Vol 1 NO 3

October 2012

PETERBOROUGH 2012

NEWSLETTER

THE 00 LIVE STEAM CLUB

AUTUMN EDITION

FOR COLLECTORS AND ENTHUSIASTS OF HORNBY 00 LIVE STEAM MODEL RAILWAY SYSTEMS

Two Of The Best!

Featuring

Eric Fenwick's OOLS

"CORONATION"

Richard Hallam

The invention of OOLive Steam!

(part two)

THE CLUB CARRIES A SELECTION OF DVDS.....SHOW PRICE.....£6

WE ALSO CARRY A LIMITED SELECTION OF OOLS ITEMS FOR SALE

EDITORIAL

General Information

The 00 Live Steam Club is devoted to the collecting and operating of Hornby 00Gauge Live Steam trains.
The name Hornby and the use of the Hornby Live Steam Logo is with the kind permission of HORNBY.
All opinions expressed are those of the contributors. The 00 L.S.C cannot be held legally responsible for any errors.

EDITOR.. Charles Leekam, *to whom all articles, contributions and comments for inclusion in the* ***00 L.S.C.*** *Newsletter should be sent.. See contact details below*

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Charles Leekam

MEMBERSHIP SECRETARY.
Chris Oakes

TECHNICAL CO-ORDINATOR (treasurer).
Jimmy Whitehouse

WEBMASTErR.
Andy Williams

ELECTED MEMBERS
Eric Fenwick ..
George James

ADVERTISING SALES AND WANTS
Www.00LiveSteam.com

LMS STANIER "CORONATION PACIFIC"46238 CITY OF CARLISLE

As the nights draw in and the trees begin to take on the yellowing hues of a fast approaching Autumn landscape. We, the lucky members of the OOLSC will be preparing to indulge in another busy round of shows and exciting meet-ups with our fellow enthusiasts from around the country and abroad: sharing in the delights and mysteries of this wonderful hobby of OOLive Steam. For many of our members the fun really starts with the annual roundup of railway engineering and modelling exhibitions. With endless opportunity to renew old friendships and often, to make new ones among the growing fraternity of likeminded and kindred spirits whom have discovered the immense enjoyment of OOLS as a seriously fun hobby! For a good many of our members the enjoyment of playing trains, has evolved into something far beyond merely collecting the standard 00LS A3s and A4 Pacific locos marketed by Hornby. Tremendously exciting for our club is the advent of superbly modelled prototype OOLive Steam Locomotives such as Eric Fenwick's stunning LMS Stanier Steamlined Coronation Pacific 6220 "Coronation" We are hugely proud to feature this exceptional model in this"Silver Jubilee"(Autumn) edition of our Newsletter. May the enjoyment commence!... Ed

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ALL CORRESPONDENCE SHOULD BE ADDRESSED TO

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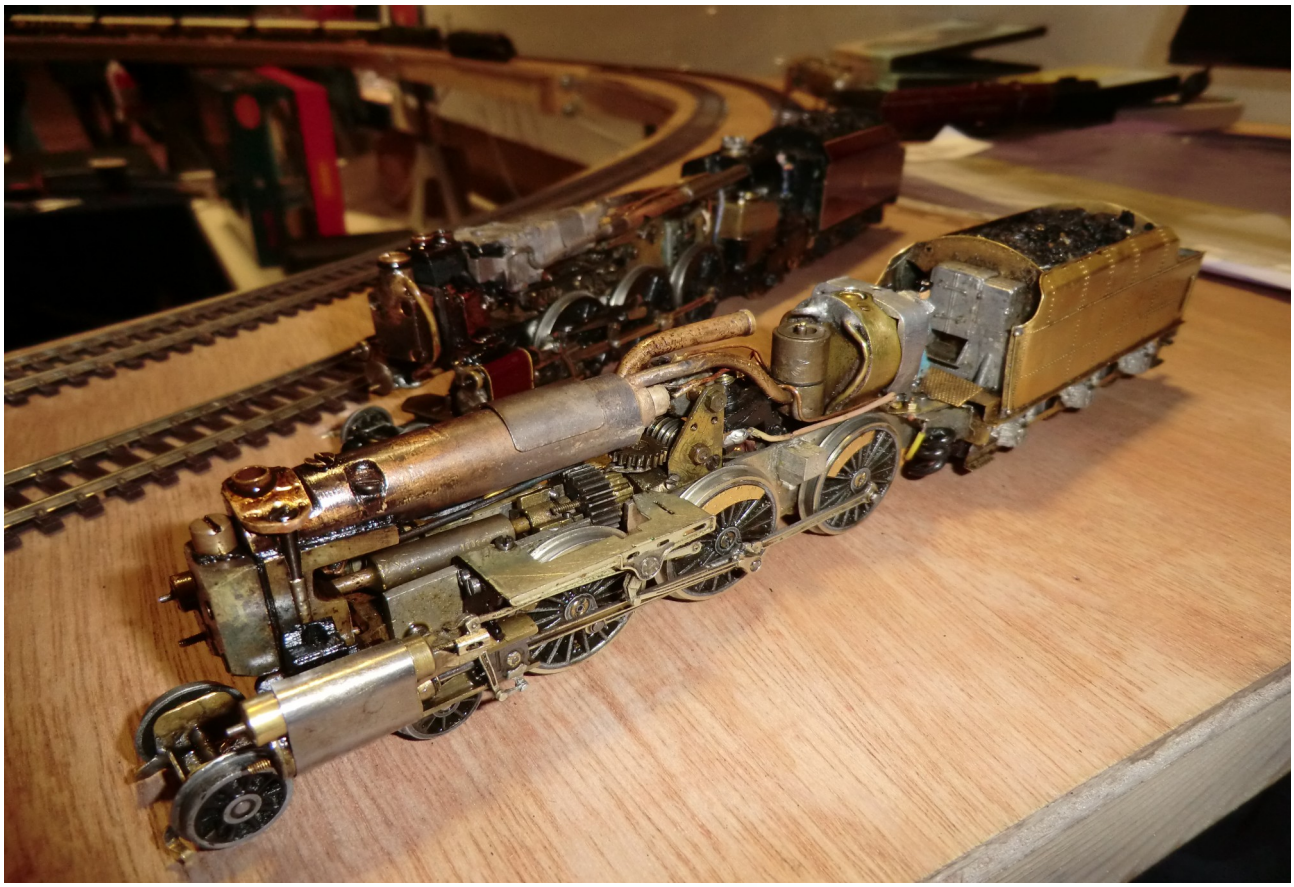
THE HORNBY RAILWAY CO. LIVE STEAM 00 GAUGE MARGATE WORKS SUPPORTERS CLUB

CHAIRMAN'S COLUMN

“They said it couldn't be done”

Back in the year 2000 Richard Hallam wrote a series of articles about his invention for the British Railway Modelling magazine. Twelve years on the OOLSC was formed to bring together enthusiasts and collectors of Hornby OOLive Steam Locos with Richard as our lifetime President.
We would like to express our grateful thanks to the Editor of B.R.M…Mr John Emerson..for permitting us to re-print the articles continuing with (part two)



Richard Hallam's original prototype “Duchess” and “Black Five” resting after a heavy day's running at the Doncaster show 2012.

Both locos may be seen working faultlessly on the club's exhibition layout throughout the year.

No mention has yet been made of the choice of a 'Duchess', as a suitable contender for modelling firstly it has to be my favourite engine, representing a pinnacle in the design of maximum steam powe for a simple expansion engine within the British loading gauge. Secondly, the relatively large size

gave me the best chance of accommodating all the necessary tackle, especially at the prototype stage. Thirdly, I could scale up an old Hornby Dublo casting thus eliminating any fear of melt down!

There are two main areas designed to deceive the observer: one is the fact that the visible valve gear is purely cosmetic; the second is that the boiler is housed in the tender for greater capacity leaving the normal boiler space free to house the control gear. Steam passes from the boiler through a pipe fitted with two pivotal joints between engine and tender, and continues via a 'T' connection leading to the safety valve and finally to the superheater and regulator chest.

In my ignorance, the first prototype did not incorporate a superheater, with the result that when the regulator was opened, absolutely nothing happened except that the boiler water resited itself, filling steam chests and cylinders alike, through first boiling and then condensing. The power consumed by the superheater is almost as much as that for the boiler itself, and that is with the help of a superheater insulation jacket and heat barriers between cylinder block and main frames; such is the heat loss in small models.

Experiments with lubrication are worth relating: initially, a simple displacement lubricator was utilised whereby pressurised steam from the valve chest was fed via a condenser to the base of an oil reservoir also subjected to the same pressure. As condensate gradually displaced oil in the reservoir, the oil overflowed into the valve chest and thereby to the cylinders. The trouble was that, due to the small scale and the consequent problems of rapid heat conduction, the condenser was ineffective, with the result that when the regulator was closed, the condensate which had formed immediately turned back to steam because of the reduced pressure. This in turn propelled the loco forward exhausting what could only be described as copious amounts of 'Crazy Foam' in the form of emulsified oil and water. A much more controlled system has been devised, still utilising a form of the displacement system, whereby the oil container is situated well away from heat sources. Oil pipes, regulated by screw down needle valves, are run from the top of the container directly to the cylinders. When the regulator is open and that end of the cylinder to which the oil pipe is connected is open to exhaust, a small amount of oil is forced through by differential pressure. This system has the advantage that oil delivery is proportional to load.

It was decided at an early stage that there would be no complications such as boiler feed equipment. As heat is imparted to the water at the very base of the boiler, steaming performance will continue until the boiler is virtually empty. In fact no damage is caused by letting the boiler boil dry, provided power is switched off in reasonable time. Filling is a simple matter: current is switched off, a water container connected to a clack valve (masquerading as the tender water filler), and then the vacuum induced by the cooling residual steam within the boiler, sucks the water in.

Wherever possible components where required have been designed to be self-sealing and self-aligning to allow for discrepancies in manufacture. For instance I considered it impractical to achieve the accuracy necessary for the conventional rigid set-up of crosshead, piston and cylinder. Even if the necessary accuracy could be brought to bear, wear on the crosshead and slide-bars would soon transmit to the piston and piston gland. I have consequently made the crossheads 'floating' so that they cannot impart any serious lateral force to the piston rod. Likewise the piston packing arrangement is also 'floating' and does not depend on the perfect fit and alignment of the piston. When wear does occur between crosshead and slide-bars, the slide-bars are simply pinched together until a more acceptable fit is achieved; doubtless unacceptable to engineering purists, but it works!

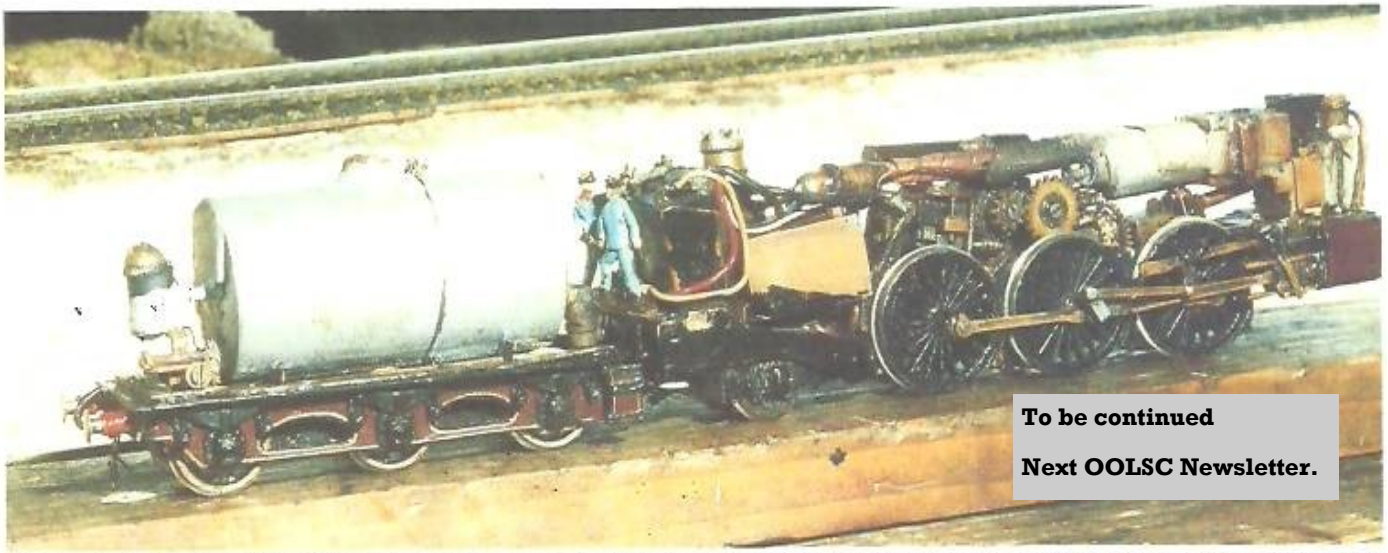
I find part of the joy of modelling and model engineering is in devising easy means of manufacture where either accuracy is ensured or discrepancies cancel each other out.

As regards the layout, the original intention was to construct a simple test circuit on a shelf around the walls of my shed. However I decided that something more ambitious was required to prove the engine's performance and should include such features as lengthy and varying gradients, transitional curvature down to a minimum radius of 2' 6" including the use of super-elevation and various junctions and pointwork. In addition, a more extensive layout would afford the opportunity to test the feasibility of running conventional electric stock at the same time as the steamer. This resulted initially in a double circuit of single track, the whole length, apart from that passing through the station, being graded to enable the tracks to cross via a skew bridge. In fact three crossings were incorporated to make it more visually interesting. There was an extended loop through the station encompassing three quarters of the upper circuit with a continuing spur to a loco servicing point, giving the impression of double-tracking for a substantial distance.

This set-up was up and running, complete with scenic landscaping for several months before I realised that I would have to 'shoe-horn' in another circuit, this time on the level. Driving the engine up hill and down dale required a lot of control and a bit of level running would offer welcome respite! This was constructed at the lower level, connecting with the original lower circuit via what amounts to a double slip crossover. Actually a single slip crossover was grafted onto a return curve of the original track (the slip following the original route) and the second slip was formed using separate pointwork constituting the continuation of the new circuit. A further opportunity was taken to join the two ends of the aforementioned loop on the upper level. Various sidings have been added including a small goods depot and a two-road engine shed.

Much of the layout does not represent operational authenticity. However in defence I would claim that the object of the exercise was to explore the potential of 4mm live steam and in allowing a multitude of train movements and track conditions. I feel that it is justified.

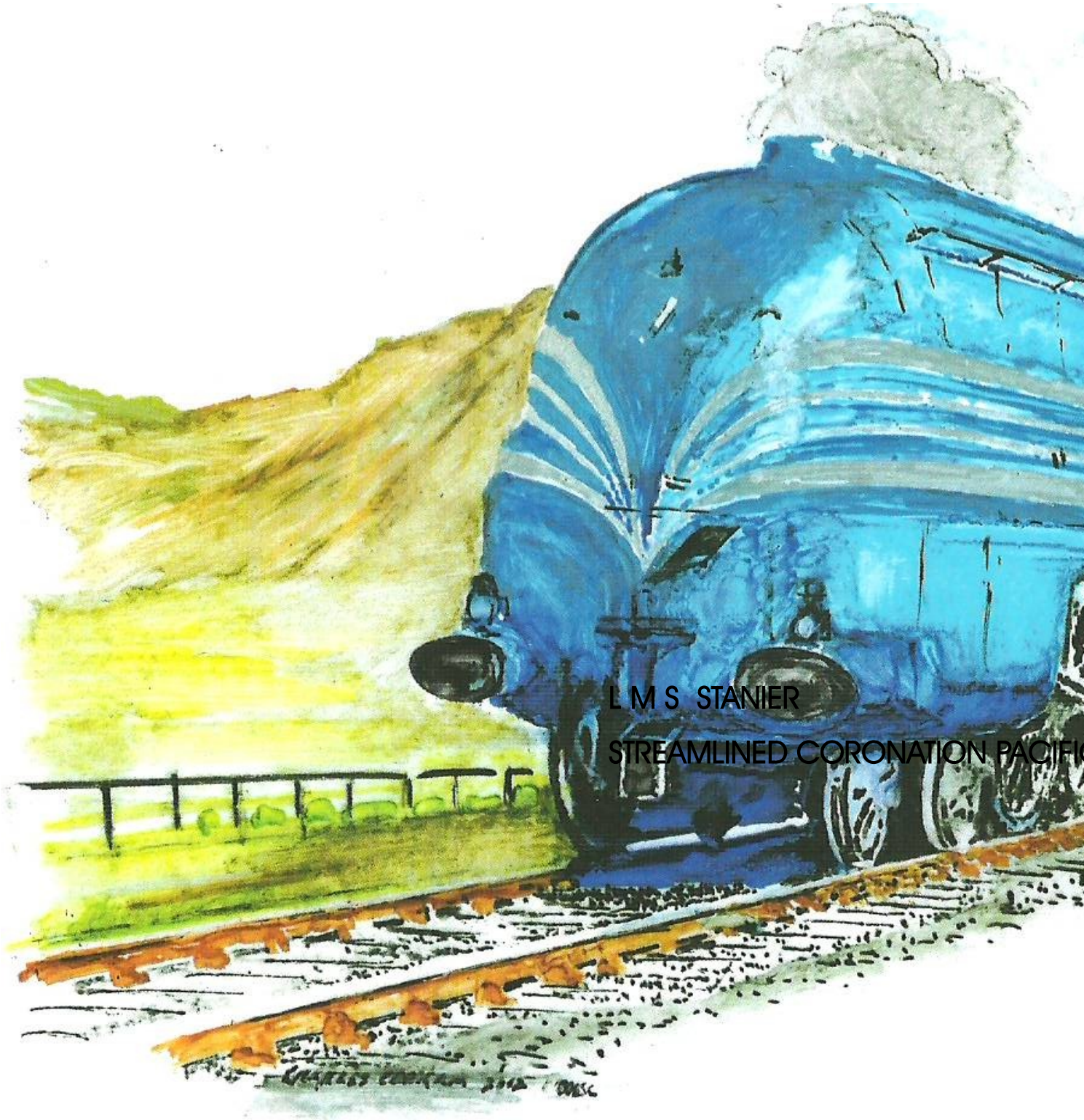
Contemplating progress so far, I would claim that the original idea has generally held good. Many of the anticipated problems did not materialise, whilst many that did were entirely unforeseen, requiring much back-tracking and rebuilding. I would like to think that the next loco could be built in a fraction of the time, be it an exercise in further miniaturisation such as an 0-6-0 tank, or perhaps, at the other end of the scale, going the 'whole hog' and constructing a Beyer-Garratt! However, in the interests of producing additional motive power within a predictable timescale I have decided to take things one step at a time and develop the existing technology, suitably compacted and simplified, to fit into a Stanier 'Black Five'.



To be continued

Next OOLSC Newsletter.

A 'Duchess' unfrocked. From left to right the various parts are: boiler with filler mounted in tender; relay; safety valve with oil reservoir below; main steam pipe with whistle alongside on far side, control motor and gearing below; superheater and regulator with reversing mechanism and valve drive shaft below; valve chest with pressure pipe to oil reservoir, double acting cylinders under.



When Eric Fenwick announced he was embarking on modelling an OOLive Steam Stanier Streamlined Coronation Pacific, both, his choice of loco and characteristic and charmingly positive approach to the challenges ahead drew wide applause from an appreciative gathering of an assembled (OOLSC) faithful.

Over the course of the next few months we would be permitted brief glimpses of the model's evolutionary progress.

An email here, a pdf or piccy or two.. there.

All accompanied with brief insight into Eric's particular state of mind as each landmark stage of the manufacturing process was reached.

It was to say the least at times, seemingly traumatic (Ugh! ANYONE-Help!) At others "UREKA". a result! All in all though it was from start to finish, heading to be a remarkable, successful enjoyable enterprise!

The result when the model was finally unveiled at the 2012 NRM Shildon Railway Fest last June, was..."Simply Stunning".

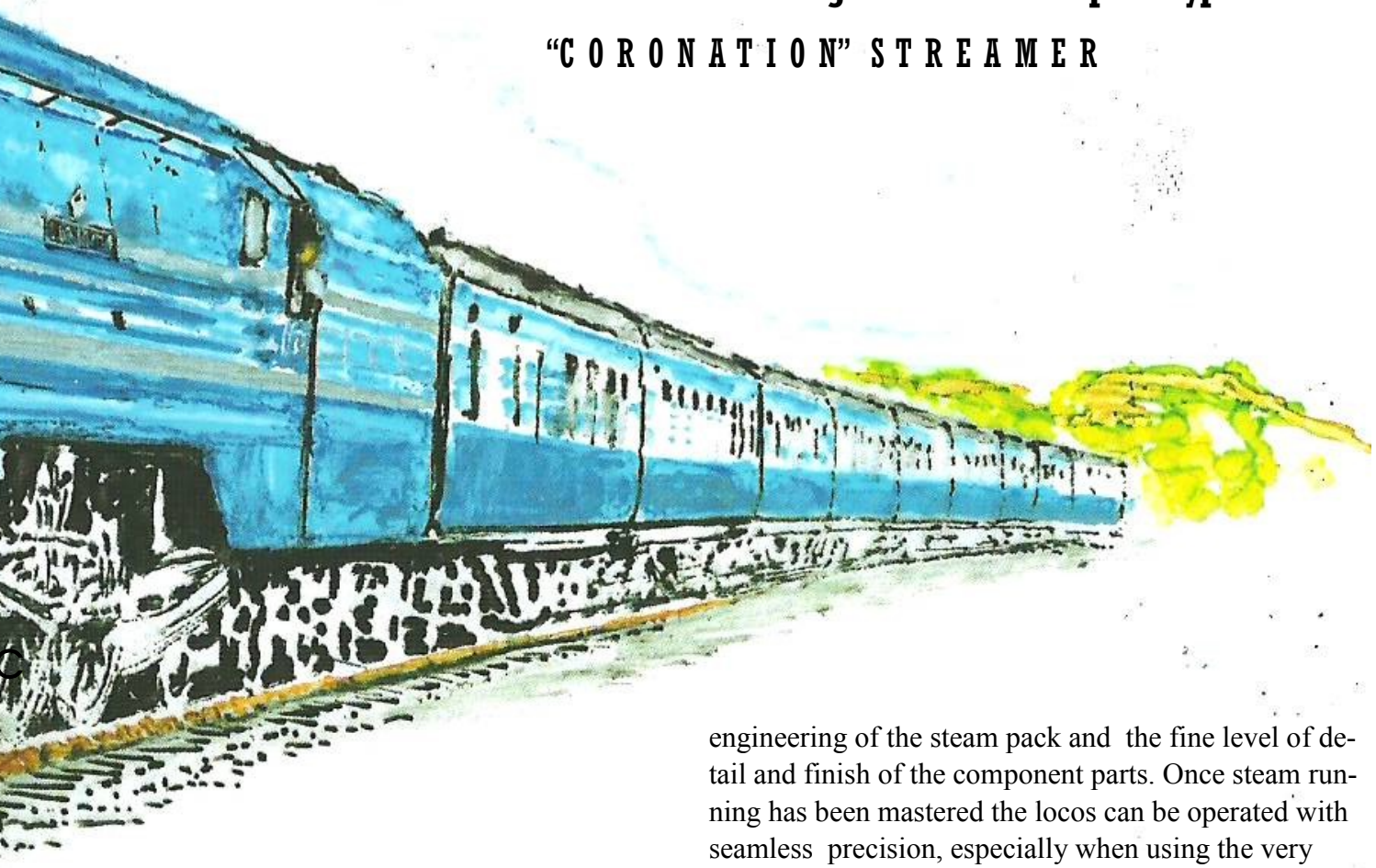
THE OOLSC 2012

MODEL ENGINEERING REVIEW

Featuring:

Eric Fenwick's stunning OOLive Steam prototype

"C O R O N A T I O N" S T R E A M E R



L M S STANIER STREAMLINED CORONATION PACIFIC 6220 "CORONATION"

It all began with a members discussion over a particularly good evening meal and a couple of pints of real ale at the Pig and Parrot.

Modelling Event (meet ups) are an important part of the OOLS socializing process and catch up time among disparate friends to discuss ongoing pursuits and interests throughout the annual model engineering /display calendar . How do we find easy ways to make new locos?

The models produced by Hornby are outstanding both in the quality of the complex engineering of the steam pack and the fine level of detail and finish of the component parts. Once steam running has been mastered the locos can be operated with seamless precision, especially when using the very efficient hand held controller currently operated on the club layout.

From the outset, Eric wanted to produce a different type of loco.

The Club forum has been positively buzzing with wide ranging debate on the theme of building your own loco. Indeed! One or two adventurous and technically savvy individuals among the wide fraternity of OOLS enthusiasts on the forum, have demonstrated an advanced understanding of Engineering Thermodynamics in their ability to quite radically convert the standard steam generation pack.

No point then, in pursuing a model requiring such fundamental complexities. As Eric would be first to admit. He had never tackled anything like this, yet nevertheless was pretty confident he could do "something"!

Continued over

Eric had initially investigated the possibilities of engineering a steam pack from scratch and had already started the reverse engineering process.

Whilst it is feasible to manufacture mechanical components—the main problem is having the machine tools to do it.. It would in all practicality require a model makers machine shop to make them. Nor did he possess the skills with electronics to replicate what Hornby had done.

Taking everything into the equation it came down to how could it be done considering all the complexities of LS and the heat involved (anywhere between 320degc and 400degc) around the immediate area of the superheater, posing considerable limitations on the heat resisting qualities inherent in the final choice of model construction material(s). Hornby use a sophisticated heat resisting injection moulded plastic with significant cost implications making it totally impractical for small scale scratch built production methods.

Having considered the pros and cons of available off the shelf kits, Eric made a bold choice to experiment using a white metal body kit. Not surprisingly! Not the material of first choice for an OOLS project one might reasonably think. Nor particularly cost effective if the experiment ended up as an expensive piece of warped and twisted scrap metal on the dining room floor.

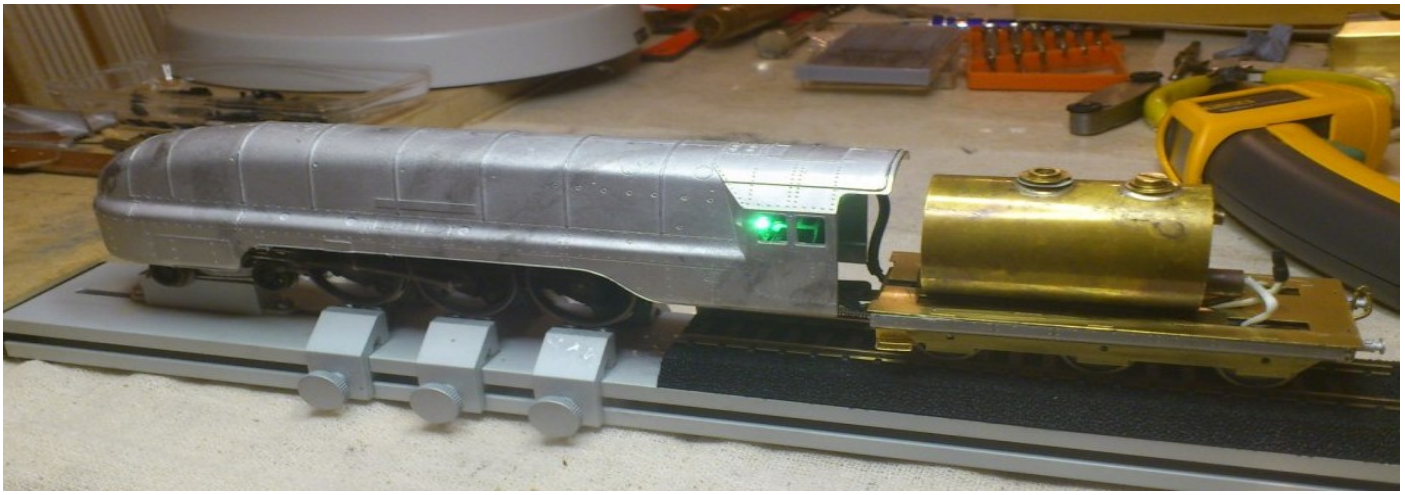
It was also decided to marry the white metal body into an existing unmodified steam pack which could be returned if required to the original Hornby A4 donor.

After careful thought and much pondering over the considerable range of models available. Eric decided on “Coronation” as his first choice preference for the new OOLS loco. It had a suitably wide body to house the steam pack whilst providing the necessary space for insulation with an air gap between the white metal body and the super heater to prevent melting or distortion.

Having recently repaired an old gas fire, Eric had used fibre glass rope as an effective insulation. For his model he used layers of thin strands of fibre glass rope wrapped in kitchen foil and applied reflective aluminium strips to hold it together and act as an affective heat shield. Finally he lined the interior of the loco body with a thin cork sheeting.

Above: After considerable adaption the brass tender body is ready for attachment to the boiler assembly.

Below: Undergoing initial Live Steam testing on the rolling road. The white metal body of the Proto-type now married to the original A4 steam pack and chassis attached to a very undressed tender /boiler assembly.



Above: Final enamel paint spray finishes applied to the loco and tender.

Right: Eureka!

Looking splendid and ready to roll. Eric's stunning "Coronation"

Finished in time for it's public debut.

NRM Shildon 012

As power plants go, it is entirely sensible to use an existing A4 Live steam pack. The original Mallard" injection moulded body utilized a fully enclosed piston block which negated the need to apply any additional cosmetic treatment to the brass metal work when encased in the new white metal body.

Also, Eric had a limited supply of well used second hand A4 s available purchased before OOLive Steam loco prices became inevitably a lot less affordable.

Initial research showed that the A4 steam pack fitted quite easily into the white metal kit body of the Coronation streamer.

Surprisingly, making mountings proved reasonably straight forward, finding methods of fixing the parts was a different matter.

During the testing process low melting point solders.... just melted! This required considerable time investment combined with some fiddly micro - engineering producing mechanical fixings. E.g. small screws and super glue when all else had failed.

Possessing no more than a limited tool kit built up of bits and pieces purchased or acquired as necessary such as the odd Dremmel meant using mostly hand tools.

Doubtless! As would be expected the building process involved a steep learning curve of the unexpected. For instance, mounting the boiler into the tender was a complex task requiring complete re-figuration of component parts where the inappropriate tool kit only added to ongoing frustrations.

Using an etched brass tender kit made it logical to use high melting point solder wherever possible for the OOLS adaption of the Tender kit.

This necessitated a complete new boiler mounting and wheel housing assembly and ideally it requires use of a good quality precision milling machine to complete this particularly time consuming task.

The loco was tested throughout each major stage of construction .

Specification

Standard Hornby A4 Unmodified chassis and

Steam pack inc Boiler/tender attachment

White metal and brass kit from..... DJH Models.:

Transfers... ***FOX*** *..Transfers.*

Phoenix and Rail enamel paints.

Eric's personal verdict:

A very big learning curve for him but overall this is a viable solution:"I think"... It is possible that kits could be made up specifically for OOLS ,with some agreement with a kit manufacturer and access to a comprehensive set of modellers machine tools .

Since completing his "Coronation" Streamer, Eric has made a stunning OOLS version of the B standard 8 Britannia "Duke of Gloucester" which will feature in our next edition Newsletter.

00 Live Steam Club - 2012 AGM

Treasurer's Report

Income during the year ending 30th September arose from donations from committee members, Donations from club members arising from the sale of Live Steam Locomotives by Jimmy Whitehouse and expenses received from Show organisers for our attendance at the Model Engineering Exhibition at Alexandra Palace and the Model Railway Exhibition in Perth. The Balance in the account as at 30th September 2012 is £466.55.

Income:	£730.00
Outgoing expenses paid were as follows:	
Banners and Display material (Reimbursed to Adrian Campbell)	£263.65
Exhibition Expense (to be reimbursed to Helpers at Exhibitions)	£400.00
Balance retained for club use, after payment of outstanding expenses	£ 66.55

The cost of building the exhibition layouts and the cost of hotel accommodation and fuel cost of taking the layout to exhibitions and fuel costs incurred by helpers has been covered by committee members, personally

It is recommended that the club should consider charging a membership fee to help cover some of the cost of exhibiting at Model Railway and Model Engineering Exhibitions.

Build Your Own Locomotive Project.

Now that Hornby has ceased all production of Live Steam Locomotives and Spares, the Committee has been considering how we can continue supporting our members.

Jimmy Whitehouse has been leading a team of members into looking into the possibility of producing body shells and the steam mechanics for locomotives and tenders. One solution might be to use 3D printing to produce small batches of these components based on orders from members.

Grant and USA member has been producing 3D Drawings of a GWR King Class Locomotive and a LMS Duchess (non-streamlined), which can be used to print these locomotives. We are also looking at producing a 2-6-4 tank locomotive.

Our member Eric has been using existing Hornby Live Steam A3 chassis and parts to produce a streamlined LMS Duchess and a BR Class 8, by mating the chassis with locomotive kit parts and modifying the chassis etc. These locomotives have been on display, today, on our layout.

We are also looking into the possibility of using brass locomotive kits to make new live steam locomotives and with this in mind Jimmy has ordered a SR Merchant Navy kit and a SR Light Pacific kit. He is also considering the LNER Garratt 2-8-0 + 0-8-2 as a possible locomotive for conversion to Live Steam.

00 Live Steam Club
Autumn 2012

00 Live Steam Project

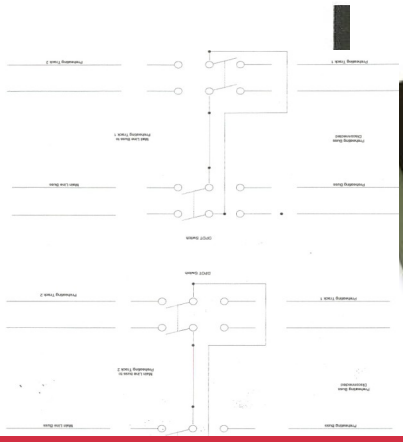
Build your own live steam locomotive.

The Club has an ongoing project to develop the 00 Live Steam System. We are currently looking into producing Locomotive Body and Tender shells, by using 3D printing, to fit on a prototype 00 Live Steam Chassis to produce alternative 4-6-2 Pacific Locomotives. Design work is progressing on the 3D art work for an LMS Duchess and we have a sample drawing for a GWR Class 6000 King 4-6-0. These drawing are being produced by one of our American members and you can look at the King 3D drawings on our website.

Another member is working on a locomotive preheating controller and switch box, so that we can operate locomotives on our exhibition layouts. We will be able to move locomotives to an isolated siding or loop, where the boiler will be refilled and the water preheated, before driving it on to the main-line tracks to pick up a rake of coaches. The switching box will permit us to select the power source, either the main-line controller or the preheating controller, and enable us to control the relevant locomotive on the siding or loop.

The design work on the preheating controller is now compete and assembly of the prototype is in hand. This controller will permit us to preheat two locomotives simultaneously and each DC circuit can be switched to one of two sections of track.

The preheating controller is the first step towards developing a revised compact locomotive controller, which will incorporate the preheating circuit and offer greater control over the locomotive.



CLUB MEETINGS—EVENTS DIARY—EXHIBITIONS

The London Model Engineering Exhibition

Alexandra Palace — 18th to 20th January 2013. London N22 7AY

Festival of British Railway Modelling 9th &10th February 2013.

Doncaster Exhibition Centre, The Race Course, Doncaster DN2 6BB

Model Rail Scotland
The Scottish Exhibition and Conference Centre (SECC), Glasgow, G3 8YW
22nd, 23rd and 24th February 2013

The London Festival of Railway Modelling.

Alexandra Palace —23rd - 24th March 2013. LONDON—N22 7AY