

Reading Society of Model  
Engineers  
www.prospectpark  
railway.co.uk  
Charity Number 1163244

# The Prospectus

February 2019



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Free to members



John Spokes approaches the level crossing during RSME public running on 3 February 2019. Photo J Billard

**DAWSON'S DIARY**  
**CHAIRING SAFETY STANDARDS**  
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**THE END OF THE BR WESTERNS**

# DAWSON'S DIARY

## kept by the President

First day of 2019 steam up for the members was really well supported. Many came to have their first run of the New Year. I believe that there were nine engines running most of the time a good start for the year.

2019 was so very busy on the first public running Sunday of the year. It was good that we had plenty of motive power on both tracks. Alf once again did a good job as track manager; the members did a really good job of dealing with the many people at the stations. The car parking worked well this time. It seemed that most of the time cars came in but did not stay too long so the incoming ones were balanced by the outgoing ones. The members had to be on the mark at the level crossing at times with so many trains running. Well done those members who sort out the parking each month!

Jackie coped well in the club house and some of the members helped with the washing up etc. With a full house each day still found time to keep the station staff supplied with tea.

You all made it a good day for the public and the RSME.

## PONDERINGS

### by 61249

#### **AEA Technology Rail**

The EU will miss us! This was the way my item ended last month. I am not a journalist, or a politician, so I can tell you exactly how it is and what the numbers tell us. ***We are very good at railways here in the UK.*** Our safety performance is the easiest to demonstrate this, and what is more important than safety I ask? I am sure regular readers of this column will know this simple yet not often stated fact, that the overall risk level of being killed or injured working or travelling on the railway in the UK is some 18 (yes 18) times better than in France or Germany. (Source RSSB Performance Report 2017/8). For those who read the newspapers it may be as surprising that our reliability and cancellation performance is better than Germany, the source here is the (German) head of DB Cargo in the UK, and he should know! European stats also show that apart from the fares level (set by the government to reflect that as much as the cost should rest on the users), passengers in the UK are warmer in their support of the railway than those in Germany France and Italy, where as we know, the fares are a fraction of those here. (This is of course true for some fares, like late booking turn up and go at peak times, but generally it is another myth peddled by special interest groups).

Just to test this I broke off from writing this to pop on to the internet and see. Virgin are offering £24 for a single Euston to Manchester two weeks in ad-

vance, quite a few trains in the day (2/hour?). There are four flights shown on a comparison site for the same day, City airport to Manchester, £153. QED. Usually at this point in the argument someone will say how complicated the UK fares system is and it puts people off. Different prices on the internet do not seem to put off folk from buying televisions or holidays, so why this applies to rail I just don't know. If anyone can square the conflicts between having flexibility to fill up empty trains at a cheap price and not have everyone packed into the 17.03 from Euston at a standard rate then they should be in charge of BREXIT. If you like a real person to tell you, pop down to the station and ask!

Enough of my rant for the month, and back to experience in our railway system at the turn of the century. We were of course, newly privatised and finding our feet in a commercial world. Some took this to extremes, and Railtrack for example, famously had the share price that day on a screen when you entered the building. For the company that should have the longest time horizon of all as the part of the system looking after the (permanent?) way this did seem a bit bizarre, but even then, today's performance and safe running were very important to the business.

For many of us, the early experience was full of setting out a separate and new identity for our companies which had for some been bought with personal money, second mortgages and the like. This involved everything that separated us from others, logos, branding, mission, values etc. This process was bound to throw up barriers and emphasise differences. Fortunately, around this time some mature souls recognised this and supported those organisations and facilities in the system that provided the places where the industry could work together. At the time Railtrack had a committee which brought together the industry on standards issues. I was asked to chair it and was delighted to do so. It played an important part in helping the industry through some of the difficulties left by the silos in BR management, including for example, the fact that trains with shiny new AC traction motors could not meet the demands of our signalling friends, and were therefore parked in sidings. Why? Because there had been inadequate discussion between the train and signalling tribes ever since Clapham if not before.

The railway based professional Engineering and other Institutions play an important role in providing a forum for technical and operating discussion in a non-commercial environment where the risks are low and lots of things can be said that are not welcome in the office. Any young reader involved in the industry I would urge to join at least one of them, if not more than one. The Institution of Mechanical Engineers, the Institution of Railway Signalling Engineers, the Institution of Railway Operators, and the Permanent Way Institute lead the way in meetings, conferences, and training for the industry in a way that joins up, not separates.

The changes recommended in safety management gave rise to two im-

portant bodies that have had a huge positive impact on the railway and both are where the industry comes together. The first of these is the Railway Accident Investigation Branch. Set up by Carolyn Griffiths as its first leader after Ladbroke Grove it is the independent investigator of accidents and incidents. Its remit covers near misses, and it has a clear protocol with the Railway Inspectorate and the Police, both of which bodies do have an interest in some accidents. Its inspectors are drawn from across the industry and trained to a high common standard, so the industry has found it easy to support its operation, and its findings. Its authority has grown and it is a force for safety good.

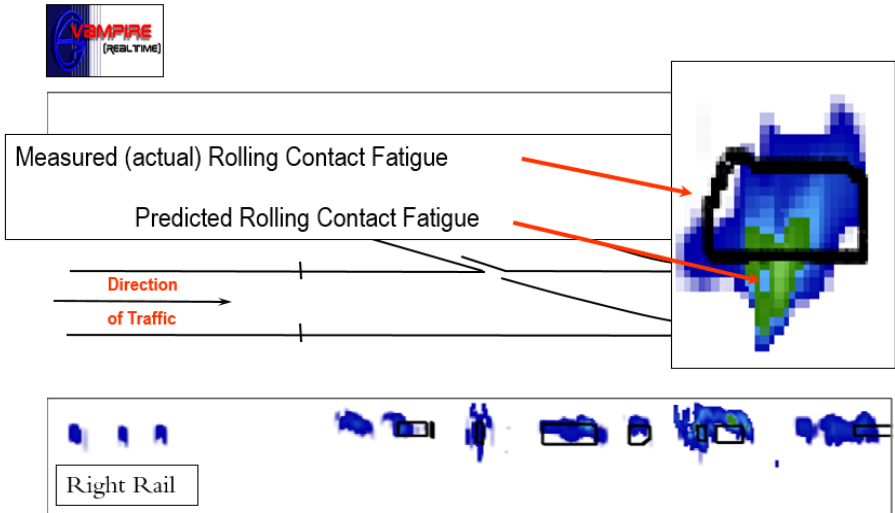
The second is the Railway Safety and Standards Board (RSSB). I was in the room when it was invented and remain a great supporter of it. It is where the industry cooperates to get its act together on safety, anyone, company or individual in the industry can join RSSB. It operates as a focus for discussion, and research, and is supported by a number of committees each focussing on an important safety issue, such as trespass, signals passed at danger or level crossings. In addition there are committees on various aspects of standards, and on important interfaces such as Wheel/Rail. Each of these produces an industry wide view of the relevant interface or standard leading to understanding and common management approaches. For example, the Wheel/Rail Interface committee has sponsored research into Rolling Contact Fatigue that was delivered by AEA Technology (BR Research in the private sector) and makes us know more about this phenomenon than most if not all of the world. Real cross - industry co-operation underpinned by commercial realism beats silos in big nationalised railways every time.

One output of this research is shown on the next page. Using the “Vampire” dynamic modelling tool and the understanding that RCF is basically a function of the energy dissipated between the two surfaces, a picture was developed of the theoretical incidence of RCF on a set of points on the main line at Ruscombe, between Maidenhead and Twyford. The model used knowledge of all the traffic and vehicle types using the railway as well as the detail of the track geometry. The modelling produced a map of expected RCF for each rail, shown as the bobs of colour. When examined on site, the black outlines show where RCF was actually present in the rail, and the very close correlation between the prediction and the actual was immensely reassuring – proving we now understand the problem. This was solved by using the best brains in the world, industry co-operation, European research grants and the best cross industry relationships. A powerful mix!

The standards committee in Railtrack morphed into the Standards part pf RSSB seamlessly, continuing under its excellent chair. (Editor please excuse the self-promotion, but I am proud of what has been achieved since). These groups which have drawn the best brains and experience into the same room, have put into debate on European standards not only the special circumstanc-

es of the UK – loading gauge, traffic mix, platforms etc., but also have injected business common sense into a situation where Europe might have otherwise seen a war between the French and the Germans dedicated to preserve their borders and their national approach. This would have resulted in technical standards driven more by politics and history than working together to get trains moving across Europe in an efficient fashion (The average speed of a freight train in Europe at the time was about 10 mph due to all the borders, yards, crew and loco changes, not sure what it is now).

So the UK approach, far from being fragmented, has been brought together



## Car Park – Vehicle Speeds Installation of Speed Humps Advance Warning

The hazards caused by vehicle drivers exceeding the 5mph speed limit include the risks of a collision with a train at the crossing and with pedestrians, particularly children, in the car park.

Signage has been provided at the crossing, but both members and visitors have been observed exceeding the limit by a significant margin, sometimes evidenced by tyre tracks left across the car park.

To reduce vehicle speeds the trustees have agreed to the installation of 5mph speed humps on the Bath Road side of the level crossing.

Notice will be given when the installation is planned, and new signage will be provided.

# ANALYTICS

Where WP looks at some old photos taken by the editor.

(If any RSME member would like a similar period photo examined for publication please contact the editor)



## Platform 8 at Paddington 1972

Class 52 1053 has the raised letter 'D' prefix painted out. It is "Western Patriarch" built at Crewe in February 1963 and sent new to Old Oak Common. It was withdrawn from Laira Plymouth in December 1976 and cut up at Swindon in June 1977.

It carries the head code 1A49, which in the May 1970 to May 1971 timetable was the 14.15 Worcester to Paddington. These services were still formed of vacuum braked stock in the early 1970s and the leading vehicle looks like a brake composite (BCK) of which the Western Region had a reasonable number. The Worcester services usually had the brake vehicle in the middle for ease of loading/unloading mails at the stations on the line from Oxford to Worcester. It could of course be an extra vehicle being moved up to London from Worcester. Unlikely if it is the 14.15 from Worcester due at Paddington at 16.40 to form the 17.15 back to Hereford. Paddington station would not countenance shunting a vehicle out in the teeth of the rush hour!



**The end of the  
BR Westerns**



### **Cox Green near Maidenhead 26<sup>th</sup> February 1977**

This caption is easily identified by the headboard on the leading class 52. It is The “Western Tribute” special train and the last use of Western Class 52 locomotives on the main line at the end of their distinguished career.

The train consists of 12 vacuum braked Mark 1 coaches, hauled by D1023 Western Fusilier leading and D1013 Western Ranger. The train departed from Paddington at 09.10, passed Maidenhead at 09/31, shortly after which John took the photographs. It ran to Swansea where the locos ran round and it continued via Bristol to Plymouth, returning from there via Bristol back to Paddington. According to the “Six Bells Junction” website of special workings, two more Westerns nos. D1010 Western Campaigner and D1048 Western Lady, followed the special as far as Bristol and stabled at Bath Road depot .

They then followed the train back to Paddington on its return, as an insurance against failure of either of the other two! Can you imagine doing that today!

# HEAVY METAL 3

by David Scott

Strangely there are many existing Milling Machines that do have adjustable stops on the table but nothing on the saddle? Yes, most of our milling is lengthways but as Model Engineers we do have a tenancy to do square or rectangular pockets and in the case of coupling and connecting rods depth stops of cut in the two dimensions flat. Then slide valves require stops in all directions! Then you need four holes for bolts in several plates! So do one setting your stops, then all the others come out the same! Then you need to Flute all your various rods to depth and length with them upright!

Photo 1 shows the Dore Westbury fitted with one which has so paid for the time taken in making it over the years. In fact it does need to be longer at 9 inches instead of 8 or make the pointer an L shape! The great advantage of someone doing one first and upon completion writing out a list of improvements! Bad Joke. 20 people build a popular Locomotive and the greeting upon coming across an owner is “Does your ash-pan snag every time you try and remove or put it back?”

Myself many spring buckles produced the hard way before a click of mouse made them via water jet cutting or lost wax! He dreams! Valves once set, your second comes out perfectly as well as to size. Many of us preferring to produce the old way and taking pride in what we are doing! “Yes I made it all Myself! From the SOLID!”

Photo 2 shows our first ever milling of the two ½ inch square bars of mild steel to enable a T slot block to fit behind once these are bolted to the base. I am doing it this way so that the stops themselves are not too long having the saddle clamp to miss as we traverse.

This will be fitted to the right-hand side and using the same size Allen screws as the ones on the front. TWO different sizes to adjust the stops and I would give up! 2 different size keys to loose instead of one? Yes, buy a packet of ten keys and in a months time the last one goes missing! They are in league with the spanners off the angle grinders and have a favourite place to hang out!

As with the on and off buttons on all your machinery. Having them in the same places relative to the body does help guide hands to the STOP QUICKLY BUTTON if needed. Have you ever wondered why the riding trolley handbrakes are on the left hand side? Yes exactly the same as on our cars! Some clubs have them on the right!

The Dore Westbury now has a matching Heavy Metal, yellow switch box fixed on the left hand side of course! Yes, us who are old enough do remember the joke about turning right with the windscreen washers instead of indicators? Yes, the car makers got together and thrashed out which side they



should be eventually! And even more alarming discovered upon a visit to Alvis in Coventry as a Student of Design. That they put the gas pedal where many other car makers were now putting the BRAKE?

Square filler hole and filler hose for diesel cars. And round hole for petrol cars during their last few years of production please? Shame Put the company that advertises to rid your petrol car of diesel if you have mistaken? Just look at the price! Never happen as it is now too late! Diesel being banned? This was once a waste product from the many levels of refined oil and where or what do we do with IT not being used in huge stockpiles as it once was!

In the future are all electric cars and vans going to be the same voltage? And the same plugs? The supermarkets had better get in some huge battery recycling bins when we all get converted!

Yes on the Mill, we have had our first problem with the rear rubber swarf guard snagging resulting in an internet search for a replacement. This came from Arc Euro Trade who have several sizes. I teasing Lily (That the package was a Pleated Skirt for Summer, short as it is these days!)

Back to the Stops.

I did all the parts for a lifting cover on the older mill but never got round to assembling properly from our last move. Right, angles both sides drilled and screwed to the plywood base. A plate fitted to the front to stop the cover dropping past, and two holes for a pivot at the back get drilled. We cheat and use a painted ready-made plate for joining timber for benches together.

Now the angle catches the motor in the middle? Nothing is simple.

The angles get milled over on the big mill and painted while off.

This gets bolted in place once dry and works superbly.

Now the roof of the workshop could be higher! Bother the planning regulations and me building close to a neighbour's fence! In fact the rear wall became our new fence. I should have dug two inches down lower but its two tons to shift through the garden and utility room and garage! Four inches and its four tons just for extra lift on a cover for a taller ceiling? I can live with it as is! The summer-house and workshop are now on the council's Latest map so they know about it and could come and do a measure! 2.5 metres high maximum. Plus space all round for building and maintenance.

Pull all the Stops out to get it finished!

Not everyone has welding facilities so all parts are drawn out so they can be bolted together and bolted onto the base and saddle. For the pointer we can utilise the M6 hole used for the second saddle LOCK. The front one is easier to reach and sufficient. A piece of 3/4" square steel has a wide slot milled at an angle in the middle. Mark this from the mill. I did it onto my favourite stuck on white label for a 1" by 1/4" piece with a tight fit. Fit this together and drill two holes for fixing bolts still in the vice. Remove and drill a clearance hole on the left and a tapping one on the right. (5 mm Drill.) Taking measurements from the existing hole. Bolt in place, level and drill the tapping hole through into the saddle. Re-

move and tap the hole M6. Clearance hole in the pointer block. (Or drill the clearance hole, bolt back, and use the hole to keep the tap square).

The tee slotted parts can be drilled and tapped into the bottom square through the spacers.

I spent some time getting the hole in the middle and then used this as a guide for the others. Also for the four fixing to the base holes use tapping sizes first. Assemble and tighten. Two long bolts.

Hold this frame in place, drill one hole. Tap. Drill a clearance hole in the frame and bolt in place. Make sure it is level and drill the other three holes. Tap these. Remove the frame and do three clearance drilled holes. Get or make two Tee Nuts. (Myford ones are good but cheaper to make your own). Now mounting the frame on washers, slide in the 2 Tee Nuts and bolt up. The simple turned stops can be fitted and we are away!

Strangely the first job is to mill the tops of some frames level but even with the longest travel of any Mill in this size I have to move them over and continue. So mill several passes full length. Fix the new stop from the front. Fix two table stops\* against the milled frame 1 foot apart. Move the table away and slide the frames up. Mill in steps up to the stop. Repeat again until you reach the end.

A visitor asks "What are the two little doors for either end of your shed?" These are just in case I ever get tempted to build a 7 1/4" Britannia or 9F using current facilities!

In fact the Tiverton and District shed has these for rail drilling jigs. It is possible to calculate the distance apart of holes for studding radiating in a fan shape for each rail. Including transition curves. You may have guessed the guy working all this out retired from Farnborough from a life with aircraft... Yes of course he was the President.

\*These table stops have stopped in place and have had several parts shoved up against them over the last week. And this week.

The long frames being for a super scale Speedy which from top and bottom has some metal to come off. 5/16" in total. So mill to the very bottom. Then using all four stops set to mill the curved cut outs between the wheels. All can be done on one setting back to front! Also a good test to see if anything moves and of course access to everything.

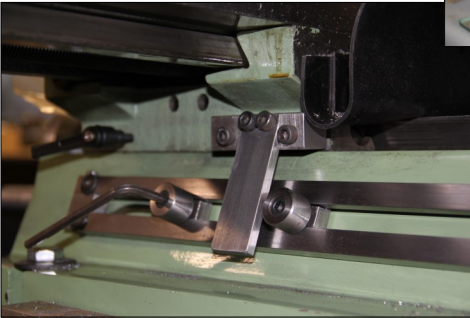
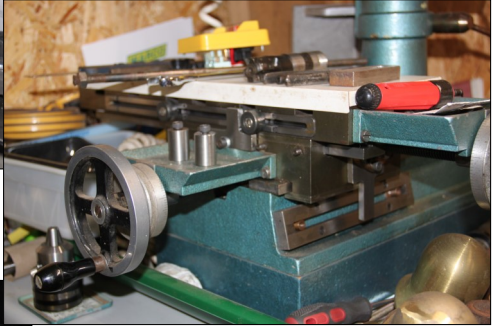
These pieces of metal once reserved for a Large Prairie Tank 51XX Frames. Got me pondering about the size decided for Speedy? Could it be that they had a pile of 20 of these sheets surplus in Swindon! And with this size in mind, fitted everything in! JUST! The cab is super cramped and up by the cylinders everything just about fits! It all could have been so much longer?

Didcot choosing several slim crews to enjoy blasts up and down the main running track when she visited. In fact coupled together with their 41XX Large Prairie Tank just painted. Outside valve gear winning over the getting inside to oil eccentrics and various links! But getting a far simpler loco-

tive. Something similar to the 51XX in terms of power? I will check! Or was it a slip of the pen 15XX?

SO Speedy. 22,515 Tractive effort. 4 Freight 70 Meter radius. Red Axle loading. Simple model. 6 Sheets.

Large Prairie. 27,340 Tractive Effort. 4 Mixed. 120 Meter radius. Blue Axle loading. Complex model. 13 Sheets.



All photos courtesy  
David Scott

## DIARY

### February 2019

Sunday	3 <sup>rd</sup>	Public Running	13:00 to 16:00
Saturday	9 <sup>th</sup>	Club Running	11:00 onwards
Monday	11 <sup>th</sup>	Trustees Meeting	19:30
Monday	18 <sup>th</sup>	Special Needs	13:30 to 16:00
Friday	22 <sup>nd</sup>	Young Engineers	18:00
Saturday	23 <sup>rd</sup>	Young Engineers and club running	11:00

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

**The deadline for the March issue is 18 February. This is the final date.**

Contributions may be submitted in hard or soft copy to the editor.

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