LINK

NEWSLETTER OF THE
COLCHESTER SOCIETY OF MODEL & EXPERIMENTAL ENGINEERS LTD

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Photo by Editor

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Cover Picture

I have mentioned my fascination with bridges in the past. Ingleton viaduct was built by the LNWR to be part of an express route between the West Riding and Scotland but because of continual corporate squabbling with the Midland Railway it spent 100 years as a quiet rural backwater. The 800 foot long viaduct crosses the river Greta with eleven arches at a height of 80 feet. Built by a team of 40 men in two years without a single death or broken bone (a remarkable achievement for the period) the viaduct was opened for service in 1861 and closed in 1965. It continues to dominate the village and will probably do so for another 100 years.

Editor

Editorial

The last half century has seen a steady decline in Britain's status as an industrial power with our manufacturing industries becoming less and less competitive and losing out to foreign competition. This has been to no small extent due to lack of support to industry by successive governments of all complexions. Now, with the horse disappearing down the road in a cloud of dust and the stable door creaking on its hinges, there are superficial signs that our leaders are beginning to wake up to what has happened. "We need a manufacturing base" they say. "What are needed are apprenticeships to train the craftsmen of the future" they say, oblivious to the fact that the personnel and facilities to carry out this training have, to a large extent, been lost. With this new awakening to the need for skilled artisans to rebuild our industrial strength it might have been expected that efforts would be made to fire the enthusiasm of the young, introducing them to the excitement of the world of technology and engineering at the earliest possible age. Not a bit of it. At the beginning of 2011 Michael Grove, the education secretary, commissioned a review of the schools National Curriculum. After a year of cogitation a team of "experts" (what exactly they are experts at might be open to question) is recommending that the only statutory subjects to be included in the National Curriculum (i.e. subjects which it is compulsory for schools to teach) should be English, Maths, Science and Physical Education. The teaching of Design and Technology would be downgraded, together with a number of other subjects currently in the statutory curriculum, and the choice of whether to teach them left to individual schools. Strenuous efforts are being made by people and organisations such as Sir James Dyson and the Red Bull Formula 1 racing team to name but two to have Design and Technology retained as a statutory subject in the National Curriculum. As engineers, we should also be supporting the idea. Go to www.data.org.uk/ and sign the on line petition organised by the Design and Technology Association.

OK, sorry about that. I will put the soap box away now and get back to LINK and model engineering! In this edition "the boy" continues his development both technically and romantically in episode seven of the popular series "Indentured". Reading through this episode when preparing it for publication I began to wonder whether I would need to censor as well as edit the text, but by the end of the episode he was still behaving himself! I, and no doubt our readers, will look forward to episode eight!

As many readers will be aware, one of our members, Eddie Carter, is a regular volunteer worker at the Bluebell Railway. I have been harassing him for some time to write and tell us about his work there and in this issue he does just that. It is a fair hike from Colchester to the Bluebell but if anyone is inspired by Eddies story I know that he will be happy to recruit new volunteers.

It is said that anyone who has not made a mistake has not made anything. This is undoubtedly true for most of us. It is also said that we should learn from our mistakes. The corollary to this concept is that we should try to learn from other peoples mistakes. This edition of LINK introduces a new feature which I hope, with your co-operation, will become another regular item – The Confessional. Having made a few things in my time I have also made more than my fair share of mistakes. I have therefore started the ball rolling by reporting one of my most recent blunders, which you will find on page 26. If you have ever made a mistake of which you are not proud and which you know could have been avoided with a little more forethought, why not tell the rest of us about it. You may prevent someone else going down the same road, and even if you don't, confession is good for the soul and you will feel much better afterwards!! Of course, if you have never made a mistake we shall be equally pleased to hear from you!

Editor

From the Chair

The first family day was a wash out, with only about twenty members attending on the day. Two members did brave the weather, one running on the ground level track and one on the raised track.

In my notes in the last edition of LINK I commented on the fact that the rebuilding of our site has been in progress for fourteen years and is now virtually complete. I thought that for this edition I would review some of the history of the development. It was at the beginning of 1997 that a set of drawings for the new Club House was produced by Les Hammond and presented to the Board for their approval. Planning permission was sought and obtained, following which we had to find a builder. Several quotes were obtained and Rod Adams and Son were appointed. Building work started in April 1997 and we moved into the new clubhouse in mid September. Having moved into the new premises we had the problem of disposing of the old building. This was an old pre war prefab made of asbestos. Because of this disposal was potentially quite costly. Word got around and a person came forward offering to buy it. A deal was done and the building removed, all once again instigated by Les - one of the many tasks he undertook as secretary. The next task was the removal of the ground level signal box. Les and his merry men took this apart brick by brick, ready to be re built at a later stage in the project. Whilst this was going on I was preparing the design for the new raised track. Hugh Mothersole had drawn out a few ideas for both the raise and ground level tracks, the latter including a double track main line. The year before the Club had made a visit to the Worthing SMEE and their track is a folded figure of eight. I based my

The old Club House and the start of the new

The tunnel walls starting to go up with the girder and supports for the over section. Old raised track in the background.

One of the track panels under the old ground level station roof, used as a paint shop.

design on this concept which gives a longer track than can otherwise be accommodated. After tweaking the design a few times we were ready to set out the site. As the design involved gradients and a tunnel a deep hole was dug by hand to check for possible water problems in the tunnel. No problems were found, however. Brian Coates set out the levels and our builder Rod Adams dug the layout with his mini digger, the work being completed over a week end. Meanwhile, Les had found an engineering company who were making the track supports for us. There are two hundred and sixty four of these varying length from three feet up to eight feet. They were concreted into the ground a a depth of eighteen inches. A hundred and thirty two lengths of inch and a half angle and flat bar were purchased with some of the angle taken to Fred Patterns workshop at Aldham for rolling to suit the curved sections of track. The bridge over the new track was the first part of the project to be started in the middle of October 1997. The old track was left in place so that members still had a track to use whilst the new work was in progress. The garage was moved from the East side of the site to its present location and the profiled steel track arrived from Germany. The track panels were made up by the Sunday gang and painted by the Wednesday gang with the whole project taking eighteen months to complete with only one wet week end during the whole period.

Photos by Andy Hope. *To be continued .* **Andy Hope**

Secretary's Report.

Looking through the Minutes of the recent Committee Meetings, we seem to have hit a quiet period. The AGM passed uneventfully with all resolution passed. The Open Forum only featured discussion on greater involvement in the local community and the summer training programme. This despite a record attendance at the meeting when 49 members showed up - usually we get about 35. I don't know what this represents as a message to the Committee but I hope it's positive. (Answers on a postcard to the Editor - he wants to spike up the letter column).

We had a change in the Committee with Mick Wadmore replacing Martin Long, who retires after 25 years service. This presented quite a challenge navigating the Company House web filing system to change the records but this is all now complete and the Annual Company Report has been made and accepted.

Mentioning Mick, prompt me to remember when I was able to congratulate him in the last edition of LINK on surviving a car accident without serious damage, except to his car. That was about 4 months ago. He then took delivery of a smart Toyota replacement and on parking it in the car park, proceeded to walk over to have word with a member mowing the new grass on the bank between the two tracks. Whoops, over he went, banging his head on the concrete slabs marking the edge of the cutting. Don Black to the rescue, stemmed the bleeding of a bad gash on Mick's forehead. Mick was clearly badly shaken but fortunately Bob Clarke (our very own paramedic) was on site. He took control and soon we were joined by an ambulance car and then an ambulance. It subsequently transpired that Mick had broken his left wrist and suffered shock as well as a really deep gash to his head . He is now out

of plaster and the gash is healing. I don't want to tempt providence by making any other comment! Just tread carefully. (*See "Letters to the Editor")*

In with the last LINK I enclosed a letter asking for support in organising club activities - what I described as "white collar" jobs. To my delight Ian Pryke has agreed to organise the winter talks programme. It needed a fresh approach and I am sure Ian will achieve that. We also want to develop the Children's Party programme this summer and at the time of writing we only have one booking. Fortunately Yvonne Chappell , a relatively new member, has picked up this challenge with the aim of getting some bookings. I know members who enjoy running their locos at these events will give her plenty of assistance.

Jon Mottershaw

Treasurer's Report

We welcome the following to our Society:-

Richard Crannis	Full
Joseph Crannis	Junior
Alexandra Crannis	Junior

Membership now stands at 135 including 14 juniors and 1 student.

David Cocks

Event Organisers Report

As you read this article we are well into the running season, although the weather has been very unkind to us. The visit we made to North London earlier this year was a great success. The trip was well supported. Looking around their site it was clear that in about twelve month time their ground level track improvement programme will have been completed. This work will put their track on a par with our own ground level track and I can see that we will be going back again, probably the year after next. That can be one event for your 2014 diary.

A visit to the Romney and Hythe Model Society has been arranged for later in this year. Check the notice board for details etc.

Getting back to things nearer home, I shall be continuing with the Friday night refresher training for both raised and ground level tracks. Check the notice board for latest update.

For those you who are not aware, I have decided to take over the task of arranging the winter programme from Jon Mottershaw. I have some ideas and have made a few enquiries for outside speakers with some responses. If anyone has an idea for a talk or if you have a talk that you would like to give then please do let me know so that we can sort out a date as soon as possible.

Ian Pryke

The Wednesday Wrinklies Report

The Wednesday members are as busy as always. There is a constant procession of wheelbarrows going back and forth to the heap of granite chipping's across the road. Rapid progress is being made by Jeff Lang and his merry band of helpers removing the old raised track bed and replacing the canvas underlay with a plastic membrane that weeds cannot get through. They are, as I write this report, working on the section passing through the steaming bays area and down to the foot bridge and the raised bridge ramps.

When the track ballast was taken up, a cable duct was laid across to the Walnut Tree steaming bay/holding road from the short steaming bay by the small raised water tank. You will now find a 12 volt power point for a blower by the paved area near the nut tree. If you are short of steam you can now use a blower to boost the fire without going back into the steaming bays. This addition was suggested by Eddie Carter.

Whilst this was being done, you could have seen Don Black laying face down on a raised track driving trolley, diligently weeding the remaining track bed. This he continues to do until he is forced to give up when someone starts to have a run, often Bob Clarke who is usually first out on track on most Wednesday's.

Eddie has also made some modifications to the hydraulic lifting table with an extension added to one end. This allows the steaming bay rails to be reached if it is used at the small steaming bay traverser, which some members seem to prefer. The other modification which has been made is to reinstate the lift out sections on the 3 ½" gauge rails in the steaming bays. This means that the fire grate on a 5" gauge locomotive can be dropped on any track in the steaming bays. This feature was available on the old raised track that we scrapped. There are now three lift out sections on the long steaming bay, one in the rails by the raised water tank, and two more in the nut tree bay.

I have now finished the rebuilding of the wheels and axles in the large ground level passenger trolley. Andy has taken over the rebuilding of the bodywork and is now working on the brakes and seating of the trolley. We should be able to give rides to the children on the ground level track when this work has been completed.

The family running day on the 4th June was a washout in every sense of the word. When I arrived on site at 2pm there were only three club members present, and one of these was Andy in the dry in the signal box. Martin Leigh was running round on his own on the ground level driving Firefly. There were no guests at all on site. As I had a party of my family with me who had travelled from Derby, I lit up the B1 and had the track all to myself for the day. We went home after running for 6 ½ miles pulling the children round, rather wet and cold, but we had a good days run. No doubt you were all watching the Jubilee on the television. I must be mad!

Lastly, the raised track signals were all put out by Mike and I for a complete test under running conditions. There are often three or four trains running on a Wednesday, but usually we only put out the signal before the tunnel entrance for safety where the track is completely blind. No problems were found.

Geoff King

A Steam Raising Blower

It always surprises me when I see members lighting up their locomotives with commercially made blowers costing up to £60. A blower is easy to make for just a few pounds, the only expense being the purchase of a suitable 12 volt motor from the local car scrap yard. A motor from a car heater is the ideal, being robust and with a shaft size of around 6 mm in diameter.

The general arrangement of an easily made blower is shown in Figure 1. Start with two pieces of steel sheet about 140 mm square. Mark out four holes in the corner on one sheet, clamp together and drill 5 mm diameter through both sheets. Mark out the centre of one sheet and make a hole 32 mm diameter to fit over a piece of 28 mm bore copper tube. Silver solder a piece of the copper pipe into the plate to form a boss to accept an adaptor to fit on your locomotives chimney. In the other sheet a hole is required centrally of about 25 mm to clear the impeller boss, The four 32 mm long spacers can be short pieces of tubing, (copper or a piece of steel rod drilled through 5 mm diameter is all that is required), with a length of studding passed through, 2 BA or M5 is ideal, with nuts on top and bottom.

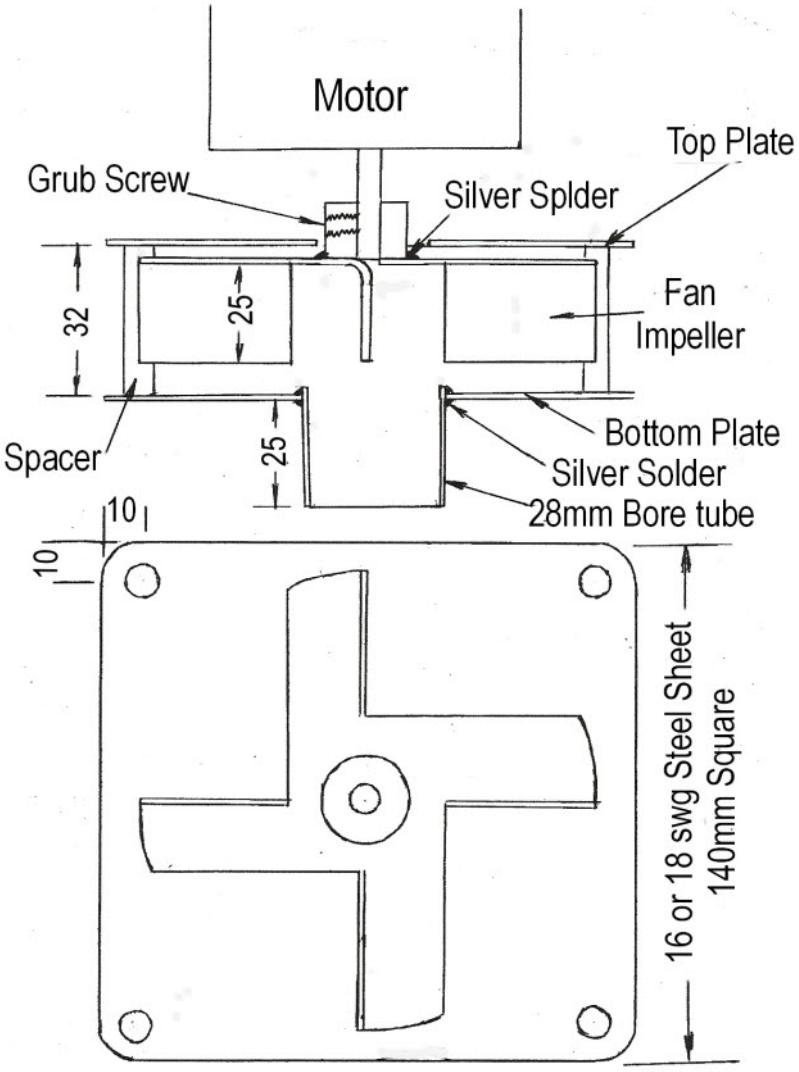


Figure 1
General arrangement

The fan impeller should be marked out as shown in Figure 2. Make four cuts with a hacksaw down to the centre line as shown. Bend the corners up to form the impeller blades and cut off the unwanted material to about 25 mm from the bend. File a small radius on all the sharp corners of the impeller. Silver solder a small boss in the centre of the impeller. The hole in the boss must be a good fit on the motor shaft and the grub screw hole is best drilled and tapped before soldering to the impeller.

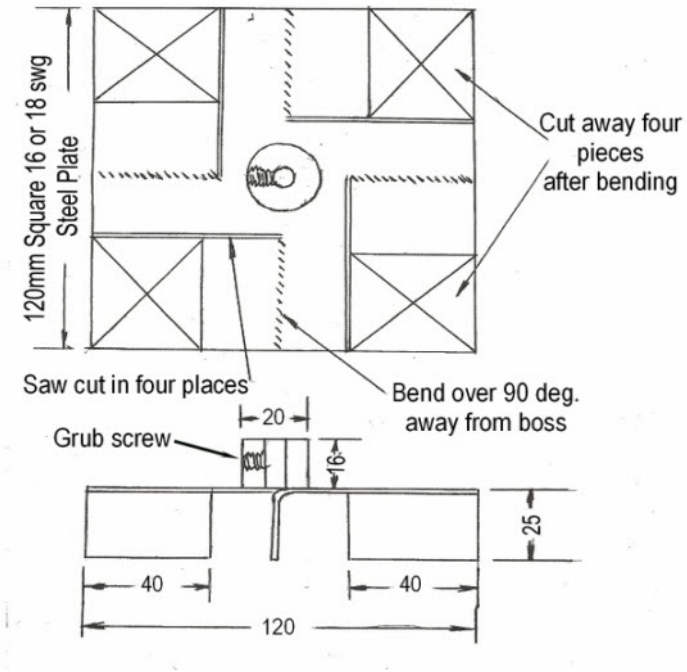


Figure 2
Fan Impeller Details

Now, and most important, the impeller must be balanced or vibration will shake your loco when lighting up. Put the impeller onto a piece of straight steel rod and then roll the impeller along two pieces of smooth wood or similar material set level. Unless you have been very lucky the impeller will roll back and forth until it settles in one position. Mark the bottom point and file some metal off at this position. Repeat the operation until the impeller will stop in any position. When this is achieved the impeller will be balanced well enough to avoid excessive vibration.

There now remains the mounting of the motor onto the blower body. How this is done depends on the motor design. Some motors have tapped holes and others have feet to mount the motor to the top plate. This aspect of the design cannot be finalised until the motor is available

This blower will light the fire in any locomotive from 3 1/2" gauge and up to 7 ¼ " gauge, with suitable adaptors to fit into the locomotives chimney. If anyone requires assistance with silver soldering I would be happy to assist on a Wednesday. Just bring along a stick of silver solder and some flux.

If you are concerned about the rapidly rotating impeller being open on the sides fold a length of mesh around the spacers to keep out little fingers. Providing the mesh is not too fine this will not affect the performance of the blower. It does not matter which direction the impeller rotates.

Geoff King

Driving Experience Day

In the last edition of LINK an announcement was included advertising a proposed visit to the Bure Valley Railway to enable members to experience driving a 15" gauge locomotive hauling a train of three or four coaches. So far only four members have expressed an interest. This would be an expensive day for only four people, if it goes ahead. Are there any more members who would like to take part? If we can get twelve people the cost comes down to £42 per head with everyone having a turn at driving the locomotive with an instructor.

If we can get two more names I will obtain a re-quote for only one run over the line. Remember that monies are paid up front when I book the trip and are not refundable by the railway. Neither I nor the Club are prepared to make a loss and no booking will be made until the number of attendees is confirmed. The date will be determined by the railway to suit their autumn time table.

Geoff King

The Museum of Power Easter Show

The Museum of Power Easter Show was held, as usual, on Easter Sunday and once again provided the first opportunity of the year for a CSMEE exhibition. The Museum again provided accommodation in their very substantial marquee and on this occasion also provided tables for our exhibits. This year the weather was not so kind to us as last year and the day was dull and rather chilly with occasional showers which became quite heavy. In spite of this the show was well supported by the public. This year we were anticipating sharing the accommodation with the Chelmsford Model Engineering Club but in the event the Chelmsford Club were busy running traction engines and other steam powered vehicles around the site and did not require space for a static display. By early afternoon the weather had deteriorated significantly and many of the stall holders in other parts of the site had decided to pack up and go home. This probably accounted for the considerable influx of visitors to the Museum

Our own exhibition was, in the writers opinion, disappointing. It was rather lost in one end of the marquee and although the usual band of stalwarts appeared to help steward the display there were fewer models on show than on previous occasions and those that were there had all been seen many times before. The display also looked rather scruffy with no drapes on the tables. There are many fine models within the Club – why do we see so few of them supporting Club exhibitions?

Editor

C.S.M.E.E. at the ALDHAM STEAM RALLY 2012

Once again the Colchester Society of Model & Experimental Engineers attended the Aldham Steam Rally on the 9th & 10th June 2012.

Photo - Mick Wadmore

This year, due to overhead cable working by the National Grid, the Rally was held at a new site in White Colne. This new site was large enough for the whole rally to be accommodated in one field.

We had intended to erect the clubs Gazebo on Friday afternoon but due to the very high winds (the Suffolk Show was cancelled); it was decided to postpone erection until Saturday morning.

On Saturday morning the wind was still very strong, but we managed to erect the Gazebo and by 10 o'clock our display was ready, but where were the public? Possibly due to the bad weather forecasts, Saturday is best described as a quiet day.

As the winds had dropped by late afternoon we decided to leave the Gazebo erected overnight.

What a change on Sunday morning! The sun was out, the wind had dropped and we enjoyed an excellent day with a steady number of visitors throughout the day.

Photo-Mick Wadmore

We had a large selection of different member's models on display on both days and these appeared to be appreciated by the public.

By 4 o'clock on Sunday afternoon the show had started to wind down so we packed up and we were off site by five.

Mick Wadmore

Letters to the Editor

Pressure Gauge Calibration Rig

Dear Sir

I have just been reading through the latest LINK again and when reading the article on pressure gauge calibration I remembered a conversation I had with Paul Beeby the other day. I commented that the 3/16" x 40tpi union connection was open to attract dust and whatever else is in the air in the workshop as that bench has many uses. When a gauge is connected and pressure applied any dust etc .goes in to the gauge. Would it be a good idea to fit a small cover either push or screw on? We thought as things easily get lost any cover would have to be perhaps secured to the rig with a small chain or similar. Just a thought and somebody may have suggested it already.

Bob Taylor

Editors note Quit right , Bob. Your comments have been acted on and a sealing plug has now been fitted to the rig with a captive chain. A protective cap has also been fitted to the main pressure connection, also secured with a chain.

Thank You

Dear Sir,

On Wednesday the 28th March 2012, I was climbing the embankment between the two raised level tracks on the east side of the Club's site when I lost my balance. I tumbled down the embankment, falling across the raised track and hit my head on the concrete slab retaining wall.

Fortunately, if such an incident can be called that, help was readily on hand.

Don Black tried to temporarily stop the bleeding from my head, and then Bob Clarke took over bandaging my head wound and supporting my left arm and damaged wrist in a sling.

Due to my condition an ambulance and paramedic was called to take me to the A&E Dept. of Colchester General Hospital. I was in the Hospital for nearly nine hours, where they set and plastered my dislocated and fractured left wrist, and dressed and stitched up (5 stitches) the gash in my forehead.

The reason I am writing this letter is not to brag about the injuries this old fool suffered, but to thank all of those club members who helped me when needed.

In addition to thanking Don & Bob I would also like to make a special thanks to Jon Mottershaw, who sorted out my car which was left at the club site.

It is at times like the above and what happened to me that makes me proud to be part of a Society whose members are both friendly and caring

Thank you Colchester Society of Model & Experimental Engineers.

Mick Wadmore

Jottings from the Workshop by "Artisan"

Finishing, Painting and Lining-Part 2

In Part 1 of these jottings I wrote about finishing those components of our models which are to be left in the unpainted state and the mechanical surface preparation of those to be painted. I went on to discuss the basic approach to the painting process and methods of application. Before thinking about the choice of paint and its application a few words on the subject of the equipment and facilities required would be appropriate. Much has been written on the subject and I will restrict my comments to my own approach and what works for me.

The Paint Shop

For many model engineers the paint shop will be their workshop. Whilst this is manageable it is not ideal. What is really required is an area that can be dedicated to the painting operation for as long as this may take with no other activity taking place in that area to upset the environment or raise dust, etc. This may involve a period of several months and it is not easy to isolate a dedicated area for such a period. I have in the past managed in the workshop, but only for fairly small jobs which could be completed in a relatively short time. These days I evict the car from the garage and set up a polythene curtain to section off the area to be used as a paint shop. A spray booth is assembled using a large cardboard box (Figure 1), its primary purpose being to restrict the spread of over spray, and a long trestle table is set up on which to place sprayed components for drying. An extractor fan would be a welcome addition but is not practical in my particular case. Another piece of equipment which I find essential is a simple turn table. This does not have to be a sophisticated device. In the early days of my painting career I borrowed my wife's cake decorating turntable and covered it with cooking foil to protect it from the paint. This is a hazardous procedure, however, and is likely to incur the wrath of management if the device ends up decorated with patches of Maunsell Green or Midland Crimson Lake! Better to make up a simple device of your own. Mine is made from large sweet tin lid with an old pulley used as a base (Figure 2).

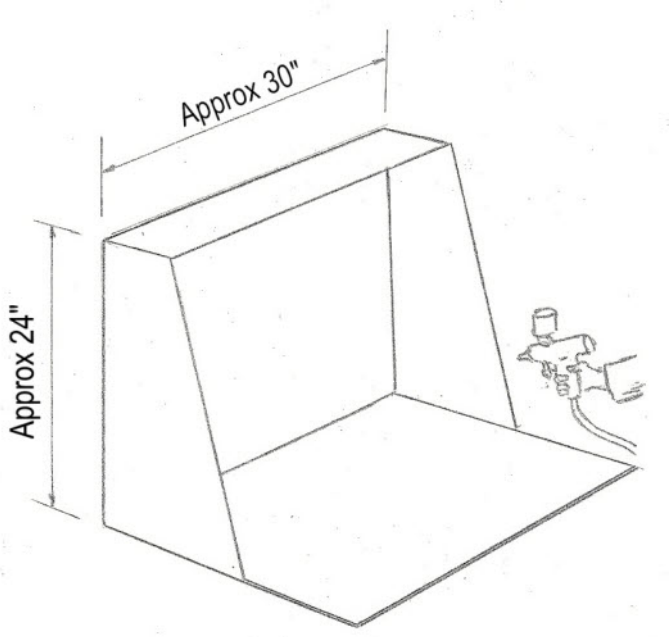


Figure 1
Simple Spray Booth

Consideration must be given to how to hold the items being painted. Many components will have holes in strategic places which can be used to hang the part up or move it using handles or supports bent up from lengths of stiff wire. I make up simple racks using a length of wooden batten with panel pins driven in at intervals of about two inches. Small components are hung on the pins to spray or after spraying to dry. Careful thought must be given to handling and supporting wet components before starting the job. It is very easy to spoil the finish because the part cannot be reliably supported while drying

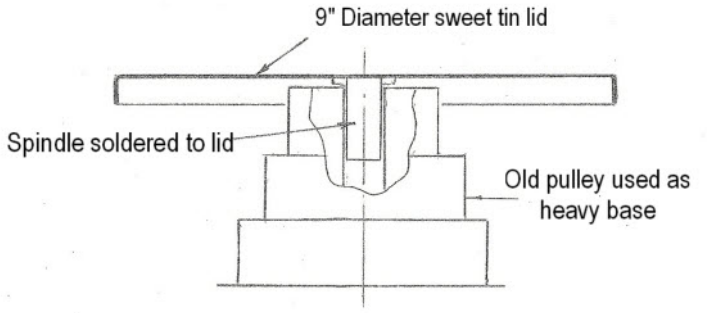


Figure 2
Simple Turntable

One of the enemies of a good finish is dust. Precautions are taken to keep this to a minimum by dampening the floor and keeping movement and draughts to a minimum. Another hazard to be avoided is insects, which have a penchant for self destruction by settling on wet paint and wriggling about as much as possible before expiring. An acquaintance of mine was very conscious of this problem so before painting sessions on his locomotive he would spray the area with insect repellent. When the locomotive was finished it looked fine but after a short time the paint began to fall off. The problem proved to be that he had failed to cover the job before spraying the insect repellent, which had contaminated the surface. Be warned – any form of surface contamination must be avoided including the oil vapour present in the atmosphere of the average workshop – one reason why the workshop is not ideal as the paint shop. Keep the job loosely covered at all times. I use large sheets of paper rather than fabric for this purpose as it can be more easily supported clear of the job to allow ventilation for solvent vapour dispersal and there is no risk of contamination with lint from the fabric. Do not be tempted to use old news paper for this purpose, however. It is not very clean and may shed ink onto the job.

Before leaving the subject of the paint shop and its equipment a few words on consumables. After each painting session there is always a fair amount of cleaning up to do – brushes to wash out, spray guns and air brushes to clean, etc. I find that a good supply of kitchen paper towels make far better wipes than rags for most of these jobs. A good supply of solvent is necessary for these cleaning up operations. White spirit is the most economical if using oil base paints such as Precision Paints or Humbrol coach enamels. These manufacturers supply special thinners for their own products which should always be used with the product itself but are unnecessarily expensive for cleaning tools, etc. If you opt to use another type of paint such as cellulose the appropriate solvent must be used.

Last but by no means least a few words on the personal equipment to be used in the paint shop. Most important is an adequate breathing mask. This MUST be equipped with filters suitable for the vapour of the solvent involved with the paint being used. A simple dust mask is not enough. Suitable masks can be obtained from car finishing material suppliers. You will, of course wear overalls while painting. Make sure that they are made of cotton or better still, paper and that they are clean. Don't use the same overalls that you were using yesterday on the lathe – they will be contaminated with oil and dirt that will spoil your painting. Wear a shower cap while painting. You may look a bit odd but no one else will see you. However clean you think your hair is there will always be the odd hair and flake of skin from your scalp which will escape and make a bee line for the wet paint. The cap will also keep any over spray mist from giving you a fashionable hair colouring! Finally, have a good supply of latex examination gloves available. These can be bought in boxes of a hundred for a few pounds and are essential for all aspects of handling the work to prevent surface contamination with grease from fingers and to protect hands from paint and solvent.

Choice of Paint

The next decision to be made is what sort of paint should be used. There are a wide range of possibilities from ordinary house hold paint to two part polyurethane and epoxy materials. Christopher Vine provides a comprehensive review of the possibilities in his book "How (not) to Paint a Locomotive." I can only comment with any authority on my own fairly limited experience. One of my early model painting experiences was a beam engine built many years ago. The engine was brush painted using Dulux gloss paint left over from a domestic project. It was fortunate that there were no large surface areas to be painted and the resulting finish was just about acceptable. Although the model was awarded a bronze medal at a Model Engineer exhibition some years later the paint finish was commented on by the judges as being a week feature. I have never adopted this approach again although I see no reason in principle why the type of paint used should not be suitable for model work if correctly prepared and applied. It was my (lack of) skill with the application process that was the problem! Having decided that spray application was to be preferred to brushing my next model (a hot air engine) was painted using aerosols. The main parts of the engine were painted with acrylic car touch up paint and the furnace, which was expected to reach fairly high temperature, was treated with high temperature paint intended for use on wood burning stoves. Both of these materials came in aerosol form. The result was entirely satisfactory but I did not feel properly in control of the application process. As I remarked in Part 1 of these jottings, the only control over the spray process is the speed at which the spray is passed across the job. Personally I found this unsatisfactory. The next step was to invest in an air brush and subsequently a small (mini) spray gun. With the move to air brush and spray gun I adopted synthetic coach enamel as my chosen medium, using products by Precision Paints or Humbrol. One of the advantages of these sources is the availability of authentic colours for models of specific prototypes. An important characteristic of the paint used on a working model such as a alive steam locomotive is its ability to stand up to the working environment – fairly high temperatures and thermal cycling, contamination with oil, water, coal dust and ash and continual handling. I have found that, providing reasonable care is taken in looking after them, these coach enamels satisfy these requirements. More on after care later. One area where many paints fail is on a locomotive smoke box. I have used high temperature paint designed for use on wood burning stoves on some of mine and this has proved entirely satisfactory after many hours of steaming. The paints I have used for this purpose come in aerosol form, dry with a matt or satin finish and require baking at a fairly high temperature to harden them. I have used the domestic oven for this purpose, but it is advisable to seek management permission for this! Precision Paints claim that their coach enamels will withstand smoke box temperatures and for my most recent model I have used their gloss black enamel for the smoke box. Although the model has only been steamed for about twenty hours at time of writing there has been no deterioration in the finish, which has maintained its full gloss.

Before leaving the subject of choice of paint a few words about etch primers will not be out of place. It is a well known fact that ordinary paints will not adhere satisfactorily to non ferrous metals and that these should be treated with a self etching primer before attempting to apply the system primer, undercoats and gloss finish. This requirement applies almost regardless of the type of paint system adopted. I say "almost regardless" because the high temperature paints referred to earlier are usually applied direct to the metal with no primer or undercoat. Two types of self etching primer are available – single pack and two pack. I have tried both types as supplied by Precision Paints. Superficially the single pack product is the simplest to use. In practice I found it almost impossible to spray and finished up applying it by brush. This is not the problem it might seem since the material itself is quite thin and only a very thin coat is required so brush marks do not show through subsequent layers of paint. In

practice I have found the two pack etch primer much easier to use and, I suspect, is probably more effective. It can be sprayed easily and, provided the spray equipment is well cleaned as soon as the job is finished there are no problems. Although the use of etch primers is essential on non ferrous materials it undoubtedly helps on ferrous material also and I now treat all components that are to be painted in the same way.

Surface Preparation

Mention has been made of the type of paint to be used for the finishing of the job and of the initial etch primer to be applied. Most finishing paints require a primer or undercoat to be applied before the final finish. The colour of the final finishing coat will be influenced to some degree by the colour of the base on which it is applied and to ensure a perfectly uniform finish the whole job should be undercoated with the same base colour. My own practice is to apply a coat of grey primer / undercoat followed by a coat of white primer / undercoat. If any rubbing down is found to be necessary (and it almost certainly will be) the appearance of the grey during the abrading process indicates that the white layer of paint has been rubbed away and rubbing down must be halted in order to prevent damaging the underlying etch primer. Once the white primer / undercoat has been applied and lightly rubbed down a few minor defects may become apparent. In Part 1 of these notes I made the point that "good finishes come from underneath" and that the surface of the job should be prepared mechanically to the highest standard possible. If this has been done properly there should only be very minor corrections necessary at this stage. If necessary I use a two part polyester filler applied over the white primer, rubbed down and coated with more primer. As already mentioned, great care must be taken never to rub right through the layers of primer to bare metal as this will destroy the etch primed surface. When all of the surfaces of the model are a uniform matt finish and you are satisfied that there are no more defects it is ready for finish painting.

We now have the model well prepared for painting. Next time we will think about application

LINK No. 42 - November 2012

Articles and reports for the November 2012 edition of LINK should reach the editor by Saturday 20th October. If being prepared on a computer the preferred format is Microsoft Word for text and jpeg for pictures and drawings. Material may be sent by e-mail as attachments (not as part of the e-mail itself) or provided on DVD. If you are not a computer addict hand written copy is acceptable. If in doubt, give me a call – I am here to help!

Coming soon! Details of a sharpening jig for small drills
Ian Pryke is going to tell us about his gun barrel transporter wagon
Part 2 of Graham Austin's industrial autobiography

Plus all of our regular features. Start writing your contribution NOW ! Time passes very quickly

Editor

Winter Programme Reports

Most of the winter programme was reported in the previous edition of LINK. There were, however a few events remaining in the programme after the publication date, as follows:-

March 2nd

Our resident paramedic, Bob Clark, took charge of the evening to teach us some basic first aid skills. Bob started by advising us all to carry 300 mg of Aspirin on our person to provide some self help first aid in the event of suffering a heart attack. He then went on to explain that our brains begin to shrink from the age of about twenty five and by the time we reach sixty five they are likely to rattle about in our skulls and be damaged should we have a violent bang to the head. Such an incident should be dealt with by a visit to A&E for a check up. (*At this point one of the audience was heard to say "I wish I hadn't come"!)* Bob concluded his talk by dealing with the subject which had promoted his talk in the first place as a result of an incident at the Club – how to deal with wounds and stop bleeding. We were advised that size *is* important and that, where dressings are concerned small is beautiful! More specifically, the size of a dressing should suit the wound and should be capable of applying pressure on the damaged area. Too large a dressing will fail to do this and not be effective in controlling bleeding. A good number of questions from the audience indicated that those present had gathered much useful knowledge which they hoped never to need.

Editor

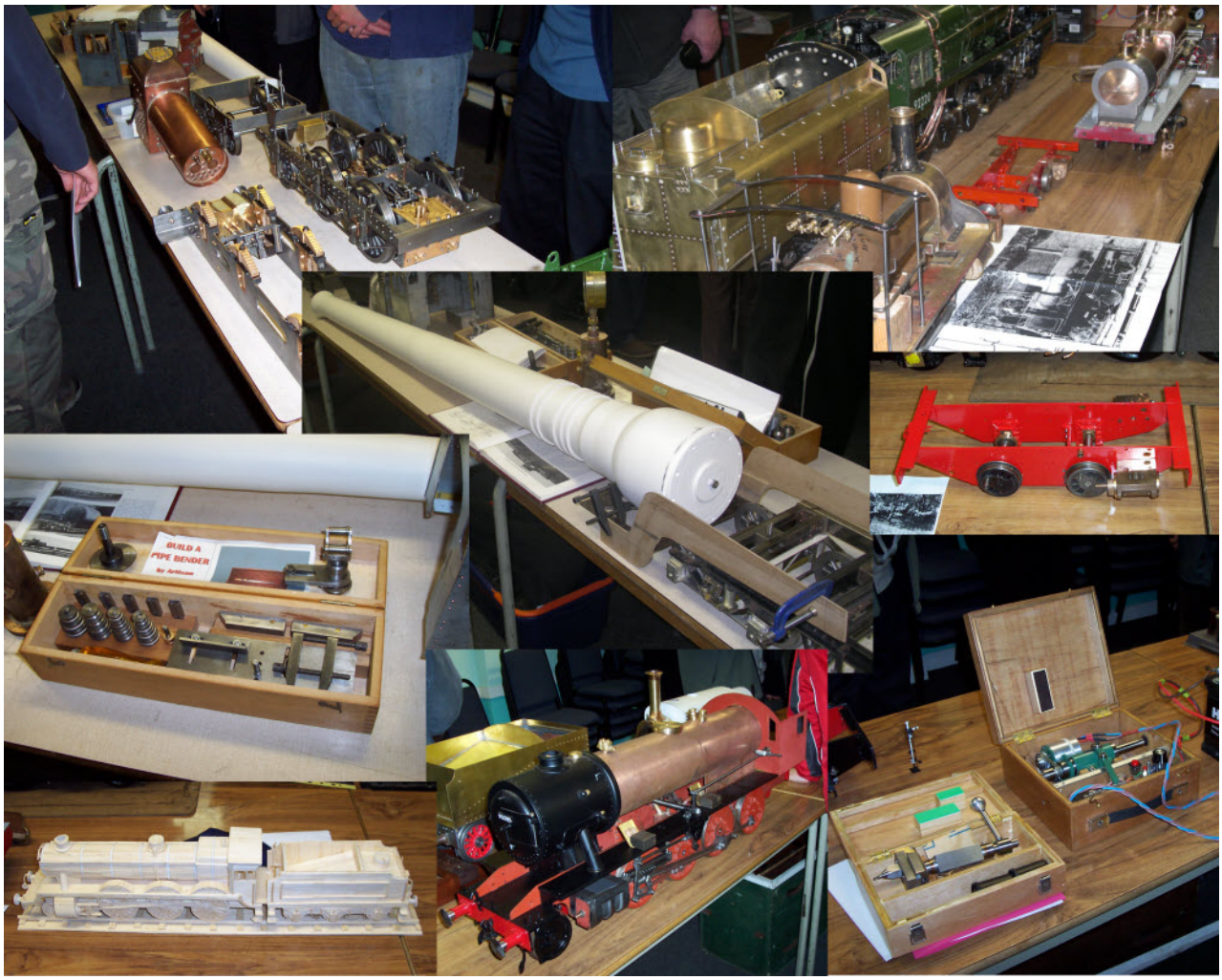
March 16th

On this occasion Martin Long addressed the assembled members on the subject of "Cold War Artillery". During the period 1946 to 1991 Western military powers were engaged in a continuous stand off with Eastern Bloc countries across what Churchill had defined in his historic 1946 speech as "The Iron Curtain". Martin explained how NATO had prepared for anticipated Warsaw Pact countries military action by deploying extensive conventional weaponry along a long North-South front across Europe. He explained the particular roll that artillery would have played in the event of such action in generally disrupting the advance of enemy forces and destroying morale. Martin described details of the artillery weapons employed during the period and concluded his presentation with a MoD training film illustrating the use of these weapons. As a lay member of the audience one was forced to the conclusion that had a physical conflict developed it would have inevitably have become nuclear and the conventional weapons would have become ineffectual. It was undoubtedly the fear of just such an escalation that prevented such a conflict.

Editor

Models Night 2012

Models Night this year was held on Friday March 30th. The report on the 2011 event commented on significant marine interest on that occasion. Not so this year. With the exception of some interesting examples of special tooling the projects on display were all railway orientated with all but one being locomotives in various stages of construction. The exception was the special naval gun barrel carrier wagon being constructed by Ian Pryke. This will be an impressive vehicle when finished and hopefully Ian will be providing us with details of its construction in an article for LINK in due course. One of the smallest locomotive exhibits was an embryonic 3½" gauge TICH chassis by Kevin



Charmen, seen dwarfed by surrounding 5" gauge exhibits in the picture. Another interesting locomotive model was Ian Laycock's matchstick model, built, Ian tells me, while he was unable to carry out more conventional model engineering.

Keith Wraight showed a spherical turning attachment and a high speed tailstock drilling spindle. The drilling spindle was fitted with a variable speed motor and was demonstrated in operation by Keith. Both of these tools were finished to the very high standard we have come to associate with Keith's work and were provided with their own stowage cases. Mike Gipson also showed small drilling and grinding spindle attachment powered by an air motor together with a pipe bending machine to the design by "Artisan". The use of this pipe bender was originally described in LINK number 32 and the design was published in the Internet based magazine Model Engineering Web Site.

Editor

INDENTURED

A tale of old time learning in industry

Episode 7

Although still known as the 4BK gang they were now constructing 'L' type engines one batch after another -- the boy felt that he could assemble a 4L engine in his sleep. Nevertheless, this was not altogether bad news; most of the experienced fitters with whom he worked were of the opinion that the piece work rates that were being paid for the 'L' type were better than they had expected. Naturally, this did not concern him as much as it did them but there was no denying that the extra money came in handy. After all, he couldn't get all the parts that the Morgan needed manufactured in Dorman's!

Whilst they still built the occasional 4BK engine, interest was heightened when they were asked to build a batch of 6Ks. This was the largest and most powerful engine that Dorman's built at that time. In fact, it was a modernised version of the 6DL engine for which George was making the sumps in the foundry – and as previously mentioned was the basis of a large order for the Ministry of Supply. (MOS). The engine was sold to them as a generator set complete with its own fuel tank, radiator and control panel – the whole thing being mounted on a skid type frame.

Initially, the Ministry had asked for a thousand hour test at full power to be followed by a strip down whence key components were measured for wear. Needless to say there wasn't any; so the Ministry then asked for a two thousand hour test and strip down but again there wasn't any wear. Finally, the Ministry requested a ten thousand hour test and strip down but again, the only wear that could be detected was the loss of some fine grooves on the needles of a race used in the oil pump drive. This was mutually agreed to be of no significance and so the engine was simply re-assembled and sold as a new one!

It became clear that other firms were competing for the same contract when a strange engine appeared in the erecting shop -- a 'Russell-Newbury' by name. This was apparently manufactured in Dagenham, Essex and the only reason that it was in the erecting shop was that it had failed one of the Ministry's tests and Dorman's were required to remove the generator from it and send the engine back to its maker. The engine was unusual in that it had a clerestory cylinder head; that is to say the valves were horizontal and facing each other. This plan was an alternative to the usual swirl port and toroidal cavity in the piston.

These generator sets and some smaller ones were finally run on full load for about four hours ; for this purpose they were positioned at the top end of the test house and ,therefore, all but in the erecting shop. The electrical output was fed into a resistance cage (sometimes called a load bank). In winter this was something of a bonus in that the warm air discharged from the radiator was directed straight up the erecting shop thereby saving on the heating bill. Dorman's were nothing if not canny.

Meanwhile, back to the 6K engines on which the two boys were carrying out the usual water jet and steam lance business of cleaning the crankcases.

On the 6K the cylinder block was a separate entity. Unlike the DL engine it featured wet liners which were retained by rubber seals and the clamping effect of the cylinder head. This design was favoured on account of the improved cooling resulting from the close contact the water had with the cylinder walls. It was also considered that the water jacket could be arranged to reach further up toward the cylinder head than was possible with an integrally cast construction. These one -piece blocks were

delivered to the erecting shop by the usual Lister truck. It was the boys' job to crane these off the Lister and place them down somewhere safe pending further assembly.

Unfortunately, when lifting one of them off the Lister they were unlucky enough to just catch the base of one of the cylinder liners on the edge of the wooden pallet upon which it was to rest. It was an end cylinder and had now popped out of the top of the block by about one inch. They quickly tapped it back into place using a wooden beam. Having decided that the incident had passed unnoticed they agreed to say nothing-- after all the liner seals would still be moist with the lubricant used in the cylinder shop to insert them in the first place.

In due course the four engines were complete and were dispatched to the waiting area pending their being run in the test house.

The boy's time in the erecting shop was now drawing to a close and he expected to move to the test house within a week or so but somewhat to his surprise he was told by the foreman that he was required to do a short stint in the area of the shop which was used to build up the power packs and generator sets. As already mentioned, this part of the shop was adjoining the test house. From his new vantage point he could observe some of the activity therein -- not all of which was precisely the kind of thing the management had in mind. Additionally, being so close meant that they were now subjected to much of the din that emanated from that establishment.

Another facet of this gang was that it was under the care of the somewhat aloof charge hand Mr. McFie. All the same, the boy was not displeased at this move; it was already clear to him that a different kind of fitting was called for here – much of it to do with pipe work, sheet metal and some electrical assembly. The gang were very pleasant to work with but he found that there was more tomfoolery here than he'd ever experienced on Mr. Phillip's gang; and this in spite of the somewhat dour McFie.

Because it was still part of the erecting shop he was still located in an area that was on the route between the experimental and the drawing office and so Julie was destined to pass from time to time. Naturally, seeing him now to be in a different area she stopped by to ask him what was afoot. He explained what the foreman had said; pointing out that it would be a short stint of possibly three weeks or so. Again, when she left him he had to put up with the usual cacophony from the youth in the vicinity. (Because he was now some distance from the 4BK gang a fresh set of recalcitrant youth was in the offing). Nonetheless, he still enjoyed a peculiar feeling of inward warmth when she was with him. Although they met casually in this manner from time to time -- he was beginning to feel that it was becoming imperative that he moved things on a bit. In other words he wanted to ask her out.

For reasons that he could not wholly understand, he found it extremely difficult to broach this subject with her. Why this was so he was at a loss to explain– after all he'd taken girls out before, albeit casually, and found it no more difficult than arranging to meet up with his pals.

And so it was that he spent many days mentally rehearsing exactly how he would put this notion to her. The imperative element derived from the fact that there were plenty of other young men around who may well be nurturing the same idea. After all she was a very pretty girl. Thus the thing began to take on a degree of urgency – this was not helped by the fact that he would not dare to ask her in the vicinity of his workplace. (Too many prying eyes and even prying ears).

Unfortunately, the experimental shop where she worked was not the kind of place you could just walk into – it was something of a 'holy of holies'. In any case, the problem of others close by would still

remain. Meanwhile, whilst hoping a suitable opportunity might present itself, he applied himself to his new line of work. Much of this concerned piping up things such as oil coolers. These connections were usually made using what were locally known as Wade couplings. These consisted of a copper sleeve which was a good sliding fit on the pipe itself; on tightening the brass nut the sleeve was trapped between it and the union body but if dismantled was found to be tightly attached to the pipe. No sealing compound was ever used and the joints had to withstand full oil pressure. They were never known to leak. On the other hand he had recently watched a plumber doing some repair work for his landlady and noticed that the plumber's joint was not dissimilar to the Wade except that the sleeve was brass and appeared to have a spherical outer surface. Significantly, the plumber swathed each joint liberally with a compound called Bosswhite and went on to explain that he did this to avert any weeping. The boy wondered about this, figuring that the plumber's joint probably cost more anyway !

Sometimes they were required to fit certain gadgets to suit the customer —one of these was an oil flow meter which was fitted anywhere in the external oil pipe work where it was considered easy to see. He thought that this item took top prize for pure uselessness.

The thing was heavily advertised in the appropriate journals of the time as being a saviour of disaster in the event of an oil system failure. It consisted of an inverted glass bowl mounted above the body which had connections for pipe work in and out.

When the engine was first started a silver ring could be seen rotating inside the dome. However, after about two hours of running the oil had absorbed the air above making it difficult to see anything. After the engine had run a bit longer the oil became darker and the ring was totally invisible. Of course, in the event of an oil pressure failure the engine would be ruined in seconds anyway and the idea that an operator would keep his eyes permanently glued to this thing was fatuous –even if he could see the ring in the first place. (All that was needed was a solenoid shut down working in conjunction with a pressure switch). Nonetheless the fitment of this item was frequently requested but Dorman's were unhappy about it. (After all it was they who received the complaints as to its ineffectiveness).

In due course it was reconstructed with a horizontal tube in lieu of the ring -- this just clearing the inside of the glass. Two steel balls were put into the tube and as it rotated they traced a path which remained permanently visible. I t was unlikely that Dorman's ever told its makers of this modification.

It was about this time that Mike (his friend on the 4BKgang) came by to discreetly let him know that the engine with the popped out liner had leaked badly on test. Clearly their attempts to put it back were futile. It seemed that the blame went to the cylinder shop. The boys didn't feel good about this but resolved to stick to their previous plan of keeping silent. When all was said and done, it was a bad policy to move such cylinder blocks about the factory without protection against such an event. Who could say just how often the internal transport system didn't do something similar? All it needed was a steel bar clamped across the top during transit.

The gang leader on the power packs was a Welshman by the name of (inevitably) Taffy Thomas. Although professing an air of diligent authority the boy suspected that some of the tomfoolery on the section was inspired by him. A frequent practice when distinguished visitors were conducted around the works was for someone to dart out swiftly from behind any available cover and paint the visitor's heels with silver paint. Sometimes the Managing Director also was granted this 'privilege'. As usual, the culprit was never caught.

Strangely the same thing was practised at the largest factory in Stafford –namely English Electric – it seems that when Nikita Khrushchev visited in the sixties, his heels were so treated.

The boy had still not managed to put the question to the girl but at least had reached a state of resolve in the matter. It so happened that one afternoon he was wandering down the main corridor of the factory to see his friend Harry about some more bits for the Morgan when he was pleasantly surprised to see Julie coming towards him. Fortunately, this main corridor was quite wide and so there was no question of any eavesdroppers being around. After a brief initial greeting -- with his heart thumping away -- he launched into his carefully prepared line of approach – asking her if she would like to come out with him one evening but he had not got very far when he noticed the Experimental 'second in command' running toward them with a piece of paper in his hand. Breathlessly, he asked Julie to take this document at once to the drawing office to be included with the material she already had. Naturally, this incident put an end to his proposal as she dashed off on her mission.

The snag was that in retrospect he was not sure how far he had actually got with his message. Had he got far enough for her to realise what he meant? He feared not and felt weighed down with a feeling of having messed things up. Once more he was taunted with doubts; it might even be that she already had a boy friend – he was fairly sure that there was no such candidate within Dorman's but what about the world outside? And so our hero wandered home that night feeling somewhat down in the mouth. After all, the fact that she visited him at his place of work didn't mean all that much – in her mind it was probably just one apprentice happening to visit another. So that evening he got stuck into his homework for the college and at least that took his mind of his immediate worry.

Next morning he was at his appointed place trying to complete the wiring to the starter on a power pack when an elderly lady came up to him. He knew that she worked in the assembly shop but couldn't imagine why she would be approaching him. In fact, she said little but handed him a folded piece of paper saying that Julie had asked her to pass it to him during the morning. He waited for a moment until he was on his own and undid the slip. It said, 'Dear Edward, if you were asking me what I think you were – prior to the interruption—the answer is yes, where shall we go?' It was signed 'J'. On reading this cryptic 'billet doux' the boy was elated. He couldn't really tell anyone else but decided to go and see his friend Harry – he felt he had to do something. Walking to the capstan area he felt that it was like walking on air.

Later in the day Julie came by, he joined her and they walked together to stand for a moment just outside of the building. They agreed on a rendezvous and decided to go to the Odeon Cinema the following evening which was showing: 'A Street Car Named Desire'. For him, the next day passed in something of a dream but at last the evening came and wearing his best suit (his only suit) he met her as planned. They slowly walked together to the cinema and once settled within he presented her with a one pound box of Maltesers – she thanked him but insisted that they shared them.

About halfway through the film he cautiously put his arm around her and she responded by resting her head on his shoulder; then he rested his on hers and thus they spent the rest of the evening. The only thing now to disturb their feeling of mutual happiness being the decision as to who would have the last of the Maltesers. She resolved this adroitly by jamming the last one in his mouth even whilst he was speaking. Reflecting on things the next day he realised that he couldn't remember much about the film at all. But then, after all he was in love and better still - so was she.

Paul Davies

Vintage Carriage and Wagon restoration at the Bluebell Railway.

As many of you may already know I have a soft spot for possibly this Countries real Premier line, the London, Brighton and South Coast Railway. My interest was kindled before I went to school when my mother would take me to a short length of railings adjacent to Streatham Common Station and let me watch the steam engines rush past on the Brighton main line. This interest was further enhanced at 11 years old, when I found that my Grammar school was situated tightly in the 'V' where the LBSCR and LSWR split to the south of Clapham Junction.

When the Bluebell Railway Preservation Society was founded I was a bit too young to be involved, I lived far away in the depths of South London and was also too impoverished to be able to afford to visit the Railway, except for the occasional push bike ride into deepest Sussex to look at the railway, but not to travel on it. I was determined to become an active volunteer on the Railway when I retired. This opportunity came about some 5 or 6 years ago after early retirement. So one Tuesday morning I presented myself at the Carriage and Wagon Works at Horsted Keynes and expressed an interest in carriage restoration.

"Have you any professional skills" I was asked.

Well I had been through an Undergraduate Apprenticeship some 40 plus years ago but the time spent in machining situations was a bit on the light side. Since then I had spent the last 25 years or so either sitting, bored in front of a computer screen or swanning around Western Europe from car assembly plant to car assembly plant attending meetings. I said that I had done a bit of modelling in 5" gauge, some motorcycle restoration and could do a bit of metal work, and a bit of woodwork. I was duly given a test piece. I was asked to make a guard's door bolt retaining plate, for a LBSCR 3 Compartment Brake Third, wow quality work! Two where required. I suppose they thought if he makes a complete pig's ear of it we have lost nothing. I managed to completely renovate the original I had been given, and cut a new matching part to make the pair. I found the shot blaster, cleaned the pair up and gave them a coat of paint. That took about 2 hours. Unbeknown to me it was expected that I might take most of the day. People smiled at me.

Photo - Eddie Carter

This is a typical piece of wasting on a body panel, It would have originally have been around 3/32" thick. The entire skin of the coach will have to be replaced on this Bullied Coach.

I was then asked to do a small woodworking job. I looked at it and said with confidence "yes, no problem, I will go and get an angle grinder" – all went quiet, had I said the wrong thing? Nobody smiled at me. That was the first and last woodworking task I was to be associated with.

At that particular point in the C&W works there were a number of skilled woodworkers but not many metal workers. I soon found myself toning up all my skills that I had used in building 5" gauge engines and extrapolating them to 4' 81/2" gauge. From that point

on host of dormant metalworking jobs came out of the woodwork.

One of the things that interest me with the Bluebell is that the railway has a philosophy of running sets of accurate historic trains. The aim is to produce and run some 5 sets of coaches

.

1) The Pullman set

A completer Pullman train is up and running and capable of high quality catering (and associated cost). This set is up and running, and is now kept under cover at Sheffield Park in a dedicated catering service area. It is a major revenue earner. Unfortunately one of the cars, Fingal, which was restored some ten years ago came into the works recently for remedial attention to leaks and was found to be pretty rotten above the waist line entailing major rebuilding.

Phot-Edie Carter

This vehicle shows the stripped out body of 'Fungal', sorry 'Fingle', thePullman undergoing serious work to replace the rotten roof. Unfortunately although the vehicle was fully restored some 10 years ago standing outside

2) The bread and butter train.

This is a set of BR Mk1's wherever possible running on roller bearing axle boxes. This set will bear the brunt of the service train loads. The steel bodies of these vehicles have a have a habit of rusting from the inside as well as the outside.

As the skin is 3/32" thick, patches can be welded in, until the point comes when complete panels and their internal rotting support pillars have to be replaced.

There are still some BR spares left around and also there is a Company in the north of England will supply pattern parts for many applications.

3) The Late Southern Railway train.

A set again of coaches, which are Southern Railway, some designed by O.V.S.Bullied, the CME . These are metal skinned on wooden framing. Although not starkly old in appearance they are some 60 years old. These vehicles also suffer from rusty metal skins, but in this case the supporting pillars are wooden, hence replacement pieces can be glued in to restore the strength.

In the case of these coaches the water management systems leave much to be desired. Rain water will become trapped inside the coach and hence starts the rotting process.

Now for what I see as the really historic coaches.

4) The Early Southern Railway train.

These coaches are early SR steam stock constructed on a wooden framework.

Also included in the set is a LBSCR full first coach and a SECR birdcage brake. These coaches were so named after the guards observation windows built onto the roof.

There is much more wood used in the construction of these vehicles.

Some are metal skinned and some are of completely wooded construction.
These wooden coaches suffer badly from the elements with the wood expanding and contracting with temperature variation. All vulnerable woodwork joints are sealed with modern industrial sealants to enhance the weather proofing but the weather wins in the end. It is a bit of a spinning plate job. keeping these vehicles up to scratch.

5) The Chesham Set
Possibly the pride of the Railway,.
These are 4, panelled bogie coaches constructed in teak by Ashbury for the Metropolitan Railway in 1879.
A theme running through the Bluebell's history is one of abject poverty.

Photo-Eddie Carter

SECR 3363 is an example of a finely restored Birdcage Brake. This vehicle is privately owned By Bluebell member Trevor Rapley

These coaches were purchased from the underground soon after the railway was up and running at a rock bottom price as they were pretty nearly life expired. The railway worked them into the ground and pushed them into a siding. The condition of them deteriorated and at that time they really had no commercial value to the running of the railway. It was suggested at one point that the burning and scrapping of the lot ought to be seriously considered. Common sense prevailed and over a period of 16 years a complete restoration took place. A supply of suitable teak was source from scrap laboratory benches that the railway acquired. They are now stars of films and television and frequently used for period dramas
.

One of my earliest jobs was to turn and fit bushes and sleeves to the brake bows and associated ironwork of the very last bogie to be renovated. After my work was finished I left the bits by the coach which was supported on a pile of old sleeper, less its' bogie. When I turned up the next week the bogie had been assembled, fitted to the coach and the coach was on the main line in revenue earning service. That gave me a very deep down warm feeling.

5) The Stroudley 4 Wheeler train
Going further back in time a train of 5 LBSCR Stroudley 4 wheeler coaches is now being restored. This will run correctly behind Stepney or Fenchurch. The Bluebell has recovered over the years the following grounded bodies: 2 Brake Thirds, a 4 Compartment Full First and 2 Open Full Thirds. Unfortunately it missed acquiring a family saloon that was part of a South Coast bungalow home.
The Full First is in revenue earning service, one of the Brakes is 90% completed and mounted on its dedicated underframe and a Full Third has been dismantled and manufacture of the necessary replacement timbers is progressing in earnest.
As the bodies are being renovated they are being fitted onto shortened PMV under frames. The PMV under frames are usually 32' long and the coach bodies a standard 26' long. Shortening the under frames is quite a task involving removing many ¾" and 7/8" rivets moving all the bits along 6' and

riveting it all together again with red hot rivets. On the way through any badly wasted bits have to be replaced with new sections.

The restoration team for these vehicles has been led by Mrs. Sheina Foulkes who is herself a very accomplished and knowledgeable worker in the exotic and expensive timbers that are used. Teak is almost unobtainable in the form that we require it so Iroko, Utile, and Opepe have all been tried with varying success.

These Stroudley coaches were constructed to a very low weight to enable them to be used on the South London line running between London Bridge and Victoria, on very lightly laid rail ballasted with shingle and be pulled by Stroudley's masterpiece Terriers weighing a mere 22 tons. There is a lot of timber that has been subject to the ravages of time and needs to be renovated or if necessary replaced.

6) SECR non bogie coaches.
It will also possible to construct a similar train of SECR non bogie vehicles. Already a Brake 3rd number 114 has been restored and is in service. There is also a 'Peoples Millennium Project' coach running.

A National competition was held some 2 years ago to find a suitable recipient for grant of £50,000 to fund a worthy community project. The Bluebell's proposed project was to take an extremely unoriginal 4 wheeler SECR coach, accurately restore 3 compartments of it and convert the other end, which had seen service as a guards van, into wheelchair accessible area for disabled people to experience the discomforts of Victorian travel. If it was up to me I would have left the carriage steam heaters out.

We won the competition. That was the good news. The bad news was that there was a 12 month time limit to complete the job and thus collect the money! Under normal circumstances 3 years would have been good going for a complete soup to nuts restoration. A fluctuating core team of around 8 metal bashers, and other dedicated people with complementing skills set about the under frame and except for the steam heating (which was fitted latter) and some miscellaneous metal work jobs we rolled the body from its accommodation under frame onto the shortened and renovated one 7 months latter, and breathed a sigh of relief. The vehicle looks most imposing in its maroon livery.

Photo-Eddie Carter

Two happy chappies, on the left John Wilkes (also of Crawley SMEE) and Andrew Breeze (also of Worthing SMEE). They are leaning on the fully renovated and shortened under frame for the Peoples Millennium Coach The culmination of 1/2 a years work

A 5 compartment SECR third body has now taken up that work space and the body is being renovated. SECR coaches of that period were much more substantially constructed than the LBSCR ones, and as a consequence the Wainwright engines used to pull them weighed 38 tons and had a much higher coal consumption. An acquisition last year that is waiting in the wings is a SECR 6 Wheel Family saloon; I think that is 38' long. A lot of the original etched glass and many moulding's are still intact.

.Over the last few years an anomaly has crept into the equation. A number of extremely early

LBSCR coaches have come to light and to the railway. These date from the 1850's. Arun Council have a policy of eradicating dwellings built around old railway coaches as they regard them as a fire risk. There is now a grapevine of dedicated enthusiasts combing the South of England in an attempt to identify and where possible to save these historic vehicles. We now have the remains of 4 in our possession. The technology used in the construction of these vehicles is generally very simple. The restoration to a condition suitable for public service of these very early vehicles is severely hampered by their construction method. Many had a sort of monocoque construction with a one piece of wood doubling as body side rail and sole bars. They also had no brakes at all let alone facility for fitting continuous air or vacuum brakes. They did have the rather attractive feature of the roof being covered and made water proof with Russet Hides, and not that new fangled canvas stuff! This is a coach building technique dating from Roman times. I believe that with these vehicles there would be great difficulty in making a serviceable and representative train that would meet current safety standards. As a historic railway line the Bluebell just like all the other lines, still has to comply with the relevant Parliamentary legislation

Other Historic Vehicles.
The Bluebell has around 70 items of rolling stock. I believe that about 35 are serviceable. There is a lot more work out there.
Any one out there interested in helping?
In writing this article I have attempted to give an insight into the flavour of the work that is going on at the C&W Works at Horsted Keynes, and I can assure you that after a day of setting 40 -¾" dia. hot rivets with a pneumatic rivet gun one is very glad to arrive home, (via The Blue Boar PH of course).

Eddie Carter

Confessional

We have all heard the advice "measure twice and cut once". I have just learned the hard way that it is also a good idea to look twice before doing anything! I am in the process of making the smoke box for my "LION". This is in the form of a cylinder to form the smoke box proper with an outer wrapper extending down between the frames. I rolled up a cylinder of brass for the shell and rolled two rings to insert in each end to locate on the boiler barrel and the door plate respectively. The rings were silver soldered into the shell and the ends machined true ready to receive the outer wrapper. So far so good – I thought. I sorted out a suitable piece of brass sheet for the wrapper and proceeded to true up the edges in the milling machine. It was only when I came to check the width of the strip of material required for the wrapper that I realised with a sickening sinking feeling that I had made the smoke box shell a quarter of an inch too short! I had read the dimension off the drawing as 2 ¼ " instead of 2 ½ ". After spending an hour trying to think of ways of redeeming the situation I accepted that the sensible thing to do was accept the inevitable, scrap the job and start again. I may have been able to bodge the job up and no one (except me) would have known, but the fact would have remained that it was wrong, and I would have known!

Norman Barber

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In our game no move is the same, Heavy and wide we can provide

We have a number of Transport units catering for all your needs. The latest addition a DAF 90T double Drive unit has a carrying capacity of 58T and is

cross rail compliant and LEZ compliant.

Some of our challenges

History in the making, a 26.5 Ton Crank Shaft lifted out of the Dover Harbour from a Paddle steamer sunk in the war. This was cleared to allow entry of the larger cruise ships now entering the waters.

Transportation of a Recovery tank used to refloat landing craft in the war after they had been beached. Unusually for a tank, the crew included a diver whose job was to attach towing chains to stuck vehicles which were either towed or pushed back into the water.

ANY JOB BIG OR SMALL SET US A CHALLENGE AND GIVE US A CAll