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2004 Convention

Top Link

Issue 11
Winter 2004-5

2004 Convention Report and Pictures

Journal of The A1 Steam Locomotive Trust

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Editor: John Hartley
JOURNAL OF THE A1 STEAM LOCOMOTIVE TRUST

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Below: Darlington built A1 60140 *Balmoral* waits at York for its next duty *(photo: H Absalom)*

Front cover: Convention pictures: David Elliott with the Cartazzi. *(photo: R J Morland)*
Lower: Right hand rods on *Tornado*. *(photo: R J Morland)*

EDITORIAL

What does a new Editor write in his first issue – especially if he not the first to hold that office? Some change in style is almost inevitable, but if it is extreme it could be interpreted as adverse comment on the predecessor. What is certain is that my experience, which consists of editing monthly newsletters and writing/publishing annual reports for a charity, gives me a start, but only as far as the bottom of a very steep learning curve! I am, therefore, indebted to the many people who have given me unstinting help getting Issue 11 into print.

As the Journal of The A1 Steam Locomotive Trust, I believe Top Link should consistently propound the Trust's agreed policies. The 'Safety Valve' is the place to air other ideas – with, of course, the Trust having a right of reply.

I am sure that most Covenantors look for detailed updates on progress in building 60163 and those things administrative and procedural that impinge on it. The form, scope and regularity of such news must be balanced against the cost of producing and disseminating it.

Top Link will undoubtedly evolve as time goes by, but, from my perspective, it must remain timely, relevant, informative and, above all, interesting to those who read it. I hope Issue 11 meets those criteria!

Future editorials will be as brief as I can make them to ensure maximum space for news, items of relevant topical and historic interest and inputs from Covenantors and other readers. Finally, with sadness, I draw your attention to the obituaries below.

John Hartley

Alan Dodgson With deep sadness we report that, following a massive heart attack, Alan Dodgson died on 4th November 2004 aged 62. In his working life, Alan was a Representative for a Paper Manufacturer. A great Steam enthusiast, keen photographer and gardener, he became involved in the administration side of the Trust in 1992. Until a few months before his death, Alan was responsible for the Trust's outside events including the Spring Day Out and, of course, the Annual Convention. With the help of his wife, Joan, and his sister-in-law, Marjorie, he was the Trust's main contact with Covenantors for the Covenant Schemes and for general enquiries. He played a valuable part in moving the Trust from its early days to the point where *Tornado* will be finished within 3 years. His sterling efforts are very much appreciated and recognised by the Trust, and we extend our sincere condolences to Joan and to all Alan's family.

Gill Champion We are also saddened to record that, after a courageous and inspirational 5 year battle against cancer, Gill, wife of former Trust Chairman, David Champion, died on 17th November, 2004. Gill was a wonderful personality who, once met, was never forgotten. She always gave her active support at Trust events. We send our deepest sympathy to David and his family.

NEWS

Regional Meetings

The 1st Regional Meeting will be at the Darlington Railway Museum on Thursday 27th January 2005 at 7.00pm. The 2nd Meeting will be at the Institute of Mining & Mechanical Engineering, Neville Hall, Newcastle upon Tyne, on Thursday 24th February at 7.00pm. With any lessons learned from this pilot programme, we will arrange further Regional Meetings across the rest of the country. Details of dates, times and venues will be in either The Communication Cord or Top Link.

Steam Railway Magazine

Recent issues of *Steam Railway* carry articles about the Trust, and we understand there will be more coverage in future issues.

East Anglia

Do you live in East Anglia? Page 12 has information on the East Anglia Support Group which would welcome your involvement.

Communications

Would you take Trust information and the Newsletter by e-mail? If so, **via the survey (see p10)**, please give us your e-address. Building an e-mail database will take time, but, when set up, will help us save postage. If we are addressing you incorrectly, please give us a corrected address **via the Survey**.

Newsletter

Issue 2 of The Communication Cord will be published early in 2005.

Tornado's wheels were spun recently. An impression of things to come?

(Photo: David Elliott)

Covenantors viewing Tornado
(Photo: R J Morland)

The 2004 Convention had a familiar pattern - a morning at the Works, lunch at the Blackwell Grange Hotel and an afternoon of presentations. Vintage buses to and from venues were again available. A Convention photograph was taken at the Works where *Tornado's* coupled wheels turning and a moving RH piston rod were the highlights. All were pleased to see the President, Mrs Mather, present. After lunch, the **Chairman, Mark Allatt**, led. He named the Technical Advisory Panel and introduced new Directors: Graeme Bunker - Operations, David Bedding - Marketing, John Larke - Adminstration and Graham Nicholas - Quality Engineering. Sterling work by Andrew Dow, who had relinquished his role as Sponsorship Director, was acknowledged.

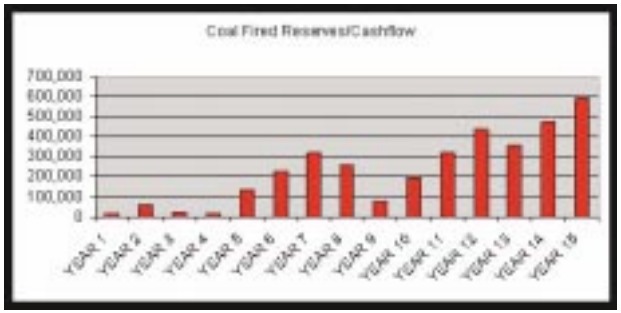
Operations

Graham Bunker, Operations Director told us that **t**he Trust has made significant revisions to its business plan following recent meetings with financial institutions to secure the additional funds needed to complete *Tornado* in a reasonable timeframe. The capital demands of oil firing combined with the likely demands of these financial institutions mean that *Tornado* will be initially coal fired but oil-ready; oil firing will be reconsidered at the first 10 year overhaul. Oil-firing equipment would increase build cost by over £400,000. Certification of a boiler designed for coal firing is straightforward with no research and development costs. On the other hand, though the oil-firing principle was accepted, it was not fully proven *in the UK*. The significant rise in oil prices now made it more expensive *per mile* than coal. Longer term savings using oil were lower than first thought due to the UK certification and insurance environment.

Higher coal operating costs, on a locomotive so designed, could be limited. Coal meant a larger support crew - ideally 4 for longer jobs (2 if oil fired). Summertime coal-firing demanded spark arresters and a disciplined crew. A coal quality/handling issue was identification of a regular, reliable supply network, and an understanding that you get what you pay for! Potential annual use - subject to finding the jobs - was 35+ runs with coal (60+ with oil).

THE 2004 ANNUAL CONVENTION

At higher oil prices, projected reserves and cashflow for oil firing showed losses in 6 of the first 10 years with minimal surpluses in other years. Thereafter, surpluses were expected to rise significantly. A coal projection showed a surplus *every year* - small in the first 4 years and lower in total over 15 years. Commercial funding terms disallow the oil firing business case. Coal is now the only viable *first* option. Our strategy, therefore, was to achieve a fully subscribed Bond and a smaller loan with the prospect that, if the Bond was a successful, *Tornado* could be steamed in 2007 and on the main line in 2008!!



The Boiler

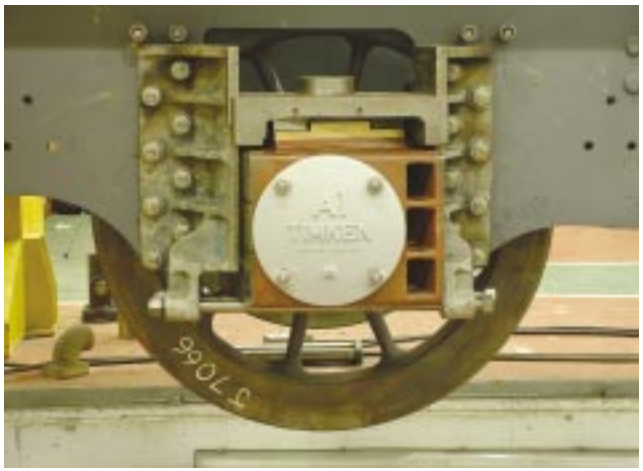
The Boiler Design Contract was in final translation into German with specialist advice to ensure the integrity of the information. The boiler design is for coal, but convertible to oil if required. Safety case and approval activities were under way. The Director of Engineering is the Principal Engineering Contact. Supported by a Board Sub-Committee, he will steer a successful path to completion. Key boiler parameters were a limited amount of redesign, a steel firebox (oil ready), welded construction – the principle is accepted in UK (use in the Bulleid Pacifics), height requirements met by minor changes and meeting EU requirements (simplifying matters here later).

Requests for Quotations for the principal *Tender* had been issued**.** A 2nd water carrier was valid in its own right, and a specification was under development. We must decide what range we need and, beyond aesthetic considerations, whether or not it should be combined with a support coach. If decisions could be made, we hoped to invite expressions of interest in Spring 2005.

Running-in will be on a 60mph preserved railway, and *Tornado* will then face a light engine and 2 loaded tests *all on the main line.* A1 Trust tours and contract work are envisaged. With a staged approach through tests and wider rollout, we will seek approval for 90mph running! We will assess the size and shape of the Support Crew – to be recruited by late 2005 and trained in 2006/2007.

Financial Highlights in 2003/2004 **David Burgess, Company Secretary**, standing in for the Finance Director, said that covenanted income was steady at £12,000 per month, around 75% had been 'converted to metal' and over £1 million had been spent on the locomotive! Covenantor numbers were steady with new recruits more than balancing retirees. The Bond had raised £130,600 to 4th October (inputs from £100 to £10,000).

Quality Management **Graham Nicholas, Quality Engineering Director**, said that certification of *Tornado* involved, primarily, the Vehicle Acceptance Body (VAB), the Rolling Stock Acceptance Board (RSAB) and Her Majesty's Railway Inspectorate (HMRI) underpinned by the Trust's internal quality system procedures and processes. Our system must be fully documented in a Quality Manual supported by separate Design, Procurement, Manufacturing and Quality Assurance Procedures documents. Progress with the VAB included records of construction, on-going guidance and Railway Group Standards compliance. We initiated the Route Acceptance Process with the RSAB and met them in April. The Railway & Other Transport Systems Regulations Process was initiated with HMRI. We met them in June and also consulted them on Boiler Certification strategy. In 2005 we will work on Railway Group Standards exemptions, on boiler certification, on an acceptance strategy to meet RSAB requirements, on the Maintenance manual and on technical and operational issues for a 90mph case (current limit is 75 mph). *(and see page 22)*



The RH Cartazzi wheel-bearing assembly (*Photo: David Elliott)*

THE 2004 ANNUAL CONVENTION

Engineering **David Elliott, Director of Engineering,** told us that time had been diverted to support the boiler procurement – generally and creating the specification for boiler interfaces with the rest of *Tornado*. Additional work had arisen beyond our targets some of which had been met. Substantial progress had been made on others, but only limited progress on some. 2004/5 targets (assuming current income level) were: **At the Works** – to complete the fitting of crossheads and outside connecting rods, further work on the reversing gear, grinding valve gear components, fitting the outside valve gear, honing the inside crank pin, fitting the inside connecting rod, and fitting the inside valve gear. **Off-Site** – project management of boiler design and manufacture, technical support for tender procurement, getting quotations for boiler fittings and establishing the certification route, seeking out brake components, and working up a detailed scheme for brake installation. With **MORE MONEY** we could start to fit the brake gear, order and fit the springs and running gear, balance the coupled wheels, manufacture boiler and other non-ferrous fittings, start the boiler pipe-work and order the tender. *(A detailed, illustrated look at current engineering on the locomotive is at page 17).*

Sales and Marketing **David Bedding, Marketing Director,** told Covenantors that a large A1 stand open throughout the 9 days of Railfest at the NRM (24 stalwarts shared the manning) had produced £1096 cash, 948 competition entrants (guessing the weight of the inside connecting rod), 30 new Covenantors, 20 works visits and 1 workshop volunteer. Visitors to the stand were on the database and were being followed up. We hoped to refresh the Spring Day Out and, after analysing Covenantor location, to run Regional Meetings. Probable venues were Newcastle, Darlington, Leeds, Doncaster, Birmingham, East Anglia, London and Southampton. We had a new publications Editor and were *'committed to providing an accurate flow of information to Covenantors and Sponsors on a regular, frequent and timely basis, but needed to do this in the most cost efficient way(s) that we can find'*. Top Link was to be supported by a Newsletter. A new brochure, new covenant leaflets and an updated prospectus were in preparation, and we hoped to issue a Trust 'Who's Who' by Christmas. We need a network of people to keep in regular contact with Tourist Information Centres, Heritage Railways and Museums and provide them with our up to date literature. An Image Archive of still photographs and press clippings (and possibly video later) was in preparation, and, when proven, would be available for Covenantors use. The Trust's 35mm slide presentation was to be refreshed (technology may preclude 35mm). We plan permanent display boards at the Locomotive Works, and, *if more people will help*, more Open Days there in 2005. We are developing new display materials for attendance at exhibitions (we are booked for the NRM and NYMR in 2005). *More people would allow us to go to more venues.*

We plan to update our Web-Site early in 2005. It is vital to our communications strategy. We have had some recent success in our continuing search for sponsors and they will receive significantly improved recognition. The oft-heard message remained: **With your help we can - and will - get more Covenantors & supporters!** *(See also Sales and Marketing opposite).*

Questions from the Floor and Answers by Speakers

Communication by E-Mail? We were hampered by a lack of E-Mail details, but this would be addressed to unlock the potential for savings in postage costs. Posting communications on the web-site for downloading by Covenantors was also envisaged.
Why a Steel Firebox? Steel was cheaper than copper by 3 : 1, easier to maintain and repair, and, unlike copper, was suitable for oil.
How was the Cab to be lowered? Adjustments to the roof vent.
Covenantor resignations? These *were* followed up.
Boiler Contract Translation progress? This was well in hand.
New Owners of Hunslet? The Trust was already in contact with the new owners.

COVENANTOR SURVEY

We plan a Survey of supporters, news of which may well be greeted by a chorus of "Oh no, not another form to fill in" ! A few words, therefore, on why, when and how:

Why: Frankly, we don't know enough about you ! Knowledge of **your** motivation to join us will help us target our recruitment campaigns. Survey replies will let us verify the data we do have. (We are already monitoring responses to press advertisements so that we can better decide how to spend our limited advertising funds).
When: The Survey should accompany the next edition of *The Communication Cord*. We must meet Data Protection Act requirements, and are taking appropriate advice.
How: Most answers will involve tick boxes, but on paper. We can't yet cope with web-based surveys! Questions will be minimised but enough to give the information we feel we need.

When you get the form, please do fill it in ***and return it***. The knowledge we gain should help us towards our ultimate goal – putting *Tornado* on the main line as soon as possible.

You will have read elsewhere in this *Top Link* about the 2004 Annual Convention (pages 6-10) and will, I hope, have deduced that we have made some big strides forward this year. Even in the few weeks since the Convention things have happened!

First of all, early in November, you should all have received our first Newsletter "*The Communication Cord"*. This is an integral part of our intent, as stated at the Convention, to get news about the project to you as fast as is practical, but at the lowest cost. We can put the Newsletter on your mat for around one-sixth of the cost of *Top Link.* We can do it more often and at an overall lower cost – **and** we have low-cost literature usable for sales and promotional purposes. However, I must stress that it is **not** a replacement for *Top Link* which will continue to be published – but perhaps less often. The downside to the Newsletter is that the 'envelope stuffing team' in Darlington have a significantly increased work-load, and some mutterings from our office about sharp-edged envelopes have already been heard!!

Several people who received the Newsletter commented that they would be happy to receive it by e-mail and thus save the print and postage costs. This is under active investigation, and we will be starting a pilot project in the New Year. This leads me naturally to the subject of our Web Site which again several of you have mentioned. Since early this year, when our original Webmaster had to relinquish the post, we have only been able to do small amounts of work on the Site in terms of adding new information and updating. The Internet is increasingly a communication and information channel, and it is very important to the Trust that we maximise the use of it. Hopefully, from early in 2005, we will be able to do more work on the Web-Site and you will see progressive improvements – but if there are any web designers among you who have spare time then assistance would be gratefully received.

We know that many supporters might not want, or may be unable, to attend events remote from where they live. Next Spring, therefore, we hope to stage one in the 'North' and one in the 'South'. We will announce details of these as soon as possible. At the Convention, we also mentioned R**egional Meetings. The first meeting is scheduled for 7.00pm on 27th January 2005 at the Darlington Railway Museum.** That will be followed by the second to be held at 7.00pm the Institute of Mining & Mechanical Engineering, Neville Hall, Newcastle on 24th February. These will be our pilots, and we will then plan locations and dates for the rest of the country. More information will follow in due course.

On-Train Marketing Where we have been able to travel on excursion trains we have recruited new supporters, and we want to become more active in that area. We recognise that people have, in the past, offered to help with this but have heard little in return. We have located the names and will be writing to each of you early in 2005 as our plans firm up.

My last topic for this edition (I must save something for next time !) is that of **Open Days** at the Locomotive Works. As you probably know, we open to the general public on the second Saturday in each month and we find that people who actually **see** *Tornado* are more likely to become supporters. We therefore plan to increase the frequency of opening but, of course, to do this we need help. We will be writing to everyone within a (roughly) 1 hour radius from the Works in the very near future - but if anyone beyond that area would like to be involved then please let us know. In terms of commitment, it would be, at most, 1 day per month - unless you wanted to do more ! We will be sure to contact you to explain in more detail.

David Bedding

A MESSAGE FROM THE EAST ANGLIA SUPPORT GROUP

Over the last 5 or so years a few Trust supporters have met regularly and partaken in several activities. We formed to run more local activities on behalf of the Trust in East Anglia and to promote railway-related social activities. To this end, the 10 or so Group members have had more impact on the Trust than would otherwise be the case.

We alternate meetings between the East and West of the region at around 4 monthly intervals. We have been involved in manufacturing components for the loco including driver's and fireman's seats and cab doors and windows, and have some ongoing engineering tasks for the Trust.

Recently, we added steam driver experience days to our activities. These have been organised on the North Norfolk Railway, but other venues are planned. We invite all Trust supporters in the greater East Anglia region to activities and meetings.

If you are interested, please e-mail to: Alan.Lusby@a1steam co.uk

The Driver's seat mentioned above. To the right is the reverser stand *(photo: David Elliott)*

Enamel Badge (shown below) - £2.50 **including** postage and packing (£2.00 if with other item (list below))

Tie (Woven polyester - green with orange/black stripes) - £15.00 **including** postage and packing

Clothing:

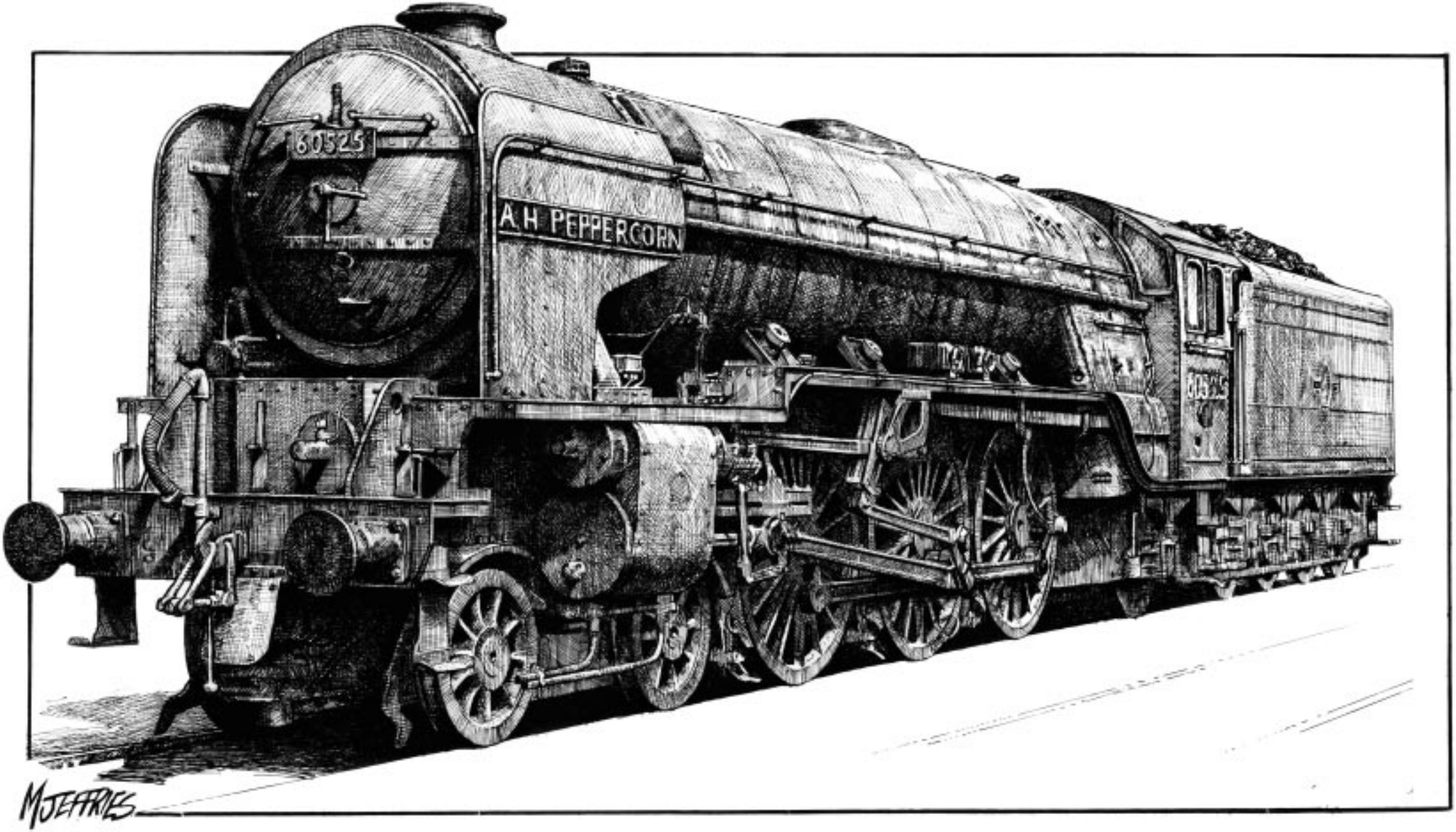
Sweatshirt - £20.00)
)
Polo Shirt - £20.00)
)
Fleece - £30.00)

plus £2 postage and packing

All items Forest Green with badge (actual size – 4½" x 3½") as shown below:

Clothing Sizes:	Small	Medium	Large	Extra Large	Extra Large
	35"	38"	41"	43"	46"

Write with *full remittance* and complete order details (please include phone number and/or E-Mail address in case of query) to **Sales, Darlington Locomotive Works, Hopetown Lane, Darlington, DL3 6RQ.** Allow 4 weeks for delivery of Clothing items. Other items will be despatched as soon as possible.



With the kind permission of Transport Artist, Mike Jeffries GMA, our centrefold picture is a previously unseen pen and ink portrait of the first Peppercorn pacific – A2 60525 *A H Peppercorn*. The drawing dates from around 1980. Mike Jeffries started his working life as a fireman at Saltley shed. He worked on Black 5s and 9Fs. With the artist's permission we are looking into the possibilities of a limited edition print of the drawing to raise funds for the completion of *Tornado*.

CHAIRMAN'S COLUMN

First I'd like to add my welcome to the new-look Top Link and my thanks to John Hartley for agreeing to take the regulator handle as our new Editor – welcome aboard.

In this edition you will also read of the deaths of Alan Dodgson and Gill Champion – I am sure that you will join with me in sending our condolences to their families.

As you will have seen in the first issue of The Communication Cord and elsewhere, the Trust is on a bit of a roll at the moment. Thanks to the support of you, our Covenantors, our £500,000, 4% unsecured bearer bond issue has now reached the half-way point. £250,000 has been received in commitments from supporters who want to see *Tornado* completed as soon as possible. We are now in the process of securing the remaining institutional finance for the completion of *Tornado*, which will be 'unlocked' once the residual half of the bond issue has been taken up.

With the funding now almost in place, we are confident of being able to place he order for the boiler as soon as the necessary redesign work is complete. This will mean that we can achieve our goal of having *Tornado* completed by the end of 2007 and running on the mainline in 2008.

We are now looking to your support in encouraging railway enthusiasts throughout the country to help us complete *Tornado* through taking up the remaining £250,000 of our bond issue. Elsewhere in this Top Link David Bedding points to the many ways in which you can help.

Tornado is now within our grasp – let's all make that one last big push.

Finally, I wish you all a happy, peaceful and prosperous New Year.

Mark Allatt

ENGINEERING

In The Works

Cylinders And Valves The six cast iron valve chest liners were successfully shrunk into the valve chests on the 8th June. Each liner had been machined to be slightly larger than the bore in the valve chest. It was cooled in liquid nitrogen to shrink it and then slid quickly into position in the chest. After a short time the liner warmed up and expanded to become a tight fit. The process was filmed by the BBC's Tom Ingall who is making a documentary about *Tornado*.

Sliding in the RH rear liner *(photo: David Elliott)*

Since the valve liners were fitted, a comprehensive measuring survey of the valve chests has been done to determine precisely where the valve ports are relative to the front edges of the cylinders. From this information, a new drawing has been prepared of valve heads and spindles, from which North View Engineering is machining these components. During one of our measuring operations, it came to our notice that the hole in the back wall of the middle cylinder, into which should screw a pressure relief, was not threaded. As this should be a 2½" BSP thread (approx 2¾" diameter), this was not something we could do with a series of hand turned taps. Ian Howitt, an expert in "on site" machining techniques, built a boring machine which clamped onto the back of the cylinder. This was used initially to bore the hole to the required size for the thread and then, with a single point thread tool, to cut the thread. Finally a tap was run through to finish the job. A new volunteer, Steve Wood, is making good progress in machining the valve spindle guides using our Bridgport milling machine. Mike Wood and the other volunteers have almost completed the components for the cylinder drain cock operating gear.

Coupling and Connecting Rods Following machining of each bush to the correct interference to fit in the rod end, the correct bore to give us the desired clearance on the crank pin, and milling of slots for the felt oil pad and key, each bush was pressed into the rod end using the trusty 50 tonne hydraulic press and yet another set of adaptors. The first bush was laboriously pressed in using a hand operated pump, however with increasing confidence, Ian Howitt's electric hydraulic pump was employed for the rest.

Ian Howitt feels for the key being correctly located in the keyway as the first bush is pressed in *(photo: David Elliott)*

A major milestone was reached on 25th August when Ian Howitt fitted all the coupling rods and the wheels rotated smoothly. Since then the outside connecting rods have been trial fitted. The RH rod has its "permanent" small end bearing fitted whilst the LH rod has a temporary bearing. This is to permit double checking on the degree to which the LH small end bearing is to be machined eccentric to compensate for small differences in the positions of the cylinders on the frames. The RH rod bush was machined concentric to achieve the desired clearance between the back face of the piston and the back wall of the cylinder. Both connecting rods and the leading coupling rod bushes need side thrust oil rings fitted, which will be done in the near future. The speedometer drive crank which forms the rod retainer on the rear LH crank pin has been finished by North View Engineering and is fitted to the locomotive.

ENGINEERING

Valve Gear Ufone are in the process of machining the outside cylinder valve motion. In order to give Ufone the precise lengths for the outside eccentric rods, we have made up a dummy radius link and eccentric rod, the latter capable of being adjusted for length. A round bar is set up on the valve spindle crosshead supports (which are part of the rear valve chest cover) in a position which represents where the top pin in the combination lever is located when the piston is in mid stroke, ie the combination lever is vertical. The dummy radius rod is fitted with two pins where the assembly bolts would normally go. The wheels are rotated until the upper pin is as far forward as it will go and the distance measured to the bar on the crosshead support. This is repeated with the lower pin fully forward and the length of the rod adjusted until the same measurement is achieved for both pins. The centre to centre length of the rod is then accurately measured for adding to the drawing.

Mick and Ian use the inside micrometer to measure between the pins on the radius rod and the reference point *(photo: David Elliott)*

Reversing Gear Good progress has been made with the reversing gear components. After some difficulty, Ian Howitt found a firm, WKW at Halifax, to machine the two start 3/4" pitch square section 2 1/4" diameter thread that runs through the reverser nut. A 17" long internal thread is always going to be difficult and I suspect that Doncaster will have made these using a succession of taps of increasing thread depth. This is fine if you are making 50 of them but very uneconomical if only one is needed. Incidentally if you happened to be employed making these nuts in the past I would like to hear how you did it!

North View have made the reverser handle. WKW also turned the reversing screw thread, and Ian Howitt is in the process of machining the forked attachment on the other end which engages with the next component to be manufactured.

The reversing screw moves roughly vertically and its movement is translated into horizontal action by a large bell crank assembly. North View has made the components for this and we shall shortly be setting it up to achieve the correct angles for the cranks, after which it will be returned to North View for welding. One of the longest components on the locomotive has also been fabricated by North View, the reversing (or reach) rod. This comes in two parts and together is over 24' long. It has recently been delivered. The plate steel trunnion supports have been made by laser profiling and offered up to the reverser stand. These carry the casting which houses the reverser nut.

Cab The cab has been to and returned from the North Yorkshire Moors Railway workshops at Grosmont where it has been fully riveted together.. The side windows (made by the East Anglia Support Group) and the cab seats (made free of charge by aircraft outfitters, Marshalls of Cambridge) were fitted for the October Convention, along with the cylinder drain cock handle.

Footplating Having finished most of the components for the cylinder drain cock operating gear, the volunteers (led by Mike Wood) have turned their attention to final fitting the footplating to give them something to support the drain cock gear!

Lifting Gear We have invested in a two tonne gantry with electric hoist to improve safety and dramatically reduce the time it takes to lift components on and off the locomotive.

The cab is suspended from the new electric hoist prior to refitting to the locomotive
(photo: David Elliott)

ENGINEERING

In The Office

Requests for quotation have been issued for the main tender (complete) and for patterns, castings and machining of non-ferrous fittings. Responses are arriving at the present time.

Boiler A substantial technical effort has gone into finalising the interface specification for the boiler, and subsequently arriving at a mutually agreeable contract with Deutsche Bahn Meiningen works. Further work will be required for design reviews and certification. In the mean time, the boiler designers have asked for details of the 3½" Ross Pop safety valves. Unfortunately, we have only been able to locate assembly drawings for the valves, so I have produced a new component and assembly drawing on AutoCad with the kind co-operation of the Sir Nigel Gresley Locomotive Preservation Trust who have lent us a valve of A4 class 4498 (60007) to dismantle and measure.

A kit of parts for a 3½" Ross Pop safety valve
(photo: Ian Howitt)

In a further co-operative venture, 4498 requires a new regulator, so the Sir Nigel Gresley Trust borrowed our regulator patterns and produced two sets of castings, one for 4498, the other for 60163. *David Elliott*

'The Man with the Clipboard'

In the first of a regular series of articles focussing on certification activities for *Tornado*, **Graham Nicholas, Quality Engineering Director**, turns the spotlight on Quality……

Quality is a commonly used word in all walks of life: 'a quality product'; 'Quality of life'; 'a guarantee of quality'. What exactly do we mean when we describe something as 'quality'? We think immediately of Rolls-Royce, a holiday villa in Monte Carlo, Tiger Woods' golf swing(!) - in other words 'the best'. What relevance does this have to *Tornado*? We obviously want 60163 to be the best, don't we?

As many will know, for an engineering project like ours, quality has a far more specific definition: 'supplying the product in accordance with the customer's requirements'. So what exactly does *that* mean? Standards define more precisely how an organisation achieves 'quality' in a systematic way. The best known is ISO9001, a recognised quality standard across the developed world. An organisation should confirm what the customer's requirements are, organise its resources so as to be able to deliver those requirements, carry out the actual manufacturing in accordance with the agreed specification, then test and inspect the completed product before final delivery. These processes are usually documented in the organisation's Quality Manual which contains the written procedures to be followed. Once this is established, everyone is then aware of the authorised processes and can follow them in a consistent manner.

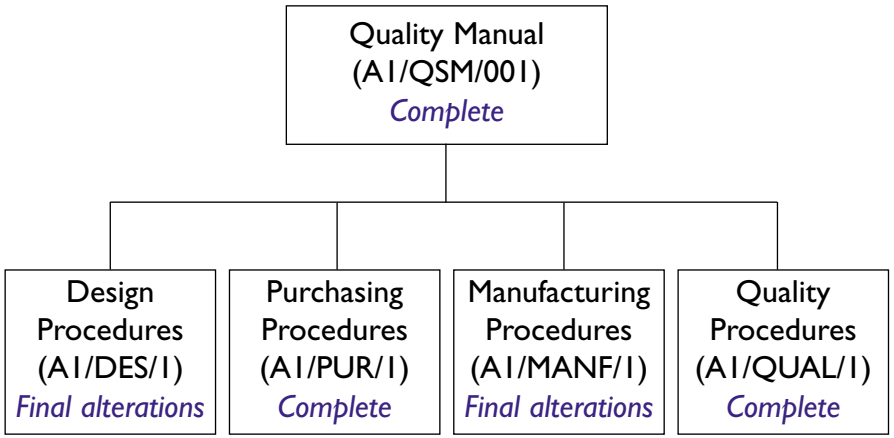
This is now being tackled by the Trust's Engineering Quality team. A bit late, you may say, with the locomotive already half built! True, but much of it is documenting what has been going on since the first metal was cut in 1993. The railway regulatory and certification world has changed out of all recognition in the last 10 years and the Quality Manual is now a vital part of the certification process that will get us our mainline 'ticket'. The modern railway industry's regulatory requirements are now the 'customer requirements' of our quality system.

Compilation of the Trust's documented quality system is nearing completion. The structure (see diagram opposite) consists of 5 individual documents: 1 introductory 'overview' document, and 4 procedures documents covering design, purchasing, manufacturing and quality (support). The VAB has said all along

QUALITY

that full independent accreditation of our system to ISO9001 is not required. It asks that the quality manual gives a basic outline of how the Trust has gone about the extraordinary task of building a 'one-off' new steam locomotive.

If we'd been building a *batch* of A1's, the requirements might have been different…..



Structure of documented quality system

A winter scene for the winter issue. A1 60132 *Marmion* at Niddrie West Junction, Edinburgh in the early 60s *(photo: A R Cockburn)*

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

Surprisingly, no letters to the Editor of Top Link have found their way to me since I assumed the role of Publications Editor just before the Convention on 9th October. However, there was a good response to the first issue of 'The Communication Cord' – the Newsletter designed to compliment Top Link and give Covenantors more regular news at significantly less cost. Thank you for the plaudits about the first issue. Hopefully, from the lessons learned from its preparation and despatch, future issues will also find favour.

The following (edited) message may well excite comment on a subject that is topical and seems to be controversial.

by e-mail

Dear Editor

I suggest that it is unlikely that covenantors will support the idea of a second tender running with *Tornado*; it being remembered how ridiculous *Flying Scotsman* looked when so encumbered a few years ago. That being the case, can we stop using the term 'second tender' and substitute, say, 'WCV' – for 'water carrying vehicle'?

Best wishes

Brian Collins

Ed:

As Flying Scotsman's erstwhile 'second tender' is now in LMS maroon livery for use, it seems, behind Duchess of Sutherland, there may be some trenchant views just waiting to be aired! We will publish any received in either The Communication Cord or Top Link.

SNIPPETS

The last shall also be the 'new' last!

John Wall's book 'First in the World' (Sutton; £19.99) - about The Stockton & Darlington Railway and Darlington itself - mentions The A1 Steam Locomotive Trust (at page 105 of Chapter 6) as having acquired and restored the ex-S&DR Carriage Workshop backing onto Hopetown Lane for use as a locomotive works, for the erection, operation and maintenance of "A1 'Peppercorn' class Pacific, No **60145** *Tornado"*! I wonder what St Mungo would think about that?

A1s in the strangest places

Travellers between Wetherby and Harrogate (sadly, no longer by rail) may notice that the pub in the village of Spofforth boasts an inn sign showing, on each side, a painting of A1 60147 *North Eastern.* The pub stands close to the course of the line from Wetherby to Harrogate.

Ed:

Does anyone know whether A1s ever ran on this route – perhaps on a diverted service? Are there other A1s elsewhere?

Your Boiler needs YOU!

Dedicated Covenants are available for tubes for *Tornado's* boiler:

Small tubes	-	£50 each
Large tubes	-	£400 each (in full or by 10 monthly £40 payments)

Apply in writing *with remittance* to: Dedicated Covenants, Darlington Locomotive Works, Hopetown Lane, Darlington DL3 6RQ.

The reversing bell crank trial assembly on the bench *(photo: David Elliott)*

The reversing nut (bronze) on the reversing screw and with the handle on the top *(photo: David Elliott)*

'News' from Germany

Since the boiler contracts were placed in Germany some have turned attention to the railway scene there and the television programmes that cover it. Indeed, a programme devoted to DB Meiningen Works was shown recently on satellite channel BAHN TV which is on Astra 1B-1H/2G 19.2 degrees E Frequency 12.633 Polarity H Simbal Rate 22000 FEC 5/6. Other German satellite programmes on railways and transport (plus travel programmes that may feature railways) – all on Astra satellite - include:

Channel	Frequency	UK time	Programme name
SW/BW	11.185	Sat lunch	Eisenbahn Romantik
SW/BW	11.185	Sun 1545	Eisenbahn Romantik
MDR	11.112	Fri 1530	ER (repeat of SW/BW Sun programme)
MDR	11.112	Sat 1430	Bahnzeit – Das Eisenbahnmagazin

Websites Eisenbahn Romantik www.swr.de/eisenbahn-romantik
Bahnzeit – Das Eisenbahnmagazin www.bahnnostalgie-thueringen.de

Other satellite channels on which railway programmes appear include:

3 SAT on 11.347; RBB on 11.656; BR Alpha on 11.068 and Arte 1can on 10.994.

Ed
I am grateful to Keith Crabtree and David Tolson for the above information which, I must confess, is mostly beyond me!

A1 60130 *Kestrel* takes the down West Riding past the site of Greenwood Signal Box in April 1959, but what is the equipment behind the RH smoke deflector? *(photo: R G Warwick)*

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

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