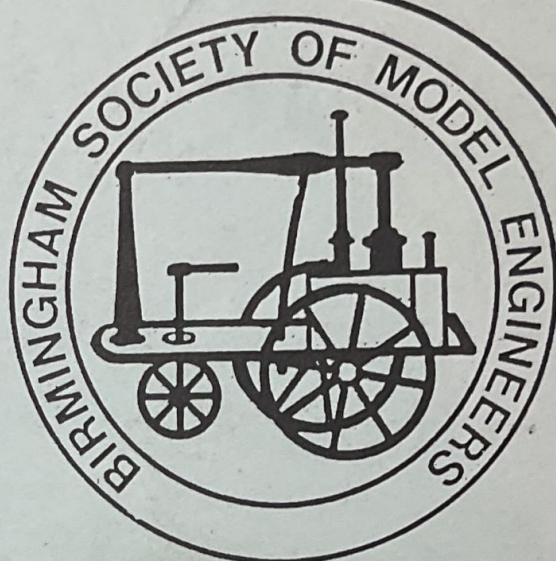


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PRESENTS

IMLEC 1987

**19th.
INTERNATIONAL
MODEL LOCOMOTIVE
EFFICIENCY COMPETITION**

4th. & 5th. July 1987

**Illshaw Heath
Hockley Heath
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Programme

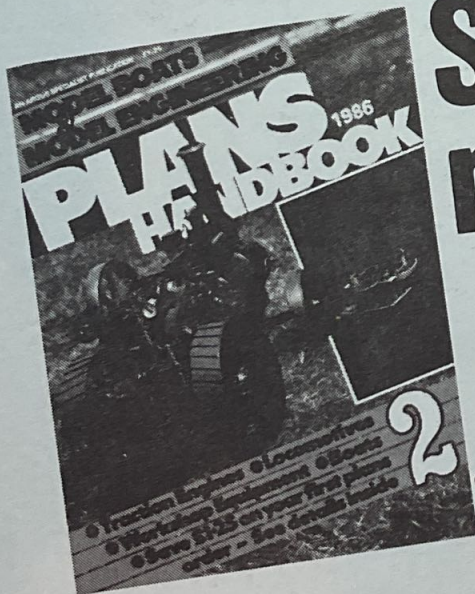
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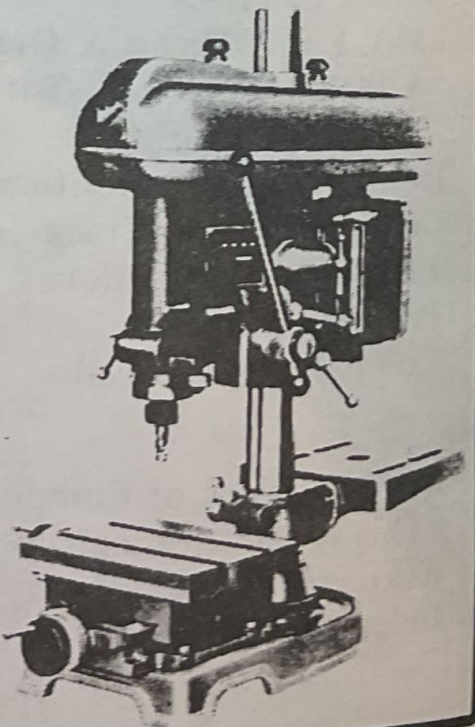
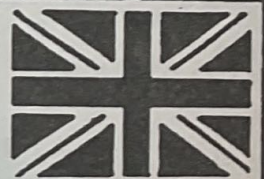
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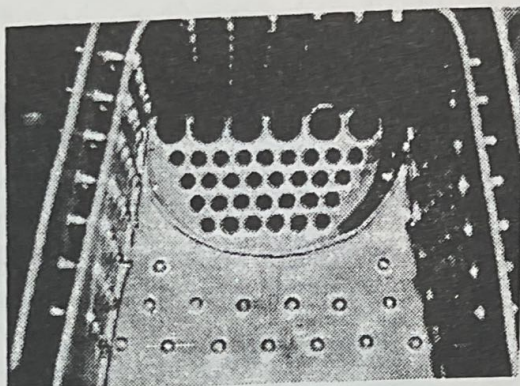
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A WELCOME TO OUR VISITORS

The Members of the Birmingham Society of Model Engineers have done me the honour of electing me their President this year and in that capacity it gives me great pleasure, on their behalf, to extend a very warm welcome to you all on this important occasion in the calendar of Model Engineering.

Illshaw Heath saw the birth of I.M.L.E.C. on Sunday 20th July 1969, when it started as a one day event and now eighteen years later we are delighted again to be host to a meeting of dedicated Model Engineers who will vie with each other to extract and put to good use the last erg to be emitted by every gramme of coal at their disposal.

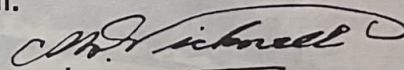
We have put together a small display of Members' work which endeavours to show the variety of interest open to model engineers and feel sure each of you will find something of particular interest. You will find that our ground level track, 7¼ gauge will be in operation dependant upon availability of our Members as drivers and

guards. The Trade Stands will no doubt provide great interest to both the serious buyer and to the browser (future client ?) and you will certainly find helpful advice and assistance to all your enquiries.

A variety of catering is being carried out by the ladies of the Society, and I am sure you will benefit from the many culinary delights on offer. Drawing on the experience of past Host Societies, we have endeavoured to think of everything but due to the law of frustration (you can never win) we trust that any shortfall will be forgiven.

If you do not win, and I hope you do, at least you will have had the pleasure of taking part and of adding to the enjoyment of others. I hope you all found the track in satisfactory condition and that the Society's facilities have met with the needs of the competition.

Sincerely,



President.

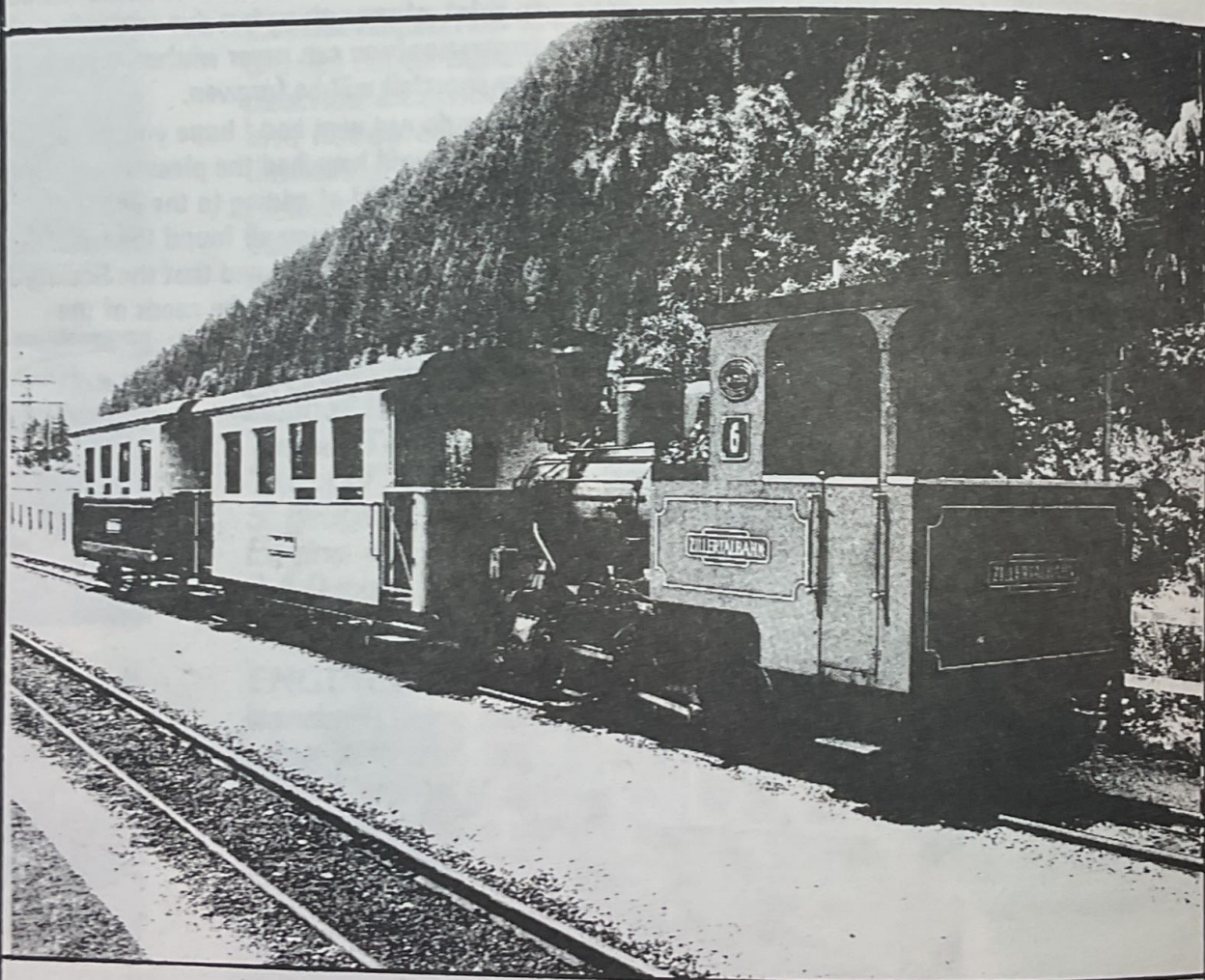


BIRMINGHAM S.M.E.

The Civic Party at our Golden Jubilee Year event — passing Kingswood Box — right to left Mr Len Clifford, Vice Pres, Mayor & Mayoress of Solihull, Lady Mayoress & Lord Mayor of Birmingham, Lord Mayor's Son. Driver is the late Bob Albutt working the famous Black Five.

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WHAT IS I.M.L.E.C. ?

The initials I.M.L.E.C. stand for 'International Model Locomotive Efficiency Competition'. The event is conducted under the aegis of the 'Model Engineers' published by Argus Specialist Publications Ltd., and was the original idea of Martin Evans back in 1964. He enlisted the enthusiasm of the then editor Leslie Howard but it was not until 1968 when Martin Evans became editor that the idea was developed further.

The most popular gauges in use at that time were 3½" and 5" and therefore the Competition is based on locomotives of those gauges. There was much discussion of the details involved and when these were resolved a suitable track was sought. The Birmingham Society of Model Engineers volunteered the use of their track at Illshaw Heath and undertook all the organisation as to stewarding, track marshalls and car parking. Also very important was the catering undertaken by the ladies of the society. A Dynamometer Car was developed and constructed by several members of the Birmingham Society and has been of service to many subsequent I.M.L.E.C.'s either in use or as a stand by.

The first meeting was a one day event and took place on the 20th July 1969. A very handsome trophy was presented by Martin Evans and is known as the 'Martin Evans Challenge Trophy'. The winner of the trophy also receives a money prize. There are also prizes for the 2nd, 3rd and 4th

positions. This is the nineteenth I.M.L.E.C. and has developed as a two day meeting with thirty locomotives competing. Each competitor is required to run for a nominal thirty minutes non-stop, hauling a load made up of passengers the number of which is decided by the competitor. A measured quantity of coal is given to the driver and water is handed to him in suitable containers while the run is in progress. At the end of his allotted time the competitor hands in for weighing any coal he has not used so that only the actual weight of coal used is taken into account in calculating the efficiency of the engine.

Not only is the competition a measure of the efficiency of the locomotive, but is just as much a measure of the driver's skill in persuading the maximum effort from the engine and this on a track upon which he does not habitually run. One of the conditions of staging the I.M.L.E.C. meeting is that the host Society does not enter the competition, this is because familiarity with the track can be of considerable advantage over visiting competitors. The Competition provides a forum for the meeting together of Model Engineers from many parts of the country, when mutual interests can be discussed and personal contact with materials and equipment and suppliers can be made.

M.D.P.



BIRMINGHAM S.M.E.

Accompanied by the Society's President Mr Don Crisp — Mr Martin Evans presents the I.M.L.E.C. Trophy for the first time in 1969 to Mr John Drury.

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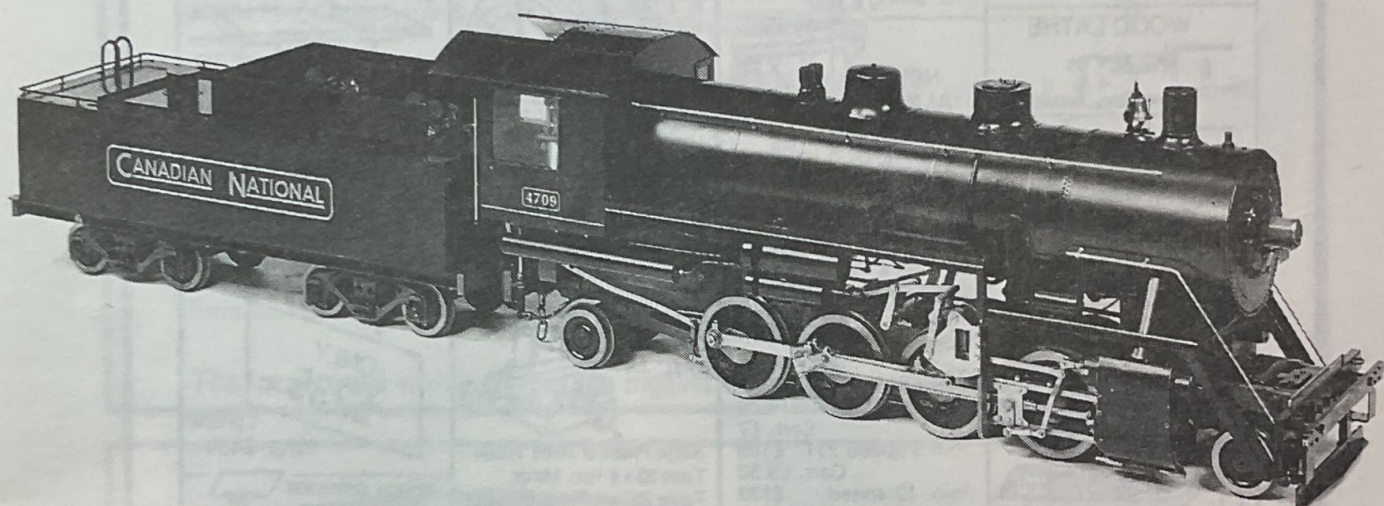
RULES AND ORGANISATION

1. On arrival, competitors should register at reception where all necessary information concerning the day's events will be available, including the approximate time of run.
2. One hour before the start of each run, the driver will be called to prepare his locomotive in the presence of an Official Observer who will also be at hand to offer any assistance required.
3. Two sizes of fuel will be provided in pre-weighed bags.
4. As much charcoal, wood and paraffin as required will be provided for raising steam. The change to weighed coal will be at the driver's discretion, but he must be ready to do so immediately on the conclusion of the previous run.
5. The train with the dynamometer car will be prepared to carry the number of passengers chosen by the competitor. Every train hauling passengers on vehicles other than the dynamometer car will carry a brakeman who will be provided by the host society.
6. The duration of the run will be a nominal 30 minutes. When 26 minutes of the run have elapsed the driver may, at his discretion, decide to finish his run at the conclusion of the lap. No penalty will be incurred should the driver choose to adopt this course of action. No time allowance will be made for any stops other than derailments. The timekeepers will keep competitors informed of their progress and indicate when on the last lap. The run must finish at the start/finish point to unload passengers. Should a driver stop short of the start/finish line due to shortage of steam, water or coal, even though he has been running for a full 30 minutes, he must 'blow-up' and complete the run to the start/finish.
7. A Locomotive fitted with working sanding gear may use it at the driver's discretion. Sand will be available for any competitor, if required, at the commencement of the run.
8. Should the load prove too much for the locomotive, one or more passengers may be off-loaded wherever it is safe to do so.
9. Water will be handed to competitors as required in suitable containers so that they may top-up without stopping.
10. At the end of the run, the locomotive will return to the steaming bay, when all unused coal will be collected and weighed in the presence of the driver. No allowance will be made for unburned coal left in the firebox.
11. The results will be calculated by the Society's Officials and displayed as soon as possible.
12. A maximum speed limit of 10m.p.h. will be in operation for the competition. The Official Observer will advise drivers if this speed is approached. He will give warning if the speed limit is exceeded. Three such warnings may result in disqualification.
13. During the measured run, trains must not be assisted externally in any way; all work must be provided by the locomotive. Competitors must not lean on the locomotive or tender in such a way as to increase the drawbar pull. The use of the head pump is not permitted except in an emergency when all other means of water feed have failed and the engine must be retired. Infringement of any part of the rule will result in disqualification.
14. The decision of the Chief Judge is final. Judges will be appointed by the Birmingham Society of Model Engineers Ltd.

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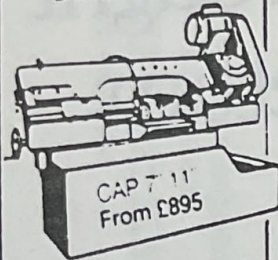
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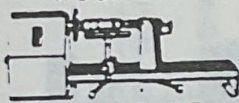
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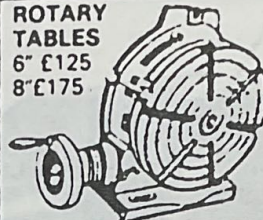


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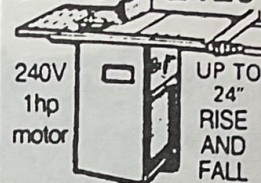


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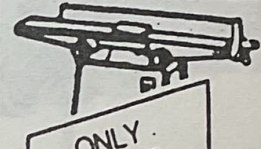
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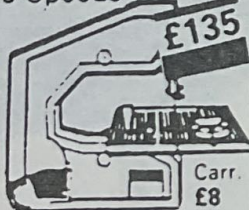
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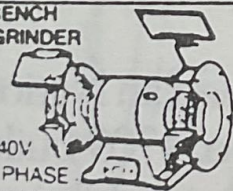
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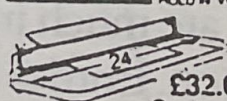
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From these parameters the following calculations can be made :-

$$\text{Average Draw Bar Horse Power} = \frac{\text{Total Work Done(ft. lb)}}{\text{Overall Run Time(mins)} \times 33.000} \quad \text{h.p.*} \dots\dots\dots(1)$$

$$\text{Coal Consumption Rate} = \frac{\text{Weight of Coal Used(lb)} \times 60}{\text{Overall Run Time (mins)}} \quad \text{lb./hr} \dots\dots\dots(2)$$

$$\text{Specific Fuel Consumption(S.F.C.)} = \frac{\text{Coal Consumption Rate}}{\text{Average Draw Bar Horse Power}} \dots\dots\dots(3)$$

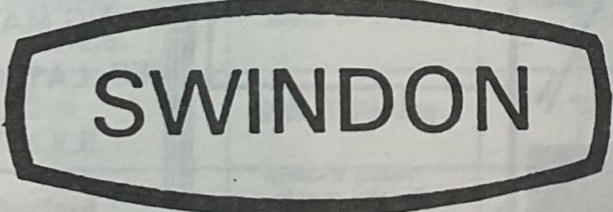
$$\text{Substituting(1) and (2) in(3) S.F.C.} = \frac{\text{Weight of Coal Used(lb)} \times 1,980,000}{\text{Total Work Done (ft.lb)}} \quad \text{lb/D.B.H.P. hr} * \dots\dots\dots(4)$$

$$\text{Now, Overall Thermal Efficiency} = \frac{\text{Work Output} \times 100\%}{\text{Heat Input}}$$

Assuming the calorific yield of the coal to be 14,000B.Th.U/lb., 1lb of coal will yield 14000 x 778ft.lb of heat where 778 is the number of ft.lb per B.Thu.U.

$$\text{From(4) Overall Thermal Efficiency} * = \frac{1,980,000 \times 100}{\text{S.F.C.} \times 14,000 \times 778} = \frac{18.1785}{\text{S.F.C.}} \quad \% \dots\dots\dots(5)$$

The locomotive which returns the highest Overall Thermal Efficiency is the winner.



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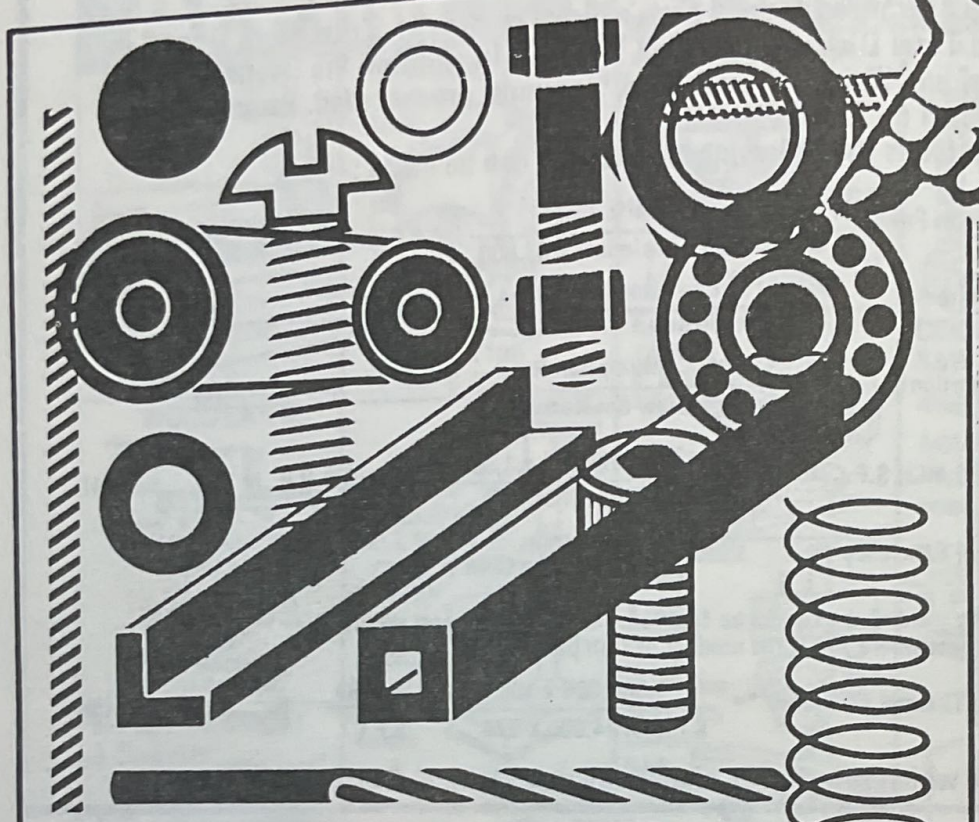
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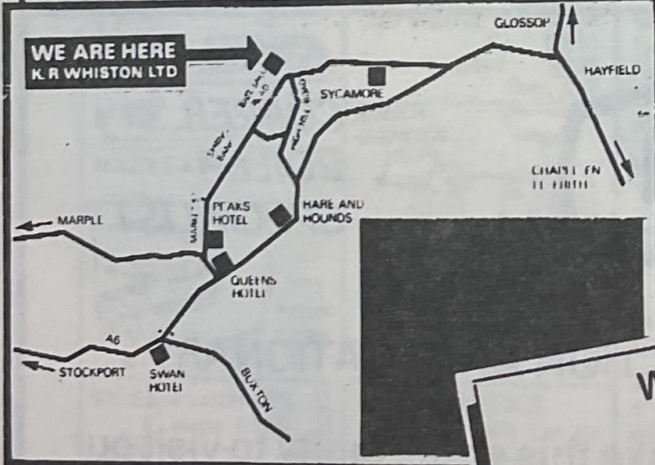
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YEAR	HOST CLUB	ENGINE	Gauge	Effic %	DRIVER/ OWNER	SOCIETY
1969	Birmingham S.M.E.	Royal Scot	5"	Not Quoted	J. Drury	Birmingham S.M.E.
1970	Whitney and W.Oxford S.M.E.	"Firefly"	5"	"	L. Labram	"
1971	Southampton & District S.M.E.	G.W.R. Dean Single	5"	"	A. Heyden	Newton Abbott
1972	Tyneside S.M.E.	G.W.R 57XX	5"	1.06	N. Spink	Chesterfield
1973	Chingford & District S.M.E.	L.N.E.R. Lt	5"	1.6	W. Longstaff	S. Durham
1974	Bristol S.M.E.E.	"Nigel Gresley"	5"	2.54	F. G. Winsall	Rugby
1975	Tyneside S.M.E.E.	G.W.R. King	3½"	1.552	L. Joyce	Chingford
1976	Kinver & West Midlands	"Speedy"	5"	1.58	W. Perret	Southampton
1977	Chingford & District M.E.S	"Speedy"	5"	2.32	W. Perret	Southampton
1978	Guildford M.E.S.	"Maid of Kent"	5"	1.614	P. Wood	Chingford
1979	Bristol S.M.E.E.	G.W.R Stirling	5"	2.178	D. Morris	Urmston
1980	Bedford M.E.S.	B.R.C.1.7	3½"	1.378	P. Wood	Private
1981	Bournemouth & District S.M.E.	L.N.E.R. J3q	5"	2.419	P.Wood	Chingford
1982	Leyland M.E.S.	G.W.R. De Glehn Compound	5"	1.506	R. Amsbury	Derby M.E.S.
1983	Guildford S.M.E.	L.M.S. rebuilt Royal Scot	5"	1.3583	L. G. Pritchard	Harlington S.M.E.
1984	Bristol S.M.E.	L.M.S rebuilt Royal Scot	5"	3.662	L.C.Pritchard	Harlington S.M.E.
1985	Urmston M.E.S.	L.N.E.R. Nigel Gresley	5"	1.8559	A. Crossfield	Gravesend M.M.&E.S.
1986	Bournemouth D.S. M.E.	L.N.E.R. Nigel Gresley	5"	1.634	A. Crossfield	Gravesend M.M. &E.S.

I.M.L.E.C. 1987
Not in order of running.

COMPETITORS AND RESULTS

No	LOCOMOTIVE TYPE	Gauge	Wheel Arrange- ment	DRIVER	SOCIETY	Load (Adults)	Running Time (mins.)	Distance Run (ft.)	Total Work ft. lbs	Average Drawbar H.P.	Coal Used (lbs.)	Specific Fuel Consumption (SFC) (lbs./DBHP. Hr.)	Thermal Effici- ency (%)	Final Pos'n
1	G.W.P. MANOR	5"	4-6-0	G. F. MOLE	Warrington & District M.E.S.									
2	Not Stated	5"		H. E. EDIE	Hong Kong M.E.S.									
3	SIMPLEX TYPE	5"	0-6-0	J. RODWAY	Newport M.E.S.									
4	JERSEY LILY	5"	4-4-2	M. CATLIN	North Wales M.E.S.									
5	B. R. CLASS 7	3½"	4-6-2	D. KANE	Blackburn M.E.S.									
6	STIRLING SINGLE	5"	4-2-2	B. J. BAGNALL	Cannock Chase M.E.S.									
7	SIMPLEX TYPE	5"	2-6-0	D. CASELEY	Bristol S.M.E.									
8	SPEEDY	5"	0-6-0	J. P. ELLIOT	Sutton M.E.S.									
9	MOUNTAINEER	3½"	2-6-2	R. SOURBUTTS	Swansea S.M.E.									
10	VIRGINIA	5"	4-4-0	P. VOLLBRECHT	Llanelli S.M.E.									
11	NETTA	3½"	0-8-0	M. STANIFORTH	Gravesend M. & M.E.S									
12	NIGEL GRESKY	5"	2-8-0	A. CROSSFIELD 1986 Winner	Private									
13	B.R. STD CLASS 4	3½"	4-6-0	L. MORGAN 1986 best 3½ g.	Staines S.M.E. & C									
14	HUNSLETT	5"	0-4-0	G. WINSALL	Private									
15	BEYER GARRATT	3½"	2-6-0 0-6-2	L. GILLETT	Private									

BRIEF HISTORIES OF COMPETING LOCOMOTIVES

1. Warrington & District Model Engineering Society. Entry by G. F. Mole. 5" gauge GWR "Hook Norton Manor" No. 7823 is a first attempt in locomotive construction taking six years to build, it has run every weekend during the last eighteen months and is consistently a good performer.
2. Hong Kong Society of Model & Experimental Engineers. Entry by H. E. Edie. A 5" gauge locomotive, no details supplied,
3. Newport Model Engineering Society. Entry by J. Rodway. A 5" gauge locomotive "Caradoc" based on a simplex design, the prototype worked for many years in a local colliery. This model is a first attempt and performs well.
4. North Wales Model Engineering Society. Entry by M. Catlin, who is the builder of this 5" gauge "Jersey Lily" modified to conform more closely to the prototype.
5. Blackburn Model Engineering Society. Entry by D. Kane who has built several locomotives before this 3½" gauge B.R. Class 7 "Flying Dutchman" and which although it has steamed has only just received the final touches for completion and is fresh from the paint shop.
6. Cannock Chase Model Engineering Society. Entry by B. J. Bagnall. This 5" gauge GNR Stirling Single was awarded a bronze medal at the Model Engineering Exhibition in 1983. The engine represents five years work - it steams well and shows a preference for steel tracks.
7. Bristol Society of Model and Experimental Engineers. Entry by D. Caseley. 5" gauge 2-6-0 GWR "Galloping Gertie" based on Simplex design
8. Sutton Model Engineering Society. Entry by J. P. Elliott. 5" gauge speedy, this is a first attempt into locomotive building - it is to L.B.S.C.'s design with Don Young valve gear modification and the coal bunker has been made to serve as extra water tank.
9. Swansea Society of Model Engineers. Entry by R. Sourbutts. 3½" gauge Locomotive "Mountaineer" is to Don Young design except for the suspension which is to the builder's own design and slight variation to the gauge glass fittings, otherwise it is true to the drawings and took three years to build.
10. Lanelli Society of Model Engineers. Entry by P. Vollbrecht. Nominated driver G. Golightly. The engine is a 5" gauge 4-4-0 "Virginia". Mr Vollbrecht spent a year for completion of the engine; it has cast iron cylinders and hydrostatic lubrication. The engine displays plenty of bright brasswork as would an American locomotive of the 1960 period.
11. Gravesend Model and Marine Engineering Society. Entry by M. Staniforth. The engine is 3½" gauge "Netta" to L.B.S.C. design during its two years of life the engine has done a considerable number of running hours. Following its attempt in last years I.M.L.E.C, finishing in 9th position, it has been into the works for an overhaul and now hopes to better its last years effort.
12. Private entry by A. Crossfield. This 5" gauge Nigel Greley, to Martin Evans design is the winner of last years I.M.L.E.C. and is therefore defending the title for the second time in succession.
13. Staines Society of Model Engineers and Craftsmen. Entry by L. Morgan, a 3½" gauge B.R. Standard Class 4 Locomotive built by Mr Morgan almost precisely to the "words and music" of L.B.S.C. This was the best 3½" gauge entry for 1986
14. Private entry by G. Winsall. A 5" gauge 0-4-0 Hunslett to the design of Don Young. The engine has cast iron cylinders with piston rings and the slide valves are balanced, it has been built on and off for some ten years and is now fresh from the paint shop. Starting at

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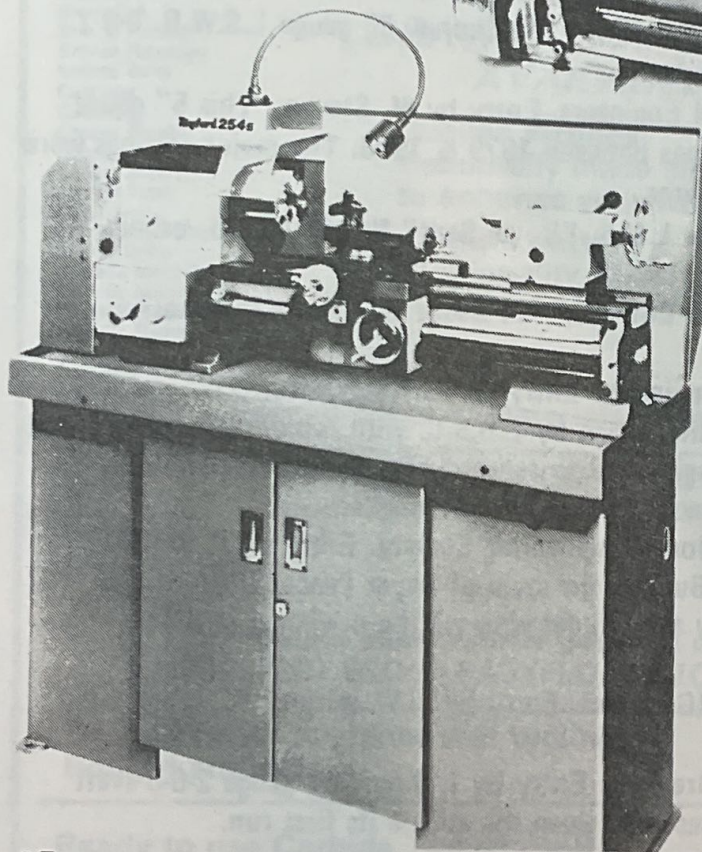
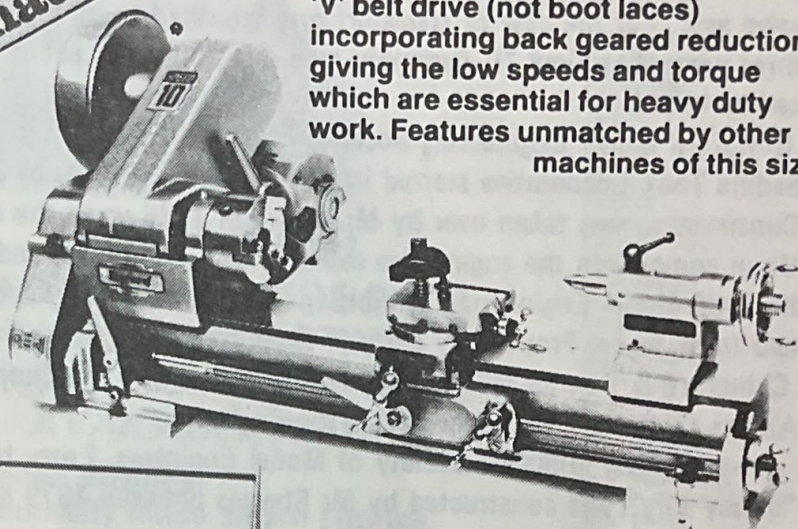
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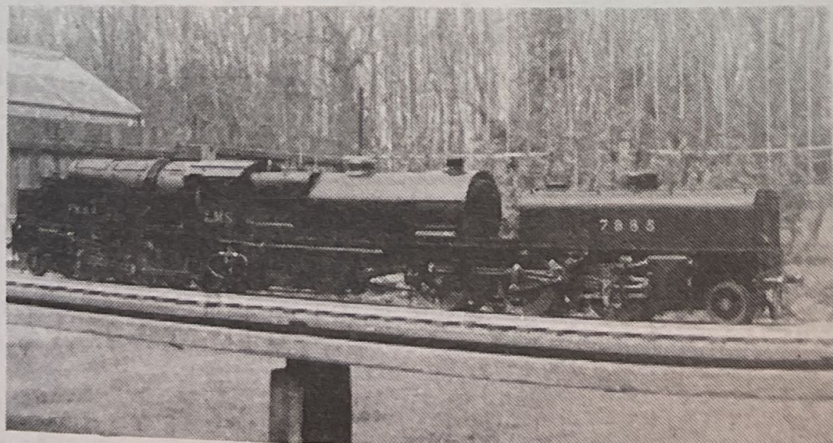
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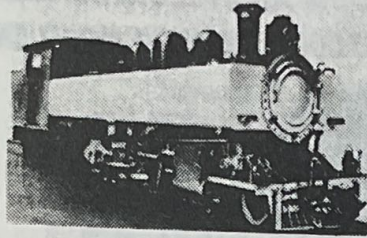
- the early age of fourteen as an I.M.L.E.C. driver Mr Winsall has finished well in the running order on four occasions either with one of his father's engines or his own
15. Private entry by L. Gillett. This is a 3½ gauge 2-6-0 0-6-2 Beyer Garratt, it was completed in 1984 and was built from copies of the original L.M.S. drawings obtained from Oxford Publishing Company of Bournemouth. The main modification was in the design of the valve gear. For the ease of transport provision had to be made for dividing the loco into three parts (like Gaul ?). Assembly into one unit takes about twenty minutes before steam can be raised.
 16. Guildford Model Engineering Society. Entry by G. Moore. 5" gauge GWR 1661 Class Saddle Tank Locomotive started in 1964 by Ernie Powell of Buckhurst Hill. Construction was taken over by Mr Moore in 1976 upon the demise of the original builder. Upon completion the engine was awarded a bronze medal and the Richard Gaynor Award in the 1986 Model Engineering Exhibition. The cylinders are of cast iron for which patterns had to be made. Proprietary castings were used for other parts where suitable.
 17. Chingford & District Model Engineering Club. Entry K. Moonie. 5" gauge L.S.W.R. 0-4-2 Adams Class A12. No other details supplied.
 18. Kinver & West Midlands Society of Model Engineers. Entry by M. Stevens. This 5" gauge "Jersey Lily" was constructed by Mr Stevens between 1979 & 1983. The major castings were produced from the constructor's own patterns.
 19. Private entry by J. P. L. Merlijn. 5" gauge L.M.S. "Royal Scot" No. 6100. No other details supplied.
 20. Peterborough Society of Model Engineers. Entry by F. Beard. 5" gauge locomotive. No other details supplied.
 21. Stockport & District Society of Model Engineers. Entry by A. Holdsworth. 3½" gauge 2-6-0 Mogul "Princess Marina" based on the design by L.B.S.C. with modifications prompted by four years running experience. This engine had to retire during its run at the 1985 I.M.L.E.C. due to a choked ashpan, the cause has now been remedied.
 22. Sutton Coldfield & North Birmingham Model Engineering Society. Entry by P. Smith. 5" gauge 2-4-0 Tank Locomotive "Crellin". Built in the style of Beyer Peacock/Isle of Man Railway Co. This engine was designed by the builder who will be driving it in the competition
 23. Rolls Royce Model Engineering Society (Glasgow). Entry by J. W. Aitken. 5" gauge 0-6-0 No other details supplied.
 24. The Model Engineers Society, Northern Ireland. Entry by I. Sloan. 5" gauge 2-6-0 Ivatt Class 2 built by Mr Sloan who has only recently given the engine its first run.



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- Steel Flats
- Steel Shim
- Steel Strip
- Steel B.A.
- Steel Round Met.
- Steel Precision Ground
- Steel EN8M
- Steel Balls
- Studding Steel
- Studding Brass
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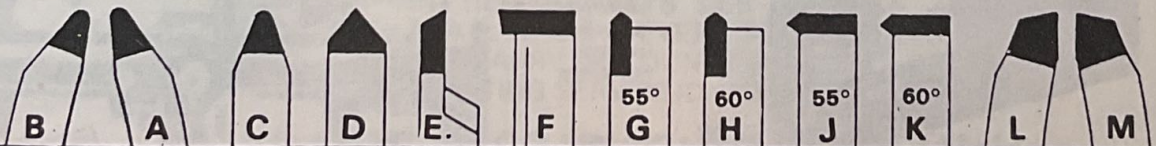
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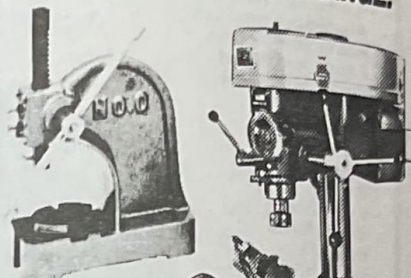


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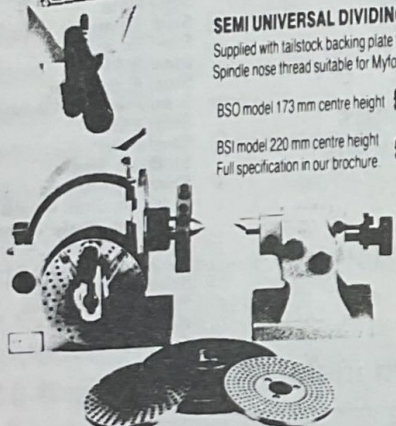


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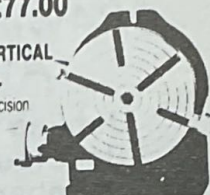


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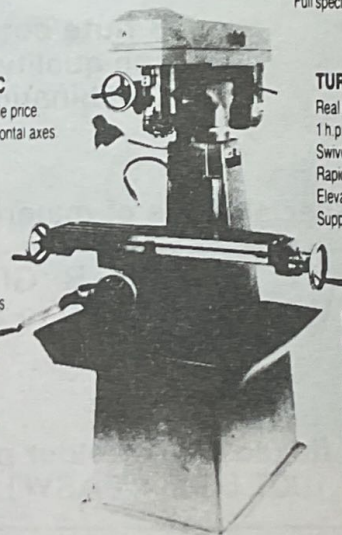
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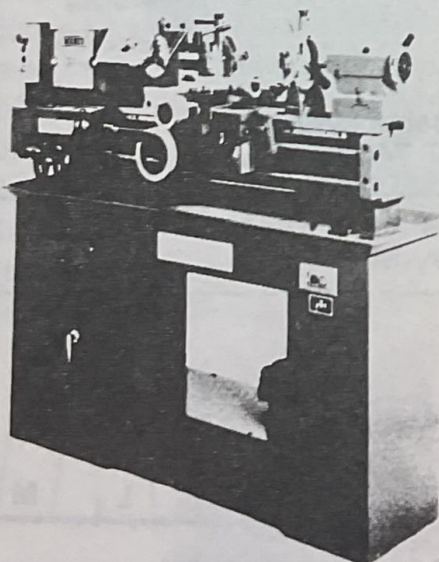
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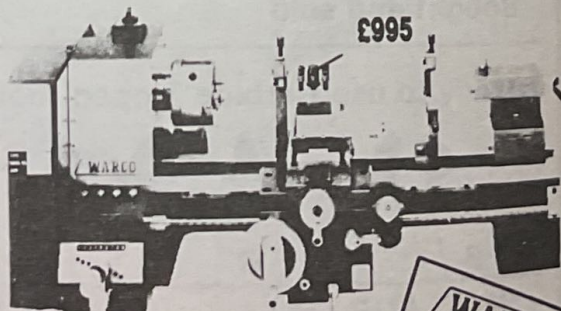
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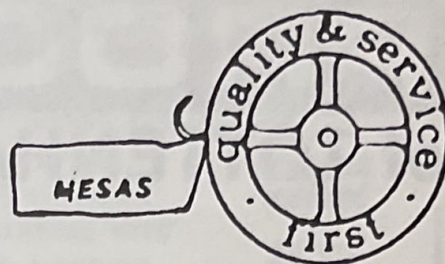
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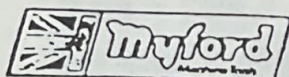
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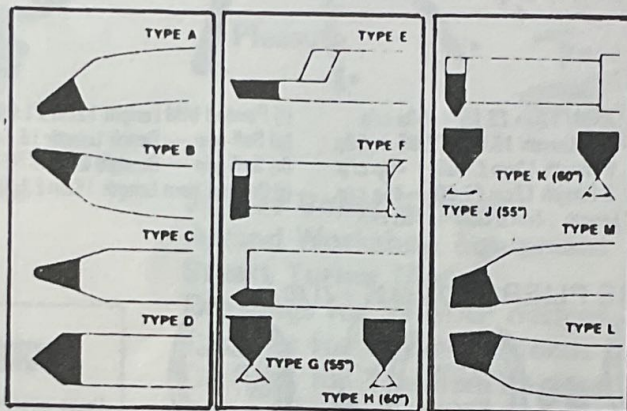
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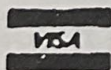
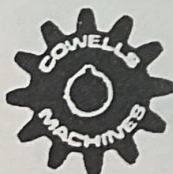


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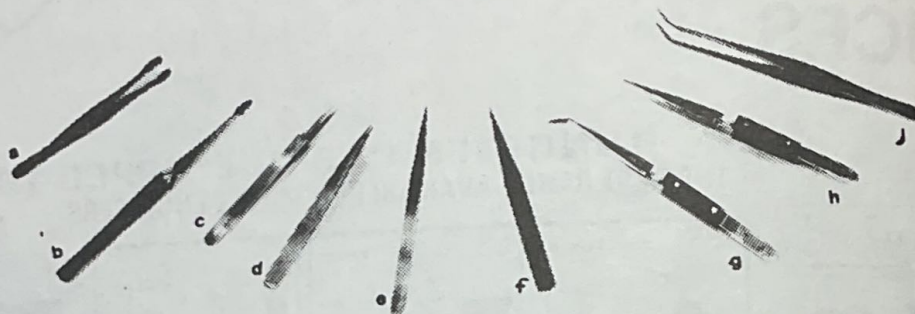
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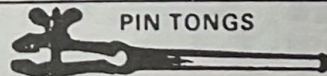
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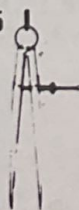
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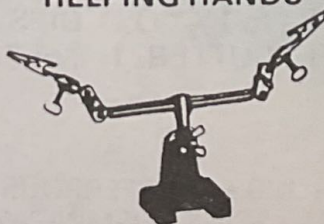


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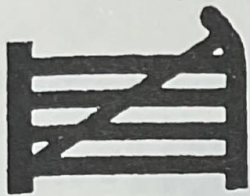
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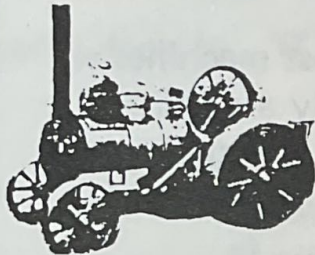
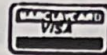


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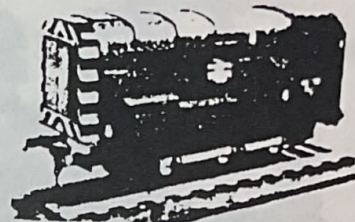


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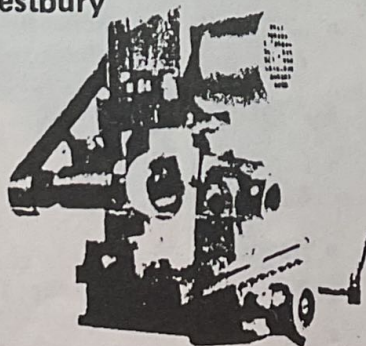


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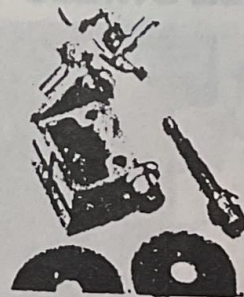
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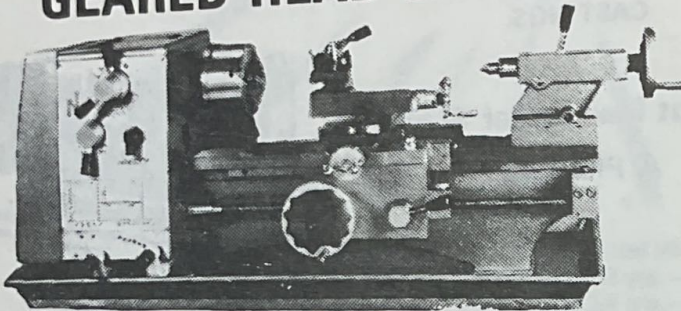
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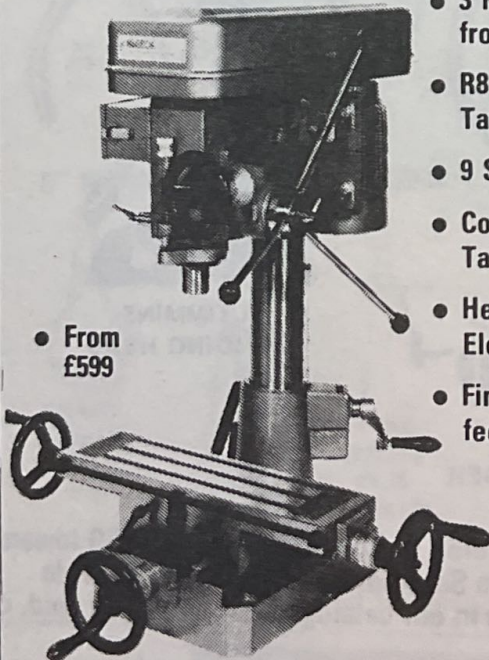
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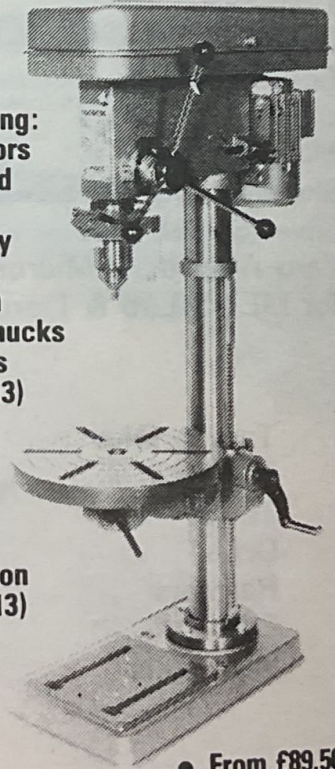
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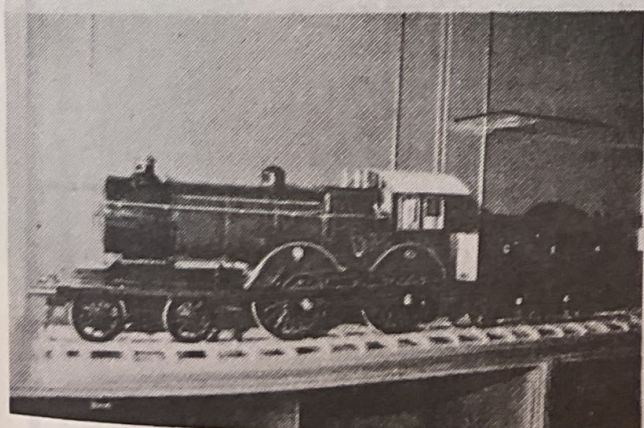
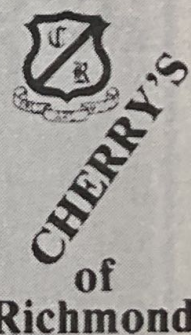
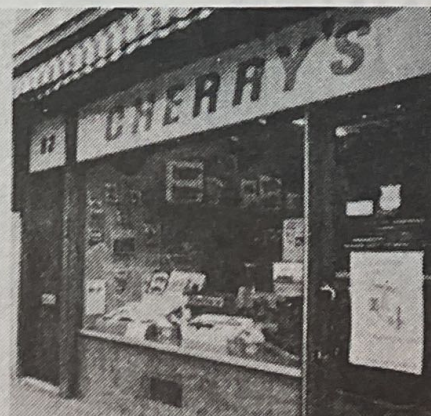
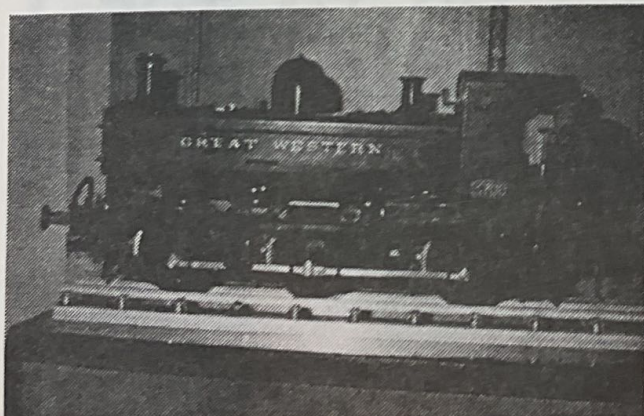
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The Birmingham Society of Model Engineers was formed in 1936 as a result of a few enthusiasts being brought together during an exhibition by Birmingham Model Railway Club. The Society's meetings were centred on the 'White Horse' in Congreve Street.

Attention was directed to the provision of a track; some land within the bounds of Western Road Infirmary was made available through the kind offices of Bill Heaton who was Engineer to the Hospital and our first multi-gauge track was constructed, it was opened on the 12th November 1938. During the war years, meetings were few and far between.

Through the kindness of Duncan Campbell an excellent site was made available at a peppercorn rent and many of our I.M.L.E.C. visitors of today will probably recall 'Campbell Green' which was opened in January 1947. After the demise of our benefactor in 1960 our search was on again. Mr Burman, whose interest in steam engines was known, was approached and this resulted in Illshaw Heath being made available. We occupied the ground during 1961 and the track was officially opened by Mrs H.M. Burman in 1964. A few years after Mr Burman passed on the Society purchased the freehold of the property in 1977. By dint of Members' efforts during the twenty six years of our

occupation we now have the facilities you see around you.

It is a truism that most model engineers turn their skills in the direction of steam locomotives, but we also like to foster interest in steam engines of all types—stationary, tractive and marine—some examples of which can be seen in the exhibition.

The Society meets during the Winter months on alternate Wednesday evenings at a venue more centrally situated than Illshaw Heath, for lectures by visiting speakers. All other Wednesdays throughout the year we meet at Illshaw Heath - in the Spring and Summer these are working meetings. On Wednesday afternoons, Winter as well as Summer, if the weather is favourable, some of our retired members meet and carry out various jobs commensurate with each one's capacity. Most Sunday afternoons members arrive for a run, to see who else might be running or to spend a couple of hours talking model engineering.

The past year was our Golden Jubilee year and has been marked by several special events and now to be embarking towards our Centenary with the staging of I.M.L.E.C. makes a good start to the next fifty years.

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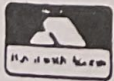
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Mr Martin Evans – for presenting the I.M.L.E.C. Challenge Trophy for competition.

Mr. Ted Jolliffe, Editor of the Model Engineer – for Guidance and advice.

Mr. Philip D. Hawkins, Member of the Guild of Railway Artists – for presenting the prizes.

Messrs. A.J. Reeves & Co., – for donating the coal supplies.

████████████████████ Society of Model Engineers – for the loan of
Bristol their Dynamometer Car.

The Red Cross Society – for their re-assurance and ready ministrations if required.

Mr. J. Lucas, our neighbour – for Car Parking facilities.

Mr. G. Cooper, Member – for the design of the front cover of this programme.

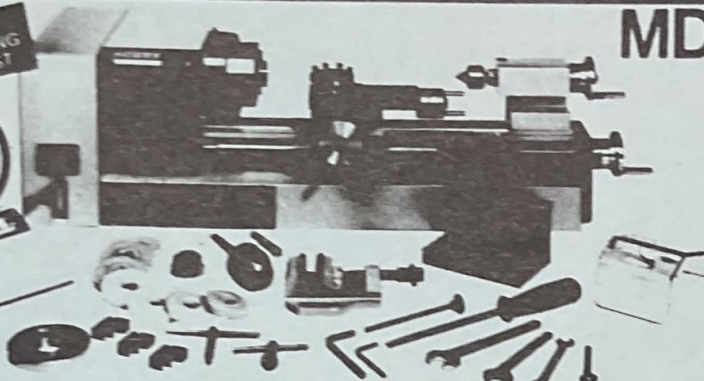
To all those who have assisted in any way with the organisation and running of this event – for whatever valuable contribution they may have made be it large or small but of equal importance.

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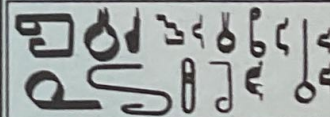
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