

B&DSME News

www.bdsmengineers.co.uk

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The monthly club
newsletter for
Bournemouth &
District Society of
Model Engineers

Secretary: Dave Finn
Tel: (01202) 474599



Chairman's Thoughts

As St George's Day falls on a Monday this year - 23rd April, in case you need reminding - we cannot easily have a St. George's Day Run.

Do we have a 'St. George's Day - I' run or just have a Cream Tea Sunday run? It could be our first event of the season! It would also be the final chance to see members before our forthcoming Exhibition at Ringwood Town & Country Experience on the 28th & 29th April. The Exhibition is a chance for us to show what variety our Society has on offer. Ladies, don't forget we will have a table for your bits and pieces at the exhibition as well.

If there is one thing I have learnt from being Chairman it is to think about things before making snap decisions and to listen to other people's thoughts and ideas.

As a society we are a collective and have many different ideas and skills in our ranks. This must always be appreciated so that any Member can take part in whatever project is being undertaken.

At the last Committee Meeting I put forward a request from one of our members that we should buy some new cups for our sole use at the Society's meetings at the Muscliffe Centre. This was agreed with one proviso - that the person who suggested this should wash up the cups and take them home!

Also discussed was whether you should drive your loco onto the traverser or push it on. It was decided that this would be left up to the individual. However, we advise you to exercise caution, which ever way you choose.

From 1st July we will have to conform with the new no smoking regulations. This means that there will be strictly no smoking in the Engine Shed and Station building. Being a Company we have to conform with the new legislation. The penalties for non-compliance are severe!

The next **Committee Meeting** is in the **Littledown Centre** on **Wednesday 28th March** commencing at **7.30 pm**.

David Martin

Editor's Ramblings

Another month has passed by and Spring is almost here!

The Technical Page this month has a very interesting piece by Len Dowden on how he set about line boring the crankcase for the *Maltese Falcon* aero engine he is building.

The Monthly Technical Discussion Meetings are really getting established. We managed to squeeze fifteen of us into Peggy's Palace for the March one.

Topics again ranged far and wide. One member brought along a 'wiggler' set and wanted to know how to use it and what the different bits were for. In particular, what the cranked arm with the cylindrical end was intended for. After the meeting I remembered that in Guy Lautard's *The Machinist's Third Bedside Reader* there was a piece on 'Wigglers' and that it had an explanation of what the bent shaft item in a 'wiggler' outfit was

for. For those who haven't got a copy of the book - and all three books in the *Bedside Reader* series are well worth having - the item is for holding an indicator to check bores and pins.

It was obvious that the numbers attending these meetings have become too large to accommodate in most members' houses and something needed to be done about it. Future MTDMs are to be held on the first Thursday of each month at the Muscliff Community Centre. The 'admission fee' will still be to bring something along to provide a topic of discussion. Make the effort and join us at around 7.15 pm on the first Thursday of each month.

Please note that the Copy Date for the April issue of the Newsletter is Thursday 29th March.

Dick Ganderton

With all the rain that we have been having over recent weeks, the drive leading to the Engine Shed has become very soft and heavily rutted. Please, therefore, do not drive up to the Engine Shed unless you have something heavy to unload.

The Technical Page - Len Dowden Line Bores a Crankcase

It had been my intention to wait until the *Maltese Falcon* was complete before I dared go into print regarding its more intimate details, but Dick's need for material for the "News" inspired(?) me to put pen to paper as it happened to coincide with a tricky bit of machining that initially had me a bit baffled.

It has to do with line boring the crankcase for the crankshaft and camshaft bearings. As you will all know, this involves having a piece of round BMS bar running between centres (or in the 3-jaw chuck to drive it) and a small round cutter mounted at a convenient spot and secured by an Allen screw. The difficult bit is when you need to bore out the last thou. or so to fit the ball race. It's fine for getting them all in line, but the adjustment of the cutter for those last few thous. is tricky.

Many years ago I remember someone "up North" marketed a device with a vernier arrangement to set the cutter, but a trawl through current catalogues produced no results. So I thought that I would make one using a 40 TPI thread for adjustment, which would give about 0.006" per quarter turn. However, it was going to take me longer than I wanted to spend making it.

Then I had an idea. I bored the first hole - the one nearest the chuck - using my boring head and the graduations on the head to give me the correct cut. To cut the other holes to size it was a simple matter of setting the cutter of the bar used for line boring to the diameter of the first hole for the final cut of a few thou. In my case there is a further complication in that the centre main bearing for the crankshaft is a different diameter, being a bronze one, so the exercise has to be done twice. But the system worked well and the centre main housing was cut first at 30mm. followed by the outer mains at 52 mm. The only small niggle I met was chatter. The surface finish was not wonderful and certainly wasn't suitable for a cylinder bore, but I reckon a little bit of roughness will help to key the Loctite that's going to keep the bearings in place.

The next tricky bit I have to solve is how to spot face the centre main bearing housing to 1³/₈" diameter and finish up with the housing ³/₈" thick. It's in the centre of the crankcase and you can't see it! However I expect the solution will come to me.



◀ Sizing the hole with a boring head



◀ Boring the holes for the camshaft with a boring bar



Diary Dates - Websites Worth Watching

B&DSME Diary Dates

17th & 18th March	Model Engineering & Hobbies Exhibition; Michael Herbert Hall, South Street, Wilton. B&DSME have a stand at this show.
21 st March	Monthly Meeting; Muscliff Community Centre. John Hoyle - Making Simple Model 'Diesel' Engines.
5 nd April	Monthly Informal Technical Discussion Meeting; 7.00 for 7.30 pm. Muscliff Community Centre. Please note the change of date.
18 th April	Monthly Meeting; Muscliff Community Centre. Bits & Pieces Evening. Ladies' efforts as well, please.
28th & 29th April	B&DSME Model Engineering Exhibition; Ringwood Town & Country Museum. Further details nearer the date.
16 th May	Monthly Meeting; Muscliff Community Centre. Wild Life Trust.
6 th & 17 th June	Open Weekend; Littledown Miniature Railway.
12 th August	Charity Weekend (Macmillan Cancer Support) & 16mm Track Opening; Littledown Miniature Railway.

Websites Worth Watching

Here are some more Websites that Members have suggested you could find interesting.

<http://www.homeworkshop.org.uk>

A place for model engineering enthusiasts to buy and sell tools and materials.

Norman Kitcher.

<http://www.steam-engines-for-sale.com/>

Free classified advertising site for Steam Engines and Accessories for sale.

Richard Harvey

<http://www.fodenbuilder.co.uk/>

Experiences building a ModelWorks 4^{1/2}" Scale Foden "C" Type Steam Lorry Kit.

Richard Harvey

<http://traction-talk.com/>

If you are into traction engines register to join the Traction Engine Forum.

Richard Harvey

<http://www.micromark.com>

Clamps; Jigs & Fixtures; Jigs & Fixtures; 60304; Magnetic Gluing Jig. Ideal for the 16mm boys!

George Wheatley



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Merlin wrote to me with a couple of points regarding the February Newsletter. The first point concerned the need to include a contact telephone number with For Sale notices. This is important to those members who do not have Internet access.

The second point was regarding the tables for Hexagons and Squares that appeared on The Technical Page. Several Members have commented on the usefulness of this table and Merlin twigged that I had based it on the table in *Fowler's Mechanics' and Machinists' Pocket Book*. This is a very useful book, full of information, that comes in handy when in the workshop. Merlin's copy is quite recent compared to the ones I have. His is 1949 and cost 3/6, mine are 1943 and 1944 and cost a mere 3/-! (My favourite Zeus Book has an advert exhorting the user to 'BUY WAR BONDS'!)

However, to get to the point Merlin was making. I left out the formulae used to calculate the table as there wasn't enough room. So, here they are.

Across Hexagon Flats x 1.155 = Over Corners Across Square Flats x 1.414 = Over Corners

Speedy News

Once again I have more positive news to report about Speedy's progress, which is coming along very nicely thanks to a lot of enthusiastic help from various members. Norman Kitcher brought the cylinders to our last evening meeting; they now have new piston valves and sleeves fitted. The cylinder bores have been honed and new pistons are about to be made.

Progress on the boiler is gathering momentum after the boiler team, Merlin Biddlecombe, Martin Cuff and I, got together one evening to decide where we were actually going to silver solder it together. The outcome is that we have elected to do the work at Martin's home in his well equipped workshop, so a big thank you to Martin and Fatima for agreeing to put up with us.

After a close look at the copper sheet and flanged plates supplied by Blackgates Engineering, Merlin was not very happy with the way the rear tube plate had been formed. Rather than send it back and wait for it to be rectified, he set to and made a new former from a piece of aluminium donated by Dave Finn. We now have a tube plate the correct shape with the holes drilled for the tubes.

Rolling the conical shaped barrel could present us with a problem if we don't get it right first time because they have only supplied just enough material. Fortunately, Merlin has arranged for a boilermaker friend of his in Bristol to do the job for us, which will mean another interesting day out.

Finally, I am pleased to report we have a volunteer, in the shape of Ron Challener, to machine a set of axle boxes - what a good man he is! However, before he can make too much progress we need the horns machining to take out the wear, so does anyone have a large mill on which they could set the frames up and give them a skim?

Brian Merrifield 01202 683701.

For Sale

Myford ML10 Lathe.

Six Speeds; 3 1/4" Centre Height; 13" Between Centres.

In excellent condition. Includes many extras. ML10 Manual; Vernier dials on compound slide & leadscrew. 4-tool turret head; 3 & 4-jaw chucks; Vertical milling slide; Large assortment of lathe tools; Slitting saw & mandrel. **£375.**

Contact: Ron Watts 01202 393125

Other Events

Taunton Model Engineering Exhibition

14th - 15th April 2007

Large Scale Model Rail

14th - 15th April 2007

A Model Engineering Show is being held at **Milestones**, Hampshire's living history museum, Basingstoke on Saturday 21st and Sunday 22nd April 2007.

www.milestones-museum.com

Harrogate National ME Exhibition

11th - 13th May 2007

Bristol Model Engineering Exhibition

17th - 19th August 2007

Guilford Rally & Exhibition

21st - 22nd July 2007

Model Engineer Exhibition

17th - 19th September 2007

Midlands Model Engineering Exhibition

17th - 19th August 2007

Luscombe Valley Happenings

Richard Knott has now arranged the dates for his 'Steam Enthusiast Weekends'. You will be able to run, shunt and do what you want with no public or serious passenger hauling to spoil your enjoyment. As Richard says, "Luscombe Valley as it used to be!"

Next year's dates are as follows:

Cobweb Run 14th & 15th April

Steam Enthusiast Weekend
5th & 6th May

Grand Charity Weekend 28th & 29th July

Autumn Running Weekend 8th & 9th September

Steam Enthusiast Weekend
29th & 30th September

Humbug Day December 22nd

Typeset by Dick Ganderton in Gill Sans using Adobe InDesign CS v3.0.1 on a Macintosh 350MHz PowerPC G3 running Mac OS X v10.3.9 Panther.



The oil tank is the full width of the frames behind the front buffer beam and the oscillating LBSC style pump has a $\frac{1}{16}$ " shaft that protrudes through the left frame just ahead of the leading sandbox. **(Photo. 4)** A return crank fitted to the leading wheel, pretty much as in the full size, drives a small roller clutch. Oil is pumped into the valve chest through a drilling in the cylinder block.

The boiler design was loosely based on the 4F but scaled up to incorporate the massive firebox. On the full size loco this was the result of using 'Lord Nelson' flanging plates to produce a grate over 8 feet long! A short taper boiler barely longer than the firebox was used on the full size, but for simplicity I used copper tube $3\frac{7}{8}$ " diameter. There are two superheater flues $7\frac{1}{8}$ " diameter, three large tubes $7\frac{1}{16}$ " diameter and nine tubes $3\frac{3}{8}$ " diameter. **(Photo. 5)** The boiler back head slopes as on the full size making the regular bush mountings rather interesting. A disc steam valve with two ports is fitted to give realistic response to the long handled regulator. The smokebox is a steel fabrication, which sits neatly on top of the valve chest, which acts as the floor. The steam feed from the boiler is divided into two $\frac{1}{4}$ " copper pipes which return directly into two concentric semi radiant superheaters. These feed into the steam chest one each side of the blast pipe. The blast pipe had to be fabricated from brass in order to bring it far enough forward to line up with the large diameter Bulleid chimney, and it resembles an 'S' shape.



▲ Photo. 4

After extensive track testing to maintain steaming under light loads, a 6mm blast nozzle and a 24mm throat diameter for the chimney seemed to work well. A single nozzle blower proved inadequate so an annular ring with three jets of 1mm diameter each was constructed.



Photo. 5 ▲

The smokebox door is retained, as on the full size, by clamping bolts on the rim, although these are 8BA not 2" BSW!

There were several redesigns of the grate and ashpan. The final version incorporates a partial drop grate and longitudinal hopper doors, with air entry at the front and rear of the ashpan plus whatever gets in around the edges! **(Photo. 6)**

The distinctive cladding is all mild steel sheet, some of it recycled from computer casings that are easily worked being rather soft steel. Removing the paint was a nuisance but it is satisfying to think of obsolete electronic goods being recycled back into steam engines!

The short boiler barrel is insulated with glass mat and then clad with soft aluminium sheet. The barrel and firebox cladding are separate brazed assemblies bolted together. Two screws protruding from the back of the smoke box locate in keyholes on the front edge of the cladding and the cab is then screwed to two small lugs on the back of the firebox cladding.

Both the cab and the tender sides follow the same curved profile and also match the profile of Bulleid's Pacifics and his steel coaching stock. The cab roof is removable although it is possible to drive the loco with roof in place.

The tender body is steel and is lined with Hammerite paint to protect it from rusting. I built the tender upside down and so had a



Photo. 6 ▼

Nick Feast's Bulleid Q1 in 3 1/2" Gauge

From page 5

brazed joint along the bottom of the sides on the outside. Had I built it from the bottom up this joint would have been concealed on the inside. A vertical hand pump is fitted in the tender operated by a handle disguised as the water treatment filler cap. Water capacity was increased by robbing some of the coal space, giving over 4 litres when full. The tender cab roof has to come off for driving, this was only realised after the tender had been completed!

The loco weighs in at 25kg and the tender just 8kg dry, allowing one-man transport without too much strain.

Performance on the track has been very satisfactory with enough power to haul four adults including the driver on a substantial 7 1/4" gauge bogie. On a good day more than 25 laps of the Littledown track can be completed, although to maintain pressure the fire needs to be deep and even. As soon as the loco is on the move the reverser can be wound right up for running on level track, and the harder the loco is driven the more steam it seems to produce.

The dummy sandboxes are filled with lead to improve adhesion, but on reflection even more weight could have been added to assist starting with heavy loads. There are a few frills to be added such as tender brakes and sundry steps and brake pipes, but overall the model captures the look and, to me, the appeal of this great class of engines.



Nick and his Q1 with safety valves lifting - as usual.

Free to a Good Home - a 1:43 Scale Model of HMS Bounty

Construction was started by Mr Beedie, a neighbour of Gordon's daughter, but he was unable to complete it before his untimely death. His widow wishes to pass the 90% complete model to an interested modeller for completion, whereupon a series of photographs would be appreciated by his widow. A fully detailed construction guide is included as, to the best of Gordon's knowledge, are all the materials to complete. Size: (L)830mm x (H) 710mm x (W) 180mm

Please contact **Gordon Miles 01202 708734**



16mm Progress - Vandalism - Small Model Diesels



Last month we left Gordon Miles and Dave White screwing the final piece of plywood in place on the new 16mm NG layout at Littledown.

Earlier on they had been busy nailing roofing felt onto the plywood base, but when our photographer caught up with them they were making a very good imitation of Council road workers. Dave managed to hide his coffee mug just in time for the picture.

Seriously, though, work is progressing well on the layout, in spite of the weather. There is even a hint of the rock garden to come inside the return loop, courtesy of the 'Roundabout Gang' excavating the foundations for the new Turntable in the Steaming Bays.



We have been very fortunate since moving to Littledown as so far we have only suffered one serious act of vandalism - a strange piece of rail bending by someone who had come well prepared with the special tools to undo nuts and screws and then bend the rail outwards with two, precisely executed, 45 degree bends.

The latest act involved lighting a fire in the middle of the track. As you can see, they managed to burn away the centre of one sleeper and parts of the two adjacent ones. No structural damage was done to the rails and trains were allowed to continue to run after a safety inspection. The damaged sleepers were easily replaced between trains.



The topic of the March Meeting at Muscliff Community Centre is 'Making Simple Model Diesel Engines'.

This is a subject that has fascinated John Hoyle since his school days and his enthusiasm has reawakened Dick's interest in the subject.

Dick is now on a serious nostalgia trip, furiously restoring old diesels. One recent Wednesday he shattered the peace and quiet at Littledown by running three of his engines.

The one he is about to start here is a vintage DC 350 that he has resurrected from a box of corroded parts. It will probably end up in a Keil Kraft Super 60, thus recreating the model flying activities he indulged in during his apprenticeship 50 years ago!



I recently attended the Model World 2007 Exhibition at the Brighton Centre, which, while perhaps not being entirely our size of modeling, always seems to display some interesting aspects of the hobby.

A few of the regular trade stands were present, always handy as having been a Boy Scout, I go prepared with a shopping list. Polly Models seemed to be quite busy and there were several model engineering club stands including Fareham, Worthing and Brighton, all showing a good variety of models.

Three models really caught my eye. In the reception area at the front of the show was an impressive 10 1/4" Gauge LSWR *King Arthur*, on show from the South Downs Railway. On the Brighton & Hove SMLE stand was a superb Adams *Radial* 4-4-2 Tank Loco in 5" Gauge - I wish I could paint like that.

Of a rather larger size was a half-scale Double Deck Tram, built for 2' Gauge and designed to carry 16 passengers, eight upstairs and eight downstairs, plus the Driver and Conductor. This was powered by two fork lift truck motors producing 2.25 hp from 48V DC.

What always amazes me is the amount of detail and enthusiasm people working in the smaller model railway scales achieve. The number of '00', 'H0', 'TT', 'N', etc. layouts at the show operating to timetables is something to behold.

I went with an open mind and came away having spent a very enjoyable day. It's going to be well worth a visit next year.

Dave Finn

Bournemouth & District Society of Model Engineers

EXHIBITION

Saturday 28th and Sunday 29th April 2007 10am - 4.30 pm
at

Ringwood Town & Country Experience Museum

On the A338 Ringwood to Salisbury Road off the A31

On Display

- 16mm layout with Live Steam
- Stationary Engines
- Petrol Engines
- 7 1/4, 5, 3 1/2 inch Locomotives
- Traction Engines
- Steam Wagons
- Clocks
- Boats
- Electronics
- Machine Tools and much more!



See www.rtce.co.uk for directions and details of museum

