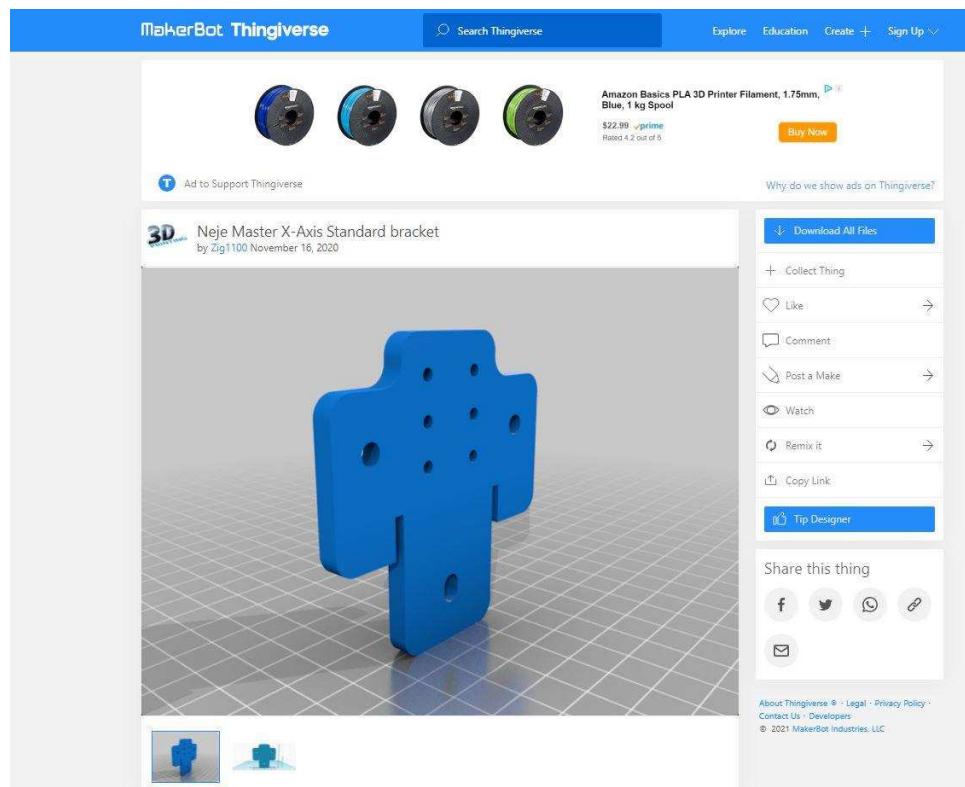
A couple of weeks back I came across a NEJE Master laser for sale on eBay which was labelled as being an ex-display item and therefore virtually unused, although it was some 18 months old. It was in the UK and the price being was considerably cheaper than buying a new one from China. The seller was also accepting offers. It had been on eBay for a number of weeks but had had no takers, which I felt was because the laser was a NEJE Master and not the later Master 2 or 2s, which meant it had a main circuit board which is restricted to NEJE's own software and not third party software such as LaserGRBL and Lightburn.

Purely by luck I had a second Master 2s circuit board that I'd picked up as a spare online. It was extremely cheap as it was for some reason being sold under the manufacturer's name SHIZHI rather than NEJE. Previous delving into the internet had revealed SHIZHI are the manufacturers of the electronics used by NEJE.

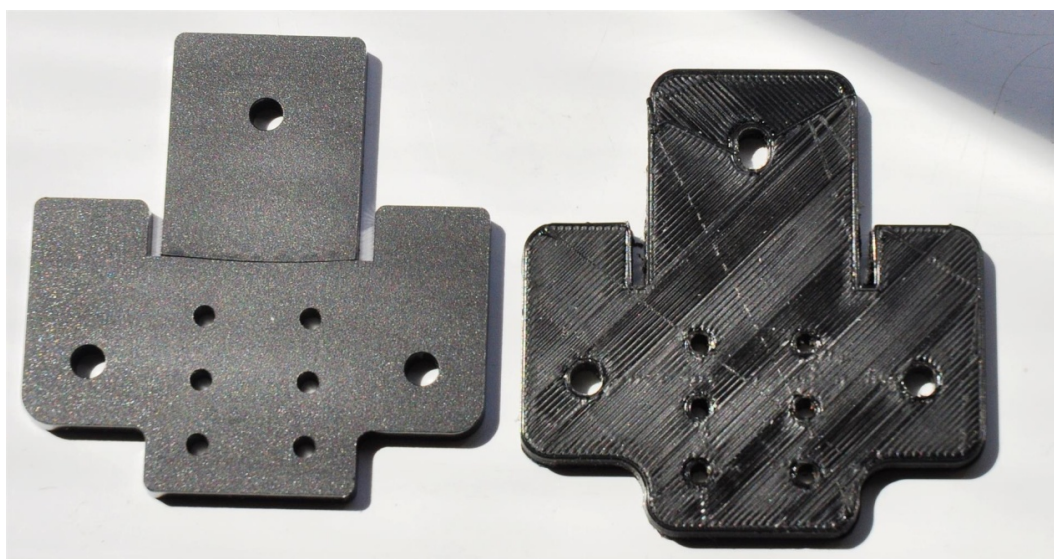
So I made the eBay seller of the NEJE Master a really cheeky low offer, expecting it to be rejected out of hand. To my surprise it was accepted, but the seller said he'd be sending by Hermes instead of Royal Mail as he'd accepted such a low offer. The parcel arrived a few days later, intact but somewhat battered. When I opened it I found, although the laser had been very well wrapped, surrounded by polystyrene and cardboard, and labelled very clearly FRAGILE, Hermes had managed to damage it. The mounting bracket for the laser head, made from 5mm thick acrylic, was snapped in two.



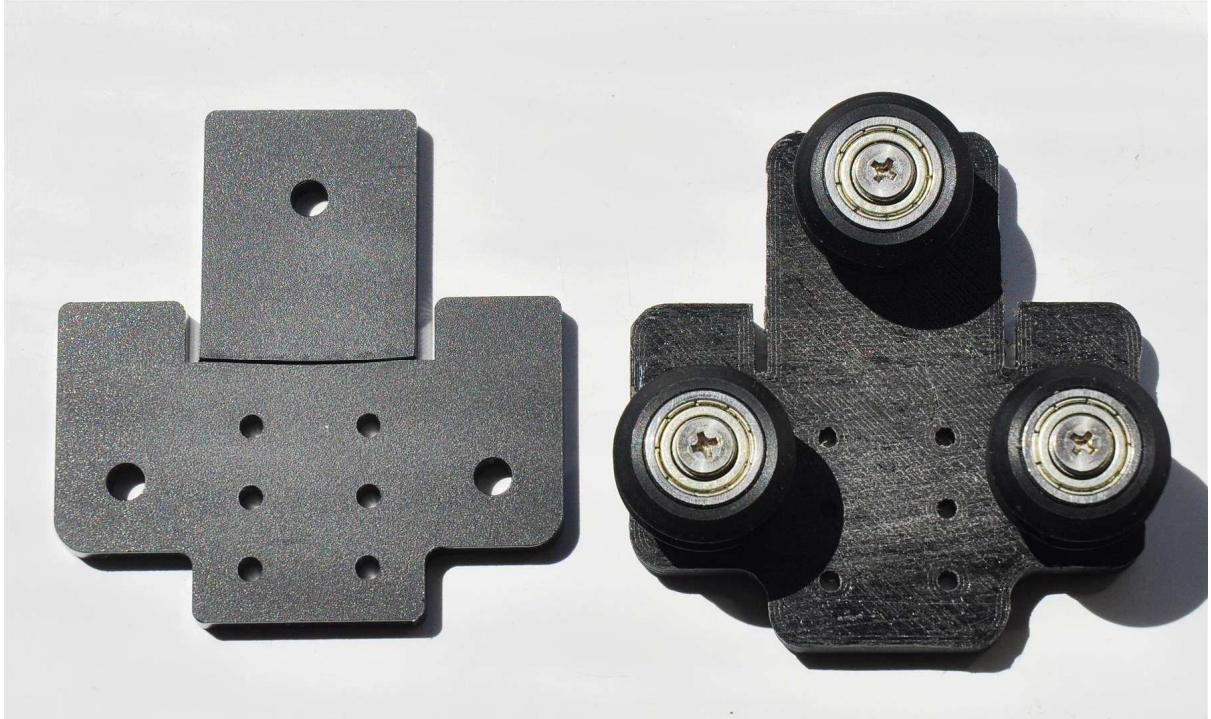
In normal circumstances I would have immediately contacted the seller to arrange a return and refund but, as I'd obtained the laser for a very low price, I decided to see if I could make a replacement part instead. I went online to Thingiverse .com, typed NEJE into the search box and, of the 150+ results, quickly found a downloadable file to 3D print a replacement mounting plate.



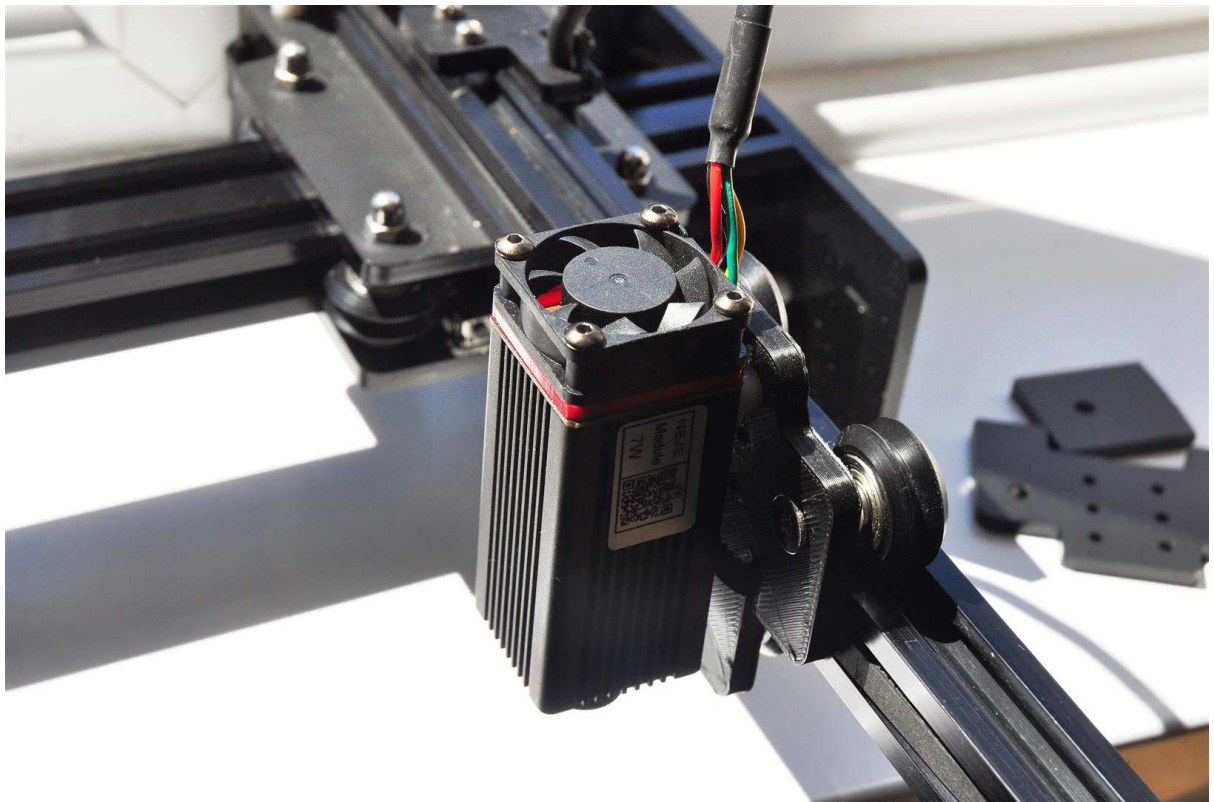
Ninety minutes later my 3D printer had produced the replacement plate. I compared it with the broken plate and it looked fine, although cosmetically the upper surface was not as smooth as the original, but it doesn't matter how it looks only how it performs.



After attaching the transport wheels,



I installed it on the laser, bolted on the laser head and inserted the wiring harness plug.



Then it was simply a case of focussing the laser beam to a sharp point, connecting the laser to my laptop with a USB cable and test engraving a small image using the NEJE software. All was good.

Now I knew the hardware was all working correctly I could go ahead and swap the Master main circuit board for my spare Master 2s board. Again it was a 5 minute job disconnecting two wiring plugs and then undoing the four small screws that held the board in place and putting it to one side. Screwing the Master 2s board in place, connecting the wiring harness plugs and had the machine ready to go. I reconnected it to my laptop, loaded a test engraving this time using LaserGRBL instead of NEJE software, and engraved the test image. All went perfectly.

So I now have two fully working NEJE master 2s lasers, one primarily for cutting and the other for engraving, all thanks to some kind person who designed a replacement bracket for the laser head, and uploaded it onto Thingiverse. Who needs to order replacement parts online and then wait days or weeks until they're delivered when you can download a file for free and then 3D print the replacement in 90 minutes?

Mike Wakefield

The Logging Train Completed

A couple of months ago I showed some photographs of the Kadee logging car kits I was in the process of putting together aka struggling with. I have now completed the six cars and their loads. You may remember that I found the first truss log car to be a great deal of trouble, and that I had therefore decided to make up a couple of the simpler skeleton cars as the next project. Once I had done these and the two disconnect log truck cars, I thought that I had gained sufficient experience to tackle a second truss car. It proved a good deal easier this time around, and having it does provide a better overall balance to the train.

The cars needed painting - I went for an overall basic dirty track colour - , and this proved to be a lengthy process because of all the intricate convoluted surfaces. The bark on the logs I painted up with, perhaps surprisingly, Humbrol Wood colour, then a wash of Indian Ink, and finally, grey, brown and green chalks. For the exposed cut wood I used variations of dark brown, orange, yellow and cream paint.

Here is my very pretty (well, OK, like a baby rhinoceros is pretty, perhaps to some of us; and those busy vertical piston-rods are a sight to see!) Bachmann 3-Truck Shay leading out the train past a row of the mining company workers' houses.



In the next photograph, the car on the right is a disconnect truck car, in which the tree-trunks themselves act as the spine of the car. On the left is a skeleton log car. When I find something suitable I shall put somewhat smaller logs on the skeleton cars.



At the end of a train of course, you need a caboose, and the next photograph shows one of the truss log cars and the completed Kadee bobber caboose kit.



They were called bobbers because of the way they rode on the rough tracks, and, while the cast iron stove must have been nice for a bit of warmth and for brewing coffee, I suspect it would only have been used when the caboose was stationary. Fortunately it seems to run smoothly on my lines - so far, touch wood! I glazed the windows, as I am sure they must have been against the weather (though how long would the glass have lasted?), and painted it a nice gypsy caravan green, numbering it in Railroad Roman script from a Woodland Scenics dry transfer sheet that I had. I have not used a dry transfer before and I was pleasantly surprised by how well they took to the surface. A coat of matt varnish will still be needed to protect them, I think, before I apply weathering powders. Since taking the photographs I have repainted the roof a considerably darker grey, which looks much better.

These photographs cruelly, I fear, - but also usefully - expose the inadequacy of my painting and weathering. There is a long way to go to improve this to a satisfactory level, but at least I now have a pleasingly substantial and atmospheric logging train, as I have long wanted. In the last view below it is seen heading past Poppy Creek depot on its way down the line to the saw mill (er, storage sidings).



Peter Cox

Earl's Hall - a Trilogy of Errors

The layout has now reached the stage where, other than the scenery, only one major project is outstanding. This being the construction of the tram track which, if successful will run automatically – I hope. I have the trams, track, electronics and properties for the street, but it has slipped a long way down the priority list owing to the overriding wish to see trains running again after the house move. Thus some stock has been progressively taken out of the storage boxes and run again, but not without revealing three fundamental errors which I should not have made, but did!

Item the first – point location

The obvious constraints for point positioning are of course the baseboard joints and cross members. The latter was little or no problem having chosen a monocoque design, but on the MPD the roads leading to and from the main layout had just 2ft to turn through 90 degrees, and even using curved points everything became a bit tight, not helped by the self-imposed dictate for a minimum radius of 15". As a consequence I made the cardinal error of laying a point with the frog only 25mm from the baseboard joint, such that I was more reluctant than usual to use insulated joiners and the frog was too close to make an isolation cut in the track. I decided to rely on the baseboard joint for isolation. This track had been laid more than 4 years ago, long before it was connected electrically. Fortunately I had had the presence of mind (for once) to fix a note adjacent to the point to remind me the frog was not isolated. But there had been no problems until the temperatures soared and the entire layout shorted out bringing everything to an abrupt halt – a joy of DCC. Disconnecting and reconnecting each board to the bus narrowed the problem down to the new link and MPD and once I had established that the layout only shorted out when this point was thrown in

one direction, and once I paid attention to the note pasted on the baseboard all those years ago, the fault eventually became obvious. So now the frog is isolated on the adjacent board of the new link and all is right with the world.

Item the second – baseboard construction

As previously stated I have long been an advocate of the monocoque form of baseboard construction and with N gauge it can be formed from 4mm MDF to provide both a very light and very strong board. The 8 boards for the main layout and the 2 for the MPD were all nicely rectangular being roughly in the proportions of 2 x 1 and their rigidity had remained perfect over the years. However the new location in this property demanded a long link along one wall. I pondered for some time as to the best construction but came back to the monocoque design. I wanted to wire it up in the workshop to avoid the perils of soldering upside down and so it needed to be removable. Consequently one of the constituent boards needed to be 6ft x 10" and as it had to carry 3 different levels of track, became quite interesting to build. But having insufficient width compared to it's length, it warped – again something I should have known would happen. The warp was probably no more than 1mm across the width but no less disastrous than had it been 1ft! So now the board has been adjusted using brute force and ignorance and firmly fixed in place, hoping I shall never have to remove it again.

Item the third – variable temperatures

This common problem raised it's ugly head again with the long, narrow link baseboard associated with the bad design referred to above. But what made matters worse and would have contributed to the warp, was temperature change. The link boards had been constructed in the depths of winter in the workshop, brought in and connected up to lay the track and then returned to the workshop for wiring up. The new Calor Gas fire had a mind of it's own shutting down before the fumes overcame me, and the fan heater had difficulty raising the temperature above 10 degrees at times. To make matters worse the track had been laid in a warm room with this board located directly above one of the radiators.



I need not here go into detail to describe the appalling sight on entering the workshop one morning following an overnight temperature of minus 8 degrees – probably 30 degrees

lower than when the track had been laid. I can almost hear the voices of garden railway aficionados saying: "Only 30 degrees?" Of course once returned to the railway room the gaps closed up to an acceptable degree, but I was now aware of the dramatic effect this radiator could have, so now the thermal valve is firmly off and the room has to rely upon one radiator – I wonder how this will cope next winter?

Mike Bennett

THE BREWERY

The Brewery is my latest construction in the building of my 00-layout started at the beginning of the pandemic.

Before starting on that I had to finish off my Power Station which is complete for now and placed on the layout where it will be ultimately fitted. I did a short talk about this the Zoom session and have included a couple of photos of it now the cladding, roofs and filth have been added. Whether I construct a Coal Plant is under consideration.



Power station after weathering

As for the Brewery, this is allocated for space across the tracks from the Power Station and comprises three buildings, the Brewery, Barrel Store and the Boiler House – Workshop.

The Brewery building is the largest and includes a couple of basic 'mashing tuns' inside, together with an office made by gluing a photo of an office inside the first-floor void.



Brewery Buildings placed in the approximate final position.

The Boiler House and Workshop has some detail added including a vertical boiler, internal and external coal stores, equipment locker and a rear of building 'hot well' for returning condensate. The Barrell Store is an old platform awning, cut in size, repainted and glued to a suitable cobble base.



Brewery Boiler House before roof fitted.

All that is left is to fit into place and lay scenic material around to bed it in.

Graham Betts

Seen on the Interweb. I do not know how much you use YouTube but perhaps some of you might like these videos shot in 1969 around the coal mine railways of Manchester. Try this first one: <https://www.youtube.com/watch?v=JsblkcyhtvM>

Nick Coppin



Tornado at Edinburgh Waverley 18/6/21 – photo by Gordon Woods