

## SPRING NEWSLETTER 1975

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### President: Councillor P.J. Robinson

Hon. Chairman	Hon. Secretary	Hon. Treasurer	Hon. Press Officer
A.H.W. Payne, 38, Oxford Road, Maidstone, Kent. Maidstone: 57545	R. Milliken, 14, Hurstwood, Chatham, Kent. Medway: 67978	P.A. Roots, 97, Tonbridge Rd, Maidstone, Kent. Maidstone: 58599	G.B. Basedon, 56, High Street, Eastchurch, Sheppey, Kent.

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Any contribution to the Newsletter is gratefully received, although it may be held over for a future issue. Drawings must be black ink on white paper and fit within the page for same size reproduction. Material for the Summer edition should be received by the Press Officer not later than June 1st.

## SECRETARY'S REPORT

Though it seems to me only yesterday that I wrote a few notes for the Christmas Newsletter, our worthy editor is again hovering for another contribution. Whilst I am not exactly reluctant, this is a rather quiet time for activities at Mote Park, although behind the scenes there has been considerable turmoil.

The marathon A.G.M. attended by thirty six Members, is reported elsewhere in this issue and suffice it to say that, though it is a lot of work for the Secretary, it illustrates that Members are interested in the aims and future of the Society.

The question of Income Tax, which has meant a lot of work for Committee Members, is now in the final stages. Mr. Roots and I met the Accountant last week with the last of the paperwork to be digested and presumably regurgitated into a form that only the Tax Inspectors understand. The ultimate assessment we do not know at present, but if all goes well it should be comfortably within our present means, which is a reassuring thought. The future accounts will of course be more complex, but at least the Society will now run on a legal basis and expenditure can be planned, instead of the vague previous arrangements, hoping all the time that the Taxman would not 'feel our collar'!

Members who have supported the new Safety Rules in operation last year, will doubtless have read the several articles on this important aspect in recent editions of the Model Engineer. In spite of the acrimony at the time of introduction, operation on the track at Maidstone has run more smoothly, and more safely ever since. The whole problem of passenger safety was the principal reason why we declined to join the Southern Federation Insurance Scheme, which is about to begin. The Committee considered that being bracketed together with twenty other clubs, who may operate with a less satisfactory safety standard, would not in the long run be any cheaper. In addition, when one adds the Race Track cover, Council indemnity, fire risk, vandal risk, burglary etc. the difference in cost would be marginal, if any at all. To me it seems a 'cart before the horse' situation whereby collective cover is introduced before a collective standard is even suggested.

Last month, Members replaced 230 feet of rail on the first curve of our track, which has vastly improved the ride. This, together with some levelling alteration at the far end, should put the track in first class condition for our 25th Season at Mote Park. Maybe we will even manage to finish painting the guard rail.

In addition plans are being considered for a rebuild of our steaming bay arrangements. The original bays gradually evolved as circumstances changed over the years, but are now inadequate for our present needs. A scheme to improve the bay arrangement, including rebuilding of the coal store, would be appreciated by everyone. A lot of work would be entailed moving the blower electrics, building new bays, possibly installing air supplies etc. but would not be expensive and could be done in the Summer, without causing too much interruption. Complementary to this outline plan would be an approach to the Corporation, requesting an access strip for cars so that we may drive down the embankment in all weathers. Such is the position at present as hopefully we look forward to enjoying a successful 25th Season at Mote Park.

Ray Milliken

Hon. Secretary

## A.G.M. REPORT

The Annual General Meeting of the Maidstone Model Engineering Society was held at the Clubhouse on Friday 21st February, 1975. About three dozen Members were present and apologies for absence were received from Mr. J. Liversage, Mr. J. Locke, Mr. S. Wood and Mr. C. Young. Our President, Councillor Peter Robinson was also unable to be present due to a prior engagement. The Chairman then asked all those present to stand for a few moments in memory of those Members and friends whom we had lost during 1974.

The Minutes of the 1974 A.G.M. were read by the Honorary Secretary and approved by the Meeting; there were no matters arising. The Hon. Treasurer then presented his Report for the financial year ended 31st December 1974 and proceeded to explain the balance sheet which was duly approved. There was no Chairman's Report and the matter of our tax liabilities was raised by Mr. E. Rix. The Hon. Secretary took the opportunity to explain the progress to date and expressed the hope that the matter would soon be brought to a conclusion.

The Officers of the Society were re-elected and Mrs. A. Baseden asked for it to be made clear in the Minutes that there were no alternative nominations offered. The Council were re-elected, with the exception of Mr. G. Gregson who did not stand and was replaced by Mr. B. Lawson. Barry is, relatively speaking, a "backroom boy" of the Society who has nevertheless made a considerable, if unpublicized, contribution to the Society. There were no additions to the Honorary Members who were re-elected en bloc, and no additional Life Members were proposed.

The position of Minors driving railway engines on the Mote Park track was raised and after considerable discussion it was decided by a majority vote that where Parents or Legal Guardians do not attend, anyone under eighteen must produce written evidence that such Parents or Guardians approve of them being allowed to drive. The minimum age for hauling the general public was confirmed at sixteen, but then only after application to and at the discretion of the Committee.

Mr. B. Harris requested the re-instatement in the Minimum Standards for Trucks of the item specifying a maximum rigid wheelbase of 30". The matter was discussed and approved by a majority, as was a suggestion from Mr. R. Linkins for a strong recommendation that future privately owned passenger trucks should conform closely to the new Club trucks in their design and form of construction.

There were two schools of thought on the question of raising the annual subscription. A proposal from the floor to raise the figure to £3.00 was narrowly defeated and the Committee's recommendation of £1.50 was passed. This will come into effect with subscriptions for 1976. Mr. K. Linkins' proposal that the entry fee for new Members be re-introduced at a figure equal to, and in addition to the subscription current in the year of joining, was approved. This comes into effect immediately. A suggestion that the subscription for Members' wives who are Members in their own right should be reduced, was rejected in the light of opinions expressed by the ladies concerned. A few people have already paid £1.50 for the current year in error and in the absence of further instructions to the Hon. Treasurer the excess will be credited against their 1976 subscription.

The Meeting approved the Chairman's suggestion to hold a Dinner in the Autumn and enquiries will be made for a suitable venue. Mr. E. Rix requested that it be held locally with consideration given to the possible transport difficulties for some of the older Members. Mr. P. Howard strongly recommended "The Orchard Spot" at Bearsted and further enquiries will be made in ample time for details to be published in the Newsletter.

There being no further business the Meeting closed at 10.30 p.m.

Graham Baseden

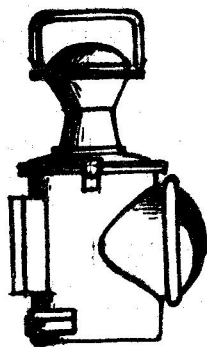
### LIGHT IN OUR DARKNESS - AGAIN!

Sitting on the top of our kitchen cabinet is the lamp from which the accompanying sketch is made and which is also the prototype for the model that adorns my little  $3\frac{1}{2}$ " g. narrow gauge engine.

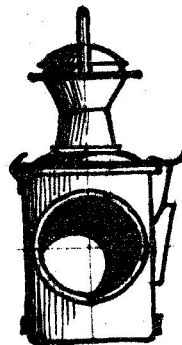
The design is a B.R. one and I have seen absolutely identical lamps on the front of 02's on the Isle of Wight and on "Flying Scotsman". This year is the 150th anniversary of the opening of the Stockton & Darlington Railway, which has prompted the publication of a book on that subject by K. Hoole, in which a number of photographs are reproduced of the engines displayed at the Centenary celebrations in 1925. Among the locomotives is an L.N.E.R. "Tennant" 2-4-0 shown at Faverdale with a lamp very closely resembling mine, so the design must be a very old established one.

Anyone who wants to measure up my full size example to suit a different scale than the sketch, is welcome to do so.

Don Paterson



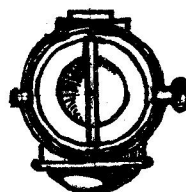
SIDE



FRONT



BACK



PLAN ON TOP

SCALE  $\approx 1\frac{1}{2}$ " to 1'0"



## PERSONALITY PROFILE - 1

Most of our Members will know Jack Carr personally. We had a long chat one evening a little while ago when Jack unfolded the fascinating story of his career and doings up until his latest creation, "William Shakespeare".

Born and brought up in London, Jack started work at the age of fourteen as an apprentice millwright with "Clarke & Nichols", better known as "Clarnico", the sweet manufacturers. From van boy he progressed to van driver and also drove the company's own horse drawn, steam fire engine. Apart from practices, it was never necessary to use it during his time and the biggest problem was stopping a heavy machine of that type with primitive brakes. After about two years he started his millwright apprenticeship proper.

In those days "Clarnico" were virtually self contained and the engineering staff were responsible for all the machinery on the site, which even included a complete electricity generating station that had been bought secondhand, dismantled, transported and re-erected by them. Jack started in the "steam" department, and had two years there to learn all about the subject. There were six boiler houses and a total of about 30 boilers, which supplied steam for various purposes, from heating the sugar and glucose pans to powering the triple expansion steam engine in the generating station. This used steam at 150-90-45 lbs. per sq. in., which was then passed through a valve to reduce the pressure to 15 lbs, to be finally used for heating the factory. The steam returned as hot water to sumps under the boiler from whence it was pumped by a weir pump, back into the boilers.

Jack then went into the engineering shop proper, which employed about fifty men in those days. They were all called millwrights and were proficient on all types of machinery from the boilers to the coal conveyor which fed the former. This carried coal overhead, from barges to the stockpile from where it was fed to the automatic stokers. The big problem with this conveyor was that every 12 months the chains would be declared unsafe by the insurance company because of crystallization of the metal. To avoid having to replace the chains annually they were dismantled and laid out on a road in the works precincts, coiled back on themselves to form a pile about one hundred yards long. All the broken wooden sweet boxes and anything else that would burn, were then heaped around this pile and a match put to the lot. This was kept burning until all the chain was red hot and then it was allowed to cool off. With the temper restored the chains were passed fit for another twelve months and re-instated.

About the only thing that was not tackled in the works were the chocolate rolls. These were a whole series of steel rolls with a minute clearance between them, which squeezed the chocolate into a film .005" in thickness. The rolls had a ground finish and the chocolate transferred from one to another because of progressively cooler rolls, obtained by passing temperature controlled water through them. A knife in contact with the surface of the last roller removed the chocolate, which was deposited in a form not unlike today's "Cadbury's Flake".

Jack became a "Journeyman" at the end of his apprenticeship and as a skilled engineer twenty-one years old, he was earning the princely sum of thirty shillings a week. His next job was with "The Ford" at Dagenham. This was when Ford had just concentrated all their British Isles operations at Dagenham, instead of building cars

at Old Trafford and tractors at Cork. Equipment was dismantled and shipped from these places, accompanied by at least some of the indigenous labour, so much so that the foundry was known as "Killarney". At this time the Ford toolroom where Jack worked was reckoned to be the finest in Europe, better even than "Herberts". It was presided over by an American nicknamed "Two Gun Pete", because he wore trousers with a pocket on either side, as opposed to the standard in those days of only one side pocket. In his four to five years at Ford, Jack did jobs far divorced from toolroom work, because those were the years of the "Depression". In those days, if there was no work in your department you could walk round the factory and ask the various supervisors and foremen if they had any work. This might entail pure labouring, like cleaning up cylinder blocks with a wire brush in a paraffin bath. Can you see today's shop steward allowing this?

The atmosphere of Charlie Chaplin's film "Modern Times" was not too far removed from Fords and Jack took a less well paid job just to get away from it. This was at "Siemens" electrical works from where he went to "Colemans" a firm which produced foundry equipment. This was another American owned firm and Jack had been asked to join them whilst still at Fords because, when using some of their equipment installed in factory, he had made it work faster by accidentally swapping the inlet and outlet pipes! The boss had been impressed by someone who was obviously an experimental and development engineer and Jack never let on! He had the task of setting up a manufacturing plant from scratch, as previously all the equipment was made under sub-contract. Incidentally, after various mergers and take-overs the firm is now called "Stones" of Deptford and are reputed to be the biggest founders in the world.

By this time Jack had married Miv, and his next job was at Standard Telephones, where he stayed during World War Two and was indirectly involved with the manufacture of Asdic, "Pluto" and the biggest radio valves ever seen. These latter were used in the transmitters which counteracted "Lord Haw Haw's" broadcasts, and eventually reached a height of six feet with  $\frac{3}{4}$ " hollow copper electrodes, through which cooling water was passed at forty gallons per hour by a small pump. They also produced the first transistor about this time.

After the end of the war, Jack started business on his own account with a lathe and radial drill in a hired garage. The lathe was used for grinding crankshafts and making moulds, amongst other more mundane turning. He still has some of the aluminium planes made from one of his moulds! After a "Grinding" start (sorry!) things got better and he was able to buy better machines and move out to Canterbury. The firm he helped to found is called "L.C.P.", the middle letter standing for Carr.

Jack retired about six years ago and at first concentrated on sailing. But this did not really satisfy him and he was still looking for a hobby. His pre-war interest in model power boats had waned, but he felt that he wanted to build models of some sort. Sorties to "Steam Age" and similar premises only provided a set of traction engine drawings, for which there were no castings available. He was determined to build a railway engine by then and somebody recommended that he try "Kennions". Here he found the information and help he had been looking for and decided to build "Butch" because, in Jack's words, it seemed "a little toughie" and was reported to have pulled 30 cwt. So he took the plunge, bought all the drawings and castings at one fell swoop and settled down to the job.

Jack had already set up his workshop in a 10' x 6' wooden shed in the garden.

This he quickly extended to 10' x 10' after an incident during the building of his boiler when he set fire to the roof and his drawings as well! The shop was built in panels which are lined on the inside with tarred paper, and the whole effort cost only £32.00, including a wooden cavity floor. The heating is by electric convection, which gives slight condensation problems. A "Le Blond" Regal 5" centre lathe is the main machine tool. This is a heavy industrial lathe with 22", hardened "Vee" bed, a Norton type gearbox on the lead screw, and a new one would cost you about £1000.00. Jack's training in the toolroom has probably some bearing on his dislike of gap bed lathes and his liking for collets. He reckons to do about 85% of his turning with collets and considers them well worth the expense. The range covers all sizes from  $\frac{1}{4}$ " to 1" in  $\frac{1}{16}$ " increments and he uses home made split brass bushes in a collet for any odd sizes. Hexagon and square stock is held in the next size up i.e.  $\frac{5}{16}$ " A/F in a  $\frac{3}{8}$ " collet. When he started the workshop he had only a  $\frac{1}{4}$ ",  $\frac{5}{16}$ " and  $\frac{3}{8}$ " round H.S.S. toolbit. He uses these for boring as well as turning, except on subjects like cylinders, and clamps them in home made holders. These are a bit of  $\frac{3}{8}$ " square, bored to suit the tool, slotted and clamped in the toolpost. He also has three  $\frac{1}{4}$ " x  $\frac{1}{4}$ " H.S.S. double ended tool bits. Jack thinks that the important thing is as sharp an edge as possible and he keeps them this way with a slip stone. Obviously, the finer the finish on the tool, the finer the finish on the job, but for cast iron cylinders and wheels Jack uses a tungsten tool which is especially useful for getting under the "skin". With these exceptions, there is no justification for tungsten tools in the amateur's workshop in his opinion, their high cost only being recouped in industry, where heavy cuts and coarse feeds are common. A good bench grinder is an essential item and Jack ensures that the wheels are kept in first class condition.

After six months working five hours a day, five days a week, he had completed "Butch". He arrived at the Park, proceeded to prepare it for a run, and was asked if he had brought a blower with him. When he produced a length of plastic drainpipe one or two eyebrows were raised. With the loan of someone else's blower, a good head of steam was got up and the engine ventured out onto the track. After a few laps the driver had to stop because the pump was putting no water in the boiler. It transpired that this was because Jack had used a piece of polythene tubing for a connection and a hot cinder had made short work of that! No such mistakes with "Springbok" which took a mere 9 months to complete, including piston valves which, despite predictions to the contrary, are still working perfectly in their fourth season. In fact one of Jack's standard fittings is piston valves, because of their lack of friction under steam pressure and resulting lack of strain on valve gears. Although there was initial trouble with the springing and balance, these were overcome and in a recent overhaul he added pounds of lead under the cab to compensate for the "nose heavy" attitude of this engine.

Another standard fitting is "Cannon" type axles. With a spigot of the appropriate diameter turned on the inside face of each axlebox, it is a simple matter to slip a piece of pipe the correct length, and internal diameter over these spigots when assembling the wheels. On his Britannia, Jack has made proper flanges on the tube as per prototype. "William Shakespeare" was built mainly from the makers' G.A. drawing, blown up to a scale of 1" to the foot, plus photographs and a "Profile". Although not poppet valve, the regulator is in the smokebox with outside linkage, as per the prototype. Lubrication problems have necessitated the fitting of a lubricator on top of the smokebox which has cured the initial regulator stiffness. A lot of attention has been paid to getting oil to the right place, in the right amount and axle boxes have roller bearings, as will the rods and motion when he can get the right material. Jack built

everything including the injectors and pressure gauge, and he did the painting and extremely good lining. The white inner line is drawn onto black tape with a common or garden bow pen, using "Humbrol" white enamel; the secret is getting the paint to the correct consistency and plenty of practice.

For a big boiler like "William Shakespeare" Jack used an ordinary propane torch and a British Oxygen "Sapphire" oxy-propane torch. Although in his opinion tube plate flanges etc., must be a very good fit, the firebox crown stays need not necessarily be soldered to the boiler shell, provided they are hefty, strongly riveted and silver soldered to the firebox. A few rivets hold the crown stays to the outer shell, mainly to locate the firebox when fixing the foundation ring. Another feature of the Britannia's boiler is the large firehole door, included to enable easy fitting and removal of the grate sections. The large grate, about 40 sq. ins., is easy to fire properly with this size firehole, and together with the combustion chamber ensures that there is plenty of heat without overtaxing the fire. This will probably also be a feature of Jack's next engine, which he will probably have decided on by the time this appears.

Are there any tips from Jack? Yes, check, re-check and if necessary check again; it's a lot easier than having to start again.

Graham Baseden

### COMING EVENTS \*

We are trying to organise some visits by coach this Summer. The suggested destinations are:

BRESSINGHAM - Everything from "Royal Scot" to rhododendrons.

MALDEN - 7¼" g. ground level line. 3½" g. and 5" g. raised steel track with flyover.

NORTH LONDON - Long steel raised track, 3½" g. and 5" g. with tunnel, signalling and station.

SOUTHAMPTON - 3½" g. and 5" g. raised aluminium track.

Lists will be displayed in the Clubhouse until April 30th for people to indicate their preferences so that it can be decided if there is sufficient support. We can then contact the other clubs to see if they can fit us in during August, September or possibly October. Full details of any visits will be published in the July Newsletter.

### NEWSLETTER ACKNOWLEDGEMENTS

We acknowledge with thanks, receipt of their latest newsletter from:

Brighton and Hove Society of Miniature Locomotive Engineers  
Bristol Society of Model and Experimental Engineers  
Guildford Model Engineering Society  
North London Society of Model Engineers  
Southampton and District Society of Model Engineers  
Sussex Miniature Locomotive Society.

\* SEE ALSO 'DATES FOR YOUR DIARY' PAGES 10 and 13

## SLIDE AND FILM EVENING

Approximately thirty Members and guests turned out in filthy weather on the night of 18th January and nine of them brought along slides or ciné film (or both!).

This was a very good effort and unfortunately there was not time to show everybody's efforts. Fred La Roche was first away acting as proxy commentator for the slides of Barry Lawson, who was unable to be there. These slides set the general pattern, if there was a discernable one, in that they covered everything from other Clubs to full size traction engines, via the Southern Federation Rally at Mote Park. Reg Holdstock contributed a few slides which made up in quality what they lacked in quantity. Ray Milliken had slides covering various aspects of the Society's activities, some of them quite historical. Ron Heathcote slipped in a few slides while Tim Gregson finished sorting out his vast collection, which took us on a conducted tour of the "great Little Trains". "Tea was taken", as they say in cricket, and afterwards we saw some 8mm ciné film about the rally and our Mote Park track. Another item of real historical interest was some film by Marshall Vine on the last of Maidstone's trolleybuses - did "they" really make the right decision in getting rid of them?

The evening was rounded off by two 16mm sound films about the "Talyllyn Railway". Both were very interesting but I think most people would agree that the first one was the better. It was far more imaginative, more professional, more artistic and definitely tongue in cheek! I can understand why the "Talyllyn" people insist that you show both films to get a balanced view, although I must admit that I found the second film rather pedestrian.

As usual everyone had a good time and our thanks are due to Martin Parham for taking over all the "projectioning" and of course to all those people who took the trouble to sort out their slides and films.

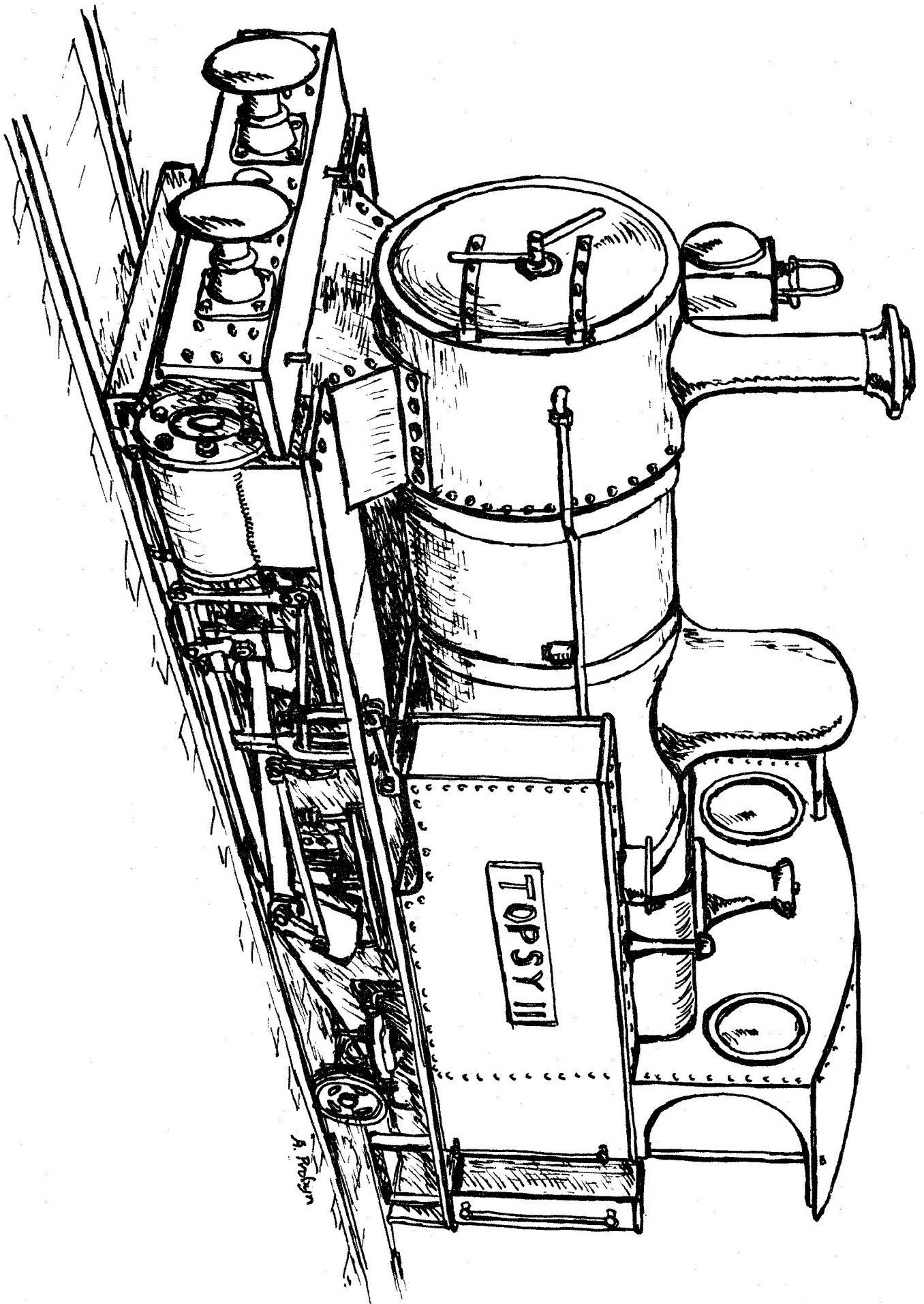
Graham Baseden

## TOPSY II

Basically a 7 $\frac{1}{4}$ "g. "Midge" chassis with the wheels inside the frames and a boiler and platemwork to suit, plus a coat of grey paint to round off the effect, and there you have "Topsy". An ugly duckling perhaps? it all depends upon your aesthetic view of what a railway engine should look like, but in any case an impressive, chunky piece of engineering.

She emerged from the Kings Road Works of Jos. N. Liversage some five years ago and has since done a considerable mileage and provided joyrides for countless children (both young and old!). During the last Winter she has had a minor overhaul, i.e. bearing bushes and crank pins, re-turned wheel treads, new brake blocks and minor repairs to a leaking foundation ring, but she should be back in operation for Easter as good as new. Incidentally, it was interesting that the main wheel bearings show no apparent sign of wear after five years' hard work. This is probably due to the size of the hardened journals (about 1" dia.) which run in good quality bronze split axleboxes.





The boiler is about the most unorthodox part of the engine, being 1/8" steel plate welded throughout, apart from a number of brazed bushes. Instead of the normal nest of smallish flue tubes there is one large flue containing a number of "Galloway" (transverse) tubes. Also in this flue there are two stainless steel superheaters which provide all the superheat necessary to prevent that white fog from the funnel on cool evenings, and also aid the engine's thermal efficiency.

There, in brief, you have it. If nothing else endears her to you, the busy, no nonsense manner in which she does her work, or the way she can be recovered from the misadventures of inexperienced drivers who let the fire down or the water level drop (or both at once!), make her an ideal "learner's" engine and must put her on a par with those sleek, powerful looking red, green and blue engines.

Brian Harris

### EDITORIAL

At the beginning of another year as Editor, I think that this is an appropriate time to thank those people who have heeded my heart rending (or arm twisting) pleas for contributions to the Newsletters of the past twelve months. The success or failure of this type of publication depends almost entirely on a sufficient number of people taking the trouble to contribute, which also applies to our Society as a whole, of course.

A Society such as ours consists of people with widely differing backgrounds and outlooks. The only thing that they need have in common is an interest in the aims and achievements of the Society. Our Members range from those who are present at every gathering to those who are never seen during daylight hours. Although not everyone agrees, my personal opinion is that there is room for everyone, and if the latter type is content to pay his subscription for virtually no benefit, then that is his prerogative.

There has been criticism expressed that the Committee is authoritarian. Surely, if sufficient people were upset by this supposed régime then they would have put forward some nominations of their own at the recent A.G.M. As there were none, it would seem that the disenchanted are in a very small minority, which I personally think is the truth. In which case I think it is fair to say to these people "If you're not willing to row, stop rocking the boat!"

Let me stress that the above views are my own and if anyone wants to put his point, on this or any other matter, then space in the Newsletter is available. Surely if you have a genuine grouse then this is the ideal chance to express it where everyone concerned can see it and judge for themselves.

Graham Baseden

### DATES FOR YOUR DIARY - 1

Saturday, April 5th	Southampton & District S.M.E. Open Day
Saturday, May 17th	Southern Federation Spring Rally
SATURDAY & SUNDAY,	JUNE 14/15th M.M.E.S. SILVER JUBILEE RALLY AT
	MOTE PARK
Saturday, July 5th	East Sussex S.M.E. visit Mote Park.



## THOUGHTS

Whilst surveying my workshop, (for want of a better description), the other day, my thoughts began to wander to rather morbid subjects - the number of ways I could injure myself or even hasten my departure to that Great Station in the Sky, no matter how much care I took while using my present setup.

My "works" isn't that much different to some I've seen - well perhaps a trifle more disorganised than most (sorry "Mr. Stroudley", I think it's a dead heat!)\* The swarf isn't deep enough to cut my feet (through the holes in my slippers) and give me blood poisoning; mind you, there's enough swarf on the lathe to catch in the chuck and end up in my eyes. I think I'll just use that old worn out paint brush, and that bit of plate, to get it off the lathe into the dust bin; besides the finer stuff can get under the slides and ruin a lathe in time. This applies to all machine tools.

Before starting I think I'll get out that pair of safety glasses to wear in case any misadventures occur, and also roll up those loose, floppy pullover (or shirt/overall) sleeves and take that tie off before something gets caught in those gears, the belt or chuck - better still, before I start I'll get a bit of tin and cover up those whirling bits, - might even paint it red, with a proper catch and hinges!

Of course, I can still get tangled up with work, so what if I can't reach the stop switch? Might be an idea to fit an auxiliary stop button with a longish hinged bar over it, positioned so I can belt it with my knee or foot to cut off the motor?

Before grinding another lathe tool I think I'll just make a small box for that new pair of grinding goggles so they don't get dirty. In fact, I think I'll mount the box right next to or under the grinder as a reminder to use them.

The drill press - dead safe if used with care - mind you I think I'll keep that hippieish fore lock under a hat (or better cut it off); wouldn't want to go bald prematurely, and I'll still roll up the sleeves. ("Thinks" - remember when you were an apprentice at Tillings, that chap who got pulled into a large drill by his overall sleeve - he was just wiping some swarf away from the job with his hand - he ended up in hospital!) The safety glasses and an emergency stop button also wouldn't go amiss.

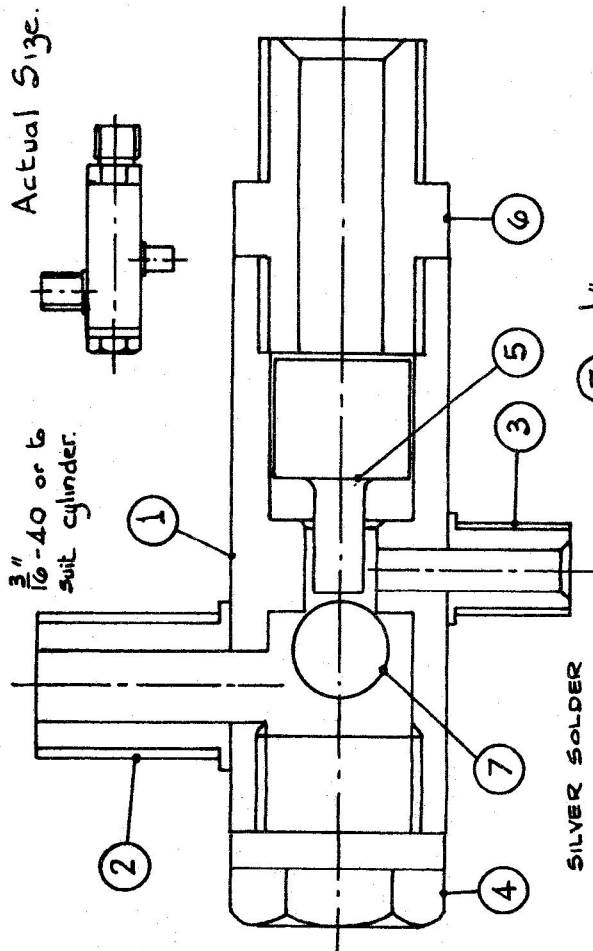
Ah, now I can't go wrong with my hand shaper! On second thoughts it's still a good idea to wear the "glasses", and just as a last general reminder I think I'll scrounge one of those posters for the wall; you know the ones - the dolly bird sweeping up the floor; mind you, never could understand why she's wearing very few clothes.

Brian Harris

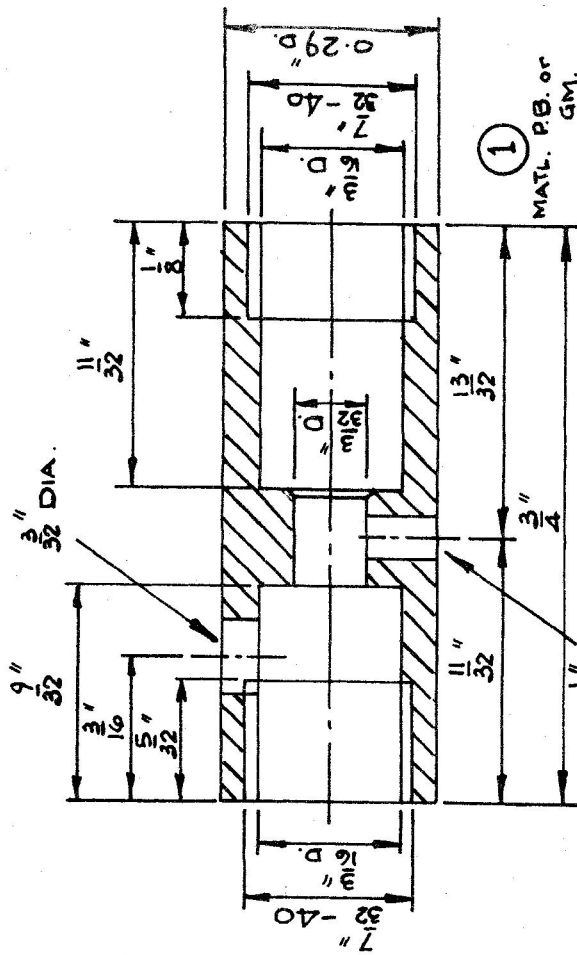
P.S. Those who think that it couldn't happen to them are fools. Imagine being alone in your works up the garden with a half horsepower motor, winding the tie you're wearing round the job, and being unable to reach the "off" switch or button.

\*Sorry Don - Author.

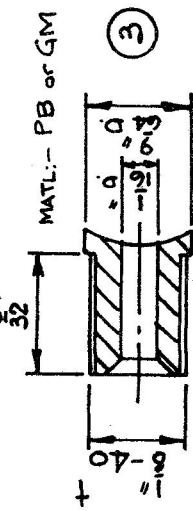
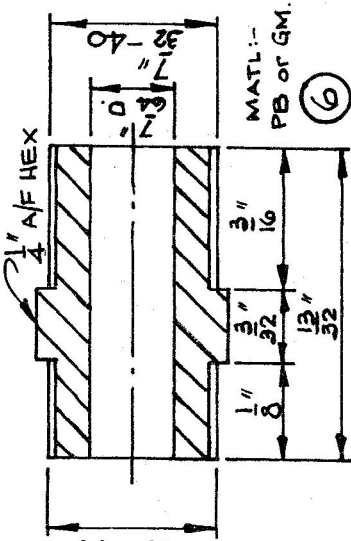
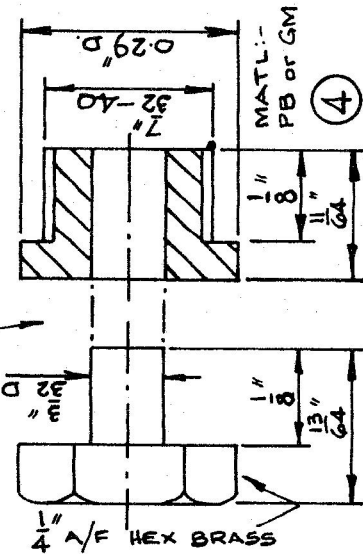
Actual Size.



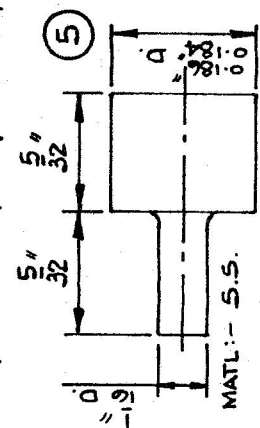
STEAM OPERATED DRAIN COCK.  
from a design by the late Leonard Simms.



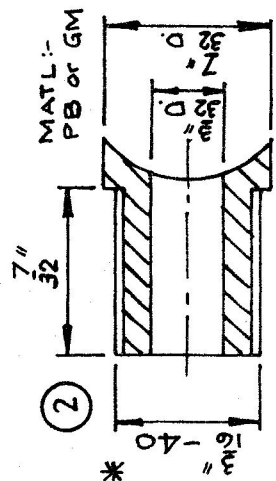
7 - 1/8" DIA. STAINLESS BALL



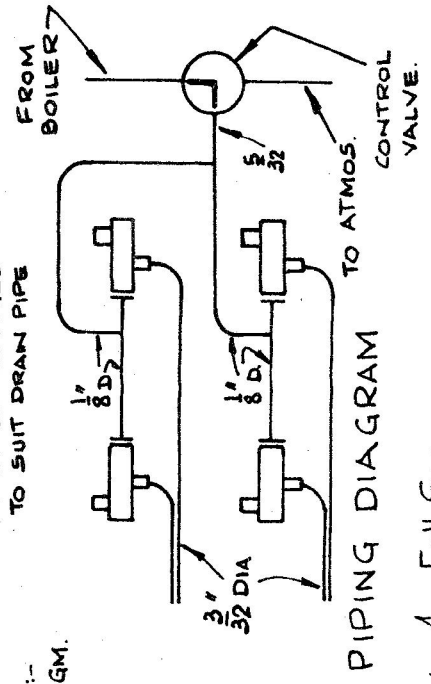
† CAN BE CHANGED TO SUIT DRAIN PIPE



MUST BE FREE SLIDING BUT NOT SLOPPY IN ITEM ①.



\* CAN BE CHANGED TO SUIT CYL. CONN.



PIPING DIAGRAM

Scale: - 4 x Full Size.

## STEAM OPERATED DRAIN COCKS

The complex linkages which are seen on some loco. designs just to operate the cylinder drain cocks almost defy description. In addition, should anything go wrong with the system after the loco. is erected, it is almost impossible to rectify without major dismantling. I know this from personal experience, because the L.H. side cylinder of my "Wayfarer" will have to be removed to repair a stripped thread on the drain cock mechanism. The drain cocks themselves are not the easiest thing to construct, with a taper plug reamer having to be made before you start.

A glance at the accompanying sketch will show how much simpler is the steam operated drain cock. The majority of the work is simple turning, with silver soldering at three points. The steam supply pipe can also be run through a more tortuous route than the most flexible Bowden cable.

This design was given to me some years ago by Norman Pendlebury, a relation of Connie's (the late Leonard Simms) having devised it. It seems too good to keep to myself, so here it is.

The principle of operation is as follows:- Steam at boiler pressure (nearly) is applied to the plain end of the floating piston, which moves inwards and lifts the ball off its seat, pushing it against the end plug. Condensed water can then pass out from the cylinder down the drain pipe. When the steam supply line is vented to atmosphere the pressure in the engine cylinder pushes the ball back on its seat. The assembly also acts as a snifting valve when coasting; a vacuum in the cylinder will lift the ball off its seat and admit air.

The construction is very straight forward and little explanation is needed. The two side branches have been shown profiled to fit the body, which I think will look neater. A scrap of brass rod can be used to align the holes in the branch and body, being drilled out after silver soldering. The recess for the floating piston and the 3/32" dia. hole in the centre must be concentric and should be machined at the same setting. The end plug must be deep enough in the body to prevent the ball from seating on the hole connecting into the cylinder which would stop the snifting action. The floating piston must be a free fit in its recess without being sloppy. You may find you will have to alter the sizes on the drawing, depending on the diameter which your D-bit has produced. The steam supply from the boiler can be controlled by an L.B.S.C. brake valve.

The drain cocks do not have to be mounted directly into the cylinders. If you think that they might look obtrusive, tuck them out of sight and connect to the cylinders with pipe and unions. I know of a 3½" gauge loco. fitted with this size, so it will do equally well for 3½" or 5" gauge.

Barry Lawson

### DATES FOR YOUR DIARY - 2

SATURDAY, JULY 12th M.M.E.S. VISIT THE S.M.L.S. AT BEECHURST  
Saturday, July 19th Bradwell Railway Society Visit Mote Park

Current boiler certificates MUST be produced upon request.

## EXPERIENCES IN MAKING INJECTORS

Following the completion of my first locomotive, "Heilan' Lassie", I decided that one of those interesting gadgets called an injector should be next on the agenda. Accordingly the LBSC "Words and Music" were carefully studied and eventually I decided that I understood them.

A few small number drills around the 65 to 75 size were purchased and a set of tapered D-bits were made from 5/32" dia. silver steel to the specified lengths. Only half the length of the long D-bit is used for making a cone so presumably it was given to help those without graduations on their lathe to get the angles correct.

After a week of evenings in the workshop I had a completed injector and, after making up the plumbing to suit, it was fitted to the engine ready for trial at the weekend.

Next Saturday the boiler was filled with water and the fire lit, and then the wait for steam pressure. In about ten minutes the pressure was up and the "magic" ready to begin. Alas, the only "Magic" which I saw was steam and water spraying everywhere, but none going into the boiler. Water and steam valves were adjusted without any improvement and eventually I decided that something must be wrong.

That same evening, while studying the "Words and Music" again, I thought it would be a good idea to make six injectors on the basis that at least one of them should work. The next few weeks were spent in the workshop and eventually six completed injectors were to hand. The next weekend the engine was steamed up ready for tests. Unfortunately the result was more disappointment - not one of them showed any sign of working.

The Club to which I belonged at that time had an elderly member who had made a working injector, so his advice was sought. His suggested remedy was that all the cones should be removed and replaced by new ones. Over the next few weeks I struggled on with cone making only to see the lathe drip tray grow deeper and deeper with swarf and the bench become littered with discarded cones. My enthusiasm for the project ran low and I abandoned all ideas of injector making.

The years rolled by, two more engines were completed, and then the urge for injector making returned, encouraged by a new name in "Model Engineer". Martin Evans had described making an injector in a manner which was, to my mind, more like real engineering practice.

At about the same time other data, by a model engineer who understood the theory of injectors, came to hand and this estimated the speed at which the steam and water travelled through the cones at around 2000 miles/hour. At this velocity I assumed that it was essential for the bore of the cones to be smooth to avoid turbulence. I cut a few of my scrap cones in half and, on inspection with a watchmakers glass, found the bore to be a series of circumferential rings or ridges.

The problem now was how to make a reamer to produce smooth bore cones. After much trial and error a solution was evolved which will be described in the next instalment together with the other points of manufacture which seemed to turn failure into success. Whether my injectors are a success or not can be judged by their performance on the track.

Those who are interested in the theory of injectors are referred to the article by Martin Evans in "Model Engineer" of 13th September 1962, page 326, or to those who are more erudite than I am. The basic physical dimensions of my injectors are those given in the M.E. article. Should you not have access to this, you can obtain the drawing from M.A.P. Ltd., on Sheet No. L.O.37, at 20p including post and VAT. Various combinations of cone sizes are given in Martin Evans book "Manual of Model Steam Locomotive Construction".

Fred Laroche

EXTRACT FROM M.M.E.S. NEWSLETTER No. 1/62. 20th MARCH, 1962

SECRETS OF A SUCCESSFUL SECRETARY

If the Secretary writes tactfully, he's verbose,  
If he's brief he's tactless,  
If he drafts a report, he's wrong,  
If he doesn't there's nothing to work on.  
If he speaks at a meeting he's butting in,  
If he doesn't he's useless.  
If he sends a reminder he's a pest,  
If he doesn't he's slack.  
If he asks for resolutions he's cheeky,  
If he doesn't get things done he's incompetent.  
If a meeting's successful it's due to the Committee,  
If it's a failure the Secretary's to blame.  
If he asks for instructions he's no initiative,  
If he doesn't he's swollen-headed.  
Ashes to ashes, dust to dust,  
If others won't do it the Secretary must!

And so while the great ones repair to their dinner,  
The Secretary stays, getting thinner and thinner,  
Racking his brains to record and report  
What he thinks they will think they ought to have thought.

-----oOo-----

Reproduced in the hope that it will give our present Secretary at least a Ray of hope.

Philip G. Wallis

NEW MEMBER

We welcome to the ranks:

Major (Retd.) H.B. Bingham, 3, Bonnington Road, Maidstone, Kent.

## MORE METRICATION FOR MAIDSTONE MEMBERS

Although the large suppliers of B.A. nuts bolts screws etc., have said that they will continue stocking them for some time to come, it is obvious that this will eventually come to an end. What will be the position then? You could give up model engineering and take up bird watching (feathered or otherwise). You could make your own screws for as long as your B.A. taps, dies, and supply of the correct sizes of raw material last. You can even produce your own hexagon stock if you have the patience. Or you can go METRIC! I am not looking forward to it any more than anyone else, but when you start delving into the problem, things do not look quite so black.

The B.A. screw threads are in fact already a metric type of series, the full diameter being more easily given in millimeters than in inches, e.g. 8B.A. is 2.2mm. dia. or 0.087 ins. dia. There are two series of metric threads i.e. coarse and fine. Those sizes covering the range 0-14 B.A., are however only available in the coarse series. Size 6.0mm down to 1.7mm are part of the normal ISO metric series. For diameters smaller than this the Miniature Screw Thread series covers screws down to 0.3mm diameter, but the 1.0mm and 1.2mm are the only ones of interest to us. Details of a selection of types have been collated and are given in the table attached. Only slotted screws have been covered, although many are available in the recess (Phillips) head type. Round head screws are no longer standard type having been replaced by the pan head type which look so flimsy. I have not included them. You will note that the outside of the head of the cheese-head screw is shown tapered. This is optional, the maximum angle being  $5^{\circ}$  ( $10^{\circ}$  included). You will also notice blanks for the thickness of 1.0mm and 1.2mm nuts which would appear to mean that they are not available. I am surprised at this but should details be discovered they will be included in a future Newsletter for you to add yourself.

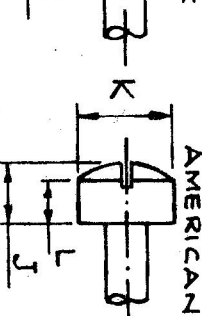
There is another temporary way out of the problem and this is to use the "American Unified" number series of screws. These are quite often seen in "Wistons" catalogue at daft prices, but many people still seem reluctant to use them. The only reason I can think of for this situation is that very little data are available to the layman on their sizes etc. The full series is numbered from 0 to 12 (minus 7, 9 and 11), the bigger the diameter, the higher the number. For each diameter (excluding No. 0) there are two thread pitches, the number of T.P.I. following the screw number with a dash between e.g. 6-32 U.N.C. However the range is rarely used fully and the four sizes which are generally encountered have been given "the treatment" and data are collated in the table. The cheese head screw with the domed top is known as "Fillister" head. You may think four choices of size to be rather small, but older Members will recall that L.B.S.C. almost standardised on 3, 5 and 7 B.A. i.e.  $3/32"$ ,  $1/8"$  and  $5/32"$  dia.

No details on the standard slot sizes have been given for the same reason as mentioned in the article on B.A. Screws\*. If there is a demand for the information let Graham know.

Barry Lawson.

\* Next issue.





80° AMERICAN

ALL DIMENSIONS IN INCHES.

SIZE	4-40	6-32	8-32	10-32
A	0.216	0.289	0.289 0.361 PART	0.361
B	0.1875	0.25	0.25 0.3125 PART	0.3125
C	0.060	0.080	0.110	0.120
D	0.112	0.138	0.164	0.190
E	0.098	0.114	0.130	0.130
G	0.211	0.260	0.310	0.359
H	0.067	0.083	0.100	0.116
J	0.107	0.132	0.156	0.180
K	0.183	0.226	0.270	0.313
L	0.069	0.086	0.102	0.119
0.125	2.4	2.95	3.55	4.1
0.150	42	32	28	20
0.1875	2.95	3.7	4.4	5.0
0.250	32	26	17	9

