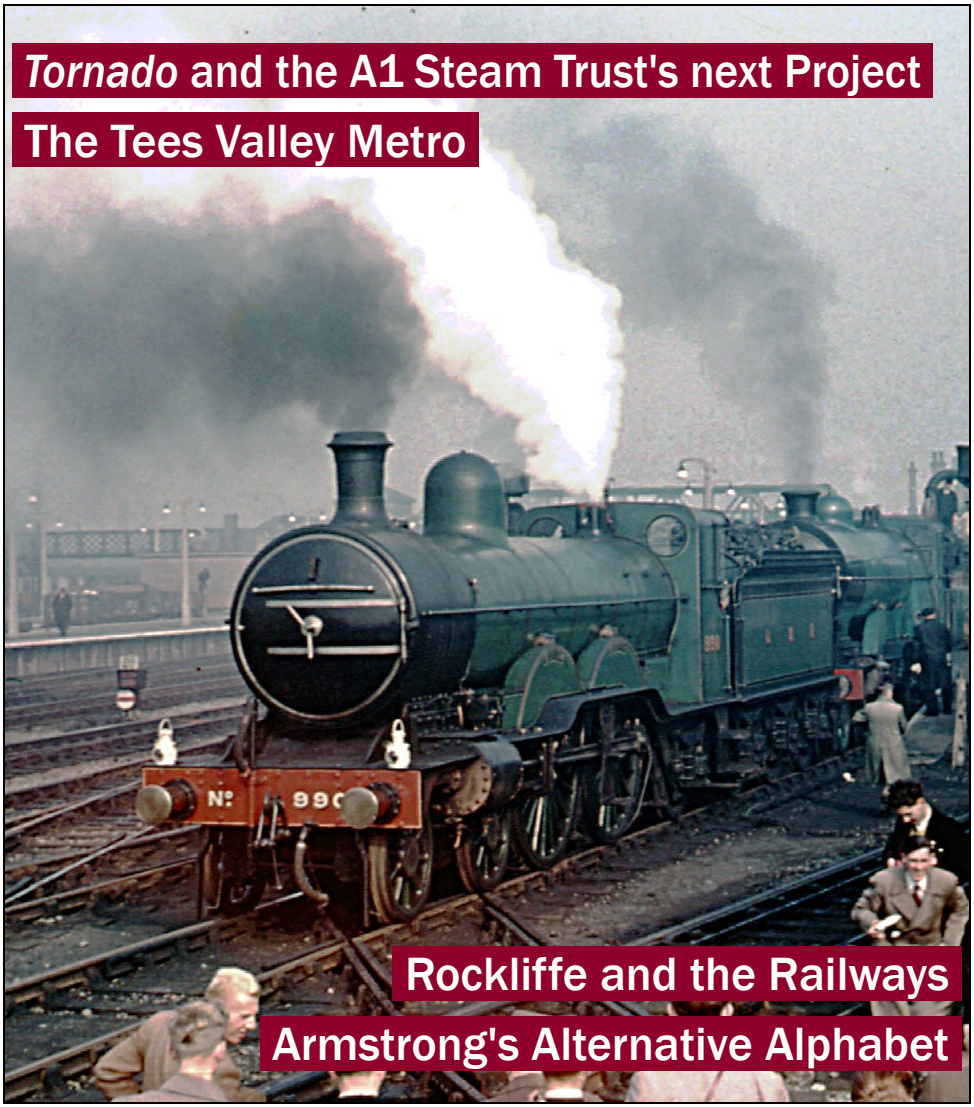
Friends of Darlington Railway Centre and Museum

Newsletter

Winter 2013/14 Free



Tornado and the A1 Steam Trust's next Project

The Tees Valley Metro

Rockliffe and the Railways

Armstrong's Alternative Alphabet

BOILERPLATE:

Index, small print and editorial waffling

Index

Introduction

As you are probably aware Darlington Borough Council has decided that it will not fund the Museum beyond March 2016. Leona White-Hannant and Sarah Gouldsbrough of the Museum discussed the matter at the November meeting but had little information themselves beyond the less than reassuring note that the Council is looking for “alternate business models” for the running of the Museum and seemed confident that “something would come up”. It is discussing possibilities with other North Road site users (A1 Steam Trust, NELPG, DRPS...) as well as the original Museum Trust such as introducing volunteer running and attracting other sources of funds.

The Council's support will continue at the current level until 2016 and perhaps one should be grateful that it has at least been forthcoming about its decision. Support for the Museum has already been voiced especially in *The Northern Echo* and local TV news.

Perhaps the next issue can include a more comprehensive item about the Museum's future. In the mean time the best way to support it is to visit it. Entry may be free to members of the Friends but all visitors are counted and any increase in numbers will help.

Tim Ruffle, Editor

Front Cover: GNR Atlantics 990 and 251 double head an enthusiast's special departing York Museum in 1953. *Photo' Ken Cockerill from the Armstrong Railway Photographic Trust (page 20).*

Contacts

If you have material for the newsletter, be it an article, photo' or a short anecdote to fill the last few lines on a page, do send it- it might not get in but it will be considered. Information and announcements for members may well end up here and on the website, which I also look after, but such things should be sent to the Committee.

I much prefer to be contacted by e-mail, especially if it saves me some typing, but you can reach me by post. Note that, In a desperate attempt to be organized, the web-site has its own e-mail address. Material for both can go to either address as long as that is clear.

newsletter@friendsofdrcm.org
webmaster@friendsofdrcm.org
01388 722245 or 075058 13480

38 Denebridge Row
Chilton
County Durham
DL17 0HN.

This newsletter was printed by Denham Printing Co. Ltd. with whom neither the Editor nor the Friends of Darlington Railway Centre and Museum has any affiliation except as a customer:

sales@denhamprinting.com
01388 721094

Unit 47C
Avenue Four
Chilton Industrial Estate
County Durham
DL17 0SQ

TALK:

Tornado. Now and in the Future
10 January 2013

The A1 Steam Locomotive Trust was set up in 1990 to build and then operate a Peppercorn A1 Pacific steam locomotive. ***Tony Lord*** *is the Works Manager of Darlington Locomotive Works and his comprehensive and much appreciated talk covered how the idea took shape, cost implications and the business plan drawn up to ensure that the project would be completed before describing how the required skills, materials and drawings were found and how the project moved forward. This report is prepared from his notes. All photo's furnished by the A1 Steam Locomotive Trust unless otherwise credited with particular thanks to* ***Neil Whitaker****.*

The original A1s were numbered in an unbroken sequence from 60114 to 60162. The new locomotive's number, 60163, marked her from the start as the fiftieth in the class rather than a replica and, although unmistakably an A1 there were to be more differences between her and the LNER machines than a first glance would reveal.

Inside Darlington Locomotive Works on 5 April 2008. *Photo's: Tim Ruffle.*

Boiler testing in 2008. Under close scrutiny the fire is lit, pressure builds and the safety valves lift for the first time.

Some changes were made out of necessity- no-one makes riveted boilers any more so *Tornado's* would be welded and her firebox was to be steel rather than copper. She would have to carry a battery of modern electronic equipment to work with modern signalling systems. Other changes were planned with her place running on a modern railway network in mind. For instance her tender's coal space was to be half the size of that in the original A1s. Enlarged water tanks filling the gap, and the space for the water scoop, would extend her range in an age without water troughs.

Parts for the new A1 were sourced from all over the UK, Europe and as far away as South Africa. The biggest single component to come from abroad was the boiler, this being manufactured in Meiningen, Germany, where there is still a fully functioning steam locomotive works... Gone are the days when we could have had all the parts made at one location in this country. Nonetheless the locomotive was constructed in this country the frames being built in Tyseley near Birmingham and the locomotive assembled in Darlington at the Hopetown Lane Carriage Works of the original Stockton and Darlington Railway. This is most apt as 23 of the 49 original A1s were

The LNER/BR A1 Pacifics

LNER steam loco' classification *seems* straight-forward. Each wheel arrangement has a letter just as most have names more generally so 2-6-0s, widely called “Moguls”, are Ks, 2-8-2 “Mikados” Ps and, of interest here, 4-6-2 “Pacifics” are As etc. Classes are numbered so the two Pacifics inherited at grouping became A1 and A2. The LNER though would reassign unused class numbers and then there were the sub-classes... At grouping there were eleven A1s (Gresley's GNR design) and two A2s (the NER's biggest loco' designed by Raven). The LNER continued to build both but favoured the A1 (only three more Raven A2's were built- all were withdrawn in the '30s) the class eventually numbering 52 including *Flying Scotsman*. The design was modified to become a new class, the A3, and 51 A1s were rebuilt as A3s along with 27 new loco's built from 1928, the last conversion completed under BR in 1949! The first of the class, 4470 *Great Northern*, was not so lucky. It was extensively rebuilt by Edward Thompson, who succeeded Gresley as CME in 1941, as a mixed traffic loco' against no little opposition from LNER officials and his own staff. His plan to rebuild all the remaining A1s thus stalled but they were reclassified A10 in anticipation 4470 remaining A1 in spite of the fact that much of the original, including the frames, had been discarded.

Thompson hoped to introduce a new standard express passenger locomotive but the war ruled out such extravagances then, with his retirement imminent, progress on new locomotives was slow. In 1946 he was succeeded by Arthur Peppercorn who endeared himself to many at Doncaster by reinstating some of Gresley's assistants. Design work then proceeded apace dropping an initial resemblance to the Thompson A1 rebuild and flirting with streamlining before producing a work-horse for heavy post-war trains. The large firebox (50 square feet grate) and double chimney with Kylchap exhausts allowed free steaming on poor coal and a long service interval (118,000 miles between heavy overhauls) would make them the cheapest to run Pacific in Britain.

49 of the new locomotives were ordered by the LNER, 26 to be built in Doncaster the rest in Darlington, but all entered service with British Railways after Nationalization the first, 60114

Yet to be named 60163 canters past Preston-le-Skerne at the head of her first public outing, the *Peppercorn Pioneer* , on 31 January 2009. *Photo' Tim Ruffle.*

built in Darlington at the North Road Works. The first metal was cut in 1994 and 60163 was completed in 2008 at a cost in excess of £3m, nine years later than originally envisaged. This gives some idea of the unexpected difficulties encountered on the way and the amount of work necessary to overcome them.

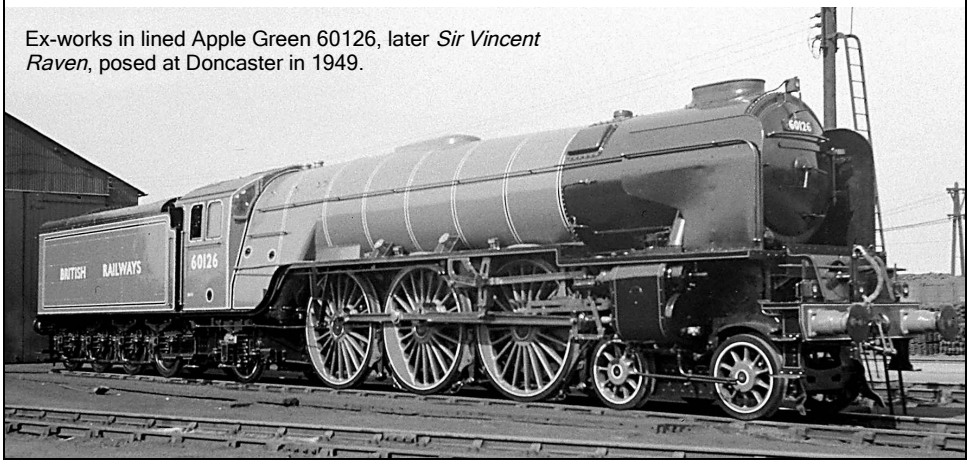
60163 first moved under her own steam in Darlington and was then moved to Loughborough, Leicestershire where she carried out 60mph trials on the Great Central Railway and obtained approval for testing on Network Rail. She moved to the National Railway Museum in York in November 2008 and carried out main line running trials at 75mph between York and Scarborough then York and Chesterfield. She was passed out for service on the main line and then went for painting in the Museum.

On 31 January 2009, 60163 pulled her first scheduled passenger train from York to Newcastle on Tyne and her second train from Doncaster to Durham on 1 February. She made her first run to London Kings Cross from Darlington on 7 February and, on 19 February 2009, was officially named *Tornado* at York station by TRHs Prince Charles and the Duchess of Cornwall.

W.P. Allen, emerging from Doncaster in August 1948 in LNER Apple Green with “British Railways” in block capitals on the tender. They were the last express passenger class built for the ECML. In spite of the regime change the North Eastern Region of B.R. kept the LNER's classification so the new class was designated A1. (4470, still going strong, was reclassified A1/1. Clear? Tough.)

Peppercorn's A1 was quickly accepted by crews as an eager and hard working class well able to cope with 600 ton expresses. All eventually received names falling into seven different categories. *W.P. Allen* was a GNR trade union official who went on to become a member of the railway

Ex-works in lined Apple Green 60126, later *Sir Vincent Raven*, posed at Doncaster in 1949.



Rail enthusiasts followed the Trust's progress from their first announcement but, even before she was completed, *Tornado* attracted far wider interest and has a celebrity status accorded to few locomotives. The BBC's *Top Gear* joined the hubbub racing a car and bike against *Tornado* from London to Edinburgh with Jeremy Clarkson of all people firing. Naturally the car won, how it was a race when one runner was keeping to a timetable remains unclear, but *Tornado* was the star with "Jezza" pausing to gush in admiration and, in a moment filmed but *not* broadcast, being wrestled for the coal shovel when some quick firing was necessary. The complete film is readily available on line. In 2012 after Winter maintenance Mills and Boon took over a running-in turn on the Mid-Hants Railway for the winner of their Dream Proposal competition to pop the question on the "Leap Year Special". Models of *Tornado* are available in all popular scales whilst anyone with a large garden and a few thousand quid to spare can look forward to Accucraft's live-steam Gauge 1 model.

As the judges awarding the Trust 2010's National Rail Awards stated, "*Tornado* spent its first year capturing the hearts and minds of railway staff, enthusiasts and the general public." They also praised, "the dedication, innovation in engineering and, above all, the team's aim to work with modern accreditation and certification requirements without hesitation". Amongst other accolades the Trust also won the Henry Royce Award from the Institute of Mechanical Engineers.

Tornado now has her own support coach, fitted out at Darlington Works, and the Trust is hoping to be granted clearance for 90mph running. A4 4464 *Bittern* did so recently but with special dispensation- the usual speed limit for steam is 75mph but that was established with loco's long past their prime in mind. She has carried all three liveries in which the A1s were originally painted, Apple Green, British Rail "Brunswick" Green briefly and now the short-lived British Railways Express Blue (in which some originally entered service). She has covered over 60,000 miles running on Network Rail and the various Heritage Railways she has visited since 2008.

executive. 19 carried Scottish names (most previously carried by NBR loco's) ten drawn from the life and works of Sir Walter Scott, the rest Scottish locales. Thirteen were named after racehorses, six after birds (four names previously carried by A4s), six after locomotive engineers (three each from the GNR and NER) and four after pre-grouping companies of the LNER.

Five years after the A1s entered service *The Modernisation and Re-Equipment of British Railways*, better known as the Modernization Plan, was published sounding the death-knell for British steam. Although not as short lived as the BR Standard classes the A1s had plenty of life left in them when withdrawals started in October 1962 with 60123 *H.A. Ivatt*. 60123 had suffered accident damage but five more A1s were withdrawn by the end of the year. Two held out until 1966 the last, 60145 *Saint Mungo*, withdrawn in June after a service life of just over 17 years- still more than a year longer than the class average.

Not made to set speed records, not as sexy as Gresley's loco's and not old enough to be considered historic for all that they were highly regarded by those who worked with them in spite of efforts to save 60145 not a single member of the class was preserved. *Editor.*

60157 *Great Central* being cut up at Draper's Yard in Hull in 1965 having been withdrawn in January.

The Future

As if building the first new main line steam locomotive for all but 50 years was not enough the A1 Steam Trust now aims to bring a second class back from extinction. Not just any class either but Sir Nigel Gresley's P2- the most powerful express passenger locomotive to run on British metals when introduced and one that was, arguably, even more unlucky than the A1. The task ahead goes beyond “simply” building another locomotive for, although their flaws may have been exaggerated by their detractors, the P2s did have their problems which were not properly addressed before they were rebuilt. Network Rail would not welcome a machine of questionable reliability and the Trust certainly does not want to build a white elephant so it conducted an exhaustive feasibility study. Solutions to many, if not all, of the P2's issues have long been proposed, particularly a redesigned pony-truck as successfully fitted to the V2, but building a new locomotive (at an estimated cost of £5m) to try them on is hardly a sensible way to test them.

Happily there is a way of building the loco' without actually building the loco'. DeltaRail's VAMPIRE Software (Vehicle dynAmics Modelling Package In a Railway Environment or Very Advanced Modelling Package for Inquisitive Railway Engineers depending on who you ask) allows one to build virtual rail vehicles for testing in a computer. That sounds simple enough but VAMPIRE was designed for modern bogie-borne stock and it was by no means certain that its results would be accurate for steam locomotives so *Tornado* played a part in applying it to the P2. The first stage was to simulate an A1 using VAMPIRE and compare its results with the real-world figures recorded testing and running *Tornado*. The correlation was close enough to convince all concerned that simulating a P2 was a worthwhile exercise. A simulated P2 following Gresley's design exhibited the problems reported from service further corroborating VAMPIRE's accuracy.

Ongoing tests incorporating proposed design developments have been very promising and, in September 2013, the Trust announced that the build will go ahead and established the P2 Steam Locomotive Company. Incidentally the results from the A1 simulation have added considerable weight to the Trust's arguments for allowing *Tornado* to run at 90mph.

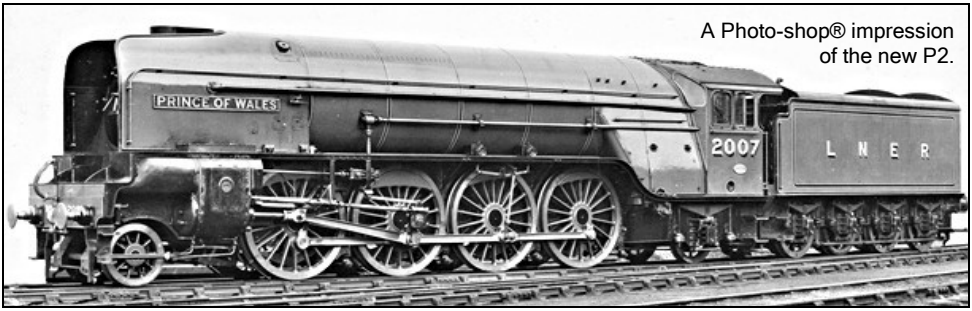
The LNER P2s

Sir Nigel Gresley's mighty Mikados were built for expresses on the Edinburgh-Aberdeen main line their wheel arrangement favouring adhesion and power over out-right speed on a twisting route with steep gradients where double-heading was often necessary. A mere six were built and they remain the only eight-coupled locomotive class made for express passenger service in Britain.

All were built at Doncaster the first, 2001 *Cock o' the North*, out-shopped in mid-1934. She had three cylinders, an A3 type boiler with extended fire-box (common to all P2s), a double chimney with Kylchap exhaust and smoke deflectors reminiscent of the W1 “Hush-Hush”. Lentz rotary cam poppet valve gear (the middle cylinder controlled by Gresley's conjugated motion) and a water pre-heater contributed to teething problems and, particularly in the case of the pre-heater, heavy fuel consumption so the second locomotive, 2002 *Earl Marischal*, appeared in October with Walschaert/Gresley valve gear and no pre-heater. The rest were completed in 1936 with A4 type streamlining (which was better at deflecting smoke than smoke deflectors) and mechanical differences most notably 2006 *Wolf of Badenoch* which had an even bigger firebox so this small class actually had three sub-classes- P2/1 (2001), P2/2 (2002-2005) and P2/3 (2006). The first two were streamlined at their first major overhaul and 2001 lost her pre-heater and Lentz valve-gear effectively becoming a P2/2.

The P2s were a qualified success but most problems can be attributed to the more experimental features on *Cock o' the North* and a swing-link front pony-truck that would stiffen causing stress on the driving crank axles and other problems. Such pony-trucks already troubled Gresley's K3 but he persisted in using them on the P2 and later the V2. There was always some suggestion that the long coupled wheel-base was ill-suited to the Aberdeen line's relatively tight curves but their entire pre-nationalization careers were on the route (perhaps exaggerating the pony truck issues) so the extra adhesion seems to have been worth the compromise.

The P2's problems all appear to be the sort of things that could have been ironed out in time (like



A Photo-shop® impression of the new P2.

Once again the Trust aims to build a new member of the class, which would be numbered 2007 and named *Prince of Wales*, suitable for running on a modern railway rather than a slavish replica and their loco' will have about 70% of its parts in common with *Tornado* including the boiler which matches the P2/A3's exactly in every major respect- an important consideration in the Trust's choice to build a P2 and a great head-start. 2007 will be built in original form rather than streamlined but with three sets of valve-gear forgoing the conjugated motion. Perhaps surprisingly the P2.S.L.Co. has opted for rotary valve gear to better match *Cock o' the North* but to the Caprotti pattern which has been so effective on 71000 *Duke of Gloucester*. All the drawings necessary for the manufacture of the P2 have been found at the National Railway Museum in York, scanned and reproduced. It is estimated that the build will take 10 years and cost £5m.

Tornado is in action on rail tours and at heritage railways all over Britain. The A1 Steam Trust's website is www.a1steam.com. The P2 project's website is www.p2steam.com. The Editor's thanks go to DeltaRail for notes on its software and part in the P2 project which could probably fill an article on its own. Note that the P2 Steam Locomotive Company is distinct from the Doncaster P2 Locomotive Trust, one of several new-build projects encouraged by *Tornado's* success, whose ambition is to build a streamlined P2.

the V2- initially a troubled class which became an outstanding all-rounder) but the few P2s were not a high priority. In 1943 though Edward Thompson turned his attention to them rebuilding them as part of his standardization plan. The result was the lumpen A2/2 Pacific which, unlike his A1 rebuild, used as much of the original locomotive as possible. It was the basis for an A2/3 (here we go again) 30 of which were planned but only 15 built before Thompson's retirement and Arthur Peppercorn's new A2 design gained favour. Few in number the the A2/2s were withdrawn by 1962.

Since you were wondering the A2/1s were planned as the last four Gresley V2s but construction was interrupted so they too could get the Thompson treatment. No more were built and all were withdrawn in the early '60s.

(Thompson's apparent disdain for Gresley's designs has been attributed to GNR/NER rivalry and he was Sir Vincent Raven's son in law but he worked for the NER for only a couple of years before becoming Carriage and Wagon Superintendent for the GNR in 1912 succeeding Gresley who had been made CME. He remained in that post for 18 years, with the GNR then the LNER, then spent another 11 years as Works Manager at Stratford and perhaps felt his academic background was under-valued- Gresley joined the GNR straight from college whilst Thompson, only five years his junior, had taken the Mechanical Science Tripos at Cambridge. Thompson was a fine engineer, his rebuilds were ungainly but useful and his own designs included the capable, rugged and highly regarded B1- almost an Austerity Black-5. His steel-bodied coaching stock anticipated BR's Mk 1.

Perhaps Thompson simply had the courage of his convictions. Certainly some standardization was needed on the LNER by the time he took over. The K3/P2/V2 pony-trucks have been mentioned and Gresley's conjugated motion for three cylinder engines was elegant but troublesome without rigorous maintenance, a particular concern during the War. All rebuilds had three sets of Walschaert valve-gear as did Peppercorn's Pacifics. In fairness then Gresley and his locomotives were not above criticism but Thompson does seem to have had a studied disregard for his predecessor and his selection of *Great Northern* for rebuilding appears merely spiteful.) *Editor.*

TALK:

The Tees Valley Metro
7 March 2013

The Tees Valley Metro is a project to upgrade and better integrate local rail services on the Bishop, Durham Coast and Tees Valley Lines and the Esk Valley Line as far as Saltburn. ***Jonathan Spruce*** *is a chartered engineer and Director of Fore Consulting of Leeds which has been involved with this and other public transport schemes. His talk was a comprehensive description of the Metro's history frankly describing its over-ambitious beginnings in 2002, the changes it has undergone, setbacks it has suffered and what has been achieved. Report Tim Ruffle.*

In 2002 the Tees Valley Joint Strategy Unit, established by the five local authorities in the area (Darlington, Hartlepool, Middlesbrough, Redcar and Cleveland and Stockton on Tees), began a study called Transport 2010(!) that reviewed the transport needs of the area over the following decade. It recommended three major improvements:

- Dualling the A66 around Darlington
- A new Tees crossing downstream from the Transporter Bridge
- A light-rail network linking the five main towns.

Naturally the last item is of most interest here and was the starting point of the Tees Valley Metro Project.

The proposal for a light rail network was much encouraged by a 2000 Department for Transport White Paper which was in favour of such schemes. It proposed a new network with its own fleet but, even at the time and read through the most rose tinted spectacles, the economic case was unconvincing. At approximately a billion pounds in today's terms the cost would be far greater than the gain- in business parlance the cost:benefit ratio was below one. It also attracted opposition from 'bus operators who thought much of it simply reproduced their service which carried over 40m passengers per year.

The Metro project was taken over by Tees Valley Regeneration, the largest urban development agency in England backed by funds from One North East. TVR saw the Metro as a key project linking regeneration sites and commissioned several detailed studies to examine the case for the Metro emphasising wider economic benefits which the original cost:benefit analysis, although it had put a value on journey time saved, had given little if any consideration to. TVR broke its analysis down into three scenarios and projected their outcomes:

- Do nothing. Congestion would increase putting off investment, effecting quality of life and discouraging people from moving to or staying in the area. 25-30,000 jobs would be lost over 25 years.
- A “steady state” investment in line with existing transport plans. The region would hold its own.
- Significant investment in some sort of over-all transport scheme. In hand with TVR's regeneration plans this could bring an increase of 25-30,000 jobs.

This did get attention and TVR promoted the Metro aggressively but there had been a significant change in approach. It was noted that all the major regeneration projects were linked by the current rail network (not too surprisingly since many were on sites of industries historically linked by rail). By 2004/5 the emphasis had shifted towards making better use of current assets- namely the existing railway with better rolling stock (the fleet was, and indeed still is, mostly Pacer units) and improved service.

By this time (2005) Network Rail was well established and proving much more open about its plans and spending than Railtrack had ever been. Its published plans for the region involved improved signalling on the Durham Coast Line, a new Tees bridge and level crossing removal and signal updates in the South Tees area all of which would have

an impact on the Metro project and TVR involved these planned improvements in their new business case outlined for 2006. It proposed the use of new or cascaded rolling-stock generally and Tram-Trains for the Darlington to Saltburn line (see opposite page), five new stations serving regeneration areas including Durham Tees Valley Airport (possibly within the terminal) and James Cook Hospital, improvements to present stations, a heavy rail/metro link for Hartlepool and a spur to Nunthorpe linked to the park and ride serving East Cleveland. Operating cost would be around £6.6m a year- a rise of less than a million pounds in spite of doubling service frequency in some cases. The entire Metro cost estimate was now £141m which included just less than £100m or so that Network Rail was planning to spend anyway so the project was left needing £43m. Taking into account the 1,800 or so jobs that the project itself would support the cost:benefit ratio was now over the crucial 1:2 figure the Department for Transport looks for.

Also in 2005 the Government devolved some funding of local transport schemes to the regions which meant proposals had to go through a short-listing process before being submitted to the DfT. The timing could hardly have been worse for the Metro since TVR was still completing its new business case. Network Rail's hesitancy regarding tram-trains counted against the project and the "balance-sheet" approach, taking advantage of Network Rail's spending plans but not including them in the budget, seems simple enough in those terms but appears to have been a little subtle for the decision makers. The Metro project was not short-listed for submission to the DfT, indeed the only Tees Valley public transport scheme that did get approved made improvements to the 'bus network. Matters only worsened in 2008 as the financial shock-waves caused by the credit-crunch made their effects felt.

The Metro was still considered sound but languished until 2009 when it was decided to break the objectives down into two phases with phase one being what was readily achievable such as station improvements and, if new trains were unavailable, acquiring cascaded rolling stock such as Sprinter DMUs. The budget had been re-assessed with Network Rail closely involved... and had gone up to £214m. In fairness Network Rail's figures did include the complete costs of works that overlapped the Metro area and, using the balance sheet model that was now more readily understood and accepted, the funding gap was still around £40m. Local authorities pledged ten percent of any funding bid made and £30m was allocated to the Metro project by the Regional Funding Allocation to carry out phase one. This was the first time that the Metro project had actually been allotted any funding. £4.9m of that was taken immediately for "early wins"- improving poor stations and adding information systems at Bank Top, Dinsdale, Eaglescliffe, Thornaby, Middlesbrough,

Tram-trains operating in Germany. Street running on the dual voltage Karlesruhe Stadtbahn (left) and a French built Kassel electro-Diesel unit on the main line approaching Wolfhagen on Diesel. Both pictures from Wikipedia used under the terms of the Wikipedia Commons licence.

Tram-Trains

The introduction of tram-trains on services to Saltburn was part of the 2006 business case for the the Tees Valley Metro. To put it simply they are trams suitable for street sections in towns and at Durham Tees Valley Airport (if such are ever built but that's another story) that can also run on, and handle passenger services on, the main line. There are also train-trams incidentally which are trains that can run on tram tracks- a subtle distinction that escapes your editor.

Of course both trains and trams run on rails so the tram-train concept sounds simple enough and indeed it is hardly new- inter-urban systems, which might be thought of as a precursor, were quite common particularly in the USA in the early 20th Century before improved roads, the prevalence of cars and, crucially, increasingly stringent safety standards closed most of them. In practice there are differences between urban-rail (tram tracks) and heavy-rail that complicate building a vehicle that can run on both.

A railway wheel is shaped like a slice from the bottom of a traffic cone with the cone itself forming the tread and the base forming the flange. This profile helps steer a train around a curve- as it enters the curve it will ride up on the outer rail running on a wider section of the outer wheel and a narrower section of the inner. Imagine wheels of different sizes on some sort of axle just rolling along the ground- naturally the larger wheel will constantly overtake the smaller and they will follow a curved course. Ideally the flange will not touch the rail at all- it is there to prevent derailments. Super-elevation or canting will also help where one can expect trains to take curves at speed- if a train runs below ideal speeds or stops on a canted section of track the flanges will settle against the inner rail. Trams run on grooved rails with their flanges in the grooves and, being lighter than trains, have tended to have thinner wheels. Those wheels also have conical profiles but by necessity they have to negotiate tight curves (albeit at low speeds) which cannot be canted where the rails have to be flush with a road surface. On sharper curves the groove on the outer rail becomes shallower causing the tram to ride up onto the flange increasing the effective diameter of the outer wheel. Because of different track geometries trams also tend to ride on their flanges through points to reduce wear and the risks of derailment in the gaps where rails cross. Modern trams tend to have thicker wheels more similar to train wheel-sets but tram-train wheel profiles are still a compromise and speeds are effected.

As well as being able to run on both types of track a tram-train must carry equipment and meet all the standards for both urban rail, including skirting around the running gear, and main line service including crash standards which are far more demanding for trains. Typically they draw from various power sources too with dual-voltage or electro-Diesel systems both in use on the Continent. Their great flexibility is paid for to some extent by lower top speeds than conventional trains but acceleration and braking performance is greater which can be more important on local services. The first modern tram-trains entered service in 1992 in the city of Karlesruhe, southern Germany. The Karlesruhe Stadtbahn brings passengers directly to the city centre from as far as Baden-Baden nearly 20 miles away.

The Tees Valley Metro proposal to introduce tram-trains hit a brick wall in the shape of Network Rail which insists on running its own trials in spite of tram-trains now being 20 year old technology. In fairness it is their network and the Sunderland extension of the Tyne and Wear Metro, which runs on light-rail and Network Rail tracks in a manner not dissimilar to a tram-train, has resulted in operational limitations they would not wish to replicate. After Huddersfield University's Institute of Railway Research examined the wheel-profiles a tram-train pilot project has been set up by the DfT with Network Rail, Northern Rail, Stagecoach-Supertram and South Yorkshire PTE. In 2016 (it says here) tram-trains will start running from the centre of Sheffield to a new tram stop in Rotherham travelling on Network Rail via Rotherham Central Station as well as the Sheffield tram system with its 25m (just over 83`) radius curves and 10% gradients. The trial will last two years and only when the results are assessed may tram-trains be introduced more widely in the UK.

Saltburn, Hartlepool and Seaton Carew.

As seems ever to be the case with the Metro though a step forward was followed by a step back. After the 2010 election the Regional Funding Allocation was scrapped its duties taken over by the Regional Growth Fund and Sustainable Transport Fund. A further bid submitted to the RGF in 2011, to fund work at Bank Top, was turned down in common with most transport schemes. The reason seems to be that the RGF exists mainly to create jobs which transport schemes do not deliver though quite why it oversees any transport funding in that case remains unclear. Only the £4.9m that was already committed was ever received and would have been lost too had it not already been in hand.

The Local Sustainable Transport Fund proved more amenable accepting a funding bid in 2012 to be used to raise the minimum standard of all stations in the area which included major work at Redcar, not least extending the east bound platform, tying in with town-centre regeneration. It also paid for a new station serving James Cook Hospital which is right beside the Esk Valley Line due to open in early 2014. Twelve trains a day already pass the hospital and four more services would be extended to it introducing an hourly service. It has been calculated that if fewer than ten percent of the hospital staff use the station, never mind patients and locals, it will repay the investment. The Connect Tees Valley branding was introduced at this stage marking a more integrated approach to transport its web-site keeping visitors informed about all forms of travel including driving cycling and walking.

Currently the biggest constraint on services in the area is Darlington Bank Top Station and it is not only local services that have problems- its layout makes it one of the worst bottle-necks on the ECML outside of the south-east. All the platforms are on the west side of the main running lines which means that south-bound stopping trains have to tip-toe through a cross-over and run wrong line to go through the station before crossing back to the south-bound line (see schematic) requiring the schedule of north-bound trains to leave room for them. If a north-bound train is slowing to enter the station at the same time the effect on the schedule as a whole might be lessened but all arrivals and departures cannot be arranged so conveniently. Trains to and from the east must negotiate the single-lead Polam Junction to the south of the station and more wrong line running requiring a gap in both north and south-bound main-line schedules. When developing the schedule ECML trains inevitably get priority and the remaining gaps dictate capacity on the Esk Valley, Saltburn and Durham Coast lines which, as a result, are effectively full and any disruption in the main-line schedule can close those gaps with dire consequences for local services.

East Coast, Darlington Council and others have considered the next 20 to 30 years for Bank Top and an obvious solution to many issues would be the addition of at least one new through platform to the east of the running lines. It would remove the complications in scheduling main-line south-bound arrivals entirely and relieve, if not wholly end, the problems scheduling trains from the Bishop Line to the east and back crossing the main-line. At the moment trains from the Bishop Line can only enter platform four directly (at least they do so without encroaching on the main line) but a new crossing allowing them straight onto the south-bound track would let them use the new through platform while trains going the other way would have to take their current route. Through trains would still have to work around main line services then but more than 80% of off-peak passengers on local trains are starting or ending their journeys at Darlington so there is merit in considering restricting local through services to peak hours when over 50% of passengers are travelling through. With north-bound trains using platform one platform four could become a bay for Bishop Line trains to terminate and adding a bay platform on the east fed by a track from Polam Junction would allow trains from the east to terminate with neither impeding, or impeded by, main line services.

Presently the station's island layout does at least mean that once one is at the station all platforms can be reached on the level or, from the Victoria Road entrance, through the

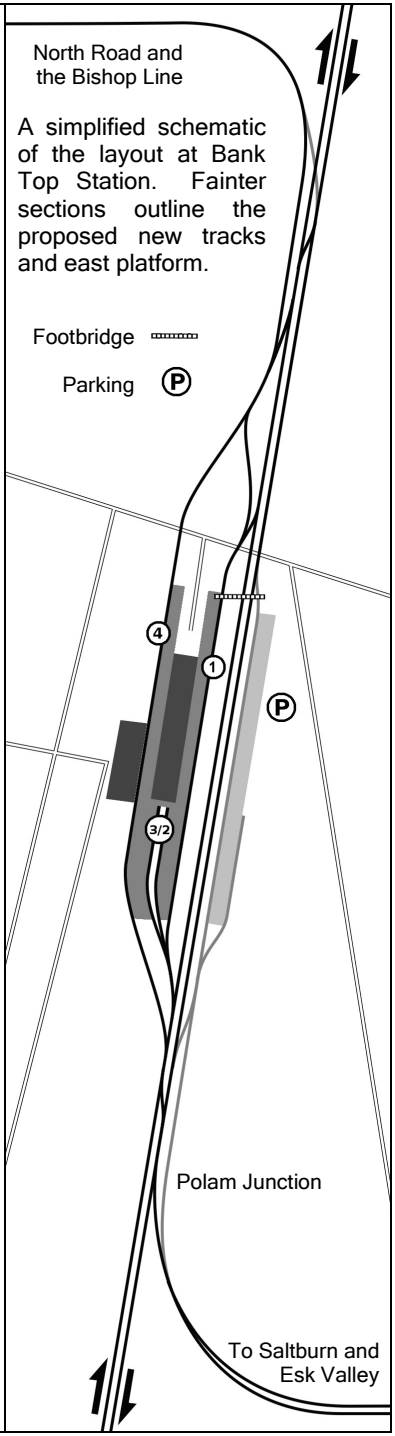
Darlington Bank Top Station

The first station at Darlington Bank Top was the 1841 northern terminus of the Great North of England Railway. Intended to serve only a few years it remained in use as a through station after the Newcastle and Darlington Junction Railway opened in 1844 long past its expected demise. The NER replaced it opening a new station in 1859 with a train-shed over a single through platform and two carriage sidings where the eastern section of the current roof covers platform one. Unrecorded and, by all accounts, undistinguished the main building stood where the central buildings are now at the end of the bay platforms and was approached by the new Victoria Road. Non-stopping trains passed the station to the east- much less of an operational problem with fewer slower trains than today.

Local legend has it that the Royal Train stopped at Bank Top and the station so failed to impress Queen Victoria that she insisted an historic railway town deserved better. It is more likely that the NER, influenced by former S&D heads on its board, considered Bank Top its show-room and that something more grand was called for. Demolition commenced in 1885. Construction took two years while services continued uninterrupted since the western half, including the entrance building, could be built without encroaching on the old station. The offices were built on the site of the old building using the foundations. The 1859 train-shed's eastern wall is visible in the present structure.

The finished station opened in 1887 its island plan making all platforms accessible by road and embodying the best features of contemporary practice whilst the entrance portico and grand clock tower certainly established its presence in the town. History does not record if Queen Victoria had an opinion of the new station but NER Chairman John Dent voiced dismay at the cost- over £81,000.

Through services on the former S&D route did not reach Bank Top- a shuttle train had to run between there and North Road station for passengers wishing to change trains. A deviation from south of Bank Top (Polam Junction) connecting to the S&D route near Dinsdale opened in 1887 allowing all east-west trains to be routed through and main line connections to be made directly. The layout contributes to today's operational nightmares but the S&D route crossed the main line on the level (remaining in use for freight until 1967) which caused no few problems itself.



underpass so the short-comings of the present footbridge, which is basic and poorly positioned, are not as keenly felt as they might be. That said to anyone using the east car park with luggage to bring across it presents an obstacle and wheelchair access from there is non-existent. With platforms on both sides of the main line something better would be essential with lifts or ramps and preferably in line with the main buildings (the possibility of extending the underpass was not raised at the talk). Complicating the matter the footbridge currently forms a public right of way.

Better use could be made of the space currently available to improve access and the experience of rail travel making Bank Top a show-room station again. The Portico, currently used for a few short-term parking spaces, is rather dingy and empty to modern eyes and could make a much more attractive entrance through retail units as successfully tried at other stations. It would be to the station's own benefit and that of retailers and non-passengers visiting the station for whom the current shops are out of reach behind the ticket barriers. The railway requires maintenance facilities of course but they are not necessarily well placed in a town centre so the listed maintenance shed could be developed profitably as business units with the area around it short-stay parking. If platform four was reduced to a bay for Bishop Line trains space would become available for improved 'bus access.

At this point the matter of parking was raised with someone mentioning that the cost of parking effectively doubles the price of a day return to Newcastle from Bank Top. Most parking is run by the Local Authority and the railway has little influence on the pricing. The adoption of Council car-parks and the possible use of space on Clifton Road once the Cattle Market (ideally located when livestock was moved by rail but now marooned in the town centre) moves away are both being looked at. The proposed new platform would occupy some of the current Neesham Road car-park and drop-off points and more short term parking would be needed on both sides of the line.

The estimated cost of expanding and revamping Bank Top as described would be over £50m which is hardly to be sneezed at but local partners believe that improvements to Bank Top are already overdue and work would provide an impetus to regenerate the whole area. Many of these improvements will be necessary to facilitate introduction of new High Speed services and ongoing ECML capacity improvement work is already turning its attention to Bank Top.

For the future electrification of the Trans-Pennine route to Middlesbrough is in the works not, for the moment, planned to include the diversion via Darlington though the new bridge at Dinsdale was built with clearance to allow for it. Franchises will involve local partners more and development to improve flexibility at Bank Top would be crucial to this. The new Inter-City Express Programme will have some direct influence but it will also make cascaded rolling-stock available. Certainly something will have to be found to replace the ubiquitous Pacer units for they do not meet disabled access standards which will become mandatory in 2019. Pacers will have been in service for about 35 years by then and are likely to be withdrawn from the network.

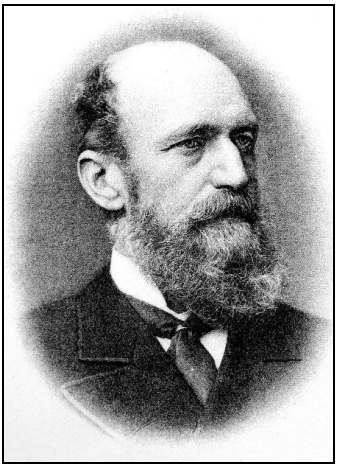
For all the early attention Durham Tees Valley Airport received its current and predicted passenger numbers mean it no longer features prominently in the Metro project. The line will always pass the airport of course and there is a reluctance to withdraw the service and close the station entirely since, if demand rises, it is more easily revived from the current ghost service than nothing but it is in the “bottom drawer” at Network Rail.

This was a well attended talk attracting quite a few non-members and this report only touches upon the details. It is easy to conclude that much of the work described should have been started years ago, when it was proposed in fact, but it seems that slow progress on the Metro has more to do with political flightiness than lack of purpose.

Connect Tees Valley's website is www.connectteesvalley.com. Much more information is available on the Web for the googling.

TALK:

Rockliffe and the Railways
4 April 2013

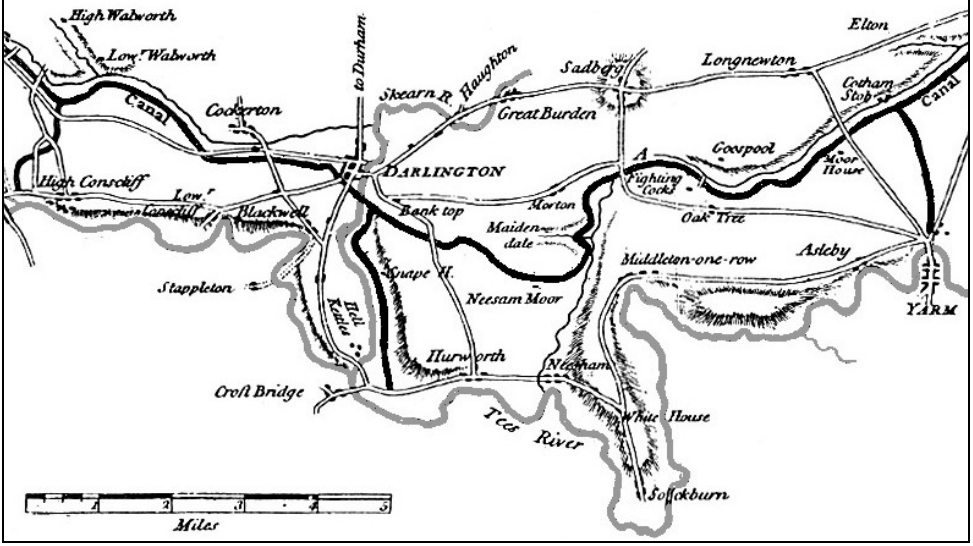


Chris Lloyd *is Deputy Editor and Political Editor of the Northern Echo and contributes many of its history items. He has spoken to the Friends several times on early railway history. His attention fell on Rockliffe Hall in Hurworth built by Alfred Backhouse (right, 1822-1888) whose family were so important to the early railways. The estate borders the main line with a fine view of the Tees viaduct and perhaps Alfred liked to be reminded of his family's part in railway history.*

In the beginning, there were canals. There is much debate about which is the first true canal, but it may well have been the Bridgewater Canal which opened in 1761. It was designed by James Brindley and halved the cost of coal in Liverpool and Manchester. The industrialists of south Durham wanted the same, so they employed the same man, James Brindley, and in 1767, when canal-mania gripped the nation, he proposed to build a 33-mile waterway from the Staindrop area of Teesdale through Darlington to Stockton where the coal could be loaded into bigger ships to sail down the Tees and out onto the seas.

Brindley included a branch of the canal which would flow for three miles or so from the heart of Darlington through a series of locks into Hurworth Place. In effect, and extraordinary to consider, somewhere the Comet corner is today there would have been a docks and probably a canal basin. Here the coal barges would have been unloaded by rudimentary cranes and the coal sent on its way into Yorkshire on carts and in panniers. The canal plan was holed by cost and by the dear old Tees- at Stockton in those days it was so wibbly-wobbly that it was quicker to sail from London to the mouth of the river than it was from the mouth of the river into Stockton.

Part of Brindley's 1767 canal proposal showing branches to High Conniscliff (sic), Croft and Yarm.



The idea of connecting the coalfield with the sea never went away. In 1818, another generation of entrepreneurs revived the idea. They proposed a 35-mile railway from the coalfield to the sea. It would have 16 miles of branch-line running off it, including one to the Durham side of Croft bridge (which will feature in the next issue- Editor). This would enable the coal to reach the Yorkshire markets, but it obviated the need for the railwaymen to throw an expensive bridge over the tempestuous Tees. These railway pioneers were led by Edward Pease and Jonathan Backhouse: I'm concentrating on Jonathan as Alfred, his grandson, built Rockliffe Hall. Whereas Edward Pease had the vision thing, it was Jonathan's role, as the town's pre-eminent banker, to finance it.

The S&DR opened on September 27, 1825; and the three-and-a-half mile long, £74,300 Croft branchline- the third of its kind in the world- opened on October 27, 1829. "Numerous coaches" each drawn by a single horse and crowded with between 30 and 50 banner-waving passengers and followed by a train of wagons filled with coal travelled along it on that opening day. "On the arrival of the company in Croft, cheerings and congratulations of the multitude were most impressive," reported the Newcastle Courant. A celebratory luncheon- or, as the paper grandly put it, "an elegant déjeune à la fourchette"- was held at the Croft Spa Hotel. "Mr (Francis) Mewburn, (the S&DR solicitor), who presided, actually made the startling prediction that in a few years a railway would be made from Darlington to London, travelling so quickly that the passengers could go up one day and come back the next, having witnessed a performance at Covent Garden Opera House in the meantime. This prediction was greeted with loud laughter...", because everyone else was still thinking only of trains carrying coal. Passengers as well? Surely not. Yet within 13 years, Mr Mewburn's dream had come true...

In 1835, Joseph Pease started talking about linking Tyneside and Darlington with York- one of the first mainlines in the world, connecting cities as opposed to coalfields. He called it the Great North of England Railway. On November 2, 1836, he set the S&DR's chief engineer, Thomas Storey, to work somewhere near Pilmore House on the western edge of Hurworth. Deciding on a route took him fourteen days, and Parliamentary permission to build it was granted on July 12, 1837. It would be a line 34 miles and 34 chains long from the Redheugh Quay at Gateshead to Hurworth Lane at Croft (which we would today call Hurworth Place). From Hurworth Lane a line 41 miles and 16 chains long could be built to York at an estimated cost of £1,150,000. The Tyne to Tees section was to have been built first but in August 1837 it was decided to concentrate on the section to York. Durham was full of hills, rivers and rivals; the Vale of York was flat, level and uncontested by other companies. On November 25, 1837, the GNE's chairman, George Hutton Wilkinson of Harperley Hall in Weardale, ceremonially cut the first sod on the edge of the Pilmore estate and started the great railway enterprise.

Storey had identified four major obstacles to overcome to reach York from Darlington. At York, the River Ouse needed bridging. At Northallerton, Castle Hills, "a stupendous mound of earth" said to be "artificially formed" by the Romans, had to be dug through, revealing Roman treasures. (I think that among those treasures was a sarcophagus- possibly two sarcophagii- which was brought back to Rockliffe where 60 years later, it allegedly inspired Rudyard Kipling on a visit to the Hall. Today, the sarcophagus rather languishes behind the bins, but there are plans...). It was at the Tees where the railway builders' biggest problems lay. The third obstacle to progress was the terrain on either side of the Tees where two cuttings were required. One on the Durham side would enable the line to go beneath that long straight Rockliffe road. Croft station, Croft Spa station from 1896, would sit within the cutting almost underneath the road bridge. The cutting on the Yorkshire side needed 388,742 cubic yards of soil to be dug out to keep the line on the level around Dalton-on-Tees.

The last obstacle was the river itself which had to be bridged. Francis Mewburn explained in his diary: "It will often be asked why so abrupt a curve is made at Croft. The

reason is no other foundation could be got for the bridge than the one selected." This one possible position meant that the river had to be crossed at a skewed angle, rather than at a conventional 90 degrees. Construction, therefore, was tricky. In March 1838, a contract worth £14,481 was awarded to Messrs Dees and Hogg of Tyneside to turn the designs of a Newcastle civil engineer, Henry Welch, into reality. "A stupendous bridge is now in the course of rapid erection," reported The Examiner newspaper on April 8, 1838, and on May 8 the foundation stone was formally laid, reputedly on bags of sheep wool which was a common bridge-building method of the day.

As soon as Mr Wilkinson turned the first sod near Pilmore, the district was flooded with navvies and labourers. They came from every corner of the British Isles, and also from Hurworth itself. It was a weaving village (you can still see the subterranean rooms where they worked on the edge of the Tees on the east side) but mechanisation was killing the weavers' trade and they could earn twice as much on the railway.

The village doctor, Thomas Dixon Walker, noticed a change in his patients immediately. "The consequence of men leaving a sedentary vocation for an active employment was followed by remarkable results," he wrote. "Those who escaped injury, earning good wages, and consequently living upon the fat of the land from being poor, and lean, unwashed artificers, swelled out into strong, muscular, powerful, and able-bodied men, so that in a few weeks I scarcely recognised them." There are four key words in there: "Those who escaped injury." While the railway construction swelled the muscles of the lucky, it crushed the life out of the less fortunate.

Dr Walker continued: "Many were killed or maimed through carelessness or want of proper precautions in forming excavations; others (like young solders who, when first under fire, see a cannon ball hopping along the ground, put out their foot to stay the missile, discover themselves suddenly a foot less), being equally ignorant of any law of motion save that of the shuttle, in fastening waggons together whilst they were in rapid transit, thrust their heads between two waggons, and had their skulls fractured.

"The number of deaths from accident about half-a-mile on each side of the Croft station was fearful. Upon one occasion, three lay dead in our village on the same day."

Dr Walker elaborated further: "On July 23, 1838, I was called out of bed at 6am to attend an accident which had occurred in making the cut close to the present Croft station, and occasioned by the fall of many tons of earth upon the labourers. I attended to the matter immediately, but as rapid as I had been, upon my arrival I found that the labourers had been more expeditious, and had not only rescued the bodies- two in number- from the soil but had also, considering life defunct in each, laid them out in a coach house attached to the Comet Inn.

"One poor fellow was dead, for his brains had been dashed out against the temporary rail, employed in the removal of the metal. Whilst examining the other, who I was informed had been twelve minutes buried in the soil, I observed a slight motion in the upper eyelid of the right eye.

"So I cleansed his mouth and nostrils from the soil, and with great difficulty poured some hot brandy and water down his throat, amidst the exclamations of those around that it was of no avail, for his body was wounded and he was dead.

"By means of a common quill I inflated his lungs. In a short time, he began to move his limbs. Reaction took place and in an hour-and-a-half I was able to take some blood from his arm. The injuries he had received were of a most distressing character as he had been tumbled topsy turvy upon his head, with an immense mass of metal between his thighs, separating them, and by its great weight and pressure lacerating his body most fearfully.

"In the evening of the same day he was able to sit up, and inform me that his name was McNichol, a muslin or calico glazer from Glasgow. He rapidly recovered."

Injury and death were not the only hazards. On October 20, 1838, the Leeds Mercury reported: "We are sorry to observe that riots amongst the men working on the railways are

becoming common. Six or seven men working on the Great North of England Railway near Croft were indicted for this offence at the North Riding Sessions and were to be tried yesterday."

Three were imprisoned and three were fined, but they were the tip of the iceberg. So many others were imprisoned that soon Northallerton Gaol was overflowing, "...owing principally to the large influx of persons of loose and disorderly habits connected with the public works now being carried out in the district".

As the navvies came from all over Britain, they brought regional rivalries with them and lubricated them with plenty of ale. But there was more to it than just petty jealousies. On October 26, 1838, the Newcastle Courant carried a curious advert' appealing for masons to work on the Tees Bridge. "Good workmen will meet with liberal encouragement," it said before claiming that the vacancies were "not on any account of any strike among the men now at the Bridge". But they were. The advert' coincided with the masons striking for higher wages, and principal contractor William Dees, on the orders of the railway company, sacking them all. However, the winter of discontent turned into the spring of 1839 and reports of industrial unrest faded from the papers.

Progress remained terribly slow on this main line. For example, Mr Storey built 77 small bridges over little watercourses between Pilmore and York, but at 6pm on July 18, 1838, one of them– over a beck near Northallerton– had collapsed with no one near it. Then in early November 1839, a Scottish labourer found himself caught between two wagons near Thirsk "and his head was severed from his body, hanging only by the skin". There was probably great relief when, on April 16, 1840, the keystone of the last of the four arches– the one on the Pilmore side– was cemented into place at noon by Mr. Wilkinson who made a speech before adjourning to the Croft Spa Hotel for a celebratory four-hour "breakfast" in company of the Newcastle bridge theorist Peter Nicholson and his protégé, the designer Mr. Welch, where they held a "discussion of the spiral principal on which the skew bridge was built".

Skew bridges– that is bridges that go across an obstacle at weird angles rather than at the more straightforward right angles– were not new. They employed toilet roll technology. Pull apart a toilet roll and its strength comes from it being one continuous spiral of cardboard. Follow the footpath to the edge of the Rockliffe estate. Stand beneath the Tees Bridge and look up. You will see that the bridge is 471ft long and 58ft tall from the bed of the river to the top of the parapets, and that it crosses the river at an angle of 51 degrees. You will see, too, that the bricks are laid in a continuous spiral, like a toilet roll. Mr. Storey had built one of the very first bridges in the country to use this toilet roll technology in 1829. It was on the S&DR's Haggerleases branch-line backwater and crossed the benign trickle that is the River Gaunless. Even so, back then, the technology was so apprehensively regarded that they constructed a trial bridge of wood in an adjoining field to see if it really would stand up.

Ten years later, they were more confident, but the Tees Bridge– taking a mainline over a major river that enjoyed washing away man's puny constructions– was still one of the largest of its kind in the country. To commemorate its spanning, after the midday four-hour breakfast, in the evening the workmen were invited to the Croft Spa Hotel for a meal. They responded by presenting James Hogg with an inscribed silver snuff-box "as a token of admiration of his abilities and of respect for him as a master".

Yet in many ways they were celebrating too soon. Work was now at a standstill because it wasn't until June that the timber arrived for the top. Frustrated, the company set an opening date for November 25, 1840, but it wasn't until December that the rails arrived. To make up for lost time, the workmen had to labour on Christmas Day. On January 1, 1841, resident engineer at the bridge Thomas Ridley wrote in his diary: "I rose this morning at quarter past two o'clock and got some ballast... to help fill up the Way. I spread it with my own hands.

"At five o'clock, three engines all attached to 64 wagons of coals came along while I stood alone on the bridge and viewed the train by the light of the moon which had now nearly sunk below the horizon, and you may believe I felt great joy at seeing it pass safely along." Three hours later, another three engines with 101 heavily laden wagons passed over, "followed by another exactly similar". Mr. Ridley completes his entry: "These immense trains would extend for a length of 350 yards. The Tees Bridge never complained."

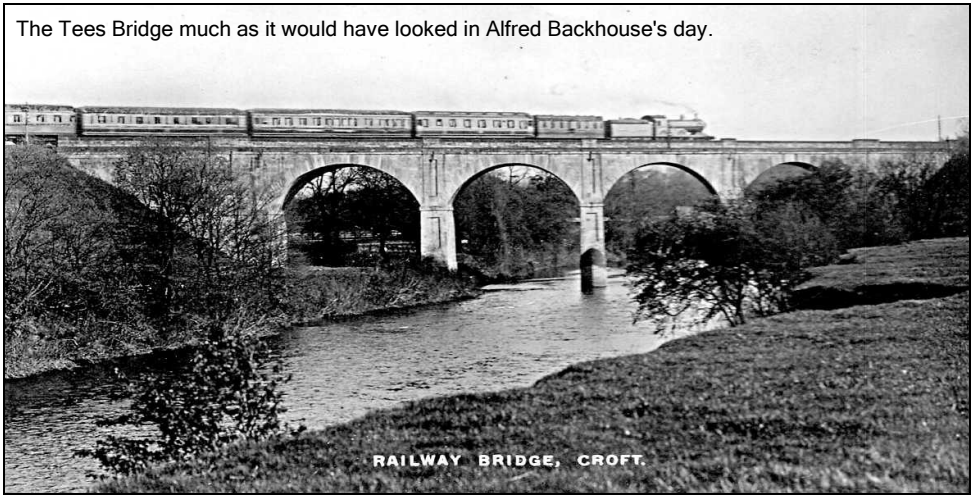
On January 4, 1841, the bridge was ceremonially opened to mineral traffic. Two of the S&DR's locomotives- *Pilot* and *Witton Castle* from Darlington to York, and *Magnet* and *Tory* on the homeward leg- pulled trains of 99 wagons and carriages on the inaugural journey over the Tees Bridge. In one wagon was a single lump of coal weighing over a ton- an advertising gimmick boasting to the world about the size and quality of the Durham seam. There were scenes of great rejoicing all along the line as the 44.25 miles were covered at an average 15mph (this discounted an enforced two hour delay near Thirsk as another of Mr. Storey's bridges had collapsed onto the line smothering it in debris). Joseph Pease missed the train back to Darlington but, as the line was his brainchild, a special train carried him home at a rattling lick of 26mph.

Yet the GNE was in a mess. It "appears to have been, in the outset, one of the worst-managed undertakings in the kingdom, and that is saying a great deal", said the Railway Times. The company had spent all of its £1.15million and yet was only halfway through its plans of connecting Newcastle with York. The opening day débâcle near Thirsk was the last straw for Mr. Storey. He took the blame for all the delays, caused by riot, strike or bridge collapse, and was compelled to resign, Robert Stephenson coming in as engineer-in-chief to finesse away his failings.

Another company, the Newcastle and Darlington Junction Railway (N&DJR), was formed to complete the northern half of the route. When it finally opened on June 18, 1844, you could travel the length of England by rail- from Gateshead over the Tees Bridge, into London and out the other side to Southampton.

For all those early difficulties, that first stretch of line has proved a success. Today, the straight and flat section of the line through the Vale of York is still one of the fastest on the East Coast Mainline, and, of course, with the engine and carriages mingling with the treetops, a train crossing the lofty Tees Bridge it is still a mightily impressive sight as it speeds along the western boundary of the Rockliffe estate before disappearing into the cutting where so many navvies lost their lives.

The Tees Bridge much as it would have looked in Alfred Backhouse's day.



TALK:

Armstrong's Alternative Alphabet
2 May 2013

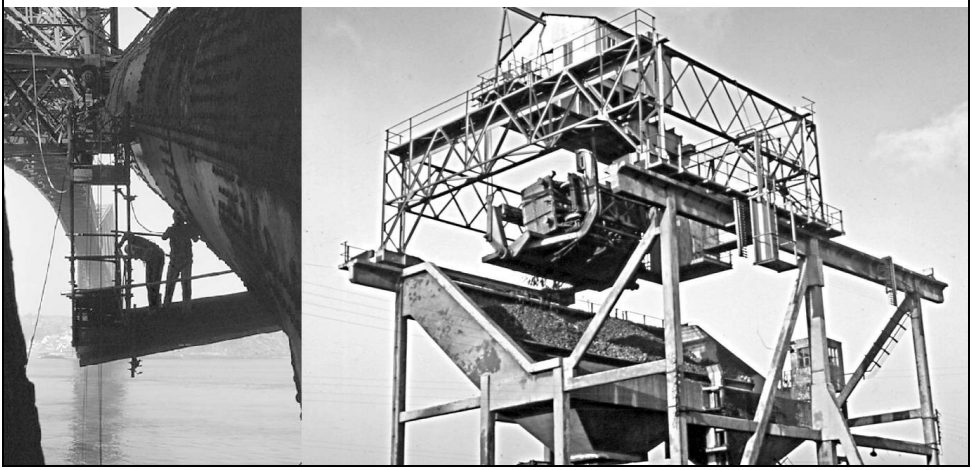
Richard Barber *is the Secretary of the Armstrong Railway Photographic Trust. He described its origins and went through the alphabet showing photographs from the Trust to illustrate topics beginning with each letter in turn. It is impossible to do his presentation justice in these pages but here are some of the riches and an introduction to the Trust. Ten points if you predict the subject for X. Photographs furnished by the Trust of course taken by John Boyes (JMB), Ken Cockerill (KHC), John Midcalf (JM) and Norman Skinner (NS) as well as John Armstrong (JWA).*

The Armstrong Railway Photographic Trust began with the collection of John William Armstrong (1905-1987). A Darlington man "Jack" (pictured in the '50s with the plate from an NER electric locomotive) was a great enthusiast for rail and other forms of transport and a keen photographer. Beginning in the 1920s he built up a collection in the form of glass plates, 2¼" negatives and 35mm slides.

On his death in 1987 the solicitor handling the estate wondered if the family might benefit from the sale of the collection which comprised some ten and a half thousand images. By chance he was a friend of Newcastle railway photographer Peter J. Robinson who he consulted. Robinson decided the collection certainly was valuable and, with five other enthusiasts, established the Armstrong Trust and raised funds for its purchase.

Armstrong did not always take notes or the notes have been lost. In such cases a photograph simply has to be identified by someone who knows what they

A is for **A**rmstrong of course. Painting the Forth **B**ridge which is Indian Red if you have ever wondered. KG. Darlington **C**oaling Tower topping up in 1960. NS.



British built locomotives for **E**xport- those were the days. The 1960 scene inside R.S.&H, Darlington shows East African Railways 9001 under construction. The undated photo' from Preston Docks shows an English Electric loco' awaiting shipping to the Sudan. KHC.

Freight (and Fiddler's Ferry!). 1,500v DC Class 76s bring empty 21ton unfitted coal hoppers past Sheffield in 1980 on the already doomed Woodhead route. NS.

A less celebrated **G**resley design GNR K3 61809 at Carr Loco' after overhaul in 1957 or '59. KHC.

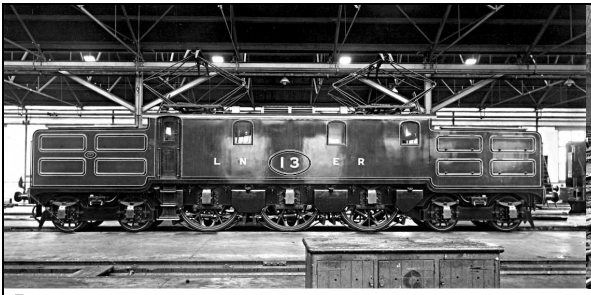
I is for infrastructure. An atmospheric view of the signal gantry at Alnwick.

are looking at which is where Richard Barber came in when John Metcalfe, a signalling expert already involved with the Trust, began to pick his brains.

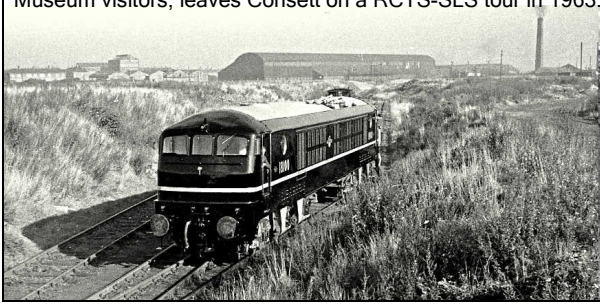
The Trust has gone on to accumulate collections from photographers including Richard Barber, John Boyes, Ken Cockerill, Ian Coulson, Keith Gregory, John Midcalf, John Sedgewick and Norman Skinner covering all sorts of transport and industry. It has over 300,000 images stored on plate and film and now, of course, in digital formats. It is a labour of love, valuable source of illustrations and endlessly interesting for enthusiasts and historians.

This image has been removed from the on-line version due to copyright concerns.

J94 68010 negotiates the Whessoe Road **L**evel Crossing in 1963. **M**ishap. Railwayman John Boyes recorded the terrible scene at Thirsk on July 31, 1967 after the King's Cross to Edinburgh express hauled by DP2 struck a derailed cement train.



Prototypes. Sir Vincent Raven's electric NO.13 in Stooperdale Paint Shop. *Deltic* on the Merseyside Express. JWA. A prototype twice- electric E1000, still identified as gas-turbine 18100, being dragged along the S&DR line near Stockton. JWA. Q is for... well... **Q**(!) Q7 63460, familiar to Museum visitors, leaves Consett on a RCTS-SLS tour in 1963. JMB.



Weather and **W**ithdrawals. Barnard Castle station is just about visible through driving snow. KHC. A sorry sight at Doncaster in February 1982- eleven forlorn Deltics though some were earmarked for preservation. JM. The Home Stretch and finishing post(s). An Australian **X**PT based on the IC125, NS. The LNER marker post near Northallerton where areas covered by **Y**ork and Darlington engineering departments abut and the **Z**ero point post from which all distances on a line are measured- in this case the Isle of Axeholme Light Railway. Both JWA.

CHRISTMAS:

Film Show and Quiz
5 December 2013

As usual the December meeting was a free-form affair with no talk although there was a film programme running with classic transport short *The Elizabethan* starting things off. It also gave late-comers the chance to arrive before the quiz which, as last year, was developed by John Dodds and is reproduced here. How would you have done? Answers at the end of Mixed Goods.

1. Name the hotel built by the Peases in Saltburn (it is now flats)?
2. With reference to the French TGV what does the V stand for?
3. On a class 91 powered electric train from Kings Cross to Waverly is the locomotive at the north or south end of the train?
4. Who designed the original St. Pancras station?
5. What is the standard atmospheric pressure in lb/in^2 (to the nearest pound)?
6. What is the height of Stainmore Summit in feet?
7. Who designed the Stockton and Darlington Railway's Skerne bridge?
8. Where is the present western terminus of the Wensleydale Railway?
9. What is the name of the new junction for Leeds just south of York?
10. Who was known as the “Railway King”?
11. What does LBSCR (or LB&SCR) stand for?
12. Name the apparatus on an electric loco' that collects current from the catenary.
13. What was Sir Nigel Gresley's middle name?
14. How many rail miles are there from Darlington to York (to the nearest mile)?
15. Which station was used as a location in the film *The Railway Children*?
16. Who painted “Rain, Steam and Speed”?
17. Name the metric unit of pressure.
18. What caused the death of George Jackson Churchwood (probably)?
19. When was the current North Road Station opened?
20. On the Esk Valley Line what is the nearest station to Whitby?
21. *Locomotion N º1* was the first of four in her class. Name any of her sisters.
22. What year did the original Tay Bridge fall?
23. The painting “Going South” portrays activity at which station?
24. What is the name of the fictional station in the Will Hay film *Oh Mr. Porter!*?
25. What discount do you get with a Senior Railcard?

Tie-breaker: Standard gauge is 4'8½”. What is that to the nearest centimetre?

MIXED GOODS: Announcements and Miscellany

Membership Renewals

Since membership of the Friends is run by calendar year it is time to consider renewing. To encourage this an enrolment form will (presuming everything goes according to plan) be included with this edition of the newsletter. The form is part of a hand-out also aimed at non-members and includes the 2014 talks programme.

Completed forms should go to Membership Secretary June Palmer whose job will be eased by prompt renewal. Her address is on the form but you may well be able to hand it to her at a meeting or, in her absence, a member of the Committee may be able to pass it on. If you have joined recently or already renewed you will not need the form. Naturally it can be returned, given to someone you think might be interested or kept for the 2014 programme which is not repeated in these pages (it is listed in the 2014 membership card).

N.R.M. S.O.S. S.N.A.F.U.

At the September 26 meeting the Museum's Sarah Gouldsbrough passed on a request for volunteers to help at Locomotion especially during February's A4 Great Goodbye event. In spite of having been made, and relayed by Sarah, in good faith after further enquiries it seems that Locomotion is not looking for volunteers after all.

The Data Protection Act

The Friends keeps personal records about its members and must do so responsibly and in compliance with the Data Protection Act which means keeping you informed. ***Vic Branfoot*** *is no longer Membership Secretary but his notes remain relevant.*

The Act seeks to protect the interests of named or identifiable individuals in respect of data which is held about them by electronic means- on a computer in other words. There is something of a grey area as to the extent to which the Act also affects data held on paper however, the data I hold on paper does not add to that which I hold on computer. There are exemptions which affect, for example, matters relating to national security and the Police. However, these exemptions are clearly irrelevant to us.

The areas of the Act which affect the Friends may briefly be summarised as- Information must be held securely, must not be kept for longer than necessary, must be kept up to date and must not be divulged to third parties without the subject's knowledge and permission. I am satisfied we fulfil all those criteria. But there is one more: we must inform our members as to what information about them is being held. It is that criterion which has led to the writing of this article.

The information about our members which I hold on computer (and on paper) comprises, quite simply, members' contact details and the date to which their current subscription payment takes them. Names and addresses are repeated in a second file in a format which enables me to print self-adhesive labels for the distribution of our Newsletters. *(note: Vic sent those labels to me to post the Newsletter and I too have a few addresses on computer to cover members who have joined or moved since the labels were printed. Those labels have yet to run out and I do not know what new Secretary June Palmer has in mind but, as it is quicker for me to print on the envelopes, she may just send me a file. Editor.)* A third file is virtually a repeat of the above first file except that in place of subscription details I record members' telephone numbers and/or e-mail addresses, when known. This is obviously to members' benefit should they need to be contacted urgently.

The above phrase that data "must not be kept for longer than is necessary" might, on the face of it, cause problems in respect of us meeting the provisions of the Act. I maintain in a

fourth file a record of former members who may have resigned their memberships or allowed their subscriptions to lapse. I do so in case such former members wish to rejoin and ask how much they owe us in unpaid subscriptions. This rarely happens but it has happened and I therefore contend that such data is indeed necessary to our functioning.

Of course, all the above data is kept up to date– for example, when members inform us of changes of address- and we would not entertain any requests by third parties to have access to our records.

Under the terms of the Act individuals can demand a copy of data held about them for which a reasonable fee (no more than £10) may be charged however that is discretionary and anyone getting in touch simply to be sure information is up to date need not fear a bill.

Comprehensive information about the Act, including its complete text for insomniacs, can be found on the Information Commissioner's Office website at www.ico.gov.uk. Remember if you don't have internet access your library does.

Vintage Traction in the Region

This information is taken from www.uksteam.info, www.railtourinfo.co.uk and various railtour operators own websites. How much information there is available about rail-tours varies from operator to operator. The information here is repeated in good faith but do check nearer the time. There are links to uksteam and railtourinfo in the Friends' website. Railtour.info is not listing tours after 2013 so pickings are thin this time.

Saturday 29 March. The Railway Touring Company's *Hadrian* will leave Leicester making it's way through Leeds and Hellifield where A4 class 60009 *Union of South Africa* will take over thence up the Settle to Carlisle line arriving in Carlisle at 13:00. It will depart at 16:00 on the Tyne Valley line joining the ECML at Low Fell and return south from there with 60009 handing back to Diesel at York. No timings listed for the run south.

Saturday 29 March. The RTC's *Wansbeck* will run from Newcastle Central to Morpeth, take the Blyth-Tyne loop to explore freight only lines to the coast and around Blythe involving much reversing before doubling back through Newcastle and down the ECML leaving at Tursdale towards Stockton, Saltburn and ultimately Boulby Potash Mine before stopping at Saltburn on its return to Newcastle. The tour will be topped and tailed by K4 61994 *The Great Marquess* and K1 62005 *Lord of the Isles*.

Newcastle (start) 08:30, Newcastle 012:30, Middlesbrough 14:30, Saltburn 15:00
Saltburn 18:40, Middlesbrough 17:00, Newcastle 21:15

Saturday 29 March and Thursday 22 May. Steam Dreams' *Cathedrals Express* will run from King's Cross to York and return behind a steam locomotive yet to be announced.

York arrival 13:00, departure 16:45

Saturday 17 May. West Coast Railways *Scarborough Steam Special* will run from Skegness via Lincoln and York to... er... Scarborough behind steam (TBA) and return behind Diesel via the Wolds Coast and Bridlington "if time allows" though, since no times have been published, one wonders how they will know.

Quiz Answers (from page 24)

1. The Zetland Hotel. 2. Vitesse (Train à Grande Vitesse- High Speed Train). 3. North. 4. George Gilbert Scott (grandfather of Giles). 5. 15lb/in^2. 6. 1370ft 7. Ignatius Bonomi 8. Redmire. 9. Colton Junction. 10. George Hudson. 11. London, Brighton and South Coast Railway. 12. Pantograph. 13. Herbert. 14. 44. 15. Oakworth (on the KWVR). 16. J.M.W. Turner. 17. Pascal. 18. There were no witnesses but he appears to have been struck by a train. 19. 1842. 20. Ruswarp. 21. *Diligence, Hope* and *Black Diamond*. 22. 1879 (which will be remembered for a very long time). 23. Perth 24. Buggleskelly 25. A third Tie-breaker: 144 (rounding up from 1435mm).

DIARY:

Friends and Museum Programmes

Friends Meetings

Meetings are at the Museum usually in the Conference Room on Thursdays-usually the first Thursday of the month. Due to changes in the way the Museum is managed and to reduce the expense the Museum incurs as host *all* forthcoming meetings are scheduled for afternoons. All of the talks are listed in good faith but misprints can occur and plans can change. If any change has to be made the Events page of the Friends web-site (www.friendsofdrcm.org) will be updated as soon as possible. Non-members are always welcome to meetings but we do ask for a donation.

2014

As noted in Mixed Goods this issue of the Newsletter will be distributed with an enrolment form which will list the programme for 2014. It will be possible to detach the form and keep the programme so it is not repeated here except the note that there are four exceptions to the usual first Thursday routine including the first meeting which will take place on 9 January. The programme will also be listed in your new membership card.

Museum Programme

The Museum's own programme for 2014 is still being finalized. See the Museum's own website (www.head-of-steam.co.uk) for details and updates.

For details of the Museum's educational workshops for schools contact the Museum's Access and Learning Officer Sarah Gouldsbrough (01325 734128 sarah.gouldsbrough@darlington.gov,uk) or, again, see the Museum website or programme when it becomes available for information.

Exhibitions

Track Across Time. Monday 14 October to Monday 31 March. A 'Cluster' exhibition by Durham based artists and sculptors.

Events and Activities

Where prices are not mentioned entry will be covered by the Museum's usual charges. Year pass holders or Friends of DRCM members are free unless otherwise noted.

Women and the Great War. Sunday 16 March. The History Wardrobe group will be in costume at the Museum all day portraying the Great War's catastrophic effect on the lives of millions on the battlefield and at home and the social upheaval it brought about. Tickets to the event are £8 which includes tea or coffee. Find out more about the group at www.historywardrobe.com.

The first new-build main line steam locomotive in Britain for all but 50 years Peppercorn A1 Pacific 60163 *Tornado* shows off her handsome BR Express Blue livery on the turntable at Didcot in November 2012 with some of the hundreds of covenanters who funded her construction.

Photo': Ian McDonald furnished by the A1 Steam Trust. *Page 3.*

ICI brought a train full of VIPs to its fertiliser plant in Billingham in April 1959. The track was newly laid, the locomotive (an Austerity 2-8-0) was ex works and its eight wheel tender is at a funny angle because it had just derailed. The VIPs are not thought to have been particularly impressed.

Photo': Ken Cockerill furnished by the Armstrong Railway Photographic Trust. *Page 20.*