

**Reading Society
of Model
Engineers
Charity Number
1163244**

The Prospectus

July 2022



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Watched by Peter Jennings and Nigel Braund, William Powell sets off with his 2.5" gauge *Ayesha* on his winning run at LittleLEC at RSME, 19 June. Photo J Billard

**LittleLEC REPORT
CRIMINAL DAMAGE
RSME MEMBERSHIP NEWS
DOON THE WATTER
KNUCKLE JOINTS
BR STEAM IN THE WEST**

The Good, the Bad and the Ugly

Let us start with the good stuff. A week ago RSME hosted the national LittleLEC competition for small engines and what a great time we had. Nine were entered to determine the winner by using the least coal for the greatest effort. Everything that went round the track was weighed including drivers and passengers and a calculation made to arrive at an efficiency figure. To give you an idea the best was a closely contested 0.357 per cent.

Whilst all the entrants bar one was 3.5 inch gauge the winner was a 2 1/2 inch gauge *Ayasha* that streaked round our track effectively and effortlessly to take the prize. Congratulations to William Powell of the Bournemouth club to show how it was done. And some of us making engines out of large chunks of metal were wondering weather a 3 1/2 inch Rob Roy that can be taken anywhere might be just as much fun!

I would like to thank all our members who so willingly volunteered to assist in making it the success it was. I have received many pleasurable comments from our visitors about RSME and their wish to return one day. That makes it all worthwhile.

Now, sadly, for the bad. I am sorry to report that we have had two criminal attacks at the club in the past week on Tuesday and Thursday. The first involved a forced entry through the wall of the clubhouse and most of the confectionery was taken from the kitchen, the key safe was taken and our charity donation boxes smashed and the money stolen. There was also a theft of petrol.

Whilst this was not good it could have been worse and work started to brick up the top windows in the clubhouse as a preventive measure and to look again at our security arrangements.

However the ugly bit is that two days later the our blue container was attacked, the window protective steel damaged and angle grinders used to gain entry. The losses are still being quantified but include mowers, welders, and other items. The day after Mike Manners, Nigel Penford Peter Culham and your editor were on site to do our best to make the blue container safe. This work continues.

We are taking advice from the Thames Valley Police, the Federation of Model Engineering Societies and considering the insurance position. The trustees have met this week to guide us forward.

After a highly successful and pleasurable LittleLEC weekend, this has all come as a great disappointment and sorrow for all those who work so hard for the club's success. But we shall get through and use the competence and ability we have to prevent such an occurrence in future as far as we humanly can.

We shall persevere.

RSME MEMBERSHIP

I have seen a report from our membership secretary that shows our current membership figure is 70. This shows that we have not recovered to the previous levels that we enjoyed before Covid.

For the past few issues of Prospectus we have urged members to renew from the due date of 1 April. This has been successful but there are still some well known names, even those who take part in public running, that are still reported missing.

Since the health emergency huge efforts have been made by members, sometimes few in number, to make RSME as good as it can be. Last year we held a brilliant Federation rally, have had nearly record breaking attendance at public running and we have already referred to our very recent LitteLEC weekend that has gained us many friends from our sister clubs.

But some of this effort had only been achieved on a shoestring of member participation. And last week all our efforts have been diverted following the criminal damage and theft attacks we have suffered.

So I hope our non rejoiners will come back to support us and ask their friends as well... We need you.

Otherwise, for those who have not rejoined for this year, this will be their last Prospectus. Membership forms can be obtained from the club house or directly from Stuart Kidd, see Page 1 for details.

SUBSCRIPTIONS FOR 2022/3 WERE DUE ON 1 APRIL.

**AN APPLICATION OR RENEWAL FORM HAS BEEN
CIRCULATED SHOWING RATES AND FOR YOUR SIGNATURE.**

**PAYMENT SHOULD BE MADE BY BACS TO THE BARCLAYS
ACCOUNT IN THE NAME OF RSME
BANK SORT CODE 20-78-58
ACCOUNT NUMBER 70796077.**

**COMPLETED MEMBERSHIP FORMS SHOULD GO TO THE
MEMBERSHIP SECRETARY BY E MAIL
michael.manners2@ntlworld.com OR POST TO
257 LODDON BRIDGE ROAD, WOODLEY, READING, RG5 4BL**

GWR Locomotives: Coupling Rod Knuckle Joints Part 2

Alec Bray

E. J. Nutty, in a rather throw-away comment, says that for the two-cylinder piston valve locomotives "...The latest practice was to put the joints in the rods behind the crankpins, although on some of the earlier six-coupled locomotives they were fitted ahead of the crankpins... (Nutty, E. J. *G.W.R. Two-Cylinder Piston Valve Steam Locomotives* Swindon, E. J. Nutty & Sons, 1977).

There is a complication with regard to the 'Halls, as there is a horizontal offset at the knuckle joint as well. This means that the leading crankpins have a collar on the pin behind the coupling rod bush to provide the necessary offset in a "knuckle-joint-forward" set up. 4965 follows this pattern and it does have its original rods, so too does 4936 (thanks to Bob Meanley).

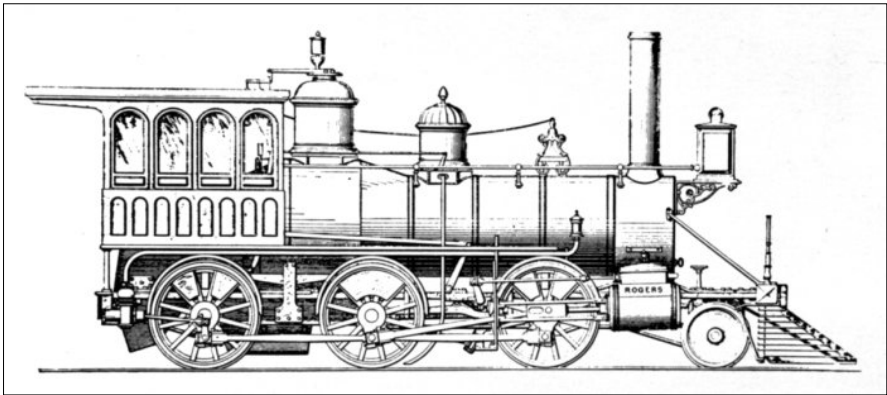
This arrangement of the crankpin may simply be another instance of Churchward following American practice – it was common around the turn of the century for many American engines to have the forward knuckle arrangement, and this was as much to do with the track as with the engine! More lateral wear was allowed to develop in American trailing coupled axleboxes compared to the British, and this lateral wear was expected to place lateral strain on the trailing type knuckle joint. Because of this, the knuckle joints being placed forward of the main crankpin.

Also, there was the situation regards the springing and compensating beams. It is well-known that G. J. Churchward was interested in American railroad practice. There were differences between British and American approaches to locomotive building, particularly since the American railroads were, in general, very lightly laid, and the original rigid-framed British built imports tended to derail. Levi Bissell investigated this problem in the 1850s, and correctly identified the problem. He observed that when an engine was travelling along straight tracks, the leading bogie tended to oscillate and chatter about the centre pin, and he noted that it was this action that imparted a pitching motion to the locomotive at speed. He applied for a patent, finally issued as no. 17913 on 4th August 1857, and reissued on 18th October 1864 as no. 1794. The British patent 1273 had already been issued earlier on 5th May 1857.

The Rogers Locomotive Works in 1858 was one of the earliest builders to apply this improved 4-wheeled bogie ("truck" in American Jargon). By 1860 they had fitted many of their engines with it and were endorsing the device to prospective customers. In 1863, the first Mogul (2-6-0) locomotive had been built at the Rogers Locomotive and Machine Works for the New Jersey Railroad and Transportation Company: this engine had six coupled wheels and a Bissell pony truck with swing links patented by Mr. Alba F. Smith. It also incorporated an equalizing lever from the truck to the springs of the forward driving wheels. This equalizing arrangement was invented and patented by Mr. Hudson. Mr. William S. Hudson had been a pupil of George Stephen-

son's, and was one of the foremost locomotive engineers of his day.

A drawing of this locomotive shows no knuckle joint after the driving wheel crankpin.



There are, of course, issues with drawings which may not be accurate, but this illustration appears in a paper issued by the Smithsonian Institute, United States National Museum [10], and so could be expected to be as accurate as possible.

If the Hudson modification to the Bissel truck was used by Rogers, it could be suggested that the leading driving axle needed some more flexibility for vertical movement, whilst at the same time trying to keep the main driven axle in the same horizontal plane as the piston rod, as any vertical movement of the driven axle affects the cut-off in all types of valve gears (and so affects performance).

If Rogers Locomotive works indeed placed a coupling knuckle joint in front of the main driving wheel crankpin, they were out of step with the main US locomotive builders: photographs of other ten-wheelers (where the knuckle joint can be seen) show these following the main driving wheel crankpin

It is interesting to note in this context that when the GWR 43xx Moguls were introduced between June and October 1911, they had the knuckle joints *after* the driving wheel crankpin!

To be continued

Paddle Steamer Waverley - Western Isles 2022 by Stephen Millward

The PS Waverley is unique in being the last sea going paddle steamer in the world, and continues to offer the services she was originally built for. This means it is still possible to take a paddle steamer excursion on the Clyde, Bristol Channel, South Coast or Thames which will be no different to that experienced 100 or 150 years ago. A whole day powered by steam and expe-



riencing the sights, sounds and smell of steam engines, with an ever changing view and a well stocked bar and restaurant. This in my mind is better than any museum.

I normally do a trip on the Waverly every year, either on the Thames or South Coast. However, back in 2018 I decided I really should make

the effort to do some trips on the Clyde, or even better the once per year trip to the Western Isles, around the Mull of Kintyre to Oban and then on to Isle of Skye. So I was all set to go in 2019 when it was announced the Waverley's boilers needed replacing at a cost of £2.3M and there was a question as to whether she would ever sail again. Fortunately the necessary money was raised and the boiler replacement was scheduled for 2020, when of course covid happened. This has meant that 2022 is the first year since 2018 when PS Waverley is operating a normal season including a trip to the Western Isles of Scotland.

The Western Isles trip is special because steamer services in the past were the main mode of transport along the West coast of Scotland, so it really is a unique opportunity to experience travel how it used to be. Also the Scottish lochs and islands, along with the ever changing weather makes for stunning scenery. There is also sealife to watch out for and during my 5 days aboard I saw dolphins, porpoise, seals, otters and minke whale.

The first day from Glasgow to Oban is a 13 hour sail, with calls at Largs, Campbeltown then around the Mull of Kintyre and calling at the Isle of Colonsay. The PS Waverley only has sleeping accommodation for her crew, so all passengers have to disembark and make their





own arrangements. This needs to be booked in advance, as places like Kyle of Lochalsh only have limited accommodation and some of that has closed down after covid. On board there is plenty of room, either outdoors on the main deck or inside in the saloons, restaurant and bars. The restaurant serves cooked breakfast, lunch and dinner, whilst

the lower bar has 30 single malts to try.

The Waverley is powered by a 2100 hp triple expansion steam engine, which directly powers the paddles at each end of the crankshaft. A viewing gallery down each side of the engine gives passengers an unobstructed view of the engine, as well as the engineers going about their duties. This includes watching the engineers control and reverse the engine in response to commands from the bridge on the engine room telegraph. Steam is also used to power boiler feed pumps, deck winches and the steering engine. PS Waverley is capable of cruising at 17 kts (19.5 mph) and being close to the water this results in a real feeling of speed and means she can cover a large distance in a day. The sound of the Waverley is very different to a diesel powered ship. The incessant diesel hum is replaced by the sound of an engine rotating at 40 to 50 rpm, feedpumps and the beat of paddles on the water.

PS Waverley had her maiden voyage on the 16th June 1947 and has just celebrated her 75 year jubilee. She was originally built to replace the PS Waverley of 1899, that belonged to the LNER and was sunk at Dunkirk. In 1947 she would have seemed antiquated compared to other ships built then, as her design is really Edwardian rather than post war.

Day 2 of the trip was from Oban to Kyle of Lochalsh



going around the Point of Ardnamurchan and passing the small Isles of Muck, Eigg and Rum. The sea here is exposed to swells from the North Atlantic and as a result the tickets for this part of the trip are weather dependent and cannot be purchased in advance. Our trip was very calm with a slight swell. The Waverley was then based at Kyle of Lochalsh for the following three days, with trips to the east coast of the Isle of Skye, the Isle of Raasay and up along the mainland coast to Gairloch and Loch Torridon. As a regular visitor to Raasay I was pleased to achieve an ambition by arriving all the way from Glasgow by paddle steamer.

The weather conditions at the end of the week deteriorated, which meant the return sailing from Kyle of Lochalsh to Oban was cancelled. A coach was instead laid on for passengers to return to Oban, whilst the PS Waverley left early to avoid the worst weather and moored up in the shelter of Craignure on Isle of Mull. I managed to catch a bus to Inverness followed by a ScotRail HST over the Highland line to Glasgow.

The Waverley is currently operating on the Clyde until August 28 and then Liverpool and Llandudno on August 30 & 31. Timetables for Bristol Channel, South Coast and Thames have yet to be confirmed, but are expected to be in September and early October.

It is remarkable that the PS Waverley is still operating and doing what she was built for as a pleasure steamer. Who knows how much longer this will continue? I'm certain that one day a trip on the Waverley will be but a memory, as either maritime legislation, environmental regulations, fuel costs, repair costs or simply finding sufficient qualified crew will curtail her operations. So don't put off taking a trip on the world's last sea going paddle steamer, otherwise in the words of Joni Mitchell, it will be another case of - "you don't know what you got 'til it's gone. They paved paradise and put up a parking lot." (And the same goes for SS Shieldhall!)





Just missing the June deadline Mike Manners photos shows work done on the ground level carriage shed extension. *Left* looking more like the Elizabeth Line and on the *right* waiting to be earth covered and foliage planted.

This was hard work by Nigel Penford, Pete Culham and Mike Manners ably assisted by John Evans, David Scott, Alf Cusworth and David Cole.



Following the criminal intrusion even the editor forsook his pen to help strengthen our defences. See Page 2. Photos Nigel Penford

LittleLEC at RSME

John Billard reports

On 18/19 June RSME was privileged to hold the annual national efficiency competition for small locomotives weighing less than 50 lbs dry. Nine engines were entered from clubs throughout the country. These consisted of five Rob Roys, a Jenny Lind, a Mona, all 3 1/2 inch gauge, and 2 1/2 Ayesha.

Each engine had two runs round our raised track and up to 25 minutes was allowed. Mike Manners was in charge of weighing people, engines, ballast weights and coal. We were loaned scales and timers. Each run was supervised by our members, Peter Jennings, Nigel Braund, Richard Coleman, Stuart Kidd and Charles Benham. We had members round the track to observe

running and others including Alec Bray to hand over coal and water at speed! With our fellow members help all went smoothly. Stephen Millard was our Calculator handling the results via special software.

The performance of all the engines was very impressive. Last year's winner was Les Pritchard with his LBSC *Mona* and this year he had a bit of bad luck as he had dropped his engine while loading up at home. Undaunted he had his run though there was something wrong and *Mona* was almost uncontrollable. Despite this at one point he was head of the leader board! (later examination showed that the engine had suffered a bent water pump)

Ultimately the deserved prize went to Bournemouth's William Powell and his little *Ayesha*. Certainly the smallest entered, he showed how to do it though he was closely followed by Stephen Harrison from Birmingham with his Rob Roy. And the wounded *Mona* was on the podium too! Congratulations all round and it was pleasing to have such kind comments about our RSME track and organisation.

A full description will follow in MODEL ENGINEER magazine.

Right, Stephen Millward, the Calculator at work. *Below*, the unlucky *Mona*, nevertheless coming third, *below right* runner up Stephen Williamson takes his load, *bottom left* William Powell takes the trophy.



Photos Richard Coleman and John Billard



Above, Schools 30921 Shrewsbury departing Bournemouth Central on 28 July. Note its ex-Lord Nelson tender. Right now preserved S & D 2-8-0 53808 at Templecombe on 1 July.

SIXTY YEARS AGO

Photos by John Billard

Time spent in the south and west at Weymouth, Bournemouth, Westbury, Bristol and briefly on the S & D.



Left, GW 2-6-2 tank 5526 withdrawn at Westbury, but also now saved on the S Devon Railway, on 1 July. Below Pannier Tank 3737 on the Weymouth tramway on the 30th. and below 5040 Stokesay Castle at Bristol St Philips Marsh. This was the first Castle I saw for scrap—quite a shock at the time.



DIARY

July 2022

Sunday	3rd	Public running	12 noon onwards
			Gates open at 0930 for setting up-
Saturday	9th	Club running	10.30 onwards
Tuesday	19th	Club running	10.30 onwards

August

Sunday	7th	Public running	12 noon onwards
			Gates open at 0930 for setting up-
Saturday	13th	Club running	10.30 onwards

Warriors Maintenance Day every Wednesday unless notified.

Note from the Editor. Thank you to all contributors. Please remember that the copy deadline is now 20th of the month and material, unless previously notified, can be held over if received after that date.

Please provide photographs as separate files and not embedded into the text.

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 August issue is 20 July

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

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