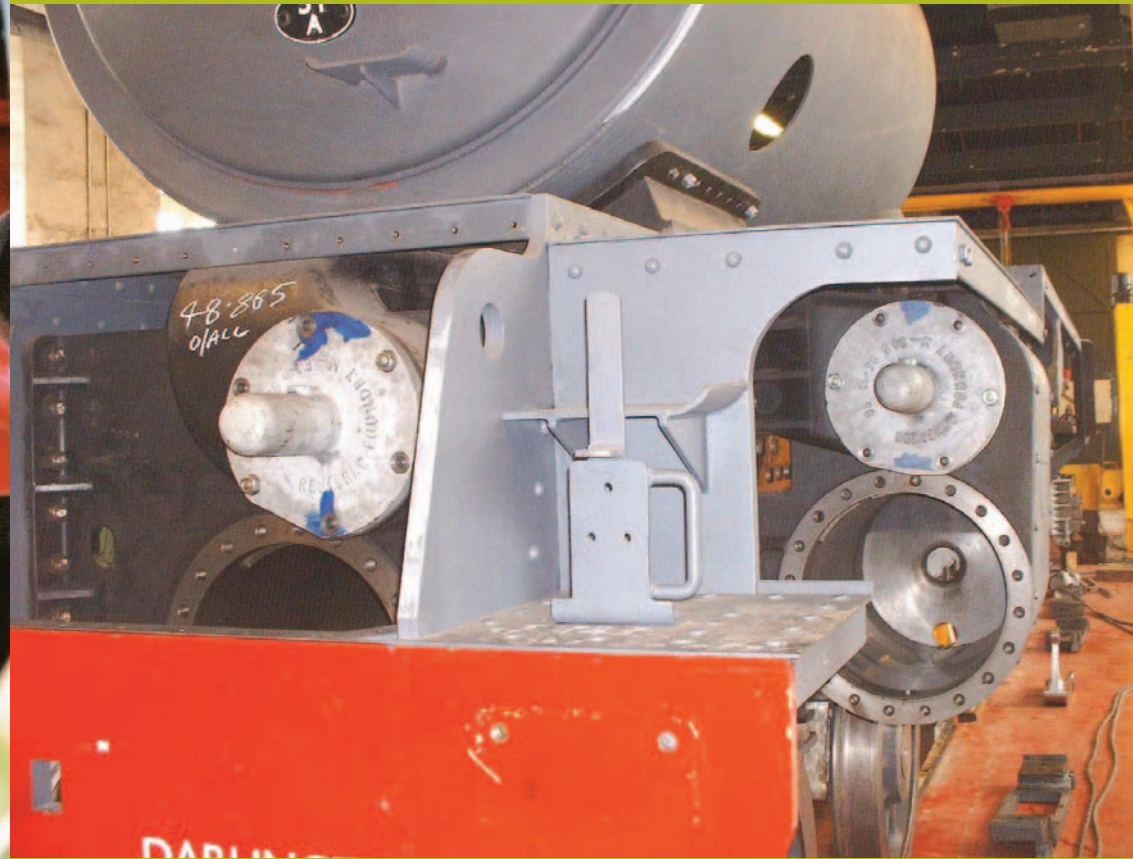


Top Link

Issue 8
Autumn 2003



Progress? Read
all about it!
See page 17

Journal of The A1
Steam Locomotive Trust



Charity regd no. 1022834

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Works normally open to the public 2nd Saturday in the month 11 00–15 00; you need first to buy entry to Darlington Railway Museum next door. Covenantors can visit at other times by arrangement, if open. Ring the works on 01325 4 60022.

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Top Link

Issue 8

Autumn 2003

Editor: Gerard M-F Hill

JOURNAL OF THE A1 STEAM LOCOMOTIVE TRUST

gerard@alsteam.com

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Peppercorn A1 60156 *Great Central* somewhere on the East Coast Main Line – in the mid-1950s, by the mixed maroon and blood-and-custard stock (photo: Geoff Chandler)



Progress? What progress? This charged question galvanised Barry Wilson into spelling out current answers – and clearly a great deal is happening (*see p. 17*). The specifications for boiler and tender are advancing in tandem with the finance. In our Engineering News (*p. 7*), large pieces of metal are rapidly coming together. 60163 is starting to look like an A1, not just a collection of parts (*see front cover*).

The A1 Project is not just about lumps of metal: it's about people, what they care about, what matters to them. The trust is run by volunteers: our news columns give pride of place to one of them, Vera Thompson, and her sad death at the age of just 52. Vera wasn't famous, but she mattered because she made a difference.

This issue is full of links. We had a leaflet exchange with our near-neighbours, the Wensleydale Railway; and one way forward identified in the 'Progress' article, diesel fuel, has occurred independently to the Wensleydale people too (*see p. 13*).

Ever since the chairman mentioned them, I've been trying to find a picture of those ducks in a row. Anyone seen Gresley A4s 4469 *Gadwall*, 4499 *Pochard* and 4500 *Garganey* all together? John Wall suggested (issue 1) that one of these would have graced the fiftieth A1, had it been built in the 1950s (issue 2). I hope to return to names and the committee that chose them. Who suggested Bachelor's Button?

Other links are joined in this issue. Undocumented Doncaster doings in 1949 (*see p. 20*) round out the Cartazzi story of 2003 (*see issue 7*); Britannia nuts lie behind some rather expensive bolts (*see p. 24*); and, in this issue and the last, The Safety Valve has blown the whistle on a second 8-wheel tender (*see pp. 19, 22*).

Still four issues a year, this one should reach you when it really is autumn. As usual, my heartfelt thanks to everyone who sent photos, especially R. G. Warwick for The Big Picture, and to all our letter writers: I publish as much as I can.

If anyone e-mailed me a picture before 28 May 2003 and hasn't yet seen it in *Top Link*, perhaps they might get in touch with me. An attempt at tidying one of my hard drives resulted in all A1 Trust e-mails before that date vanishing. I did think I had my head well screwed on, but I now suspect it was cross-threaded.

The Safety Valve and History pages include several requests for information: do see if you can help. In particular, I am looking for details of the last (?) run in passenger service of 60145, The A1 That Got Away. If anyone has – or can point me towards – information on the use of A1s on the West Coast Main Line in the early 1950s, or clear pictures of same, I should be very glad to hear from them.

Pressure of work prevented me getting out and about this year, so I look forward to seeing as many of you as possible at our Annual Convention on 4 October.

Gerard M-F Hill

VERA THOMPSON

Well known to all at Darlington Works, Vera sadly died recently, after a long and difficult illness of which she made light. Members of the Works volunteer team attended her funeral on 29 July.

Hartlepool born and bred, Vera was drawn into the A1 Project through her husband, Barry. In 1995 they became covenantors, but they also came to the Works each Saturday, and often on Mondays or Thursday nights, to help.

If the Works looks clean and tidy now, Vera had done some of the hardest jobs: cleaning the floor of cement dust, disinfecting the fridge, anything that needed doing. Her presence will be much missed.

The trust sends its condolences to her family, especially Barry Thompson who remains a Works stalwart.



Vera Thompson
25 October 1950–19 July 2003
(*photo: Barry Thompson*)

TONY ROCHE

On 27 July, the trustees issued the following press release:

It is with regret that the Board of Trustees of The A1 Steam Locomotive Trust announces that Mr Tony Roche has, for personal reasons, resigned as Chief Mechanical Engineer to the trust and as a member of the board of the company. The trust will be seeking a replacement for him as a matter of some urgency.

Tony Roche has done much to strengthen and refine the organisation of the engineering team, and in that way his work will continue to benefit us. We are very grateful to him.

In conversation, Tony said he had very much appreciated his involvement with the A1 Project and looked forward to *Tornado's* successful completion. "I am full of respect for the determination and perseverance of those involved. The covenantors' faith and financial commitment to this project reinforce one's faith in human nature."

AMAZON SHOP

Christmas is coming! If you buy from Amazon, please consider ordering via the trust. Whatever you spend will earn us 5–15% commission. This is how you do it:

- 1 Go to our website www.alsteam.com.
- 2 Click on the Amazon Shop link (bottom left of any page).
- 3 You will see the A1 Trust Amazon Shop page. Click on the Amazon banner.



- 4 This links you to the UK Amazon Shop. Make your purchases: our commission costs you no extra. That really appeals to our webmaster. He's a Yorkshireman!

BOND NEWS

Bond Issue? The latest intelligence from our own Mr Bond (alias Barry Wilson) is decrypted on page 17.

BACHMANN MODEL

Covenantors may have seen advertisements for the *Tornado* 00-gauge model appearing on model shop websites and in the model railway press.

This was a business decision by Graham Hubbard of Bachmann to dispose of remaining stock of these models, which they have financed for eighteen months. We were not consulted.

A special certificate will soon be supplied at no cost to those covenantors who bought the model. We had high hopes that the models would sell much better than they actually did. The problems with the motors undoubtedly did not help. (see also p. 22)

RECENT BEQUESTS

The trustees acknowledge with gratitude a bequest of \$1,000 Canadian from the estate of the late Charlotte Newlands and a legacy of £5,000 from Geoffrey Hughes (not the well-known writer).

If you do leave a legacy to the trust, it will be free of Inheritance Tax. It helps if you mention our charity reg. no. 1022834 in your will. Information on this will be added to the website soon.

If you are someone's executor, you can insert a legacy to the trust from them (see Wreford Voge's article on p. 19 of *Top Link* 7).

CERTIFICATES

If you have been awaiting a Dedicated Covenant Certificate, or indeed any other document or response, longer than expected, please get in touch with Alan Dodgson at the Works (see p. 2).

ON THE SHOP FLOOR

Frames

The footplates down the sides of the locomotive were made and fitted whilst the frames were at Tyseley.

This has proved to be premature, as they have consistently got in the way of fitting other components, particularly the outside radius link and slidebar brackets. Large parts of the footplating had to be removed to fit these items.

Two fabricated brackets, towards the rear of the engine on each side, set the footplate-support angles too far apart, making the locomotive almost half an inch wider at its widest point than on the drawing.

This would almost certainly cause difficulties when it came to final certification, so the volunteers at DLW have removed the brackets and Ian Howitt has machined material off to bring the angles back to their correct position.

Below: The first coupled wheelset is about to be unloaded at North View Engineering, where the crankpins were to be ground. (photo: David Elliott)



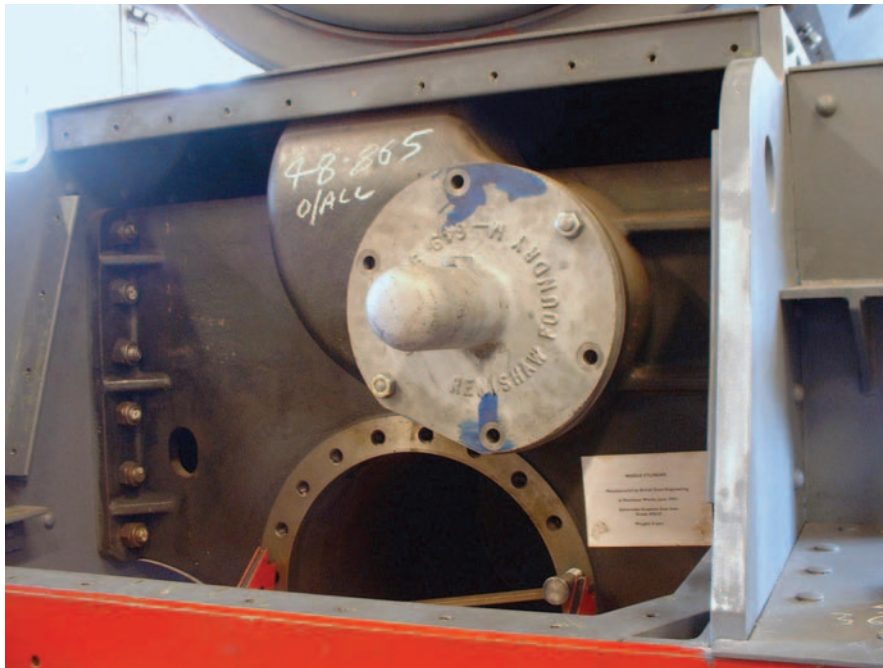
The footplates will be refitted with bolts instead of rivets in a number of areas, to facilitate future overhaul work.

Wheelsets

As indicated in *Top Link 7*, we were aware that the distance from crankpins to axle centres varied by a few thou.

After some consideration, it was decided to correct this by machining a few thous off each crankpin to bring its centreline to the required 13" from the axle centreline.

North View Engineering, Darlington, fortuitously have a horizontal borer big enough to carry 5¼-ton wheelsets.



Above: The front steamchest covers, machined by North View Engineering, Darlington, were trial-fitted to the cylinders in August. The pattern was made for us by Kings Heath Patterns, Birmingham, and five covers were cast by Renishaw Foundry, Derbyshire (now closed), within a very short timescale. Two covers went to NELPG as part of the repairs to A2 60532 *Blue Peter* after its destructive uncontrolled slip at Durham some years ago.

(photo: David Elliott)

Below: The first coupled wheelset is set up ready for machining of the crankpins. This followed final measurement with the coupling rods *in situ*. (photo: David Elliott)



A procedure was worked out and documented in consultation with North View. Rear and middle wheelsets have been treated. The front wheelset should be completed by the time you read this.

The rectification work was done at the expense of the original contractors. The job was typical of large 'one-offs' in that it took roughly a day to set up the wheelset and about 45 minutes actually to machine off the metal.

Although the crankpins are now slightly smaller than new condition, they are still well above the minimum

diameter. Crankpin-turning routine in steam days, with the works having special quartering machines to do this work.

Bogie

North View Engineering completed welding-on the bogie hornblock liners, and machined the side faces that control sideplay of the wheelsets.

The gap between the main faces of the liners (where the cannonbox sits) was too small to get the Elga mill cutting head in, so final clearances between cannonboxes and horn guides were achieved by Ian Howitt's team using

hand-held grinders, a surface plate and engineer's blue.

The trial fit of the wheelsets in the hornblocks was satisfactory, with the liner side faces making contact with the corresponding faces on the cannonboxes simultaneously on both sides of the bogie – an important factor in minimising the risk of bogie frame cracking, a characteristic of the original locomotives. We have also achieved the design 3/16" of total sideplay for each wheelset.

Bogie hornstays were hand-fitted and holes drilled for the retaining studs. The next job is: make and fit the studs.

Cab

Volunteers have successfully riveted the window beads onto the cab sides (p. 9).

We had hoped to make and use a larger rivet press to fit the main rivets but, on closer examination, we decided to have the job done by a specialist contractor with much riveting experience.

We are currently in discussions with a firm near Sheffield who, amongst other things, make and assemble riveted fireboxes for traction engines.

Network Rail's new height rule lay behind this work. A bond issue will finish 60163 before the rules change again!

Cylinders and valves

Ufone have almost completed the six valve-chest liners and we hope to have them back in time for the convention. North View have machined the front

valve-chest covers and these have been put on (*see p. 8*) to ensure they fit and are in the correct orientation.

Although the castings are common, all three are machined differently because the centrelines between the valve chests and the cylinders are all at different angles. Quotations have been sought for machining the cylinder covers and we expect to place an order shortly.

In the meantime, over 100 studs have been ordered from Hawk Fasteners of Middlesborough to retain the cylinder and valve-chest covers.

Motion

Hawk Fasteners made the special bolts and nuts for the slidebars. Their quote was the cheapest, but 30 bolts, slotted nuts and washers still cost over £1,000.

Original A1 slidebars were secured by conventional railway-type bolts and nuts, with a split pin in a plain-shanked extension to the threaded bolt.

The split pin was there to prevent the nut falling off if it worked loose. When a BR Standard locomotive with the same fixing suffered a bolt failure, the slidebar fell off, with broken rods and much collateral damage (*see p. 25*).

A modified design of bolt and nut was adopted, using high-tensile steel and slotted nuts, where split pins positively prevent the nuts from loosening. The high cost reflects the fact that the special deep-slotted nuts specified are not available 'off the shelf'.

Below: Frame beading laser-cut from sheet steel, profiled by milling to D-section and riveted to laser-cut cab sides. Note: We do realise the cab was upside-down on the cradle when the picture was taken! (photo: David Elliott)



Brass material has been obtained for the spacers between the slidebars, and Ian Howitt has bored and reamed the holes and skimmed the bolts down.

It now needs only a gentle tap fit to unite the top and bottom slidebar sets. The next task is to set up alignment wires down the centrelines of the cylinders and fit the slidebars to the engine.

North View have machined the white-metal surfaces on crossheads and are now boring and milling the oilways.

Valvegear

We have now received the remaining valvegear forgings and will place orders shortly for the machining work on the expansion links and eccentric rods.

Though smaller, these components are more difficult than the coupling and connecting rods, because of the multiple processes required.

Valvegear joints tend to have either steel-to-steel or bronze-to-steel rubbing surfaces. The steel needs to be case-

hardened and ground after machining. Most machines that are able to cut hardened steel (by grinding or by spark erosion) are relatively small. As a result, components like radius links pose no problem, but larger items such as eccentric rods and radius rods do.

We will probably split the work into machining and hardening, and find different specialists for these tasks.

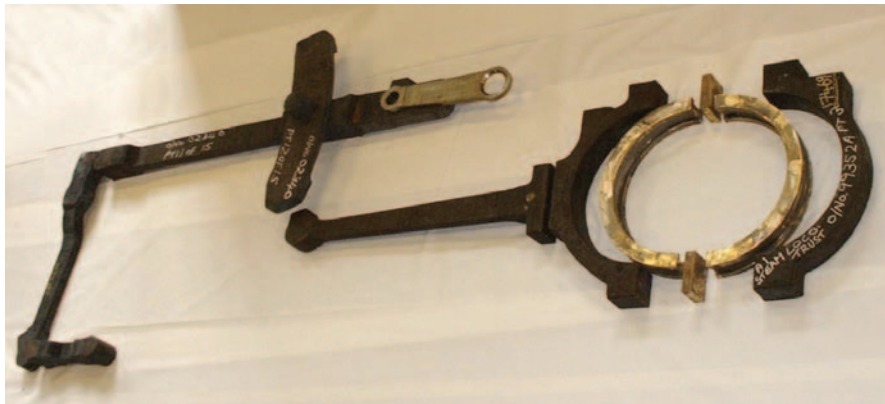
Ufone are now nearing completion of the inside connecting rod and strap – a large, urgent order for the Ministry of

Defence had been occupying the only machine big enough for our con rod.

As soon as we have all the coupled wheelsets back from North View, work will start on fitting the coupling rods.

WORKS ACTIVITY

Mike Wood, our volunteer Works Manager, who organises volunteer work on the loco, has recently put up a plethora of safety/information signs, which legislation now requires in places of work.



Above: Forgings for the inside-cylinder valvegear, from left to right: combination lever, union link (below), radius rod (above), one of two radius link trunnions, one of two fully machined lifting links, eccentric rod, front eccentric strap, leaded gunmetal liners and spacers, and rear eccentric strap. The forgings are by J. Hesketh and Son at Bury, the gunmetal liners and spacers – both patterns and castings – by Hardy Non-Ferrous Ltd at Middlesbrough. It will cost over £50,000 to machine these and the similar forgings for the outside-cylinder valvegear. We are delighted that people have already taken on Dedicated Covenants to pay for machining these parts. Other motion parts are now available for sponsorship (*see p. 27*) by individuals or groups from £150.

(photo: David Elliott)

Volunteer working

The new system of volunteers working as mates to skilled professionals is a great success. Progress on refitting footplating, fettling con rods, riveting the cab and machining drain-cock gear has been quicker and more enjoyable.

We want to extend working in this integrated way, and that means we now have roles for more hands, especially in the workshop.

We also need people with expertise in administration, marketing and various aspects of technical management.

Works visits

Please be sure to check beforehand that the works will be open on the day and at the time you intend to visit, and that no engineering work is going on that might preclude your visit: ring 01325 4 60022 or 07790 012410 (mobile).

GEOFF JACKSON

Two years ago, Geoff Jackson of Darlington died, leaving a quantity of railway material.

His photographs are now being catalogued before the named collection is placed in the Ken Hoole Study Centre at Darlington Railway Museum. I hope to feature some soon.

STEAM IN WENSLEYDALE

The Wensleydale Railway, the first operator to take over part of the national rail network, plans another ‘first’. Articles in the trade press over the summer set out the company’s plans for new steam traction for this ex-LNER line.

The railway’s chief executive, Scott Handley, is in discussion with the Swiss firm DLM to draw up specifications for a small oil-fired tank loco.

In recent years DLM (formerly SLM) have built updated steam rack locos for Swiss and Austrian lines. On test, their diesel-fired rack locos were economical on fuel and showed low levels of noxious emissions. They need only one crew member.

The Wensleydale design may be brand-new or traditional. Mr Handley spoke of updating the LNER class G5 0-4-4T. The 110 much-loved tanks of NER class O of 1894 worked on every part of the NER.

Such motive power would attract passengers, without the problems of lineside fires, coal dust, manpower, maintenance, reliability and availability that go with ageing coal-fired examples.

The railway are confident they can finance new steam, for which they see a need alongside diesel traction.

Fewer steam locos of LNER origin survive in private hands than those of other Big Four. With new steam it may well be the other way round.





The run-up to our Annual Convention always focuses the trustees' minds on what progress has been made on *Tornado* over the past year. As you will realise from Barry Wilson's article (*opposite*), along with the steady, painstakingly accurate fitting work being done on the 'bottom half', most of the groundwork has now also been done in the two main areas of our big leap forward – funding for the accelerated building programme and preparations for boiler and tenders procurement.

These vital areas have absorbed many hundreds of hours' work by the trustees and management team this year – work not apparent to others, but which will soon come to fruition. I would personally like to thank them for their patience, perseverance and unflinching good humour. Time will show the results of their work.

It is always sad when an organisation loses one of its number – sad but inevitable – and in this issue we report the early death of Vera Thompson, a volunteer at the Works for many years. Our thoughts and condolences are with her husband, Barry. This issue also sees the departure of Tony Roche, who has made a significant contribution to our engineering efforts. Good luck on the 'big railway', Tony!

After the summer, many of us start to think ahead to Christmas. As usual, I urge you not to forget *Tornado*. As a present to a friend, family or other relative, you can give a covenant; there are Heritage Covenants for children or grandchildren; and Dedicated Covenants (*p. 27*) mean you can say "That's my bit!"

Another way to help is, of course, through volunteering. Significant progress has been made at the Works (*p. 13*), but we still need experienced professionals in engineering, marketing and administration, among others. Can you help? The hard-pressed team needs every skilled volunteer it can muster; the need will be even more pressing when the enhanced funding comes on stream.

For years we have been saying that the only thing holding us back was money; we don't want to find this replaced by a lack of skilled volunteers. Lastly, I look forward to seeing as many of you as possible at our Annual Convention at Darlington on 4 October. As usual, it promises to be a great day!

Mark Allatt

If you have not already registered your support for the Bond Issue, please write to Wreford Voge – not to the works, and not by phone or e-mail – at 5 March Pines, Edinburgh, EH4 3PF. Otherwise, please always use the works phone or address.

The Big Picture (pp. 14–15)

The down Queen of Scots Pullman on 8 April 1953 was hauled by sparkling A1 60141 *Abbotsford*, seen passing through Hare Park & Crofton station on the GN line to Leeds. One of the passengers, to Ripon, was H.M. the Queen Mother.

(photo: R. G. Warwick)

What's been happening

A good deal of work has been done on the locomotive in the past year, but much of it has been somewhat intricate. As a result, visible progress on *Tornado* perhaps does not reflect the effort put in. The trustees are also aware that some of you have expressed concern that we have yet to place an order for the boiler. We have identified several suppliers who will be in the frame for construction of the boiler but the decision to complete the locomotive sooner rather than later – much sooner than if we carried on with the present income stream – in turn hinges on finance.

We therefore felt that a written update would help to keep everyone informed on the two big questions:

- o where we are on the boiler
- o where we are with our efforts to raise finance

If we were building an exact replica of the Diagram 118 Doncaster boiler, we still could not order it until we had the funds to pay for it. However, it isn't simply a question of money.

Moving goalposts

With the new height restrictions introduced by Network Rail, the dome is now too high, so the boiler has to be redesigned. We also wish to construct an all-welded boiler with a steel firebox, for reasons we have previously made public. To obtain certification for such a boiler, the design has to be approved.

The other factor in the equation is fuel. In truth we would all probably prefer the locomotive to be coal-fired, but we have to consider other factors apart from sentiment. The locomotive is intended to operate on Network Rail for at least the next fifty years and there is no doubt that the operating environment for coal-fired locomotives will become less friendly. Those of you who read the railway press will have seen the various articles that have appeared on this subject in recent months.

Oil-firing

The trustees decided that an effort should be made to fuel the locomotive on red diesel – fuel taxed at a lower rate and coloured red to prevent its use in road vehicles – and consulted many people involved with steam (currently and in the past) and oil-firing (mainly on narrow gauges) throughout Europe, experts in the firing of boilers in industry, and finally our Vehicle Acceptance Body (VAB) and the Railway Inspectorate (HMRI). The unanimous view of everyone we consulted was that we should go for oil-firing.

The decision was taken finally in May to choose oil-firing, but keeping coal-firing as an option if any insurmountable obstacle appeared. No step would be taken if it excluded going back to coal-firing.

The oil-firing option will undoubtedly cost more at the start but, taking into account commercial aspects of operating the locomotive, the trustees believe this decision is the right way to go for the following, and other, reasons:

- o consistency in quality and calorific value of fuel
- o less reliance on support crews – lighting-up/disposal take much less manpower
- o anticipated savings in future boiler-maintenance costs
- o cleanliness – attractive to operators, particularly with white-roof carriages
- o consistent performance – should obtain better train paths, attractive to operators
- o freedom from steam ban during periods of high lineside-fire risk

One other factor considered was the doomsday scenario (we hope!) of a complete ban on coal-fired steam on Network Rail in the future. Imagine how we would we all feel if we had just completed the locomotive and such a ban came into force.

The decision has meant diverting a significant part of the year's income towards this objective – in particular, obtaining a feasibility study for the installation of oil-firing equipment in the modified Diagram 118 boiler we will build. This study has shown that such a system would fit the Diagram 118 firebox with little modification and that it would produce a power output at least equal to that of the original Peppercorn A1s.

ALARP bells

Network Rail's basic requirement for anyone operating a vehicle on their metals is that they "do not import additional risk onto the railway". Part of the work to prove this is a hazard analysis, which lists all the possible hazards that a new design might bring to the railway and systematically addresses each one, rating it by severity of outcome if the hazard occurred and specifying the steps taken to make the likelihood of it happening "As Low As Reasonably Possible" (ALARP).

The biggest hurdle we have to get over is acceptance of the design and operation of oil-firing by the Railway Safety and Standards Board (RSSB). We already have a letter from HMRI confirming that they have no objection in principle but, before we commit large sums of money to the design and manufacture of an oil-firing system, we need a similar letter from the RSSB. To achieve this we are preparing a Preliminary Hazard Analysis, in conjunction with the manufacturer of the equipment and our VAB, for formal submission to HMRI and the RSSB.

Fund-raising

The prospectus for the bond issue has taken a great deal of work. We think we now have the final draft, our solicitors and accountants are dealing with their side of things and we hope to launch the bond issue before the end of 2003. We believe it will be successful, based on responses to the request in *Top Link*; if it is, this will also help our efforts to obtain commercial funding to speed up completion.

One issue any commercial lender will concentrate on is the integrity of our estimates for completing the job. Accordingly, much effort has gone into obtaining third-party quotations for a substantial part of this work, but these quotations are proving less than easy to obtain. Potential suppliers are often reluctant to quote for the supply of something they are not familiar with, when there is no guarantee they will ultimately get the job. We are getting there but this takes a great deal of time.

Not the second tender

We had a groundswell of comments from covenantors who did not like the idea of a second LNER tender used as a water carrier. After much consideration, we are now looking seriously into using a bogie container flat with suitable body panels to give it the appearance of a coach or similar. Certification should be easier as the basic rail vehicle is already in service and a water tank on a pallet is regarded as payload, for which certification requirements are much less onerous.

I hope this résumé demonstrates there have been no idle hands this past year – indeed, far from it. If you have any questions, the trustees' e-mail addresses are inside the front cover; or you can write to the editor of *Top Link* – he will like that!

Barry Wilson

The Charity Commissioners

After the events of May 2001, the Charity Commissioners considered the position of the trust. Having conducted a thorough investigation, they stated that they found nothing wrong with the way the affairs of the trust have been conducted in the light of the Charity Law of England and Wales.

Following this ruling, the board do not consider it appropriate to amend the Constitution of the Charitable Company. It seems the investigation was prompted by a complaint to the Commissioners by a person or persons unknown to us.

The only requirement imposed upon the members of the company was to hold an extraordinary general meeting of members to re-elect all the directors of the company, due the absence of minutes of the Annual General Meetings of members prior to 2001. This meeting was held on 14 March 2003.

The Editor welcomes letters or e-mails from covenantors, especially if they are succinct and polite, but reserves the right to edit for length and content.

First comes confirmation that, as our Director of Engineering would say (for he is fluent in French), Plus ça change, plus c'est la même chose.

Boat of Garten, Inverness-shire
Dear Mr Hill,

As always, I read *Top Link* 7 with interest but when I read in 'Peppercorn pedigree' that, after the pacifics gained long-travel valves, they became class A3, I gulped. There was a lot more to the change than that!

I was interested to read of the problems of the Cartazzi boxes on sharp curves. I was in Doncaster just after the roller-bearing A1s had been built, but I do remember being told to go to the New Erecting Shop to see the boxes on one that had just come in. The manganese liners had been seizing in the horns, and they looked like ploughed fields!! They all had to be reground and refitted with additional clearances.

Somehow people will never learn, and there were similar troubles with the Britannias! Yours sincerely,

Allan Garraway

Ed: I'm sorry if that bit of potted history misled anyone. Much else changed, but the Gresley A1s became A3s when they were given 220psi boilers.

by e-mail

Dear Sir,

I read the latest *Top Link* with interest. In the same post came *Rail Express*, where a piece headed 'Mail on rail to end' gave me an idea for the 2nd tender.

The article hinted that, rather than see it go to a competitor, Royal Mail would rather scrap redundant stock – amongst it, a lot of 100mph bogie vans based on the BR Mk 1 Full Brake, with a capacity of 8 tonnes. Now I know 8 tonnes equates to only about 1500 gallons but the vans have these advantages:

- o they need no new full safety case
- o they are express-speed rated
- o their Mk 1 profile would match most charter stock
- o they could be picked up cheaply (or donated for positive publicity?)

A modified safety case might be required to cover cargo distribution. To carry water, either a single tank (segmented to reduce free-surface effects at speed) or several 'cubes' could be fixed permanently or temporarily to the interior. As these vans carry Royal Mail trolleys, I imagine they have tiedowns to restrain loose trolleys.

A 'cube' is a 200-gallon (I believe) plastic container framed in an aluminium cage, used in the chemical industry for storage. Empty cubes could be quickly exchanged *en route* for full ones, allowing exploration of routes without normal watering facilities.

Victoria, Australia

Dear Mr Hill,

I wonder whether the A1 Trust is aware of Arthur Peppercorn's link with Australia? If I am correct – you should verify this with Mrs Mather [*Ed: I did*] – his maternal grandfather was John Watts, a West-country émigré to newly-independent Queensland.

In 1866 he became Minister for Lands and Works. One of his early tasks was to ensure completion of the Ipswich to Toowoomba railway which, successfully achieved, opened up safe travel from the Darling Downs to the coastal plain. His account gives graphic details of the problems to be overcome.

John was a doctor's son with a wealth of practical experience, who was not accustomed to being thwarted in his endeavours by loss of supplies at sea, poor-quality materials or last-minute disastrous heavy rain. He travelled on the footplate of the lead engine on the pilot train at the vice-regal opening of the line, and oversaw the return to the track of a derailed second locomotive on each of the trains on the journey.

He was primarily a (successful) pastoralist and must have passed some of his organizational skills and innate mechanical competence to his grandson.

Yours sincerely,

Ben Wadham

(antipodean, somewhat distant cousin of Dorothy Mather)

Two 'tenders' could be towed, or one at each end of the train for run-round or reversal. They could be hired to other main-line steam operators and livery could be maroon, blue, green, black – whatever looks best with an A1.

The amount of work is minimal compared to a new build. I hope this idea is of interest and you can pass it on to the right people to review. Yours,

Richie Mason

Ed: A neat and timely idea, but 1,500 gallons is too little: see p. 19, though.

by e-mail

Dear Mr Hill,

Could I put out a request, through the pages of *Top Link*, for a photograph of 60124 *Kenilworth*? I am currently building an '0' gauge model of the loco, as I remember seeing it at York early in 1966 – it was very clean and a lovely sight. I have been unable to find a good portrait from this period. I would be happy to pay any costs incurred.

Best wishes for *Tornado*.

Tommy Day

Ed: Gordon Best, the quiet chap behind the trust's admin., says: "There was an article on scratch-building an 0-gauge A1 in the Model Railway Constructor Annual (1985). It mentions buying the 'Loco Drawing' from OPC. I've always been told no A1 General Arrangement existed. Does anyone know of a list of microfilmed drawings sold by OPC?"

Finally, the *Tornado* model: the chairman has received one letter of concern on this issue, suggesting that the trust should not have got into this venture if it couldn't finance it and couldn't hope to sell the models. The writer felt it was not right that Bachmann are left with unsold models or that covenantors could now buy them at a discount.

The trust was set up to build an A1 at 12" to 1', not to sell models, so the trustees had a duty not to tie up covenantors' donations in this venture.

Bachmann, a commercial concern, made a formal agreement with the trust: they would build 500 models (in fact they ordered 1,000) and we would call off stocks from them as required. In reply to a questionnaire, about 250 covenantors said they would buy one.

Our profit per unit was less than if we had bought the entire stock, but there was no financial risk to the trust.

We do regret that the venture was not as successful as had been hoped. Faulty motors were replaced at no cost to purchasers or the trust but caused sales resistance to all Bachmann A1s.

The trust made various suggestions to help them address the slow sales while keeping the limited edition, but none was taken up. Bachmann decided unilaterally to sell through model shops.

The covenantor-only status was protected for 20 months, and we are now in the process of producing a signed certificate for everyone who purchased the model through the trust. If anyone has any further questions, please contact the trust.



Where are they now? No. 1.
Below: Seen in 2002, this is the double chimney of A1 60124 *Kenilworth* with pride of place in one of the forgotten gardens of Teesside. Its cabside number also survives.
 (photo: J. S. Rusby)

My thanks first to Gavin Morrison, who kindly provided the photo below. It may not look odd to some readers, but no-one ever saw an A1 dressed like this!

Speaking of Doncaster Works, it was good to hear from Allan Garraway again. His letter (p. 20) gives an insight into the kind of expensive problems that can result from incorrect clearances.

Bob Parkinson kindly sent a night photograph of A1 60145 *Saint Mungo* at York on New Year's Eve 1965/6, which I shall feature in a coming issue of *Top Link*. Has anyone else any memories or photographs of this occasion?. Did anyone keep a log of the journey? Was this 60145's last run in passenger service? I look forward to hearing from you.



A curiosity: Peppercorn A1 60117 *Bois Roussel* photographed in Doncaster Works on Sunday 19 May 1963, fitted with an A3 tender of Great Northern pattern. It is not thought to have gone out on the main line in this state: engine (vacuum) and tender (steam) brakes would have been incompatible! (photo: G. W. Morrison)

HISTORY

Below: I featured A2 60525 A. H. Peppercorn in The Big Picture in *Top Link 7* and here he (?) is again, seen at Doncaster from a different angle – the one so often favoured by schoolboy photographers. See letter below. (photo: Derrick Thompson)



Dear Sir,*
Wombwell, Yorkshire well. I got my mate to take a photo; that's me, the boy in the bottom of the picture.

At the age of 16½ years, I worked in Elsecar Junction Signal Box, Wath B Hump. I had been a train spotter since I was 8: the railway only a ½-mile away, I could see the box from my back door.

On 16 February 1949, a cold sunny day, when I was 14 years old, we – my school friends and I – went to Doncaster station spotting with our cameras. I took one of A. H. Peppercorn on the 4th platform at Doncaster, and it came out

The pullman used to pull in on two platforms, half into platform 1, half into platform 4; then the engine off 4 used to fetch the coaches off 1 and join them to the train on 4. I have photos of this too, with me on it.

Derrick Thompson

*Should have asked your name at Don Plant. [Ed: Many thanks for this. It was not I, though, that you spoke to on one of the Plant 'open days' on 26–27 July!]

HISTORY



Left: Over £1,000 worth of special high-tensile steel bolts and slotted nuts to fix the slidebars. All material supplied and machined by Hawk Fasteners Ltd. For history, see below. These bolts are now available (see p. 27) as a Dedicated Covenant. (photo: David Elliott)

How an accident led to this design of bolt

In his book on the BR Standards (he oversaw the design), E. S. Cox wrote of the pacifics: “the three-bar slidebar arrangement of the Gresley engines was

adopted, this elegant design permitting a crosshead of minimum weight”.

It gave no trouble on engines of LNER origin, but in 1958–9 several Britannia slidebars had to be re-secured. 70052 *Firth of Tay* was only five years old when, at the head of a Glasgow–London night express in January 1960 in a snowstorm on the Long Drag, the front fixings parted on both its r.h. bottom slidebars, which fell off. The connecting rod dug holes in the ballast, yet amazingly the loco was not derailed, though a down goods train was.

As a result, a more secure fastening was quickly produced for the slidebars and fitted to all the Standard pacifics. Drawings were also produced for the LNER designs, and it is those drawings that supplied the design for the expensive bolts and nuts recently delivered to Darlington.

01 Frames

Over 98% complete: virtually finished. Additional bracing work may be required following detailed stress analysis of frames between middle cylinder and leading coupled wheels.

02 Cylinders and valves

82% complete: valve pistons, liners, covers cast; rear valve chests finished, fronts machined; crossheads fitted to piston rods, white-metal areas machined; special bolts ordered to final-fit slide-bars. Cyl. covers being machined, cyl. & valve-chest-cover studs being made, slidebars assembled and in process of fitting to cyls.

03 Boiler and smokebox

11% complete: mainly smokebox; boiler interface spec. produced in draft form for comment; oil-firing preliminary hazard analysis ready for submission to RSSB.

04 Motion

Over 50% complete, quartered: all forgings made; inside con. rod & strap now being machined; radius links/eccentric rods to machine soon.

05 Coupled wheels, axles, axleboxes and springs

Over 99% complete: delay due to correcting crankpin throws.

06 Bogie and Cartazzi axle

Over 97% complete: bogie and coupled-wheel cannon- and axle-boxes complete; Cartazzi axleboxes & bearings fitted; horn liners welded on and machined to fit cannonboxes; hornstays fitted, studs & nuts to be fitted shortly.

07 Running gear

Over 5% of work done. Cylinder drain-cock gear under way.

08 Fittings, boiler mountings and pipework

Boiler fittings awaiting final design.

10 Platework

Over 55% complete: cab riveting under way.

11 Miscellaneous

9% of work done.

12 Tender

1% of work done.

The remaining categories are Tests and trials (0%), Paintwork and finishing (0%), Technical management (52%) and Drawing-office work (70%).

If you don't see what you want in the list of Dedicated Covenants below, just ask. There are other components to sponsor at prices to suit most pockets. You can get together with other covenantors to share the cost (cash /per month in the right-hand column). In all cases, contact Alan Dodgson at enquiries@a1steam.com or ring 01325 4 60163, giving your name and contact details (phone/e-mail/address).

PS51M	Left cylinder cover (machining)	£600/£10 pm
PS86M	Right union link (machining)	£600/£10 pm
PS99	Centre radius link die block (forge/machine)	£300/£5 pm
PS111M	Reversing cross-shaft arm (machining)	£450/£7.50 pm
PS114M	Left lifting arm & bell crank (machining)	£850/£15 pm
PS117F	Centre rev. gear: balance gear, spring & rod	£150
PS120M	Centre piston and rod (machining)	£1,500/£25 pm
PS129	Centre piston-valve spindle	£400/£5 pm
PS515	Full set of cylinder cover studs	£300/£5 pm
PS516-1	Right slidebar bolts & nuts	£350/£5 pm
PS516-2	Left slidebar bolts & nuts	£350/£5 pm
PS516-3	Centre slidebar bolts & nuts	£350/£5 pm

Buy your bit of history – your personally selected part from only £150 or any covenant from £5 per month! Join with a friend or two to spread the cost. You can make a gift of a Personal Covenant – there are Heritage Covenants for youngsters – or a Dedicated Covenant.

Where are they now? No. 2.

Back cover: Arthur Peppercorn's other masterpiece, the A2 pacific, the smaller brother of the A1, with 6' 2" coupled wheels. Now 'out of ticket' – its 10-year boiler certificate has expired – the sole survivor, 60532 *Blue Peter*, is seen in North Road museum, just 100 yards from the Works, after its recent arrival. (photo: Darlington Railway Museum)