

Reading Society of Model
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www.prospectpark
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Charity Number 1163244

The Prospectus

July 2018



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Free to members



Mike Manners (left) assists Nigel Penford as he prepares his Baldwin No 5 HELEN for the road at the RSME ground level steaming bay. Photo John Billard

DAWSON'S DIARY
A GOOD WEEK TO GET THE SACK
FRICTION
PROJECT NEWS
STOKE ROW PICTURES

DAWSON'S DIARY

kept by the President

June public running was so well supported by the members with plenty of motive power to keep the trains on the move. On top of that it was nice and sunny and a steady flow of visitors throughout the day. This was the club Baldwin's first revenue earning run since its refit by Nigel Penford and Mike Manners. The engine runs very well a good job well done. The three Baldwins coped well all day long with the help of Mike Brooks Class 66 also, Dave Jerome helping out by being guard and working points with both lines in use at the station.

The raised track once again was supported by Rob Denton's two electrics, Pete Harrison's Sweet Pea which runs very well now, the club's Class 58 and other locos made it a good day for the RSME. John Spokes did a good job of being track marshal this time. The tea bar was busy most of the day with Liz, Louise and Megan keeping the tea flowing, and cool drinks for the station staff. These ladies really give us members so much support! Not forgetting they deal with the public as well. It is a long hectic day for them.

A VERY BIG THANK YOU FROM ALL THE MEMBERS OF THE RSME!

The refurbished swing bridge was put to good use with new beefed up handles thanks to Nigel and Mike for getting that job done in time for the first Sunday of the month.

PONDERINGS

by 61249

This article is about the ending of the management bid for the first ever Thameslink franchise in 1997. It was a simple railway performing well, Bedford to Brighton with the Wimbledon loop included, 550 staff, most of which were known to me after 2 years in post.

As I write the news that the current CEO of the GTR (Thameslink+) franchise has resigned due to the timetable introduction debacle. I doubt personally that the buck has really stopped, but the route to failure can be plotted from a series of decisions made by others, mostly the DfT. The current franchise, responsible for 20% of all UK passenger journeys is a behemoth by comparison to ours in 1997, 10 times the size of what we bid for, and 10 times less likely to be a success. The concept of Thameslink does not need through routes from King's Lynn to Rainham to be a successful addition to London's travel arrangements. Good platform to platform connections in the core at nice stations where you can get a cup of coffee if there is a wait would suffice. As with Crossrail, or the Elisabeth line, the traffic density in the middle section means that the service is really a metro – demanding metro style operation. Up to 30 trains an hour, platform edge doors, automatic train operation, and control arrangements less bothered about the time, more about the gap since the last train, and where the crowds are.

As currently designed, to change the Thameslink timetable means changing all the timetables at once, with Thameslink the loser if the real problem is at

Cambridge, or Haywards Heath. It is in my view no co-incidence that the high performing franchises are the simple ones, Merseyrail and C2C being the prime examples. The DfT had these as good models when they went for the mega-franchises, and it is a policy that has failed.

Enough of the rant and returning to the franchise bid. We knew that it was possible to pay a premium to the taxpayer for the privilege of running the railway, and our inside knowledge as to what was possible gave a number of £131m over the 7 years. (A reminder for the taxpayer – this railway needed £20m a year subsidy under BR ownership). The bids were always going to be price sensitive. Our industrial partners got cold feet at the bid stage, and refused to bid more than £109m, thereby making sure that our bid would fail. In the event, we came third. Govia won with £130.5m, and Virgin came second with just under £130m. That close! If only Virgin had bid with us they would have won, and I would be rich now, along with quite a few of those working at Thameslink.

As it is, I got third prize. The new franchise started on a Sunday in March 1997, and we had a press launch on the Monday. The new owner said some very nice things about working with me and the team. On Tuesday I had a call to go and meet the CEO of the owning group in Newcastle, arranged for the Wednesday, and I went with the Finance Director. The interview was short and to the point “The world has changed, things are going to be different and the best way to show that to the staff is to remove you as Managing Director, whatever your contract says we will pay, no arguments.” The FD took my place and I cleared my desk on the Thursday.

Although this was a pretty brutal way to lose the best job I ever had, and one I really loved, there were some upsides. One was financial, in that BR had introduced contracts for the TOC MDs that protected us well. This was done with my scenario in mind, as MD I was clearly vulnerable. I had a long service record, some 30 years, so my redundancy payment was a decent sum, (enough to buy me a nice 7.25” steam engine as it turned out).

The second was that they had the decency to do it face to face. I left with a lot of respect for the guy that did it, now passed away. I held no malice toward him, although I did have a wry smile when I met him 2 years later and he had just landed his private plane without the precaution of putting the undercarriage down first! I did not feel as sorry for him as maybe I should have!

Thirdly, the timing was good. I did not have to suffer 6 months of not getting on with them worrying about my job every day, to eventually fail. Folk could all see it was not personal, or performance related, so my working reputation was not much damaged.

Finally, as it turned out, it was a good week to get the sack. On the Friday was the Institution of Mechanical Engineers annual Railway Division lunch, attended by over 1000 of my mates and other key industry figures. I went into the room without a job and left with three leads – one of which turned out to be the next phase of my working life. The I Mech E has always been a good professional

home for me, I recommend it.

Just one final thought on timetable changes. When I went to Thameslink we had a timetable that we could not operate because of a lack of DOO agreement from Gatwick to Brighton. I thought then, and do so even more now, that timetable changes are not just what we do every 6 months, but significant projects in themselves, and need managing as a project. I wonder if this learning point for me in 1995 has been lost by 2018? Timetable planning delivers a timetable that may or may not work, project planning delivers success. They are not the same thing. Another Thameslink MD bites the dust!

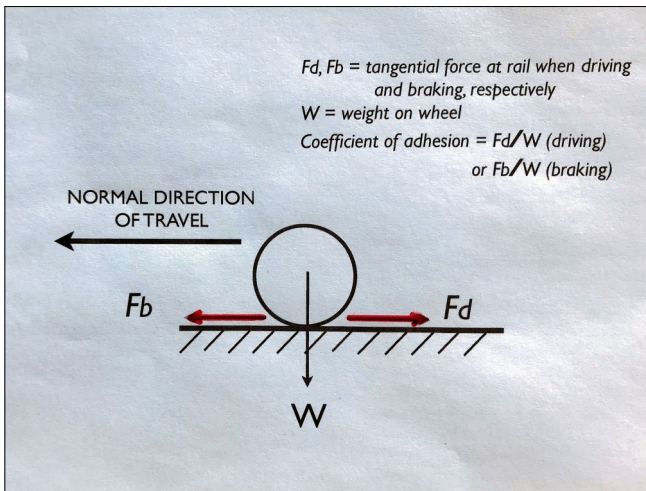
The Not-so-Permanent Way Part 2

by John Spokes

Fortunately for us friction is everywhere. Imagine trying to live a life on wet ice. Friction is a measure of slipperiness between two surfaces. In the context of the action of a driven wheel on rail there is friction between the wheel rim and the rail surface and in railway parlance this is called ADHESION. Adhesion is usually measured as the COEFFICIENT OF ADHESION (CoE) which is the tangential force applied at the point the wheel touches the rail divided by the weight on the wheel.

On dry rail the CoE is approximately 0.5, so for a wheel which has a weight on it of 9 tons (typical axle weight on Network Rail is 18 tons) then the tangential force available at that wheel contact **before slipping occurs** is half of 9 tons,

which equals 20,160 lbs. When a rail is wet or has grease or oil on it or there are leaves on the line the coefficient is significantly reduced, to perhaps 0.1 or as low as 0.05. As the weight on the wheel doesn't change then the tangential force available at the wheel is now reduced to 4,032 lbs and 2,016 lbs, respectively. The coefficient can be increased by putting



sand on the rail and this innovation in the 1870s made a much better proposition of using single-wheelers, which were popular in their day for express running.

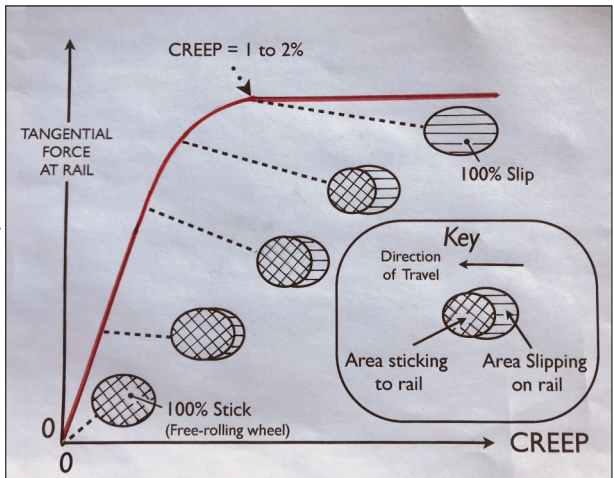
In this particular instance the locomotive weight is applied to only one driven wheel pair and spread across other leading and trailing wheels and hence the driving force, before uncontrollable slipping occurs, is relatively low as the weight on the single driving wheel pair was relatively low. Conversely, Big Bertha, the 0-10-0 Lickey Banker, had all its weight available for adhesion.

In my earlier article I noted that the typical pressure at the rail wheel interface is 130,000 psi. This of course results in deformation of both rail and wheel. In simple terms the contact area is elliptical and under driving conditions this changes to a shape which is more egg-like. Note that under braking the opposite occurs as the tangential force at the wheel is applied towards the front of the train. This distortion at the interface leads to a phenomenon called CREEP. The effect of this is that the rim of a wheel when driven travels further than the distance the train as a whole moves along the track. This can be as much as 2% when driving hard; so the train moves 100 yards but the wheel has moved 102 yards. When braking the opposite occurs, i.e. the wheel moves less.

I will try to illustrate this in the diagram below which is a graph of tangential driving force or effort at the wheel rail contact versus Creep.

When the wheel is rolling neutrally, i.e. there is no driving or braking force being applied, then the contact area is elliptical and the creep is zero.

When the wheel begins to be driven then a force is applied tangentially at the wheel-rail contact. This results in an egg-shaped contact area the front of which is "stuck" to the rail, but the rear, because of the reducing deformation of wheel and rail, begins to slip. As the contact driving force increases then the "sticky" area reduces and the "slip" area increases.



Up to a certain amount of creep, the creep increases linearly as the applied driving force increases. Then afterwards creep increases at a greater rate than the increase of driving force and then suddenly as more force is applied all the "sticky" area is gone and the wheel slips uncontrollably.

When braking the same occurs, but instead the tangential force at the wheel-rail contact is acting in the opposite direction, towards the front of the train, and if the braking force is too high the brake locks-up and the wheel slides uncontrollably.

I mentioned earlier that the single-drivers of 19th century were especially prone to wheel slip, but other more general reasons why steam engines slip are:-

A) Difficulty controlling the torque at the wheel-rail contact. This is affected by steam chest pressure and cut-off, all of which are under the control of the driver, or perhaps not under control, as the case may be.

B) Variation in torque as the wheel rotates. This is an inherent consequence of the conversion of reciprocating to rotary motion.

C) Contamination of the wheel-rail surface by oil, water and of course “leaves on the line”.

The situation with diesel and electric locomotives is a little simpler as the driving torque and hence the wheel-rail tangential force is easier to monitor and control and is uniform, i.e. it generally doesn't vary as the wheel rotates. Sanding is still used on wheel sets that are driven to improve adhesion, but CREEP CONTROL can be applied to avoid uncontrollable slipping. This is a technique, of which there are a number of methods, that measure the amount of creep and adjusts the driving force accordingly. Ideally the objective is to keep within the linear part of the above diagram, perhaps moving slightly into the non-linear part, but to avoid operation where uncontrolled slip occurs.

One method of doing this is to measure **the forward movement of the vehicle** and compare it with the **rotational velocity of the driven wheel**. But how to measure forward movement accurately? One method is to calculate speed from the rotation of any non-driven wheel sets, if there are some. (As I said previously, creep for a non-driven wheel is nil.) Other options are doppler radar, GPS, rate of acceleration using accelerometers. Another is to monitor motor torque. This will reduce non-linearly as uncontrolled slipping is approached. Yet another is to monitor the dynamics of the wheel set, typically certain types of vibration, which will change as creep increases. Sometimes a combination of techniques is employed and finally there's something called “fuzzy logic”, which I cannot explain other than to say that it might also be a technique used at Trustees' meetings!

Anyway, next time I'll conclude by explaining briefly what all this means for the long term condition of the permanent way.

SOME NEWS ON VARIOUS PROJECTS

by Mike Manners

Club Baldwin

So far so good. The Club Baldwin was reassembled on Tuesday 29th and given a test run on Wednesday 30th. It was then public running the following Sunday. We kept a careful eye on the reassembled valve gear and it looks like we once again have a working Club Baldwin. It's not perfect and will need keeping an eye on but so far so good. There is an annoying little problem with the cylinder drain cocks vibrating open and compared with the other two Baldwins the Club

loco appears to lack power, especially noticeable coming up the incline into the woods. There is always something to do with a steam locomotive!

New Ground Level Passenger Trolley

The new ground level passenger trolley was put into service at the last public running session. There was a problem with the vacuum brakes but otherwise all worked well. The brake problem was sorted out on Wednesday 13th June and turned out to be a faulty soldered joint on one of the vacuum fittings. A simple re-soldering job soon cured the problem.

Old Ground Level Passenger Trolley Repairs

One of the older ground level passenger trolleys has, for some time, had split and broken end panels. These have now been replaced and have been fitted with a new set of standardised vacuum fittings.

Raised Track Extension Project

The first of the three concrete pads for the new point in the woods was poured on Wednesday 6th June. The work was well organised and with a good team the job was completed by lunch time. On the following Wednesday the other two smaller pads were excavated. If the weather holds we should be pouring concrete on Wednesday 20th.

A Guarantee Of Rain For The Rest Of The Summer

Two sun parasols have been purchased and brackets attached to the end of both the raised track and ground level station railings. This should help protect the station staff from overheating and getting cooked on those long hot sunny public running afternoons. It should also guarantee rain for the rest of the summer. Oh well they should be quite good at keeping the rain off.

Other Little Problems

Just to stop us from getting bored and complacent the Club likes to throw us the occasional little engineering challenges.

The first was the swing out track section in front of the club house. Eventually, after many years service, the threads on the two winding handles and their associated nuts wore away with stripped threads. This turned into another time-consuming home workshop project. New threaded sleeves and plates had to be manufactured and the threaded rod in the winding handles replaced. While we were at it we beefed up the winding handle cranks. It had always annoyed me how flimsy they were with the handles always bent out of straight. Fitting the new threaded sleeves and plates turned out to be a time-consuming job and kept me busy for most of a working Wednesday.

The second problem was the failure of the hydraulic lifting platform at the start of the June public running. A quick investigation eliminated the usual problems of broken flexible wires and corroded terminals and just left the motor control relay as the only possible point of failure. A carefully controlled pair of snipe nose pliers allowed the platform to be used during public running but left us with the job of replacing the relay. Nigel obtained a Mini starter relay during the week so another Wednesday job was replacing the relay. Before starting the replacement, I did a careful check of the wiring and to my consternation when I

pressed the up button the platform worked! Had I got things wrong on the Sunday? Had we gone to the bother and unnecessary expense of purchasing a replacement relay when there was nothing wrong with the old one? I should not have worried. After a couple of operations of the up and down buttons the platform failed again. The relay was definitely the point of failure and only operating intermittently. Another little job that kept me quiet for most of a Wednesday.



Concrete pads for the raised track point in the woods. One complete in the background and the other two being excavated and form work being constructed.



Photos
Mike Manners

Raised track swing out track section undergoing repairs.

New winders and threaded sleeves and plates.



The completed new ground level passenger trolley and an end view showing the new standardised vacuum brake connections.

A REMINDER to all drivers on the RSME tracks

We all have a duty of care towards our fellow members and visitors. Failure to exercise that care could result in civil litigation.

At all times, drivers must keep a sharp lookout, in case of the unexpected, and must keep to a safe speed as will enable them to stop short of any obstruction.

Maximum permitted speeds on the raised track are 5mph on curves, 8mph on straight sections. On the ground level 8mph on curves, 10mph on straight sections.

RSME Trustees June 2018

RSME at Stoke Row Steam Rally

by George Saffrey

The model tent at the Stoke Row Steam Rally was well supported by RSME members with many exhibits. Here are some of the highlights.



Phil and Leigh Challis with the late Joe Challis' ploughing engine, double ended plough and living van outside the marquee.

We had the whole of one end of the marquee as you can see here from the entrance.





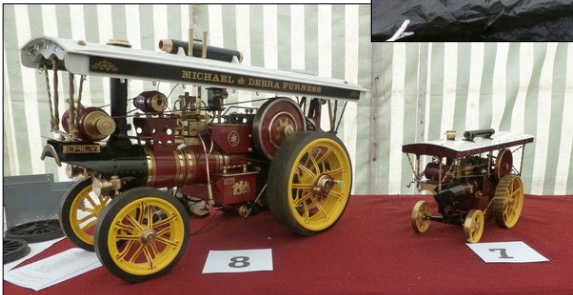
As well as many finished models, there was also work in progress on show from a number of members.

More 00 buildings, including Henning Vale station from the club layout, and an excellent 2 1/2 " pannier tank and autocoeach.



All Photos George Saffrey other than the Phil and Leigh picture by John Billard

The smaller scales were represented in these two 00 layouts, including a model of the Great Train Robbery.



Michael Furness, who arranged for RSME to have the display in the model tent, exhibited his two fine showman's engines

JULY DIARY

Sunday 1 st	Public Running	13:00 onwards
Wednesday 4 th	Rainbows visit	17:00 to 18:00
Saturday 7 th	Members Running	11:00 onwards
Sunday 8 th	Birthday Party	11:00 to 13:30
	Birthday Party	14:30 to 17:00
Monday 9 th	Trustees Meeting	19:30
Tuesday 10 th	School visit	11:30 to 14:00
Saturday 14 th	Birthday Party	11:00 to 13:30
	Birthday Party	14:30 to 17:00
Sunday 15 th	Birthday Party	11:00 to 13:30
	Birthday Party	14:30 to 17:00
Monday 16 th	Beavers visit	17:30 to 19:00
Friday 20 th	School visit	10:00 to 12:30
Friday 20 th	Young Engineers	18:00 to 20:00
Saturday 21 st	Young Engineers	11:00 to 13:30
	Club Running	13:30 onwards
Sunday 22 nd	Birthday Party	11:00 to 13:30
	Birthday Party	14:30 to 17:00
Tuesday 24 th	School visit	10:00 to 13:00
Saturday 28 th	Birthday Party	11:00 to 13:30
	Birthday Party	14:30 to 17:00
Sunday 29 th	Birthday Party	14:30 to 17:00
Monday 30 th	Special Needs	13:30 to 16:00

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 August PROSPECTUS is
18 July. This is the final date.**

Contributions from all members are greatly welcomed

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

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