



The Railway's most recently acquired item of rolling stock, 16-ton mineral wagon B154977, at the Manchester Museum of Science and Industry on 15th September

Photo © Tony Cowling 2022

The Old Run

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The Editor welcomes contributions - photographs, articles, news items and letters - relating to the interests of the Trust and the operation of our and other Railways.

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Our Chairman speaks:

I write these notes just after our 2022 operating season has ended. It has been a difficult and challenging season. Some aspects of the season went well: the first Post-Covid Model Railway Exhibition had an attendance close to Pre-Covid levels; Children's Day was very successful and has put this event on the map; and Blue Bell Walks/Teddy Bears Picnic on the Bank Holiday Monday was packed. The planned event to mark 90 years of mainline diesel operation had to be scaled down to a simpler heritage diesel event, because we could not guarantee the availability of two of the star attractions. It was then cancelled as a mark of respect to her late majesty Queen Elizabeth II, because it was to have been held on the weekend immediately after her death. Finally, the Autumn Event did not materialize because of planning and volunteer availability issues. This year we have also had some unexpected challenges on the motive power front, which we hope are now behind us, and we have suffered train crew shortages – in part due to the long term impact of the Covid Pandemic on the maintenance of crew competence.

Despite these challenges, we have always welcomed our visitors with smiling faces and clean facilities, and as a result we continue to enjoy good ratings on review sites. This is all due to the many, many volunteers who have 'kept the show on the road' despite all the problems. Without their efforts and the time they give to the Railway, our Railway would not survive. All members of the Trust owe the working volunteers a huge vote of thanks.

The 2022 Season did provide a very well deserved reward for the efforts of Mick Jackson and his team. For the third time in succession the Middleton

Our Chairman speaks, continued

Railway gained a Gold Award in the Yorkshire in Bloom competition, in the Tourist Attraction category. This competition is run by the Royal Horticultural Society, to promote environmental awareness amongst communities and organisations, and it ran again this year after a gap of two years caused by the corona virus pandemic. We achieved the same status in our category as Oakwell Hall & Country Park and Sutton Park Stately Home, and did better than some larger heritage railways! The judges did not just commend the planting but also the cleanliness and ambiance of the Railway. This again reflects the importance of cleanliness and tidiness in a 'top notch' tourist attraction.

What has become apparent this year is that attendance at events has held up whilst traffic on ordinary running days is still lower than pre-pandemic levels. This experience is mirrored by that of other heritage railways, who like us are finding that visitors expect more than just a train ride. Putting on more events seems the obvious way to increase revenue, but event days require more volunteers in customer facing and organization roles which is a constraint on what can be done. We can buy in entertainment, but this does not eliminate the requirement for additional volunteer hours and increases fixed costs. If this is done we have to attract a lot more visitors to cover these costs before we start to make a profit, and this means improving the publicizing of events. Regular managed posting on the Trust Social Media channels is one critical aspect of this, and the addition of Chris Hardy to the team promoting the Railway through its social media channels has strengthened the Trust's capability in this area.

It has also become increasingly clear that to reap the benefit of improved promotion of the Railway on Social Media and elsewhere the Trust must be able to sell tickets through our website. The advice received from University of Leeds Business School and others is that not offering this facility puts visitors to the website off visiting the Railway. 'Click and buy' commits a visitor to the website to paying for a visit to the Railway, whether or not they actually turn up and so secures revenue. This is a change which needs to be implemented before the start of the 2023 season

This advice is one of the initial results from two projects which the Trust has now launched with Leeds University Business School, and which are aimed at helping to address some of the challenges we face.

The first of these projects is aimed at helping the Trust develop a more targeted approach to volunteer recruitment and retention, and to make this more professional. In an increasingly competitive market for volunteers, and with a reduced supply of potential volunteers due to demographic and other pressures, the Trust needs to improve the way in which we market ourselves to potential volunteers, and not just wait for volunteers to sign up. Success in this area will feed into the Trust's ability to run events, and this will ultimately contribute to the long term financial sustainability of the Trust, as well as enabling it to take on more engineering and restoration projects.

The other project is aimed at looking at how we can improve the return from the café and shop area, by bringing in new insights and perspectives to this aspect of our operations. Again this project has the ultimate aim of improving the long term financial sustainability of the Trust.

Our Chairman speaks, continued

There is always a risk that neither of these projects may produce anything of lasting value, but developing a long term relationship with Leeds University Business School as well as with University Technical College Leeds will give the Trust access to skills and resources that we cannot supply from within. I believe that these will ultimately help to improve the Trust's resilience and capabilities.

We are now entering the "Santa Special" Season, badged for this year as "Santa Express". Bookings are looking very good, and this bodes well for the success of the event. It is now down to all of us to deliver a great experience for our visitors, which will leave them wanting to come back for other events in 2023.

Wishing you all a very happy Festive Season, and as good a New Year as the difficult circumstances in which our country finds itself will permit.

Charles W Milner, Chairman



Left: One of the displays on the platform which won us our first Gold Award in the Yorkshire in Bloom competition, in 2018.

Photo © Ian Dobson 2018

Right: Charles Milner at the ceremony for this year's awards, with the certificate confirming that we had won Gold again.

Photo © Janet Auckland 2022

The First Rack Railway

The 19th century was a time of conflict and war. France and Britain were almost continually in armed conflict from 1803 until 1815. These were the years now known as the Napoleonic wars which were a series of conflicts. By 1811 Britain had been burdened by eight years of deprivation. Men had been recruited or even pressed into the service, in either the army or the navy. Many horses, the main means of transport at that era, had been acquired for military use, causing a shortage and a rise in the cost of both the animals and their upkeep.

The estate and coal mines of Middleton, about four miles south of Leeds, were the property of the Brandling family who also owned land and mines in the North East of England. The 'Coal Overseer', or General Manager, for Middleton at that time was John Blenkinsop who was a cousin of the Brandlings. John Blenkinsop had grown up in the North East of England and had travelled to Yorkshire to take up his duties at the Brandling's Middleton collieries. He was a practical skilled man.

Steam, still in its infancy, was regarded as a novelty. A demonstration of a steam locomotive hauling a coach around a circular track, hence the name '*Catch Me Who Can*', had been displayed in London in July 1808. This was the fourth and last steam railway locomotive created by the inventor and mining engineer Richard Trevithick. It was also the first train on which the public paid to ride behind a steam locomotive. Unfortunately the demonstration was brought to an end because the rails broke.

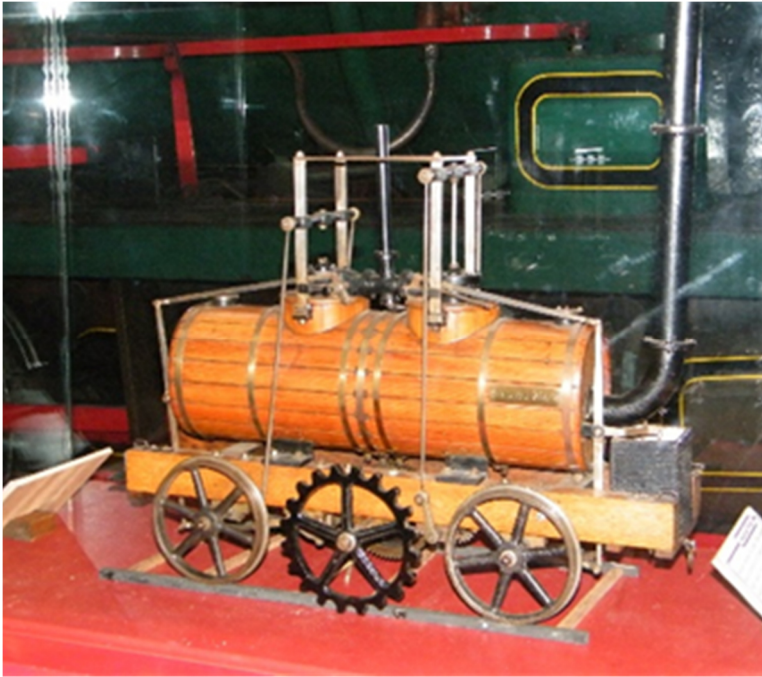
Perhaps John Blenkinsop had read about '*Catch Me Who Can*' and thought that he could develop the idea for use on his employer's mineral tramways. As a matter of conjecture: had there been some communication between Blenkinsop and Trevithick? Rails, at that era, were usually made of cast iron. Whilst this material is strong in compression, it is relatively weak in shear. Was this the reason that the rails broke under '*Catch Me Who Can*'?

Looking at the illustration of this locomotive (on the next page but one), it is obvious that the pressure of the piston rod exerted a downward force upon the wheel. This in turn would result in what we would regard as a hammering effect upon the rails as the engine moved. Hence the rail would be in a 'shear' situation. Perhaps John Blenkinsop realised that somehow the force from the locomotive needed to be parallel to the rail. It could be that this was one reason why Blenkinsop originated the idea of transmitting the power via a cog to the rail.

In June 1811 John Blenkinsop was granted a patent, number 3431, which contained the following description;

'Firstly I do construct place and fix in and upon the Ground or road over which such conveyance is to be made a toothed rack or longitudinal piece of Cast Iron or other fit material having the teeth or protuberances or other parts of the nature of teeth standing either upwards or downwards or sideways in any required position and I do continue and prolong the said toothed rack or longitudinal piece by the addition and duly placing and fixing of other like pieces all along or as far as may be required upon the said Ground or Road - Secondly I do apply fix and connect with a Carriage required to bear and convey goods along the said Ground or Road a Wheel having teeth or protuberances or other parts of the

The First Rack Railway, continued



nature of teeth at or near the circumference thereof so formed and placed as to become connected with and fairly to Act upon the teeth protuberances or other parts of the nature of teeth belonging to the rack or longitudinal piece when the said Carriage shall be suitably placed with regard to the same - Thirdly I do cause the said wheel to revolve and drive the Carriage along by the application of any such well-known power or first mover as can be placed upon and carried along with the said carriage and I do declare that a Steam

Engine is greatly to be preferred to any other first mover’.

By September 1811 a number of newspapers, including ones as far away as *The Caledonian Mercury*, were carrying a report of the progress of the patent. (It was common practice in the 19th century, as it still is, for news to be shared or reproduced by other newspapers.). The report read;

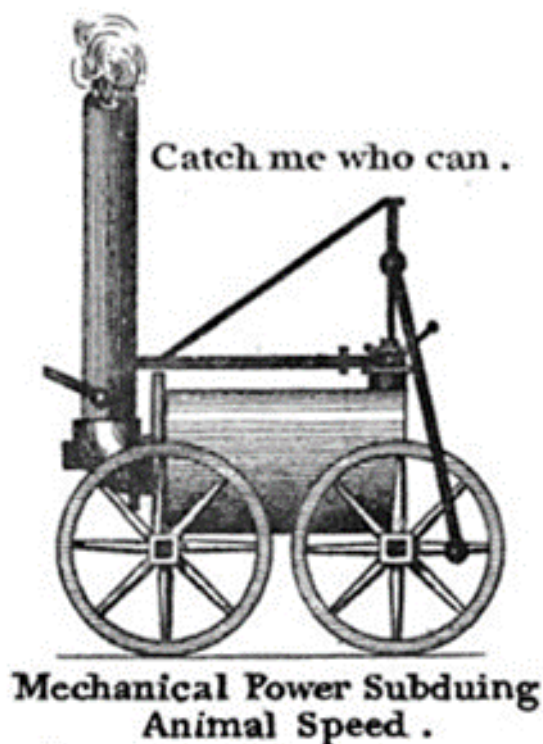
‘A patent, recently obtained to facilitate the conveyance of coals, &c. is about to be applied on a large scale, it having been determined to discard the use of horses on the iron railway between Middleton and Leeds, a distance of three miles, and to convey the coals from the collieries of C. J. Brandling, Esq. at Middleton by the agency of steam.’

Just twelve months after the granting of the patent the first rack railway in the world was revealed to the public. The date was Wednesday 24th June 1812. The Morning Chronicle reported that: *‘On Wednesday last an experiment was made with a machine at Leeds, under the direction of Mr. John Blenkinsop, the patentee, for the purpose of substituting the agency of steam for the use of horses, in the conveyance of coals on the iron rail-way, from the mines of J. C. Brandling Esq. at Middleton, to Leeds – This machine is, in fact, a steam-engine of four horses’ power, which, with the assistance of cranks turning a cog-wheel, and iron cogs placed at one side of the rail-way, is capable of moving at the speed of ten miles an hour.’*

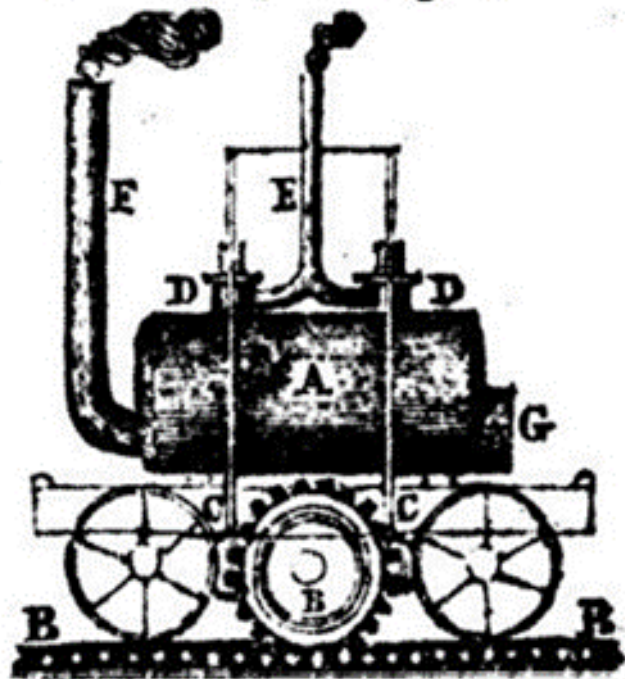
The cog and rack system employed closely followed the patent obtained by John Blenkinsop. A series of teeth were cast on the outer edge of the rail and a large cog wheel was affixed to the locomotive.

If the illustration above of Trevithick’s locomotive is compared with that of Blenkinsop, it is obvious that the latter is a development of the Trevithick design. Blenkinsop appears to have used the substantial wooden frame of a coal waggon with an extended wheelbase. The boiler **A** produces the steam. **B** is the centrally

The First Rack Railway, continued



Blenkinsop Engine



placed cog wheel with unpowered carrying wheels at each side. There are two crank rods **C** which drive the cog via a reduction gear. The two cylinders **D** are partially buried in the boiler and the exhaust steam is led to the discharge pipe **E**. The fire door **G** is at the opposite end of the engine to the smoke chimney **F**.

An interesting comment closing the account of Saturday 18th July 1812 in the Leeds Mercury, from which the above description has been taken, states that; *'the other carriages are fitted up as usual without the Toothed-wheel, and where the same may be preferred, use is made of two Toothed-wheels, acting upon corresponding racks on each side.'* As every scholar knows, this would only work on straight track, as the outer wheel on a curve travels a greater distance than the inner wheel. Hence the cogs would become *'deranged'*.

The inaugural run on the cog railway had been recorded in a number of newspapers under the heading of *'Curious Machine'*. It was stated that a speed of 10 miles per hour was achieved when lightly loaded. The first load conveyed to Leeds was a maximum of eight waggons each weighing 3¼ tons. On the approach to Leeds about fifty spectators mounted the waggons and this spectacle was witnessed by thousands of spectators! The coals from the eight waggons were presented to the General Infirmary.

The first locomotive had a cast iron boiler which was oval in section being about 37 inches tall and 32 inches wide with a length of about 9 foot 6 inches. Initially without a name, the first engine was soon called *Salamanca* in honour of a recent British victory near that town. A further three engines had been ordered from Fenton, Murray and Wood. It is likely that some modifications and improvements were incorporated in the subsequent deliveries. For example, John Blenkinsop

The First Rack Railway, continued

was aware of the noise emitted from the steam discharge pipe. By 1813 he had cured this by fitting a wooden box in the discharge pipe. This box therefore made an early form of a silencer.

The following year, 1813, was a busy one for John Blenkinsop as he was in negotiations with John Watson for a second rack railway system to be constructed at the Kenton and Coxlodge colliery in Northumberland, a few miles north of Newcastle-upon-Tyne. John Watson was the overseer and a shareholder of this colliery. In April Matthew Murray had written to John Watson saying that the current configuration caused the wheels of the engine and the rails to wear away very fast, the oblique action or side pull was very detrimental going up moderate rises and for going around bends. *'The side rack did very well as a cheap method for trying the scheme but certainly is not calculated for practice'*. However, on September 2nd Fenton Murray and Wood had delivered the second Middleton engine, possibly named 'Willington' or 'Lord Willington', to the Kenton and Coxlodge Colliery. Paul Murray Thompson states in his book that Middleton had five engines, one of which went to the Kenton and Coxlodge colliery. He also records that the locomotives were known locally as Walking or Yorkshire Horses.

The first recorded use of steam at the Kenton and Coxlodge colliery was on Thursday September 7th 1813. Matthew Murray is on record as stating his preference to having the rack in the centre of the rails. On the 14th October 1813 Matthew Murray had written to John Watson (Coxlodge) to say that they were busy making the replacement locomotive for Middleton colliery as Middleton needed it for their busy winter period.

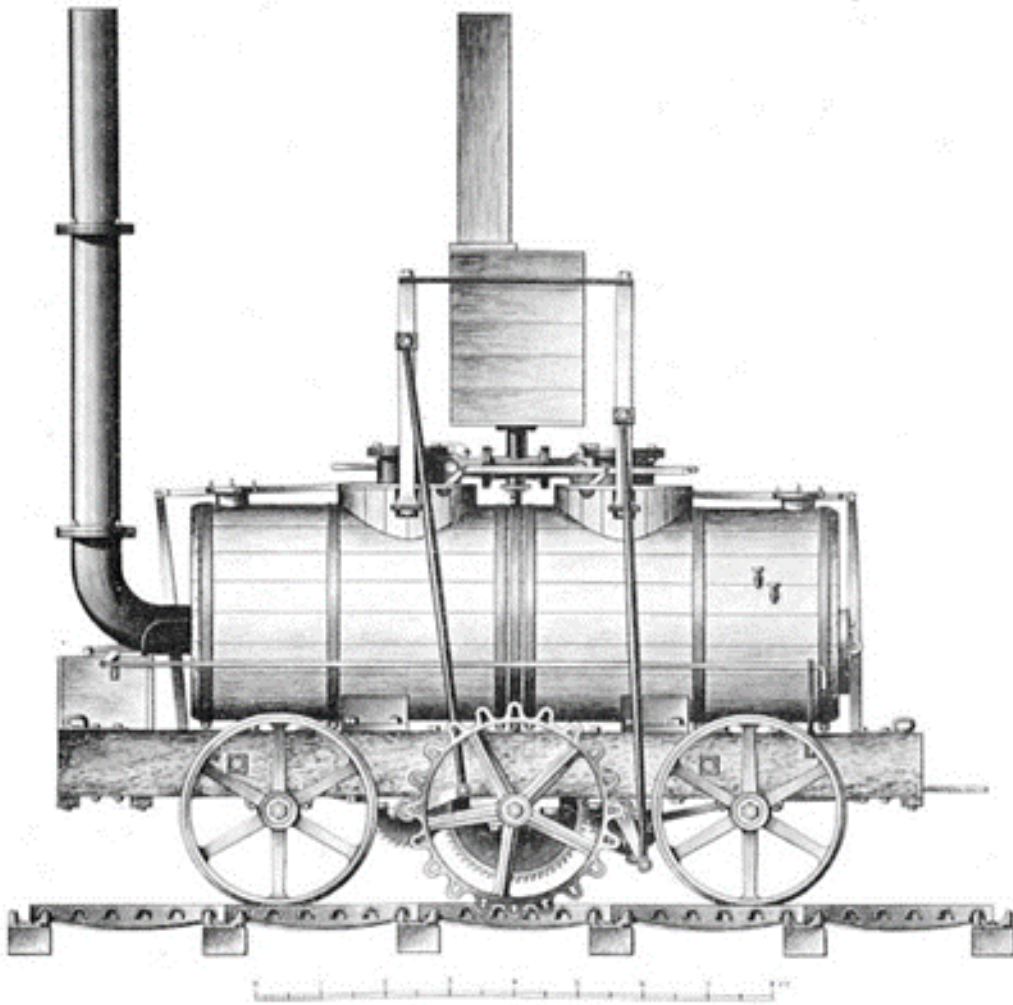
This is a later drawing, and possibly shows the Blenkinsop locomotive in its final form. Of note is a water tank placed beneath the smoke chimney, which appears to have a mechanically operated feed pump. Also shown is the silencer box.

Four locomotives were constructed for the Middleton Colliery system. *Salamanca* in 1812, *Lord Wellington* in 1813, *Prince Regent* (1812) and *Marquis Wellesley* in 1815, although there is some doubt about the names of the last two in this list.

As is well known, their service at Middleton was not without incident. On December 1st 1812 an accident was reported in the press, when George Butler, who had been stoking the boiler, fell off and lost his right hand which was run over by the waggons. *Salamanca* was destroyed in a boiler explosion on 31st March 1818, killing the driver George Hutchinson. In February 1834 a second locomotive suffered the same fate, killing driver James Hewitt who left a widow and five children. The following year the remaining engines were withdrawn from service, although one of them was not scrapped until about 1860.

Sheila Bye, Historian/Archivist of the Middleton Railway Trust, has supplied the information that each of the main people involved in the building of the first loco seem to have had a model of it. Blenkinsop's own model was actually sold by Thomas Embleton, his successor at Middleton, and ended up in the USA. A photograph from 1916 shows one of the models in front of the group of

The First Rack Railway, continued



gentlemen staff. Currently on display in the Engine House of Middleton Railway are both a model of a Blenkinsop engine (shown in the photograph on page 6) and an original section of cog rail.

Has the work of John Blenkinsop any relevance in the 21st century? Yes it has. In 1863 Niklaus Riggerbach patented an invention for use on mountain railways. This was the ladder system which was constructed by joining two pieces of steel by a series of bars. This assembly was placed in the centre of the tracks and a cog was engaged on the ladder to propel the train. This design was later improved by Roman Abt, who incorporated vertically mounted teeth on the steel bar into which the cog was engaged. Usually 2 or more Abt rails are placed side by side, in such a way that there is always at least one tooth of the rail in full engagement with the cog.

The Snowdon Mountain Railway uses the Abt system. The photograph on the next page, taken recently, is of one of their diesel locomotives, and shows the Abt system rails. It is also a link to the locality of the Middleton Railway, as the locomotive, number 11 *Peris*, was built by The Hunslet Engine Company in 1991.

The First Rack Railway, continued



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Malcolm R Johnson

In Memory of Richard Barron

Readers will be sorry to hear of the untimely and sudden death of Richard Barron, on 5th October.

Richard had joined as a volunteer in the workshop in 2019, soon after his retirement from Holset Engineering Co. Ltd in Huddersfield. They specialise in manufacturing turbochargers for diesel engines, and are part of the American Cummins Group. Richard had been one of their senior engineers, specialising in troubleshooting installations of this sort of equipment, and travelling all over Europe to do so. Before this he had worked for Oerlikon, the Swiss engineering firm who (amongst other things) specialise in building electric locomotives.

This background had given him a huge range of experience, and this proved very valuable in our workshop, where engineering jobs can often be a bit out of the ordinary. It didn't matter that none of our diesel locomotives had Cummins engines: he could cheerfully turn his hand to any kind of job that needed doing. And, as the picture of him below indicates, "cheerfully" was the operative word. He was keen to pass on his knowledge to newer volunteers, and those who were willing to learn from him gained much.

Richard in characteristic pose in the workshop.

A particular project to which he made a big contribution was the overhaul of the old IXL treadle-powered lathe. This had stood outside the Engine House for some years, neglected until Malcolm Johnson and he started to restore it to display condition. It is now a significant exhibit in our museum, representing the early days of machine tools.



Richard was also happy to volunteer for new activities, and in our 2021 Santa special season he enjoyed a couple of sessions, playing the key role of the man in red. He had been very much looking forward to being able to do so again this year, but with no warning died in his sleep. He will be greatly missed.

Volunteers' Forum

Tuesday 18th October saw the latest volunteers' forum. As well as remembering Richard Barron, a key part of the proceedings was the presentation of long-service awards to three of our volunteers, as shown below. From left to right they are: Andrew Parsley (better known to many members as "Frankie"), who received a 30-year award; Richard Pike (who came to us as a volunteer following the closure of the Abbey Light Railway, in Kirkstall), who received a 10-year award; and Ross Needham, who also received a 10-year award. The awards were then followed by a review of progress, and of the forthcoming activities, and then we all moved downstairs for a buffet.



16-ton Mineral Wagons

The Middleton Railway was originally built to carry goods, in the form of coal, and so for the first 50 years of its history goods wagons were the only items of rolling stock. Even after locomotives appeared, goods wagons were still the most numerous items. This continued to be the case after preservation in 1960, unlike other preserved railways, since the railway's main source of income was operating goods traffic for Clayton Son and Co. and for Robinson and Birdsell's. In the first few years this involved an interesting variety of goods wagons, particularly for bringing in steel stock to Clayton's Dartmouth yard, which was also the railway's headquarters during those early years of preservation.

By 1967, however, British Railways had set up a facility for handling steel stock at the Hunslet Lane goods depot, and so had changed to delivering steel stock from there by road. This meant that the only goods traffic left for the Middleton Railway was from Robinson and Birdsell, who were engaged in an early form of recycling. They had contracts with many of the local engineering firms to collect the steel turnings from their machine shops and process them. For this they provided the firms with skips, which were collected when they were full and brought to a loading dock at Robinson and Birdsell's yard on Garnet Road. There a loader, equipped with a special grab, deposited the turnings into ordinary open wagons, and they were then dispatched to the steelworks in Sheffield for their contents to feed the furnaces. In the early 1960s these open wagons were a mixture of "common user" wagons with a 13-ton capacity - some wooden bodied and some steel bodied - and 16-ton capacity mineral wagons, or occasionally the 21-ton version, with two doors each side instead of one. By the time that this was the only traffic, however, the wagons being used were nearly all 16-ton mineral ones, although the occasional 21-ton version did appear.

This history means that there has always been a significant connection between the Middleton Railway and the 16-ton mineral wagon, but it took a long time for this to lead to a recognition that perhaps the railway should have one of these wagons in its fleet. This idea was not a very practical one while the railway's headquarters were in Clayton's Dartmouth Yard, as spare siding space was limited. Then, when this yard had to be vacated in 1983, and the headquarters re-established on the present Moor Road site, space was equally limited. Also, efforts were focused primarily on creating the facilities that were needed: firstly the new passenger shop in 1984, then the workshop in 1985 as well as our first passenger coach, the run-round loop at Park Halt in 1986, the Moor Road pit in 1987, the second coach in 1989 and heaters in the coaches in 1992.

The following year, in 1993, construction started on the workshop extension, and attention began to turn to the idea that some of the space in the old workshop might be used to house a museum. Along with this, definite suggestions were being made that our wagon fleet really should include a 16-ton mineral wagon, and various possibilities for obtaining one were investigated. By this time, though, the Great Central Railway had launched their project to assemble a fleet of these wagons, to enable them to run what in the 1960s had been known on their line as the "windcutter" trains, which had used 9F 2-10-0s or similar locomotives to run complete mineral trains from the midlands to the London area. They had managed to persuade "*Steam Railway*" magazine to support

16-ton Mineral Wagons, continued

their appeal to acquire at least 30 wagons for this project, and this did not leave any others spare anywhere in the country.

So an alternative route had to be investigated, and in 1995 an agreement was made with the National Railway Museum for us to take on loan the wagon that was in the national collection, and overhaul it. This wagon, number B227009, arrived in October of that year, and planning for its overhaul started. It soon became clear that this was going to be a rather more major job than had originally been assumed, since both the floor of the wagon and the bottom parts of the sides turned out to be sufficiently corroded that the metal would have to be replaced completely. Consequently the work only proceeded slowly, because each step of it needed to be agreed with the NRM, and this involved a number of visits by their engineering staff. Also, the actual work on the wagon was having to take second place to the various jobs that were essential for keeping the train services running.

Eventually, in 1997 orders were placed for the new platework, and just before the end of that year the wagon was moved into the workshop, to enable work to actually start on removing the corroded material and then welding in the replacement pieces. It then took another three years to complete the restoration, including repainting, so that it was not until 2001 that the wagon was launched into service, marked by a small ceremony that included representatives of the NRM. Obviously "service" here did not involve using it for any actual goods traffic, but it was used fairly regularly when a demonstration goods train was to be run. This continued until 2015, when the bad news came that the NRM wanted it back!

This was not unreasonable - after all, it was their wagon - but then stories began to emerge that it was wanted for a new branch of the NRM that was being planned in conjunction with the Great Central railway. This we did not feel was reasonable, as if there was any heritage railway that already had enough of these wagons it was the Great Central! At least we were not being asked to transport the wagon to Leicester, which was the proposed location, and so arrangements were made for it to move back to York in December of 2015. As things turned out, the proposed funding for this branch museum fell through, and eventually the wagon was moved to Locomotion at Shildon.

Undeterred, we started to investigate other possibilities for obtaining a 16-ton mineral wagon, but these seemed to be few and far between. Then, at the end of August this year somebody suddenly spotted an article in the magazine "*Trackside*", which announced that the Science Museum group were disposing of several railway vehicles from their collection, namely two box vans and two 16-ton mineral wagons from the Manchester Museum of Science and Industry (MOSI). To say that we jumped at this possibility would be putting it mildly, and an application was rushed in for us to acquire one of the mineral wagons. (It would have been nice if we could have accommodated all four of the wagons, but we definitely only had space for one.).

The next step was to go and inspect the wagons, and Steve Roberts and I went over to Manchester on Thursday 15th September for this purpose. It was an interesting visit, as the wagons were in a siding that is part of the historic Liverpool Road station, and it soon became clear that they were now in the way of work that

16-ton Mineral Wagons, continued

was already going on in this area. The mineral wagons were not in wonderful condition, in that one of them (B154977) had tyres that were fairly well worn, while the other (B97217) had a floor that was simply loose pieces of metal sheet. In this case we were less concerned about the state of the tyres than of the floor, since we were not expecting the wagon to do much mileage, and so our decision was to select B154977. This also suited the staff at MOSI, since this was the wagon that they wished to see moved out of their way first.

We had chosen the date of our visit since there was a meeting of our Council that evening, and this meeting confirmed the railway's decision to request this wagon. So we rapidly assembled all the details needed for our case and submitted this, and were surprised to be told just two days later that it had been allocated to us, even though the official closing date for bids was still some way off. We were also told that a major factor in this speedy decision was that we are an accredited museum. Along with this, we were asked to start making arrangements to transport it soon! This could have been tricky, since it had become clear during the visit that it would have to be moved using a lorry with a HIAB hoist that had sufficient capacity to lift the wagon out of the siding where it was standing. Fortunately our usual haulier quickly made it clear that this was not likely to be a problem, although he too would need to visit the museum to assess the situation for himself, and then produce the method statement and risk assessment that the museum needed. At the time of going to press we are expecting the wagon to be moved in the second week of November.

Meanwhile, we are investigating the history of these two wagons, and have already discovered that at some time in the late 1970s the bodies of both had been rebuilt, and (like many of these rebuilds) this had included removing the small drop-down doors that had originally been above the main side doors. Consequently, unlike B227009, the top part of each body side is plain for its whole length. After British Railways had disposed of them, both wagons had ended up at Rosyth Naval Dockyard, being used for moving materials round in the yard. The Great Central Railway had then purchased them from there for the "windcutter" fleet, possibly as two of the earlier members of it.

The GCR had needed to overhaul all the wagons in this fleet as they were obtained, and indeed many of them have now been overhauled at least twice. As part of these overhauls they fitted each wagon with a through vacuum brake pipe, so that they could subsequently run the trains with a vacuum fitted brake van at each end, to provide additional stopping power. While through piping these wagons is not authentic, because originally they were almost all unfitted, it was a wise precaution, since a 30 wagon train would weigh nearly 200 tons empty. According to the web page that documents the "windcutter" fleet, both B97217 and B154977 left the GCR in September 2009 to move to MOSI, but nothing is said as to why they were moved, or what other overhaul work might have been done on them. So we still have some investigation to do, before we can start to plan what conservation work we might need to do on B154977 when it has arrived.

Tony Cowling

16-ton Mineral Wagons



Above

On 9th June 1967, a WD 2-8-0 (probably from Wakefield shed) propels a train of empty mineral wagons up towards Middleton colliery. The locomotive is roughly at the point on what is now our passenger line where the footbridge goes across the line to the stadium car park.

Photo © Mervyn Leah 1967



Left

Also in the late 1960s, NER 0-4-0 1310 propels 3 wagons of scrap metal down towards the Balm Road loop. The picture is taken from the footbridge that used to cross our line, about where the Balm Road loop level crossing is now. Clayton's Moor End works building is in the top right of the picture.

in Service on the Railway



Above

A mineral wagon in Robinson & Birdsell's loading dock, being loaded manually with steel turnings.

Below

In 2008 0-6-0ST "Brookes No. 1" heads a demonstration freight train, which includes the NRM's wagon B227009. The train is in almost the same location as the locomotive in the picture top left.

Photo © Andrew Gill 2008



MOOR ROAD HAPPENINGS

At the time of writing these notes there are just three more operating days to go, before there is a brief respite prior to the hectic Santa Special season. Recent weeks have been relatively quiet in the workshops, but there have been the inevitable ups and downs to keep us on our toes.

LOCO NOTES

No. 6

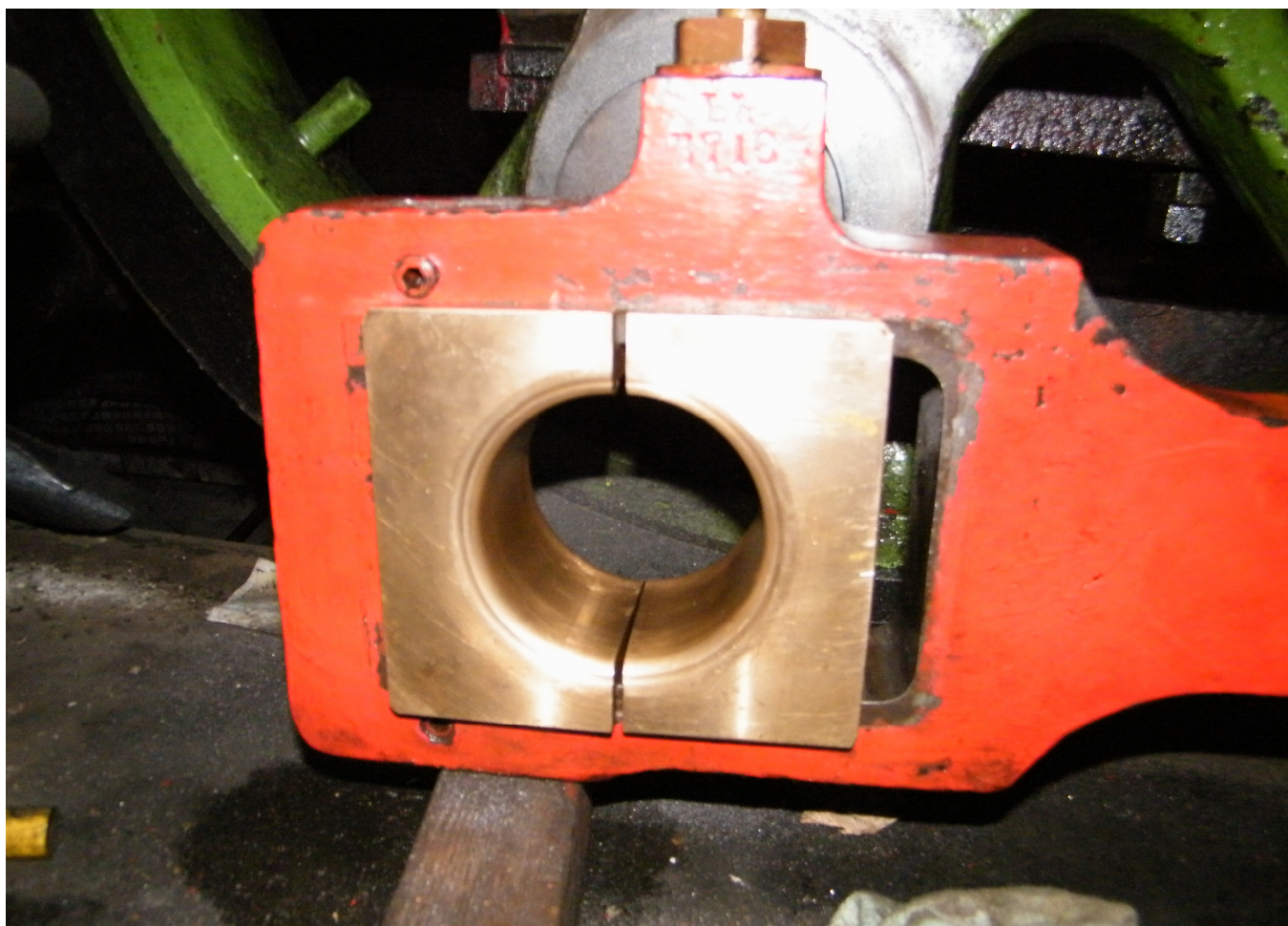
In the last Old Run I reported that there had been a problem with the left hand leading coupling rod bearing and that repairs were being carried out. This was completed by the beginning of August and the loco had its first turn in service on the 7th August. At the time of writing, this has proved to be its last. For reasons that we have been unable to explain, the taper cotter which secures the bearing became loose and, not only that, but the safety cotter came out. This caused the taper cotter to be thrown out whilst the loco was working a train to Middleton Park and this, in turn, allowed the newly repaired bearing to become loose. This resulted in the bearing becoming badly damaged, so much so that repair was considered to be impractical.

It was decided that a new bearing would have to be made and we were faced with two choices. The first was to have a new pattern for the bearing made and new bearing halves cast from this pattern. This would then need machining before it could be put to use. The alternative was to obtain a lump of suitable bronze and machine a new bearing from the solid. The former would be the cheaper option but would be a time consuming task, whilst the latter would be quicker but significantly more expensive. After some discussion, and quotes had been received, we decided to go for the latter approach and a suitable billet of bronze was obtained from Leeds Bronze.

We had no drawings for the bearing, so the first job was to carefully measure everything up and produce some drawings. We could have simply measured up the old bearings, but these had been much re-worked over time and it was felt that it would be better to try to make the new bearing to what we considered to be the original dimensions. This was soon done and a start made on the machining. I don't normally mention names in these notes, but Malcolm Johnson has spent a significant amount of time on producing the new bearing and then fitting it, for which we must be very grateful. He also took the picture of the new bearing fitted into the coupling rod, which is on the next page. Sharp-eyed readers will note that the works number stamped into the rod is actually 3716: since the locos at Swanscombe were basically all of the same class, swapping of parts between them like this was a common practice .

This work is now complete and the loco is awaiting a steam test to check that all

Moor Road Happenings, continued



is okay. Also, whilst the loco was in the workshops and under repair it was decided to further investigate the occasional problem with the regulator. We had found that, if the second (main) valve was opened, it did not close properly resulting in a build up of steam in the steam chest. There is no drain cock on the valve chest, so if the loco was in mid gear it was possible for steam pressure to build up in the steam chest, and effectively clamp the slide valve to the valve chest face. This clamping force effectively made the reverser immovable until steam pressure was suitably reduced, or another loco brought along to give it a push.

With the dome cover off it was possible to watch the regulator opening and closing, and it was found that the spring that holds the valve against the face wasn't doing its job very effectively. This was suitably tweaked, which solved the problem. However, it highlighted another problem in that, with the extra load on the valve, it wasn't closing fully, as the regulator handle was hitting its stop before the valve reached its closed position. This is probably due to a combination of wear in the various parts of the linkage, and is something not easy to sort out without a lot of fiddling. In the end, we decided to machine a bit off the regulator stop to allow the handle to go a bit further, and this has seemingly cured the problem. A steam test will, however, be needed to prove this beyond doubt.

Moor Road Happenings, continued

1210 SIR BERKELEY

Apart from finishing the painting and a couple of minor jobs, the loco is now ready for an initial steam test to check everything over. The boiler has been filled with water and a start was made on filling the tank, but this highlighted a leak between the tank and the balance pipe which needs to be rectified before it, too, can be filled.



“Sir Berkeley in the workshop, with the painting and lining (in what we believe is the authentic livery of its first owners, Hemingway and Logan) nearly complete. Photo © Ian Dobson 2022

The outstanding jobs are the fitting of a new timber floor in the cab, and the replacement of the left-hand injector steam pipe, which has been previously patched and has many dents in it. The copper pipe for this is on hand but, until the new pipe has been made, the old pipe has been temporarily fitted.

No. 11

Still nothing to positive to report.

No.1310 (NER H)

It was decided to put 1310 into service at the beginning of September and rest HE 2387. The prime reason for doing this was to avoid HE 2387 running up too

Moor Road Happenings, continued

many days in steam and becoming due for a 'C' exam and boiler washout during the busy December Santa season. The loco has been running well and gives no indication of its need to come out of service. The only slight problem is with the pressure reducing valve on the steam feed to the vacuum ejector, which is not working properly. This means that the shut off valve is having to be used as a pressure regulating valve and has to be carefully set by the driver each time the ejector is turned on, and also has to be adjusted as boiler pressure fluctuates.

SENTINEL No.54

We have still not had time to take the Sentinel in hand and sort out the various problems affecting its steaming and reliability.

HE 2387 BROOKES No.1

The loco has been in regular service throughout the summer and has generally performed without problem. However, during August there were reports of problems with both injectors and the crew failed the loco one day because they couldn't get either injector to work. Investigation of the problems highlighted the fact that the combining and delivery cone had come loose in the left hand injector but no fault could be found with the right hand injector. In recent times both injectors have been working well and the problem has been put down to lack of familiarity.

A new set of firebars has been obtained and fitted in the loco's firebox. They cost £50 each and there are 24 of them required to make up the full fire grate so, with half a dozen spares, it is not a cheap thing to do.

2022 will go down as the year for taper cotter problems. Beside those already mentioned on HL 3860, the taper cotter on the right hand coupling rod knuckle pin has come loose on a couple of occasions, fortunately without incident as it was noted during the loco's daily fitness to run exam. A new taper cotter has been made to replace the original, which was worn.

HC 1544 SLOUGH ESTATES No.3

Work continues on this loco and it has become the main focus of attention. Many hours have been spent on chipping the concrete out of the smokebox to expose the boiler holding down bolts. Once these had all been uncovered, they were removed, so freeing the boiler. We carefully jacked up both ends of the boiler to prove that it really was free and that we hadn't missed something. The boiler, complete with smokebox and boiler tubes, weighs in at 7.15 tons, which is too

Moor Road Happenings, continued

heavy for our 5 ton crane so, once we were satisfied that all was ready, Cramscene's 80T crane was brought in for the boiler lift, which is seen in progress in the picture below. Setting up of the crane took longer than the actual lift, which was over in about 15 minutes.



Once the boiler was safely in the boiler cradle the ashpan was removed to allow better access to the firebox. A start was made on making the boiler tubes ready for removal. At the smokebox end, the ends of each of the tubes were collapsed using a pneumatic hammer, which frees the tubes from the tubeplate. At the firebox end it was a different matter, as the tube ends had all been beaded over. This required the beads to be ground off using a small angle grinder. We rejected the idea of using an oxy-propane cutting torch to do this, as it is too easy to nick the steel firebox and damage the plate. Grinding off the tube end beads took four days of hard work.

Once these had been completed, the tube ends were heated up to a red heat and allowed to cool. This has the effect of loosening the grip of the tubeplate on the tubes, allowing them to be knocked out with a 7 lb hammer and a suitable drift. However, once a start had been made on removing the tubes, it became obvious that the tube holes in the smokebox had been made the same size as those in the firebox, since a great deal of trouble was had in removing the tubes. It is usual

Moor Road Happenings, continued

practice to make the holes in the smokebox about 1/16" larger than those in the firebox, to aid removal. This problem has slowed down the rate of tube removal and, at the time of writing, only some 30 tubes have been removed out of a total of 115.

Removal of the boiler has also allowed further work to be carried out on the chassis, with work presently being concentrated on removing the valve gear. It is planned to shunt the chassis into the workshops in the next few days. This is a whole day's job to accomplish, and it requires the use of two diesel locos. Once the frames have been shunted into the back road of the workshops, it will then be possible to lift them off the wheels, and better identify the work that will be required for their overhaul.



The boiler of HC 1544, safely resting in the boiler support cradle, with the frames behind it, ready to be shunted into the workshops.

Photo © Tony Cowling 2022

Fowler 42200033 HARRY

Available for use, and diesel drivers are being re-certified for it.

Moor Road Happenings, continued

Peckett 5003 AUSTIN'S No.1

The loco has been in regular use throughout the summer. However, drivers started to report an occasional rattling sound. This was eventually traced to the air compressor unloader valve. The purpose of this valve is to unload the compressor when it reaches the required maximum pressure, so as to save wear and tear and energy. As the pressure falls the valve closes and the compressor starts to work again. However, this was not happening and the valve was constantly opening and closing. The valve was stripped and cleaned and no obvious fault was found but the problem was still present. We have no information on the valve, which was made by Broom & Wade, probably when the loco was built in 1961. The valve has again been removed for attention and the loco is currently out of use.

D2999

The loco returned to service during August but it was noticed that there was a significant loss of engine oil. The cause of the leakage was traced to the oil strainer, which had been removed when the oil had been changed. Unfortunately, it had been replaced incorrectly, and this had damaged the face of the strainer where it fitted into the crankcase. This was machined to give a flat surface and the strainer re-fitted. The loco then returned to service.

However, not long after this another fault developed, whilst in service on a School special. This time it was a loss of power: the engine would start and run but would not speed up when the throttle lever was operated. A feature of this locomotive is that it is fitted with an engine speeder valve. This is effectively a servo valve, in some ways similar to the power steering on a modern car. Its purpose is to make operation of the throttle a much lighter task for the driver. The problem was traced to a blocked needle valve and this was soon sorted.

The loco is currently in service, as required.

D577 MARY

The new parts required to alter the brake linkage have now been made but the actual modifications have yet to be undertaken.

HE 6981

There has been little further progress on this loco due to pressure of other more urgent work.

D631 CARROLL

Available for traffic but has not been used since September of last year.

Moor Road Happenings, continued

L.M.S. 7051

Available for use, if required.

D1373 MD&HB No.45

Available for use when required and seems to be the preferred locomotive for shunting and train operations. New brake blocks have been obtained for the loco, but have yet to be fitted as there is still a bit of life left in the existing ones.

All other locos are stored, either on display in the Engine House or awaiting overhaul.

CARRIAGE & WAGON NOTES

The three coaches have continued in service, as required.

COACH 2084

A loose footstep on this coach has been attended to.

COACH 1074

The guard's handbrake has been adjusted, as the handbrake column was reaching the end of its screw thread.

PMV 2223

After a period when little seems to have happened, work has picked up significantly and there is good progress to report. All the old roof has been removed, including the timber hoopsticks. New hoopsticks have been made out of pitch pine and these have now all been fitted, and a start has been made on fitting the new roof planks. The first sections of timber framing for the bodywork have also now been fitted, the first three metres on either side now being completed. To fasten these timbers to the existing steelwork where required, we have cut and drilled a couple of hundred pieces of 50mm x 50mm angle.

IN THE WORKSHOPS

TOILETS

In an attempt to improve facilities for our female volunteers within the workshops, some changes and improvements to the toilets has been taking place. The urinal

Moor Road Happenings, continued

has been removed and the area is being altered to provide changing facilities for ladies. The whole area is having wall tiles fitted and the floor is also being tiled. When finished there will be a single uni-sex toilet available for all, instead of what were essentially male toilets.

MILLING MACHINE

The control box of the small milling machine started smoking whilst in use during September. Fortunately, this was spotted before it became a fire. The problem was found to be the contactor, which had overheated and caused some of the wiring to melt. A new control box has been obtained and should be fitted shortly.

Steve Roberts



In between passenger trains on Saturday 24th September, Class H 1310 shunts the Dogfish wagon, before returning to the platform to take on the coal from the buckets which the crew have prepared.

Photo © Ian Dobson 2022

Letter to the Editor

Dear Editor,

July's "Old Run" (p 16) carries a picture of me "*explaining how a steam engine works*". Just to clarify: my knowledge of this topic is quite rudimentary.

Yours

Richard Stead

The Editor's Assistant Comments:

Richard is too modest! He has spent quite a lot of time finding out about such things, not least so that he can then explain them to our visitors. Consequently, he would certainly have had more knowledge than the school children to whom he was explaining this.

In particular, Richard has put a lot of effort into developing the illustrated talks, which have been a feature of recent Heritage Open Days (when we have been able to run these).

The picture below shows him giving one of these talks in the most recent Open Day, on Saturday 17th September. Unfortunately, it doesn't show any detail of his drawing (in the folder on his lap), which he is using to illustrate the talk.



Letter to the Editor

Dear Editor,

Since 1975 a number of full size working replicas have been built of early locomotives, for example *Locomotion*, *Rocket*, and *Steam Elephant*. The Middleton Railway has a fine collection of Leeds built locos, but what about the most famous and successful locomotive Leeds produced, a *Jenny Lind*, built by E B Wilson in June 1847. None exist any longer.

Ten were built for the London Brighton and South Coast Railway. A trial was made on the Midland Railway and was so successful that the Midland ordered 25, and these were delivered between September 1847 and November 1852.

In 1848 a *Jenny Lind* worked the 63½ miles from Derby to Altofts junction (north of Normanton) in 68 minutes, an average speed of around 56 mph. Two were tested on the Great Northern Railway and proved so successful that two were ordered.

Over 70 were built at the Railway Foundry in Leeds, their size increased over the years as more power was required. The last three were built in 1860 for the Commonwealth railway in New South Wales, Australia and remained at work for 25 years.

The Museum of Science and Industry in Manchester built a full working replica of *Planet* and is said to be working on a full size working replica of *Lion*, two early locos of the Liverpool and Manchester Railway. Surely what Manchester can do Leeds can do. At present the cost of building a replica *Jenny Lind* is presumably beyond the finances of the Middleton Railway so a separate group would be needed to construct it.

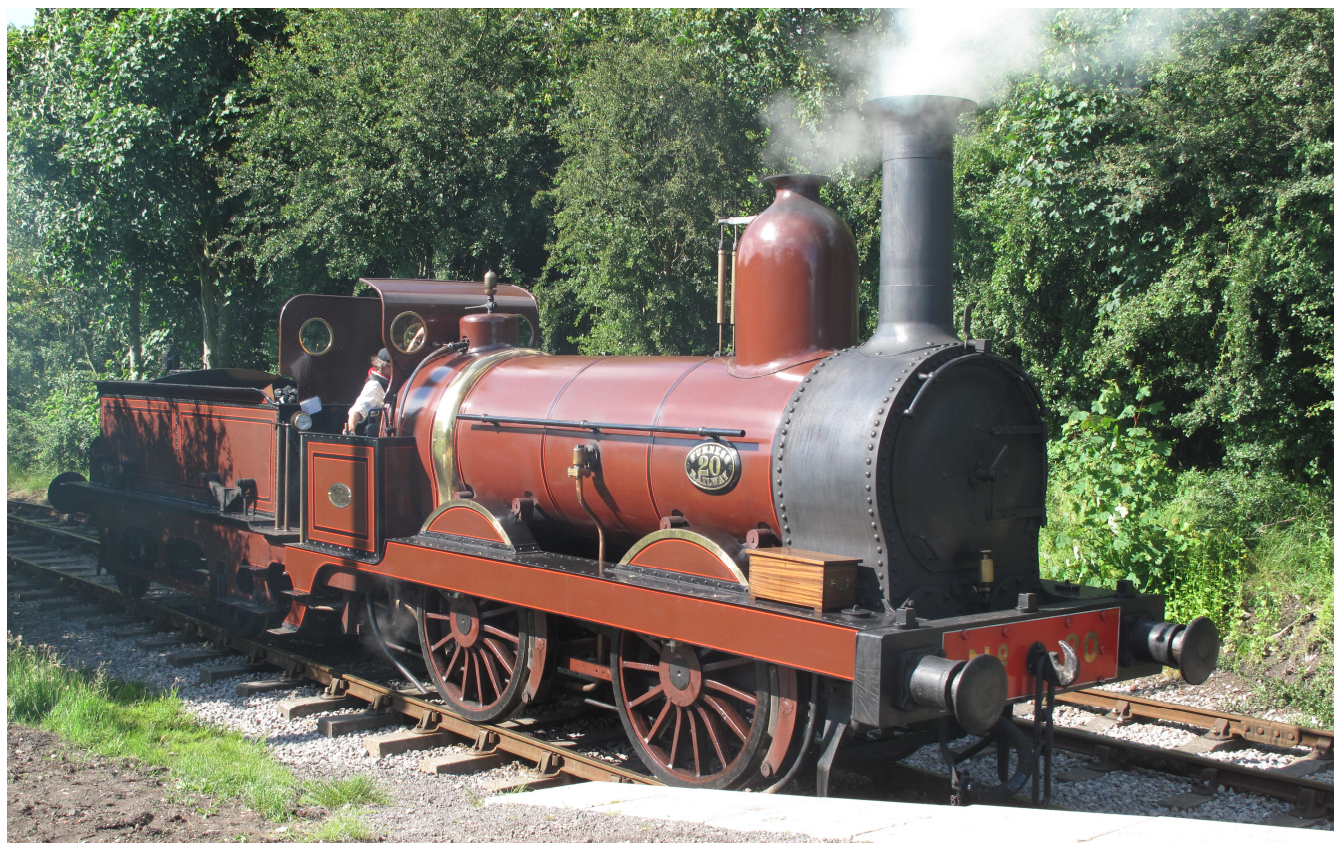
James Rogers

The Editor's Assistant Comments:

Well, it's an interesting idea, but James is quite right that there is clearly no way in which the Middleton Railway could finance such a project.

Also, it is not clear how useful such a replica would be, particularly as the maximum speed limit on our line is only 10 mph. We have had a tender locomotive here once, when Furness Railway No. 20 visited for the 200th anniversary of steam traction, in 2012. The picture on the next page shows it at Park Halt, and it was a huge attraction, but this visit also showed that tender locomotives were not very well suited to Middleton operations.

A Jenny Lind for Middleton?

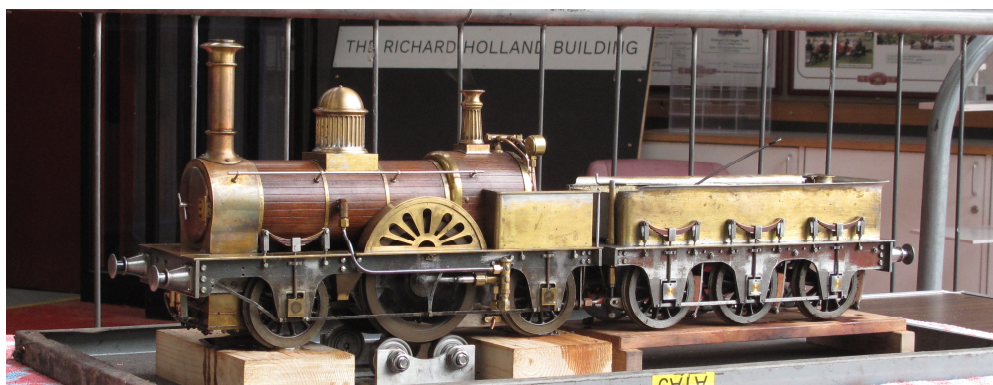


Furness Railway No. 20 at Park Halt, during our event in 2012 to mark 200 years of successful steam traction. Photo © Tony Cowling 2012

James refers to a project to construct a replica of *Lion*, but there has been very little information about this recently. Indeed, it is not even mentioned in the Wikipedia page “Steam locomotives of the 21st century”, which lists over 20 projects that are still in progress for constructing replica steam locomotives (although one or two of these may be little more than pipe dreams!).

Also, one has to ask whether constructing such a replica could possibly be a better use of resources than financing the boiler repairs that are needed for some of the locomotives already in our fleet? So maybe the nearest we shall get to having a *Jenny Lind* operating here will be the model that Richard Linkins described in his article in the July 2020 Old Run.

This model is seen here in steam in the Engine House, at our Gala in October 2021.



DSB 175

Given our connection with the Danish State Railways, through the presence here of Hs385, it was only right that we should take some notice when we discovered (a few weeks after the event!) that they had celebrated their 175th anniversary on 26th June. The first railway in Denmark, the Zealand Railway, ran between Copenhagen and Roskilde, and its first train had run on 26th June 1847.

A major feature of the anniversary celebrations was a series of special trains in and around Copenhagen, hauled by the replica locomotive *Odin*. The original *Odin* had been the first of a class of five 2-2-2 locomotives, which had all been built by Sharp Brothers of Manchester in 1846 for the Zealand Railway, to a very similar design to Robert Stephenson's *Patentee* class. Unfortunately, as with many early locomotives, they were soon superseded by larger and more powerful machines, and so were scrapped long before anybody had any thought of preserving any of them.

The replica was therefore built as a special project by the Danish Railway Museum at Odense, and the picture below shows it in use there for the first time, on 15th September 2018. So, given the right circumstances, replicas of historic locomotives can have their uses! In saying this, though, there have to be two notes of caution. One is that there seems to be no public information about what it cost to build, although it seems fairly sure that the answer is "a lot"! The other is that it is definitely known that designing and building the replica took 15 years!



Photo © Flemming Weddell 2018



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Farewell to Royalty



On Sunday 18th September, HE 2387 "Brookes No. 1" was running the trains for the Heritage Open Day event, and was carrying a wreath in memory of the late Queen Elizabeth !!.

Picture © Tony Cowling 2022