

# The 762 Club

*Building No 762 Baldwin locomotive Lyn  
for the Lynton & Barnstaple Railway*

**Newsletter No 1 - Summer 2009**



## **Introduction**

Welcome to Newsletter No 1 of the 762 Club. Our aim is to bring you up to date with the progress and activities of our collective mission to bring a new-build Baldwin 2-4-2T locomotive, Southern Railway No 762 *Lyn* to the legendary Lynton and Barnstaple Railway.

We have some fabulous progress to report and we hope that you are all enthused by the developments to date. There is a long way to go, but the journey has started and demonstrated the commitment out there of those who share a desire to bring an 'original' Lynton & Barnstaple locomotive onto the Lynton & Barnstaple Railway. The faster we now raise funds the more quickly will we deliver the end product - and what a product to complement the rebuilding of such an iconic railway line.

## **Remarkable Success**

From the original concept initiated by Peter Miles and Tony Nicholson and only six months after the launch in January 2009 of The 762 Club, 72 of the shares in the Club – over 20% of the total required - have already been purchased outright or committed to by standing order payments. This is a

remarkable success for a project of this kind, especially during the current economic climate. Only 350 shares will ever be available, and once they've gone they've gone.

72 shareholders to date has been a fantastic start and has provided the critical initial impetus to the project. Our goal is to turn the many people waiting to see progress into shareholders and to encourage existing shareholders to acquire additional shares. The faster the money is raised the more quickly the locomotive will be delivered.

### **Progress to Date**



*'Lyn' nameplate made by Peter Miles in the original style with riveted brass plate construction, one of a pair to be fitted to the locomotive.*

- The locomotive design specification has been completed.
- Wheel design complete and pattern being commissioned.
- 'Lyn' name-plate made.
- 762 number plate pattern made and about to be cast.
- The cab is being made to go onto the loco but used in the interim for fundraising.
- Original fittings that would have been fitted to Baldwins similar to *Lyn* have also been acquired including a suitable whistle, Crosby pressure gauge, steam chest pressure gauge and 1916 Westinghouse brake air gauge.

The focus so far has been on the planning and design work by Ian Gaylor, who has confirmed that it is entirely feasible to recreate *Lyn* with all the appearance of the original locomotive whilst building the 21<sup>st</sup> Century engine that the L&B needs to meet its future operating goals.

A number of technical innovations were identified in the initial Design Assessment Study and will be incorporated in the design of the new locomotive to enhance its performance and lower the total cost of ownership.

<b>KEY TECHNICAL INNOVATIONS</b>	
<b>Feature</b>	<b>Benefit</b>
Use of rolling bearings in motion and axleboxes	Reduced friction and maintenance
Piston valve cylinders	Thermal efficiency improved by lower back pressure from improved steam flow and reduction in energy required to operate valves
Reduced cylinder bore with same tractive effort (boiler pressure raised to compensate)	Thermal efficiency improved by reduction in condensation losses
Limited full gear cut-off and long travel valves	Thermal efficiency improved by lower back pressure from improved steam flow with larger port openings
Use of mid gear drifting with atomising steam	Improved thermal efficiency and less maintenance because of prevention of cylinder cooling (no air drawn through snifting valves) whilst also improving lubrication
Improved boiler and cylinder insulation	Thermal efficiency improved by reduction in heat loss to atmosphere
Lempor exhaust system plus Kordina	Thermal efficiency improved by lowering of backpressure
Small increase in boiler pressure	Improved thermal efficiency and reduction in water consumption
Superheating	Thermal efficiency improved by reduction in condensation losses in cylinders when working expansively
Possible use of gas producer combustion system if combustion rates are high enough to warrant it	Improved thermal efficiency through reduction in unburnt fuel losses plus no drop in performance due to clinkering
Possible inclusion of feedwater heating, i.e. exhaust steam injector	Thermal efficiency improved by recovery of heat from exhaust steam which would otherwise be lost to atmosphere
Selection of boiler auxiliaries compatible with the use of 'Porta' boiler treatment or equivalent	Improved thermal efficiency through reduction in blowdowns and improved boiler cleanliness plus maintenance reduction due to reduced boiler repairs, cleaner steam and fewer washouts

With the design assessment complete, work has moved to the physical process of producing the drawings and associated design documentation required for the certification of a new-build steam locomotive. The principal milestones to date are:

- A draft wheel profile compatible with the L&B and Welsh Highland Railway has been developed anticipating the proposed trials of the loco at the WHR
- Preliminary design calculations have been prepared to:
- Assess the design parameters of the original cylinders which were found to be deficient in a number of key areas typical of design from this era
- Estimate counterbalancing requirements on the leading and trailing driving wheels including:
  - Identification of approximate rotating and reciprocating masses
  - Bearing requirements on all axles, coupling rods and connecting rods
  - Axle sizes
  - Flycrank and crankpins sizes
  - Coupling and connecting rod sizes
  - Assessing weight distribution and axle loadings
  - Checking stresses in wheels and at wheel/rail interface
- Manufacturing drawings have been prepared for the driving and pony truck wheel castings
- For the guidance of the pattern maker, drawings have also been prepared for machining the driving and pony truck wheels

The patterns will shortly be commissioned for the main driving and pony truck wheels and sent to the foundry to have the castings produced. We would like to appeal to members for any original fittings or parts that may exist for *Lyn*. Local legend has it that many parts were distributed in the local community when No 762 was scrapped and if anyone knows where they might have gone, we would love to hear.

***Westinghouse brake air gauge (right)  
and steam chest pressure gauge (below)***



## **The Team**

The highly-regarded engineer Ian Gaylor has been appointed Project Designer. He heads the engineering design consultants Steam Loco Design near Cambridge ([www.steam-loco-design.co.uk](http://www.steam-loco-design.co.uk)) and is well known for his work on improving locomotive power and fuel economy, notably the ZB class locos on the Bure Valley Railway. Over the years he has been involved in many locomotive restoration projects, advising for example on the recently-completed restoration of Baldwin No 778. He has also worked as a volunteer engineman on many lines from the Ffestiniog to the West Somerset and Leighton Buzzard Railways, as well as training footplate staff and producing training materials.

Associate Member of the Institute of Mechanical Engineers John Scott has been chosen as the Independent Competent Person to approve the work. He has held a number of senior engineering positions in industry in addition to volunteering on the Talylyn Railway, where he has been instrumental in improving the performance of their locomotives.

With Peter Miles as The 762 Club's Project Manager, Jon Pain (who you might remember from the Extension and Axe Appeals) has been appointed Financial Controller and Jeremy Martin Engineering Director. Tony Nicholson is serving as the Club's Press and Publicity Officer and Newsletter Editor to maximise the publicity globally of this hugely exciting project.

## **Finance**

The final completion date of the locomotive is planned to be 2012. Delivery of the completed locomotive depends of course on the acquisition of additional shareholders. There will be only 350 shareholders and as indicated previously, when the shares have gone they have gone. Our key financial objective is to generate income as fast as possible and to secure a sustained cashflow to enable the design, component manufacture and commissioning to continue smoothly so as to ensure timely delivery of the locomotive to the L&B.

The Club has been VAT-registered to allow it to reclaim the VAT on purchases related to the design and build of the locomotive. Expenditure is tightly controlled to ensure that the Club runs with the minimum of overheads in order to maximise the monies available to invest in the loco.

## **Sponsor a Part**

People have also expressed an interest in donating to the project without committing to buying a share. To facilitate this we have decided to introduce a sponsor-a-part scheme. This opportunity is open to shareholders and non-shareholders alike. In addition you could sponsor a part perhaps as a gift for the friend or loved one who 'has everything' – for details keep an eye on The 762 Club website [www.762Club.com](http://www.762Club.com). Parts you will ultimately be able to sponsor will include various items of the locomotive at various prices and in

return there will be an attractive range of incentives, which will be released on the website by the end of July.

### **Baldwins Down Under**

The *Lyn* project has aroused great interest in the United States, the home of the Baldwin Locomotive Works, and in Australia as well as in the UK. We have already had offers of help from Don Marshall, who has just retired as Engineering Manager of the 2ft 6in gauge Puffing Billy Railway near Melbourne. Two NA Class 2-6-2Ts were built by Baldwin in 1898 for the Victorian Railways only a few weeks before *Lyn* was constructed in Philadelphia. Despite the difference in size, *Lyn* shows a striking family resemblance to its Australian cousins. Victorian Railways built fifteen more locos to the same design and five can still be seen at work on the Puffing Billy Railway today.



### **How can you help?**

Firstly by virtue of the fact that this newsletter was sent to you today you have been contributing at the outset of this project and our sincere thanks for your support are due. You can help by spreading the word, identifying other interested prospective shareholders or donors. You might be interested in buying additional shares and we encourage you to do this.

The Lynton and Barnstaple Railway Trust members who contributed to the restoration of *Axe* delivered it to the Railway where it is in revenue-earning service - a significant success. This project builds on that success and delivers a new-build of one of the original L&B locomotives. What a magnificent achievement that would be for the Lynton & Barnstaple Railway.

***“It’s going to happen, it’s started and you have helped to make it happen”***