



NEWSLETTER

November 2023

Editorial

This issue of the newsletter carries a report of the FMES Rally which includes the AALS and FMES trophies, and reports on the Midland Model Engineering Exhibition and LowMex both of which were enhanced by the presence of the FMES stand! Please read the final comments of the FMES Rally report. We need your feedback (hopefully constructive) on the format and/or future of the Rally.

Peter Kenington has written a detailed explanation of the model engineering activities his son Matthew has experienced at Hereford and the hoops he has had to jump through just to get accepted onto a university degree course. Peter is justifiably proud of his achievements so far but the important message to us model engineers and model engineering societies is the value and help our hobby can offer young people as they seek to fulfil their aspirations.

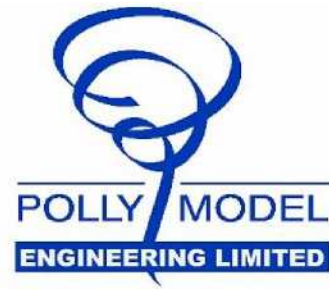
I know that many other societies also encourage young engineers so it would be good to hear of any other cases where a younger member has benefitted from an involvement in the hobby when moving beyond model engineering.

One of the steps towards that is the encouragement offered by the annual Polly Model Engineering Prize. Details are shown on the following page with the reminder that the closing date for entries to the 2024 award is **31st December 2023**. There will not be another newsletter before that date to remind you so please act now to encourage entries before you forget.

I have pinched (with permission) another article written by Ron Barson of Bournemouth & District SME, this time about water and also included is the advance warning of the AGM to be held next March. The location will be the Boscombe Down Aviation Museum near Salisbury

As this is the last newsletter of 2023, I should take the early opportunity of wishing you all a happy Christmas and a happy and peaceful New Year.

Tony Lee



Federation Trophy and Polly Model Engineering Prize 2024

We wish to encourage all Young Engineers to submit an entry for the above prestigious competition!

The competition is not just about well-made models, it is about a Young Engineer demonstrating their interest and enthusiasm both making models or parts of models of all types of engineering (ie railways, cars, boats, planes, stationary engines, tools and equipment etc) AND describing their contribution to the life and activities of their Model Engineering Club.

So, get thinking...the closing date is **31st December 2023** and more details can be found at

<https://fmes.org.uk/young-engineers-2/>

If any adult club members think that a younger member should enter, please suggest this!

Chairman's Chat

Two weeks after the Midland's Exhibition saw three of us stewarding the FMES "meet and greet" stand at LowMex in East Anglia. Organised by the Halesworth & District MES in the East Coast College in Lowestoft this exhibition included not just what one might consider "traditional" model engineering models but much more besides. There were stands with minutely detailed plastic models, not all built from kits, stands with large scale model aircraft, stands explaining the early days of electricity generation, the college's million pound ship's bridge simulator where one could attempt to manoeuvre a ship through a harbour entrance, full size Daleks and large scale army tanks manoeuvring around the floors, even a working replica of a model T ford car. All these of course did not detract from the excellent display of locomotives, rolling stock, cranes, road vehicles, stationary engines, boats and much more. The organisers are to be congratulated on an excellent exhibition especially as any profit went to a local charity.

Less than a week later saw Peter Squire and myself attend, on behalf of the FMES, a much sadder occasion. We were at the funeral of Tony Wood, known to many as "Mr Walker-Midgely". Tony spent his whole working life in the insurance industry and was instrumental in formulating insurance for the specific needs of our hobby of model engineering. Besides much else Tony was for many years chair of the Model Engineers Liason Group (MELG). We owe Tony a great debt of gratitude for his work on our behalf and I am sure you will join me in sending our sincere condolences to his family and many friends.

As usual may I wish you many hours of enjoyment of our hobby of model engineering.

Bob Polley

The Federation Committee sends its heartiest congratulations to Mike and Jean Chrisp on the celebration of their Diamond Wedding Anniversary recently.

The cake is topped with an image of the Titfield Thunderbolt (which is where Mike's interest in model engineering began all of 72 years ago). The happiness of Mike and Jean together shines through in the photograph.

To be parochial, Mike is a Vice-President of the Federation and, although behind the scenes, Jean has also contributed significantly to the Federation's work.

The real roses embellishing the cake are of the species *Diamond*.

We all send them very best wishes for the future.



Young Engineers Matter

This is a story of how an enlightened model engineering society helped one specific young engineer to achieve his dream. It is only one tale among many, but hopefully illustrates what a profound difference an MES can make to a young person's life. The fact that the young person in question happens to be my son doesn't in any way detract from its relevance and it is one of many examples of which I am personally aware. I just happen, unsurprisingly, to be very familiar with the details of this particular tale.

I'll get the 'proud dad' bit out of the way first. Regular attendees at FMES AGMs, together with readers of Engineering in Miniature (EIM), will know Matthew quite well by now. He has entered the FMES Trophy (a.k.a. the 'Poly Prize') on a number of occasions and has won it twice. He has also written a number of articles which have been published in EIM, over the years. He took his A-levels this summer and managed to achieve what he needed to get him in to his first choice of university: Imperial College London. This is an exceptionally competitive university, arguably the best in the country for his chosen subject, and he has done very well to get there. We have an entertaining tale (with hindsight) of a very stressful journey to Bristol (where Matthew's now former school is located) to collect his results, involving accidents on two motorways and horrendous traffic jams, but this can wait for a quiet evening in a local hostelry. His university subject? Mechanical Engineering (of course).

OK, so enough of the trumpet-blowing. This is not an article about what Matthew has achieved *per se* and I hope it doesn't come across as 'showing off' in any way – that is not its intention. It is a tale about how an MES inspired a young person to pursue engineering and provided him with the background to win a very tough national competition – entry into one of the toughest courses at one of the toughest universities (if not *the* toughest) in the country. As we will see, his time at Hereford MES' Young Engineers club was a crucial part of his success, without which, he would have been 'just another well-qualified candidate'.

On the surface, he has everything against him in the modern university admissions system. He is not from a poor, inner-city, background. He was not educated at a struggling comprehensive school. He is not the first generation of his family to go to university (and, yes, you do have to declare this on your application form and woe-betide you if you are caught lying...). He has no disabilities either physical or in terms of learning (he is not dyslexic, for example). He is not from an ethnic minority. He is not transgender. And finally, he is not a girl – this has the additional disadvantage of excluding him from virtually all bursaries at his chosen (science/engineering biased) university. I tried hard to persuade him to self-declare as a girl (the bursaries are *very* lucrative) but to no avail. In financial terms, he is not an overseas student paying £40,000+ in fees. In short, there are no admission biases from which he could benefit.

But surely grades matter? I hear you say. Yes, they do, of course, matter, but there are many times more candidates who are predicted (and, indeed, achieve) top grades than there are places at the most prestigious institutions. Matthew faced odds of around 13:1 against *and that is with rival candidates, all of whom are predicted to achieve the required (top) grades*. In short, top grades alone are not sufficient.

This is where the membership of, and active participation in, an MES played a vital role. But how? Let me introduce those of you who attended university when Newton was still a professor, or went through the apprenticeship route, to the concept of the 'personal statement'. The personal statement is a part of the UCAS (Universities and Colleges Admissions Service) application process and is seen by all of the university admission tutors, from the institutions to which you apply.

As an admissions tutor, when faced with vastly more applicants than you have places to offer, all of whom (potentially) will meet your very tough grade requirements, how do you differentiate between candidates? One way is, of course, to burnish your 'diversity and inclusion' credentials by offering places (often at lower grades) to candidates with mitigating characteristics (discussed above). But what if you're a candidate without any of these – how do you stand out? The only way you can do so is through what is written in this crucial document.

Your 'personal statement' is a 4000-character (max) – around 700 words – discourse covering your notable achievements to date, any work experience, positions of responsibility and, crucially, why you are interested in studying the particular subject for which you are applying. It cannot be overstated how important these 4000 characters are to your chances of getting an interview, let alone a place at your chosen institution.

Let's deal, initially, with the first three aspects. Every candidate has notable achievements of some sort (and the decent schools make sure of this). It could be sporting success (it is quite easy to get to county level in a wide range of minority sports – Matthew did this with archery), winning school prizes (many schools have a myriad of these and so almost everyone gets at least one prize) or simply helping out at a suitably in-vogue charity in your spare time. Likewise, every candidate has undertaken some form of work experience; this is typically mandated in most schools and is of very questionable quality in most cases (Matthew's being one of them – all good fun, but certainly not 'work experience' in any reasonable definition of the term). Finally, positions of responsibility; again, more or less every candidate has something to claim here, from a position in scouts/guides, through being captain of a sports team, head of a school committee or club (and there are now lots of these – eco committees, school council, history societies, debating clubs, etc. etc.). Again, a half-decent school makes sure than any half-decent candidate can claim at least one accolade of this type.

So, that leaves the question of why you wish to study your chosen subject. This is so important and the above achievements/work experience/responsible positions wheezes are so well known to the universities that the better ones emphasise, in their guidelines, to only include *highly-relevant* examples and *very few* of even these. In short, what they want to understand *in detail* is why you want to study your chosen subject (mechanical engineering in Matthew's case). They are looking for a genuine and provable passion (one backed by credible evidence). This is where belonging to an MES comes into its own.

There are two aspects where membership of an MES is of relevance:

- 1) Nurturing a nascent interest. In Matthew's case, he was interested in understanding how things worked and loved technical things, especially those he could control (e.g. radio-controlled cars). For many of his contemporaries at school, this was as far as things got – a general interest, with no outlet for this to grow (and don't get me started on school Design Technology lessons...).
- 2) Providing opportunities for that interest to have a practical outlet – in short, learning how to design and build things.

At this point, I'm sure you're thinking that Matthew would have pursued some sort of technical education and university degree or apprenticeship anyway, irrespective of his involvement at Hereford SME. Whilst this may be true, I'm not sure it is a given. He is also very keen on history and, indeed, this was one of his A-level subjects, He both enjoyed it and was very good at it, regularly achieving top marks in his essays. In another life, I could quite easily see him heading down this path.

Matthew joined Hereford's Young Engineers club at the earliest opportunity, shortly after his 12th birthday. Right from the outset, the club was very supportive. We had heard about HSME and the 'young engineers' (YE) activities, in particular, from a couple of HSME members who were also involved at the miniature railway at Tintern, where we also helped out. One day, we turned up at Broomy Hill and were pointed in the direction of the Chairman, Wally Sykes. Despite it being a busy running day, and Matthew being a few months too young to join YE, Wally gave us a comprehensive tour and told us all about the club. The idea that he would be allowed to get hands-on with big, powerful, industrial machines and to make stuff (which worked!) using them, enthralled Matthew and he couldn't wait to join.

From his first day, he was hooked. John Arrowsmith began to teach him (and, ahem, me also) how to use a lathe (Photo 1), just making a few shapes from some off-cuts. He quickly graduated to making a simple oscillating engine (Photo 2), which was an excellent starter project.



Photo 1: Matthew, aged 12, turning the flywheel for his oscillating engine



Photo 2: Matthew's oscillating engine (from bar stock) – serialised in EIM

It was useful in two ways:

1) Despite its simplicity (I'm sure most of you could knock one up in an afternoon), it took a few months to complete. In an era of instant gratification and attention-spans which struggle to make it to the end of a TikTok video, this was a useful lesson.

2) Encouraged by John, Matthew wrote up his oscillating engine as a construction series for Engineering in Miniature (EIM) and it was published. This was both an enormous thrill and a source of funds for his next project, a Stuart S50 (Photo 3).



Photo 1: His second project: a Stuart S50 (from castings)



Photo 2: Ground/raised-level riding truck in 5" gauge

He has since worked his way through two riding truck/tenders (one for 5" gauge ground and raised-level operation – Photo 4 - and one for 7 1/4" gauge, Photo 5) and is currently part-way through making a GWR tender in 5" gauge.

But to concentrate just on Matthew's projects over the years misses a large part of what YEs has brought to his understanding of engineering. He has been surrounded by other young people doing a huge variety of different projects – Daniel and his Foden wagon, James and his giant loco (as Roald Dahl might have phrased it), Tom and his work-along (Matthew really wanted to build one of these for a while!). Other, like-minded, people doing similar (but different) things, none of which were even close to what any of his school friends were interested in.



Photo 3: 7 1/4" gauge riding truck/tender (designed from scratch in 3D CAD and serialised in EIM)

And then there's helping out on running days (Photo 6), going to the Midlands exhibitions, Much Markle Steam Fair, FMES AGMs in interesting places... I could go on for hours (but I won't!).

So, how is this relevant to university applications and the all-important 'personal statement'? Without YEs, Matthew's love of engineering would have struggled to find a practical outlet and his personal statement would probably have been indistinguishable from every other candidate's. Most are of the form (and I'm not exaggerating here): "I read this excellent book on Brunel and this inspired me to read this other great book on Stephenson and I became fascinated by engineering and decided that this is what I wanted to do at university" (expanded to ~700 words and usually including a sentence or two 'bigging up', in the modern parlance, some aspect of the questionable 'work experience' undertaken by the candidate). Matthew's version was, on the other hand, along the lines of: "I was helping to run a railway from the age of 5 [at Tintern] and was building steam engines and rolling stock (and winning prizes) and getting paid for writing articles for national publications/the NRM (now the Railway Museum) by the time I was a teenager". If you were the admissions tutor, which would you find more compelling?



Photo 4: Matthew (age 18) getting ready for a day of passenger hauling with Tom Rolt

So, this is an homage to Hereford SME and its YE section from a very satisfied customer (and, did I mention, a proud dad?). I can't over-state how big an influence Hereford has been on Matthew and I would strongly encourage any of you with the time and facilities to run any form of Young Engineers section at your MES, to do so. It is, of course, not your responsibility to make up for the shortcomings of the technical education and training system in the UK (something I am sometimes told by model engineers), in the same way that it is not your 'responsibility' to do any charitable, philanthropic or community-focused 'work', but it is a very rewarding and worthwhile way to give something back to a profession which provided you with a livelihood and, I hope, some very happy and rewarding times.

*Peter Kenington
Hereford SME*

From Matthew:

The thing that first struck me when I joined HSME was that there was never an attitude of 'you can't do that!' This was a very welcome change from school DT labs where the number of activities you *could* partake in was drastically less than those you *couldn't*.

Of course, it took time to build up my skills before being able to undertake complex tasks, but it was incredibly satisfying doing my first bit of turning on our (freshly restored) Harrison M300 (purchased with the help and guidance of an HSME member). Feeling confident in lathe skills and the knowledge to work safely, which had its roots in my first turning lesson with John on Hereford's Myford, was hugely rewarding and my skill level improved with each lesson from a Hereford member willing to give up their time and expertise to help me.

The public running days were also very enjoyable, and the feeling of being trusted enough to drive the Club's engines or Doug's B1 (and, later, many other members' locos) made me feel a welcomed member of the Society.

I felt I should end this with a heart-felt thank you to everyone at Hereford; through your knowledge and patience I am able to progress with the next stage of my life (at a university I could have NEVER got into without my Model Engineering knowledge). My university interview was with a world-leading expert on friction. At the end of my interview, in the 'do you have anything you would like to ask me' section, I asked a question about increasing the friction between tyres and rails on locomotives. This astonished the interviewer – he had spent his entire career trying to *reduce* friction in mechanical systems and here was someone with the diametrically-opposite interest. I'll probably never know if this was what clinched my place, but I would like to think so! So, THANK YOU to all at HSME – I wouldn't have got here without you!

Matthew Kenington
Hereford SME

The following YouTube gives an insight into the passenger accommodation in Japan's bullet train which is a bit different to the average Aviva or Virgin offering. The video is quite long and not particularly exciting throughout but does include a shot of the coupling arrangement between two trains (at 19 mins) and an interesting way of heating a pre-packaged snack (at 15 mins).

Riding the Japan's Fastest Bullet Train | HAYABUSA First Class Seat
<https://www.youtube.com/watch?v=sN2oWELKsrA>

FMES Autumn Rally

The Autumn Rally this year was held at the Frimley and Ascot Locomotive Club's impressive track in Surrey where the club managed an excellent day for those who attended, with plenty of chance to run on the one kilometre long multi-gauge ground level track, or the somewhat shorter raised track...indeed, or on both! The weather was kind with a sunny balmy day, well worth the trip.



The event had been advertised in the model press, on the FMES website and in messages sent round to clubs, both electronically and in a letter.

Everyone who attended the event had a good time, with many congratulatory comments from visitors for the organisation by the host club including food, booking in, car parking and stewarding. The event also comprised two competitions this year: the regular Australian Association of Live Steamers (AALS) competition and an inaugural FMES competition set up to complement the AALS award but with broader eligibility criteria.

A difficult judging process was dutifully undertaken by panels of judges from FMES, the host club and previous winners, and they were very pleased to make their selections unanimously.



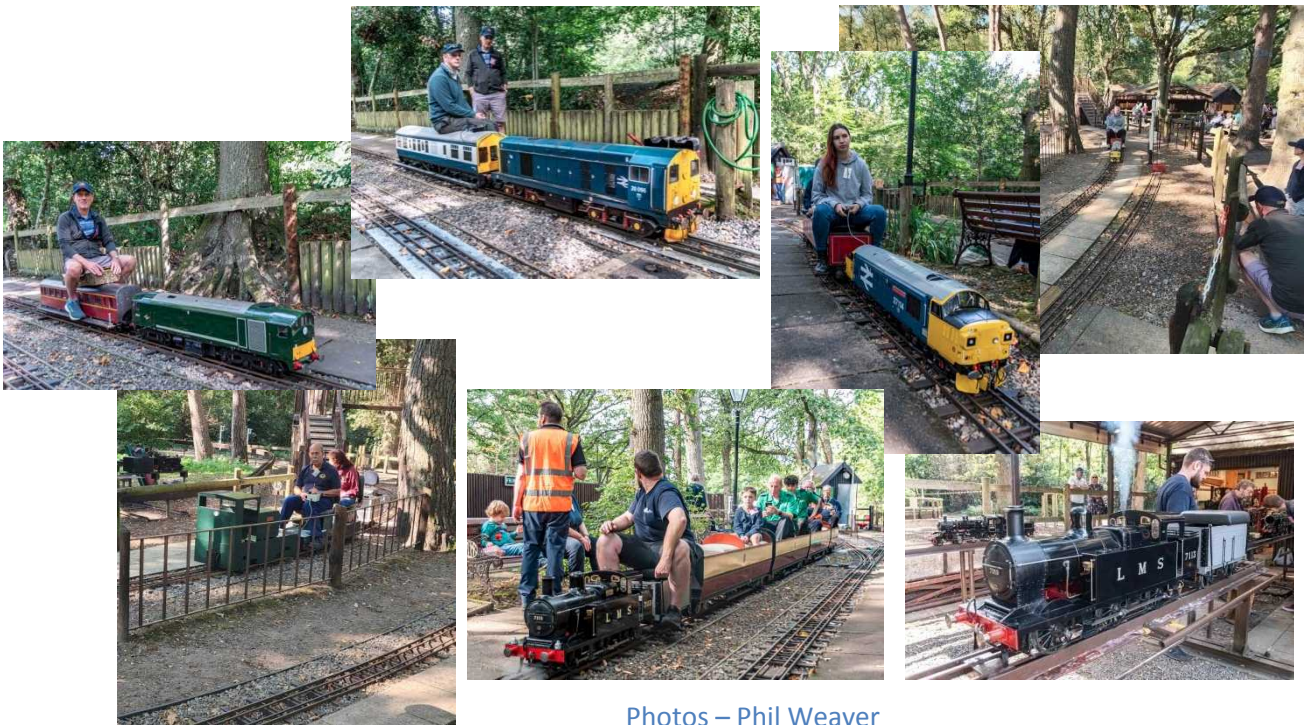
The AALS award went to Paul Norrington of the Romney Marsh Engineering Society with his stunning 5" gauge 4-4-0 'Schools' class 'Epsom'. This locomotive, built from works drawings, took Paul over 12 years to build and this level of commitment showed in its appearance and performance. Paul received the AALS trophy, cash prize and a glass trophy to keep.

Photos – Phil Weaver

The inaugural FMES Autumn Rally competition award was also awarded to a locomotive: this prize includes any Model Engineering aspect that the host club represents, the host club in this case focussed on locomotives, and so the competition this year was for locomotive or other railway rolling stock. The winner was Martin Parham with his magnificent 5" gauge Gresley 2-8-2 P2 class 'Lord President'. Martin built this locomotive around 20 years ago and is built to a prototypical Michael Breeze design.



There were other locomotives of course and these ranged happily across the spectrum including steam, petrol and electric power, and with owners of all ages, as can be seen from the photos.



Photos – Phil Weaver

The reason for the enjoyment of those present was clear to see: the chance to drive on an impressive track, to show their models to others, to meet other model engineers and some old friends and 'chew the fat', as well as compete in two competitions. Our only disappointment was that there were not more members from FMES clubs present to enjoy the Rally. We are not alone in experiencing a reduction in numbers attending these sort of events no doubt impacted by the effects of Covid , rising costs, etc. but are those the only reasons? At risk of being repetitive, we believe that the Rally does provide a valuable opportunity for members of FMES clubs to meet,

exchange views and just have a good day out. Yes, there is something of a focus on ride-on railways due to the competition for the AALS trophy, but that also comes with the opportunity to ride another club's track. However, the Rally only succeeds if it attracts attendees and consequently **we need your feedback** on what you as club or club member think of the Rally in its current form, what could be included that interests you or conversely, whether it is of no interest to you anyway. If there is no feedback, I guess we will have to take the view that there is no interest. Please send your comments, encouraging or otherwise to info@fmes.org.uk .

Paul Naylor

Midlands Model Engineering Exhibition, 12th to 15th October 2023

The hobby was once again supported by Meridienne at the Warwick Exhibition Centre with the annual Midlands exhibition, and once again we are reminded how thankful we should be to those exhibition organisers who allow us to show off the hobby and provide a meeting point for Model Engineers.

This year's exhibition was packed into the available space (and additional space with a marquis and grounds outside) and had a good mix of stands with clubs, representative organisations, trade and other supporters such as Model Engineer Magazine and Walker Midgeley Insurance represented.

The club stands provided some excellent examples of their members interests and railways, boats, cars, traction engines, stationary engines and much more were all in evidence. The Organisers hold a competition for stand excellence and this year the first prize was Coventry MES (left) closely followed by Hereford SMES (part of their long stand, right):



Model Engineering was represented in its many aspects with Tim Henderson (indoors) and Dave Bird of Milton Keynes Clock Group in the doorway of their 'shop':



John Luscott with his magnificent 1:3.5 scale BSA Gold Star (2022 MMEE competition winner):



The Society of Ornamental Turners had their venerable 1837 Holtzappfel lathe on their stand working and showing how to make exquisite patterns in all sorts of materials. What beautiful things from a beautiful machine:



Meccano was in evidence courtesy of the Midland Meccano Guild



and John Thorpe's amazing Flying Scotsman and train, all in Meccano



Model Boats were represented well, varying from performance boats to scale and of all sizes, this one is 'Ashstead' and is a large (around 2 metres long) working replica of a Severn Trow:



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Outside some hardy souls brought their large (up to 6"/ft scale) working road vehicles and could be seen sawing wood, pressing bales or circulating:



The trade offered the chance to buy all sorts from bits of metal, tools, machinery and kits or completed models, both new and second hand (some of those there!):



Stirling cycle ('hot air') engines were represented well with some interesting displays:



The MMEE Class 2 competition was won by 'Jenny Lind' by Peter Wardropper:



Lastly, and certainly not least was the impressive stand by SMEE, conveniently next door to the 'Model Engineer' stand (and opposite us). Both organisations are celebrating 125 years of continuous service to Model Engineering. The SMEE stand had a range of excellent models across all types of Model Engineering and exceptionally were displaying three of Cherry Hill's models and the Duke of Edinburgh Trophy. Cherry herself visited the exhibition and met people on the SMEE stand.

President since 2011, Mike Chrisp (left) and Chairman Alan Berman (right) posing with their regalia in front of the Duke of Edinburgh Trophy:



Different aspects of the SMEE stand, including Cherry Hills three models (centre, beneath the trophy):



From the FMES perspective, we had our modest stand there and had a steady flow of visitors and clubs representatives. We set out to meet and greet our clubs, their members and anyone interested in Model Engineering and we were very pleased to take on questions and comments or just enjoy social chat....we look forward to seeing you next year!

Paul Naylor

Water is water, right?!

I am writing this because there was recently some discussion about the water softener that is owned by the club. I know that this subject has been raised before and as model engineers we should be as knowledgeable as possible about what water can do to our models. Corrosion is the biggest problem for us. Corrosion of steel components usually shows as rust but what about non-ferrous metals? These don't "rust" as such, but they are still the subject of corrosion.

Pure water, that is water that doesn't contain any metal ions is usually only found as distilled water. Even this may contain traces of metal ions from the distillation equipment, which is often glass but can be fabricated from metal. We are unlikely to use distilled water due to cost and availability.

Rain water, well that's good for us to use. It doesn't have much in the way of metal ions because it has come from the skies, but it does have dissolved gases such as oxygen and carbon dioxide, sulphur dioxide, and nitrogen oxides, the latter three from burning fossil fuels. It will contain particulates from the dust in the air. Oh, it also contains among other things living organisms! Bacteria and spores can cause corrosion in our models.

Softened water is probably the best water for us to use, providing the equipment is used according to the manufacturer's instructions, and it is recharged at the appropriate time.

Corrosion Accelerators

1. High velocity and/or turbulence
2. High temperature and pressure
3. Low Total Dissolved Solids (TDS)
4. Dissimilar metal contact
5. Low pH (pH measures acidity or alkalinity. Neutral pH is 7. Low pH is less than 7)
6. Carbon dioxide
7. Biofilm accumulation: microbially influenced corrosion
8. Chemical agents such as chlorine and dissolved oxygen
9. An elevated chloride-to-sulphate mass ratio (CSMR)

High velocity and/or turbulence

Don't try this at home! Water jet cutting of steel is a well-established process. Karcher (normal disclaimer applies) and other high velocity water cleaning systems strip metals. See what it does to concrete. Cavitation often occurs in pumped water systems and can accelerate corrosion of valves and pumps. The smaller the tube diameter the greater the flow resistance. In pressure systems this creates turbulence and high velocity flows.

High Temperature

Chemical reactions (corrosion) are accelerated at higher temperatures. Typically, a reaction at 20 degrees Celsius will be 8 times faster at the boiling point of water at sea level. This is because higher temperatures create more collisions of molecules. Pressure increase also will occur in a sealed vessel such as a boiler. More pressure again causes more collisions of molecules.

Low TDS

OK, this is what I referred to when talking about distilled water earlier in this article. Ultra-pure water is very corrosive as it will dissolve limestone, metals (and gasses).

Dissimilar metals

From school physics or biology lessons you might remember a person called Luigi Galvani. If you don't, he discovered the effect of an electric spark on dead frog muscles (no reptiles were hurt in this article). The name Galvani is linked to everyday corrosion in many ways.

Galvanisation, galvanic potential, galvanic action etc. Metals are more or less reactive. Gold is unsurprisingly, the gold standard and can be attributed the lowest reaction rate and copper and bronzes less reactive than brass or lead. Soft-soldered joints may contain lead, tin, antimony, cadmium etc. All these metals are more reactive than copper. Hard-soldered joints may contain similar metals but will have a higher silver content. The manufacturers data sheets give good information outside of the scope of this article. The point is that dissimilar metals create a galvanic cell which is improved by the addition of - you've guessed it - water. Scale is made up of metal salts and these form mini galvanic cells and this is why we have washout plugs and "mud" holes in boilers to get rid of scale.

Low pH

We all know the corrosive nature of acids. We use acidic "pickles" to clean metals after silver soldering etc and fluxes can be acidic, as well. Long term use of low pH water <pH 7 at high temperatures and pressures increases corrosion. Softened water is usually around pH 7.2 to 7.8 and is very slightly alkaline. Unless you have an aluminium element in your model water with this alkalinity is unlikely to cause a problem. Aluminium also reacts very rapidly with oxygen creating a very fine monolayer of aluminium oxide (the grey tarnish seen on aluminium)

Carbon Dioxide

There is no getting away from it. It is everywhere. In the fizzy drinks like "coke" and in the atmosphere. It is readily soluble in water to form carbonic acid. When heated carbonic acid disassociates into water and carbon dioxide. The acid steam produced will corrode.

Chemical Agents such as Chlorine and Oxygen

These gases are very reactive. Chlorine is added to water to sterilise and kill off harmful to us bacteria. Oxygen dissolved in water allows fish to breathe. It again is very soluble in water. Both gases cause corrosion either by forming chlorides or oxides with metals. The greenish blue coloration seen on copper and brass is due to these gases.

Biofilm

Bacterial slime buildup in water systems is difficult to control. This biofilm causes corrosion by mechanisms outside of this article. It also causes blockages in pipes and is particularly important when involved in the injector stream. Recommended methods of removing biofilm from the like of salt recharged water softeners involves the use of strong oxidising acids such as peracetic acid. Regular use and timely maintenance of the water softener is therefore of utmost importance.

Finally, proper flushing of the water softener and the correct recharge interval will minimise the chloride sulphate corrosion potential. If salt remains in the softener bed this will increase the likelihood of corrosion. This is particularly important where lead is present (such as in soft soldered joints). Well, a bit long winded, but it is important for everyone to know that water and the treatment we give it is important to the running of models especially those using steam.

Ron Barson

Bournemouth & District SME



HSE Bulletin

The HSE are conducting inspections of manufacturing businesses that use metalworking fluids or coolants in their machining processes from now until March 2024. Whilst this HSE action is focused principally on CNC operations and not affect us as model engineers directly, it is a reminder that exposure to metalworking fluids can be hazardous to health. Guidance about working with fluids can be accessed on the following website:

https://workright.campaign.gov.uk/campaigns/metalworkingfluid/?utm_source=govdelivery&utm_medium=email&utm_campaign=mwf-inspections&utm_term=campaign-website&utm_content=mwf-25-sep-23

LowMex 2023



This was my first visit to the “Lowestoft Model Engineering and Model Making Exhibition” otherwise known as LowMex and as far as I know, the first time that FMES has been officially represented there. The driving force behind the exhibition is the Halesworth and District MES and its organising committee and they must be congratulated for putting on a wide ranging dynamic and friendly show.

The exhibition was held in the Energy Skills facility and 6th Form College of East Coast College over the two days, 28th and 29th October. The exhibition filled a main and smaller hall and numerous rooms (I lost count of how many!); the exhibits covered the widest possible range of model engineering and model making activities. Locos and rolling stock of various gauges were well represented alongside traction engines, stationary engines of various types, clocks, boats, radio controlled tanks, trucks and aircraft, scale models and a variety of dioramas. In addition there was the opportunity to try your hand at piloting a boat on the College’s state of the art Bridge Simulator. There were also some very active full size characters from Star Wars and Doctor Who.



The weather behaved itself in the main – the expected storm blew through overnight. It was an enjoyable couple of days and was good to see many exhibits actually working. For example the hot air engines were hot, 16mm and Gauge 1 locos were in steam, the radio controlled tanks and trucks occasionally moved around the halls and the roaming droids and Daleks were also far from static exhibits.

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For us at FMES it was a welcome opportunity to meet people from the local clubs and to talk to visitors to the exhibition. It was also good see the number of young families in attendance. I hope the following selection of photos reflects the variety of models and interests on show.



Tony Lee

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Early warning of 2024 AGM Event

As usual, we try to vary the location of the Annual AGM Event each year to allow as many as possible member clubs to get a chance to come to an event 'relatively close to home'. This year, it is the turn of the south (tending to the south west). We also try to find an interesting venue to provide another reason to attend....and we are pleased to announce that we have booked the meeting facilities at Boscombe Down Aviation Museum just north of Salisbury for Saturday, March 2nd 2024. Confusingly of course, this meeting is to agree matters from the year 2023 and so it is strictly the '2023 AGM'....



We will be announcing the agenda for the day later in the year, but you should know that it will include AGM formal matters for discussion and agreement, the annual prize giving for Young Engineers (so get those entries in!) and maybe other activities. Please plan to come and take note when the formal notices are circulated in January 2024.

The museum has some interesting and evocative aviation-based exhibits, and attendance at the AGM includes free admission to the museum, which is open from 10am, with our activities starting at 12 noon. There will be a buffet lunch at 12.30pm.

More details of the venue can be found at <http://www.boscombedownaviationcollection.co.uk/> and we will publish details of the AGM later in the year.



Housekeeping/Information

Subs and membership admin

We can now report that we have collected all of the 2023/24 membership subs due, so thank you to all clubs for responding. Traditionally, it always seems to take a 'good few months' to get this task done, no doubt for many reasons. One that is appropriate to mention and ask your help for is the task of maintaining our database of appropriate contacts. As you know, we have a 'primary contact' for each member club for correspondence (and some other contacts with specific duties), and we need to keep this data current. The primary contact can check the data that we hold using their website login, and we will implement any changes communicated to us by a responsible club officer. Please try to regard this activity as something to regularly attend to, especially if your club has made changes recently.

We have a 'Membership Secretary' role that was established a while ago when we had separate databases. Now though, and thanks to the new systems that we use, we find that this role is largely being absorbed by others (such as the Secretary and Treasurer). So, from now on, we will drop this 'membership secretary' role.

We have the 'Apply to Affiliate a Society' option on the website home page if you want to become a member or the form on the website for alerting us to changes in your contact information. The info@fmes.org.uk email address however will always get a response and redirection if relevant to the right person.

CE marking of boilers: update 2023

Following recent questions, we have compiled a brief note on this topic. This is available on our website at <https://fmes.org.uk/pressure-vessels-and-testing/>. It describes some comments about the implications of CE marks, what is required to verify a CE mark on a boiler and the impact of Brexit.

FMES Committee

President	Brent Hudson
Vice President	Mike Chrisp
Vice President	Ivan Hurst
Chairman	Bob Polley
Secretary	Peter Squire
Treasurer	David Goyder
Vice Chairman	Paul Naylor
Boiler Registrar	David Mayall
Safety Officer	Robert Walker

Support Team: Peter Harrison, Jim Hollom, Peter Kenington, Tony Lee, Melvyn O'Connell

INSURANCE CLAIMS AND INCIDENTS

All claims and reports of incidents should be notified in the first instance to Walker Midgley
FEDERATION INSURANCE BUSINESS Managed by Walker Midgley Insurance Ltd

Committee members' contact details can be found on the Federation MES web site

www.fmes.org.uk

Publications Available from FMES

The FMES publications listed below are available from our stand at rallies and exhibitions or by post from David Mayall. Please make contact first by phone or email to get combined postage costs when ordering more than one item. (See note below). The figures shown here are for single items only. Please make cheques payable to 'Federation MES' or use BACS to Sort Code 20-71-82 Acct 43755967.

	From Our Stand
Examination & Testing of Miniature Steam Boilers BTC 2018 - Orange Book	Free
Vol 1: 3 bar litres to 1100 bar litres; Vol 2: under 3 bar litres; Vol 3: LPG tanks under 250 ml.	
Boiler Test Certificates - Pad of 50	FREE*
Written Scheme of Examination - Pad of 50	FREE*
Small Boiler Test Certificate - Pad of 50	FREE*
Boiler History Record Card - Pack of 10	£3.50
Plastic wallets to hold certificates size A5	£0.75
HS 2020 Passenger-carrying min railways 'Guidance' post included	£4.00

David Mayall

Tel:+ 44 1252 684 688

[Email: david.mayall@fmes.org.uk](mailto:david.mayall@fmes.org.uk)

* These publications are issued free of charge to fully paid up member Clubs and Societies ONLY, and are NOT available for general sale. For delivery by mail, the cost of postage and packing is £5.00, and must be borne by the Club/Society placing the order.

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