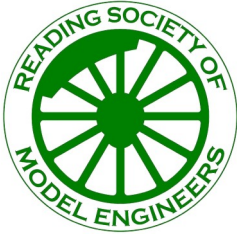


Reading Society of Model
Engineers
www.prospectpark
railway.co.uk

Charity Number 1163244

The Prospectus

December 2020



President

Les Dawson

0118 969 4654

Trustees Chair

John Billard

01189 340381

07834 998971

Secretary

Peter Harrison

07920 833546

Editor

John Billard

john@jegbillard

plus.com



GWSR PRESENTATION see page 10
MERRY MODELS
WHITE METAL
BATTERY LOCO COMPLETE
ANALYTICA

Free to members

A VIEW FROM THE CHAIR

by John Billard

“Here we go again” as the saying goes. With the lockdown until December 2nd (and we are heading for Tier 2) the trustees decided to tell members not to attend the site for that current duration apart for the few doing particular work inside the club house and according to government rules. These rules do allow certain other activities for charitable purposes but we decided that a clear instruction was best to protect the health of members, many of who would be particularly vulnerable. We will keep this under review to see what might be possible with the Tier 2 rules.

Some high ranking people are advising that we will be back to normal by the spring—well, maybe. Fortunately RSME is well placed to return to its usual activities very quickly when circumstances permit.

On that basis I have to report that there has been something like a 50 per cent reduction in the number of members renewing their subs from April 2020. This may be understandable but I hope that those who have been working so hard at the club to make it presentable will be rewarded by our numbers returning to normal levels as soon as possible. And we are still doing things for them—see page 10.

A MERRY MODEL MESSAGE AT CHRISTMAS

from David and Lily Scott

Or, how a Christmas tree should be decorated in model households!

It was during another struggle with building an extension to the workshop that I came up with the alternative Christmas tree decorations. The extension is leaving the original structure in place with its window and being attached on the end. Then one evening as the darkness enveloped the site and a sight of several shiny dome castings within the lit interior, cast the idea for late November. That lot would look just so lovely decorating a tree!

My next session in the workshop began a collection of willing participants. Their requirements being bright and shiny. Preferably RED. And other bright colours. Well wheels for a start as when I am almost finished, I spray them with filler primer yellow to show up bits missed and as a lovely way of saying another done Then hanging many hours of work on the wall as a reminder.

They would look so lovely hung upon a tree.

But castings are heavy and build them from several dusty boxes Christmas trees are light flimsy beasts at the best of times. Being a model engineer a solution was thought through of course. The same went for the bells... so sorry, steam domes. I will leave my solution as a ponder. Answers upon the next Wednesday that we can continue our work on the site!

Christmas trees are not in use every week. The upper branches had not been found. All work on the extension stopped... Well, it was raining and after two hours the box was found sulking at the back. You have enough room in your

loft to move boxes into a looked through section? Wow. A tip for next month is to wire the lights in as you go and not to wait for the Second FIX!

The Second Fix this time was to install the heavy mob. Garden wire to the rescue. Go and find garden wire in November? In a workshop stuffed with too many lathes and bits done. Sods and odds drawer came up trumps. Nutty idea but it is nice having a part of the workshop where everything ends up. The floor he jokes.



More seriously, last week I won on Cro Fittings. How many Locomotives are there hiding in his workshop competition. 10% off a next order on Facebook. I have a List! I just bought more castings for the latest RE design of the rarest of locomotive models built.

Now just how many locomotives can anyone find hiding on the tree and floor? The Jinty dome starts the list as it is giving the game away with its name on the side. Plus as the 4' 7 1/2" wheel is from my own design, builds up into a Small Prairie Tank 4500 from works drawings. There is your starters. They also fitted this style to panniers. Martin Evans Firefly was designed to be an IMLEC winner and a slogger on the track. Not a to scale model with a more demanding scale boiler. His boiler takes the Speedy one to the next level the original with thermic syphons within the firebox. All the other bits are from commercial models available from various suppliers. Have fun.



Just off to make a list of them myself as it has been a rush over the last hour to make the deadline of the 18th. Plus how to light a dark green bush with twinkling lights that worked first time out of the box that turned up first.

Merry Christmas.
David and Lily.

An Update from Gramps Shed

by John Spokes

White Metal Casting – or should that be “Cursing”?

Many years ago, I bought a 5” Winson Britannia - one of their second batch. As I got more familiar with live steam, I increasingly began to understand some of the poor design aspects and the unwise selection of materials and it languishes, part-complete, and most likely will stay that way. I am no rivet-counter, but in the early days I also bought several items, mainly from Doug Hewson, which were intended to add detail and some quality to the basic Winson product. Included in these were Timken axle box covers, made most probably by white metal injection-moulding, and I was recently inspired to make something similar for the NORD bogies I am working on.

I note from the outset that the very clever part in this exercise was the making of the original axlebox cover male pattern, in brass, which was engraved by John Marrington, based on a dimensioned photo I took at the Mulhouse Railway Museum in France.

I bought from Alec Tiranti in Thatcham a white metal starter kit and a thermostatically controlled melting pot. Apparently melting can be done on an oven hob, but I soon discovered that good temperature control is important, and a cooker is no way to success. The manager at Tiranti informed me that I would need a lot of patience and probably lose my temper a few times. He may have a shorter fuse than me – my cat was never threatened, but the whole process has been a frustrating path of trial and error. I should add that Tiranti’s instruction booklet on the subject is like a swiss cheese, full of holes!

I began by making a silicon rubber mould using John’s engraving. The pouring rubber is a two-part product – rubber plus setting catalyst – and surprisingly, this was a relatively simple and successful operation. Photo *right* shows the mould box containing the brass engraving and the resulting rubber mould. **This early success led me to a very false sense of confidence.**

The axle box covers are relatively thin section – about 50 thou – and this represents the biggest challenge. Two main criteria apply to a successful product. Firstly, good definition of the lettering and secondly, a blem-



ish free flat surface. The first was quite easy to achieve, but not so the second. Initially, I originally made an open mould, but the surface tension of white metal (as people who solder will know) is high and the surface “bubbled up” making for a metal section over twice the required thickness. I could solve this by scraping away excess metal, as it began to solidify, and although I achieved a thin section and good letter definition, getting a smooth moulded surface was exceedingly difficult. The surface of the moulded item suffered from blemishes caused by small flat bubbles, probably derived from trapped air.

I then decided to try a split mould, which gave a significantly improved product. Off and on, over a period of about 4 weeks I experimented with this using various combinations of mould pre-heat temperatures and metal melt temperatures and, together with other little *important* tweaks, achieved a success rate of about 75%,

and in total made 20 good covers. (I require 16 in total.) Photo *left* shows the split mould and the typical cast product, Photo *below* shows the completed cover, with fixing bolts.

So, in the course of this tedious learning curve, I developed a few White Metal Manufacturing Trade Secrets. It was



through similar Trade Secrets that 18th century entrepreneurs, such as Abraham Darby I, who developed the first large scale production of pig iron and Josiah Wedgwood, who experimented with ornamental glazes for pottery, made their fortunes. Unfortunately, however, I see no great market for white metal axle box covers and will continue to pin my hopes on the National Lottery.



Building my Gemeinder HF 130C Battery Loco—Part 2 by Mark Kirton

Chassis

It was a baking hot August day when I set about cutting my fresh 5mm mild steel plates with eagerness! Using an angle grinder, jig saw and electric file I was able to cut out the frames and buffer plates in a weekend. Hours of hand filing and drilling holes with a cordless drill followed. Oh how I longed for my old milling machine and pillar drill!



I knew from past experience with ‘Speedy’ that the axle boxes and horn blocks would be an issue. I’d remembered using some bearings in cast iron blocks called ‘take up bearings’ many years ago when building a conveyor belt and realised I could chop off the top and use these as axle boxes. Sliding in tool steel strips screwed to the frames, this might just save me the work of making axle boxes. (I’ve since seen others have adopted this principle). I asked a friend with a lathe to cut and thread seven 12mm bars to act as frame spreaders and turn up some axles for my eBay wheels. I soon had a chassis that looked like a loco. Things were going well. I then set about making the cranks/counterbalance weights. Cutting and shaping these from 12mm plate was no fun and

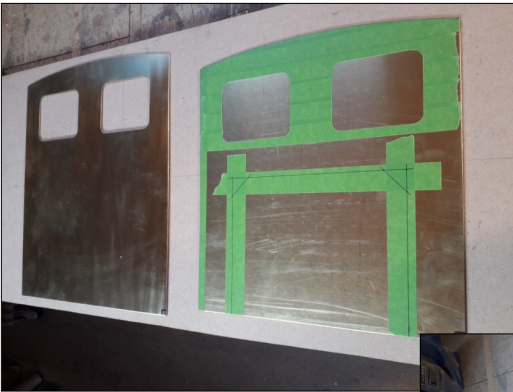
although I made a full set it was clear they were not accurate enough and would cause me no end of trouble with the quartering later.

At this point I contacted Model Engineers Laser in Doncaster. I did some hand drawn drawings of the cranks and the connecting rods and handed it over to them to produce a set. Of course, these items still needed some machining. Reamed holes for the crank pin bearings and gudgeon pins. The cranks needed to be matched to the axle stubs and holes needed to be drilled and tapped for 6mm grub screws. The cast wheels I found on eBay also needed to be profiled. I also needed eight crank pins made. I clearly was not able to do this in my limited workshop. Nigel Penford kindly put me in touch with

Alan Thatcher at this point. (I wasn't an RSME member at this time). Not only did Alan do a first class job of the machining, he did it in super quick time! When it came to doing the quartering, Alan was a great help as I was about to throw the whole thing in the river such was the frustration in setting it up. After a day with Alan, it was all set up and just about running smoothly. I still needed to file and shim three of the horns. Fortunately each one needed a different thickness shim so I simply cut the required feeler off my feeler gauge and left them in situ. Job done!

Brass work

By now it was Christmas 2018 and my Christmas present to myself was a good supply of brass sheet, a small pillar drill and two weeks holiday to do nothing but make the cab and hopefully the engine cover. I'd spent a few weeks looking at the photos and counting rivets. I'd done the drawings and so on boxing day I made a start. I think that was the best Christmas I've had in years! Using a part fitted out narrow boat



as my workshop with an oil filled radiator and a halogen flood light was not ideal but all I had. My work bench was a sheet of flooring chipboard screwed to a pair of carpenters trestles. Fortunately, I had a small bandsaw and a 10 inch diameter bench sander in storage so together with an engineers vice and my new pillar drill, I now had a temporary model engineering workshop. If only for a couple of weeks.



I opted for brass over steel for the cab as it always seems 'quieter' to work with when filing. I'm not sure if this really is the case. I also just prefer to work with brass. I was expecting to do more soldering than I actually ended up doing and I like the look of a brass model. Using steel would have been at least a quarter of the price however.

The cab and engine cover parts were cut from 1.5mm brass riveted onto 12x12x3mm brass angle. The cab roof and the engine cover side panels were

1mm brass. I had Model Engineers Laser cut the four cab window trim surrounds, four engine side panel surrounds and a pair of oval makers plates from 1mm brass. I have yet to come up with a satisfactory way of making the diamond side panels. Any ideas?

I soon had a set of cab parts and so set about drilling all the 1.8mm holes for the rivets. I was very surprised just how strong and rigid the cab assembly was once riveted together. I was thinking I would need to soft solder the four cab corners for additional rigidity but this proved not to be necessary. The cab roof was soldered to profiled cross plates. The radiator louvres were soldered to a brass frame to form a ladder and then soldered into the radiator housing. As the electronic speed controller would be located where the radiator would be on the real thing, I decided to solder this area in addition to the rivets so as to make it as water as tight as possible. Of course this also added rigidity to quite a big, heavy assembly.

The cab and engine cover are two separate parts. The cab slides backwards to remove it and the engine cover slides forward. Two knurled nuts inside the cab hold the two parts together as well as location clips at the front of the cab. In front of the cab are two lockers. These originally housed two cable hand winches. On my loco the right hand one is a dummy but the left hand one has a removeable door for access to the main 25 amp DC rated circuit breaker. On top of the engine cover is a full length engine hatch (non opening), an exhaust operated whistle (kindly turned up for me by Alan Thatcher) and the exhaust pipe. The whistle and exhaust pipe could be found on either side of the real locos depending on the type of engine fitted. Most often a Deutz 130PS four stroke four cylinder unit. The bell on the cab front came from a washing machine timer module and was exactly the right diameter! The head lights were made from brass tube and soldered to brass plate. LEDs from 24 volt lorry marker lights were removed from their rubber housings and fitted into the brass lights. 3 mm clear Perspex sheet was cut and pressed into the front for the lenses and holds the LEDs in place.

Electrical

The motor is 24V 1HP made by Movimotor. I gather they are used in lift door mechanisms amongst other things. Drive is through two 20mm steel reinforced toothed timing belts. The pulleys are aluminium 5mm pitch. This makes the drive very smooth and quiet. The motor is geared down 6:1 via an intermediate shaft and driving the 'Jack' shaft under the cab and thence through the connecting rods. It was important to me that the drive was as per the original rather than the current popular way of mounting motors on each wheel set – connecting rods then becoming just 'dummy' rods. Easier to do but not my thing. The motor/gear shaft assembly is contained in it's own aluminium cradle. This makes for (fairly) easy removal of the motor assembly. The speed controller is a cheap £25.00 100A PWM controller from eBay. I bought this just to try out the motor but it has proved to be more than up to

the job. I had planned to replace it once the loco was up and running but I will be sticking with it. I made a remote hand held control box with a combined volt meter and ammeter. £7.00 from eBay. I was concerned that a major short circuit or water in the speed controller could result in a run-away loco. At 80kgs this could do some serious damage so I've included a 70A 'dead mans' relay operated by pressing a button on the control box. Power is provided by my two Lucas 12V, 55Ah VRLA batteries. They provide enough power for three days heavy running.

Still to do

I'm still undecided as to paint the loco or not. I do like the tarnished brass look but I may just paint it in Deutsche BundesBahn red. Two of these locos were painted this colour on the Rügenschke Kleinbahn in the 70s. I'm in the process of making an electronic whistle sound effect but not happy with the sound at the moment. I plan to make at least three wagons – one being a riding truck. I've also made a start on a freelance version of this loco. I like the idea of double heading!

Finally, my HF130C will have been running for one year in May. It's covered just under 200 miles in this time. I've visited four different tracks with it and joined RSME and NWMES. I've met some really great people along the way and realized a lifetimes dream. It's not a steam loco as I'd originally intended but that's OK. I sent the director of the Frankfurter Feldebahn Museum a photo of my finished loco recently. He sent me a copy of the original 1937 works G.A. drawing. I'm so grateful to him... if only he'd done that at the



CLUB EVENT THURSDAY 10 DECEMBER AT 8 PM

The Gloucester and Warwickshire Steam Railway

Not at the club house but in your own home. Peter Jennings has arranged with RSME to give a live Zoom presentation, for members, on the GWSR and will include an inside story of Merchant Navy Pacific 35006 from the prospect of a volunteer on this engine.

To take part at eight o'clock on 10 December use the link

[https://zoom.us/j/94119793654?
pwd=ZnhOWSs0SzAvdTQyaHEXU2JZODRKUT09](https://zoom.us/j/94119793654?pwd=ZnhOWSs0SzAvdTQyaHEXU2JZODRKUT09)

Peter says that the event will ask a couple of hours. Being live with Peter means that there will be an opportunity to ask questions. Peter Harrison will be emailing the link to members to make this connection easier.

Editor

ANALYTICA

Where WP looks at some pictures taken by the editor



Class 9F 92056 at Northwick Park hauling Stonebridge Park Power Station empties back to a Nottinghamshire colliery circa 1966

The London and North Western Railway embarked on a scheme to electrify the Euston to Willesden and Wembley suburban lines from 1909. Electric

services at 650v were introduced between Euston and Watford, Watford and Croxley Green and Broad Street to Richmond in 1914. The Bakerloo line services to Watford via Queen's Park joined them in 1915.

Stonebridge Park power station supplied the power and the coal for this undertaking came from Shipley Colliery in Nottinghamshire. The trains ran via Toton, Market Harborough and Northampton onto the West Coast Main Line. An early photograph on line, taken in 1937 shows the train in the hands of a G2 0-8-0 piloting an 8F 2-8-0. Thirty new vacuum braked, 40 ton, self, bottom discharge bogie wagons were introduced in 1929 and were used throughout until the power station was closed on 30th July 1967. The forerunner of Merry Go Round coal wagons. The trains were normally of 10 wagons and ran three times a week (1,500 tons). The power station supplied electricity to not only the dc lines but all the LMS premises in London including Euston House (HQ) Euston Station, St Pancras Station, Somers Town Goods Yard, Willesden Hotel Laundry, Willesden and Camden MPDs, Bushey Troughs water softening plant, signal boxes and colour light signals.

The resultant ash from the power station was distributed round the system for use by the Civil Engineer.

During the war all the buildings, chimneys and cooling tower were painted in camouflage colours to look like the surrounding fields from the air! They were left like this until the end.

The 9F in John's picture, is 92056 and John thinks the picture was taken in 1966 due to the presence of the overhead lines and run down condition the loco. Interestingly the loco was allocated as follows around then

4 W/E 16.5.64 transferred from 16J Rowsley to 16E Kirby in Ashfield.

4 W/E 31.10.64 transferred to 9D Newton Heath Manchester.

2 W/E 13.8.66 transferred to 12A Carlisle Kingmoor .

Withdrawn from Carlisle Kingmoor in November 1967 and scrapped at Motherwell, Machinery and Scrap Co. Wishaw, North Lanarkshire.

So it is likely it was a Carlisle engine at the time. I hardly think this was a Carlisle Kingmoor diagram it was probably being worked back north after coming south in an unbalanced diagram! I haven't been able to discover if it was ever diesel worked. Probably not.

The Editor asks:-

Why not write for Prospectus? Everyone has a story to tell!

Ideally written work and photos should be separated from an e mail text and sent as separate files. I can cope with alternatives but it takes a bit more time to get it right.

I will accept letters in the post and (legible) hand written material.

DIARY

December

Thursday 10th GWSR Zoom presentation 20.00
by Peter Jennings

**Comments by RSME members on any subject appearing in
Prospectus are welcomed by the editor.**

Opinions expressed in PROSPECTUS are the personal views of the contributor and cannot be taken as reflecting the views of the trustees or editor.

The deadline for the January issue is 18 December. This is the final date.

Contributions may be submitted in hard or soft copy to the editor.
John Billard Old Station House Twyford Reading RG10 9NA
01189 340381 or 07834 998971