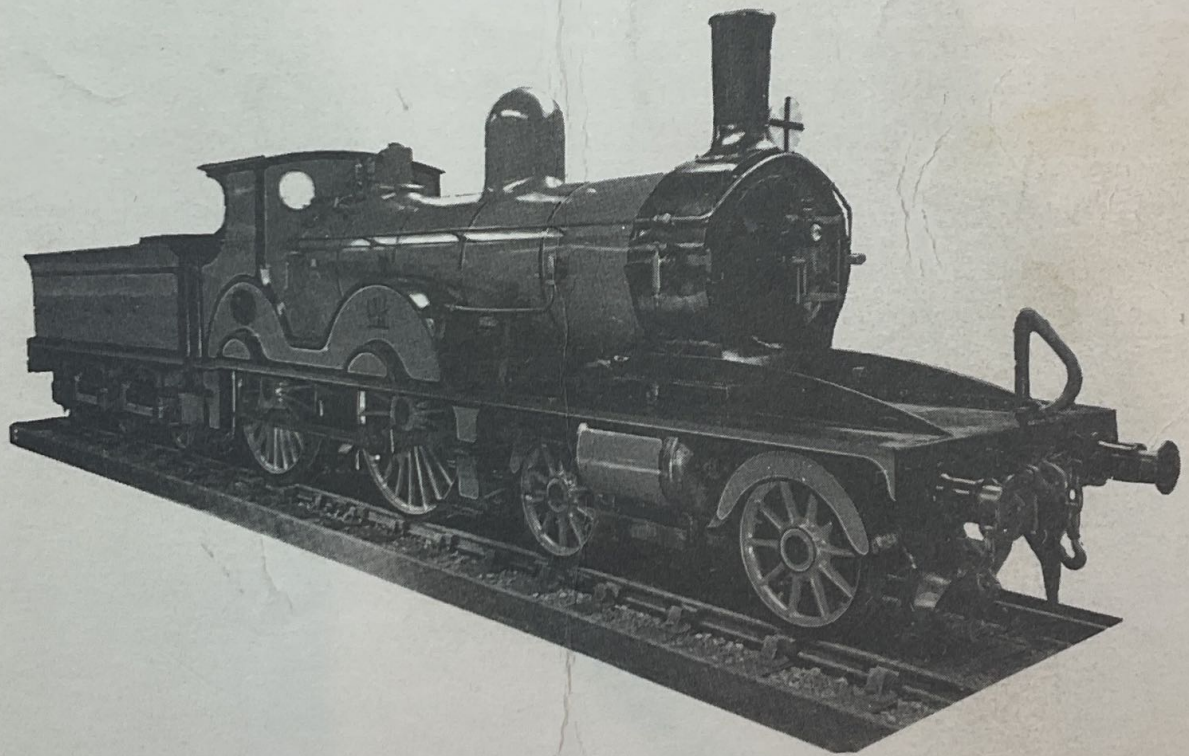


1978

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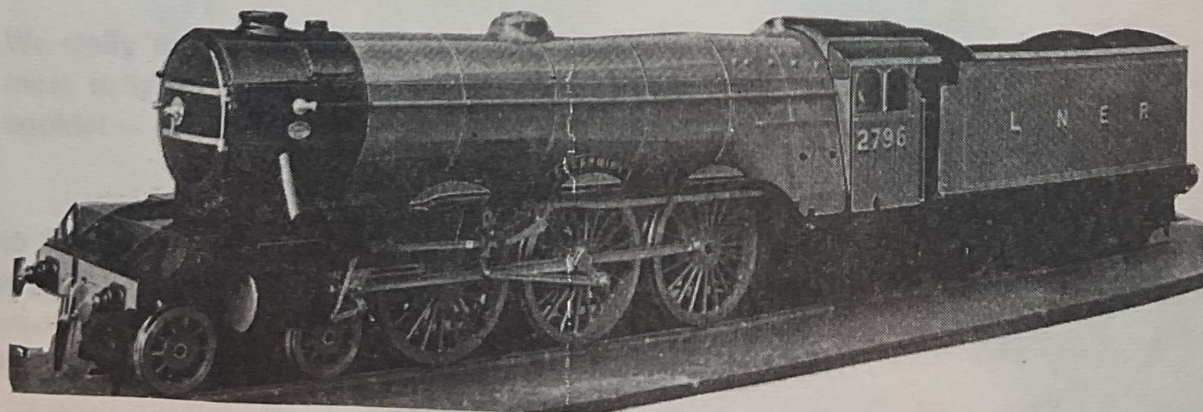
5" gauge 'Simplex'

5" gauge German 'P8'

7¼" gauge 'Bridget'

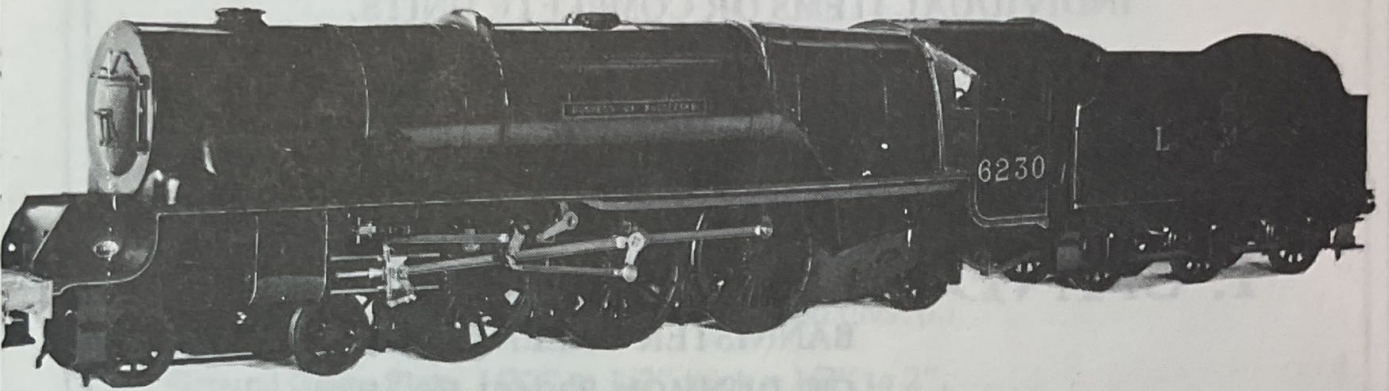
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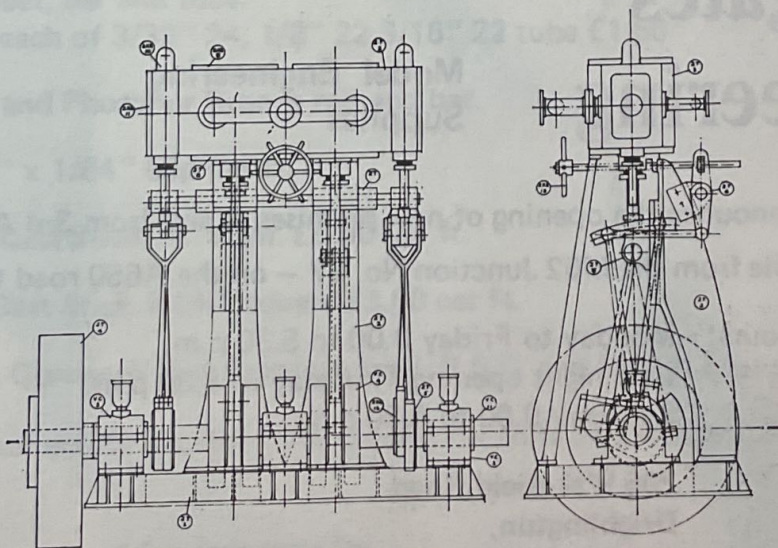


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10th

INTERNATIONAL MODEL LOCOMOTIVE EFFICIENCY COMPETITION

For Steam Locomotives of 3½" and 5" gauges

GUILDFORD MODEL ENGINEERING SOCIETY

are proud to be hosts to the competition on Sunday 9th July, 1978 at their track in Stoke Park, Guildford, Surrey, and extend a warm welcome to all visitors and good luck to all competitors.

The Competition is a friendly contest between the builders of small coal fired steam locomotives, and was devised by Martin Evans when he was the editor of Model Engineer magazine.

The Prizes will be presented by Martin Evans.

| | |
|-----------|---|
| 1st PRIZE | £50.00 |
| 2nd PRIZE | £25.00 |
| 3rd PRIZE | £15.00 |
| 4th PRIZE | One years subscription to Model Engineer. |

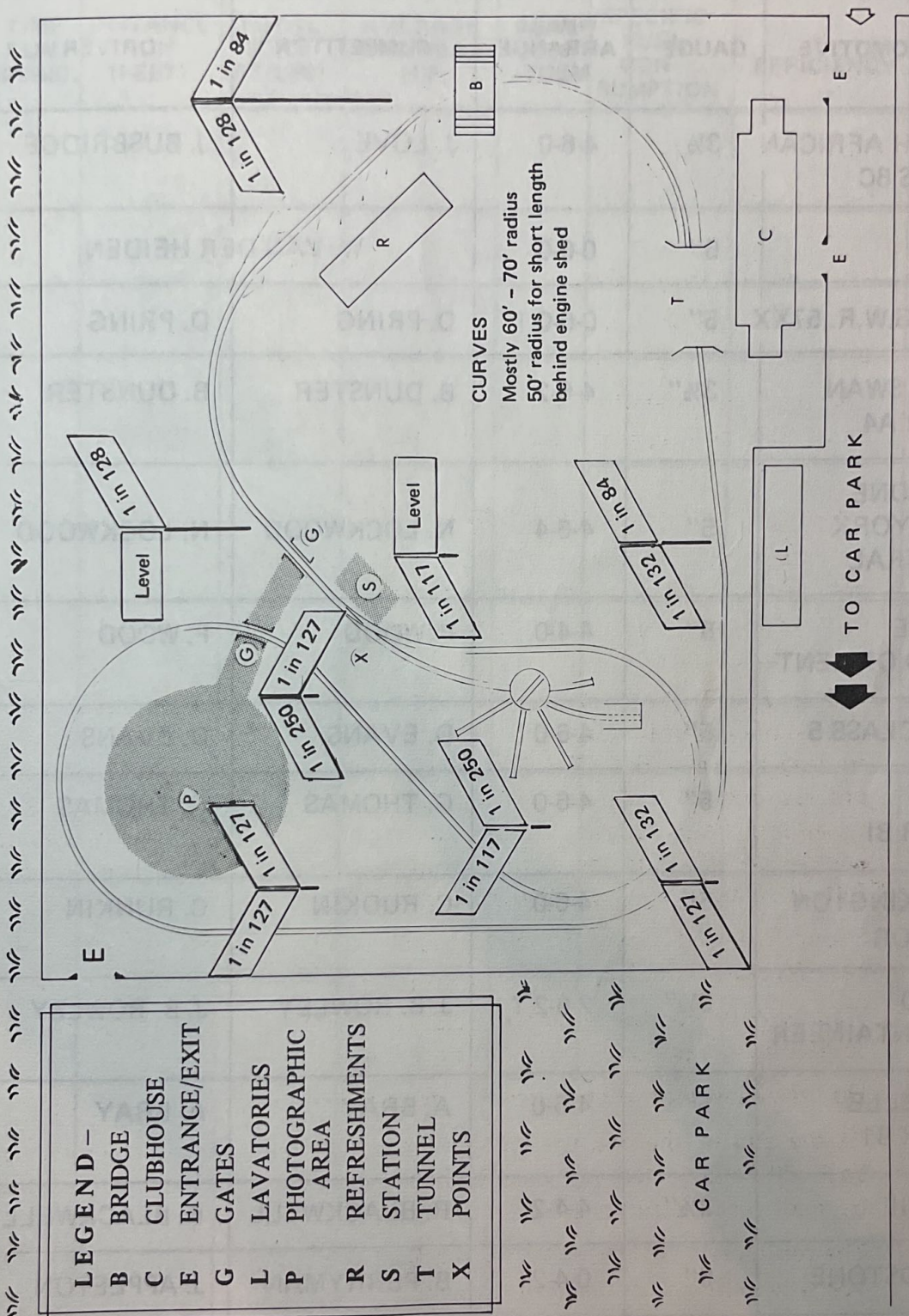
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| Birmingham Society of Model Engineers Ltd. | Dynamometer Car |
| Chingford & District Model Engineering Club | Results Board. |

IMLEC COMPETITION RULES AND ORGANISATION

1. The Competition is open to 3½" and 5" gauge locomotives.
2. Entry is restricted to owners who have basically built the engine they enter (parts bought 'outside', such as pressure gauges, boiler fittings, lubricators etc. will not disqualify). Overseas competitors may, however, enter any suitable locomotive.
3. No competitor may enter more than one locomotive.
4. No competitor may enter the same locomotive more than twice, last year's winner excepted.
5. There will be 15 entries accepted on a 'first come first served' basis.
6. An owner may nominate a driver if unable to drive the locomotive himself, but any prize won would go to the owner, not the driver.
7. Locomotives entered must carry a current boiler test certificate issued by a recognised society, or in accordance with the recommendations published in the 'Model Engineer'.
8. Two sizes of anthracite coal will be provided by host society in weighed 2lb. bags.
9. As much charcoal, paraffin, meths or wood as requested by the competitor will be provided for raising steam. Once a pressure of 60 p.s.i. has been reached the driver may, whilst waiting to go on to the track, start using the weighed coal provided for the competition.
10. The train with Dynamometer car will be prepared for the competitor, who may choose the size of his load. The duration of the run will be not less than 30 minutes, starting at the station. The Timekeepers will keep competitors informed of their progress and will indicate when on the last lap. The run must finish at the station to unload the passengers. Should a driver stop due to shortage of steam, water or coal before reaching the station, even though the loco has been running for the full 30 minutes, he must 'blow up' and complete the run to the station.
11. Should the load chosen prove too much for the loco, one or more passengers may be off-loaded providing that the boiler pressure is not less than 60 p.s.i.
12. Water will be handed to competitors, as required, in suitable polythene containers so that they may 'top up' without stopping.
13. No time allowance will be made for stops except in case of derailments.
14. At the end of the run, the loco will return to the steaming bay when all un-used coal will be collected and weighed in the presence of the driver. No allowance will be made for un-burnt coal left in the firebox.
15. The results will be calculated by the Society's officials and displayed on the notice board as soon as possible after the run.
16. The Society's speed limits must be observed. The official observer will warn drivers if speed limits are exceeded. Two warnings will be given but if a third is necessary, the driver may be disqualified.
17. Drivers must not lean on their locomotives to gain adhesion, neither must they apply the brakes to give added drawbar pull. They may brake to reduce excessive speed or in an emergency. Disqualification may follow disregard of this rule as in 16 above.

LONDON ROAD GUILDFORD



18. Sanding the rails will be permitted at the start only, at the discretion of the officials. Drivers of locomotives fitted with working sanding gear are at liberty to use it at any time.
19. The host Society will appoint a Panel of Judges whose decisions on all matters appertaining to the competition will be final.

| LOCOMOTIVE | GAUGE | WHEEL ARRANGEMENT | COMPETITOR | DRIVER | SOCIETY | LOAD | TIME RUN (MINS) | DISTANCE RUN (FEET) | TOTAL WORK (FT/LBS) | AVERAGE DRAWBAR H.P. | COAL USED (LBS) | SPECIFIC FUEL CONSUMPTION | % EFFICIENCY | FINAL POSITION |
|--------------------------|-------|-------------------|-------------------|--------------|-------------|------|-----------------|---------------------|---------------------|----------------------|-----------------|---------------------------|--------------|----------------|
| SOUTH AFRICAN CLASS 6C | 3½" | 4-6-0 | J. LOVE | J. BUSBRIDGE | CAPE TOWN | | | | | | | | | |
| NICK | 5" | 0-6-0 | W. VAN DER HEIDEN | | ROTTERDAM | | | | | | | | | |
| 9711 G.W.R. 57XX | 5" | 0-6-0 T | D. PRING | D. PRING | BRISTOL | | | | | | | | | |
| WILD SWAN LNER A4 | 3½" | 4-6-2 | B. DUNSTER | B. DUNSTER | CANTERBURY | | | | | | | | | |
| ARIADNE NEW YORK CENTRAL | 5" | 4-6-4 | N. LOCKWOOD | N. LOCKWOOD | CHICHESTER | | | | | | | | | |
| IRENE MAID OF KENT | 5" | 4-4-0 | P. WOOD | P. WOOD | CHINGFORD | | | | | | | | | |
| B.R. CLASS 5 | 5" | 4-6-0 | D. EVANS | D. EVANS | FYLDE | | | | | | | | | |
| IBEX LNER B1 | 5" | 4-6-0 | G. THOMAS | G. THOMAS | LLANELLI | | | | | | | | | |
| COCKINGTON MANOR | 5" | 4-6-0 | C. RUDKIN | C. RUNKIN | PORTSMOUTH | | | | | | | | | |
| ALCO MOUNTAINEER | 3½" | 2-6-2 T | J. B. ROWLEY | J. B. ROWLEY | ROLLS ROYCE | | | | | | | | | |
| GAZELLE LNER B1 | 5" | 4-6-0 | A. BRAY | A. BRAY | ROMFORD | | | | | | | | | |
| MAISIE | 3½" | 4-4-2 | R. BLACKWELL | R. BLACKWELL | SUTTON | | | | | | | | | |
| GLADSTONE | 5" | 0-4-2 | B. PERRYMAN | J. APPLETON | WORTHING | | | | | | | | | |
| NIGEL GRESLEY | 5" | 2-8-0 | P. WARDLE | P. WARDLE | BIRMINGHAM | | | | | | | | | |
| GWR 4700 CLASS | 5" | 2-8-0 | H. T. LEE | M. STYLES | BOURNEMOUTH | | | | | | | | | |

CALCULATION OF RESULTS

The dynamometer car measures and gives a direct reading of Total Work Done in foot pounds and Total Distance Travelled in feet. In addition the Overall Run Time (minutes) and Weight of Coal Used (pounds) are recorded. From these parameters the following calculations can be made:

$$\begin{aligned} \text{Average Drawbar Horsepower} &= \frac{\text{Total Work Done (ft. lbs.)}}{\text{Overall Run Time (mins.)} \times 33,000} \\ &\text{h.p.} \dots \dots \dots (1) \end{aligned}$$

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

$$\begin{aligned} \text{Specific Fuel Consumption (SFC)} &= \frac{\text{Coal Consumption Rate}}{\text{Average Drawbar Horsepower}} \\ &\dots \dots \dots (3) \end{aligned}$$

$$\begin{aligned} \text{Substituting (1), (2) and (3) : SFC} &= \frac{\text{Weight of Coal Used (lbs.)} \times 1,980,000}{\text{Total work Done (ft. lbs.)}} \\ &\text{lbs./D.B.H.P. hr.} \dots \dots \dots (4) \end{aligned}$$

$$\begin{aligned} \text{Overall Thermal Efficiency} &= \frac{\text{Work Output} \times 100\%}{\text{Heat Input}} \end{aligned}$$

The calorific yield of the coal has been measured to be 14312 B.Th.U./lb. Therefore 1 lb. of coal yields 14312 x 778 ft. lb. of heat where 778 is the number of ft. lb. per B.Th.U.

From (4) :

$$\begin{aligned} \text{Overall Thermal Efficiency} &= \frac{1,980,000 \times 100}{\text{SFC} \times 14312 \times 788} \\ &\% \dots \dots \dots (5) \end{aligned}$$

$$\begin{aligned} &= \frac{17.7822}{\text{SFC}} \\ &\% \dots \dots \dots (6) \end{aligned}$$

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

Previous I.M.L.E.C. Results

| Year | Host Club | Place | Owner | Club | Engine | Gauge (ins.) | Wheel Arrangement | S.F.C. (lb/DBHP hr.) | Efficiency (percent) |
|------|-----------------------------------|---------|----------------|---|--------------------|--------------|-------------------|----------------------|----------------------|
| 1969 | Birmingham S.M.E. | 1st | J. Drury | Birmingham Private Entry Cheltenham | Royal Scot | 5 | 4-6-0 | 10.10 | NOT QUOTED |
| | | 2nd | N. Spink | | GWR Gooch | 5 | 4-4-0 | 12.41 | |
| | | 3rd | A. Bowling | | Green Arrow | 3½ | 2-6-2 | 13.98 | |
| 1970 | Whitney and West Oxford S.M.E. | 1st | L. Labram | Birmingham Romford Wilsden & West London Bristol | "Firefly" | 5 | 2-6-2T | 12.92 | NOT QUOTED |
| | | 2nd | P. Dupen | | MR "999" | 5 | 4-4-0 | 13.36 | |
| | | 3rd | J. Cousins | | "Speedy" | 5 | 0-6-0T | 14.54 | |
| | | 1st 3½" | E. Kellet | GWR Hall | 3½ | 4-6-0 | 15.63 | | |
| 1971 | Southampton and District S.M.E. | 1st | A. Heyden | Newton Abbot Derby Bristol Portsmouth | GWR Dean Single | 5 | 4-2-2 | 7.99 | NOT QUOTED |
| | | 2nd | C. R. Amsbury | | GWR51XX | 5 | 2-6-2T | 9.98 | |
| | | 3rd | G. Hawkins | | GWR King | 5 | 4-6-0 | 12.53 | |
| | | 1st 3½" | F. Morley | | "Maid of Kent" | 3½ | 4-4-0 | 16.27 | |
| 1972 | Tyneside S.M.E. | 1st | N. Spink | Chesterfield Chingford Kinver & West Midlands Romford | GWR57XX | 5 | 0-6-0PT | 11.04 | 1.06 |
| | | 2nd | L. Bennet | | GCR Director | 5 | 4-4-0 | 11.95 | 1.05 |
| | | 3rd | H. Reeve | | "Nigel Gresley" | 5 | 2-8-0 | 12.86 | — |
| | | 1st 3½" | A. Jacobs | GWR Hall | 3½ | 4-6-0 | 13.81 | 1.03 | |
| 1973 | Chingford & District M.E.C. | 1st | W. Longstaff | S. Durham Birmingham Sunderland | LNER L1 | 5 | 2-6-4T | 11.38 | 1.6 |
| | | 2nd | L. Labram | | "Firefly" | 5 | 2-6-2T | 11.50 | 1.58 |
| | | 3rd | T. Arnott | | "Doris" | 3½ | 4-6-0 | 12.30 | 1.47 |
| 1974 | Bristol S.M.E.E. | 1st | F. Winsall | Rugby Derby Worcester | "Nigel Gresley" | 5 | 2-8-0 | 7.16 | 2.54 |
| | | 2nd | C. R. Amsbury | | GWR 51XX | 5 | 2-6-2T | 8.50 | 2.138 |
| | | 3rd | A. H. Castle | | "Freelance" | 5 | 0-8-0T | 9.40 | 1.933 |
| | | 1st 3½" | D. Alford | | NER K2 | 3½ | 2-6-0 | 17.85 | 1.018 |
| 1975 | T.S.M.E.E. | 1st | L. Joyce | Chingford Rugby Brighouse | GW King | 3½ | 4-6-0 | 11.71 | 1.552 |
| | | 2nd | F. G. Winsall | | "Nigel Gresley" | 5 | 2-8-0 | 13.06 | 1.392 |
| | | 3rd | D. W. Horsfall | | L.S.W.R. | 5 | 4-4-0 | 13.42 | 1.355 |
| 1976 | Kinver & West Midland S.M.E. Ltd. | 1st | Bill Perrett | Southampton Rugby Bristol | "Speedy" | 5 | 0-6-0T | 11.54 | 1.58 |
| | | 2nd | F. G. Winsall | | "Torquay Manor" | 5 | 4-6-0 | 13.25 | 1.37 |
| | | 3rd | J. Coleman | | S.E.C.R. Class 'D' | 5 | 4-4-0 | 13.62 | 1.36 |
| 1977 | Chingford & District M.E.C. | 1st | Bill Perrett | Southampton Rugby Peterborough Canterbury | "Speedy" | 5 | 0-6-0T | 7.85 | 2.32 |
| | | 2nd | Club Loco. | | "Netta" | 5 | 0-8-0 | 10.16 | 1.79 |
| | | 3rd | F. A. Beard | | "Black Bess" | 5 | 0-6-0T | 10.75 | 1.69 |
| | | 1st 3½" | B. H. Dunster | | A4 | 3½ | 4-6-2 | 26.79 | 0.68 |

THE LOCOMOTIVES

COCKINGTON MANOR

5" gauge G.W.R. 4-6-0 No.7806. It is basically to Martin Evans design, was completed in December 1976 and is in regular use passenger hauling on the Portsmouth track. This engine is fitted with automatic vacuum brakes and normally hauls fitted trucks.

IBEX

5" gauge L.N.E.R. B1, completed by Mr. George Thomas in 1974 to Martin Evans design. The engine has two separate oil pumps for cylinder lubrication. It has no water pumps, the boiler being fed by injectors only made by the builder. The engine's name is taken from Mr. Thomas' grandfather's Brixham smack.

NIGEL GRESLEY

5" gauge L.N.E.R. Class 01 2-8-0 built to the published design except that it has hydrostatic sight feed cylinder lubrication instead of the usual mechanical pump.

GLADSTONE

5" gauge LBSCR No.200. The model was designed and built by Bert Perryman from Stroudleys original drawings of 1883 and is painted in Marsh umber livery used on the LBSCR from 1912 up to the 1923 grouping. Working pressure 75 P.S.I., Cylinders 1 9/16" bore x 2 1/4" stroke, 3 element stainless steel radiant superheater, ordinary D slide valves beneath cylinders. Stephenson's link motion with launch links, driving wheels 6 15/16" diameter on tread, stainless steel arch fitted inside firebox, "Swindon" draughting in smokebox. Boiler feed is by two injectors under the cab floor, no pumps fitted to engine or tender. Weight of loco in working order 100 lbs., tender 48 lbs. No. 200 was the last "Gladstone" to retain a copper capped stroudley chimney and her regular driver was Dick Harman.

WILD SWAN

3 1/2" gauge LNER A4. Mr. B. Dunster built this model and gained a silver medal at the Model Engineer exhibition in 1975. Today's attempt will be the second appearance in IMLEC having competed last year at Chingford.

MAISIE

3 1/2" gauge G.N.R. Large boiler atlantic. The locomotive was built by Mr. Blackwell and apart from the lubricator being driven from an axle instead of the valve gear the design is to Curly's "words and music". The engine was completed in 1970 and is regularly used at Sutton Club Track Days and Fete work.

IRENE

5" gauge LBSC Maid of Kent with inside cylinders, joy valve gear and round top firebox but fitted with a stainless steel radiant superheater. The locomotive has no mechanical water pumps but relies on two injectors made by Percy Wood to feed all boiler water. The tender is unusual in that it is sealed with Araldite rather than soft solder and has no hand pump. The engine was entered in IMLEC 1976 and came fourth. It is a regular passenger hauler on the Chingford track and Percy estimates that the locomotive has hauled passengers for well over 200 miles since the last IMLEC appearance.

ARIADNE

1" scale, 5" gauge New York Central Hudson 4-6-2. There are no castings in the engine whatsoever, the wheels were fabricated from slices of 7 1/2" diameter steel bar with the boxpok shape made by drilling the slices with a drilling jig and sawing out the lumps in between, finally finishing by milling. The cylinders were made up by mild steel fabrications, sifbronzed and with cast iron liners for the piston valves and cylinders pressed in afterwards. The cylinders are approximately 1.9" diameter and have Honda motorcycle hard chromed piston rings. The locomotive is fitted with Walschaerts valve gear unlike the later type of Hudsons which were equipped with Baker valve gear. Roller bearings

are used on the tender and all locomotive wheels. The frames were cut from 3½" x ½" mild steel bar to simulate the cast steel frames of the original.

Steam is taken from the usual steam dome, and is then fed to the backhead regulator which is disc type. From the regulator the steam is collected and fed through two separate pipes to two ½" stainless steel superheaters running through the backhead, through the firebox, and then two flue tubes to the smokebox and of course to the cylinders via outside steam pipes.

The boiler is sifbronzed, silver soldered and is equipped with a Nicholson syphon. Water is fed from two axle driven pumps in addition to a crosshead driven pump. The tender is 3'6" long and this makes driving possible only by sitting on the tender.

MOUNTAINEER

3½" gauge ALCO 2-6-2 tank as built for the British War Department in 1917 to run on the 2 ft. gauge supply system from main line railheads to the trenches. The model has bar frames with fully compensated suspension, the rear units of which are between the frames as on the original design. The cylinder block etc. is machined from solid cast iron and is fitted with aluminium pistons with 2 rings and phosphor Bronze slide valves. The valve gear was designed by the builder J. B. Rowley, based on the work of Mr. A. Gettings and has a full gear cut-off of 80% and is set for equal cut-offs. The boiler is also designed by Mr. Rowley and has two 25mm superheater flues and 12 15mm tubes. The superheater is of the radiant type and each cylinder is fed from its own element. The regulator is of the poppet valve type and is built into the superheater wet header. The smokebox is split along the horizontal centre line and the top is removeable for tube cleaning etc. The boiler is injector fed, the injectors being to the design of Mr. Lawrence as described in M.E. Hydrostatic lubrication as described by Mr. F. Cottam is fitted.

GAZELLE

5" gauge LNER B1 basically to Martin Evans design but with cylinders modified to give improved porting details and the piston valves run in two short liners. The outline is to the works drawings which were obtained from the Oxford Press.

B.R. CLASS 5

5" gauge model of the Standard Class 5 as running 1956/7 with poppet valve cylinders and British-Caprotti valve gear. 1 5/8" bore x 2 3/8" stroke. The model is very new and has only been steamed for a few hours.

NICK

5" gauge 0-6-0 freelance American switcher with a steel boiler, Walschaerts valve gear, cylinders 38mm bore x 64mm stroke, weight about 50 kg. and was completed in 1977 and was a visitor to Guildford during that year. The builder, Willem van der Heiden, named the engine "Nick" after his grandson.

G.W.R. 4700

5" gauge 2-8-0 locomotive built to the drawings of K. Wilson.

SOUTH AFRICAN RAILWAYS 6C

This engine was a competitor at the 1976 IMLEC at Kinver. Since then it has been fitted with a 3 element stainless steel superheater. It is a 1/12th scale model built in 1965 by Jimmy Scott and sold in 1973 to Jack Love, its present owner and today's competitor. The lubricator pump is fitted with a double coil clutch spring for constant positive operation. The engine has travelled widely, covering 12,000 miles by sea, 7,000 miles by motor car to various South African venues and a further 12,000 miles by South African Airways.

GWR 57XX 9711

Last Minute substitution for SE & CR 'D' Class and no details at time of going to press.

GUILDFORD MODEL ENGINEERING SOCIETY

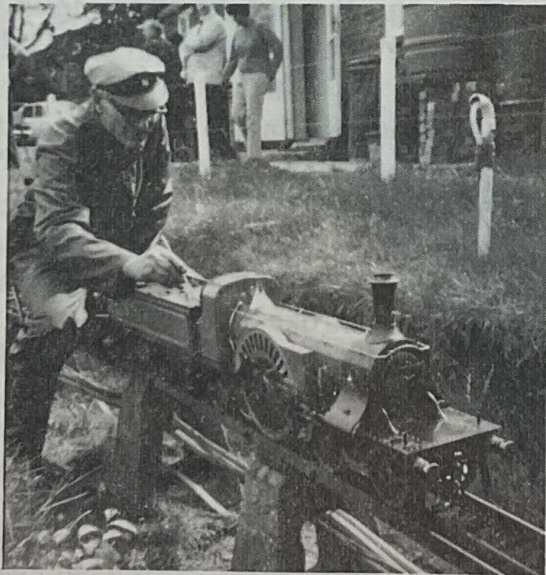
MODEL ENGINEERING EXHIBITION AND MODEL TRACTION ENGINE RALLY

This event will be held at Stoke Park, Guildford, Surrey on Saturday 15th July and Sunday 16th July 1978. The opening times are 12 noon to 6 p.m. on Saturday and 10 a.m. to 6 p.m. on Sunday.

There will be a number of visiting model traction engines of various types and sizes. Many will be in steam and will take part in various events. Working fairground models will be housed in a marquee together with an exhibition of steam locos, stationary steam engines, workshop equipment, traction engines, clocks etc., which are the work of GMES members. Some members will be demonstrating the use of machine tools throughout the event.

The live steam passenger track will be in operation together with the OO Gauge and O Gauge layouts.

An added attraction will be steam locos from Holland and Germany.



Guildford member John Mabbott driving his 5" gauge Great Northern single.

The Society holds regular Public Open Afternoons during the Summer months from May to September inclusive. These events take place on the third Sunday of each month and live steam passenger carrying track and model railway layouts are always in operation.

The opening times at these events are 2 p.m. to 6 p.m.

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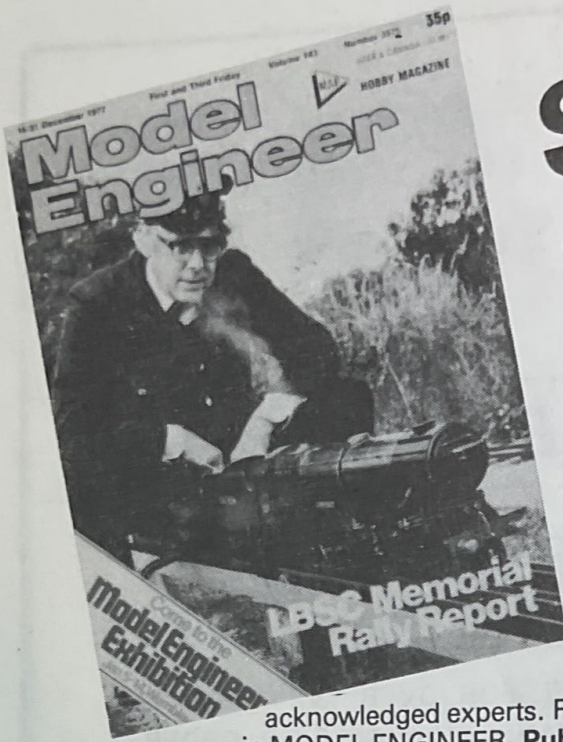
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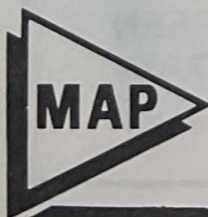
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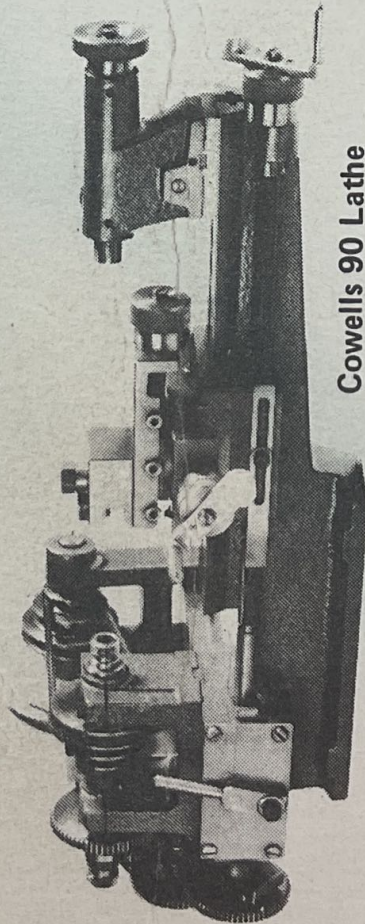
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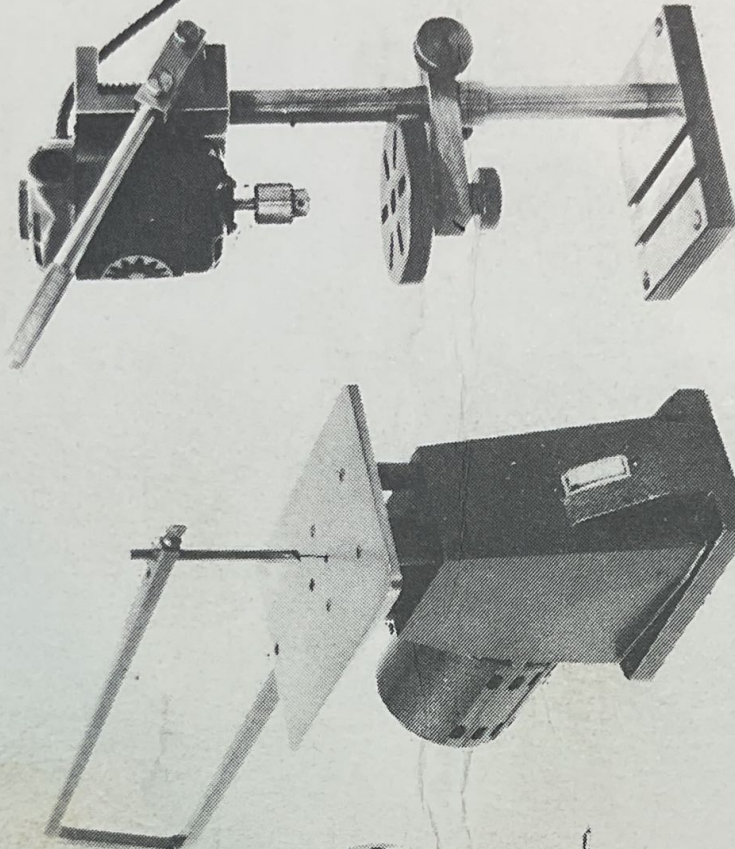
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