

## Getting out of the armchair.

### *Making some unusual bogie vehicles.*

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Having once written something for armchair modellers<sup>1</sup>, and the realisation that I was going to start<sup>2</sup>, but not complete, yet another project, the announcement of the competition for this year struck a cord and I resolved to actually finish something. Six Welsh 4 wheel wagons would not be difficult, but not particularly interesting; six brake vans could be fun but probably too much research to be done (in the armchair?) to turn up the information for enough different items that would fit with my modelling aims. So what about bogie wagons? I believe that not many Welsh railway companies had such things so possibilities are limited: I'd already built a kit that approximates to a Taff Vale one, I have drawings of a GWR one that may have visited Welsh steel works but this could have been a problem with the competition rules. How would you count a wagon with three bogies? So what was left seemed to be a Monmouthshire tramway wagon, but there are doubts about the accuracy of the one illustration I know of, and those passed on from Barnum & Bailey's Circus<sup>3</sup>. Being an armchair modeller I'd bought some bogie side frame castings from Chris Leigh soon after his articles had been published, but had done nothing with them.

So, out with the photos and articles and start making a shopping list. Having the bogie frames, the obvious next thing to look at was the wheels and these are the first problem – 2'4" discs. They were a problem for the prototype as well, not being a standard size they had to be specially imported from Germany. So have a go with a lathe or use the wrong size? A good opportunity to sit and ponder!

The second item I would look to buy would be the buffers, and here the next problem popped up. There were no side-on photographs but the ¾ images strike me as showing ones apparently longer than normal wagon buffers – but the wagons seem to have normal 3-link couplings that I feel would not be used with long ones. The buffers look like those fitted to the Barnum & Bailey train and the only indication of the size of these is on the diagram of the advance publicity car – these scale at no less than 2'3". Against this, the GWR diagrams of the passenger coaches show 18" long buffers, shorter than normal I believe. A solution has yet to be found but more help from Scaleforum gave another chance to stay in the armchair.

Now came the decision on which wagons to build, there were the vans and clearly two significantly different bolster wagons: however there were two different types of underframe for the bolster wagons apparently depending on whether or not the originals had brakes or just through pipes. The competition requiring just three vehicles and my having just 6 sets of bogie frames, something had to be dropped. My predilection for the unusual, and close study of a photo of a train of wagons, resulted in the choice of producing one newly converted wagon (No. 1) and one (No. 10), with a different underframe, nearing the end of its life when it had a livery different from a similar newly converted wagon (No. 2). The third vehicle was, of course, to be the van.

So now the "shopping list" is for special wheels, buffers, 3-link couplings and metal profiles ("L" and "I"). The store box should provide everything needed for the bodywork and underframes – sheet metal, plastic, plywood and wire.



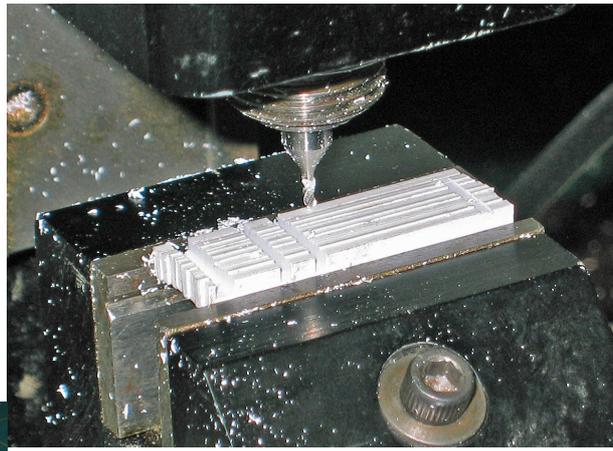
To get out of the armchair and make a start on the modelling the easiest thing to do would be to construct the underframe for bogie bolster No. 1 as this was the simplest. Plastic solebars, longitudinals and headstocks (scaled at 9"\*6") with 6" square cross members held together with a ply floor. At this stage one has to decide on the width, and this dimension is not shown on any of the diagrams: scaling from the diagrams and photos gave results from 2339mm to 2377mm; the elephant car drawing showed 1370mm - this is clearly wrong and could possibly be a misprint for 2370mm; 7'9¼" (2369mm) is quoted as the width of the coaches that seemed to have very similar underframes. So I settled on 31.1mm for the models, but please don't get out your micrometers to check if I've achieved this precision! So as of mid April I have piles of plastic strips, scribed plywood floors and headstocks marked out for cutting: enough actually to construct 4 bogie bolster wagons.

<sup>1</sup> Three Books for the Armchair Modeller? [www.hmrs.org.uk/reviews/three\\_books\\_armchair\\_modeller.shtml](http://www.hmrs.org.uk/reviews/three_books_armchair_modeller.shtml) (No longer on the web site.)

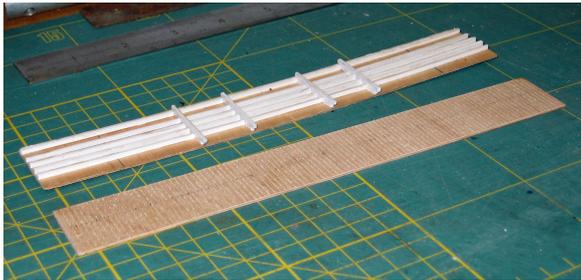
<sup>2</sup> A sprung loco chassis at the Missenden Abbey Modellers Weekend March 2011.

<sup>3</sup> Leigh, Chris, *Model Railway Constructor* 50 Oct 1983 592; 51 Aug 1984 p. 418; 52 Nov 1985 p. 588; 53 March 1986 p.139; 53 Aug 1986 p. 432

Stage 2 found me cutting banks of Slater's (4\*1.5mm) to create the cross members that were solebars: how these were constructed in real life is clamped stacks of strips together and cut out longitudinals using a 1.5mm end mill.

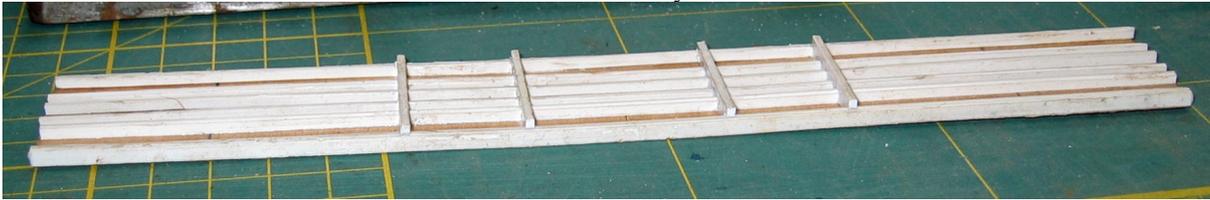


Microstrip visible below the not known so I grooves for the

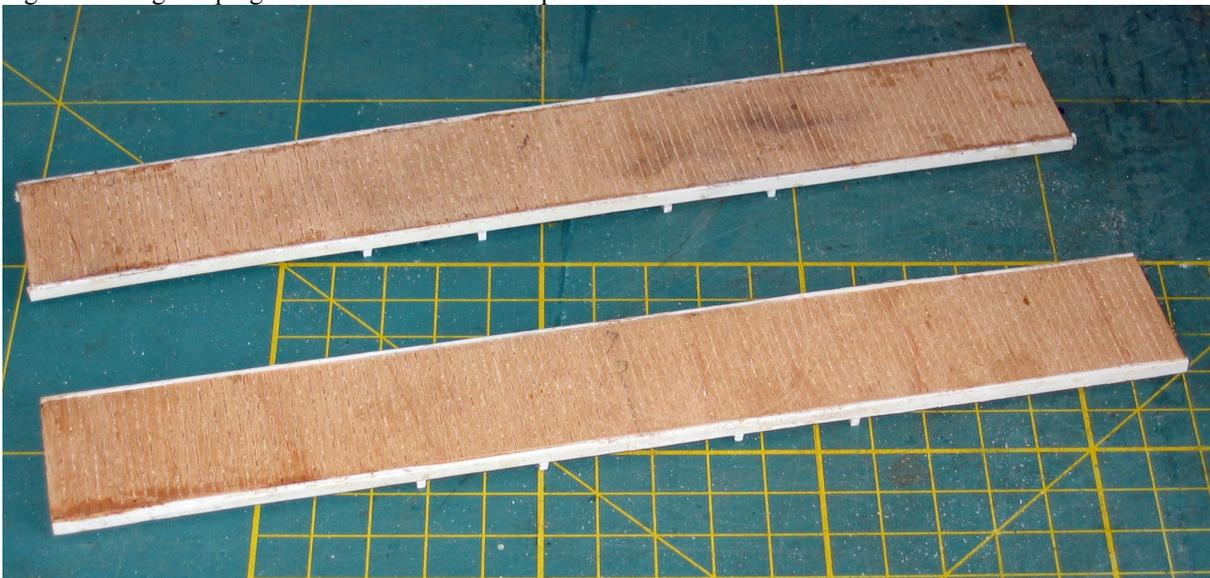


Now there is a problem: the floor has distorted once the longitudinals were fixed on with solvent<sup>4</sup>. Adding a solebar and weighting the unit flat while the solvent dried did not help. The floor was then bent beyond straight, breaking the joints between the longitudinals and floor, except in the middle, the floor clamped flat and the solebar and longitudinals reglued with super glue. After a day drying there was no distortion any more.

The second solebar was fixed with butanone and allowed to dry: now we have waves!



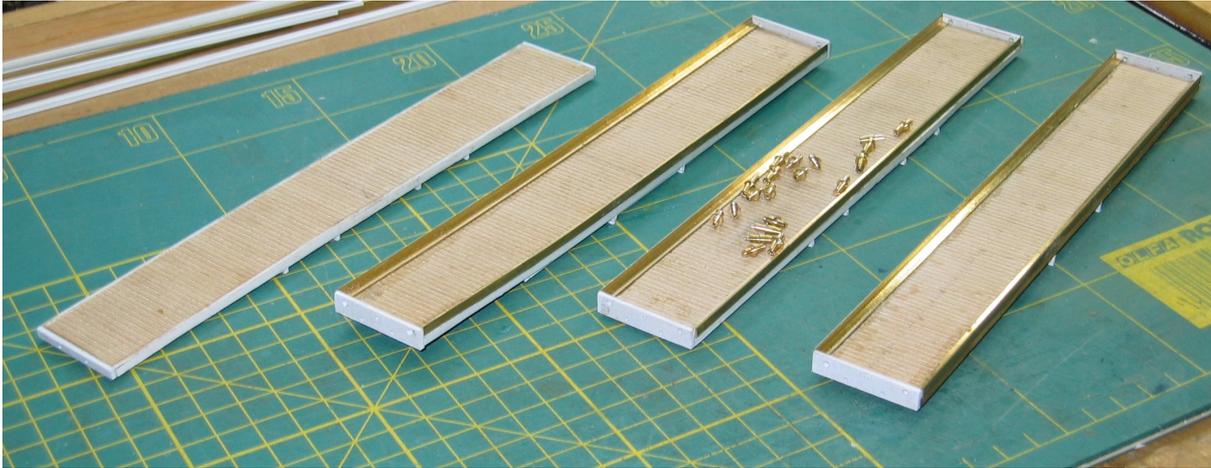
This was followed by bending as well as possible back to shape then gluing metal strips between the longitudinals with slow drying epoxy and clamping the thing flat while it dried. It worked! Another underframe has now been made with plastic solebars and glued together with gel superglue – this also has not warped.



The third wagon has progressed to the stage of having solebars added from plywood using gel superglue and angle iron sides attached with slow drying epoxy. No longitudinals have been added as yet and so far there is no warping. Some weeks later longitudinals from 2\*2mm brass bar were added with super glue – I don't think this one is going to warp.

A fourth wagon has been made with plastic underframe components attached partly with solvent, but mainly with superglue. Headstocks have been added to all 4 wagons – for three of them holes have been predrilled for buffers and couplings and all have 1mm holes to facilitate the addition of simulated nuts and washers that were on the ends of the longitudinal tie bars. Three of the wagons have the angle "iron" sides in place.

<sup>4</sup> Butanone evaporated too quickly so methylenedichloride was used.



The photo is deceptive: the wagon on the left is flat. Two of the wagons have 4 cross-members whose ends are just visible, and the other two only have two but have extra longitudinal reinforcement. The diagrams and prototype photos are not clear, but my best guess is that it was an I beam and I've used a 2mm plastic one. If you look closely you'll see a stack of buffer turnings – the first constructive use of my lathe for modelling in many years! These were made after I had been struggling to make a wheel and had asked on the Scalefour Society's Forum for help – following excellent advice I practised sharpening some tools and tried something simpler than wheels. The buffer housings are not as smoothly curved as the prototypes but acceptable for a first attempt - I intend to finish these off with foot steps and commercial heads and springs.

Disaster! I held a bogie side frame under a wagon and something did not look quite right – the end of the wagon seemed to be too far away from the end of the bogie. The diagrams were checked and overall length and wheelbase were OK: photos were examined carefully and these were clear – the ADR bogie bolster wagons had the ends of the bogies much nearer the ends of the wagons than the Barnum & Bailey flat wagons. During rebuilding either the bogie centres were moved outwards or the wagons were shortened. I'd guess the latter. So, the headstocks were broken off and a bit sawn off the end of each wagon, with the help of my artistic wife a guess was made about how much should go. No precision work here! Headstocks replaced and then back to the arm chair – there's still loads of time until September.

A start was made on the bogies: the side frames are castings obtained from Chris Leigh shortly after his articles were published. Bits of brass and plastic were milled and assembled with screws to give a compensated system. I did do a quick search to see if anyone had described sprung wagon bogies but I didn't find anything appropriate so I fell back on old technology.

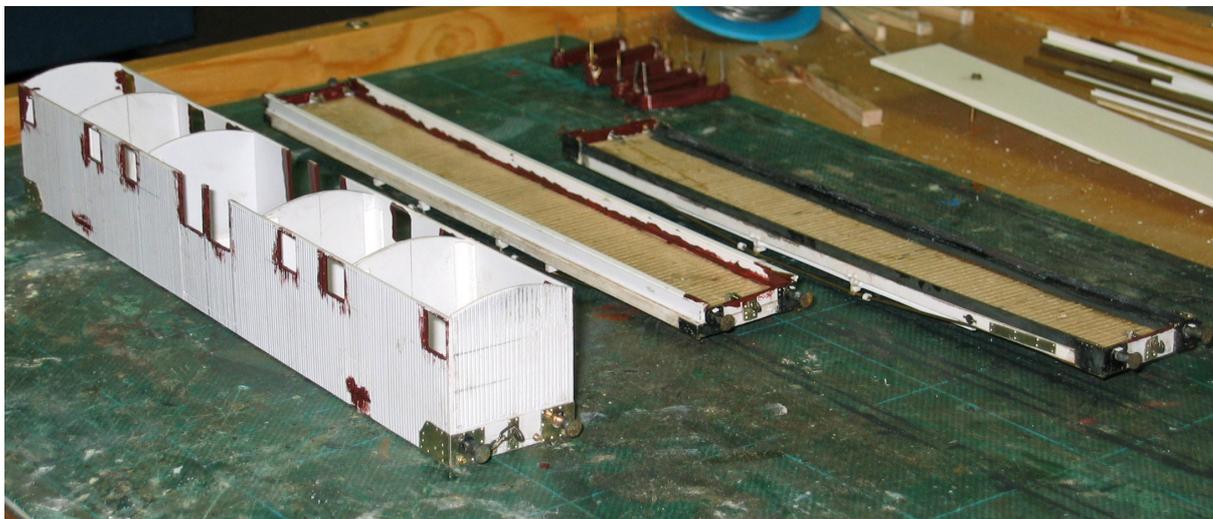


It's now August and there's still no rush: a search for commercial wheels has produced only one reasonable possibility, 10.5mm lowmac, more than a millimetre too big so the wagons will ride high until I can learn how to make wheels of the right size. (My last experiment was to try turning them out of Tufnol bar as I thought that this would look not much different from rusty steel: this was a failure, I couldn't form the tyre profile as it kept on tearing off.)



Mid August arrives and it is time to start worrying.... Whilst enjoying the arm chair, I'd been wondering about lettering, so putting various hints together I decided during a trip to London to call in at the 4D Model Shop. A discussion there resulted in my making a CAD drawing of the lettering and ordering a transfer – they thought I'd drawn an "e" incorrectly but, being short of time, I decided not to redo it. If you get a chance to see the models you may judge whether or not I should have done.

A fine weekend arrived, the only this summer I think, but I resisted the call of the garden and sat on the terrace and started carving the planking for the van: a very tedious job but helped by the sunlight and a glass of wine! The weeds were happy too! September comes and it is time to start thinking about panicking.. skive off from work for a couple of days and progress begins, so by mid month things are looking better.



Two wagons have been parked for the future and two have had underframe trussing fitted and ironwork added. Only the final detailing and painting to be done now. I'm still puzzling however on how to make and fit some of the bogie bolster stanchions – unclear photos don't help! The van body is going together well, the edges of the frames round the old grills have been painted as a neat job would not be easy once the apertures are filled. Two difficult jobs remain: the grills in the doors and the ladders on the ends.

As it turned out, the door grills were not a problem: laying bits of wire next to each other and soldering a strip at each end gave two sets of nicely parallel bars that were easily fitted to the apertures, superglued at the bottom and held by the soldered strip at the top. A piece of plastic sheet was then glued in at the top of the sides, as a sort of ceiling, to stop the centres of the doors bowing inwards and helping hold the grills in place.



The stanchions for bolster wagon No 1 were made from two sizes of tube and a bit of wire. Those for No. 10 being just plain wire with a tiny loop soldered on for the load securing chains.



A couple of bits of lead sheet were added and the roof glued into place. This was made from a single sheet of scored 20thou plastic without cut outs for the roof hatches. The latter were simply stuck on top later being made from 5thou nickel silver supported on 1mm square strips of plastic.

The actual colour used by the A(N&SW)D&R is uncertain but I have seen it mentioned as dark red-brown, so I painted a bit of scrap with patches of all the browns I had in stock and asked my wife to pick one that she thought could be described this way. Now things got sticky! The Precision paint chosen is simply not drying at the rate I would expect. Two days after painting the first coat it is still a bit tacky! I wish I'd used an acrylic.

The end ladders for the van were made from L section brass with rungs soldered on – it would have been better to drill holes for them but I was running out of time and I doubted my ability to drill 40 properly spaced holes. When fitting them it became clear that I must have mis-measured, or wrongly estimated, something as the spacing & positioning couldn't match the photo.



The van underframe was built up from plastic sheet and 2mm brass I section beams, this fits inside the van body and can be removed to give access to the rear of the buffers and draw gear in case these need maintenance in future.

Lettering was applied using the transfer I'd had made – good job I'd duplicated many items as I ruined quite a few! I made two major blunders with the large lettering for the van. I'd tried to be clever and had everything for a side laid out to go on in a single application – while lining up one bit the middle touched down and with these transfers, once they are down they can't be moved. So on one side the lettering is offset a bit to the left from where it should be. Then I messed up the large lettering for the other side, and this was the one bit for which I had not made a spare! So I printed the lettering, reversed, on the back of a blank waterslide transfer sheet, held it up to the light and drew the lettering with ink using bow and mapping pens. This really did not work very well, being far inferior to the printed transfer in appearance, and then not settling into the planking despite my using Decalcote, so I cut and scraped away as much film between the letters as I could. This did nothing for the paint finish! Then just to make matters even worse, the varnish put on top of the transfers managed to cause some of the paint to bleed over the lettering – despite the van having been painted two days previously, it would appear that the paint had still not completely dried. Lesson here is not to leave things till the last minute – if it had not been for Scaleforum being just three days away I would have stripped the paint off and started from scratch again.



Well, it's now tea time on Thursday before Scaleforum and the last, hopefully, of the paint touch-ups have been done and the last little bits of varnish applied. Just the weathering to do now!