



60163 TORNADO

New Steam for the Main Line

Thursday 28th April 2011

Dear fellow covenantor

Changes to *Tornado's* 2011 tours diary and Brunswick Green unveiling at the National Railway Museum

There have been a number of developments since the enclosed edition of *The Communication Cord* went to press that the Trustees of The A1 Steam Locomotive Trust need to share with you. We regret that it has not been possible to reach an acceptable working arrangement with Train Operating Company West Coast Railways in spite of many attempts over the past three years. *Tornado* will continue to be operated on the Network Rail main line by DB Schenker, which has worked successfully with the Trust since the locomotive's completion in 2008. This change is unrelated to the recently completed repairs to *Tornado's* boiler which took place at DB Meiningen.

Unfortunately, this late change will result in a significant re-working of *Tornado's* tours diary for the early part of the summer. As a consequence of not being able to work with West Coast Railways, *Tornado* will not now be hauling 'The Cathedrals Express' on Thursday 26th May (London to Bath & Bristol and return), Saturday 4th June (London King's Cross to York and return) and Saturday 11th June (London to Shrewsbury and return) promoted by Steam Dreams. The promoter will be in contact separately with those of you who originally booked on 'The White Rose' and transferred to 'The Cathedrals Express' on 4th June. Although *Tornado* will be ready for traffic for 26th May, her first main line train in her new Brunswick Green livery will now be 'The Canterbury Tornado' on Saturday 18th June from Poole (*Tornado* from Willesden) to Canterbury and return promoted by Pathfinder.

You may read elsewhere comments regarding work carried out by contractors on *Tornado* during her winter maintenance. All maintenance and repair work on *Tornado*, including the re-boring of the cylinder liners, has been carried out in accordance with the Trust's Quality Management System. This is the same system that was used to support the construction of the locomotive and has previously been subject to Notified Body audit, as part of the certification of the locomotive, leading to authorisation as a 'new locomotive' under the European Railways Interoperability Directive by the Office of Rail Regulation. The work has in addition been seen and passed by two independent inspections, including the Vehicle Acceptance Body and so any negative comments you may see have no foundation in fact.

On a lighter note, the Trust is delighted to announce the official launch of *Tornado* in her new Brunswick Green livery at the National Railway Museum, York on Monday 9th May at 11.00am. We apologise for the short notice but hope that many of you will be able to join the Trustees in celebrating the next chapter in the *Tornado* story. Please would you contact Alexa Stott at alexa.stott@a1steam.com if you would like to attend this event. We are also pleased to announce that we are arranging our annual Covenantors' "Spring Day Out" and we will be sending out further details as soon as *Tornado's* operational calendar is confirmed.

The Trust is disappointed not to be working with West Coast Railways during 2011 and can only apologise to passengers not now able to travel behind *Tornado* on their booked trains. We will now be seeking additional main line work for promoters who use DB Schenker and heritage railway visits. For the latest news on *Tornado's* 2011 programme please keep an eye on www.a1steam.com.

Yours faithfully

Mark Allatt

Chairman

The A1 Steam Locomotive Trust

PS. Due to the changes in the way in which postage rates are calculated it is cheaper to send an additional mailing with the draw tickets which should arrive with you in the next couple of days.



60163 TORNADO

New Steam for the Main Line

THE COMMUNICATION CORD

No. 22 Spring 2011

David Elliott

With firebox repairs by DB Meiningen completed on schedule, *Tornado's* boiler is carefully lowered onto its frames at the NRM, York, on Friday 8th April.



TORNADO'S BOILER RETURNS

By Graeme Bunker and David Elliott

A large amount of effort and activity has taken place to bring the firebox back to health. As has been reported in previous *TCCs* the work has focused on replacement of plating, renewal of stays (connected with the plating and to try and avoid further issues) and new foundation ring corners.

Metallurgical tests on specimens

from the affected areas of the firebox have shown that the material is up to specification and that there is no degradation of the properties of the material.

As part of the work on the firebox we have undertaken investigations into what may have caused these defects to occur. The common theme for the problems

is that parts of inner firebox have overheated giving rise to stays and the foundation ring cracking due to low cycle fatigue and the hottest parts of the firebox showing signs of quilting, that is the formation of shallow ridges between the stays. At present there appears to be no single root cause, and therefore solution.

Any potential major design changes will

take several months to evaluate, draw and obtain approval, which will correspondingly delay *Tornado's* return to traffic, so the decision has been made to return the firebox to as near to new condition as possible. However opportunity is being taken to make some detailed changes aimed at mitigating the identified problems.

As originally built the plain stays were made from steel bar with a tell-tale hole drilled almost all the way through. Since then Meiningen have introduced a new material in the form of thick walled drawn tube (18mm outside diameter, 6mm inside diameter) from a steel grade which whilst the same at room temperature has a better tensile strength at elevated temperatures.

The standard stay fitting method used by Meiningen (and common throughout mainland Europe) is to have the stay protruding about 8mm beyond the inner and outer firebox and to use simple fillet welds to secure them. When the design work was done, the Trust was considering the possibility of oil firing, however the performance of the locomotive on coal coupled with the considerable increase in the cost of oil and the potential



The modified ashpan spark arrestor will help to improve primary combustion airflow.

certification costs now makes oil firing most unlikely. In order to facilitate oil firing the Trust was strongly advised to have the stay ends in the inner firebox set flush with the inner surface of the plates. To this end, all the stay holes were countersunk and the stays secured with 45° Vee welds. However this has the effect of shortening

the effective length of the stays by at least the depth of the weld (6-8mm) which makes them less able to cope with bending due to differential expansion of the inner and outer fireboxes. The new stays (approximately 1130 in total) are being welded in using the standard, protruding, method.

From the chair by Mark Allatt



As you will read elsewhere in this issue of *TCC*, work on *Tornado's* firebox at DB Meiningen was completed on schedule, as we have now grown to expect from them. The hydraulic test was successfully conducted on Thursday 31st March and the boiler arrived back in the UK on Friday 8th April. It was immediately craned onto

Tornado's frames and the time consuming job of reassembling the locomotive has now started. You will also be able to read about the work that has been done on *Tornado* at the National Railway Museum (NRM), York, whilst the boiler was away in Germany. I would like to take this opportunity to thank all of those involved for their hard work and dedication to-date and the NRM for its kind hospitality during our extended stay.

It is now full speed ahead to get *Tornado* ready for her steam test, main line test run and return to service in Brunswick Green with 'The Cathedrals Express' on Thursday 26th May from London to Bath & Bristol for Steam Dreams.

The cost of *Tornado's* firebox repairs (especially when you add the dismantling and re-assembly) and winter maintenance, combined with the delay to the start to the 2011 season due to these repairs and the unexpected stoppages last summer means that our reserves are significantly depleted. We can't "work" our way out of this at the moment, meaning that revenue from operations and on-train sales is not currently available, although the merchandise team is doing its best with on-line sales and exhibitions.

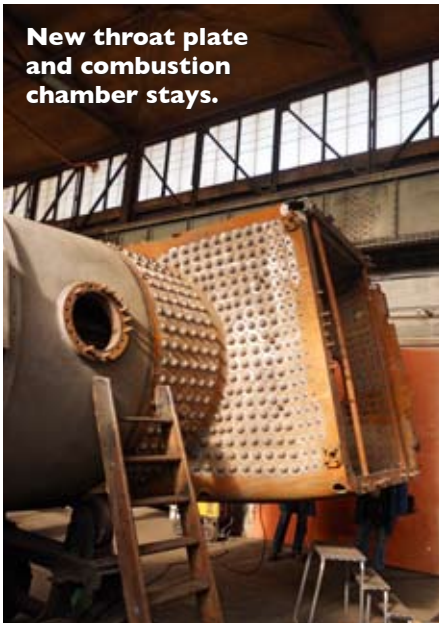
There are, however, many ways in which you can help to get the Trust back on an even financial keel. You could consider forgoing another pint of beer a month and increase your regular covenant (beer is now more than twice the £1.25 a pint it was

in the North East when the project was launched in 1990), you could sponsor either a component on *Tornado* (there are still plenty of bits available to sponsor at all prices), support a 'slice' of the support coach (we still have a long way to go), make a donation (all sums gratefully received) and/or take part in our new legacy giving scheme (although we hope that it will be some time before the Trust benefits from your estate).

As usual we are still looking for volunteers across all disciplines. It takes a lot of people to keep *Tornado* on the rails, not just those who travel with the locomotive as support crew or merchandise team 'trolley dollies' but also those in the back office doing administration, marketing, finance, engineering support etc, the list goes on – and there is always so much more that we could achieve with the right volunteer with the right skills and a can-do attitude. Please email volunteer@alsteam.com if you think you can help.

With *Tornado* currently out of action the Trust is seeking to raise funds from as many sources as possible. Be it for a birthday or Father's Day present, please remember *Tornado*. In addition to the schemes above (the dedicated donations and support coach 'slices' can be assigned to someone else) there is of course a huge range of *Tornado* merchandise available, all of which make ideal presents for boys and girls of all ages. As you will see we are now talking pre-orders for the new Hornby models. Please either use the enclosed order form or shop on-line at www.alsteam.com. You will also find tickets for our latest draw enclosed with this copy of *TCC* – please encourage friends and family to take part as every penny goes to the Trust.

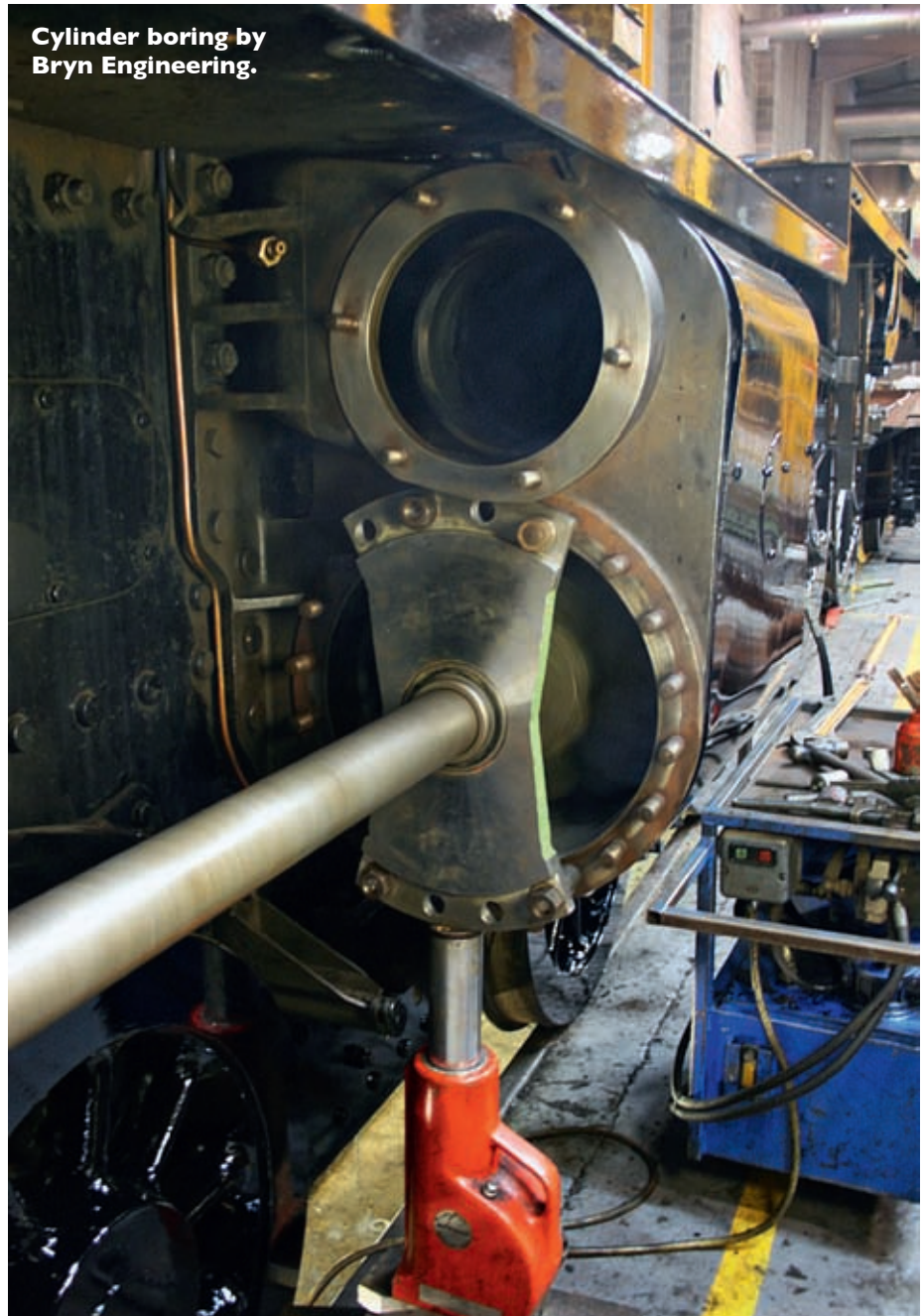
And finally, thank you all for your support during this difficult time. Your kind letters and emails have certainly helped to keep the team motivated. I hope to see as many of you as possible out on our trains over the next few months. **TCC**



New throat plate and combustion chamber stays.

The other changes we have made are the result of understanding more of what we can do to improve reliability. The shape of the arch as constructed followed that of all the existing East Coast wide firebox locomotives including *Blue Peter* which has an A1 boiler. The lugs on each side of the firebox which support the arch were originally located to support a segmental brick arch. Today refractory concrete arches are almost universal. The concrete arches are shallower than the brick type, as casting the profile of the brick arch would be difficult as the concrete would tend to slump to the sides when wet. In order to pick up on the existing arch lugs, the concrete arch has deep haunches to keep the centre of the arch the correct height. As the existing lugs have all been removed as part of the repairs, the new lugs have been placed to suit a concrete arch, eliminating the haunches and exposing approximately an extra 6 ½ square feet of firebox surface in the hottest parts of the firebox. This should even up the heat distribution and reduce the peak skin temperatures experienced by parts of the inner firebox.

Detailed investigation of the primary air space with the A1 boiler shows that it is a significant degree lower than on an A4 firebox. This is not as a result in the change of the inner firebox from copper to steel, the grate on *Tornado* is identical to that from the original A1s, the original Doncaster drawing details the figures. To increase the primary air flow we have modified the firebar design by increasing the width of the air slots allowing more air that to pass through. The damper size on the A4 is also larger than on the A1 and so modifications in this area have been undertaken, which also offsets the reduction which the ashpan spark guard brings about. The



Cylinder boring by Bryn Engineering.

reason for this change is to ensure that the primary air flow demanded when the locomotive is working is sufficient to enable full combustion in as even a pattern as possible and to reduce the amount of secondary (top) air drawn through the flap in the fire hole door which can result in large temperature variations within the platerwork.

A further area of study is water treatment. Whilst *Tornado's* boiler has been subjected to careful and consistent application of chemical water treatment in the form of Soda Ash (Sodium Carbonate) to increase the alkalinity (pH) to a level to inhibit corrosion, and Tannin to act as an oxygen scavenger and to coat particles of scale as they form which to create mud rather than hard scale, there have been occasions when some scale has formed on the firebox plates when the locomotive is working in hard water areas (which

are most prevalent in the South East of England). Scale is known to be a good insulator and as little as 1mm can cause the average inner firebox wall temperature to increase considerably. Expert advice is being sought to see if the treatment regime can be improved to prevent any scale formation.

Each of these minor changes is designed to provide additional reliability in the firebox, and we will monitor the effectiveness of each of these changes as we move forward and into operations.

Once *Tornado* is operating again, more in-depth design study work will be undertaken to ascertain whether more substantial modifications are required which could be incorporated at the next boiler overhaul.

Whilst it is disappointing that work has been required on the boiler at this stage, with over 300 daily boiler cycles

and over 75 cold-hot-cold cycles having been completed the boiler has undertaken a lot of work. Our examination of the history of the original A1 boilers is not yet complete but shows that the type 118 boilers fitted to the A1s and A2s were changed frequently (according to the *Yeadon Register*, the A1s boilers were changed on average every two years and it could be up to four years before they were used again) and certainly after many fewer cold-hot-cold cycles. Whilst the original A1s would have achieved higher mileages than *Tornado*, the boilers being in steam continuously is a more benign environment that our present day regime

with its intermittent mixture of high power high speed main line operations and periods on heritage railways.

Meiningen has worked very quickly to repair the firebox by the originally indicated date of the first week in April, especially as having removed the foundation ring corners, in some areas the cracking had extended a short distance into the straight sections of the ring. This has necessitated replacement of sections around 12" long on the sides, front and back of the foundation ring which has added to the scope of work. Meiningen has also been contracted to grit blast and repaint the whole of the

exterior of the boiler and smokebox to avoid us having to do this during the forthcoming intense period of activity at York to reassemble the locomotive. The chance has also been taken to fit bushes in the firebox crown sheet for the three fusible plugs, as the need to regularly re-tap the taper threads each time the plugs are replaced has meant that we are already up from the original No 1 plugs to No 3 size. Notwithstanding the extra work, the boiler is now complete and the formal hydraulic test (witnessed by our VAB boiler inspector) took place on 31st March 2011, with arrival in York on Friday 8th April. **TCC**

David Elliott



Above: Valves at Darlington Locomotive Works await their return to York.

Right: Peter Neesam bench tests the Class 66 sander assembly before fitting.

Below: Dan Matthews sands down the driving wheels ready for painting.

David Elliott



David Elliott



Ian Matthews (aka Rembrandt) applies the British Railways 'cycling lion' emblem to the newly repainted tender now resplendent in Brunswick Green.

With the boiler off the frames, maximum use has been made of the easy access to the frames and the good light to carry out the winter maintenance tasks affecting equipment between the frames and to incorporate some modifications.

Repairs and maintenance

Lifting the boiler has involved removal of a large amount of pipe work and other components beyond that which would normally be disturbed during the annual maintenance session. All the removed items have required cleaning, repairing and painting where necessary. Much of this work has fallen to our volunteers and thanks are due to them for their efforts. Management of this activity along with detailed planning has been greatly helped by Chris Walker, who is putting in 4-5 days a week at York. The intention is that everything removed is in a condition to go straight back on without further remedial work when the boiler returns to minimise the time required to return the locomotive to service.

As mentioned in the last TCC, the cylinders have needed re-boring. Unfortunately the firm originally contracted to do the work were unable to attend when originally planned so John Marrow of Bryn Engineering was contracted to do the work instead. Once the cylinder bores had been cleaned up, they were measured so that the pistons

which had been built up with weld could be machined back to suit the increased diameter of the bores. New piston rings of a larger diameter have been fitted. One effect of re-boring the cylinders is that the nominal starting tractive effort has increased from 37,397lb to 38,188lb.

The valve piston rings have all been replaced as part of the piston and valve examination.

The opportunity has been taken to overhaul almost all of the steam valves and the mechanical lubrication components. Peter Neesam has done most of the work. Several of the valves were leaking through slightly and/or had become stiff in operation. Valve bodies which have been subject to feed water have been chemically cleaned to remove mud and scale. Some valve seats have been re-cut and all the valves have been lapped in with grinding paste. All the gland packing has been replaced with PTFE woven rope which we have found to last much longer than the traditional graphite rope.

Two copper steam pipes which had suffered damage in the process of removing the boiler have been replaced and all the large backhead pipes have been annealed. This is advisable on a periodic basis as with the boiler expanding up to $\frac{3}{4}$ " from cold to hot, these pipes which pass from the boiler backhead to the equipment on the frames gradually work harden and could ultimately start to crack.

Annealing restores the softness of the copper.

The rocking firebars on the grate have gradually swollen and distorted with the intensive use, and although not broken, it is considered that they might not last until the next annual maintenance period. The rocking grate mechanism makes changing the bars a major exercise so the opportunity was taken to change them whilst the grate is off the locomotive. Some modifications are being incorporated at the same time (see page 6).

When the smokebox was stripped out to remove the boiler, the bottom plates of the self cleaning apparatus were found to have corroded to the point where the original thickness of 5mm was reduced to 1mm in places. The smokebox tends to be a corrosive environment at the best of times, the area under the chimney being the worst area as rainwater falls down the chimney, even when the loco is in light steam. New plates have been laser profiled by Acorn Laser at Washington and M Machine at Darlington have bent them to the required shape and welded them together with recovered parts from the original set.

The front air pump suffered oil starvation to the compressor side during the period of operation before Christmas. This led to it becoming noisy. Unfortunately this coincided with a leaking steam cylinder gasket on the



David Elliott



David Elliott

With the boiler away at Meiningen repainting of the remaining parts into Brunswick Green livery carried on at York. The cab (left) awaits lining and numbering whilst the tender (right) was complete by early February.

rear pump which prevented the normal procedure of switching to the other pump being employed. Although the oil supply was restored immediately after the run concerned, the efficiency of the pump was degraded. As a consequence the front pump has been returned to Meiningen for overhaul. A quick turnaround has enabled it to be returned before the boiler to facilitate refitting it to the frames using a crane.

The rear pump has had a thorough inspection and the air valves cleaned. Both pump governors which tend to gum up over time have been stripped and overhauled.

Both boiler blow down valves have been overhauled – a task greatly simplified as a result of using modern Spirax Sarco valves for which overhaul kits are available.

The Great Central Railway workshop at Loughborough has machined the spare coupling and connecting rod bushes which were procured as spares last year. The original bushes will be re-metalled and repaired to from a spare set in due course.

The C (annual) exam has not thrown up an further significant repairs over those already identified before the work started.

The OTMR (On Train Monitoring and Recording) unit has its batteries replaced as mandated by the maintenance schedule, as although the loco has been running for

2 ½ years, the OTMR was acquired for installation almost four years ago.

The essential services battery has been renewed as part of the electrical maintenance work, the auxiliary battery was renewed last year.

Modifications Sanders

The air operated sanders have been troublesome ever since the locomotive first entered service. The Davies and Metcalfe sand traps (the air operated on/off valves on the bottom of each sand box) which were part of air equipment donated by HSBC Leasing from withdrawn class 86 electric locomotives have proved to be difficult to set up properly, being very sensitive to small variations in air pressure. The replacement traps are those used on Class 66 diesel locomotives and being of American design are much more robust and solid. They also do away with the ejectors immediately adjacent to the rails which blow the sand under the wheels. Peter Neesam has bench tested a class 66 sander assembly and demonstrated that it works with a wide range of air pressure. A further improvement designed and built by Rob Morland and installed with the help of Paul Depledge is a sander indicator light in the Driver's field of view which flashes blue when the sanders are in use.

Pipework

Modifications have been made to pipework behind the boiler and under the cab to make removal of the boiler and injectors easier.

Damper door/grate

As part of the review of the firebox problems some modifications are being incorporated to improve the primary air flow through the fire. It has been observed the fire on *Tornado* is does not always burn with the white hot intensity desirable for efficient combustion. Further evidence of a limitation of the airflow is lack of the fire lifting off the grate when a slips occur. To achieve full combustion requires a greater volume of secondary air than is desirable or witnessed on the A4s for example.

One likely cause of this is the combination of a significantly smaller damper door dictated by the shape of the hopper ash pan compared with the A4, combined with the modern requirement for a spark arrester screen which effectively further reduces the area for air intake by about 40%. It has also been observed that the presence of the rear air pump near the air intake causes a slightly less active longitudinal stripe on the grate when the locomotive is working hard. To alleviate these problems, the front end of

the ashpan has been modified to enlarge the damper door and to permit use of a more efficient spark arrestor screen which should have the effect of providing an air intake area equivalent to the original design without the spark arrestor. The grate is being modified in two respects. The drawing for the grate indicates that the free air area (the slots in the firebars) amounts to only 31% of the grate area compared with over 50% for the A4 and A3 drop grate design. As we only had half a set of new firebars in stock, the opportunity has been taken to modify the firebar patterns to increase the width of the air slots for the new firebars.

A suggestion has been made that the foundation ring cracking problem may be exacerbated by the large quantities of cold air being drawn through the gaps between the grate edge bars and the foundation ring, causing chilling of the foundation ring at the same time as 3-4" higher up, very active white hot coals are touching the inner firebox. This significant temperature variation is not ideal and steps are being taken to seal these gaps to minimise these.

Frame Lighting and rear buffer beam lighting

Rob and Paul have added an additional bulkhead light fitting between the frames to aid oiling the inside motion in the dark and have fitted LED strips over the rear buffer beam similar to those which light up the outside motion. This is to assist with coupling and uncoupling in the dark.

Provision for GSMR installation

The opportunity is being taken to install conduits and wiring for the GSMR radio installation which next year will be mandatory for all main line locomotives.

TCC

SALES TRAINING by Gill Lord

Many volunteers will have received an email regarding a training day we are holding at The Barrow Hill Roundhouse, 7th May 10am. – 4-30pm.

The course is not just for those people who have worked the trains as trolley dollies and sold from our stands, it is open for anyone who has an interest in becoming more involved with *Tornado* on the merchandising side.

Topics to be covered include: how to use the tills and chip & pin machines; setting up the trolley for the train; understanding the procedures we have in place; team leader duties; and sales techniques.

It will be great day to meet fellow volunteers, put faces to names and enjoy being in the company of like-minded people!

Barrow Hill was chosen as the venue because it is fairly central and there is

a main line station at Chesterfield from where we have arranged a shuttle car service to take you to the Roundhouse should you decide to arrive by train. Refreshments are available on-site at the café.

We are in particular need of more team leaders for the trains. Team leader duties are many fold, including being a liaison between our merchandise team and the promoter running the tour, allocating duties to the trolley dollies, cash control and being the first to arrive and the last to leave! You must have worked at least three trains in the 2010 season to qualify.

If you feel you would like to participate in the training day, or if you are interested in becoming a team leader, please contact me at gill.lord@alsteam.com. Looking forward to meeting you! TCC



A1 SLT

60th Anniversary - Arthur Henry Peppercorn, OBE (29th January 1889 - 3rd March 1951)

Arthur Peppercorn was the last Chief Mechanical Engineer (CME) of the London and North Eastern Railway and the designer of the class A1s and therefore *Tornado*. He was born in Leominster in 1889 and educated at Hereford Cathedral School. In 1905 he started his career as an apprentice with the Great Northern Railway. He succeeded Edward Thompson on 1 July 1946 but his style of work was more like Thompson's predecessor Sir Nigel Gresley. Peppercorn finished several projects which were started by Thompson, but most popular were his class A1 and A2 pacifics. These were known as some of the best British steam locomotives ever in service. Upon nationalisation and the foundation of British Railways, he continued in essentially the same job, now titled Chief Mechanical Engineer, Eastern and North Eastern Regions; he retired at the end of 1949, two years after nationalisation. We are delighted that Arthur Peppercorn's widow, Dorothy Mather, is Honorary President of the Trust. Dorothy lit the first fire in *Tornado's* firebox in January 2008, and was later on the footplate for *Tornado's* inaugural steaming at Darlington works, saying "My husband would be proud."



Photograph courtesy of the National Railway Museum, York

AI 60163 *Tornado* crosses the King Edward VII Bridge as she approaches Newcastle with 'The Christmas Coronation.' 18th November 2010.





SUPPORT COACH UPDATE *by David Elliott*

With the pressure on the labour force and volunteers for locomotive maintenance and repair work at York, progress on the support coach at Darlington has been limited to some work on the heating system including pipework for, and acquisition of floor level under-unit fan assisted convectors for the kitchen, workshop and merchandise store.

As you may be aware from earlier reports in *TCC*, one of the bogie wheelsets was found to have cracked wheel-centres which has effectively scrapped the wheelset. Rampart at Derby who have been overhauling the bogies have a spare wheelset with good wheels, tyres and axle, but with defective bearings. The bearings on our wheelset are good. However organisations with the correct hydraulic pulling and pressing equipment for Commonwealth bogie wheelsets are few and far between. A suitable contractor has now been retained by Rampart and the swap should occur shortly. This will enable both overhauled bogies to be returned to Darlington in the near future.

In anticipation of this, the coach has been



David Elliott
Left: Work carries on with the new Support Coach at DLW.

Below: New central heating system under-seat radiator.

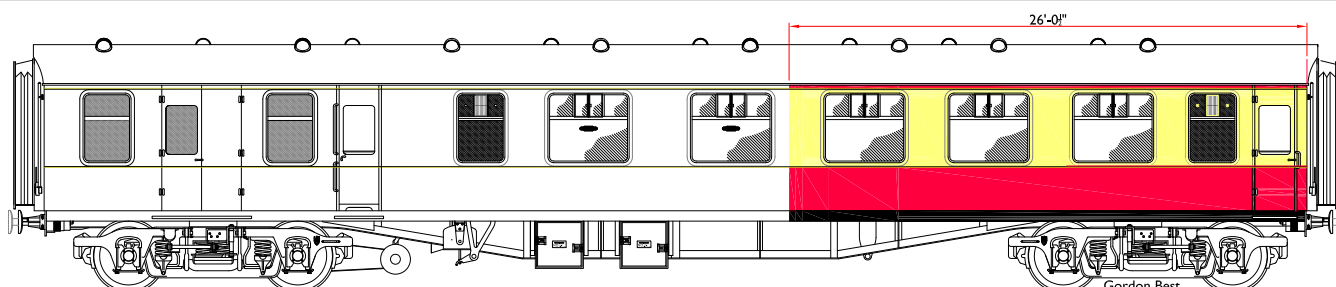
transferred to the synchro-jacks to enable the bogies to be re-united when they return. Thanks are due to Wendy Anderson who has kindly lent us the stands which the coach underframe has been sat on since the bogies went away for overhaul. The underframe work in the bogie area is complete bar final painting.

The small bodyside windows returned to Rampart for sorting out the glazings (to



David Elliott

make all opaque glazings the same colour and style) have been completed and will return to Darlington shortly for fitting to the body. **TCC**



Funding for the Support Coach approaches 50% but there's still a way to go...

SUPPORT COACH FUNDRAISING

There is still an awful lot of work to be done to complete the coach, and there are a number of ways that you can help.

- Volunteers to help with the work are always welcome, but you need to be available at the works during normal working hours. Please email volunteer@alsteam.com for more information.
- Make a personal subscription to 'Use Your Loaf'
- Introduce Friends & Family to 'Use Your Loaf' and more people hooked on *Tornado*.

Use Your Loaf: Following the success of our dedicated donation scheme for the construction of *Tornado*, "an AI for the

price of a pint" we've decided to raise the bread for the support coach in a different way: 'Use Your Loaf':

- **The coach is 63ft 6in in length – 762 inches – or 1524 'slices' at ½ inch each.**
- **Each 'slice' can be sponsored for £50; £100 for a 'doorstep'; £1,000 for 'half a loaf'; and £2,000 for a 'loaf';**
- **If all are sponsored, it would raise £76,200; if we assume 80% of the donations come with Gift Aid, this rises to over £93,000**
And, as with the dedicated donation scheme, our 'Use Your Loaf' initiative comes with benefits for those generous enough to take part:
 - A certificate recording the details of the sponsorship and a copy of a drawing of the coach noting which slice(s) have been sponsored

- Name inscribed on the official Role of Honour carried on the coach which will detail the slice(s) sponsored
- Entry into draw for main line footplate ride on *Tornado*
- Exclusive opportunity to order Bachmann model of E21249 (a perfect companion to the new model of *Tornado*) with appropriate one of 1524 certificates produced for sponsors. The model is expected to cost about £25.
As of 1st April the 'Use Your Loaf' campaign has issued 299 certificated raising £31,200 which translates to 26ft 0½in of the coach's length, an increase of £2,800 since the last *TCC* was published, as illustrated on the diagram. Good progress but we still have a very long way to go. We look forward to reporting progress in future Trust communications as coloured section grows to the full length of E21249. **TCC**

FORWARD DIARY

Below are the future operations *Tornado* is confirmed to be involved in. More details of the 2011 programme will be published on www.a1steam.com as trains are finalised.

Preliminary 2011 Tours Diary

- **Thursday 26th May** – ‘The Cathedrals Express’ - London to Bath & Bristol - promoted by Steam Dreams
- **Saturday 4th June** – ‘The Cathedrals Express’ – London King’s Cross to York and return - promoted by Steam Dreams
- **Saturday 11th June** – ‘The Cathedrals Express’ - London to Shrewsbury and return - promoted by Steam Dreams
- **Saturday 18th June** – ‘The Canterbury Tornado’ – Poole (*Tornado* from Willesden) to Canterbury and return - promoted by Pathfinder
- **Thursday 23rd June** – ‘The Cathedrals Express’ - London to Bath & Bristol to promoted by Steam Dreams
- **Saturday 2nd July** – ‘The Cathedrals Express’ - London Paddington to Minehead (with Exeter & Plymouth behind LMS 8F 48151) and return - promoted by Steam Dreams
- **Thursday 7th July** – ‘The Cathedrals Express’ - London to Gloucester & Cardiff and return - promoted by Steam Dreams
- **Sunday 10th July** – ‘Torbay Express’ - Bristol Temple Meads to Paignton & Kingswear - promoted by Torbay Express Limited
- **Sunday 17th July** – ‘Torbay Express’ - Bristol Temple Meads to Paignton & Kingswear - promoted by Torbay Express Limited
- **Sunday 24th July** – ‘Torbay Express’ - Bristol Temple Meads to Paignton & Kingswear - promoted by Torbay Express Limited
- **Sunday 31st July** – ‘Torbay Express’ - Bristol Temple Meads to Paignton & Kingswear - promoted by Torbay Express Limited
- **Thursday 4th August** – ‘The Cathedrals Express’ - Cambridge to Bath & Bristol and return - promoted by Steam Dreams
- **Saturday 6th August** – ‘The Cathedrals Express’ - London to Severn Valley Railway & Worcester and return - promoted by Steam Dreams
- **Saturday 13th August** – ‘The Cathedrals Express’ - London King’s Cross to York and return - promoted by Steam Dreams
- **Wednesday 17th August** – ‘The Cathedrals Express’ - London to Weymouth and return - promoted by Steam Dreams
- **Sunday 21st August** – ‘The Cathedrals Express’ - London King’s Cross to Norwich and return - promoted by Steam Dreams
- **Thursday 25th August** – ‘The Cathedrals Express’ - London to Sheffield & Manchester and return - promoted by Steam Dreams
- **Saturday 27th August to Wednesday 7th September** - West Somerset Railway, Minehead
- **Saturday 10th September** – ‘The Cathedrals Express’ - London Euston to Chester and return - promoted by Steam Dreams
- **Thursday 15th September** – ‘The Cathedrals Express’ - London King’s Cross to Lincoln and return - promoted by Steam Dreams
- **Friday 23rd to Sunday 25th September** – Severn Valley Railway, Kidderminster
- **Saturday 8th October** – AISLT Annual Convention at Barrow Hill, Chesterfield
- **Saturday 22nd to Sunday 23rd and Friday 28th to Sunday 30th October** - Mid Hants Railway, Alton

The Trust respectfully requests that anyone wanting to see *Tornado* follows the rules of the railway and only goes where permitted.

The following tour operators are running the trains listed above

Steam Dreams

Web: www.steamdreams.com
Tel: 01483 209888 Email: info@steamdreams.co.uk

Pathfinder Tours

Tel: 01453 835414
Web: www.pathfindertours.co.uk
Email: office@pathfindertours.co.uk

Torbay Express Ltd

Web: www.torbayexpress.co.uk
Tel: 01453 834477
Email: contact@torbayexpress.co.uk

Mid Hants Railway

Web: www.watercressline.co.uk Tel: 01962 733810

Severn Valley Railway

Web: www.svr.co.uk Tel: 01229 403816

West Somerset Railway

Web: www.west-somerset-railway.co.uk
Tel: 01643 704996
Email: info@west-somerset-railway.co.uk

Barrow Hill Roundhouse

Web: www.barrowhill.org
Tel: 01246 472450

MERCHANDISE UPDATE *by Gill Lord*

It may have seemed rather quiet on the merchandise side to anyone looking, but I assure you I have been working away sourcing new items, talking to suppliers, arranging staffing at venues, Doncaster Model Rail in February, Alexandra Palace Model Rail Show in March and Crewe Heritage Centre in April.

The on-line store has been very busy, sales are higher this year than last and the orders are usually despatched within a couple of days thanks to Chris Walker's sterling efforts.

The eBay site is now up and running on the eBay for charity site please take a look at our selection of books and other railway items.

The last TCC had a new photo sales sheet and these have proved very popular with covenantors; look out for a new selection of photographs when we commence running in Brunswick Green!

The Hornby *Tornado* was launched at the Alexandra Palace Model Show 26/27th March 2011, the expected date for delivery to the Trust is late May for the R3060 *Tornado* Apple Green (£75) and R3070 *Tornado* Special Edition in Apple Green (£80) R3059 with 'The Tornado Express' Train Pack, in Brunswick Green, (£140) expected mid-June. To avoid disappointment order yours today using the enclosed pre-order form.

As you may have already read in the railway modelling press, Graham Farish (by Bachmann) is producing an N gauge Apple Green *Tornado* as one of a number of new Peppercorn class A1s which will be available in October 2011. More details will be available soon but if you are intending buying one of these please do so from the Trust.

New Brunswick Green items will be introduced for our first run, key rings, mugs, small badges, postcards and greetings cards.

TCC



Neil Whicker



Neil Whicker



Neil Whicker

Top: L-R: Simon Kohler, Hornby Marketing Manager, presents their new 'Tornado Express' train pack to Gill Lord and Mark Allatt at Alexandra Palace.

Above: Hornby's new OO gauge Railroad model of *Tornado* was on display at Alexandra Palace.

Left: Also on display was the new N gauge Peppercorn A1 Pacific from Graham Farish. *Tornado* will feature in this range.

Covenantors' Diary by Alexa Stott

At last some good news! As I write, the return of the boiler from Germany is eagerly anticipated. Then it will be all hands to the pumps to put *Tornado* back together, undertake steam tests and check everything is working properly by taking the locomotive out on a light engine main line run. Our priority is volunteers with some experience willing to get their hands dirty at York and help the engineering team in the mammoth task of putting all the jigsaw pieces back together. Looking further ahead, we would welcome new recruits to the Trolley Dolly team as *Tornado* embarks on her 2011 main line tour programme.

The finish line will be approaching rapidly as Ian Matthews (aka Rembrandt) applies those final touches of Brunswick Green paint and then we can all stand back and admire as *Tornado* goes on display on the turntable at the National Railway Museum at York. As soon as a date for this event is finalised I will be writing to you all to invite you to join us in York to celebrate *Tornado's* return.

And there's more good news for Covenantors. Head of Steam Darlington Railway Museum has announced that it is putting on a special *The Tornado Story* Exhibition from Monday 3rd October 2011 to Saturday 31st March 2012. In the Museum's words it is an intimate account of the building of the Peppercorn class A1 in which *Tornado's* importance to Darlington and the North East is explored for the first time. The Trust is assisting the Museum by lending artefacts from its own collection and in recognition of this support the Museum is offering free entry to all Covenantors holding valid Covenantor Cards. The Locomotive Works – currently the base for our support coach during its overhaul – is always open to visitors on the third Saturday of every month. And if you are visiting Darlington watch out for the *Tornado* model on the roundabout near the railway station, soon to be repainted in Brunswick Green (the model that is, not the roundabout!).

You should by now have received your 2011 Covenantor's Card. If you have not, please email me at alexa.stott@a1steam.com and I will arrange for a replacement to be sent to you.

Don't forget that the Annual Convention is taking place in Chesterfield on 8th October. Covenantors will once again be able to enjoy *Tornado* away from

public view at Barrow Hill Roundhouse after the official proceedings of the morning at The Chesterfield Hotel. We will also be holding our Covenantors' Dinner on the evening of the Convention – an event which was thoroughly enjoyed by all those who attended last year. It would be lovely to have an even higher attendance this year so dust down those party frocks and dinner suits and put the date in your diary.

My column would not be complete without a very sincere thank you to all our Covenantors and Sponsors for your wonderful support of the Trust over the last few difficult months. Although there is light at the end of the tunnel, we still have a lot of hard work ahead of us to recover the ground lost financially. It has been very heartening to see so many new faces joining our ranks and long standing Covenantors increasing their monthly contributions to help us. To those of you who may not

be able to commit to a permanent increase in your monthly contributions, could I appeal to you to consider supporting us in another way by buying a slice of support coach, sponsoring a part (stays are a very popular item at the moment!) or buying some *Tornado* merchandise or a photograph? In her column, our Merchandising Director Gill Lord, has plenty of ideas to tempt you with. Can we reach the magic 50% mark for sponsorship of the support coach?

On a personal note, may I also thank everyone for their messages of support following my bereavement. It is good to be back and writing this column again and I look forward to catching up with many of you during 2011 as we enjoy the sight of *Tornado* in all her glory back out on the main line or being admired by fans, young and old, during one of the several preserved railway visits we have lined up for this year. **TCC**

***Tornado's* young fan – Adam Pooley, St Ives**

Adam Pooley is 6-years-old and has always loved trains, especially steam engines. His interest in *Tornado* started when he saw her starring role on Top Gear's 'Race to the North' and has watched the episode repeatedly ever since.

Adam's parents, Martin and Melissa, bought him a copy of *The Tornado Story* book and he's learnt a lot about *Tornado* from reading it. His family recently travelled to the National Railway Museum at York to see her as a birthday treat. Although *Tornado* was in the workshops undergoing maintenance Adam was still overwhelmed when he saw her.

Adam loves to make up stories imagining that he's the driver and is travelling at full speed with the whistle blowing, and his bacon falls into the firebox! He's currently learning all about how steam engines work reading the *Peter's Railway* books with his Dad.

Adam is really looking forward to seeing *Tornado* on the mainline soon, but the huge poster in his room, the photo of which was purchased from the Trust, will do for the moment! **TCC**

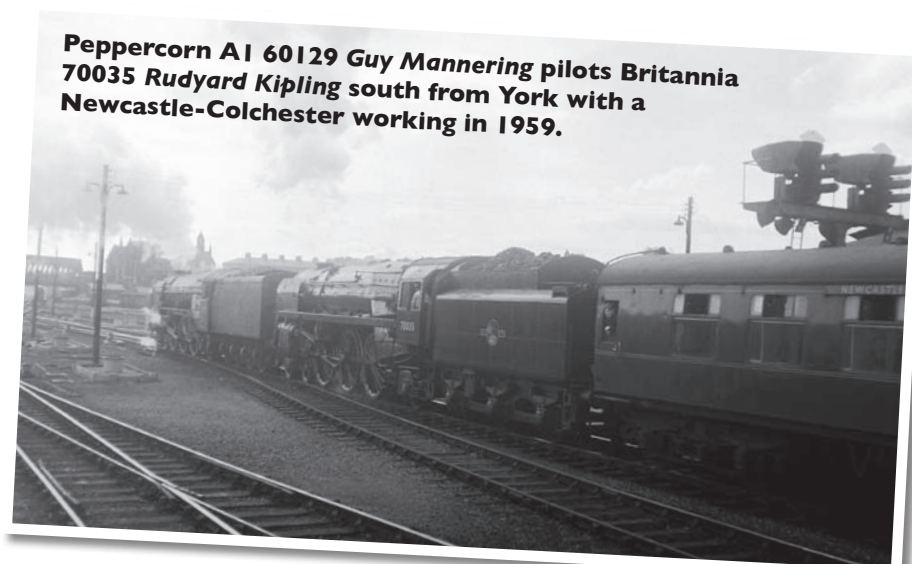


Martin Pooley

DOUBLE-HEADERS: PAST, PRESENT AND FUTURE *by Phil Champion*

Over the last two years we have become used to *Tornado* recreating the sight and sound of Peppercorn AIs on passenger trains. In 2010, however, 60163 also recreated an occasional feature of AI workings of the past: being part of a double-header.

Thanks to the database of Pacific and other workings compiled by Tommy Knox we know that at least 15 AIs double-headed trains with locomotives of 12 steam and two diesel classes. The first sighting was May 11th 1949 with 60146 *Peregrine* and Thompson BI 4-6-0 61013 on an up fish train past Heaton. A regular train to see double-heading was the 9.20 am Delaval to Holloway ecs. This originated at ecs sidings in Blaydon on Tyneside and had an extra engine - often a BI - attached at Stockton around 11.30 am usually as far as Northallerton but sometimes to Thirsk. The first record was October 18th 1949 with 60145 *Saint Mungo* and BI 61065 between Stockton and Thirsk with 18 coaches. In 1950 turns were: April 21st -60151 *Midlothian* + BI 61237 on 22 coaches; May 2nd 60151 + BI 61339; May 28th -60147 *North Eastern* +BI6/1 61442; October 27th - 60143 *Sir Walter Scott* +BI 61251 *Oliver Bury*. In 1951 there were: May 28th -60150 +BI 61218; October 1st -60151 + 61237; Oct 3rd -60151 +D49 'Hunt' 62742 *The Braes o'Derwent*; Oct 15th 60151 +ex-



Peter Townsend

NER Raven BI6/1 61412. As you can see *Midlothian* was a frequent performer on this train. In 1952 on March 23rd 60158 *Aberdonian* and BI 61258 worked together between Stockton and Thirsk as did 60157 *Great Eastern* and A3 60081 *Shotover* on December 6th.

Several varied workings brought more double-heading. The 7.30 pm football special from Glasgow Queen St -Newcastle on April 15th 1950 departed with 60161 *North British* +BI 61354. On March 17th 1951 60159 *Bonnie Dundee* and LMS design -'Black 5' 45458 brought the ecs into Edinburgh Waverley. A troop

special between Darlington and Barnard Castle ran on June 14th 1952 with 60158 and KI 62044. The grand sight of two Pacifics in unison came again on March 21st 1953 when 60144 *King's Courier* and A3 60086 *Gainsborough* worked the 9.20 am ex-Newcastle to Hornsey ecs between West Hartlepool and York. On April 7th 1955 60162 *Saint Johnstoun* and 61357 brought the up 'Queen of Scots' into Newcastle. March 29th 1956 saw 60159 +BI 61108 on the up 'Heart of Midlothian' between Edinburgh and Newcastle. Probably the best sight was of two AIs together on June 16th 1956 with 60116



Jon McDonald

Superpower on the East Lancs Railway. A1 60163 *Tornado* heads unique BR Class 8 Pacific 71000 *Duke of Gloucester* at Burrs in 2010.



**A1 60163 Tornado hauls
A4 4468 Mallard from York
to Shildon's Locomotion at
Castle Hill, 24th June 2010.**

Hal o' the Wynd and 60126 *Sir Vincent Raven* departing Newcastle on the 1.03 pm to Birmingham. More double Pacific power came twice in 1957: on September 7th when 60116 and Thompson A2/3 60511 *Airborne* hauled the 8.05 am ex-Birmingham to Newcastle from York to its destination; and November 14th when 60134 *Foxhunter* assisted A4 60005 *Sir Charles Newton* between Sandy and Kings Cross. On December 13th 1958 it was A1 60153 *Flamboyant* and A3 *Captain Cuttle* departing Newcastle with the 5.10 pm bound for Liverpool. One other double-heading was 60162 and B1 61244 *Strang Steel* on an additional Edinburgh to Newcastle train on April 3rd 1958. An unusual double-header was 60162 and 0-6-0 tender loco J37 64638 on May 15th 1959 on the up 'North Briton' from Glasgow -Edinburgh. More impressive was on August 29th run of 60158 and V2 60876 between York and Doncaster on the 9.40 am train from York to Kings Cross. Perhaps better still was the sight 13 days earlier of two more Pacifics: a work-stained 60129 *Guy Mannering* piloting *Britannia* 70035 *Rudyard Kipling* south from York on the 12.05 pm Newcastle-Colchester. Both locomotives had probably come on at York.

There were times when AIs ran together light engine. On May 31st 1958 60155 *Borderer* and 60156 *Great Central* were seen in tandem light engine past

new Southgate. In *The Pioneer* No. 17 you can see 60121 *Silurian* and 60158 heading south at King Edward Bridge Junction, Gateshead on October 24th 1964.

A couple of double headers with early diesels took place. On December 17th 1953 60157 *Great Eastern* and Peak D173 double-headed the 5.05 Kings Cross -Newcastle from York. Great Central and English Electric type 4 D281 hauled the 9.40 am York-Kings Cross as far as Doncaster on August 8th 1961.

Fast forward to the present -or very recent past. *Tornado* has double-headed with three different locomotives on at least four occasions in 2010. None of these were LNER designs though today's heritage railway scene opens up new possibilities. On September 25th King 6024 *King Edward I* and *Tornado* hauled the 'Tamar Devonian' between Bristol and Plymouth. The King was on the front on the outward run with the A1 leading on the return run. During the North Yorkshire Moors Railway Gala on 1st October *Tornado* led Southern S15 No. 825 (without smoke deflectors) on a train of teak coaches between Grosmont and Goathland. It can be seen on youtube. Later that month there was again the impressive sight of Pacific superpower as *Tornado* (leading) and BR Standard 71000 *Duke of Gloucester* worked together on the East Lancs Railway between Heywood and Rawtenstall on the 23rd and 24th during

their Gala weekend (not too different from 60129 and the 'Britannia' in 1958). We now have an A1 working with three 'new' classes also now including the GWR and Southern.

Tornado has another double-header of sorts to its credit when it hauled A4 *Mallard* from the NRM in York to Locomotion at Shildon on June 24th 2010 though on this occasion the streamliner was hauled as a load.

Now let's look to the future. 60163 has not doubled up yet with ex-LMS power preservation. With several Black 5s serviceable then working with them is a possibility, or even with a Jubilee or Royal Scot. Any heritage line rostering an A1 and a Duchess together would surely have the crowds flocking to such a superb sight! There are suitable locos for pairing up too from the GWR -Castles, Halls and Manors to name a few - and the Southern like rebuilt and unrebuilt Bulleid Pacifics.

Tornado has yet to work with ex-LNER locomotives. With two BIs surviving then an A1 + BI combination could be recreated. A nice touch would be to work with Peppercorn K1 2005. Even better would be two Peppercorn Pacifics: *Tornado* and *Blue Peter* together -now what an impressive sight that would be! Might 60163 yet pair up with an 0-6-0 tender engine again? *Tornado* could even couple up to an LNER design engine which has yet to be built... **TCC**

The A1 Steam Locomotive Trust is pleased to display the logos of organisations giving us their ongoing support. Their contribution is gratefully acknowledged.



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* All information correct at the time of going to press on 8th April 2011. For up-to-date information and dates please check the website www.a1steam.com.

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● e-mail: enquiries@a1steam.com ● website: www.a1steam.com

Darlington Locomotive Works is normally open to the public on the third Saturday each month (11am – 4pm).

Access to the works is via Head of Steam (the newly refurbished Darlington Railway Museum) where covenantors are entitled to free entry.

Charity registration No. 1022834.

The Trust respectfully requests that anyone wanting to see *Tornado's* main line passenger trains follows the rules of the railway and only goes where permitted.

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