Maidstone Model Engineering Society

NEWSLETTER - Christmas 1984

Sue has asked me to bring up to date the history of our Society.

MAIDSTONE MODEL ENGINEERING SOCIETY

The Society all started about 1929.
Two schoolboys were interested in the old 'tin plate' railways and the building of models using 'Meccano' sets.
One of the boys asked his father if they could belong to the 'Hornby Railway', so the first step was taken and the Maidstone Branch of the Hornby Railway Company was formed.
In 1930 this boy's father was persuaded to become the chairman of this branch, which in those days was called 'The Model Railway & Meccano Club'.
By 1935 the club was reported in the M.E. as having a portable track, run under the heading of the Maidstone Model Railway and Engineer Club.
As the years passed, more people joined and larger engines were built. We had a 2½" & 3½" gauge portable track, some gauge one engines and also a 00 gauge layout. This was until the 1939-1945 War.

In 1945-1946 we started once again, about six older members were left to reform the club. We renamed the club the 'Maidstone Model Engineering Society', by which name we have today.

From 1946-1947 we ran a new portable 3½" & 5" track, mainly with one 3½" engine, at many fetes and fairs travelling around until we had a little money by us.
We also ran an exhibition at the Old Technical Institute using the 00 gauge layout for the last time (as interest in this track had waned).
It was in 1947 that we had the notion to build a track in Mote Park.
Two of our members came to our help and made themselves guarantors to the bank.
This enabled us to start the Mote Park track.
Obtaining permission from the Maidstone Council, towards the end of '47 we started building the track, comprising of 2½", 3½" & 5" gauges 220 yards long with a turntable to a steaming bay and a 7' deep by 7' wide (rain) water well.
By 1949 the track was complete.
We ran a few engines in those days, two 2½", two 3½" & one 5". The few passengers we did carry travelled FREE, amid old army huts and weeds, the latter were about one foot high. We also had to keep a sharp lookout for four legged things that roamed all over the park at that time.
April 1950 the track was opened by the then mayor Alderman Sir Garrard Tyrwitt-Drake.
In the 50's we ran the portable track usually on a Saturday; Friday evening find a flat piece of ground at the event to erect the track. Make sure a water supply is at hand for the loco, and, if possible, rope off each side of the track.
Saturday get steam up (by hand pump) and start carrying passengers by 2 p.m.
Run until late evening, blow down the loco, pack it away in its box, dismantle the track. Put the whole bag of tricks onto a very small trailer behind an even smaller car to disappear into the night, a few shillings towards paying off our Mote Park track.
We were collecting a little money from our track at the park? This was at the rate of one (OLD) penny for 3 laps round the track.
1954. 150 yards of the track were ripped up and stolen.
Easter 1955 we were back to running trains once more.
September 6th 1955 we opened the car track.
1961. We put up the earthworks to form the embankment on the lake side of the track.

1962. We completed the bridge which is called the 'Sidney Wright Memorial Bridge'. It was opened by the mayor Councillor W.B. Hawkins and his passenger was Mrs S. Wright who is one of the Society's Vice-Presidents.
By now we had 'upped' the fare to 6d., so we were starting to get together a little money in the 'kitty'.
In 1962, the 29th of July to be exact, we started to build another 'bit' to the track, in other words an extension. Once again our good members acted as guarantors to the bank.
Also at this time the Park had become well kept as it remains today.
So through the winter of 62-63 some building went on? To give you an idea is the following:-

December 1962
24th. Very Cold.
25th. Cold.
26th. Snow late afternoon.
27th. Snow 10-12" deep, stopped at 4-20 p.m.
30th. 3" of snow.

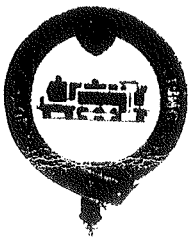
January 1963
5th. 2"of snow.
12th. ½" of snow.
19th. 2"of snow.
25th. Last frost?
26th. Started to thaw at 10.30 a.m.
29th. Frost.
30th. Slight snow.
31st. Frost and snow.

February 1963
1st. Heavy snow at 4-30 p.m.
2nd. 2⅛" snow.
3rd. 12 a.m. Slight snow and bright? sunshine.
4th. Heavy snow.
5th. Light snow.
6th. Snow showers & heavy frost.
7th. Light snow & heavy rain?
8th. Thawed.
9th. Slight frost.
10th. Started snowing at 1-15 p.m. 1" by 1-45 p.m.
12th. Frost and snow.
14th. Frost.
15th. ½"of snow.
16th. ½" of snow.
17th. Snowed but did not lay.
18th. Light snow.
19th. Light snow.
20th. Heavy snow.
21st. Light snow.
22nd. Frost.
23rd. Frost.
24th. Heavy frost.
25th. Heavy frost.

March 1963
3rd. Walked across the ice on Mote Park Lake.

November 1962
4th. Beams cast 3.
11th. Beams cast 5.
18th. Beams cast 7. 27 more needed.

December 1962
2nd. Beams cast 5. 22 more needed.
9th. Beams cast 4. 18 more needed. Removed top curve of the old railway track.
16th. Beams cast 2. 15 more needed.



April 1963
7th. Last bends made and 120 feet of single rail laid.

May 1963
12th. First run on the completed new track

June 1963
2nd. Opened the new track.

The extension was opened by the then mayor Councillor John Evans on the 2nd of June 1963.

We found that the track was too much for 2½" engines so we relaid the track in 3½" & 5" only.
Towards the end of 1965 we had managed to pay off the cost of the extension and were all set to railway running at its best.
One of the many societies to visit was Chingford M.M.E.S. on the 15th of May 1965.
152 m.p.h. was a speed recorded at Mote Park Car Racing Track in 1966.
This was reported in the K.M. on the 2nd December 1966.
1967. An 80 m.p.h. gale dropped an elm tree across the railway track at Mote Park.
Damage - 30 feet of double track thus cutting short our 1967 running season.
Easter 1968 found us once again in running order, thanks to the efforts of our members.
On the 18th of November we applied for planning permission for a new loco shed.
In 1969 we completed this loco shed (which is now our track workshop).
At this time we had also our first clubhouse which was donated by one of our life members and his wife who is one of the Society's Vice-Presidents.
We have a very strong link with New Zealand for they have a society that is running a track in Maidstone Park, New Zealand. Hence their society is named the Maidstone Model Engineering Society.
Our two societies have been affiliated for some few years now and we write to each other exchanging news of our activities.
Boxing Day 1970 found us running at the park through 6" of snow.
Easter Monday the 12th of April 1971 we ran our 21st year at the Mote Park track, complete with a cake, made I may add by our first Lady member of the society.
Towards the end of 1971 we started to build a guard rail round the track.
(1½ tonne of 1¼ x 1" mild steel flat, three quarters of a mile ¾" pipe 2½ tonne all welded in place and painted)
Completed in March 1972.
8th November we applied for planning permission to erect a store and shelter on our site at Mote Park.
Designed by one of our members this building was opened by Mr & Mrs Wallis on the 8th of July 1973.
Midnight on 31st August 1974. Skylarking youths drove a car into the track.
Beams were dislodged, seatings damaged, the guard rail bent on both sides and the running rails severely twisted.
Thanks to our members this was put to rights and we were running again by Sunday the 8th of September '74.
We had by this time rebuilt the steaming bays as they are today.
In 1975 we held our Silver Jubilee at the track in Mote Park, we were very lucky to have most of our older members attending.
1976. We relaid the whole track using the new type chairs come sleepers.
1978. One of our members built our very fine station buildings, also he had built our coal store.
1979. To celebrate our 50th year a rail trip,and dinner taken aboard the Kent & East Sussex Railway.
1980. On 23.2.80 we took part in the B.B.C. programme ' Swap Shop '.
1981. More track damage when a boy took his father's car over the top of our track.
We have had many good club nights and the Society is going from strength to strength - mainly due to you the membership.
1984. We have built wings to the bridge, and grassed over parts of our site.
Also built a hard stand for our road engines, and have now completed the club workshop.
1984. As most of you know we were able to celebrate the golden wedding of Mr & Mrs Wallis.
One of my highlights of 1984 was to steam over the Mote Park lake.

I hope I have not missed any one out of these notes, if I have you can always give me a kick at the park.

A.H.W. Payne. (Jack) 12.11.84.

THE SAME OLD FACES

SOCIETY

Social mode of life, the customs and organisation of a civilised nation, a gathering of similar minded persons for a common good or interest.

CLUB

Beat (as) with club; contribute (money etc) to a common stock. Combine together with, for joint action, esp. making up a sum of money for a purpose. A meeting place where members purchase individual services.

APATHY

Insensibility to suffering; passionless existence; lack of interest or desire.

Maidstone Model Engineering Society, frequently misnamed "The Club".

It is perhaps interesting that we are quite specifically a Society, yet by far the greater proportion of members treat it as a Club.

A Club by its very description expects a large contribution and regular payments in return for its provision of premises, services, staff and materials. In other words it is a specialised shop available to a limited number of subscribers. These subscribers can expect services to be provided for them only as and when they require and for which they specifically pay by a combination of fixed term payments and individual costs.

A Society merely exists for a common good, money does not necessarily arise and its intention is that the members will provide mutually the services required. Thus in an ideal world each and every member would provide a similar input and expect a similar benefit. When capital or running costs are involved, each member should expect to contribute to these costs on a regular basis, i.e. a subscription. Members must be expected to work for the common good not only by contributing their own skills to offset running and maintenance, but to take an active part in the events of the Society.

Persons who are not prepared to "pull their weight" or take some degree of active part should not be members of a Society, but join a Club where they can exchange financial consideration for common good and thus utilize services as when and if it takes their fancy.

My opinion and I know it is not a singular opinion, is the Apathy has now found its way into the MMES to such an extreme that its very existence is threatened in the not too distant future. The attitude of "someone else will do it" prevails.

Is there ever a full turn out of members? or even a goodly one unless something free is on offer and only then when it does not require any inconvenience or the risk of having to do anything greater than raise a hand or a cup.

We are not alone, this is one of the Great British diseases but other Societies exist in a most flourishing manner, with an almost fanatical interest from their members and their families. Witness the visits of other Societies to Maidstone against the pathetic show put on when we are invited elsewhere. It is an embarrassment to the MMES and an insult to the host Society for them to lay on arrangements, the difficulty of which MMES members know only too well, to find just 2 or 3 visitors.

Although we are a Model Engineering Society, it would be fair to say that the principal activity is in the field of railway engines and our track was once the envy of many many others. Slowly, but now more rapidly, it is suffering the effects of its external situations and the Winter period is each year intended to make repairs and maintenance. Work parties are required but who attends; the trouble is virtually no one. The tasks are often of short time but requiring many bodies, two or three odd persons are not organised and not motivated and much of the time provided is lost to no end result. Yearly guard rail painting appears on the list, but is never started. It is a disparing task, but if each member offered to run down and paint just the length of 4 track beams, it could be complete in an effective two hours. Will <u>you</u> not provide two hours of your time.

Running the track during the Summer provides considerable revenue to the Society for which a small contingent provide themselves and their locomotives, but throughout the membership there are a large number of "passed drivers" with locos who could and should be sharing that burden.

It is unlikely that MMES will ever feature on the front cover of Model Engineer, for could we ever complete anything again. The present track would never be built nor the extension with current attitudes. Within the next two years MAJOR track repairs will be necessary if safety is to be maintained. Organised and dedicated work parties will be required to manufacture components and reconstruct the track, the task will be beyond the capabilities of the very few who see Mote Park between October and April except the first Friday evening of the month.

Diminished standards of technical education, toys and pastimes requiring the acquisition of no skill or patience and the contraction of the engineering industry has meant that fewer and fewer persons ever get the opportunity to achieve the most basic skills that would eventually lead them to this hobby. How many young members do we have that will represent you and me in future years.

So now look at us, a diminished Society whose general membership abhors a subscription that even now represents the cost of half pint of beer per month, that still expects its regular organised meetings with free tea and cakes, that no longer has a Society Loco, whose south rolling stock is becoming antique, whose track network is decaying, who can operate no portable track to advertise its existence.

And now look at yourself. What do you provide, did you offer your services for one or two Sundays last Winter, if you're a loco owner did you assist in public running one or two times during the Summer. Did you attend any of the visits to other Societies or attend when they visited us, or did you like so many sit back and leave it to "The Same Old Faces".

It was suggested that I write this open letter to all Members anonymously, but I support my views despite the fact that many will feel abused by them. The views are my own, made equally against Committee Members in fact more so, than against ordinary members. All have an equal duty in a Society to provide for the common good in accordance with the abilities and reasonable commitments. If those commitments are so great as to prevent any contribution then I suggest that such persons should seriously consider their membership.

It is not too late for the Society to be resurrected, but before long apathy will have reached a point where the patient can no longer be revived. At least for a start I intend to fix a drawing to the Headquarters Hall wall showing and numbering the track beams in sections of 4. Perhaps those who will have considered this letter will assign their names to a section and agree during the Winter to rub down and paint the guard rails over that short 25' section.

R.R. STAGG

Editors comment : I did receive this article from Roger in time for the last edition, but I have been in a quandary to know whether or not to print it. However, as it spurred my old man into actually putting pen to paper (a rare occurrence) I felt it only fair for me to publish the cause. I for one do not completely agree with what Roger says, and remember they are HIS views only. Do you agree? If you wish to reply to this article, please write in time for the next newletter, after which I do not intend to carry the saga on - this isn't Dallas!

THE EMPIRE STRIKES BACK

Having made the grave mistake (as a few others have also found) of offering to my dearest Hon. Press Officer spouse, to write a few words for this bumper newsletter, I have since been pestered into ' coming up with the goods '.

The following effort is written in my official capacities as both ' Member for General Works ' and *' Trunk of the Year '* prompted by various comments that my elephantoid lobes have picked up at times during the last year. Here we go : -

The committee of the M.M.E.S. are analagous to the government in power at any time, in that they are held responsible for all Acts of God, Plagues of Locusts, Rain on a Sunday Afternoon etc.

The main comment that I keep hearing (and with monstrous regularity that would please any parrot) is " The club was different in my day " also " We would have had the guard rail painted, track relaid, sun shining etc." " Who turns up now to run locos - all the committee members in my day had and ran 5" gauge locos." "What would happen if we had a major problem with the track, the committee could n't cope." No doubt you have heard for yourself.

I have recently had the opportunity of reading through some old M.M.E.S. newsletters ranging from 1968 to 1975 and all I can say is NOTHING CHANGES. In the summer of 1974 issue it stated that a weekend was arranged for a working party to paint the guard rail. In the following edition it was reported that 4 people turned up on the appointed day. Another day was arranged and that too was a failure. Nothing change- In 1968 a motion was put forward that the club should be disbanded due to the apathy of its members and the fact that week to week running was done by a hardcore of members. Apart from the members of that hardcore - NOTHING CHANGES.

The club is reaching a summit in its material needs. We have an excellent clubhouse and facilities, a superb track in an equally superb environment for which I and other members are eternally grateful to those who provided them. There was an objective to strive for, that is what gave the illusion of greater unity in the club - if we did have a major catastrophe I have no doubts that the silent majority would surface to save our society.

Right now we, as a committee, are only required to keep the society running and in order for the mutual benefit of long standing and new members. It belongs to all members. New members grow to become the hardcore which changes with the years, that is if they are not put off by people who keep dragging up the past and whining on about how it was ' in my day '.

The committee makes decisions on behalf of the Society from the situation prevalent at that time and I do not see that the existing team is any less capable of making these decisions than previous committees.

In the January 1969 newsletter Marshall Vine (who now plays with the big stuff) complained about the lack of basic tools at the club. This, I am pleased to say, is one aspect of the society that has changed. Recently we have purchased a selection of hand and marking out tools including M.E. taps and dies and along with the lathe and shaper we now have a reasonably equipped workshop that will enable running repairs to be made. This will be a great asset to the society as we are now in a position to encourage anyone who is keen to build a loco but does not have their own facilities. If you have a problem making a large item, why not give it a try down the Park. We will be more than happy to see you any Sunday, after all the workshop is there to be used!

Adrian Gurr.

'Trunk of the Year' - Kindly nominated by Mr C. Williams, trophy to be seen on noticeboard.

The Draughting of Model Steam Locomotives

by

J.Ewins

There can be no aspect of model locomotive design to elicit such a volume of humbug as that of the "front end". It is here that Swindon adherents have a field day and that rubbing shoulders with S.O.Ell or Dr Giesl confers upon them an entrée denied to us lesser mortals.

The fact is that conditions pertaining in full size practice are so removed from those which concern us in small models that the finer points of design developed by the above authorities are completely lost in model practice. The reason for this is the fundamental one involving the disparity in gas velocities. In models these are about "scale" i.e. in a 1" scale engine they are, give or take a little,1/12 of the corresponding velocities in the prototype. An essential part of Ell's work centered around the limiting exhaust steam velocity through the blast-pipe (the sonic velocity). In order to achieve this the back pressure behind the blast nozzle needs to be about 10 p.s.i. and because of the laws of thermodynamics the same back pressure would be needed in a model blast-pipe if this condition were to aimed for (you cannot scale nature). The back pressure in a model seldom exceeds 1.0 p.s.i. yet alone 10 p.s.i. which would severely throttle an engine working at 80 p.s.i.

Why is it then that model blast arrangements based on full size criteria seem to yield good results? The answer to this is that conditions in models are so uncritical that almost anything works provided the boiler parameters are satisfactory. In badly designed boilers steaming difficulties are encountered which can sometimes be relieved by manipulating the blast arrangements but there is no evidence that such operations bear any relationship to full size fine tuning. The best model approach is to design the boiler reasonably in the first place when it will only be necessary to conform to one or two over-riding constraints applicable to the model case to achieve satisfactory steaming. My approach as always in model locomotive design matters is to consider the model as an example of engineering in miniature and to use the laws of physics as they apply to the conditions pertaining in the model and not to assume as many others do that criteria used in full size practice also apply to models.

It so happens that research work has been carried out* on the design of ejectors fairly similar in size and pressure ratios to those used by us in models. It seems to me therefore that the best approach to the problem of model draughting is to arrange the smokebox in accordance with the findings of this research. It is significant also that criteria put forward by Greenly many years ago tie in broadly with these findings

The basic problem is that of producing in the smokebox a sufficient degree of vacuum to suck flue gas through the system at a rate that produces the combustion necessary to generate the required steam output. To do this two conditions must be met by the ejector. In the first place it must be capable of handling the volume rate of flue-gas and secondly it must as stated above produce a depression of sufficient magnitude to cause this volume rate. The first of these conditions is related to the physical size of the ejector and the second to the restriction at the exhaust nozzle.

The pumping action of an ejector is derived from a surface effect between the cone of exhaust steam issuing from the blast-pipe and the surrounding flue-gas which gets entrapped in the myriad of eddys formed as the steam issues from the nozzle. Clearly then, the area of contact with this steam cone is a factor which must be related to the size of fire from which the gas is evolved. On the one hand the size of the fire is related to the grate area and the depth of the fire and on the other the area of the exhaust cone is a function of the choke diameter and the position of the

* Proc. I.M.E. Vol 162 No 2 1950.

exhaust nozzle which must not be too far from the choke otherwise the flue-gas and exhaust steam will not be properly gathered. All this amounts to there being a very loose relationship between grate area and choke diameter. So loose in fact that full size practice interpreted in the model context usually "works".

I have recently checked this conclusion by re-designing the choke arrangments on my experimental locomotive "Jimmy's Riddle" in conformity with the dictates set out by Mr Bob Sanderson in Model Engineer No 3731 June '84 15-30. My original design (based on a routine I shall give later) had a parallel choke with a diameter of $1\frac{1}{8}$" entered by a straight flare at 30^{o}. The modified choke had a minimum diameter of 0.7" with a flared entry of 0.7"radius followed by a reverse cone of 1 in 14 taper in strict accordance with the interpretation of full size criteria given by Mr Sanderson. Fig 1 shows the two arrangements super-imposed for comparison. The result of this modification was absolutly no change in the performance and operating characteristics of the engine. This is just what I expected with the boiler designed as it is to have a satisfactorily low resistance to flue gas flow. How does one go about designing a boiler in this way?

The resistance to the flow of gas through a boiler occurs at four points as follows:-

(1) Ashpan. (2) Grate. (3) Firebed. (4) Firetubes and Flues.

The resistance through the ashpan must be made insignificant compared with the other resistances. The resistance through the grate depends upon the spacing of the firebars and although a lot has been said upon this subject in the past I don't suppose much improvement can be gained by making the spaces and bars about equal. The resistance through the firebed depends upon its depth and the type and size of coal used. Finally the resistance through the tubes is the only one which is fixed for ever once you have made the boiler. All the others can be varied without too much difficulty. It is therefore vitally important to get the tube specification right at the design stage.

The resistance of the tube bank is proportional to their length and inversely proportional to the aggregate cross sectional area ("the gas area"). Since the amount of flue gas given off from a fire for a given rate of burning is proportional to the size of the fire then, confining ourselves to engines of about the same size and therefore depth of fire we can write:-

Grate Area is proportional to Gas Area/ Length of the Tubes

or Grate Area is proportional to $\frac{\text{Number of Tubes X Area of one Tube}}{\text{Length of the Tubes}}$

or Grate Area is proportional to $\frac{\text{Number of Tubes X (Tube Diameter)}^2}{\text{Length of the Tubes}}$

Expressing this in symbols and converting into an equation,-

$$A = \text{Constant of Proportionality X } \frac{n \times d^2}{L}$$

The constant of proportionality we can call the "Boiler Factor" (E_B) and re-arranging the equation gives,-

$$E_B = \frac{A.L.}{n.d^2} .$$

The significance of this factor is that it can be worked out for a number of existing good engines in order to determine what value might reasonably be used in any future design. E_b is not a true factor that is to say it is not dimensionless but if one adheres to the same units in drawing comparisons these will be valid. I use square inches for grate area and inches for tube diameter and length when a value of around 80 seems to yield good results. If E_B is significantly greater than 80 the boiler is liable to be difficult at the front end because its resistance is high. If E_B is much smaller than 80 its resistance will be low and the boiler will be inefficient, run with a hot smokebox, be prone to filling its smokebox with ash and clinkering its grate. I am not suggesting that 80 is a magical number in this context but it is the value I have come to regard as a good

compromise having worked it out for a significantly large number of designs I have been able to access.

The above formula enables one to determine a suitable total aggregate cross sectional area for the tube bank which can be achieved by a large number of small tubes or vice versa. It is therefore necessary to decide a suitable tube diameter. Experience shows that if tubes are too small they choke up quickly and if too large the heat transfer into the boiler is less effective leading to inefficiency and a hot smokebox. A suitable compromise was suggested by C.M.Kieller and is expressed by the relationship $K_T = L/d^2$ Where K_T is what I call the tube factor. When L and d are the length and diameter respectively in inches Kieller, who worked mainly in 2½" gauge suggested that for satisfactory operation this value should lie between 65 and 70. In more recent years a number of successful designs in 3½" and 5" gauge have a higher value for K_T which rather suggests that a value around 80 should be used for this factor. In working out the aggregate area the superheater flues should be counted as ordinary firetubes since when they are carrying the superheater elements the area left is much the same as that of a firetube.

Turning now to the design of the front end we need to fix the diameter of the choke by reference to criteria pertaining to model conditions and as indicated may be derived from the results of the research into ejectors mentioned eadier. The main points which came out of this work are (a) that the choke tube should be about seven times its diameter in length and(b) the blast nozzle should be about one and a half times the choke tube diameter below the point where the flare of the petticoat meets the choke tube. These conditions are indicated in Fig 2.

In the vast majority of designs condition (a) cannot be met unless the choke tube is made very small in diameter. The best one can do is to start with the blast nozzle as low down as possible. Why not make the choke tube of small diameter? If one pursues this course too far the area exposed to flue gas of the blast cone will be reduced to a point where the volume of gas pumped is insufficent to sustain the required combustion remembering that condition (b) calls for the blast nozzle to be one and a half times the choke diameter below the choke. Many years ago Greenly put forward the idea of 1 : 3 and 1 : 6 tapers where the blast cone meets the choke at its bottom and top respectively. These two conditions are also shown in Fig 2. The 1 : 3 is none other than the one and a half condition in another form, Whilst the 1 : 6 points towards the seven times condition (a) above.

In designing our ejector then we should first fix the position of the blast nozzle as low as we reasonably can and then draw in the 1 : 3 and 1 : 6 lines assuming some feasible diameter of blast nozzle obtained from existing satisfactory designs. (Actually the precise diameter of this nozzle does not influence the geometry at this stage and the final size nozzle will have to be determined by track tests). We now have to choose the choke diameter by reference to the exit diameter of the 1 : 6 at the top-of-chimney level. If this comes out less than the chimney bore a liner will have to be fitted. If it is greater it does not matter except that in a severe case there is the possibility of the scale choke being too small for the model. This is unlikely assuming the prototype to have been a reasonable steamer because the relation between the grate area and the choke area will be the same in both model and prototype yielding 'scale' velocity through both grate and choke. If one is building a free lance design without the proportions of a prototype for guidance a satisfactory choke area is about 1/20 of the grate area i.e. $D = \frac{1}{4}\sqrt{\text{Grate Area}}$.

To summarise then it is first necessary to have the boiler parameters reasonable and then to design the front end for best results in its miniature form checking that the choke area is suitably matched to the grate area and finally to adjust the blast nozzle when the engine is tested on the track.

The above treatment is appropriate for most normal designs but in the case of locos with very short smokeboxes the business part of the ejector i.e. that part into which the gas is drawn, may tend to pull more vigorously from selected tubes. If this action is on the lower row because the blast nozzle is low down these tubes will tend to become blocked sooner than if the blast is more evenly distributed as would be the case with a long smoke-

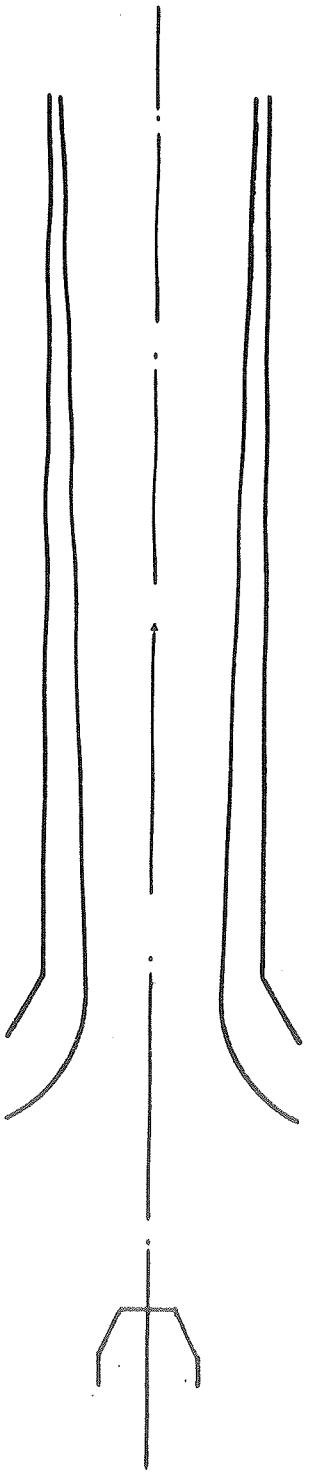


Fig 1
Full size

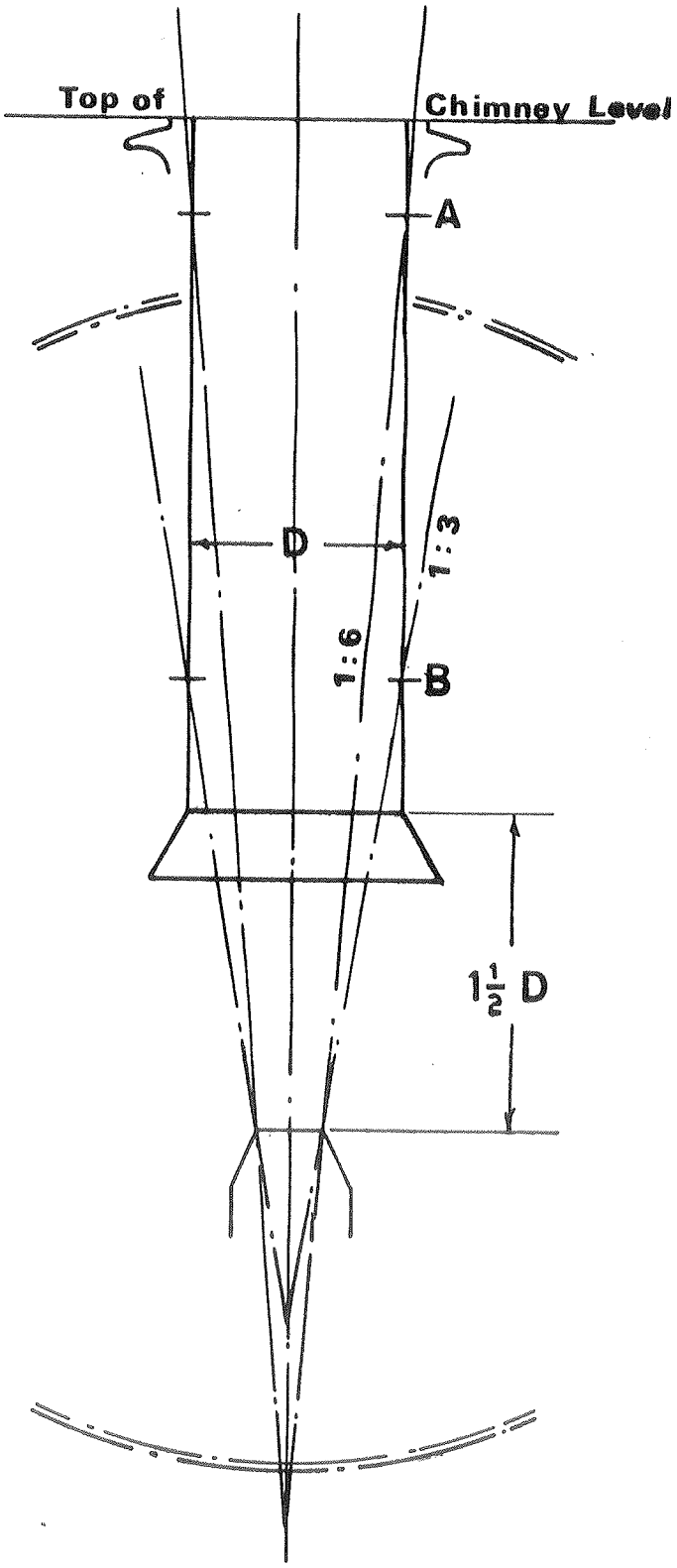


Fig 2

box. There is not a lot you can do about this.

A point which came out in Mr Sanderson's article concerns the high smokebox depression of 3.1 in water gauge he measured. I have never seen a value as high as this on my engines even when pressing a boiler to its steaming limit during safety valve testing. Usually my engines operate at about 0.5 inches which leads me to the conclusion that there is an exceptional gas resistance somewhere in his design. Interesting also is the fact that Mr Sanderson's engine (a Shay) has a very tall chimney giving a ratio of choke diameter to length of over 5 : 1. This is getting much nearer to the optimum of 7 : 1 than is possible with a more conventional design. A saving grace no doubt.

1984 into 1985

Wednesday December 26th : Boxing Day Run.
Friday January 4th : Talk and Slide Show by George Barlow, 7.30 pm.
Friday February 1st : Video Night 7.30 pm.
Friday March 1st : Annual General Meeting, 7.30pm.
Friday April 5th : Bring and Buy Sale, 7.30 pm.
Friday May 3rd : Club Night - to be arranged.
Saturday May 18th : Dinner on the Wealden Pullman.
Friday June 7th : Club Night - to be arranged.
Saturday June 15th : Chelmsford Open Day, also
Sunday June 16th : Chelmsford Open Day.

Yuletide Greetings one and all and welcome to your Bumper Christmas Newsletter. My thanks to all the contributors.

AUTUMN REVIEW : We had our revenge on Sutton Club as for once it rained on them on their visit to us in September - it always pours when we trek to Sutton! Fortunately they had a good run before the heavens opened although we had to finish off the barbecue under umbrellas!

Some of you may not have got what you anticipated on the evening of Exotic Entertainment in October but I think most members got a bit of crumpet (with tea of course, what were you thinking of?)

The video evening in November was another Parham/Gurr Production, put together over many hours, a mixture of old steam films and highlights of MMES summer of 1984 including the visit to Welling track, Open Day with Lionels steam launch sailing over the lake and the Golden Wedding Anniversary of Mr and Mrs Wallis. Tragically Mr Wallis is now no longer with us and our sincere condolences go out to Mrs Wallis.

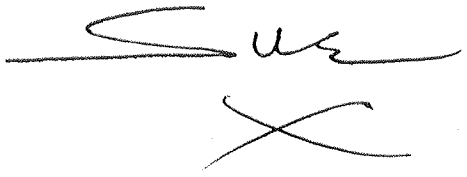
The most recent club night was a Talk and Slide Show given by Doug Lindsay of the Kent and East Sussex Railway about the history and running of the said railway from its creation through to the present day and planned future. It was tremendously interesting, much enjoyed and we all learnt a lot as well.

FUTURE : As mentioned in the previous newsletter, we have provisionally booked the Wealden Pullman (dinner and steam trip from Tenterden) for the evening of Saturday May 18th. Please let me know as soon as possible if you want to go. The price is approximately £16 per head. Figures have to be confirmed before March and it may be a case of first come, first served as we have only reserved one carriage so far. If enough people are interested we can perhaps arrange some transport, so do get in touch with me. It sounds as if it will be a super evening and I am certainly looking forward to going.

Let's hope for fine weather for the Boxing Day Run (can the committee arrange it please ?!). For our January evening George Barlow has kindly agreed to come and give us another of his popular slide shows about his travels. The February Video Show is unlikely to be another Parham/Gurr extravaganza due to the shortness of time, but ideas are in the offing and there will be another blockbuster later in the year. So this time the video will be big steam stuff and not MMES Variety. The A.G.M. looms again on Friday March 1st to be held at the Clubhouse as usual. Easter then approaches with the start of the running season and on Good Friday we will be holding a Bring and Buy Sale. Chelmsford Club have written and advised us to diarise the weekend of June 15th/16th as their Open Days to which we are invited.

Closing date for articles to be included in the next edition is Friday March 1st, A.G.M. day - I look forward to receiving any. Also if you have any ideas for future club evenings these would be appreciated too.

Again may I wish you all a Merry Christmas and a Happy New Year.



OBITUARY

On the 22nd of November the Society lost one of its pillars, in the passing of Life Member Mr P.G. Wallis.

For nearly forty years he had been, at one time, President, Chairman, Secretary, and to quote his own words, "dogs body" to our Society.

He played a large part in the building of our Mote Park track. His foresight gave us a 16 mm. film record of our early days building the track.

Behind the scenes at Spot Lane in the late 40s - early 50s members were to be found busy in his ever open workshop. In the garden was a complete '0' gauge layout which was later replaced by a 3½" and 5" gauge tracks.

His eyesight, never good, tended to exclude him from participating in the making of the smaller loco 'bits'.

Even so he was often found running his 3½" Duchess, 5" Green Arrow and later 5" Maid of Kent at Mote Park.

Also running the Duchess at fetes to help pay for our track at the Park.

In the later years deafness had excluded him from the things he loved most. But even this did not diminish his interest in our Society.

We shall miss his great command of the written word in our past newsletters.

On behalf of you all, we will truly miss him, for as the word implies, He was a Gentleman.

A.H.W. Payne (Jack) , President.

MAIDSTONE MODEL ENGINEERING SOCIETY OFFICERS :

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Chairman : P.J.A. Chislett Esq. (Peter) , 30 Manor Rise, Bearsted, Maidstone, Kent. ME14 4DB. Maidstone 37407.
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Treasurer : P.A. Roots Esq. (Pete) , 97 Tonbridge Road, Maidstone, Kent. ME16 8JN. Maidstone 58599.

REPLY SLIP

Please return to any of the above, or Sue at the Clubhouse.

Please reserve me ..... places on the Wealden Pullman on Saturday May 18th 1985.

.....
signature

Further details will be advised to you when known.