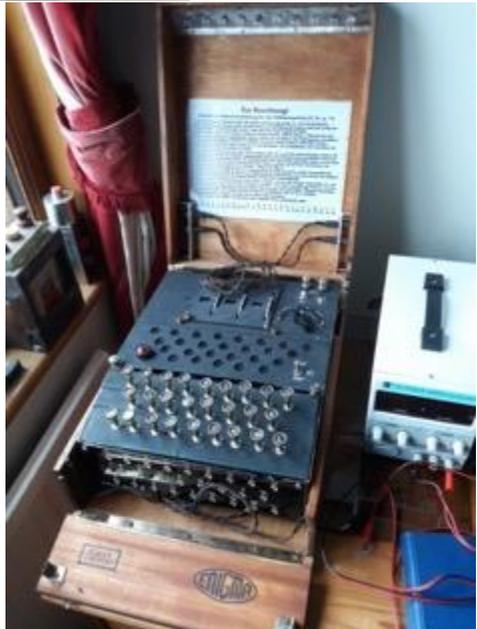


**HALESWORTH & DISTRICT
MODEL ENGINEERING
SOCIETY Ltd**



Winter 2020/21
Newsletter



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Non-Committee Posts

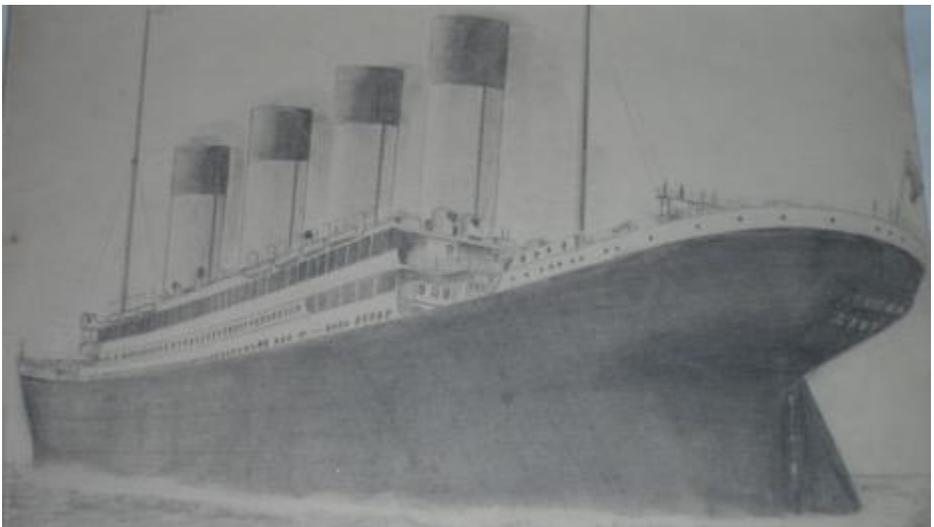
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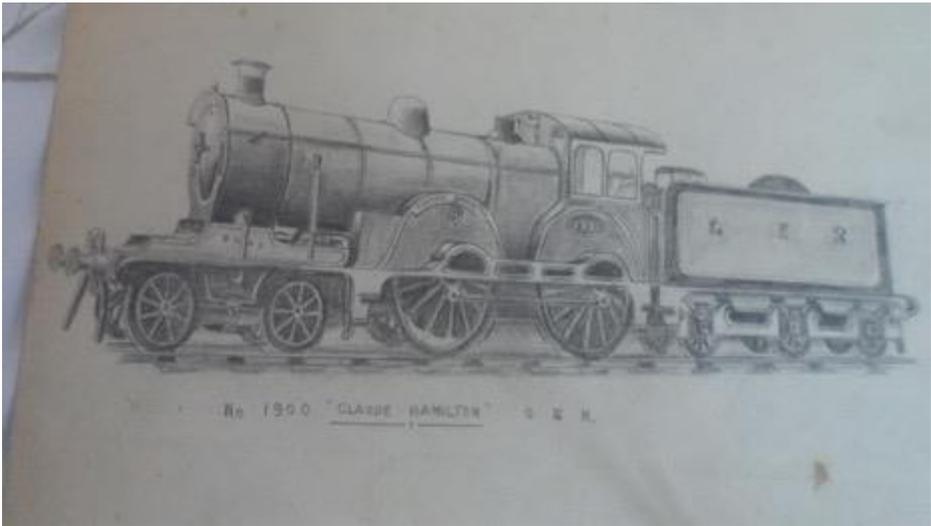
Cover Photos and Article Barry Lain

For three years, on and off, I have been trying to make an Enigma Machine. As I got more into it I had a few changes of direction, but finally, last Christmas, I chopped it up, in a constructive way, and started to rebuild it so it at least looked like an Enigma. I picked up my 4th set of 3 blank code rotors, because assembling them was the most difficult part of the job. After many hours spent, I have got them to a reasonable state of efficiency and after curing many small bugs in the complicated wiring it does work. It's not an absolutely accurate model, as I have compromised in its operation so as to more easily be able to demonstrate it working. I was intending to display it at the 2020 Lowmex exhibition. I was going to attempt to give a demonstration of how this was used by the Germans during WWII, and give an outline of how its codes were broken by our code breakers at Bletchley Park.

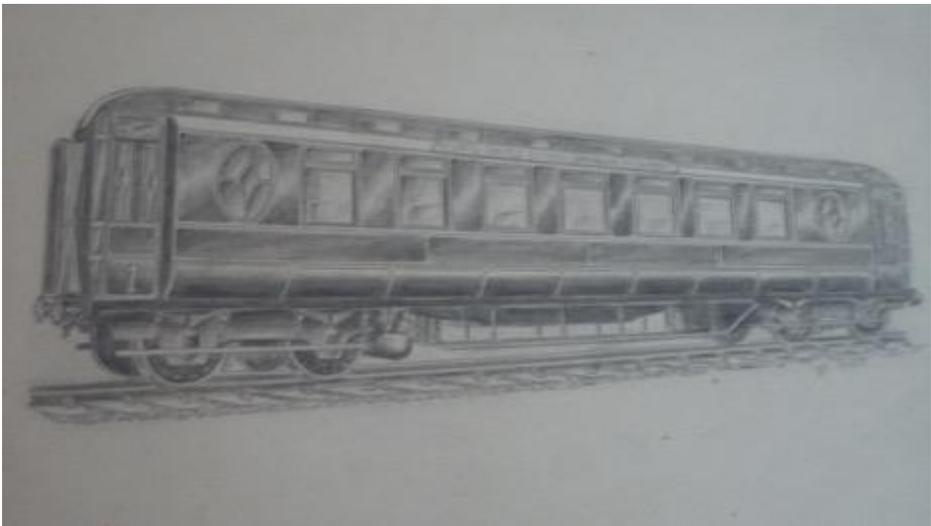
Unfortunately, I have to commence my notes to you all with some sad news. Some of you may remember Bill Morris, a member of the club who passed away quite a few years back. He regularly helped at the Henham Steam Fair for many years and he built "Butch" a tank locomotive. After he died his family gifted the loco to the club and it was decided to name it "Bill Morris" in his memory. Sadly, I have to tell you that his wife Mary has recently passed away. Since the last newsletter, we have lost another long-standing member of the society. Keith Rickard, who was a close friend of the late David Harbour, passed away in October, having been poorly for some time. You must all remember Keith who, together with David, made a great team helping the club at our outside events, giving steam train rides to the public. Keith was a well liked and long-standing member of H.D.M.E.S, and he will be greatly missed by us all.

Here we are in lockdown again and with not much going on. I was puzzling over with what to write in my article when I began to wonder how many of you became interested in steam and especially railways. So, I will tell you what started my interest with steam trains. Many years ago, my Father showed me some of his many fine pencil drawings that he mostly drew when he was in his early to late teens, while still a schoolboy; just a few years before the start of The First World War, in which he served. He not only drew trains of the period, but also famous ships including "Titanic." He also designed a complete railway system for the British Isles with maps and time tables. I have his drawings to this day. I have included three of his drawings in this article, which, as you see, are very detailed. So, can you wonder I was hooked at a very early age?





The drawings are of the “Titanic” (previous page) which he drew in 1911, the year before the ship’s sinking. There is a drawing of the GER locomotive “Claud Hamilton” (above) and a drawing of a smart wooden railway carriage of the period (below).



My first train set was a “Trix Twin” with an 0-4-0 tank loco and three carriages, a circuit of three rail track and a controller, which was laid out on the dining table. Over many years the hobby has grown beyond my early expectations into what I have today. I know that my Father would have loved to be a member of our society, and experience the enjoyment that I get of being part of H.D.M.E.S .

I am sure that many of you started in a similar way, but it would be good to know your stories. Please bear this idea in mind and consider writing a piece for a future newsletter. I am sure that there would be much interest for our members to read.

I sincerely hope that you and your families are keeping well during this current lockdown and we must try to be positive and look forward to a better time in 2021. I also will be most interested to see what projects all of you have been working on in your workshops. Please stay safe and well. All the very best to you.

Secretary's Scribblings

Brian Sinfield

It cannot be denied that at the present we do live in very difficult and contradictory times. Everyday ordinary things, simple things that we would just take for granted are now out of reach. Helen and I have not seen, in the flesh that is, any of our family since March. We are blessed with good friends who would pop in, unannounced, for coffee or just to pass the time, so there always seemed to be something going on in or around the house. (Or the workshop.) But not now. The quietness, the lack of people in the street, it just all seems so strange, surreal almost.

For me, the silver lining among these storm clouds continues to be hours spent in the workshop. I must admit to having taken a liking to making workshop tools and Hemingway kits in particular continue to keep me occupied. (Not to mention my credit card.) I have just started on the Versatile Dividing Head, and have the Universal Pillar Tool with extras to keep me going as well. I don't know about you, but I do like to have a couple of projects on the go at any one time. If I get stuck on something, or am waiting for tools or materials, I have something else to be getting on with. There is also that roundabout where you make a tool, but then find you need another tool to finish that tool off, and guess what, to complete *that* tool you also need another.....and life goes on; but probably not at the pace we are used to.

The loco looks a bit sad at the moment, but the light under the backburner hasn't gone out; it's just very low. It won't look anything like a Sweet Pea or, for that matter, a Metre Maid. I very much like the outline of some of the German narrow-gauge engines, so that is the direction I am looking in at the moment.

I write these *Scribblings* half way through November, but I sincerely hope you all had a happy, and above all, a healthy Christmas; and I hope we can all look forward to better and happier things in 2021.

With kind regards to you and yours, keep well. Best wishes from your Secretary.

Membership Subs 2021

Gary Edwards, Treasurer

At the moment we do not know what will happen in March regarding the AGM, when subs for 2021/22 are due. The subject of subs has been discussed by the committee though, and a decision has been made reflecting the unusual circumstances we have all been in.

A big thank you to all members who paid their full membership fees last March. As an acknowledgement to your loyalty to the club, the committee has decided to halve the subs amount you will have to pay for 2021/22. This is a one-off loyalty offer to members who paid full membership subs' for 2020/21 membership and does not include new members or lapsed members.

All subs are due in March 2021, (even if payment was made late this year because of unseen circumstances) so this issue of the Newsletter is the last before payment is due at the AGM (maybe, who knows). Check for any activities and up to date information on the website www.hdmes.co.uk

One-off loyalty membership payments for 2021/22 are shown in red all other regular payments are in black.

Please pay relevant subs amount during March 2021

Full membership **£40 (Loyalty £20)**

Senior membership (members who are 75+ at the date of AGM) **£30 (Loyalty £15)**

Associate membership **£10. (Loyalty £5)** Junior membership **£10 (Loyalty £5)**

Paying by BACS (the direct way of paying from your bank account to HDMES account) and it is free. You will need to set up the payment online from your account, and will need to fill in the following areas:-

Payable to – **Halesworth and District Model Engineering Society**

Sort code – **20 92 08**

Account no. – **10449350**

Amount – **refer to membership subs list above.**

Ref. – Please enter **your name** and if there is room, the word subs (e.g. G. Edwards subs) Your name is the important part, though, as without that reference I will not know that it is you who has paid.

Each membership subscription needs a separate payment. So, if you are paying for someone else, e.g. your wife as an associate member, then they need a separate payment and reference.

Your bank statement is proof of payment and your receipt, but if you email me at treasurer@hdmes.co.uk to say that you have paid, I will respond when the HDMES account has been credited. I will then contact Peter Joyce, the new Membership Secretary, with your membership details.

If you are unable, or do not wish, to pay by BACS, then please send a cheque. Cheques should be made **payable to HDMES (not to me)** and should be sent with a **covering letter** with your name, address, phone number and email to me at

Gary Edwards, 6, Fenlands Crescent, Lowestoft, Suffolk, NR33 9AW

When I receive your cheque with your contact details, I will acknowledge receipt and pass your renewal details to Peter Joyce the new Membership Secretary. If you want a written receipt then please enclose an SAE.

If you are also paying for someone else on your cheque, then the cheque can be made out for the total amount, but please write the other person's name and details, as well as membership status, as well as your own details in your covering letter.

What did you do during lock down? Brian Read Article and all photos.

Coping with a divorce after 46 years was bad enough, but when the lock down hit as well, well that seemed to be the final straw. I realised that, to keep sane, I had to get back into the workshop. Most of my machines had been shipped elsewhere so the first thing was to get them all back here again, as it seemed highly unlikely that we would be able to sell up and move for some time.

My attentions were drawn to the chassis of a 7¼" Wren that I had acquired from Alan Thorndyke some time previous. He had bought it from the Bury sale some years ago and realised he was never going to have the time to complete it, although he had bought the boiler and made the smoke box and ash pan. So, my first job was to make up and fit the s/steel grate that pivots to empty the ash out. I had to modify the plans to enable this to be removed, if needed, at a later date, as the ash pan is fixed to the bottom of the boiler and once that's in place then no way could it be removed without removing the boiler. Countless hours were spent getting that to work.

Next, as the regulator is quite a complicated affair in the smokebox end, I decided to use a lever valve at the cab end. (Photo 1 below) So the steam pipe was used as a

sleeve for another steam pipe, from the lever, to a fitting in the smokebox that would supply both cylinders. I also used a black iron double swept tee for the blast pipe, this was a bit tight but it worked. (Photo 2 below). My Bagnall has a similar design, but outside the smokebox instead of in it. Again, countless hours were spent getting that right.



Photo 1

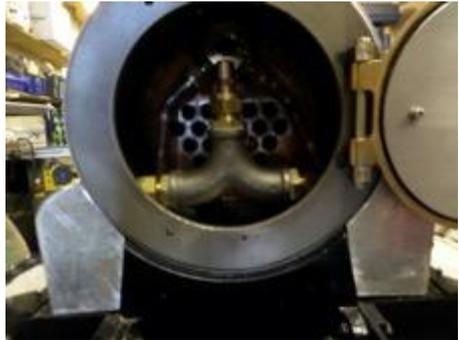


Photo 2

Next was the boiler lagging and I used balsa wood for that, which once again took several hours to complete, but does make a really good base for the brass sheet to wrap around and, of course, makes for really good insulation.

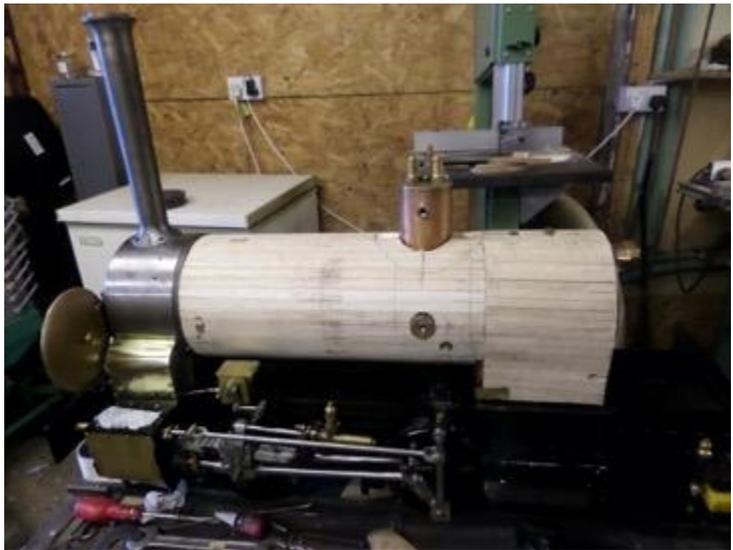


Photo 3

Next, the boiler was fitted with different rear supports, as this newer style boiler had different fittings to the original drawings.

I next set about making the cab using brass sheet for the roof and front and trying to use anything I had in stock. The saddle tank is made from food grade stainless steel

and cost an arm and a leg when that was made by a firm in Eye, Suffolk, and the rivet details are all dummies on a copper strip wrapped around the tank.



Once everything had been fitted in place it was time to strip it all down again and off to my paint sprayer mate for painting in Brunswick Green. To save time I had primed everything in etch primer, including the chassis which I went on to spray in black gloss. (Photo 4 left).

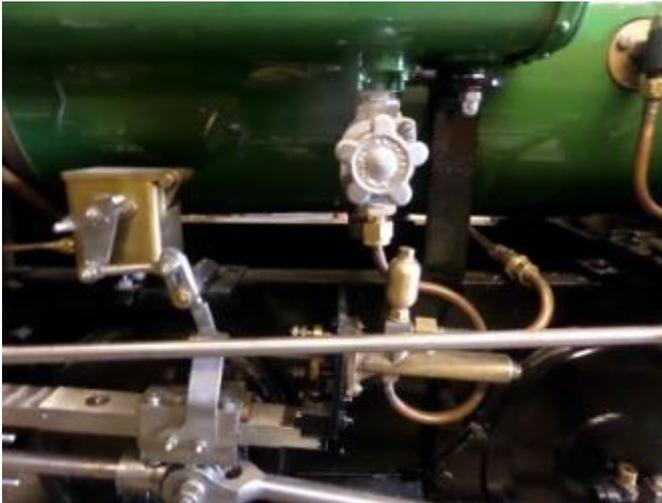
Everything came back and after a couple of weeks for the paint to harden it was all built up again, very carefully I might add, and again after many hours and loss of sweat etc. it was back together. In the meantime, I had modified a Hunslet Milner firebox door to fit. It was a nice cast iron casting that really didn't need that much altering and does look the part (good old eBay). Once



again, packages and parcels were arriving here daily. (photo 5 above).

Some modifications were made to the steam turret to enable the new method of getting steam to the cylinders to work, and the turret casting was modified to accept different pipework etc. (photo 6 left)

Next job was to pipe everything up. It has a cross head water pump that is controlled by an on/off wheel valve, which is linked to a hand pump that feeds one clack valve and the water feed coming from the saddle tank. A steam injector feeds the other clack valve with the water feed coming from the tender that I modified to a quick release fitting (photo 7 below).



The toast rack and couplings came from C.M.D engineering.

I've just given a very brief story of what's been done, as I'm sure you all know there are so many things that have to be made etc. the club mag would not be big enough to get it all in.

As stated at the beginning the chassis was bought originally

by Alan Thorndyke who, after lockdown, ended up spending a lot of time here making bits and pieces, so I can't boast and say "this was all my own work." We were both glad of each other's company but sadly I must report Alan had a severe stroke some weeks ago and is recovering. I hope he recovers soon as I miss him dearly.



As time goes on I can't really see myself ever putting down the 7/8" track again and as I don't know where I will end up I ask myself, "will I really want to anyway?" With that in mind I find myself starting to make models in 7/8th scale and buying up PECO 45mm track and points from eBay (photo 8 left). This scale is slightly larger than the 16mm scale, it represents 7/8th of an inch to the foot instead of 16mm to the foot. (7/8th scale is

1:13.7 - 16mm scale is 1:19.05) Engines and rolling stock are limited at the moment but this scale is growing in strength, and 45mm track is most commonly used with

this scale as it represents 2 foot in full size. Accucraft makes three live steam models for this scale, one of them being a Wren and one a Bagnal so that's why I decided to go for this scale, something a bit different to the norm.

My dear old friend, the late Don Webb, once told me years ago, "at some point these large engines will be a problem" and he was right, I can see in the very near future I will be selling all my 7¼" loco's, rolling stock and track.

But all that needs doing now is to get Wren tested. I have a rolling road that it could be run on as I no longer have over 1000 or so feet of track here to run it on but, as things are at the moment, no one knows when we will ever get back to normal.



The Finished Wren, photo 9, above.

I Had an Idea for a Project. Barry Lain

After I had completed my 22month restoration of a 1932 Riley 9 Monaco Plus Ultra vintage car, that used to belong to Jim Marshall, who lived next door to the club, (that's a tale for another time) I thought about building my interpretation of a cyclecar.

These cyclecars were small, cheaply made, simple vehicles which were briefly produced between about 1910 to 1925, when so called 'proper cars' for the mass market were developed. I followed in the footsteps of those pioneers who started by building these cars in their sheds.



The project started when I came across a 300cc Norman generator engine and an old chassis, meant for some kind of motorised cart. I then started to collect 19inch motorcycle wheels and a gearbox from an agricultural rotorvator. I found lots of other useful items, such as parts of outboard motors,

mostly from my neighbour, Jenny, who needed her large shed cleared.

I then visited Andy Tiernans vintage bike shop, and fell in love with a 1914 ABC Bradshaw horizontal air-cooled twin cylinder engine, that I was able to buy, and which now forms the heart of the car that I call BAZ.L.



During this 2020 lockdown I have brought it to the testing stage, and on Monday 2nd Nov, on Ellough airfield, (photo,

next page) I made test runs which have been very successful and helpful. The development continues.



By the way John Child from the club is making a series of YouTube video videos about Baz.L. Part 1 is already on YouTube, search Cyclecar BAZ.L. [Editor's note: the YouTube video is well worth 5 minutes of your time]

Problems and Mods to a Chinese Milling Machine Kevin Rackham

The work on my 5" gauge pannier tank, Pansy, got delayed recently, due to the spline on my milling machine jamming up. This required a complete strip down of the head assembly to find out what had caused the problem. The only thing I could find that jammed the spline, was a long burr from the original machining. (3mm wide x 40mm ish long, sorry didn't take photo) this had worn and picked up and doubled back on itself, quality Chinese features !!!!! (In fairness I have had the mill for 19 years). Photo 1 (top of next page) shows some of the other burrs that had been left on the splines after the original machining. These were all cleaned off and the sides of the splines were also cleaned up, to reduce the roughness of the machining. The female part of the spline was also deburred but was nowhere as bad as the male spline.



All the parts were degreased and cleaned using white spirit. I was somewhat amazed at the amount of casting sand that had been left in the castings, this can all wash down onto and into the bearing surfaces causing accelerated wear (possibly a Chinese design feature 😊).

The bearings were showing signs of wear, so I decided to change these as well. On the spindle bearing housing, it is designed with two large slots machined through it for driving out Morse tapers. My mill has an R8 taper and hence has no provision for Morse tapers (this appears to be a standard design so that different spindles can be used with the same bearing housing). However, what these slots do allow, is for any swarf/foreign bodies etc. to enter these slots and drop straight onto the top of the angled roller bearing, which by design have no seals of any sort.



There was enough clearance between the housing and the spindle to allow a bush to be inserted, to block off these two slots. I machined a steel bush to be a press fit, I also put in a small 1/8" oil hole to enable the bottom spindle bearing to be lubricated. This was pressed in so that the oil hole aligned with the top of the original slot (Photo 2 above).

The spindle housing is not hardened hence the clamping over the years had bruised the housing which also didn't help the smooth running up & down of the spindle assembly. I oil stoned off the raised areas (photo 3 right). The milling machine was then re assembled and tested ok.



Whilst the mill was stripped apart, I had noted that the spindle locking mechanism, that caused the bruising, consists of two cast iron bushes that have a 45° angle cut on the end. These are forced together by the locking handle, clamping the spindle. Because of the straight angular cut, this produces a ridiculously small area that clamps, hence the damage. I decided to make up replacement clamping bushes from Phosphor bronze with a curved clamping area the same radius as the spindle housing.



A length of bronze was put in two vee blocks and clamped in the machine vice. Clamping the bar in the machine vice ensured that the bar was aligned to the table axis. The bar was then clamped down to the table above the vee blocks. (the set up and machining is shown in Photo 4 left. The bolt sticking out of the back of the boring head is to reduce the boring head imbalance).

To set the radius of the fly cutter correctly. Centre the axis of the milling head on the edge of the bar at the centre height of the bar and zero on either the Digital Read Out (DRO) or on the cross-slide dials allowing for backlash. Then change to the boring head, move the table of the milling machine away from the bar by the same amount as the radius required, lower the fly cutter to the centre height of the bar and advance the flycutter tool to just touch the bar and lock in position. The curve was machined to the correct depth (worked out from measuring the gap between the spindle and the back of the head casting).

The bronze bar was then removed from the milling machine and cut into the required lengths. I have made them longer to fit the headstock casting rather than just copying



the originals. The bushes were then put in the lathe faced off to length, drilled and taped as required. Photo 5 (previous page) shows the completed bushes and the original cast iron ones. The shiny area on the grey ones shows the original clamping area.

The other bugbear on the machine is that the machine has a round column hence if you raise or lower the head you must re-align the datum to carry on any machining. (E.G. when drilling a large diameter hole, centre drill, pilot drill, raise the head re-align and then drill the large hole, a right pain in the proverbial). I had not come up with or seen anyone else's ideas how to get over this. During the summer I was talking to a good friend about this problem. His mate had had the same problem and he had put a laser pen on his machine that aligns with a vertical line at the other end of his workshop, what a brilliant idea. I ordered the laser pen when I got home.



The laser pen was mounted on the mill out of the way on the bottom of the guard. The guard proved to be too flexible hence the stainless bracket (photo 6 left). The brass shield with a small hole in it is to reduce the diameter of the laser beam. I suspended a plumb line from the ceiling at the other end of the workshop and align to

this. It works very well, I can now move the milling machine head up and down within a few thou, plenty good enough for drilling large holes/general work. For very accurate work the datum still needs to be reset up with Dial Test Indicator etc.

Painting and Lining – Part 2 by the late Adrian Prescott for The Link, April 2008

Primer

Primer serves a very important function on our models; it helps the top coat 'stick' to the metal and also acts as an undercoat to help us recognise any minor blemishes

that we have missed earlier. Generally, plastic models do not need primer, but a waft of it will help to identify blemishes just the same as metal models.

On metal models I use self-etch primer, thinned with one measure of the special thinners and one measure of cellulose thinners to one measure of the paint. I use Precision single pack, but others are available. I do not generally use car primer as it is designed to lay down a thick coat over a car panel, which is massively larger than our creations. It is very easy to put far too much paint down and obliterate the detail you have so lovingly included.

When you are ready to paint take your model out from under the cover and give it a good brushing with a clean dry half inch brush to remove any stray bits of dust. I use a good quality airbrush with a proper compressor. However, I used a £5 Humbrol airbrush with compressed air cans from Badger for many years – until I turned professional and the work justified the expense – so don't feel you have to fork out large sums just to get a good finish. Once you have got used to spraying your models you will be unlikely to revert to major brush painting.

The trick with primer is that it should be thick enough to cover the metal, but no more. Self-etch primer needs 24 hours to cure so put the model back under the cover and leave it. We now come to the vexed subject of Paint.

Paint

There are various types of paint available including cellulose, acrylic and enamel. I will talk about Precision and Humbrol enamel paints, which are what I use.

If the model is to be lined, or transfers are to be applied I use gloss enamel. The only exception is goods vehicles, which I usually paint in either satin or matt enamel. I use gloss because it is easier to line on (and correct errors on) and it takes transfers much better, particularly waterslide.

For spraying I use a 50/50 mix of well stirred paint and ordinary white spirit. Be careful not to put too much paint down, but equally make sure that you have a full coat on with no bits missed. Inside corners and behind handrails are favourite places to be missed. The ideal you are seeking is that you are just on the verge of getting runs in your paint, but it is just holding itself together. It is far better to stop and put it away under the cover and come back tomorrow and recoat where necessary than risk a run. Explaining how to spray paint a model is a bit like telling you how to ride a bike, but once you have learned the balance you will never forget how to do it!

Again, we have to think about the first P; Preparation. Unless it is a plain black engine, it is important to think about the ease of masking off one colour whilst another is sprayed. In general terms I paint the black parts of an engine first as the smokebox, cab roof and platform are easier to mask than the boiler, splashers etc. It is important to make sure that the first paint is fully dried before you go near it with masking tape, this can mean several days. Remember that there is no point in rushing the job now. I use Tamiya tape as it is low tack, very thin and available in several different widths. If I need to add paper to a mask, such as covering a carriage side whilst I spray the roof I attach the paper to the Tamiya tape with ordinary B & Q masking tape. Just make sure you never use that directly on your model as it can easily pull paint off.

As soon as you stop spraying your second colour and before you put the model away you should remove the masking carefully. I do this now for two main reasons; you can immediately see if there is any 'creep' of the new colour under the tape so that you can remove it and secondly it reduces the step between the two colours and prevents the tape pulling the new paint off along the edge, as it could do if it was dry. Getting rid of the paint creep is exactly the same as correcting flaws in lining so we will deal with the subject at that time. If you have used Humbrol masking fluid at all then that should also be removed carefully before the main paint has had a chance to form a skin. Again, you could damage the surrounding paint if you wait for it to dry before removed the masking fluid.

Once again put the model away and if all is well it can be left for a week to harden properly before lining. The next part can strike terror in the hearts of otherwise stout men, Lining and the use of 'The Pen'.

Lining pen

I do my lining with a draughtsman's bow pen and I use neat, thick Humbrol gloss paint. I own, and have used, Bob Moore's lining pens, but I can get much finer lines with my bow pen. I also have a compass bow pen that it not only used for circles like wheel tyres, but is also used for edge lining such as cab fronts, tender frame cut outs etc. The secret is in the tip of the pen. If your pen will not draw with undiluted Humbrol gloss then the tip of the pen is not right and it must be dressed to make it work correctly.

My favourite pen is of an unknown pedigree and when I got it the blades were so badly set that they were actually out of line with each other. Now that I have dressed it I can draw very thin lines consistently. Equally price is not everything as I also own a Haff bow pen which today would cost about £80 and I can't get the same results out of it because the blades are too long and flexible. Ideally you need

shortish stiff blades to get the best results. The tip should form a smooth parabola and the blades must touch only at the tip when the adjusting screw is closed. When looked at end on the blades should be as sharp as a blunt kitchen knife; we don't want to cut the paint but we don't want to make thick lines, there should be no sharp edges anywhere. All the dressing and adjusting must be done to the outside of the blades with the insides only getting a polish with crocus cloth if necessary.

I mentioned the use of thick Humbrol gloss paint for lining. Matt paint has talc in it so is inherently gritty and will never flow as well as gloss paint. However, we don't want our paint to spread when it leaves the pen so it has to be sufficiently thick to stay just where it is put with no tendency to flow sideways. A brand new, properly stirred tin of Humbrol is too thin and must be allowed to lose some of its solvent before it can be used. One method is to carefully open the tin and discard the thin top part and use the rest of the tin. The paint should just about hang on a cocktail stick and be quite treacly in consistency. You only need a single drop in the pen and once you have adjusted the blades you will be able to draw beautiful thin lines as the thick paint actually pulls itself out of the pen once the line is started. Don't press on with the pen, it's not like using a Biro, just let the paint emerge as you steadily draw your line.

OK we are flushed with success but we can't do the corners on our tender lining with pen, so what do we do? The use of a gloss paint body colour ensures that we can correct over length lines or minor blemishes easily. Just take a good quality fine sable brush, I use a Windsor and Newton Series 7 '000' size, and dampen it with white spirit and dress the line back to where you want it to be. It is vital that you do not have a wet brush as it will cause the line to flood sideways. This same technique is used to remove stray colour after removing masking tape when spraying. I use the same type of brush to carefully brush in the curved corners. Do not buy fine brushes from hobby stores; get them from a proper specialist art shop and they will last you if you treat them well. Currently the brush described above costs £7.20 and it should last you for years. [Part 3 will be in the next Newsletter.]



Avery Hardoll Petrol Pump

Robert Buck



This is a full-sized replica of a model S Avery Hardoll petrol pump, that I made during the lockdown. I made it because it reminded me of the 60's, when my dad would fill up at the local garage. I would watch the hands go round and a bell would 'ting' on every gallon.

I saw old pumps for sale, but they were £1000's of pounds, and the globes were too, so I decided to make one from wood and Perspex. I got all the dimensions for it

online, and the clock and stickers were available online too. It's made of timber and ply, and the globe is made of 3mm opaque Perspex. The hardest part, I found, was making the wooden bezels to look like metal.

I could not afford £100s to restore a real one, so this does the job. it serves as an ornament, a cupboard, a lamp and a working clock in my garage. A thing of interest. (Photos Robert Buck).



[Check the website – hdmes.co.uk](http://hdmes.co.uk) – for updates and changes

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