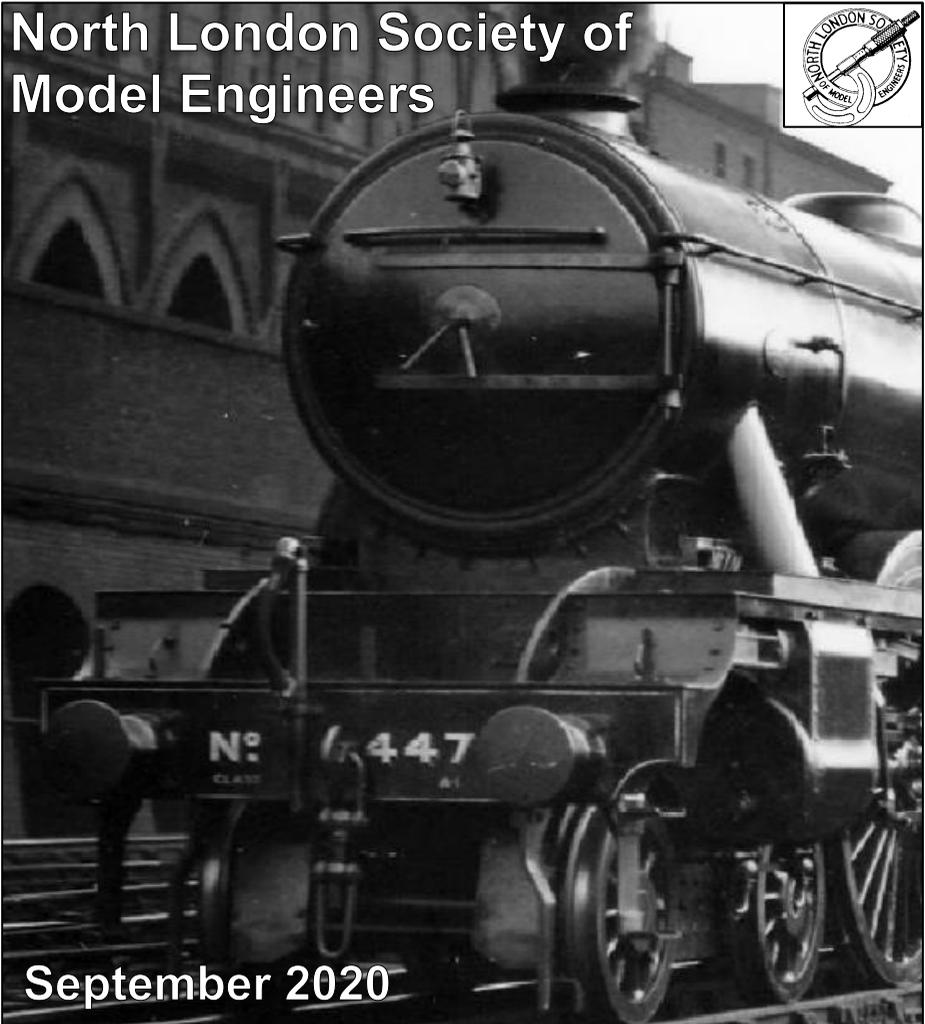


Issue No. 826 September 2020

# The News Sheet

North London Society of  
Model Engineers



September 2020

You can see this News Sheet in colour by visiting our web site  
at [www.nlsme.co.uk](http://www.nlsme.co.uk)



Your editor is most grateful to those who have contributed to this edition.  
My sincere thanks to all.

If you have any photographs taken either recently or in the past showing club activities, people or models that would be of interest please send them to your editor.

Articles long or short on any subject which would be of interest to members of NLSME will be gratefully received for inclusion in future editions.

**Your news sheet is only as good as the contributions from members.**



**IMPORTANT NOTICE REGARDING NLSME ACTIVITIES  
RELATING TO CORONAVIRUS (COVID-19) PANDEMIC**

This news sheet, being a monthly issue, can never provide members with up to date decisions on how the pandemic impacts on our club activities. It is therefore important that members always follow the latest government advice.

Please note the following restrictions currently apply to our activities.

**Head Quarters**

All meetings at HQ are cancelled until further notice.

**Tyttenhanger**

All public running days, events and functions are cancelled. The site is open for use by members and their families only but subject to interim rules contained in this edition of the news sheet (page 5).

**Fetes and Fairs**

All events have been cancelled.



## Chairman's Comments

Les

Most of you will by now know that an ex member, John Squires, has passed away after illness with cancer. John was an extremely active member for many years



prior to moving to Lincolnshire where he remained very active in Gauge1. John was responsible for several projects at Tyttenhanger and held positions of loco section leader and Chairman. The hobby has lost a great character. We will include an obituary in next issue of news sheet.

On a happier note attendance at Tyttenhanger on Wednesdays, Thursdays, Saturdays and Sundays remains good and pleasant. HO section have proposed a method of using their HO room at HQ on a limited and controlled basis enabling their section to enjoy those facilities, albeit in a comparatively limited mode. Anyone wishing to attend should laisse with HO section leader Rai, who manages the diary. As mentioned last month, I do encourage HQ sections to go along to Tyttenhanger on any of the days listed above if only to enjoy the British summer in a pleasant outdoor location with fellow modelers. Just remember to follow the rules and maintain social distance.

At August Council meeting we considered that the interim rules for Tyttenhanger remain appropriate and no changes were required or implemented. Council also decided that since the TSC, as a formal body, have not met, or been active on

line, and that consequently Council have by default been managing Tyttenhanger since March lockdown, that we should continue with this for the foreseeable future. In effect this means the TSC is suspended. I should point out that Tyttenhanger based section leaders have been active in supporting Council through this difficult time even though they have not met or communicated under TSC auspices.

On a personal note I hope to run my 5" SE&CR Class L within a week or so.



I started this in January 1976 and maybe the editor can include a picture of the test steaming at home during August. Roger and Mike also started their present locos in 1976, Torquay Manor and Green Arrow. Both are near completion, so I hope we get all three running this year.

Keep well and healthy, see you at track or HQ, CV 19 permitting!

Les , Chairman

# TYTTENHANGER INTERIM RULES

## EFFCTIVE 29<sup>th</sup> MAY 2020 UNTIL FURTHER NOTICE OR AS MAY BE AMENDED FROM TIME TO TIME

(Issue: Rev 1)

### 1. General

- Members only and their families allowed on site as permitted by UK Government guidelines.
- Site is closed to the public and visitors from other clubs or societies.
- Gate to remain closed at all times
- Maintain social distancing
- Use sanitizers provided at steaming bays, bothy, RT station and old running shed
- Members to provide their own masks and gloves if required or in accordance with government guidelines
- Only one person in coach, bothy, toilet block or any other building at any one time
- Members at higher risk advised not to come to site. Those that insist on attending should remain in the general areas where social distancing can be achieved
- The carriage or other buildings not to be used for cooking. Storage of food in fridges not permitted in any buildings on site. Members should bring their own food and drinks to be consumed in open areas only.
- All seating areas shall be arranged to comply with social distancing guidelines

### 2. Running – boating area

- Number of persons using the boating area shall only be limited by compliance with social distancing guidelines

### 3. Running - Raised Track

- Members not involved with the preparation or disposal of locomotives should remain outside the steaming bay fences to maintain social distancing.
- Alternate steaming bays shall be used to ensure social distancing guidelines can be maintained between club members preparing or disposing of locomotives
- Members riding on passenger cars to be socially distanced from each other and driver

4. Running – Ground Level

- Members not involved with the preparation or disposal of locomotives should remain outside the steaming bay fences and GL steaming shed to maintain social distancing guidelines. (note steaming shed is to be defined as a building for the purposes of this assessment).
- One loco at a time to be prepared/disposed on GR steaming bays to maintain social distance.
- Members riding on passenger cars to be socially distanced from each other and driver

5. G1 and Narrow Gauge

- Use gloves to set out tables and chairs. Only two persons per bench or table. (based on 2m (6ft) rule.)
- On G1 only one train per circuit. If middle circuit is used the start time to be staggered in relation to inner & outer circuits. (this restricts raising steam to one person at a time).
- A Track Marshall for G1 railway shall maintain a running list to ensure no sharing of general equipment
- Numbers of persons inside G1 and Narrow-Gauge railways to be limited to ensure social distancing is maintained

6. Grounds maintenance

- One club member or family group only to enter the equipment store at any one time Sanitize controls after use.

7. Caution

- Any club member not willing to comply with these or government guidelines will be asked to leave the site

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Forthcoming General Meetings

General Meetings at our Legion Way Headquarters in North Finchley are now cancelled until further notice.

Any questions please ring, Ian

**General Meetings Co-ordinator**

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## Treasurer's Report

By Mike

At the socially distanced August Council meeting held at Colney Heath, many items were discussed, as mentioned elsewhere in the News Sheet. We were pleased to accept one new (?) member, returning to the Society after a nine-year gap, Nick of Hitchin, welcome back.



I have also to record that the following members have indicated that they are not renewing their membership to the Society for the current year to 31/03/2021.

A number of other members have not responded to any of the chasers sent to them and therefore their membership of the Society has also lapsed, although they are all welcome to re-apply for membership in the future.

Please delete all of them from your current Name and Address list. A new N&A list will be issued later in the year.

Finally, an apology to my friend Holger in Germany about his occupation mentioned in last month's issue. He does not work for DB railways, but is a railway safety assessor, employed at TÜV Süd GmbH.

Mike

Hon. Treasurer

## Work in Progress from club members workshops.

With the current restrictions in place we thought it a good idea to find out what project's members are working on with all this enforced spare time. So, we asked and several have responded. In this issue we have contributions from Terry and Richard

If you have a project or just a picture or two of your latest project please send them to the editor.

### Titan

By Terry

I've been dabbling in model engineering for many years. I started a 3½" Tich 40 years ago. Bits of it are still under the bench somewhere. Then I started a 5" Simplex but my business ([rockinghorseworkshop.co.uk](http://rockinghorseworkshop.co.uk)) started to take off. Fast forward a good few years and a move to a far larger house with a huge dry cellar and 3ph electrics, I bought a Myford Super 7 a Warco mill, a kettle, heaven!

In 2008 the Model Engineer magazine started a new series "Titan, a beginners 71/4 locomotive" Just what I wanted. could be up and running on rails in a month or so. The next twelve years was a trying time and I'm still trying to finish it.

The original Titan was built by Harland and Wolff in Belfast in the early 1930s when ship building orders were scarce. Some of them were used in their own yards but Titan proved to be a real winner with its huge Harland-Burmeister-Wain 8cyl 330hp 2stroke diesel engines So I started with two great lumps of steel 40" x 5" x 6mm thick this took some sawing out but this was the sort of engineering I was used to having worked in a very large steel yard and welding large earth moving equipment.



I bought 6 spoked wheels which needed lead balancing weights fabricated, easy so far! Next the couple rods, I spent a long time making them and was well chuffed when other proper model engineers complemented me on their appearance. I made a rolling road fitted coupling rods on one side everything worked perfect. Fitted the rods on the other side and everything ceased up solid! Quartering had never been a problem before but I just couldn't fix the problem.



Patience is not one of my virtues and workshop time was becoming more and more limited so I took the bold but not the cleverest decision to dump the rods "convert" the wheels into disc type, so far so good. The author of the series in Model Engineer was Ray McMahon who specified a particular Bosch motor but it is no longer made. Titan was a put under the bench with all the other unfinished projects as my day job was getting even busier.

Along time later out of the blue an old friend gave me an old Parvalux 12v motor with a self-contained gearbox it was totally different from the Bosch specified so this meant a major rejigging between the frames (see photos) The motor caused some problems. I assumed incorrectly that it was 12v. It was 24v and it took off like a whippet when I first tried it! Had some minor problems with the motor, Parvarlux reckon it was made in the mid-seventies.

Titan was now becoming an albatross and I simply wanted to finish it at minimum cost. The body was made from odds and ends off wood I had around the workshop. I took the chassis to Tyttenhanger a couple of weeks ago but one set

of wheels were out of gauge and chains were jumping. These problems will be fixed and I hope to have it back at Colney Heath again by the time you read this.



I took some time out to do some research of what happened to the full-size Titan since it was built in the 1930's. In 1941 the MOD bought it and shipped it to a Royal Ordnance factory near Boston Lincs but it was "owned" by the Royal Artillery who named it UBIQUE meaning everywhere. The Latin name comes from the Royal Artillery slogan UBIQUE QUO FAS ET GLORIA DUCUNT meaning "everywhere where right and glory lead"

The end of the war saw the end of explosives and shell manufacturing at the Boston factory and Titan (UBIQUE) was left abandoned for several years until 1955 when the French Government bought it and shipped it to Algeria where the Civil War was hotting up.

Algeria is the largest country in North Africa and the supply lines to French troops were long and arduous. Despite the extreme conditions of heat and cold Titan came out of the war in 1962 ... rusty, shell shocked and looking a complete mess.

Titan was sold at a French Government surplus equipment auction to a French General Guillame Archambault and shipped back to West France to work in the famous vineyards where many famous French wines originate. Including my favourite Claret and by sheer coincidence the colour finish of Titan.

There are more than 200 kms of railway track in the vineyards and Titan serves them all. In September/October each year Titan works 24/7 (white grapes can only be picked at night) the French call it vend age (I've been there, done it, and drunk it). So, Titan has been used and abused, built in Belfast in 1930, ended up in Bordeaux 2020. And now Colney Heath 90 years later still looking good, and if you believe any of this I will be delighted it was a pleasure writing it.

## Avast Behind (Not the Wife)

By Richard

Two and a half years ago I was lucky enough to receive from my darling wife Cheryl an example of the Calder Craft “Milford Star” fishing trawler. This particular model had appealed to me mainly due to the proud funnel it possessed set at a rakish angle and set amidships.



### **Brief History**

The ship's history was not a long one being built in 1942, by Hall Russell & Co., Aberdeen, and named as Sir Gareth. She was renamed Milford Star on Friday 22<sup>nd</sup> August 1958.

- Tonnage was 278.28 gross 108.35 net and the engine was a T3-Cyl. 70 nhp. With a 12 Knot top speed.
- Length / breadth / depth (feet): 126.2 (137.7 oa) / 23.65 / 12.8
- Engine and boiler also built by Hall Russell & Co.
- Mar 1966 the vessel was towed to be broken up at Passage West, Cork.

### **Fun and Games Begin . . .**

This was the first R/C boat I had ever built and I hoped that I could do it justice. Initial Christmas enthusiasm saw a rapid build of rudder, prop shaft and false deck

installation along with the assembly of the deck winches and other sundry bits followed by almost zero work for the next two years. This was mainly due to the time being devoted to our 5-inch gauge locos and other sundry jobs around the house and time spent rebuilding a friend's G scale garden track.

Come Covid lock down I thought I should make an effort to complete her. People say that Calder Craft are good kits and while I can say all die fittings come included, I do have some gripes. The instructions for building are not what I expected considering the £300 price tag. Illustrations are few and small and the instructions could be surmised along the lines of stick the bits together! They assume you know what some nautical terms are for the various bits of a ship. Some parts have been changed material wise but the parts list has not been updated. The plans are not full size and you cannot take measurements from it to place things correctly. This all adds to complicate the build. None the less I was going to finish come hell or high water and so I gritted my teeth and used a lot of nautical words to coax the job along.

I wanted to make it an individual example and to that end I fitted working deck and navigation lights along with internal lights for the cabin, engine skylight and wheel house. A Graupner smoke generator was fitted to the base of the funnel, this is a little sensitive to adjustment. Too much oil or not enough and the result is no smoke but I'm sure I will get it right eventually. Funny but it always works great when being tested in the garden! With transportation in mind I devised a means of removing both masts for travelling to and from the club and so avoiding any breakages or bent bits! (or more nautical words).



The sailors on deck are actually Tamiya 1/48<sup>th</sup> German field troops used for dioramas but now reassigned for merchant service and none have been seasick so far.

The fishing net on deck was pinched from the kitchen where it saw use as a fly cover for food left out. A quick dip into some creosote saw it take on the right colour and smell.

To finish off the flash items I fitted two sound effect units from Action Electronics. A steam sound generator for the engine and a horn to frighten people/shipping out of the way.

### I name this ship . . .

Early sailing tests showed that she needed a little more weight to reduce the degree of lean when turning and thanks to George and his secret supply of lead, things started to look much better after a little trial and error.

Things to finish off the project are some excellent brass mast head lights, none working but very pretty and some brass port holes to replace the cast ones supplied in the kit. These will hopefully be fitted by the time this article is printed.

### Reflections . . .

Would I do another boat? Yes but not for a while, A, because Chez would be unimpressed at my adding to the collection of our toys (I've nowhere to keep this one really) B, there is a new 5 inch loco waiting that needs to be learnt and enjoyed by the both of us and C, I think I might fancy a small steam launch and I need to learn about the intricacies of marine steam.

I hope some of the above waffle has been informative in some way, please feel free to check her out and offer polite criticism should you see her at the club anytime and if you decide to build a boat kit check the instructions and drawings before you splash the cash or you too may learn some very nautical terms. To quote the Beach Boys "Sail on, sail on, sailor".





## Tyttenhanger Light Railway – August

By Peter

Hi crew,

Another busy month for the ground level crew, ballasting and fencing being the main occupation at the moment. Last Thursday we were blessed with the presents of a rare breed on the G.L as an OO member namely Howard was visiting the site and asked if he could help us. With pleasure I replied handing him a shovel and promising him a drive of the club loco. We had a pleasant few hours shifting the pink ballast and Howard was rewarded with a drive of Alban beginning with a return empty trip and a full load back to be deposited alongside the designated areas that need ballasting, he mastered the working of Alban the club loco well and having a delicate touch with the loco I suggested he may like to become a driver (of course with a bit more training) and pull passengers on our public days, he was still out of breath at this juncture to reply so a good time to stop for lunch. You are welcome back any time Howard.

We have a new old member returning to the fold (just can't keep away can they) and he is very welcome back Nick , purveyor of all things in the plumbing department and a fine P Way man, On meeting Nick for the first time since he left twelve years ago I presented him with the certificate he should have received as was awarded back then to the gang, this was for finishing the G.L. Cuckoo line loop and has sat in my office folder since. I noted he has brought along a nice new shiny spade with him so no points as to where Nick will be operating at the track from now on. Nick also is very safety conscious and if we ever get back to pulling the hoards of visitors of pre Covid days I know he will have his eye on the ball.

Meanwhile Mike and Brian have begun to erect the wire and iron post fence having arranged delivery of said parts to their houses in a smooth and painless operation. The first section to be completed will be from Smallford station to the main gate crossing and very smart it looks too. Paul has supplied some chrome springs that will apply just a small amount of tension on the wire to keep it from kinking.



I was asked by our editor if Gorge without the E (Gorg) would like to knock up a whistle sign with an E. It is to be placed alongside the full-size signal that is attached to the RT traverser.

The signal has been refurbished over the winter and looks resplendent with its final coat of paint and new signal lamp expertly installed by John

Gorge of course when asked did not hesitate and was delighted to make the sign for all to see, we have just enough timber left from the pile that was from the old church roof that was donated to the club that has now been used in four different projects across the site.



Many thanks to the G.L. crew who are putting in the effort to make the railway a better place to be and to play.

John Squire.

My condolences and thoughts are with you and yours Roberta; I will remember John's quick humour and willingness to help and of course having a hand in the beginnings of the ground level railway in the early days as chairman and loco section leader.

As ever in the muck

G.L Section Leader

## Gauge 1 Group report – July 2020

By Geoff                      & David

First thing to be mentioned is the loss of a couple of our dear friends. Sadly, John                      passed away on the 3<sup>rd</sup>. August, John had been a member for some years, always being bought to site by Malcolm                      , he was a nice man, very knowledgeable and always happy to help on technical details. A fount of good stories and memories of the steam railways, he is survived by his son and daughter.

Then on the 15<sup>th</sup>. August we lost John Squires, John had fought a long battle against cancer, he will be familiar to many of your from his years as Society chairman, a position he held when I first joined the Society and G1, he was a nice man, a great help to me and a kind mentor, in later years he moved up to Claythorpe in Lincolnshire where he built his own garden railway, every year there was the invite to go up and run, the track was good in a nice setting, the weather was invariably fair, and he was a good host, no one ever going hungry, we always had a good time, he will be sadly missed, out thought go out to his wife and daughter.

We are now well out of 'Lock-down' and as would be expected we have been busy at the G1 track. All works and running are being carried out strictly following the Societies and the governments guidelines, I am surprised at how well we have all understood and undertaken to follow the personal spacing, this is important as we have some old and more fragile members, some through health concerns have still decided this is not the time to return, rightly so.

Geoff                      list of jobs to be undertaken to get the track and surrounding area's ready for use have mostly been completed and we have had many days of good running. Normally 10 or so attend. The good weather has been an absolute bonus, how pleasant it has been to sit out on our patio area and eat our lunches (well-spaced) in our own societies private park, we are fortunate indeed. We notice other members are on site having lunch time get-togethers, we cannot offer you a cup of tea as we are not using the booth, but you are welcome to come over and have a chat.

We must send our best wishes for a speedy recovery to Eric                      . As we all know he had a fall and had to spend some time in hospital, but is on the mend now. I also have to let you know that Norman                      is recovering albeit slowly. I just wish we could go round and see him, but self-isolation has to rule. We all look forward to seeing them both down the track in the near future.

When I write this it's the 5<sup>th</sup> August already!! But what a lovely day with nice warm sunshine, glad we had the shelter under the trees. 12 runners making the most of it. I will let the pictures tell the story of the day.



I am aware that there are others that use the G1 track on other days and it would be good to get some details and pictures for inclusion in the News Sheet, so please send me photos of your visits. It would be good if all our other members of the group could visit but I fully

understand that there are risks you don't want to take. Please tell me what you are up to though. I would hate to think that you have forgotten what a Gauge 1 model looks like.







John        –on bogies

The other thing that I have done is to finish making up a couple of GWR 9-foot bogies to go under the second Siphon. The castings came from JTT as a bogie “kit”, but the ball bearings didn’t fit very well and I couldn’t see how to assemble



the supplied bits so I have just made them up as JVR type bogies with PTFE bearings and they seem to roll very well. There is an opportunity to add a few bits of detailing for the spring supports on the castings which you can see I have done with Brass rod.

I have cut the step boards short this is what was done on the full-size Siphons – or at least it was done on the one that I have a photograph of! Perhaps I should have consulted David before I started cutting. I was going to solder the new endplates onto the step, but they just wouldn’t solder so in the end I gave up and glued them on. They haven’t fallen off yet so hopefully they’ll be okay. The next job is to do the attachments to the body.

### My Workshop

My progress has been limited this week; I have been continuing with the Peter Korzilius bogies for my LSWR coaches that can go with the Adams Radial tank. Also making a couple of replacement boiler fittings for a loco in need of attention.

This hot weather is not conducive to working indoors during the day. It seems I return from Colney Heath on a Wednesday, clean and tend to the models and it is nearly another Wednesday and time to load the car again.

I wish you all well and hope to see you soon.

## Fetes and Fairs Section

By Jim

As you all must know by now the Fetes and fairs section have suspended all attendance at events this year. You can see from the picture we meet once a week, with guest appearances of our Chairman and certain drinking friends to put the world to right.



It is however a secret location in St Albans.  
see, we all keep our social distancing.

as you can

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## 5-inch gauge driving truck wanted

Wanted: 5-inch gauge raised track 4 axle (Bogie Type) driving truck for one person.

Please contact Richard and Cheryl  
or see us at Colney Heath on any Thursday.

## Bookworm writes

You know how it is when you've been walking the spine of the same volume for a while? That feeling of " *being in the time, the here and now*". Well I was just snacking in volume 68 when my eye was caught by an advertisement for parts for making a television. "Scanning discs 12s 6d, Neon's 18s 6d, lenses 3s 6d also motors and synchronisers. It suddenly dawned on me that this being a volume for 1933, that all the bits where to make a 'Baird' televisor! .....and yet all the model engineering articles seemed so bang up to date...

*Source: ME 1933 June 15 page sales V111*

If I need a holiday, I sometimes venture off to some remote area of the bookshelf to luxuriate in the warmer volumes for 1980s or 90s. In these I occasionally come across the odd sentiment expressed almost disapprovingly, of the use of Tungsten Carbide Tipped Tools when machining odd shaped castings. Thinking therefore this must be some kind of newfangled invention ("it will never take off") I was amazed when I got back to my current home - volume for 1933 - to find a letter asking where to purchase T.C.T. Tools under the brand name 'Widia'. Blow me down, but a snack or two later I found LBSC extolling the virtues of using 'Widia' tools especially when turning rough castings! Oh well I thought I suppose industry might have used them, but no- doubt they were great chunky things not really suited to the smaller lathe. Imagine my surprise then when out strolling through a few volumes in the 1940s, I came across an advert for similar 'Wimet' tools available on shanks ranging from 1/4, 5/16, 3/8 square in fact a size for all users.... So, what has all fuss been about?

*Source: ME 1933 May 4/11 pages 423 & 455 ME 1945 May 24 "Sales and Wants"*

'Legal Liability and Passenger Tracks'. In this day and age of the litigious society Model Engineering is becoming a soft target. How often has this been expressed recently? Well, it was felt a worthy enough subject to be discussed at length in the ME.....in 1949

*Source: ME 1949 April 28 page 508*

Fashion is always a tricky subject for Model Engineers, but in a time when a man wasn't considered properly dressed unless he wore a jacket and tie (my owner still does, but don't tell anyone), the ME stimulated a discussion for the best design for a tie that Model Engineers could wear on suitable occasions. The discussion concluded; the ME announced in Oct 1952 that a suitable tie was now available. The address given for a prospective purchaser was for no lesser combine than K.R. Whiston " *You should see my cat!*" of New Mills Stockport .....Maybe it's time to done the neck gear once more?

*Source: ME 1952 Oct 9 page 462/ ads page ix*

# The Building of an A1

By Peter

## Part 4

### The Engine: Bogie Shock Absorbers



As mentioned last time I won't give all of the details on this build to save space but will try to give a start/finish for the main parts. I have already done the start of the bogie, this is the finish.

First job was to make the springs, are the 8 springs in total for the bogie suspension, specification is 3/8 OD 18 swg and 1" free length>

I bought a length of spring to this specification; the picture shows the finished springs having been cut and ground to length.



The next job was to make the spring pins, I decided to make these in two parts as done a number of times with similar parts to save time. The first part being the

1/8 shaft that has a 5 BA threaded section .406 long and plain shaft at 1 3/4 long, I machined an extra small spigot to the end of this to locate the top on. The top was again a simple turning job with overall dimensions of 7/32 diameter and 3/32 height plus a central hole to fit the spigot on the shaft, I machined the top to size once it had been silver soldered to the shaft. Picture shows the two parts waiting silver soldering.



Here we see the finished spring pins and the spring yoke cup, the cup sizes are 7/32 AF hex, a 3/16 ball machined on the bottom to fit the recess on top of the axle box and the threaded section above to fit it to the spring yoke. I have modified the cup a little, first it has a N0.54 hole through it and the bit threaded section I beefed up (for strength) to 4 BA instead of 6 BA to allow for the small bore going through it. This is for the oil to pass through, you won't see it for a while, but later



I added oil cups to the top of each spring yoke on either wing to directly feed these points

Next was the 16 shock absorbers which didn't take too long as they are a lot easier than those on the tender.

There are 8 spring sets that involve a little repetitive machining but nothing too long winded, the picture shows one of the shock outer casings being parted. The specs are 7/16 diameter by 7/32 height which I have tapered 5 degrees, a 11/32 recess was cut for a rubber disc to sit in and there's a No.29 hole drilled through the centre for the spring pin to pass through.

There is also a small disc (not shown here) that fits into the recess thus sandwiching the rubber to form the shock, I added a small lip to the top of each disc for the spring to sit over.



Once I had finished all of the metal parts I then needed to give some thought to a simple and quick way to cut out the required rubber discs. Using the same bar stock still in the 3 jaw I continued with a No.29 hole to a depth of around 30 mm, next I cut a recess to the same size of 11/32 but deeper, depth wasn't important just needed to be enough so the rubber sheet didn't stop the cutting action. With the top slide still set at 5 degrees I cut a taper but this time continued until I was left with a sharp edge on the face. Once this was parted off, I heated the cutting-edge tip to cherry red and quenched it in oil to harden.

It was then a simple job to place the rubber sheet onto a piece of hardwood, the cutter held square onto the rubber followed by a sharp tap with the hammer and

while still held in place to drill through the centre guide through the rubber into the wood with the No.29 using a power drill. To begin with I did this the other way around, drilled the rubber, placed the tool over with a length of 1/8 BMS to line up and then tapped the tool with the hammer but had a tendency for the hole to end up off centre so changed the order of doing things which worked very well.



The picture shows a cut rubber disc along with the tool for doing it, note the hardened tip just visible.

These pictures show just how many parts are required to make up one spring ready for assembly into the finished spring assemblies ready for fitting to the bogie.



Next item on the list is the bogie spring yoke consisting of 5 parts that needed silver soldering together, 3 columns at 1/4 diameter spaced at 1" intervals. The larger centre column I drilled and tapped 4 BA for the yoke cup to screw into, this was also drilled all the way through so that I can get oil to the keep and its oil pad through it, the cup and axlebox without too much of a problem. To help with this I later added an oil cup to give me a reservoir for the oil to sit in. The two shorter outer sections were drilled No.30 for the spring pins to go through. Between the columns are two 1/8 webs that are shaped to fit. The ends of the webs were scalloped out using a 1/4" cutter so they fit nicely around the columns but not too tightly so to allow

good penetration with the silver solder. I then made a simple jig to hold everything together for soldering which is shown here ready for heating. The jig and the associated 4 BA studding, nuts and washers were coated liberally in soap to stop them getting silver soldered to the job in hand.



And here are the assembled spring assemblies fitted to their yokes. Now this is how the drawing has them. Plus the added mods to allow oil to be fed to the oil pads, to help visualise this it's the middle of each yoke that will have an oil cup fitted to the top, the oil passes through the yoke into the brass ball, this sits in the top of the axlebox with its own small recess to hold oil. The oil then travels through the box onto the axle below and around to collect in the oil tray. Hope that makes sense.

Following a request that I put on the LNER forum for prototype details on the spring assemblies, Eddie Giddens contacted me from the Tyneside SME with the info that I needed for which I'm most grateful. I had noticed that 4472 today had no upper shocks but

I wasn't aware until Eddie pointed it out that these upper shocks were taken off during the change over from the swing link bogie in the early 30's to the side bearing bogie fitted today. This is an easy fix where I can just remove the upper shocks.

On to the two stays, both made from 1/8 BMS and silver soldered together, the rear stay has a section milled out of the top to give clearance for the two vacuum cylinders that will be positioned close by.



Once they had been tidied up a little, they both had their ends machined square until they were exactly 4" across, the picture then shows the rear stay being machined down in thickness to the 2 mm shown on the drawings although I left the ends a little thicker for more strength.

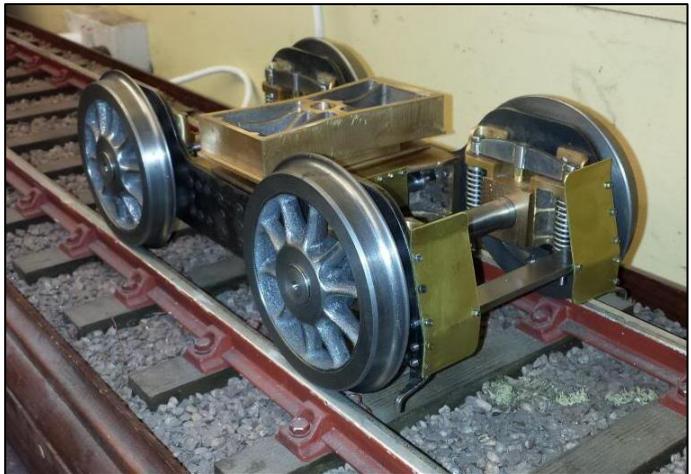
Here we have a near finished bogie, you can see the two stays in the picture plus the guard irons.



I later changed the way that the irons are bolted to the frames just to make things more practical. I haven't set the springs yet in this picture, it's probably best to do this once the loco is close to completion or at least after the boiler is sitting on its frames.

At this point Eddie kindly pointed out to me that I hadn't finished the bogie as it was missing its dust shields and so after a couple of hours most of which was spent drilling into the hardened edges of the laser cut frame, I had the dust shields fitted.

You can also see clearly in this picture that the top shock absorbers have been removed from each spring set. Again, as per prototype, thanks to Eddie's knowledge of all things LNER, his name will probably pop up again.



He recently helped me greatly in researching the correct cross-heads for the pistons, those as drawn by Don are a much later design, IIRC 1947.

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## Dates for your Diary

The current government restrictions resulting from the COV-19 virus has resulted in all NLSME organised events being cancelled until further notice.

<b>September</b>	<b>2020</b>
<b><i>Tue 1<sup>st</sup> Sept</i></b>	<b><i>Council meeting at Tyttenhanger 2.30pm</i></b>
<b><i>Mon 21<sup>st</sup> Sept</i></b>	<b><i>Deadline for copy to Editor for October News Sheet</i></b>

