

AUTOCAR

1903 North Eastern Railway Electric Autocar Trust

Newsletter No. 41 — Summer 2020



The North Eastern Railway 1903 Electric Autocar Trust

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Front Cover: *The autocar on a gauging/testing run on the Mountsorrel branch of the Great Central Railway on 7th March. Unfortunately, due to Covid-19, the planned running had to be cancelled.*

(Stephen Cobb)

July 2020

Welcome to the 41st issue of our newsletter. I hope you and your families are all well. In common with most other heritage groups, our activities have been restricted due to Covid-19 and the lockdown. We have still made progress since the last newsletter though, both before the lockdown and then in home workshops. Whilst the lockdown period has been a great challenge for some, for others it has been an opportunity, whether to catch up on tasks or to try new things. At the time of writing, lockdown is being eased and we hope to restart some of our more collaborative restoration work soon.

Dave Moore has been able to make some progress on the engineering/mechanical side at Loughborough, with a satisfactory pre-lockdown traction test, pictured on page 19.

This issue sees the second 'centrefold'. Alan is not short of jobs to do and has been able to use his home workshop to work on the autocar's heating system, but couldn't resist the challenge of colourising the panoramic black & white image of the autocar at York in the early 1900s. I thought the composition and resolution of this picture deserved a double page spread.

We also have a brief overview about the LNER Coach Association, another heritage group with an interest in things north-eastern.

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Chairman's notes

John Furness

Well, that's this year's world tour in the bin. Damn the bug. As I write, the autocar is still safely locked up in Loughborough shed. Dave Moore says he still requires three weeks to complete the scheduled work, once the lockout is lifted. So it will be a while before it gets home to Embsay.

So what is there to report? Well, quite a lot. But all on the trailer. It is now unlikely to be completed this year. But as I said to the gang, we have one chance to do a good job on it. So let's make the most of it. I will let others tell the tale about the interior and its electrical gizmos. I have concentrated on its appearance. With the trailer body lifted and the bogies moved out, these were given a good clean up and painted. Which improved their appearance no end. Also, as much of the metalwork underneath as possible was painted as well. Likewise, whilst the body could be raised to a sensible height, the solebars were cleaned and painted. The crimson paint chosen was specified in a recent series of books on pre grouping liveries. And it is actually the same as BR 'blood' (as in 'blood and custard' coach livery). It looks quite bright. I have done my garage door in it as well, and actually it is really nice in large areas.

Also on the cosmetic front, I have altered the appearance of the driving end considerably. The vacuum pipe, which was an LNER addition, has gone, with a low level unobtrusive one in its place. There is a full complement of lamp brackets and the gas shut off apparatus for the lights is made and fitted. All completely fake, since the coach now has electric lights. It now has its correct face. It was decided to leave the other end's vacuum pipe alone as it's part of the vehicle's history. And it will keep it out of the way of the jumper connections which are to be fitted. *(See pictures on pages 6 & 7).*

On a slightly disappointing note, we are still waiting for the civil engineers and fund raising types amongst us to come forward to help with the shed. If you can help, do please get in touch asap. Meanwhile, 'Stay Safe' everyone.

Opposite: *No. 3170 departing Bolton Abbey station last April. (Alan Chandler)*



Autocar Trust Vacancies:

Secretary, to keep records, deal with correspondence & submit official reports.

Publicity Officer, to publicise and promote the Trust, liaise with the media and engage with the public, including online through social media.

Fund-raiser, both to solicit donations & generate finance through sales.

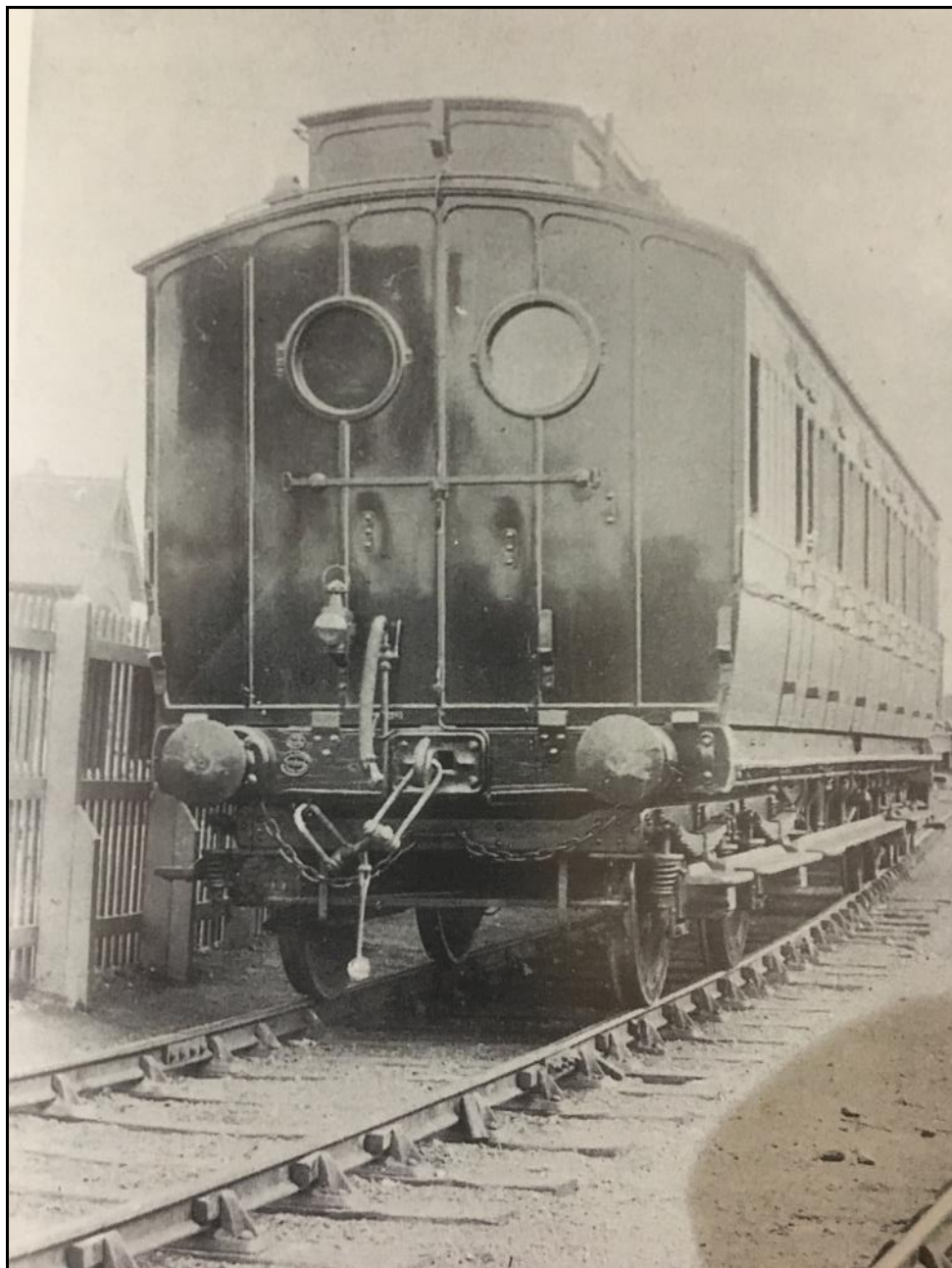
Civil engineer, for leading a shed construction project.

Grant application lead, for the shed/museum.

Any **members of professions**, for technical advice when needed.

Volunteers/stewards, to assist with passenger PR work and staffing publicity/sales stands at exhibitions and/or when the autocar's 'on tour'.

Please contact us via the details given on the inside of the front cover.



An autocarriage (trailer) end comparison:

Firstly (© J.F. Mallon collection/North Eastern Railway Association) 'as was'.



Now, our trailer autococh following the work as John described on page 4. (JF)
Our thanks to the North Eastern Railway Association for allowing us to reproduce JF Mallon's picture opposite.

Mountsorrel Branch test-run

Photos by Stephen Cobb



After the Winter Steam Gala, the autocar ran in February on the main line and was scheduled to run again for the GCR's 'Goods Galore' Gala on the 28th & 29th of March. It was also due to operate services on the GCR's Mountsorrel branch on the weekend before the Gala. However, Covid-19 intervened and neither event took place, though a test/proving run did take place on Saturday 7th March. This was well attended and the consensus was that the autocar fitted the branch well. Hopefully we can return before too long.

The Mountsorrel branch runs for a mile and a quarter from Swithland Sidings on the GCR (about half a mile north of Rothley station) to Nunckley Hill and Mountsorrel Halt. The line was originally constructed for granite stone traffic but the restoration and operation is now a community project, working with the GCR. Their web-page is at: <http://heritage-centre.co.uk/home-page/>

Our thanks to Stephen Cobb for the pictures.



Top: Mountsorrel Halt, with the autocar drawing attention.

Below: Nunckley Hill, with the heritage centre behind the photographer.







Autocar at York c 1910, colourised by Alan Chandler.

Progress Report

Steve Hoather, pictures Alan Chandler

Whilst the power car was at Loughborough, work continued on the trailer at Embsay. Andrew almost finished installing the air pipework whilst Alan and I installed the two conduits (one for the control cables and the other for the heating cables) and this became urgent as we were overstaying our welcome on the jacks, which were needed for other coaches needed for service. By the time of lockdown at the end of March the vehicle was back on its bogies, the air system had been tested (apart from the passenger alarm valve and whistle which are yet to be fitted) using the class 37 loco and I had connected up the 36 way control jumper at both ends of the coach – not an easy task because of the cramped space.

Meanwhile, Geoff, Colin and Dave worked on the interior – in preparation for fitting luggage racks the trim at the top of the seats had to be lowered, and Colin concentrated on the internal trim on the doors. It was necessary to have new brackets cast for the luggage racks, and these arrived just before lockdown but needed a lot of fettling, so Geoff took them home to do during ‘the duration’.

We have decided to repaint the vehicle in lined NER livery, but before doing this, John added some external fittings such as a dummy gas valve and operating handles at the driving end, and changed the high level vacuum pipes for low level ones. The visible parts of the underframe were also wire brushed by Dave before painting black to improve the appearance.

Meanwhile, down at Loughborough, Dave continued work on the power car. The two extra fuel tanks were de-isolated and tested, these will roughly treble the fuel capacity, and a larger cooling system header tank with a better gauge was fitted – see photo opposite.

The main part of the work at Loughborough was connected with the heating system. When I first wrote the specification for the project ten years ago, the plan was to use the engine cooling system to feed radiators in the saloon of the power car, and to have electric heating in the trailer, for which we provided 15 kw of capacity in the auxiliary alternator. As the project progressed, we realised that using coolant heating would not work so we had to abandon the idea. We then decided to use the 15 kW electrical capacity to provide background



heating in both vehicles and Alan and I spent some time last summer in finding suitable heaters for the power car, eventually settling on 6 x 1200 Watt fan heaters, giving a total of 7.2 kW. As described in previous newsletters, we made

a start on fitting the heaters, but were unable to test them until Dave had installed some extra control equipment at Loughborough. By early February this was sufficiently advanced to run the six fan heaters, so Alan and I went down one Saturday morning to help Dave test the effect of these heaters. We found that after 40 minutes with the engine running, the saloon temperature stabilised about 12 degrees C above ambient, which is roughly what Alan had calculated and this confirmed our design for the power car was satisfactory.

Shortly before lockdown, we had ordered from Yorkshire Profiles the material for the heater enclosures. Alan was able to spend some of the time assembling these (photo A opposite top) and they are now ready for painting.

The next problem was the design for the trailer. Some time ago we had been given some heater elements. These were just too long to fit under seats in the power car but were ideal for the trailer. However, with six compartments (12 heaters), they would have brought the total load on the alternator up to about 18 kw. Bearing in mind that this load is with the engine idling, with a frequency of 28 Hz instead of the normal 50 Hz, Dave sought advice from the alternator designer and they agreed that a load test to measure the machine temperature would be the best way forward. In the middle of June, therefore, he rigged up a stack of 12 of these heaters and fed them from the new Train Heat jumper socket he had fitted on the buffer beam (photo C), together with the six fan heaters in the saloon and ran the engine for 90 minutes, at the end of which the machine temperature was 70 degrees, whereas the insulation limit is 140 degrees – a very good result, particularly as the ambient temperature was high.

If this all sounds a bit technical (which it is!) in simple language it means that we already have heater elements (B) suitable for the trailer and just need to design and make mounting brackets and guards to fit one under each seat – not a five minute job, but it's a considerable saving on the cost of buying new heaters. There are a number of other small jobs to do on the power car at Loughborough, now that the restrictions are easing, but it should be ready to return to Embsay early in July. It will be ready for service, with outstanding jobs to fit curtains (the large windows can make it like a greenhouse), straps for standing passengers, and finish installing the saloon heaters.

On the trailer, the next engineering jobs also need the power car – testing the control jumpers, static and running brake tests with our independent engineer, and then, of course, detailed design and fitting of the heating. Plenty to keep us busy – when we are able to resume work!



Welcome to the LNER Coach Association — A Brief History

The LNER Coach Association was formed in 1979. The aim was to acquire LNER carriages from BR departmental, internal user and control train use to be restored and used on the North Yorkshire Moors Railway. Many of these carriages were in pretty good structural condition, but all these had the majority of the interior missing. Over the years the LNERCA built up a significant collection of vehicles and have some privately-owned carriages under their wing. The collection has extended to pre-grouping GNR and NER carriages and in 2017 the North Eastern Railway Coach Group became affiliated with the LNERCA. Some notable carriages used in the early years of the NYMR services also became part of the collection, such as unique Thompson Lavatory Composite 88339 and Corridor Composite 18477.

The order in which carriages have been restored has been dictated by where we can obtain grant funding. The Heritage Lottery Fund (HLF), Museum Libraries and Archives (MLA) (previously PRISM fund) and the Ken Hoole Trust have all been sources of funding for specific projects. Several partially restored carriages are now undercover at Spennymoor and these will be attended to once current projects are complete.

Current Projects: **East Coast Joint Stock 3rd Class Dining Saloon no. 189**

Built in 1894, 189 was one of the earliest clerestory bogie carriages on the east coast main line but at this time the East Coast Railway Committee had not decided on a standard for roofs. Later clerestories would have the distinctive



sloping roof ends as featured in GNR Howden carriages of that period. The 3rd class diners were marshalled in the sets alongside a 6 wheeled kitchen car which would have served both it and a 1st class diner at the other end of the kitchen car.

Currently resident in the Atkins shed at Pickering and under long term

restoration. This has included stripping the body down to the frame, replacing much of the longitudinal clerestory rails, most of the roof boards, some of the body pillars and making the internal saloon partitions stronger to help support the roof. No. 189 has also been put on a shortened Gresley chassis which will also help the fitting of Pullman gangways and buckeye couplers.

Now restoration is very advanced but there is a great deal of expense expected in reproducing the unusual cast iron seats in the saloon and the gas lighting chandeliers. All the missing interior fittings need to be made from scratch and without patterns or drawings.



Left: No. 189 being sign written by Chris Johnson in 2018 (Dave Cullingworth)

Opposite: A colourised archive photo of a similar carriage to no. 189.

(Courtesy Dave Cullingworth)

North Eastern Railway Open Third 945

This carriage was built by the LNER in 1924 to provide dining facilities for third class passengers on Hull and Newcastle to Liverpool trains. Earlier carriages of the same type had been designed and built by the North Eastern Railway. No. 945 has several LNER modifications including Gresley bogies rather than the Fox type and Pullman gangways and buckeye couplers in place of the British Standard gangways and screw couplings. We also believe that it was built in varnished teak livery from new, as the panels were all teak, however, the ex works photo is inconclusive. The orthochromatic photos of the time do not show up teak graining and are very dark.

No. 945 was purchased by the North Eastern Railway Coach Group (previous owners of the autocar's trailer coach no. 3453) in 1973 and it was moved to the North Yorkshire Moors railway where it initially provided mess facilities at Goathland. Later moved to Levisham, where restoration commenced and by 2017 this was advanced. It was repanelled in steel whilst at Levisham, as it is the intention to restore the coach into NER dark crimson lake livery. The interior is largely complete but does need luggage racks and steam heating.

The NERCG became affiliated with the LNERCA during 2017. In July 2019 it was moved temporarily from the North Yorkshire Moors Railway to undercover storage facility at RSR Northeast Ltd, Before the lockdown, work had started on preparing the roof for a new canvass.

The Future:

The primary LNERCA site is on the North Yorkshire Moors Railway, where the teak set runs on the Pickering - Grosmont section. The timber framed carriages are not registered to run on Network Rail to Whitby and with the fleet exceeding the operational requirements of the NYMR, it is likely that some of the carriages may get hired out to other railways, providing funds for maintenance.

The LNERCA stocklist can be found online at: <http://www.lnerca.org/home/stocklist/> For further information please contact me directly. I am currently Secretary of both the Autocar Trust and the LNER Coach Association.

Dave Cullingworth

Great Central (March) Traction Test

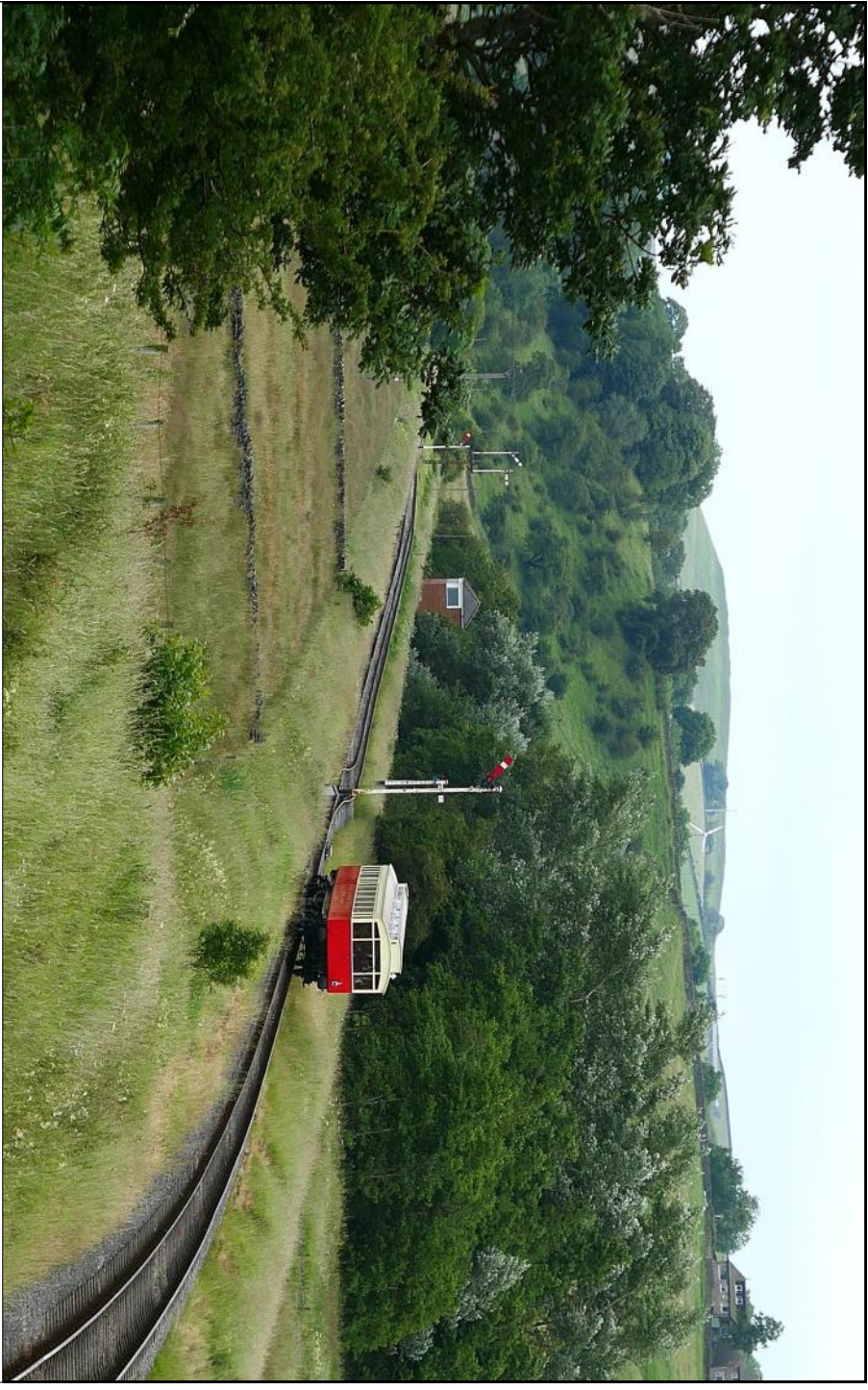
Dave Moore

After some work on the powerunit, the autocar went for a test on the GCR using a class 20 diesel as a load. We did numerous hill starts and climbs whilst taking measurements, at various power handle positions. The autocar made light work of the class 20 and is quite capable of delivering the 800 amps maximum tractive effort at standstill. This was the first time I've had the chance to see just what it's really capable of under test conditions.

The engine delivers full power from about 6 mph up to well beyond 25 mph, which is good news and confirms that the 75 mph suburban bogie we have is a good choice for this job. Everything ran really well and after a couple of hours testing, I identified the intermittent traction offloading problem we have seen. It depends on how the power handle is operated, but at high powers the engine has a tendency to droop its revs when it loads up. This causes the traction current to fade out and can be recovered by pulling the handle back and then gently re applying power. I got plenty of recordings on the scope and can see that it's caused by the HST style engine load control electronics not being adjusted correctly to suit our modern little Cummins engine. So, now I've quantified it, based on the measurements taken, I'm now working on some minor electronics modifications to fix this.



The autocar towing a class 20 while testing on the Great Central. (Both DJM)



A nostalgic look back at last summer: Draughton Loop between Embsay and Bolton Abbey. (Alan Chandler)