

Reading Society of Model  
Engineers  
www.prospectpark  
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Charity Number 1163244

# The Prospectus

May 2019



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JB156



Assisted by young helpers Peter Harrison supervised a successful boiler test on a newly completed “Polly”. This engine was constructed by young engineers at RSME. 27 April 2019.  
Photo John Billard

**DAWSON’S DIARY**  
**A QUESTION FROM A READER**  
**EXPENSIVE LATHE PARTS**  
**SARAH DRIVES**

# DAWSON'S DIARY

## Kept by the President

Near the end of March and the start of April a lot of good work has been carried out by the membership. The Parks and Gardens team progressing with planting out young trees along the A4 boundary. As spring is on its way it won't take long for the trees to start growing. Replacement of the ground level steel bar track with flat bottom rails is moving in the right direction. The team of members hope to get it relaid in April. Also the storage shed is coming along very well. A lot of effort is being put in to get it finished. It will make a big difference. It will tidy up the area with the services all in one place.

While all these jobs are progressing the general maintenance of the weekly jobs to keep the club house clean and tidy for birthday events etc, also out on most days the team led by Alf to keep the raised track trollies serviceable.

I must thank the trustees and the membership who keep the RSME in good order. Well done everyone!

**The editor adds:** I would like to endorse what the president has said about the work of the trustees. As I have been invited to attend their meetings for some time, and indeed now chair them, I can see from the inside that our society would hardly exist without their care and planning. They give up their valuable time (not being spent in the workshop) to keep RSME running smoothly. I hope that as many members as possible will attend the AGM on 30 May to hear their reports and help plan for the future.

## PONDERINGS

by 61249

### A question from a reader

I have been writing these articles for ten years now and it is really gratifying to have some sign that they are read by at least one person. I get some nice feedback in my rare visits to the club, which I hope to increase in frequency, and there was the complaint to the editor that I was unbalanced in pointing out that Bristol Bath Road/St Phillips Marsh held a world record (overall journey speed for a diesel train) which Old Oak Common never did. All great fun.

This month a reader has asked why the GWR has bought trains from Japan to replace the HSTs when a Brit train would have been more appropriate. I thought I would focus on an answer to this excellent enquiry, which is related to my experience as founder staff member of Angel Trains as the leading leasing company, (with apologies to Porterbrook and Everlost -oops Eversholt) and my role in British Rail Research for AEA Technology.

There are two fundamental points to make first:-

GWR (or First Group their owning company) did not buy the trains, the

Department for Transport (DfT) did. First Group have subsequently bought some to supplement the fleet.

Train design and build is a global industry, funded by banks and companies from around the world for components that come from different continents. Single country design build and supply trains are very rare these days.

On the first point we can go back to the design of a privatised railway system. Who will supply trains? This issue was not at the forefront of political thinking – the white paper that set out the proposals was about twenty pages long, as I remember it, and had one paragraph (!) on trains which said something like “..train supply may be supported by establishing a leasing market in the UK for passenger trains”. For someone who had to explain to a staff of 250 engineers in Network South East what was going to happen to their jobs this was not altogether helpful. Nevertheless, from it was designed the establishment of three train leasing companies that were each allocated an equal third of the BR fleet in 1994. This was an elegant solution to the problem that the franchises were short – 5-7 years, and the life of trains is long (40 years typically) coupled with the fact that the train supply investment decision is huge for the small companies that would be favourites for winning franchises. Short franchises are necessary for two reasons, first to increase competition in the provision of railway operations and second to limit the risks for government and private industry if it all goes wrong.

The idea of three train leasing companies was to deliver competition from day one in the train supply market. I may be biased, particularly given my involvement of train leasing from the beginning, but the concept has been very successful. The three original companies have invested in their fleets, and new entrants (Beacon, Rock Rail) have come into the market. The average age of the fleet has been kept to under 20 years, and the fleet size has grown to accommodate the extra passengers carried. Old trains are not seen to be rusting away (until you come to modify them and take the floor up) and reliability has been significantly improved on both old and new generation fleets.

The market has survived a Monopolies Commission investigation which criticised the DfT for interfering, which it continues to do. There is a temptation for bureaucrats to think that they know better than the market, and on very rare occasions this may be true, but these are exceptions. If the State was better than the market at everything then post-war communism would not have collapsed so completely. East German folk could not wait to get out of their awful Trabants and get a nice reliable and warm BMW when the Berlin wall eventually came down.

Nevertheless, there were some reasons for the DfT to order IEPs, mainly to do with electrification and attempting to gain the benefits of volume by adding the East Coast and GWR fleets. In the event, several weaknesses can be identified.

Would you believe it is possible on an IEP to book a first-class seat and end up with no window space at all? – not just a pillar in the way, just a sheet of metal! Not exactly what you would expect when you were looking forward to passing

the seaside at Dawlish! The interiors are utilitarian, lacking the nicer touches that we have come to expect, even if the seats are close together. The price of these trains is also very high, although the new build costs is concealed by a 30-year maintenance deal. GWR was very good at cleanliness and operated the cleanest fleet in the UK. This accolade has, at the moment, gone. You would expect, in April, to see out of clean windows unobstructed by February's winter grime. Go to Reading station and have a look, it is not that good. There was a competition for the supply of these trains, but the DfT then eroded the benefits by appointing Hitachi as preferred contractor for a long 2-year negotiation during which the specification changed to include bi-mode where electric only was the original intention. A supplier's dream! No wonder the costs to the public purse are hidden away.

Ordering trains in a competitive and cost-effective fashion, while supervising the supplier to deliver on budget and time is a specialist task, why on earth the DfT thought they would do it well from a standing start I do not know. The leasing companies have been practising it for decades, and last month I attended the "Angel" celebration of 25 years company success.

On the second fundamental point - one country trains are a rarity. It would be reasonable to assume that if a UK company started from scratch to design and build a replacement HST it would be a very expensive and risky exercise. I worked on a double deck commuter train project for Sydney in 2005, where the body was built in China, where the train was assembled, the doors and bogies came from Europe, the brakes from the UK, the traction gear and controls came from Japan, and the software from India. The companies that are big in train supply around the world (Siemens, Alstom, Bombardier, Hitachi, etc.) have multiple sites in many countries. They also have standard designs and modules that can be adjusted for the local market, customer requirements, loading gauge etc. These all add to competition and keep prices down.

Why are the Japanese in the UK market? Two reasons. Firstly, the UK has been a bastion of free trade in Europe, whereas the Germans and the French have been quite protective of their home-grown industries, not ordering from other countries with great frequency or volume. This means that the UK looks like an ideal bridgehead into Europe for Japanese companies, which is why Nissan and Toyota are here as well. This view may well disappear with Brexit, of course, but in the late 1990s it was certainly true.

The second reason is that the early deliveries by the big European train factories into the private leasing companies were awful, with late deliveries and poor reliability. Angel even threatened to cancel the whole order for the C2C class 357s when they decimated the service with less than 2000 miles between failure. The 458s for South West Trains were not much better. This gave rise to a vacuum in the market and it was in BR Research's interest to help other companies and countries in to fill it, so we did. The Hitachi traction equipment was first fitted to a trial unit for testing under UK conditions in our workshop at Derby,

and we supplied all the consultancy necessary to get through the approvals process. The “Javelin” order for HS1 was the fruit of this investment by Hitachi, and the HST replacements, the IEPs, Azumas etc. are the next generation of the same train. All ready and tested for the UK, so attractive to a risk averse DfT.

I hope this long answer to a short question suffices! I will explain why these new trains have the wrong doors in a future article, along with the difference it makes for the passenger. Ugh!



Bit like the inside of a MRI scanner - Class 802 interior.

Class 803 and Class 43 at London Paddington.



Norton Fitzwarren with GWR 802101 new in service.

All photos 61249

# GETTING ROUND EXPENSIVE LATHE PARTS

by David Scott

Having been around old cars for many years upon buying a not used much Emco Compact E this is the first thing I should have looked at? Yes SPARE PARTS? Many years ago Mums Nissan Micra MK3 needed its first MOT and it failed on a bulb in the dashboard! Having an MGB GT I thought that this would be 20 pence the same, just a reach round the back and its done? NO. "The bulb is in a sealed unit. The whole unit needs changing. AND it is £300 pounds plus labour!" Came the reply. Then came the loud GROAN... Not from me, but from Mr Garage when he realised after adding up some other numbers they seem to attach to calendars. "That as the Car was 1, one, ONE, Day short of the Warranty expiring. Nissan would have to foot the whole Bill!"

Reminding me of early motoring when journeys would take FOREVER!! A superb family driven car belonging to an uncle comes to mind and learning Left and Right. (I must have been five ish) When a flashing bulb did not work. As whoever was nearest had to thump the side of the car between the doors at the top and the trafficator would slowly emerge, Flashing Superbly. Did any freeze in their slots during the winters? I can still remember 1963!

The Emco lathe was still thick in protective grease bordering on a Branston Pickle Colour. Imagine a spread being left on a plate for several hot days out in the sun! Scraped off on the parts that had been used! Cleaning took ages and the problems began to emerge. All the parts were there, but they were not adjusted, or in the case of the cross slide screw, badly curved! Once removed the slot needed grinding for some clearance for its nut! Lathe and loco parts fought for space on the nearby bench as more bits got removed. A seized spindle when it was cold meant that this came out as well, with the grease clinging to the bearings in lumps.

I had come back from the Midland show the proud owner of a huge 4 jaw self-centring chuck for £20. Lily had recognised that I seem to have a collection of them by each lathe, and that the price sounded lovely! Our third journey back to the car thankfully parked very close on purpose!

Imagine my surprise when mousing through the Emco Spares later, that £120 was needed for a disc so small to fit it. Do they not do any large back-plates? £90 on E-bay but rare! I would not have minded but there was not even a thread to cut. Research led me to the popular lathes usually painted red, white or green or A MAD deal blue and white, and a size of backplate fitted at £37 including postage! And 3 studs! Other popular spares got me worried but wearing out half nuts indicated to me a rough lead screw? Yes, a good polish as it was rotated by one of my favourite power screwdrivers up and down soon sorted that out with fine vee files.

My cunning plan was to fit a disc of steel to the end of the spindle and turn

a new register to match the larger backplate hole. However the new studs have a larger pitch circle diameter bordering exactly on the outer diameter of the original. 95 mm. Three plugs were carefully cut filed and fitted tightly in the now opened out D shaped spaces. Filed down and got ready. A disc cut with some others from Berkshire Metals was turned to a very tight fit. We all know what happens when we drill into dissimilar metals when we want to be accurate! The outer disc will be turned back in place on the Emco.

Picture 1 shows a super use for the gas hob to heat up to dropping into temperature! Unfortunately by now the possibility of using the freezing snow to shrink the spindle was a distant memory. Now if only I had done this, at this time of year LAST YEAR! Yes, we gave up on having a freezer as we tend to let the Co-op store things for us and a short walk usually grabs a bargain! I now use the 360 units saved per year in the workshop of course! Though the hill climb back loaded with fresh milk requires yet another tea break.

The blank fitted over the burner perfectly and got very hot. We were cooking on GAS! Cooking had begun so a cooling space was sought quickly. I had been frozen out of the super garage storage build over the winter so naturally sat it upon a boiler waiting for space in the workshop, to cool down safely. I seem to remember we once had quite a big kitchen. Wasted space!

One day we may get round to having a huge tidy... But someone keeps organising Working Wednesdays! Club Runs! And other distractions involving steam. And our workshop is warmer than the house! The attached Summer House has DVD Screen and comfortable seating.

Another job that came up was to reduce the height of the top slide. This done, a Quick-Change Tool-post was fitted but with only  $\frac{1}{4}$  of an inch of bolt sticking out on an M8 in a 10 mm hole another story emerged. I had a piece of 16 mm steel hexagon, so a sleeve and long nut combined was turned and fitted. Yes you guessed it! Could we find a 16 mm ring spanner? NO! A superb display of 17s and 19s for the clamping kits on the mills respectfully.

We ignored this and true to form one emerged from the bottom of a box the contents being decanted to more useful drawers and unrelated to spanners, about a week later!

I will do urgent projects round the house like when the MAIN ROOF LEAKS and the old flat roofed porch resembles a car wash on final rinse, half an hour after the rain has stopped. But tend to bypass most things in favour of the hobby. Strangely our neighbour had a roofing company come to give an estimate today Wednesday. The whole road's roofs are in a bad way after 50 years and rain distributed at the wrong angle will get the interiors wet!

We went to shelter in the clubhouse after doing some welding. The new M I G is a lovely bit of kit and is speeding up the track extension! Although I tend to be using it to alter some 1500 or Speedy frames down to scale sizes. By adding bits and milling other bits away, just let the welds cool slowly and

don't get them wet by quenching! IF you do drill a hole in the wrong place

there is a solution!

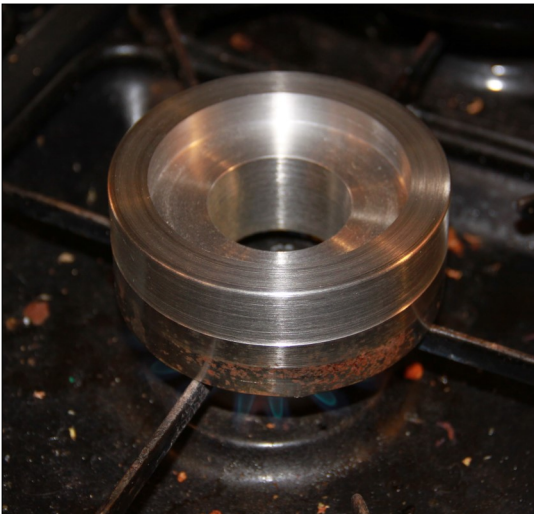
A lovely four jaw independent 6 inch chuck a Bernerd, so quite old as well, emerged from my collection. Boxford marked upon a label... So wouldn't fit a Myford! One of our members was given the backplate as now we are going up a size. This meant that the register can be bored straight out of the back and far better on overhangs. All of this is only possible with having several lathes with me lugging 2 chucks clamped together for a test of bore on this. Also 3 holes need drilling for the studs carefully in it! I have another two blank cast iron rounds ready to turn in a mini production run with the largest looking more like a faceplate. Another lump got for £10 in the Barn of Bargains when choosing the new mill Heavy Metal.

I keep having a dream that I spend the next six months getting everything finished and perfect. And finally walk into a tidy workshop where everything is to hand, and all the machines are fully equipped, and begin! But life is not like that and everything will have to slowly evolve!

Yes, I am still pleased that I found some space on another bench for a tray and Brush Cleaner which is superb at getting you out of a Pickle!

PS. Upon finishing the new nose on the Emco I had the cross-slide screw jam up due to lack of lubrication on a Mazac bearing so this is the next problem to overcome!

We are just back from a weekend on the Severn Valley Railway where they had a problem with the Coal Tank on Friday... And Saturday afternoon a shunting incident with the Large Prairie as she steamed through a set of points. Yes the important set leading into Kidderminster where our car was! The rain did not help, but it proves that the big boys can also have problems during Public Running.



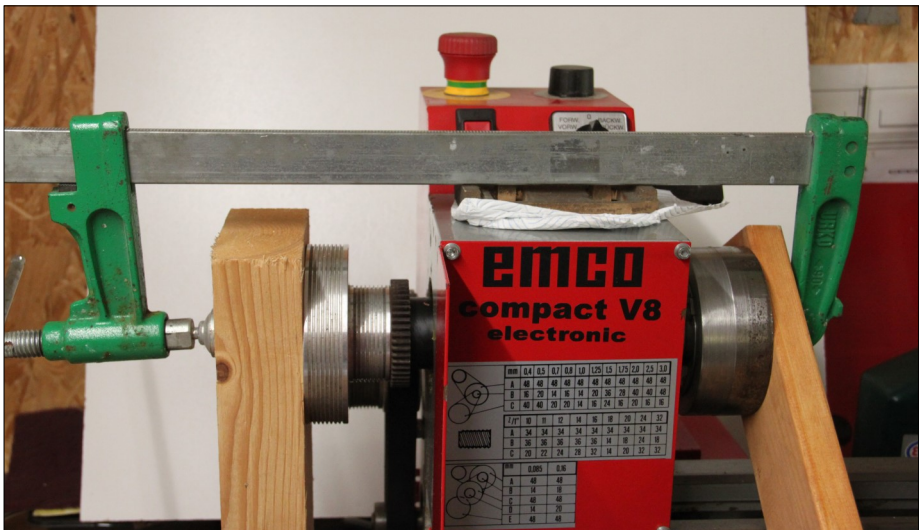
Heating the new spindle nose for a shrink fit over the smaller one.

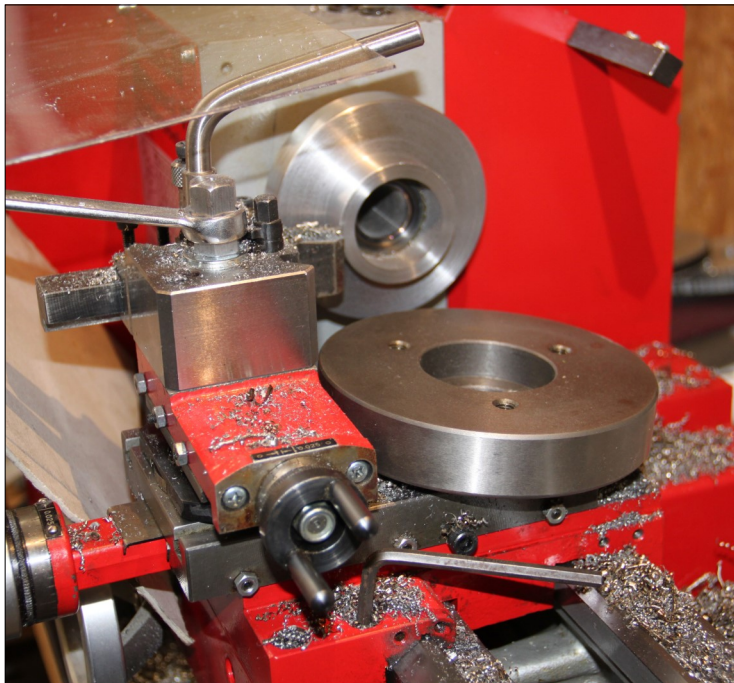
All photos  
David Scott



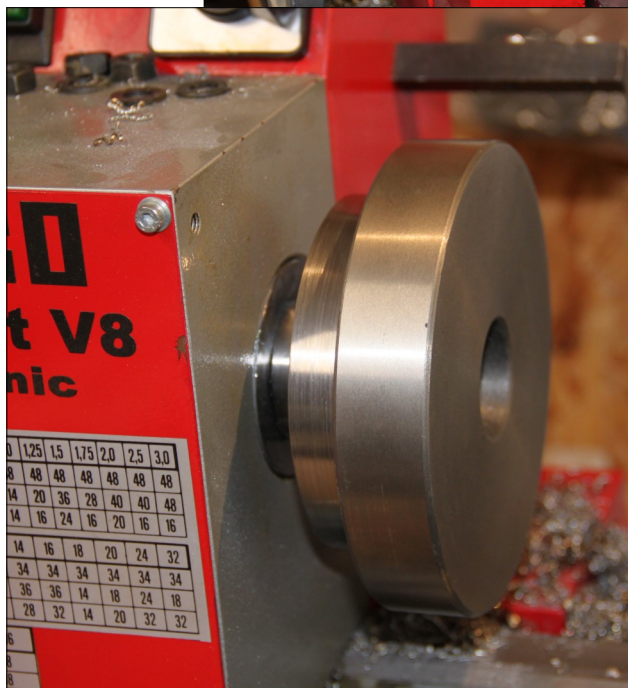


*Above:* Cooling down (safely) in the kitchen... Black 5 boiler of course!  
*Below:* Squeezing the bearings back ready for turning the new nose.





*Above:* Almost fitting shows the improved top slide with the lowered top and the new nut/sleeve in place with the found 16mm spanner!



*Left:* Next is after the sorting out of the screw, Cutting back for more room for fingers!



Nigel Penford recently showed his daughter Sarah how to drive his engine around the RSME ground level track.

Soon she was showing him!

Photos courtesy Nigel Penford



## DIARY

### May 2019

Saturday	4 <sup>th</sup>	Birthday Party	11:00 to 13:30
		Birthday Party	14:30 to 17:00
Sunday	5 <sup>th</sup>	Public Running	13:00 onwards
Thursday	9 <sup>th</sup>	Brownie Pack visit	17:00 to 18:00
Friday	10 <sup>th</sup>	Pre-school visit	11:30
Saturday	11 <sup>th</sup>	Club Running	11:00 onwards
Monday	13 <sup>th</sup>	Trustees Meeting	19:30
Saturday	18 <sup>th</sup>	Birthday Party	11:00 to 13:30
		Birthday Party	14:30 to 17:00
Sunday	19 <sup>th</sup>	Birthday Party	11:00 to 13:30
		Birthday Party	14:30 to 17:00
Saturday	25 <sup>th</sup>	Young engineers and Club running	11:00 onwards
Sunday	26 <sup>th</sup>	Birthday Party	11:00 to 13:30
		Birthday Party	14:30 to 17:00

**Thursday 30<sup>th</sup> AGM 19:30**

### June 2019

Saturday	1 <sup>st</sup>	Birthday Party	11:00 to 13:30
		Birthday Party	14:30 to 17:00
Sunday	2 <sup>nd</sup>	Public Running	13:00 onwards

**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 club committee or editor.

**The deadline for the June issue is 18 May. This is the final date.**

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

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