



NEWSLETTER OF THE COLCHESTER SOCIETY OF MODEL & EXPERIMENTAL ENGINEERS LTD

No 55

Autumn 2019

### Activities since Spring LINK No 54

#### **Tuesday Junior Club:**

Once again these days for members grandchildren and their friends to enjoy driving electric and steam locos during school holidays were held on 9 Apr, 28 May, 30 Jul, 27 Aug with the last one for this year due to be held on the 29 Oct. So far we have been lucky with the weather this year and all the children, and adults, have had a great time taking it in turn to drive the locos.

This summer a new venture was introduced for the junior members to be involved with. The Club had been donated an unfinished 5" gauge 0-4-0 Rail Motor loco complete with tender and it was decided by the committee to allow the junior members to complete the project and become a fully working club loco. So far the tender has been stripped down, cleaned and repainted with primer to protect the steel sections. A report on progress will be produced for the 2020 Spring edition of Link.

#### **15 June:** Thorrington show

The club attended a gala day at Silver Springs care home and put on a display of various locos to provide nostalgic memories for the residents. It was interesting to see a full size replica of a Spitfire being displayed and with many of the staff dressed in 1940's costumes it was a good day out.

#### **23 June:** Members Family and Friends Mid-Summer B.B.Q day.

The day kicked off at 10:00 and it was intended to be a "do it yourself" BBQ using the clubs BBQ's with burger buns and hot dog rolls being provided together with supposedly healthy salad stuff. Peter and Sue Bohn oversaw the preparation of the burgers and hotdogs and the day was a success running into the evening.

#### **13 July:** Tendering Hundred Show

The Council decided that the club would put on a show at the Tendering Hundred this year as this venue would have a wider audience than the normal show grounds we have used in previous years. To this end our display included model aircraft, boats, traction engines, a range of rolling stock, loco's including Peters Centennial, and a powered Meccano knitting machine constructed by Robert King that produced French knitting by the meter (or yard for us older members) and provided fascination for the visitors. The portable 100ft track was also in constant use and rose over £250 in donations. The show was a full day event and although there was a good amount of

interest in the display no new members have materialised to date.

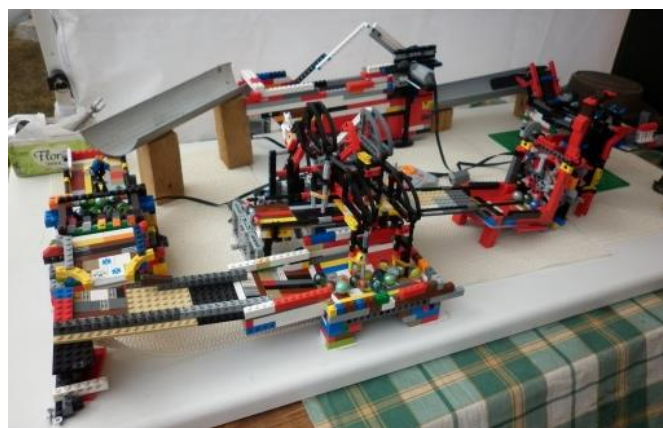


### 30 Aug: The Great Bentley show

Geoff King organised a show at this popular venue and members rallied round to assist and brought along a wide range of models to display. Ian Pryke drove Peter Bohn's traction engine providing rides for children which proved very popular.



This time there was a departure from our normal static display and two of our junior club members attended and put on a display of a marble run using various geared modules constructed from Lego to show what can be achieved for model engineering. It drew a lot of interest from the public almost to the detriment of viewing the static locos!! Congratulations to Arron and Christopher Horwood for their effort to design and construct the working model.



### 11 Sept: Ladies Day Cream Tea

The first CSMEE Ladies cream tea party organised by Suzanna Giera could not have wished for a better day. The sun shone, the temperature was just right and 11 ladies gathered for a rather splendid cream tea. The reasoning behind this was to meet and get to know each other and renew or make new friendships. We even had an “official photographer” in the shape of Roger Williams who did a brilliant job of recording a special and fun afternoon. The men provided rides on a great array of locomotives and with slight hesitation it wasn’t long before the ladies could work off their calories as they rode around the track. A fun day was had by all and it was also a way to thank the Ladies for the amount of time that is spent at the club by their other halves! It really is appreciated.



### 12 Oct:

Visit to the Bure Valley Railway, organised by Geoff King, for members to take it in turns for a driving experience on the narrow gauge loco travelling between Wroxham and Aylsham.

### Winter Talks Programme 2019-2020

Please note the night run will be held on Saturday the 2nd Nov starting at 3.0pm followed by a Fish & Chip supper and fireworks. The neighbours will be invited to attend again this year

Sep	27th	Undersea cables Pt 2	Tony Zymelka
Oct	11th	Watch making	Robert Raven
	25th	RNLI ( Note **** 7.30 Start ****)	Doug Zeeman
Nov	2nd	Night Running & fireworks	
	8th	Birds you may have seen	Graham Wilmot
	22nd	B17. Spirit of Sandringham John Preston & Larry Sampson ( Note **** 7.30 Start ****)	
Dec	6th	Maintaining the permanent way (To be confirmed)	Jason Lund, Network rail
	13th	Christmas Party	
Jan	10th	Cars, Trucks and Tractors 40 years a photographer	Mike Wilkins
	24th	Boiler building	Andy Hope
Feb	7th	Financial Presentation	Peter Bohn
	21st	Auction 1 **** 7.30 Start ****	
Mar	6th	Auction 2 **** 7.30 Start **** Reserve: Film night	Martin Harrison
	22nd	Ipswich Transport Museum	Martin Long
Apr	3rd	Models Night	
	17th	Annual General Meeting	

### **Club Badged Clothing**

The sale of club badged clothing has been dormant now for several months. If you would like to have a sweat shirt or a polo shirt embroidered with the club name and badge, please fill in the list on the club notice board and I will order you one. I already have for sale a sweat shirt size medium and a polo shirt, also size medium, both in navy for sale. These were ordered by a previous member, who is no longer in the Club, and have never been worn. For an extra fee you can have your name embroidered on if you so wish. I also have embroidered felt badges for attaching to your overalls at £8 each, and lapel enamel badges priced at £3 each both available to order on the notice board. Having the Club name and Logo on your person is helpful when you go to another club, or to an exhibition. It shows to sales people and other club members that they are talking to a genuine customer.

**Geoff King**

### **Modifications I have made to my Locos - Part Two**

When I had completed my loco Virginia, and had run it successfully for a few hundred miles, I looked for a next project. As it happened Martin Evans had started to draw up the LMS 8f, which he called Euston. It was just what I was looking for, a 2-8-0 loco in 3 ½" gauge, which would be all adhesive weight on track. My Virginia was light in weight, and rather prone to slip if the track was damp or had steep hills to climb.

Work started on the new loco and progress went well. There were no real problems with the design at first, building the frames and cylinders. I decided to make the valves the same as the prototype, with piston rings on the valves. I used cast iron for the piston rings and cylinders, which went well being easy to make. There were no problems with the valve gear and the chassis ran well when given its first air test.

We next came to making the smoke box. Martin Evens had designed the smoke box to be made in two parts with a top and bottom split horizontally down each side with a row of counter sunk screws to keep the smoke box top on. I thought this looked awful and decided to change this to make the loco look right. I made the smoke box in two halves split vertically under the chimney, and spigoted into each other. This has worked out very well, as I can now take the front part of the smoke box off the loco, leaving all the pipe work connected. All I have to do is unscrew four screws from the saddle on each side and two nuts from inside the smoke box holding the chimney on, whereby the front part of the smoke box can be lifted off leaving all pipework and super heaters in their working state. To this date NO one has noticed the split line down the smoke box below the chimney.

With the frames and cylinders ready for the boiler I started work on the tender. The frames were straight forward and I acquired some needle rollers from some obsolete stock in the Company stores, which I was given the OK to have. These were fitted into the tender axle boxes and have now run many miles trouble free. I then turned to the tender body and decided to build this with a drop down extra tank between the frames to hold more water. A square hole was cut into the tender sole plate which was covered with a fine stainless steel gauze to filter all of the water for the engine. All water for the injectors and axle and hand pumps are taken from this tank between the tender frames, and this greatly simplified the pipe work on the tender.

Next was to make the boiler which was a straight forward thing to do. Except that the Stanier boiler barrel is tapered in all directions. The firebox tapers from the throat plate on the sides and top back into the cab. The boiler barrel is parallel on the bottom and tapered on the top and

sides. This means that you have to make it all from flat sheet copper. I had to do some development of the flat sheet copper to get the correct shape and then cut it out in cardboard to prove that I had got it right before cutting out the copper using the card as a template. Eventually I did get it right and the boiler was completed OK.

There was one part of the boiler which was a problem. Stanier used a top feed to put water into the boiler. Try as I might, I could not get this to look right when the clack valves were on top of the boiler. I made two pipes pass down the boiler to between the frames, which were close to the correct scale, and the clack valves are under the boiler mounted on a crossbar between the wheels. This has been a great success as the valves are easy to get to and you do not have to remove any boiler cladding for access to the valves. These clack valves are for the hand pump and axle pump, the injector clack being on the back of the boiler. In this position they have been trouble free, possibly because they only have cold water passing through them from the pumps and are not subject to steam temperatures and possible scaling up.

In the tender of my 8F I made the same changes to the hand pump as I had done previously on my Virginia (described in edition 54 of LINK). I have never had to attend to any problems with the tender since building it.

After twelve years use and 453 miles running the loco was put into the workshop for some TLC. The piston valves had become leaky which on dismantling proved to be from rusting of the cast iron cylinders. The valves were changed over to the PTFE design which I had done on my other locos, and is published in Model Engineer (vol. 203 page 415). With bronze valve liners there will not be a repeat of the rusting problem in the future.

When I next have the 8F out on the track, if any of you would like to see the changes to the design I will be pleased to show them to you, if it is possible to see them. At this moment it time (Jan 2019) I have now completed 600 miles on the track with my 8F and it is great to drive, as many of you will have experienced.

**Geoff King**

### **Children's Parties 2020**

We have come to the end of another successful party season, and can I thank all those who participated as without your help it would not have been possible. For those of you who have not attended yet I can assure you they are a lot of fun.

We have six parties booked for the 2020 season. The dates are as follows 18 April, 16 May, 4 July, 29 Aug (one in the morning and one in the afternoon), and 19 Sept.

We have four bookings for 2021 so we must be doing something right. Once again thank you all and I look forward to seeing as many of you as possible next season.

**Graham Willmott**

### The Wednesday Wrinklies Report

Much like the Forth Bridge, re-painting of the steel structures has been ongoing through most of the summer days, largely carried out by Julian. Next year the steaming bay canopy will need to be re-painted and to minimise the time this area will be out of use additional help will be requested. The club has extra brushes and tins of paint so there is no excuse for not being able to help.

There have been no major projects undertaken this period other than a further bit of fencing and a gate being added to the area under the station canopy. This is to enable the birthday party passengers alighting from the carriages to exit the area safely and to ensure passengers cannot try to get onto the carriages at that point causing congestion.

The enamelled “Colchester” sign has been relocated from the grass area by the station and is now mounted on the side wall of the carriage shed and is being refurbished by Graham Willmott. This makes maintenance of the grass area easier and gives a better view of the locos for seated visitors within the station area.

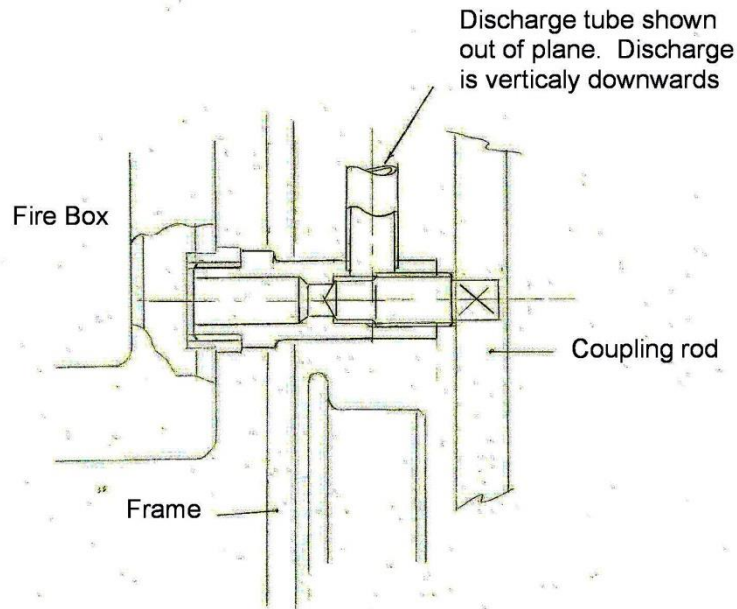


**Don Black**

### Making Hexagonal Sockets Simplified

I first came across the need to produce a small hexagonal socket when designing a blow down valve for the boiler of my 5” gauge LBSCR “Terrier”. The blow down valve(s) on a boiler are very important fittings whose function is not simply to provide a facility for emptying the boiler at the end of a steaming session but to keep the boiler as free as possible from lime scale deposits. When water is evaporated in the boiler the concentration of salts and impurities dissolved in the water gradually increases until they are precipitated in the form of solid particles which either adhere to the heated surfaces (forming scale) or sink to the lower parts of the boiler. The maximum rate of evaporation occurs in the hottest part of the boiler, i.e. around the fire box, and the precipitated solids accumulate in the narrow space between the inner and outer fire boxes. The blow down valve should be located as low as possible in this space so that when the valve is opened the discharge of water and steam sweeps out the deposited solids before they have an opportunity to solidify and block the narrow water space.

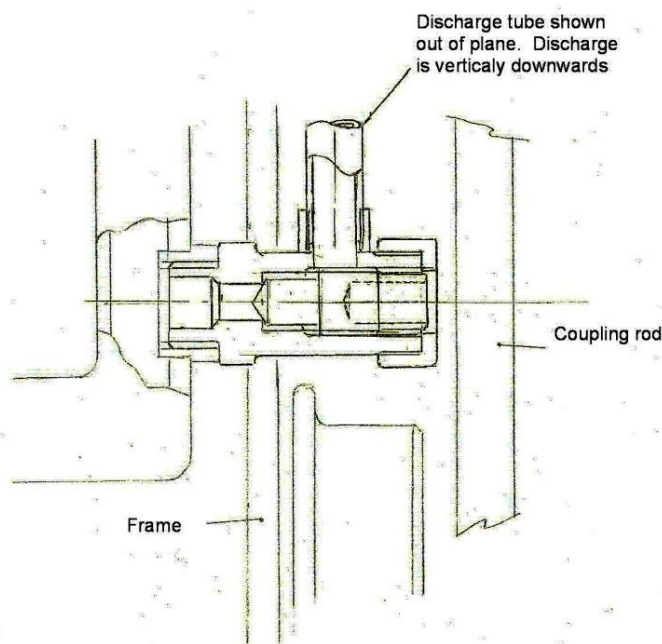
In his design for the boiler for the Terrier, Martin Evans had correctly located the blow down valves in the wall of the lowest part of the firebox. The proposed design for the valves themselves was of a traditional arrangement similar to that employed in his other locomotive designs and similar to that used in many of LBSCs designs (see figure 1).



**Figure 1**  
Original Martin Evans design

It had two major short coming, however. Firstly, it did not employ a captive spindle – a feature insisted on by our boiler testers. Secondly, its overall length (i.e. the standoff from the side of the firebox and protrusion outside the main frames) resulted in a significant foul with the coupling rods as shown in the figure – a fact which seems to have been overlooked by the designer! The basic design of the “innards” of the valve was satisfactory, providing a good flow area for the discharge when the valve was opened fully. The design therefore needed modification to overcome the shortcoming mentioned above.

The arrangement adopted is shown in figure 2 and component details are shown in figure 3.



**Figure 2.**  
Modified blow down valve design

The captive spindle was ensured by the addition of a cap, screwed to the outside of the valve body and with a bore which was too small to allow the spindle to be screwed out too far. It is necessary to ensure that the pitch of the thread attaching this cap to the body is different (preferably finer) than the pitch of the spindle thread. If the pitch of the two threads were the same there would be a risk that the spindle and cap might unscrew together, defeating the object of the cap.

The provision of the retaining cap makes it difficult to reduce the overall length of the valve body significantly, so any saving in standoff distance from the fire box side had to be achieved by modification to the drive end of the spindle. The obvious solution to the problem was to terminate the spindle inside the body/cap length and provide some internal feature for the drive. One possibility was a screwdriver slot in the end of the spindle but I did not like this approach since the slot would have the potential to open and jam the spindle in the cap. A more elegant solution seemed to be a hexagonal socket in the end of the spindle for an Allen key drive. There are several possible methods of producing such a socket including spark erosion and rotary broaching but I did not have any of these facilities available and was reluctant to embark on making special tooling for the production of a single valve spindle.

The method of manufacture adopted is illustrated in figure 4.

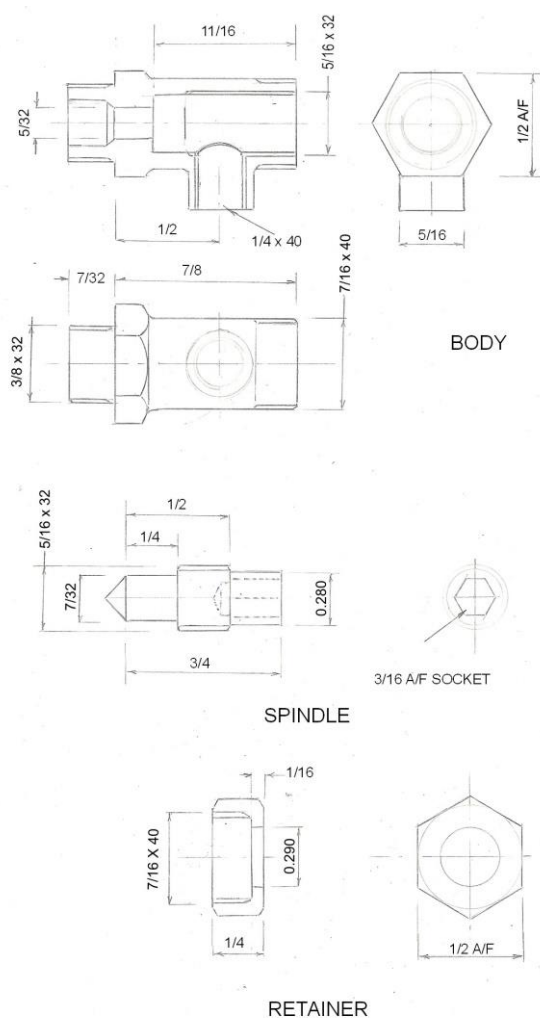
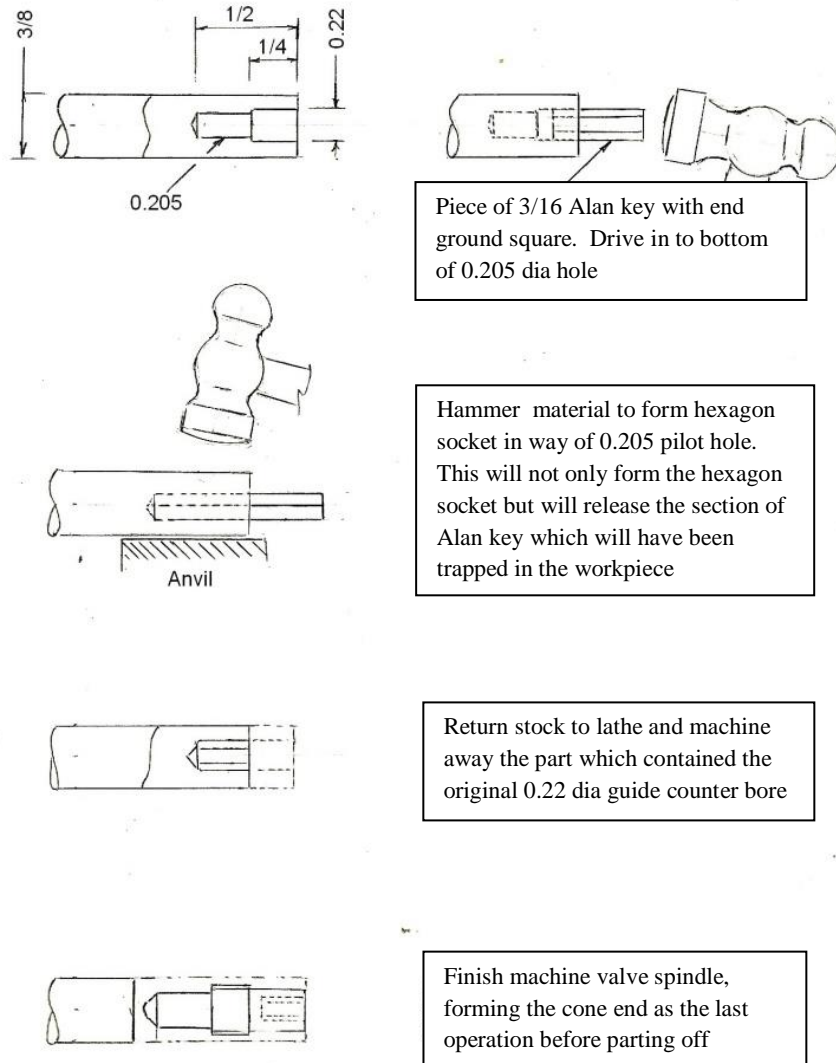


Figure 3. Component details





**Figure 4**  
 Procedure for making blow down valve spindle  
 with hexagon socket drive

The dimensions shown in the illustration are those employed for my particular valve and can obviously be modified to suit any application. The diameter of the guide hole should be  $1.155F$  where  $F$  is the across flats dimension of the hexagon being formed (i.e. the across corners dimension). For the pilot hole for forming the socket I have adopted a diameter mid-way between the across corners and across flats dimension i.e.  $1.077F$ . It could be argued that a more suitable diameter for this hole would be  $1.050F$  which results in a hole of the same cross section area as the hexagonal hole but this takes no account of the axial stretching which takes place and I have found the mean dimension works well for the size of socket likely to be formed in this way. I would not expect to use the procedure for sockets larger than  $1/4''$  or  $5/16''$  A/F.

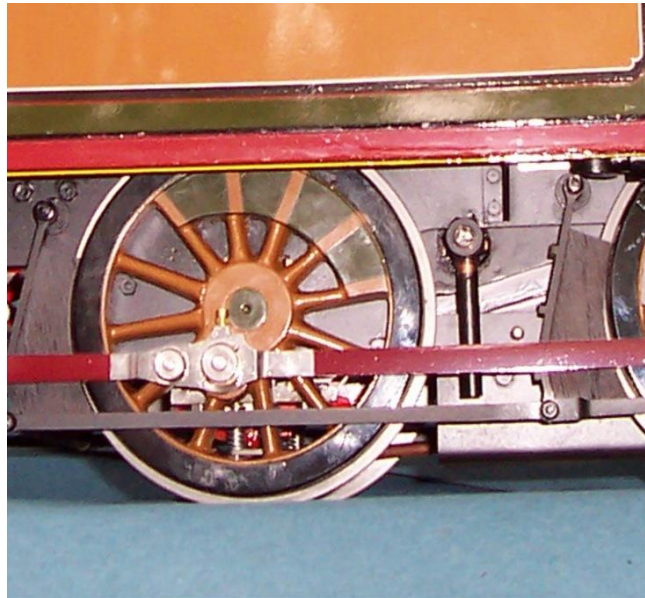


Figure 5  
The blow down valve in situ

I have employed the technique on a number of occasions since making the blow down valves for the Terrier to make special socket or box spanners for BA fastenings. All that is required is to locate an Allen key of the required A/F dimension round which to form the socket. There are, of course, plenty of such spanners available commercially but I found that the outside diameter of those that I had was too great to allow access to some of the fastening on my current project. Rather than machine down the outside of the “standard” spanners I chose to make specials to suit.

**Norman Barber**

### **Secretary’s Report**

#### **(Ransome’s Ramblings)**

I would like to welcome some new members who have recently joined: Jack Cavie and Richard Evans. The Society has lots to offer, so make the most of it. Make yourself known and enjoy your time with us.

Council have been looking at mentoring schemes to ensure new members are fully integrated into CSMEE but with differing needs, differing expectations and personalities it is proving difficult to launch such a programme. So, talk to everyone, we don’t bite and find time to share a cup of tea with those around you so that friendships can develop.

#### **Club locos**

Jim Hollom took on the challenge of being responsible for Butch. Jim had some help from Dave Hammond but his enthusiasm and hard work has been rewarded and this club asset is now back ‘in steam’. Please remember if you use a club loco please; please ensure you put it away in a clean condition so the next person does not have to clean it down before they can run. **Nor is it the job of those who have taken on ‘custodianship’ of these assets to keep them clean.**

### **Driver Instruction.**

Geoff King has for many years taken on this role - Thank you Geoff. Council has been considering how to ensure all drivers have a basic understanding of the skills necessary to drive a loco safely. It has been thought necessary to document a basic programme to ensure all those going through this programme can demonstrate they have the capability to safely drive a loco and understand the raised track signalling. Work is still ongoing on this, but with the knowledge gained from Geoff's endeavours, Council hope to have something in place for the 2020 season. Some of this training will also apply to those new members who have their own loco. After all, would you want someone on the track that did not understand how to operate the traverser safely or acknowledge signals?

The Society is full of helpful members – however, it can be daunting when confronted by six slightly different versions of how to raise steam, oil your loco or manage steam pressure. So, if you find yourself in need of some support – find a ‘buddy’. Find a club member with whom you can build a ‘One on One’ relationship. Take their advice and work with them so that you can fully enjoy this wonderful hobby.

### **November 2<sup>nd</sup>**

This will be our night run – fish and chip supper and firework evening.

Last year proved successful so we are repeating the programme.

We will be inviting the immediate neighbours again, fish and chip van has been booked and Peter Bohn's team will put on a great firework display.

We will be telling our neighbours that rides will be available from 4.30pm but we will raise the bridge at 6pm to allow all too safely cross the track to the central area to partake of fish and chips etc. Fireworks will be around 7:45/8:0 pm.

### **Moving forward**

There are no ‘major’ building projects – we are refurbishing the central support within the bridge as the brickwork is crumbling and other work will be undertaken next year on the bridge parapets.

But look around you:

- Peter's Crossing is looking tired – do we replace with wood or plastic cladding?  
Who does it?
- Passenger trolleys need some work over the winter. Who owns this?
- Site always need tidying – shrubs trimmed, weeds taken out, leaves picked up.

What do YOU do?

I know that I am not the most regular attendee on a Friday night but I see that we have a very strong, relatively small team of committed members who go ‘above and beyond’ to support this Society. Would we be able to manage a village show if we did not have Don Black? Where would we be without Peter Bohn's portable track?

**How do we get YOU involved?**

My time is up!!

I announced at last year's AGM that I will be standing down as secretary next year. So, someone has to put their hand up to take over – is it onerous? No, but you do need to be committed to support this Society and be prepared for frustrations. Members forget that we are a limited company bound by legislation. Yes, I am still \*\*\*\*\*d off that the grey Risk Management folder has gone missing. Andy Hope, John Mottershaw, David Cocks and I have all spent time getting something together that demonstrates we care and understand our obligations. Guess who now has to spend even more time reproducing a 'new' document.

By law, the Society needs a Company Secretary. Is it YOU?

**Ian Ransome**

### **CHAIRMAN'S RAMBLINGS**

As we come to the end of another successful summer season it's nice to see we are still getting good numbers of members attending to have a run at various times during the week, don't forget you can run any day of the week for as long as you wish.

#### **NEW DRIVING TROLLEYS SPRING 2020**

The current stock of driving trolleys has come to the end of their useful life. A new design is being drawn up and once the drawings are complete they will be available for viewing at the club, on a date to be advertised. This will be your opportunity to view the design and make any comments. Once this stage has been reached, one trolley will be made for testing purposes, and if successful a set of trolleys will be made to replace the existing stock (Volunteers will be needed to assemble them). It is anticipated the cost will be about £250 per trolley.

Jim Hollom has arranged the winter talk programme; please make every effort to come along. All talks are advertised on the Webb a week before hand, if you are not on the e-mail list now may be a good time to rectify the situation.

At the AGM Ian Ransome gave notice that he intends to stand down as company secretary next year. We all need to think about who can take over from him in this very important role, you will be involved in all decisions regarding the running of the society. We have to have a secretary, as he/she is the point of contact for the club for various official bodies. If you think you can take on this role then please talk to either myself or Ian.

The oily condition of the raised level track continues to be an ongoing issue and although various cleaning methods have been tried over the years, none of which have been entirely satisfactory. A new track cleaning machine has been built earlier this year and whilst it does at least break up the harder oil deposits we still need a member to follow it round the track and wipe off the residue.



To help reduce this problem can all members please take on board the following points;

- 1) Ensure the cylinder drain cocks on their loco are fitted with pipes that direct the steam away from the rail head.
- 2) Use the minimal amount of oil when oiling up prior to a run.

And finally, the track should be checked every time it is used, this is to ensure there are no obstructions and the sleepers are all evenly spaced out (they have a tendency to move!).

**Ian Pryke**

#### **House keeping**

In order to keep printing and postage costs to a minimum the Club relies on using e-mail communication and to this end may I remind you that all future editions and correspondence to yourself is reliant on the club holding your current e-mail address. If you have not provided an e-mail address or change your provider then please update your e-mail address, either through the Membership Secretary or myself using the editor link.

**Don Black**



**COLCHESTER SOCIETY OF MODEL & EXPERIMENTAL ENGINEERS Ltd**  
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**Note: All correspondence to Officers to be addressed via the Club House.**

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