

THE WORTHING & DISTRICT SOCIETY OF MODEL ENGINEERS

Number 166

www.worthingmodelengineers.co.uk

Summer 2024

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DRY WEATHER AT LAST!



Following the long wet winter and spring when it seemed that the worst of the weather seemed to be reserved for Wednesdays, our working day, brighter times began as we opened our public running season in the second week of April.



Just after the tunnel our guests were treated to carpets of bluebells and a view of the shrubbery now looking mature after being set out over the past few years.

THE SOCIETY'S OFFICERS

Patron: Peter Webb

President Andrew Breese

Chairman: Kevan Ayling

Vice Chair: Geoff Bashall

Secretary: Leigh Gibbins

Treasurer: Martin Laker

Engineering: Dave Parsons

Programme: Neil Furze

Membership: Paul Parsons

Publicity: Geoff Bashall

Boiler Liaison: Brian Hunt

Comm. 1*: Glen Payne

Comm. 2*: Richard Ellis

Comm. 3*: Barry Partridge

*See foot of page 2



An outdoor job tackled in a brief dry spell was the much postponed concreting of the ugly water-logged area close to our entrance, finally done on April 23rd.



One recent Thursday evening meeting was given over to a charming lady from 'First Responders' who gave us an informative session on first aid and resuscitation techniques including using our defib machine. The picture shows Neil trying to replace the dummy's eyes that he had poked out earlier.

Picture far left? – you tell me!

THE WORTHING & DISTRICT SOCIETY OF MODEL ENGINEERS
LOCATED AT FIELD PLACE, THE BOULEVARD, WORTHING BN13 1NP
www.worthingmodelengineers.co.uk

THE NEWSLETTER

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All Complaints to

The Chairman

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The three 'untitled' Committee posts carry
the following responsibilities:

Committee Post 1:- As
Committee Post 2:- determined by
Committee Post 3:- the committee.

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YOUR DIARY DATES

JUNE	SAT 1 ST	SATURDAY STEAM UP
	SAT 1 ST	CLUB BUFFET DINNER 6pm. Indoor bowls club, Field Place
	SUN 2 ND	PUBLIC RUNNING 1:30 – 4:30pm
	SAT -SUN 8-9 TH	LittleLEC NORTH LONDON SME
	THUR 13 TH	CLUB MEETING 7:30 pm A potted history of our fifty years
	SAT 15 TH	OUR 50TH ANNIVERSARY DAY WITH MINI EXHIBITION. OPEN TO THE PUBLIC
	SUN 16 TH	PUBLIC RUNNING 1:30 – 4:30pm
	THUR 27 TH	CLUB MEETING 7:30 pm Flying vintage aircraft – with guest Rod Dean
JULY	SAT 6 TH	SATURDAY STEAM UP
	SAT-SUN 6-7 TH	AMBERLEY MUSEUM LARGE STEAM SHOW
	THUR 11 TH	CLUB MEETING 7:30 pm Bits 'n pieces
	SUN 14 TH	PUBLIC RUNNING 1:30 – 4:30pm
	WED 17 TH	'Magic Minders' & children visit us.
	SAT 20 TH	FIRE STATION OPEN DAY (Portable track)
	FRI-SUN 19 – 21 ST	IMLEC 2024 SOUTHPORT MEC
	THUR 25 TH	CLUB MEETING 7:30 pm Subject to be arranged. See our website IDC
SUN 28 TH	PUBLIC RUNNING 1:30 – 4:30pm	
AUGUST	SAT 5 TH	SATURDAY STEAM UP
	THUR 8 TH	CLUB MEETING 7:30 pm Subject to be arranged. See our website IDC
	SUN 11 TH	PUBLIC RUNNING 1:30 – 4:30pm
	SAT 17 TH	FUN DAY AT THE TRACK WITH HOT FOOD IN THE AFTERNOON
	THUR 22 ND	CLUB MEETING 7:30 pm Subject to be arranged. See our website IDC
	SUN 25 TH	PUBLIC RUNNING 1:30 – 4:30pm
SEPT	SUN 8 TH	PUBLIC RUNNING 12:00 – 4:30pm EARLY START – OUR BIG CHARITY DAY!
	THUR 12 TH	CLUB MEETING 7:30 pm Subject to be arranged. See our website IDC
	SUN 29 TH	PUBLIC RUNNING 11:00 – 4:00pm EARLY START – GREEN DREAMS DAY
	THUR 26 TH	CLUB MEETING 7:30 pm Subject to be arranged. See our website IDC

Editorial some of this may be worth reading?

Welcome! But be warned - this issue is boring – far too much waffle and space-fillers from me, your editor. Wake up at the back!! We are all interested to read of your workshop activities or however else you fill your spare time. Let's be hearing from you!

DERECK



The Boardroom.....reports from the Committee

A NOTE FROM THE CHAIR

Kevan's regular report



Last month we received the sad news of the passing of founder member, Mike Wheelwright. His obituary is printed elsewhere, but I have to say his loss to the society is immense, his knowledge of things technical was without parallel, and I think there are very few members, including myself, who have not been helped on their projects with valuable help from Mike.

In conjunction with Field Place, we committed to improving and concreting the area in front of the sheds which had been badly damaged by vehicles gaining access to the old bowling green behind the barn. We agreed to carry out this work in March, but due to the awful unremitting wet weather the job was only successfully completed last week (late April). Many thanks to the following members for all their hard work on this difficult job, Lionel and his son Ryan (for the JCB), Dave P, Martin, Dave H and Pete S, and John P along with Peter Quigley for help and support during the long day concreting.

The 14th of April marked the start of the new running season, and with reasonable weather, we wondered how we would do in the light of slightly altered running times, and a fare increase made necessary by our increased running costs. However, we need not have worried, as it turned into one of our busiest days, with a queue for rides for most of the afternoon.

There has been some discussion in the past concerning the age profile of the membership, and how we could encourage the recruitment of younger members. When I first joined in the late seventies, a lot of us were in our early thirties or forties, and working full time. A look around on a Wednesday by a casual visitor will show that the majority of members are retired, and while it is true that our numbers remain fairly constant due to new members coming from people moving into the area and from the ranks of the recently retired, it is the youngsters we need to encourage. So, with this in mind I am happy to report that we have recently welcomed three new younger members: Alex Smithies, Matt Tuck and Warren Midwinter.

They, and others like them, hold the key to the future of the society.

KEVAN

THE TREASURY

Martin reviews the state of our finances



I am writing this report at the end of April following our second public running of the month. The first run on 14th April saw large crowds, with queues most of the afternoon. The

cool weather, revised running time and increased ride cost did not cause any problems. Public running on 28th April saw lower visitor numbers, but we were still able to bank over £550, so April has seen a great start to our season. Let's hope for good weather and good crowds during the rest of our public runs. Please keep volunteering to help on public running days, we always need people in the clubhouse and around the track. I know the kitchen helpers are always pleased to receive cakes, especially homemade ones for sale.

On the financial side, as expected we continue to see increases in most of our costs, but I am happy to report we have received some generous donations of cash and goods to sell, which all helps towards our running costs. As you will read elsewhere in this newsletter, we have at last completed the concreting of the muddy area by the croquet shed, the cost of this work has been split between Field Place (South Downs Leisure) and ourselves, helped by a large donation from one club member – Thank you!

With the closure of more Lloyds bank branches, I was getting worried about carrying out club transactions; however, I have started using the local post office and have been very impressed with their service – let's hope they don't close more post offices!

MARTIN

ENGINEERING REPORT

Our new CME's first...



It's a daunting task taking over the engineering responsibilities from such well respected and technically capable members as Geoff Symes and Andrew Breeze, before him. Both, long serving

CMEs with a wealth of experience, which I hope to tap into during my time in office.

CONT. ON PAGE 4

ENGINEERING REPORT CONT. FROM PAGE 4

The Club Netta which has recently been overhauled is serviceable. "Worsfold" was originally taken out of service after a couple of running failures with the intention of a complete strip down and rebuild. Having assessed the situation, Mostyn and Larry now feel that an overhaul of the motion will suffice.

To that end they are making new pins, bearings and bushes where required to tighten up the tolerances and remove the wear caused by many years of public running service. One side is complete and they are now working on the other. Interestingly Mostyn tells me the LHS had worn far more than the RHS, I guess caused by more load due to the right-hand curves of the track.

Speedy (AKA Adrian Vickers) is still a little way off completion of its overhaul with some leaks on the piston valve covers and timings issues to resolve. Phil Worrton has this in hand.

Britannia caused concern during the last public running when the regulator partially seized. After assessment by various members on the day, Glen Payne assisted by Phil Worrton has realigned the bush that holds the regulator spindle. A Saturday morning test showed it working better than it ever has.

The Class 33 "Alan Norman" was struggling with battery problems and Paul tells me it will run with the Class 73 battery next time out. Possibly the suspect battery had not been charged properly.

The Class 37 repaint is almost complete, just waiting for the 50th anniversary transfers.

The class 73 had minor work to its drivetrain and appears to be working ok.

One of the sets of carriages had minor brake adjustments made following the pre-season checks due to some binding on the first public running of the season.

The track gang have continued de-rusting and painting of the steaming bays whilst John Olley and Mike Roberts are working their way around the track, checking and replacing sleepers as needed. Having completed the inner loop, they are now about 1/3 of the way around the outer loop. They commented that it's like painting the Forth Bridge...never ending!

As Kevan has mentioned the concreting project is now complete, the shuttering struck and the backfilling of soil done. The next mini project to consider will be the fixing



back of the level access swing sections and gate when the track is not in use.

John Olley has sketched out ideas that I will discuss with him and others next time we meet so that a plan can be finalised and started.

DAVE.

**SECRETARIAL SCRIBINGS***Leigh updates us ...*

Well, we're already through the first four months of this year. Our first public run at Easter is behind us and was a brilliant start to the year.

Unfortunately, the weather has not been particularly encouraging for the outdoor maintenance but will hopefully improve from now on.

Indoor work has been quietly continuing with work on various club locos and our test boiler, more of which is reported later in this issue.

Outdoor work has seen the completion of an area of concreting at the entrance to our site.

Looking forward to the rest of the year, we already have a booking for a private party on June 1st immediately after the monthly Saturday steam up.

Most of you will now be aware of our 50th Anniversary and we aim to celebrate this with an open day and exhibition on Saturday 15th June. It's amazing to think that the club has been on our site for 46 years.

Following this, later in the year will be a sausage sizzle on Saturday August 17th.

Talking of food, the club buffet is booked for Saturday 29th June at Worthing Bowls Club, Field Place 6pm for 6.30.

Hot and cold food at your table for you to choose from, with a choice of desserts on the night.

Worthing Fire Station open day is scheduled for Saturday 20th July and we anticipate we will attend this year weather permitting.

Our Charity Day is scheduled for Sunday September 8th 12 until 4pm and our chosen charity this year is Worthing Mencap.

I am pleased to report that the first Saturday of the month steam-ups continue to be well supported and we have already attracted new members.

To finish I would like to thank the many members who turn up to help with the numerous maintenance tasks happening around the site. Also not forgetting the ladies who work tirelessly in the kitchen and ticketing areas.

Let's make our 50th Anniversary year the best.

LEIGH.

PRESIDENTIAL PONDERINGS

These may well be called wanderings or meanderings this time as I'm not sure where they are going to land up! When I was at teacher training college, in the early nineteen sixties, training to be a handicraft teacher, one of the books on the reading list was 'Metals in the service of man'. This was a Pelican book costing 3 shillings and 6 pence. I recently retrieved it from the book shelf and found it very interesting reading, and I quote one paragraph from the first chapter. 'The whole of our present material civilisation depends on the efficient harnessing of power, but the control of this power is made possible only by the use of many varieties of metals and alloys. Without metals no railway, aeroplane, motorcar, electric motor, or turbine could operate.'

For many years I have worked an allotment. Most of the tools I use have been 'hand me downs' from the family. The spade I use is particularly interesting. It is made of high carbon steel, and has been hardened and tempered. It maybe that some of our newer members may not be familiar with the process of hardening and tempering. It is well worth experiencing. On the ferrule of the spade, where the wooden handle fits in, is

stamped 'Bulldog 1' made in England. This is well in excess of seventy years old. The blade is at least 1 inch shorter than it was, the front corners are well rounded, and the sides tapered. In other words, 'well worn'! the guy who works the allotment next to me saw me using this and said, "I can beat that", and promptly showed me his spade which is even more worn than mine, through use. He said he had had it all his life. Truly metal in the service of man.

At last Sunday's public running it was a delight to see Brian Hunt's Britannia 'William Shakespeare' doing its stuff. (We nearly, but not quite, had 2 Brits running!) I reckon about 99% of this locomotive is metal. We have cast iron, mild steel, high carbon steel, stainless steel, copper, bronze, brass, tin and lead (soft solder), silver (silver solder) and possibly others. Truly metals in the service of man. All metals are finite. When all the ore in the ground has been used up there will be no more. In my ponderings a few issues ago I mentioned the blast furnaces in Scunthorpe being shut down and replaced by an electric arc furnace processing scrap only. We need to cherish all our metals!

ANDREW

DAVE PARSONS, OUR NEW CME INTRODUCES HIMSELF ...

Firstly, I would like to thank Geoff Symes for handing over the reins with everything on an even keel. This will make the transition much easier.

For those of you who don't know me, being a relatively new member, having retired from work just under 4 years ago, I thought a brief introduction would be in order.

I started my engineering career at the age of 16 having left school and joined Beecham Pharmaceuticals here in Worthing. During my 4-year apprenticeship I spent the first year at the Engineering Industries Training Board centre based at Northbrook College learning the basics.

Once back at the Beecham's site I worked with fitters on a range of mechanical equipment from the oil-fired boilers, fermentation vessels, refrigeration systems, air compressors, homogenisers, centrifuges, blenders packaging machines and learning to weld, to name just a few. During this time, on day release I completed an ONC and HNC also at Northbrook College.

Upon completing my apprenticeship, I was persuaded by one of the lecturers; Maurice Rawlings (some of you may have known him from the evening classes for model engineers he ran for many years) to go to Brighton Polytechnics (now Brighton University) and study for a degree in mechanical Engineering. Subjects included mathematics (both real and imaginary), engine testing, aerodynamics, tribology, fluid dynamics, control theory and the obligatory beer drinking. After 3

years I was the recipient of a "Desmond" (that's a 2:2 degree, for which I blame the beer, I was aiming higher).

Leaving studies, I was at a loose end while I pondered my next career move so my brother-in law, who is now incidentally our Patron, offered me a summer job at Electronic Temperature Instruments because he had just had a large order that he needed to fulfil. The temporary status soon became full-time and I rose through the ranks until I became R&D Manager, the position I held until my early retirement, partly brought about by the Covid pandemic and the dislike of working from home.

Through my dad's involvement with the club I came along to help with the building of the club house and also the welding of the footbridge although not a member at the time.



DAVE.

And look where his successful engineering career got him! (pictured standing in the rain as TC on a soggy April day public running). Ed.

BUY AN ELECTRIC CAR?

On the previous page you will have read Andrew's observation that "We need to cherish all our metals!" So, consider the following to which the editor offers no comment: -



This is a Tesla model Y battery. It takes up all of the space under the passenger compartment of the car. To manufacture it you need:

- 12 tons of rock for lithium (can also be extracted from sea water)
- 5 tons of cobalt minerals (Most cobalt is made as a byproduct of processing copper and nickel ores. It is the most difficult and expensive material to obtain for a battery.)

- 3 tons nickel ore
- 12 tons of copper ore

You must move 250 tons of soil to obtain:

- 26.5 pounds of Lithium
- 30 pounds of nickel
- 48.5 pounds of manganese
- 15 pounds of cobalt

To manufacture the battery also requires:

- 441 pounds of aluminium, steel and/or plastic
- 112 pounds of graphite

The Caterpillar 994A is often used to move the earth to obtain the minerals needed for this battery. This machine consumes 264 gallons of diesel in 12 hours.

How much more energy is required to process the raw materials and produce the metals?

The 2021 Tesla Model Y OEM battery (the cheapest Tesla battery) is currently for sale on the Internet for around £4,000 not including shipping or installation. The battery weighs 1,000 pounds (you can imagine the shipping cost).

It takes 7 years for an electric car to reach net-zero CO2. The life expectancy of the battery is 10 years (average). Only in the last 3 years do you start to reduce your carbon footprint, but then the batteries must be replaced and you lose all gains made.

THE COST OF OUR CLUBHOUSE, AND WHERE THE MONEY CAME FROM

BUILDING COSTS ANALYSIS

MIXER HIRE	356.40	
TIMBER	406.50	
SAND - CEMENT - TIES	3250.71	
BLOCKS - BRICKS - BALLAST	244.07	
LINTERS	571.84	
FRAMES	120.06	
GLASS	130.20	
TRAILER MIXTURE	12 -	
--- GUN	406.48	
DRAINS	966.22	
TRUSSES	108 -	
SKIPS	96.41	
MIXER HIRE	450 -	
ADMAN & PETROL	1,000.34	
VAT	158.70	
BUILDING INSPECTOR	100 -	
EXCAVATOR	964.36	
DOORS & PAINT	19.95	
CEMENT	653.87	
ROOF & BATTENS	72.54	
DRAINS	200 -	
FLOOR LABOUR	26.46	
--- SINKER	316.76	
FLOOR & PLATFORM MATERIAL	164.48	
LOCKS & DOOR FURNITURE	5.97	
SAND	67.49	
LOST FLOOR	109.61	
DRAINS	9.49	
PAINT	22 -	
TIMBER	19.92	
BARRON	19.68	
MIXER HIRE	11050.56	
TOTAL PAID 10/8/91	11050.56	

W.S.C.C.

OCT 90 3936.81

JAN 91 2037.49

JUN 91 2144.73

8119.23

1969.67

£10088.70

961.86

11050.56

I recently unearthed a faded paper detailing the income and expenditure for its construction up to August 1991.

I have found it fascinating, looking at the cost of materials and services thirty-four or so years ago, compared with today.

What surprised me most though was how it was so successfully financed. When the project was launched, a 'building fund' was established into which members could either donate or make an interest-free loan. Years later, all but one of these loans became donations, removing a liability from our accounts.

As you can see, this building fund met over ten thousand pounds of the total cost, leaving just under one thousand to come from the club's savings account.

The construction of almost all of the fabric was carried out by building apprentices from the Chichester Technical College where our past president and founder member John Rea worked – it's not what you know; it's who you know! Naturally we had to bear the travel costs of the lads and their instructors together with the college's admin expenses. Hence the total of just more than £8,000 paid to the county council. Far less than a building company would have charged for their labour.

Finishing the interior of the clubhouse was carried out by the members. The appearance was considerably enhanced from the originally planned finish of painted block walls by a member who was offered a quantity of unwanted plasterboard. This was snapped up and fixed in place by the same member!

MY PEPPERCORN A1.....with Clive Patten

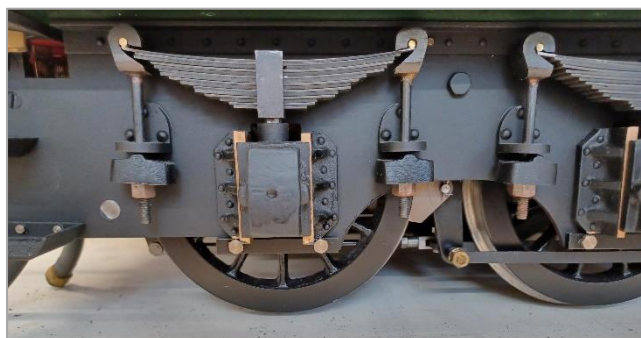
If there is one thing I have learnt about model engineering, it's that you need to be able to turn your hand to many diverse tasks. I have now reached another new and critical stage, the painting! For me painting feels like diving into icy water, you can read all about it, you can prepare for it, but it is not until you actually dive in that you discover what will actually happen!

Spray painting unfortunately relies on numerous variables, the spraying equipment, the air pressure, the paint viscosity, the spray gun settings, the environment and of course the user skills and any one being wrong will screw up the result. What could possibly go wrong I ask myself?

Well, I may have mentioned it before, but I had actually painted my tender about a year ago. The result was not as good as I had hoped for, and after trying to convince myself it was OK, I finally relented and decided to strip all the paint off and start again. Seemed a bit drastic, but I knew it would forever bug me if I left it as it was. I decided that I would use thinners to strip the paint, however at Precision Paint prices getting enough thinners to dip the tender in would cost a small fortune. So, I went for a common automotive cellulose thinner at £12 for 5 litres, would it work though? Yes, after dipping in the thinners and using a stiff brush all the old paint peeled off, ready for a fresh start. Health and Safety Note; this needs to be done outside, the fumes are very strong!

What I learnt from my last painting attempt was that drying paint seems to attract every bug, fly or insect from the local area and beyond! So, this time I decided to invest in a portable spray booth, sounds expensive, but they were available on eBay for about £30, and I have to say that I wasn't expecting much, but it turned out to be a good investment. You can see from the pictures that once spraying is complete you can bring down the front netted cover and protect the paint from those pesky insects.

Whilst the tender was apart again for painting, I also decided to finish off the last outstanding job, which was



to make the brake blocks. These were cut (by hand!!) from a piece of cast iron bar I had in my odds and sods box; I made a jig to bolt to the milling machine and to which the cut blocks were screwed to. Once the basic shapes were made, I cut the slots and drilled the fixing holes. You can see the final results in the picture.

So back to the painting, again I am far from being an expert, but I can give you my experiences (right and wrong), which may be helpful. I use the Pheonix Precision paints range, they are for sure not the cheapest, but I feel it is too risky to try something new and then find out it was not as good. For my spray gun which is an HVLP (High Volume, Low Pressure) type I use 30psi pressure, and that is 30psi with the gun in the open position, after shutoff the pressure is higher. For the paint I typically use 3 parts paint to 1 part quick drying thinner, the final coat may sometimes need a bit more thinning. The gun settings are with the spray fan almost fully open, and the paint flow set to low, then after testing on a piece of cardboard you can see how much paint is coming out, I try to get less rather than more. It is easier

to make multiple passes of a thinner coat than trying to get it on in one pass. With my setup it is best with the gun no more than 4 inches from the job and keeping in parallel and steady, so the paint stays wet on the job surface.

For brass, which is most of what I am doing at the moment, I start with a first coat of single pack etch primer. I did try spraying this, but it is a nightmare and tends to clog up the spray gun, I now prefer to use a rattle can, again, from Pheonix Precision paints and not cheap but it seems to work well and avoids all the mess with the spray gun. I find a very thin coat is all that is required. This takes several days to finish reacting, and it is best not to apply any other coats until after this time. The next coat is basic grey primer, this covers well over the etch primer, it may not be necessary but because the etch primer is so thin there is nothing to rub down prior to applying the topcoat. Remember if it doesn't look perfect in primer it will not be better in topcoat, in most cases it will be far worse! Painting is 95% preparation and 5% painting. Remember failing to prepare is preparing to fail.

Fingers crossed most of the painting will be completed in time for the June garden party.



CLIVE

THE GARDENS AT THE GARDENSwith Diane Lewins

SPRING HAS SPRUNG AT THE GARDENS.

The roses out front are in bud and were, for a time, covered in greenfly. However, we had a sudden influx of ladybirds and they have gotten rid of them for me. Also, lots of sparrows have been visiting the bushes out there and have been picking off the ants. In the porch the Amaryllis (big as a triffid) flowered with four huge red trumpets. Not to be outdone, the "Christmas" Cactus has decided to get in on the act and is showing lots of flower buds. The tall Cactus in the corner is nearly up to the ceiling and is now 58 years old. In the immediate back garden behind the house, there are minute froglets everywhere and two huge black crows have been on the lawn gobbling them up. The Rosemary has flowered and been trimmed back a bit and the Fuchsias are showing green shoots. In the top garden the newts have been active in the pond since the sunshine



arrived and we had a couple of warmer days. The Bluebells and Primroses were as abundant as always and the Tulips have been wonderful. An unexpected bonus of the Bluebells was, that since the railway maintenance crew trimmed their side of the fence, they took advantage of the extra light coming through

and have been so prolific that they left no room for the weeds to thrive. The Apple Tree is full of blossom, which I wasn't sure would happen after the drastic pruning last year, so hoping for some fruit in the autumn. With the grass growing fast again, there is plenty to do but, thankfully, always time for a cuppa and a sit down.



DIANE.

CAPTION CONTEST!

YOUR CHANCE TO WIN A TENNER!



Clearly a busy day at the track, but who is saying what to whom?

(Polite) Answers to the editor please.

UNDERSTANDING ENGINEERS

PERCUSSIVE MAINTENANCE - I hit it and it started working

HIGH IMPEDANCE AIR-GAP - I forgot to turn it on

ORGANIC GROUNDING - I got electrocuted

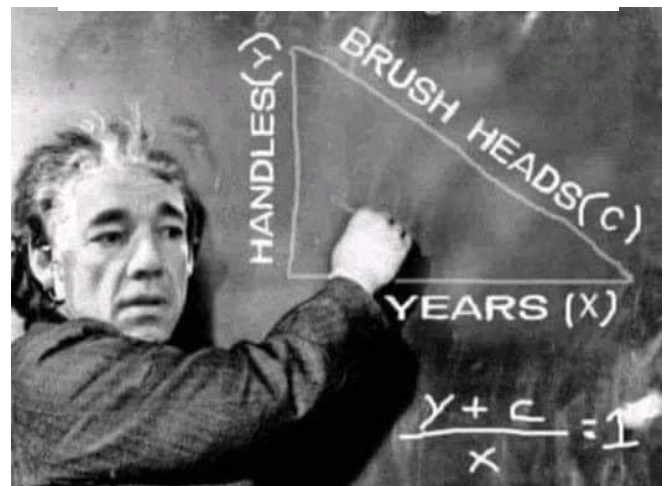
CYCLE POWER - Turn it on and off again

THERMALLY RECONFIGURE - It melted

KINETIC DISASSEMBLY - It blew up

THERMAL SHOCK - It burned

TRIGGERNOMETRY.



This sunny day it was busy – Jim A patiently watches while boiler inspectors Brian & Glen test his loco, and in the background, track maintenance, grass cutting and traction engine steaming take place.

THE NEW CLUB TEST BOILER ... PART 2, CONSTRUCTION

In a previous article, I described how we got the original idea, how we arrived at a suitable design, and how due to the members' generosity we managed to scrounge most of the materials and fittings to complete the boiler.

A start was made by cutting off a four-inch piece of the eighteen-inch-long copper tube donated by Dave Brutnell to form the firebox, Glenn undertook this job at work, as the cut had to be quite accurate, as the two pieces had to mate together seamlessly when the boiler was assembled. As we had decided to divide the work equally, Glenn, aided by Nigel, cut the 4mm copper for the tubeplates. I then got the job of annealing and flanging them, using a steel former that originally came from Lionel, however, it had to be reduced in size slightly because we were using thicker material. After flanging, I then machined them so as to be a close fit in the barrel, then back to Glenn for drilling the 26, 12.5mm holes using a template drawn in CAD by my son.

When I built my 2-8-2 loco boiler, I miscalculated the amount of half inch tube I needed, and ended up with 6 metres over, and so after a quick check with the calculator, found this was enough for 26 nine and a half inch tubes, so I set to work cutting the tubes to length and then putting a quarter of an inch register on either end, so they could not fall through the tubeplates. While I was busy with this, the barrel and firebox went back to Glenn so he could fit the firebox and drill for the bushes. Once this was all done, we silver soldered the tube and tubeplate assembly, and after pickling, fitted it in the barrel, followed by another silver soldering session to stick the whole lot together. For the bushes we decided on mainly quarter and eighth BSP, with one three eighths by thirty-two for the injector feed, and two five sixteenths by thirty-two for the gauge glass. I machined these all from drawn bronze using some odd bits I had in stock.

Once we had the main boiler finished, Glenn started on the chimney by TIG welding a cone from copper sheet, I then machined an adaptor for it, using a large piece of bronze from my scrap



box, he then finished off the top with a piece of 50mm brass tube donated by John Elsworth.

[Contd. page 10](#)

THE CLUB TEST BOILER CONT. FROM PAGE 9

The finished boiler was given a coat of heat resistant black paint, and looks very smart indeed. To date it has passed a 200psi hydraulic, and recently underwent successful steam tests, using a commercial propane gas burner purchased by the society.

Many thanks to the following members for the kind donations, without which the project would not have been possible –

Dave Brutnell, for the copper tube for the barrel, Geoff Bashall for the gauge glass fitting and globe valve, John Dean, for the ball valves and various fittings, and Neil Furze, for the injector steam valve.

Andrew Breese, Lionel Flippance, Phil Downes, Paul Parsons, for silver solder and Dereck Langridge for silver solder and flux.

Jim Alderman, for the pump and pressure gauges, Martin Laker for the cash donation and Peter Quigley for the safety valves.

Robert Adams, for not only ordering a burner, and then having to return it (my fault), but for the brand-new gas regulator.

Lastly, and by no means least, Glenn, for his many hours of hard work and supplying the propane.

KEVAN



INVENTIONS – more gems from Diane Lewins

Whilst staying a few days with my son and daughter-in-law in Berkshire a little earlier this year, they were on flood alert as they live a ten-minute walk from the Thames. Their garage succumbed to the water but they had managed to get the airbricks in the house covered and sandbags were put in place just in time. However, further down the road people had to use small generators to pump the water out of their properties. The pumps were on day and night.

Would you believe the first steam pump was used to pump water to stop the mines flooding. It was invented by a clever gent in 1698 and his name was Thomas Savery. Well done that man.

Other inventions of interest were: 2500BC - Brazing and soldering. The grizzly Guillotine named after its inventor came to the world in 1791 and remained in use in France until 1981. Yes, you did read it right. Safety pins – 1849, and margarine in 1898.

They were listening to music at the drop of a coin in a juke box in 1889. WD-40 was invented in 1953 and is brilliant for all sorts including getting chewing gum out of carpets. Some even say it helps with their arthritis. Never tried that myself but I know a good swipe of it round the top of flower pots deters slugs from munching on new shoots!

Dickmann's driverless car hit the road in 1986 and Berners-Lee got the world wide web up and going in 1989. That man has a lot to answer for.

There's one invention I'd be happy to try and I think most of us would agree, and that's self-cleaning windows, invented by some bright spark in 2001. Most of these inventors got to be quite wealthy on it, so it might be worth keeping the thinking caps on for a little while longer.

DIANE

'OLD BILL' THE BSA!

ROB ADAMS WITH A CHANGE OF SUBJECT

Hello All! Progress has been slow on Speedy recently as much of my spare time has been spent refurbishing my new Raglan lathe. Its all up and running now and ready for action! Dereck asked if I would still try and provide a short article for the Journal so I thought you might like hear a little about 'Old Bill'..... not model engineering related but has an element of engineering involved!



Old Bill is the oldest motorcycle in my collection. He's a 1924 BSA 2 3/4 hp (350cc) Side Valve. You'll find it hard to believe but I'm the second registered keeper from new. He turns 100 this year so my aim is to have him on the road soon for his birthday. I purchased him in Wales 5 or 6 years ago. When purchased the engine was seized, the magneto was missing along with the 'Best and Lloyd' hand oil pump (with sight glass for the drips to be seen). But other than that, it was in good original condition. I have no plans to restore as it can be 'original' only once.

Whilst in my ownership I have managed to locate the missing parts and have also acquired a set of original Powell & Hamner acetylene lights. The bike has been stripped, cleaned and rebuilt whilst being careful to preserve the patina. I found the reason for the engine being seized was only due to some slight corrosion on the exhaust valve stems as they are exposed. Once this had been cleaned all was well. The engine internally was in remarkably good condition which means, with care it will last many more years yet. I had some fun trying to get the oil pump working. Its of a design that has a sight glass on the side of the tank so that you can see the regular drips. The attached hand pump allows you to give it a few pumps of extra oil when the engine is working hard. Its very similar to the pump on a Tilley lamp. Sadly, the leather cup washer had long perished and modern equivalents just didn't work. In the end I made up one use some thin leather from an old wallet! It works a treat now.

You'll see that it has a chain drive to the back wheel rather than the earlier belt drive, but its does have rubber brake blocks..... Hmmmmmm..... stopping might be an issue.... The front will be almost useless I think but the back will slow it down a bit. Before I can ride it safely on the road, I need make some bushes to take up wear in the cycle parts. But other than that, its ready to go!

Why do we call it 'Old Bill' I hear you ask..... Well I have quite a bit of original documentation that came with the bike. It was purchased new by a Major William Peak 24th June 1924 and registered in Stafford! He owned it right through until the 60's where it appears to have been



smothered in grease and bound with rags for storage (which has really help preserve it), this seems to be the last time it was taxed as I have old tax discs from 1952 through to 1960. I think in more recent years it emerged from an estate sale and was sold to the previous owner in an auction. So, it seemed fitting to name him after the original owner. Sadly, when I bought him there was no V5. But with the help of the Sunbeam motorcycle club and with the wealth of original documents on hand I was successful in recovering the original registration number. Not that easy anymore!!!



ROB

INJECTORS: - WHAT'S ALL THIS MYSTICISM AND FRUSTRATION THAT LEADS TO SO MUCH HEAD SCRATCHING?

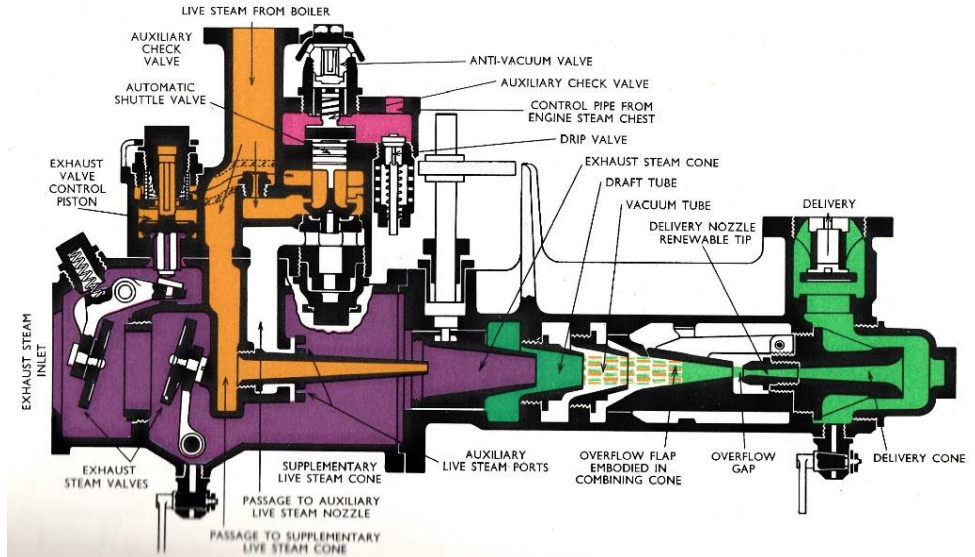
So, the club has a superb new test boiler to enable the accurate setting of member's safety valves, and also check the operating parameters of their injectors.

We've all heard the complaining about the latter – “the damn thing has a mind of its own!” or “it only works if there's an 'R' in the month”.

Look at my drawing of a prototype, – nothing mystic about it, is there? Just straightforward common sense.

So go ahead, build one just like this for your loco, and never mind the naysayers who maintain that you can't scale nature!

DERECK L.



THEM ANTS AGAIN – AND BEFORE YOU ASK – YES, THE BOX WAS SEALED!

Our traverser, which allows locos to join the main track from the steaming bays has safety interlock wiring to set the appropriate running signal to danger. When in use, the three moving components each not only hold the signal at red but also sound buzzers until restored to their 'normal' positions.

During the winter an annoying fault developed that had one of the buzzers sounding continuously when the signalling system was powered-up. A rare dry day in spring finally allowed an investigation, and removal of the cover of an under-track connection box revealed all



- those damned Formicidae had again filled the interior of a box with damp mud!

After our first experience of nature's little creatures squatting in S&T's property several years ago, all

conduit/cable entries into our six under-track boxes had been sealed with silicon, but having cleared the mud from this box we found just a few scraps of silicon. The blighters must have eaten most of it, or taken to their underground bin!

But around the same time, a really challenging signal fault

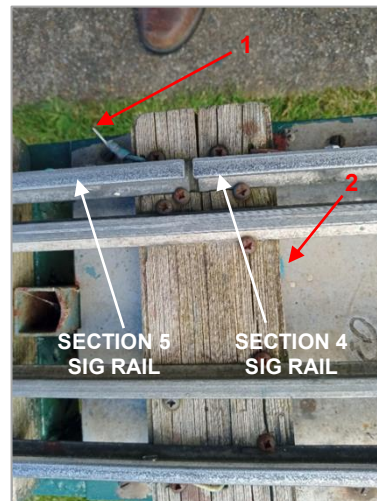


led to much head scratching now and again, a particular signal would stick stubbornly at red, before restoring itself for no apparent reason. Vibration nearby seemed to trigger this intermittent mis-op.

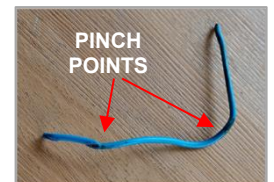
Finally, following much testing and probing with a multi-meter, the cause was proven to be a single blue wire – an important wire – the connection to a signalling rail. Shown on the photo as '1' unbolted from the rail, there was only intermittent and poor continuity between it there, and the under-track box nine inches away below! How could that possibly be?

Look at arrow '2' ... pinched between a sleeper and an adjacent stainless-steel security plate you can just see the very same blue wire. Natural ageing of the wire insulation, with constant vibration by trains passing had allowed water to penetrate and led to corrosion of the wire strands and their eventual breakage inside.

We don't want too many more faults like that!



DERECK L.





IN MEMORIAM

MIKE WHEELWRIGHT 1941-2024

When the Society was re-formed in 1974 Michael became a founder member. However, for the first few years his appearances at meetings were infrequent due to his employment overseas. He had extensive knowledge of railway engineering, with steam locomotives in particular, dating from his early years as an ardent 'train spotter'. He began his modelling times by building a published design for a 4F loco while away.

Upon his retirement he became a fully active member of the Society, rarely missing a meeting, except when spending part of each winter in Spain. Here he set up his second, "small parts" workshop to make components for the job in hand at home. However, while there he continued with his regular contributions to every copy of our newsletter, and would prepare talks that he planned to give at our evening meetings. These continued right up to his suffering a stroke which robbed him of most power of expression.

Entertaining as they were, these aspects of his desire to share were always well-received, but the detailed depth of his historical knowledge, and in particular his expert mathematical calculations and explanations sometimes went 'over the head' of some of us lesser mortals!

Two of Mike's five-inch models were especially admired – his 'Claughton' and 'Midland Compound'. They were both conceived on his drawing board at home and built from scratch, with few commercially available components, and were fully detailed to particular prototypes that he had researched in depth.

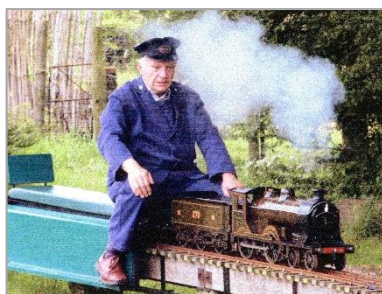
He was a member of both the Guildford and Brighton & Hove clubs as well as serving two years as chairman of Worthing during which time he produced the framework for our 'Code of Conduct for Public Running'.

By nature, he was always ready to offer practical assistance to not only any individual member, but to the club as a whole – for example by participating in our 'Kids Courses', and at public running either as Track Controller or driving his 'Hunslet'.

Mike had been suffering from lung cancer for a while. He had recently spent his 82nd birthday and Christmas in Spain with family.

We were happy to hear that in his final weeks he was still able to enjoy Mediterranean food and sunshine. When his condition worsened, he was in little pain and died peacefully.

We send our condolences to Mike's family.



On Saturday 6th April the club was delighted to host the Horsham & District Radio Control Model Club. Our member Robert Adams who is also a member of the Horsham club, organised the event in liaison with Geoff Bashall.

The visitors brought along a fine selection of model aircraft for display. While the club house was kept busy with teaming, out on the track, engines both steam and electric were there to offer a chance to drive and experience our railway activities.

This was then followed by a fish and chip lunch organised by the kind office of Dave Parsons and Robert Adams. The event was hailed a success, especially as it didn't rain! A number of very complimentary remarks were posted by the Horsham chaps.

**AUGUST SATURDAY 17TH
WILL BE A FUN DAY/
SAUSAGE SIZZLE
CELEBRATION OF OUR FIFTY
YEARS FOR CLUB MEMBERS
AND THEIR SPOUSES.**

Blind driving and other fun things. It's the time when all members are expected to smile and have fun. Slightly amused members will not be welcome! 😏

MY WIFE WANTED TO BRIGHTEN-UP THE BACKYARD AND ASKED ME TO MAKE HER A HANGING BASKET – OF COURSE I WILLINGLY LEFT AN IMPORTANT JOB IN THE WORKSHOP AND OBLIGED. SHE SHOWED ME NO GRATITUDE



WORDSEARCH by DAVID LEWINS. FIRST PUBLISHED IN ISSUE 107, AUTUMN 2009

In the absence of any member's quizzical contributions to this spot of the newsletter, I have decided to reprint the 'Wordsearches' submitted by our late member over an unbroken period of twenty-three years. I'll bet no one will remember completing them for the first time!

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|-------------|-----------|
| ADMIT | METRIC |
| ALABAMA | MOTHER |
| ARBOR | MYFORD |
| ALIGN | NATAL |
| ALISTAIR | NETTA |
| ASHPAN | NUT |
| ATOMIC | OARS |
| AVON | ORBIT |
| BOLT | ORDER |
| BRAD | PATIO |
| BRITANNIA | PIANO |
| BUDGET | PILE |
| CAMELOT | PUNTER |
| CHAR | RADIO |
| CLAUD | RATIO |
| CLIO | ROTA |
| DOORWAY | ROBROY |
| DORIS | SLEEPER |
| DUNDEE | SPEEDBOAT |
| ENIGMA | SPEEDY |
| EROS | STACK |
| EUCLID | STOAT |
| FIBRE | SUN |
| FIELD PLACE | TABLOID |
| FILE | TAP |
| FLOAT | TAPE |
| FOOTBRIDGE | THERMITE |
| GLINT | TIRAMISU |
| HEADLAMP | TOY |
| HELIUM | TRAIN |
| HONDA | WHEEL |
| KETCH | WORSFOLD |
| LATHE | WORTHING |

C	A	S	H	P	A	N	T	H	E	R	M	I	T	E
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A	L	A	B	A	M	A	R	H	I	H	C	T	E	K
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