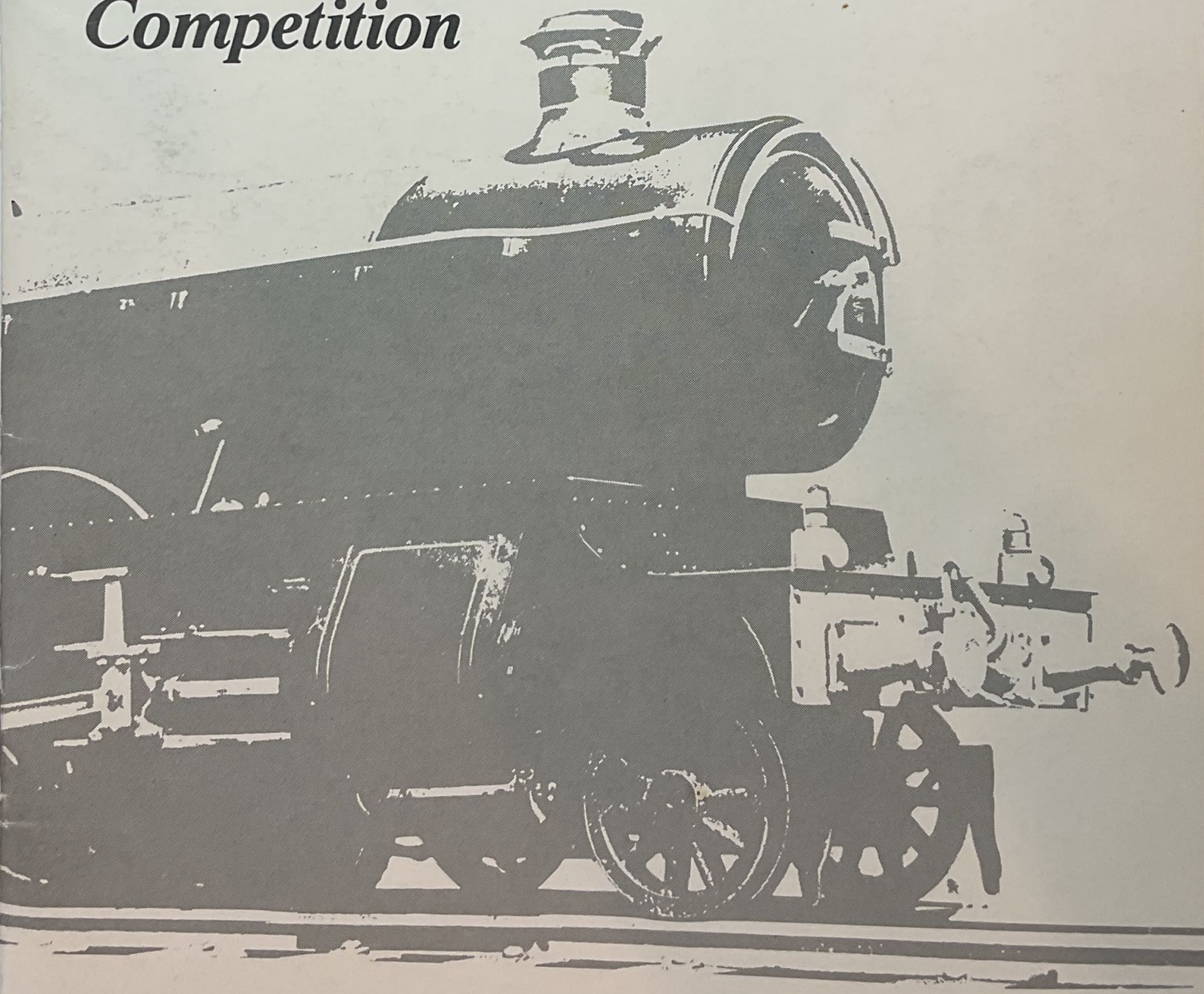
IMLEC '85

Seventeenth International Model Locomotive Efficiency Competition



Urmston & District Model Engineering Society Ltd.

PROGRAMME 50p

Seventeenth International Model Locomotive Efficiency Competition

for the

Martin Evans Challenge Trophy

for steam locomotives of 3½″ and 5″ gauges

at Abbotsfield Park, Flixton, Manchester
on Saturday and Sunday, 20th and 21st July 1985

* * *

The overall winner will receive the Challenge Trophy and £50; Second, £25; Third, £10; Fourth, one year's subscription to *Model Engineer;*
A special prize for the best 3½″ gauge locomotive, if not in the first four.

* * *

Contents

PRESENTATION OF PRIZES

Prizes will be presented after the last run on Sunday by the Assistant Director of the Greater Manchester Museum of Science and Industry, Dr. K. A. Barlow.

Welcome to Urmston

THE Committee and members of the Urmston & District Model Engineering Society extend a welcome to both competitors and spectators at this Seventeenth International Model Locomotive Efficiency Competition.

The competition will be run on the same lines (!) as in previous years, with each competitor being given a nominal half-hour run. The object of the competition is to produce the maximum work for the minimum consumption of coal, the competitor returning the highest thermal efficiency being declared the winner.

The load to be carried is specified by the driver in terms of the number of passengers he requires. The pull on the engine drawbar is measured continuously by the dynamometer car, as also is the distance travelled; the car's integrator gives a reading of work done. A calculation incorporating the weight of coal used produces a percentage efficiency figure. The entrant has therefore to use his judgement in specifying a load which he thinks will produce the most favourable results.

The organisers wish all attending an interesting and enjoyable weekend. This is the first time that the event has been held at Urmston... maybe it will not be the last!

Urmston & District Model Engineering Society

MANAGEMENT COMMITTEE

J. B. Cantwell (Chairman); J. Pinkney (Secretary); J. Renshaw (Treasurer);
P. Chapman; A. Fussell; D. Lowndes; S. E. Rowland;
A. Simpson; R. Stead.

SPECIAL IMLEC COMMITTEE

J. B. Cantwell (Secretary); W. Beveridge; B. Dady; A. Fussell; J. Moyle;
J. Renshaw; D. A. Roberts.

OFFICIALS FOR THE EVENT

Chief Judge: D. Lowndes
Station Master: B. Dady
Timekeepers: G. Hardman, D. A. Roberts
Calculation Stewards: D. L. Ashton, N. Moyle, R. Stead
Observers and Assistants: W. Beveridge, P. Withington, J. Moyle, H. Arnold, A. Fussell, T. Curry, D. Morriss, N. Counsell
Reception Marshals: J. Renshaw, G. Hopwood
P.W. Inspector: S. E. Rowland
Truck Marshals: J. Baggaley, D. Coulton
Track Marshals: A. Simpson, P. Bowler, A. Horton, J. Dyson, J. Stubbs, J. Pinkney
Public Address: G. Clarke, L. Williams
Car Park Marshals: R. Asquith, L. Griffiths, P. Oates, A. Whittle
Gate Stewards: J. Brennand, J. Williams, N. Weston

About IMLEC – a twenty-year history

IT WAS about 1964 that Martin Evans first had the idea that an efficiency competition might be staged for model steam locomotives. He put the idea to the late Leslie Howard, who was then Editor of *Model Engineer*. Howard was immediately enthusiastic, and very soon published the suggestion in one of his "Smoke Rings", to see what sort of response there might be. The late "LBSC" expressed doubts, and one or two readers thought that there was much to be said for the proposal, the idea of having a competition might lead to ill-feeling among the competitors. Fortunately, the fears of these readers never materialised. However, nothing was done until early in 1968, when Martin Evans, who by that time had become Editor of *Model Engineer,* raised the matter again.

In view of the popularity of the 3½ inch and 5 inch gauges, and the difficulty of comparing the performance between locomotives of widely differing gauges, it was proposed that the competition should be for these gauges only. A further point was the likely availability of a track suitable for the event. Apart from the track itself, one of the biggest problems was to cope with the number of cars that might have to be accommodated, there being no idea at the time as to the number that might arrive, the idea being of course that the general public, not necessarily readers of the *Model Engineer* would be invited to attend. A search was then made for a Model Engineering Society with the required track and car parking space, and most important, the willingness of its members to undertake what was likely to be a considerable task. In the event, the Birmingham Society volunteered to stage the first competition on their Illshaw Heath track.

Martin Evans then produced a very fine trophy, suitably engraved with the outline of a locomotive, which was to act as the first prize, plus a modest cheque. Prizes were also arranged for the competitors who would come in second, third and fourth. Special insurance had to be arranged to cover the event, which was scheduled for the first Sunday in July, 1969. Other matters that had to be seen to were the provision of adequate parking space, the printing of tickets (a small charge was made for admission), the provision of suitable catering—as the event was expected to last for a whole day—toilets, and, in case of accidents, a squad from the St John's Ambulance Brigade.

While the preparation were going ahead, members of the Birmingham Society, under the energetic leadership of Brian Hughes, built a dynamometer car that could be hauled behind the competing locomotive to record speed, drawbar pull, etc., so that comparison could be made between each competitor. The coal for the competing locomotives was carefully weighed and handed to the competitors in sealed bags. At the end of the run any coal left unburnt in tender of bunker was to be returned to the officials and weighed, so that the amount consumed by the locomotive could be determined. It was decided to allow each competitor to choose the load he thought most suitable for his engine, and to allow him to run for 30 minutes, which with the possibility of 15 or more competitors, was as long as was thought wise. Most fortunately, the weather could not have been better, and well over 600 visitors turned up to watch the fun. At the end of an arduous day, the winner was adjudged to be the Birmingham Society's own entry—a 5″ gauge Royal Scot.

With the great success of the first competition, now entitled the International Model Locomotive Efficiency Competition, a second event was arranged, and with the willing cooperation of the Witney & West Oxfordshire Society, plus the permission of the Duke of Marlborough, this was held in the grounds of Blenheim Park, and was again a great success, the winner being Len Labram with his 5″ gauge 2-6-2T "Firefly".

Since 1970, the Competition has gone from strength to strength, with venues up and down the country. A list of previous host societies and winners appears elsewhere in this programme. Next year the competition is to be held at Bournemouth.

It should perhaps be emphasised the I.M.L.E.C. is not a "scientific" competition—it cannot be in the time available—but it does give some idea of the prowess of the competing locomotives. It is, however, quite a stern test of the drivers; in fact many observers think that the skill of the driver counts for more than the efficiency or otherwise of the locomotives! More importantly, the competitions are great fun, and as one visitor put it: "a great Gathering of the Clans!"

(With acknowledgment to Bournemouth & District Society of Model Engineers).

Urmston & District Model Engineering Society Ltd

Affiliated to the Northern Association of Model Engineers
and the South Manchester Models Group

History and Progress

The Society was formed in 1948 by a small number of founders, the aim of the society being to promote model engineering of all types. The founder members were all residents of Urmston and Flixton and had previously been members or visitors to a society which had a miniature railway track in Winton Park, Eccles. The society was granted permission by the Urmston Urban District Council to build a track in Abbotsfield Park in 1949, which has been a permanent feature since that time.

The original raised track which sat on concrete posts was built of flat steel bar 1¼" x ¼" section and was built up of four rails with tubular spacers to cater for 2½", 3½" and 5" gauge locomotives. In the 1950s the steel track was relaid on wooden beams which were full size railway sleepers, ex-British Railways. This gave a better ride for the trains and cut down the number of derailments previously experienced.

The mid 1950's brought yet another improvement to the society's assets. A new timber pavilion, which seemed like a dream home following our small concrete sectional hut, from which we had operated since our inception.

Around 1960 the society decided to direct its resources to improving the track yet again. This created many hours of discussion as to what materials should be used. It was finally decided to use alloy flat bottomed section rail fixed to softwood cross sleepers with clout nails, this in turn was fixed to the timber beams which were already in position. Owing to the movement towards larger locomotives only 3½" and 5" gauges were to be catered for.

Not being a society to sit back for long without some improvement project, we set our sights at adding a second track to our assets. This was in the mid 1960s and again we decided to change design to give yet a better ride. Instead of the wooden beams spanning concrete posts, we decided that a steel channel underframe built in a ladder section would offer a considerable improvement. After much research and costing we found that a channel section, as used by British Railways for point rodding was the ideal size. Favour was again on our side when we established the source to purchase as scrap, the material removed from railway lines which were under the axe.

The second track was again to cater for 3½" and 5" gauge and was to be built outside the existing track with a transporter system to facilitate the movement from one track to the other, and to the steaming bays. The purpose of the two tracks was to give facilities to both areas of enthusiasm within our society, one for passenger hauling and the other to run smaller locomotives that were not suited to passenger work.

We believe we are one of the few societies to have this facility which has always been run in true railway fashion, in opposing directions.

1972 brought the change of attention back to the facilities of the club pavillion, which were by this time becoming rather stretched. We embarked upon our largest building project yet: this was to build our own brick club pavilion. The building work was substantially carried out by members of the society, and was financed to a large degree by our lady members who realised that these facilities would add greatly to their comforts. The pavilion was finally completed and officially opened in 1974 by the last chairman of Urmston Urban District Council, Roy Haigh.

Construction commences

Before the dust had time to settle we were again considering our next project, this being the mammoth track extension, our ultimate dream. The outline plans for this were submitted early in 1975 and were given approval. It was following the granting of approval that our work of detail design and practical facilities commenced. This took many months of debate and research which resulted in our next move, which was to extend the workshop area of our pavilion, to give us the space and facilities to fabricate the basic parts for our extended railway. The workshop extension was built in 1977/1978, following which the detailed plans for the track extension were concluded and actual construction work commenced.

October 1978 saw the first excavation on the park which was for the first bridge. Work has progressed steadily since this time, both out on the park and in the club workshop, many hours being worked in all sorts of weathers. We now have one of the largest tracks for 3½" and 5" gauge locomotives in the country.

The new track was in use in January 1982 and an official opening was held on 1st May of that year with a 'May Day Steam' rally held jointly with the Lancashire Traction Engine Club, an event with has been repeated each year since.

Les Pritchard and his Rebuilt Royal Scot after winning IMLEC 1984 at Bristol, and right, with the Martin Evans Challenge Cup.

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, paraffin and methylated spirit as required will be provided for raising steam. The change to weighed coal will be at the driver's discretion, but he must have a good coal fire before starting the run. This he must be ready to do immediately on the conclusion of the previous run.
5. The train with dynamometer car will be prepared to carry the number of passengers chosen by the competitor.
6. The duration of the run will be a nominal 30 minutes. When 25 minutes of the run have elapsed the driver may, at his discretion, decide to finish his run at the conclusion of that lap. No penalty will be incurred should be 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 station to unload passengers. Should a driver stop short of the station due to shortage of steam, water or coal, even though he has been running for the full thirty minutes, he must 'blow-up' and complete the run to the station.
7. Should the load prove too much for the locomotive, one or more passengers may be off-loaded wherever it is safe to do so.
8. Water will be handed to competitors as required in suitable containers so that they may top-up without stopping.
9. At the end of the run, the locomotive will return to the steaming bay, when all unused coal will be collected and weighted in the presence of the driver. No allowance will be made for unburned coal left in the firebox.
10. The results will be calculated by the Society's Officials and displayed as soon as possible.

DISQUALIFICATION

11. A maximum speed limit of 12 m.p.h. will be in operation for the competition. The Official Observer will advise drivers if this speed is approached. He will give a warning if the speed limit is exceeded. Three such warnings may result in disqualification.
12. 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 hand pump is not permitted except in an emergency when all other means of water feed have failed and the engine must then be retired. Infringement of any part of the rule will result in disqualification.
13. The use of sand is not permitted except for the start of the run.
14. The decision of the Chief Judge is final. Judges will be appointed by the Urmston and District Model Engineering Society Ltd.

Calculation of Results

(with acknowledgments to the Bristol S.M.E.E.)

(NOTE: Parameters marked * are shown on the results board and may be logged on the centre pages of this programme).

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:

Average Draw Bar Horse Power =

$$\frac{\text{Total Work Done (ft.lbs.)}}{\text{Overall Run Time (mins.)} \times 33{,}000}$$

h.p.* ..... (1)

Coal Consumption Rate =

$$\frac{\text{Weight of Coal Used (lb.)} \times 60}{\text{Overall Run Time (mins)}}$$

lb./hr. ..... (2)

Specific Fuel Consumption (S.F.C.) =

$$\frac{\text{Coal Consumption Rate}}{\text{Average Draw Bar Horse Power}}$$

..... (3)

Substituting (1) and (2) in (3)

$$\text{S.F.C.} = \frac{\text{Weight of Coal Used (lb.)} \times 1{,}980{,}000}{\text{Total Work Done (ft.lb.)}}$$

lb./d.b.h.p. hr.* ..... (4)

Now, Overall Thermal Efficiency =

$$\frac{\text{Work Output} \times 100\%}{\text{Heat Input}}$$

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

From (4)

Overall Thermal Efficiency*=

$$\frac{1{,}980{,}000 \times 100}{\text{S.F.C.} \times 14{,}000 \times 778}$$

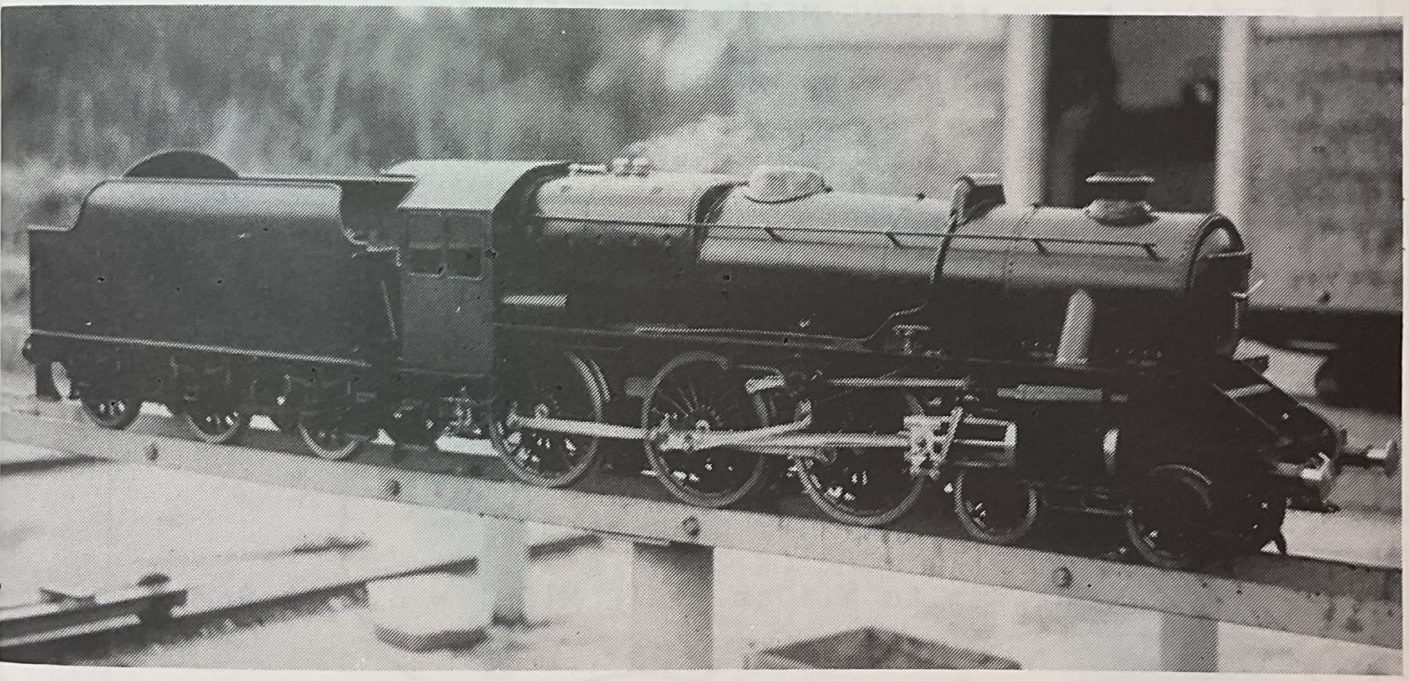
% ..... (5)

$$\frac{= 18{,}1785}{\text{S.F.C.}}$$

% ..... (6)

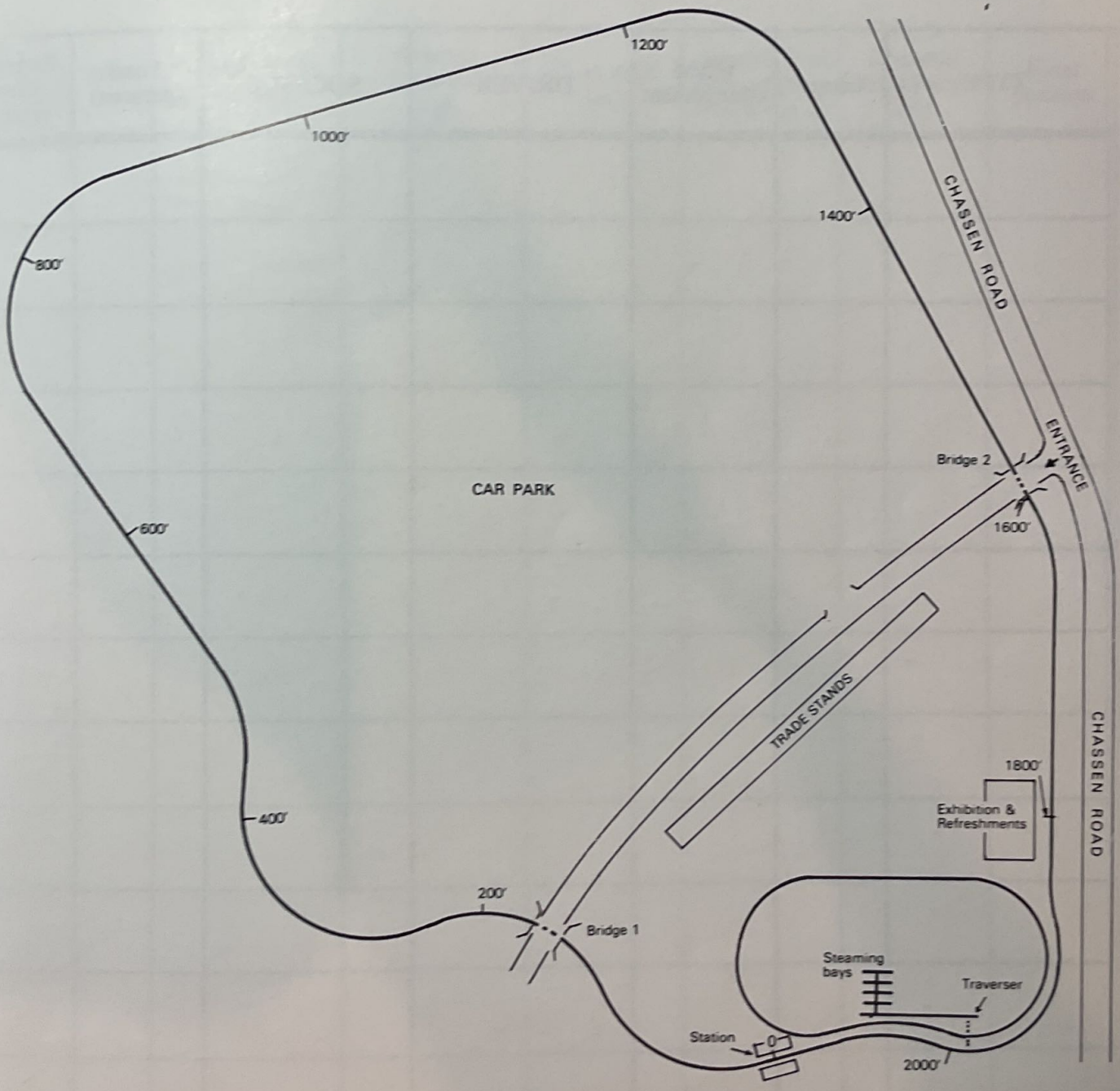
The locomotive which returns the highest Overall Thermal Efficiency is the winner.

Above: one of the two "Britannias" competing this year. J. Dalton's William Wordsworth.
Below: Fred Barnes built this Black Five, the Dinting Railway Centre's entry.
Bottom: a realistic setting for Peter Mackay's "Netta" from the North Staffs Society.

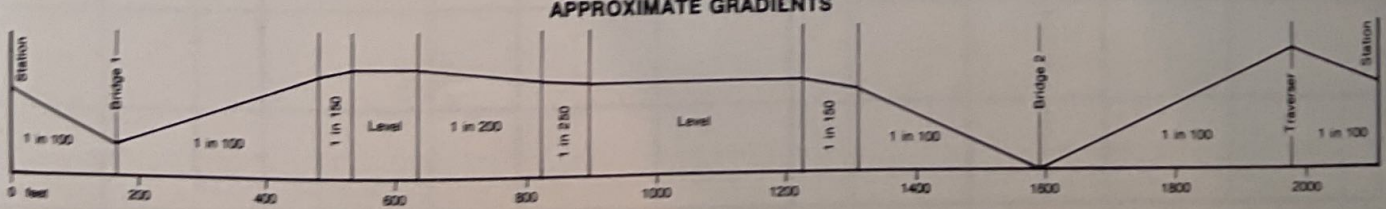


Track Plan

Lap distance 2120 ft.



APPROXIMATE GRADIENTS



RESULTS

TYPE	Gauge	Wheel arrangement	DRIVER	SOCIETY	Load (persons)	Running time (mins.)	Distance run (feet)	Total work (ft.lbs.)	Average draw bar h.p.	Coal used (lb.)	Specific fuel consumption (lb./d.b.h.p. hr.	Thermal efficiency (%)	Final position

RESULTS

TYPE	Gauge	Wheel arrangement	DRIVER	SOCIETY	Load (persons)	Running time (mins.)	Distance run (feet)	Total work (ft.lbs.)	Average draw bar h.p.	Coal used (lb.)	Specific fuel consumption (lb./d.b.h.p. hr.	Thermal efficiency (%)	Final position

Saturday's competitors

(Listed in running order at time of printing, but liable to alteration).

Bahamas Locomotive Society (Dinting Railway Centre). Club loco. 5″ gauge L.M.S. Class 5MT. ("Black Five"). Built by club member Fred Barnes, the locomotive was completed early in 1984 after approximately three years' building, to Don Young's design, and regularly runs on the miniature railway at Dinting, near Glossop, together with other engines of the Buxton M.E.S. Responsibility for its operation lies with R. G. Battersby who will be driving the engine today. He is, incidentally, one of the Centre's senior firemen (on full size!).

Wirral Model Engineering Society. Ian Jameson. 5″ gauge G.W.R. Pannier Tank. 0-6-0 . ("Pansy"). Built to LBSC's design, but with modifications to the boiler: superheater flues reduced from four to two and radiant elements fitted. Eight extra firetubes fitted in place of the superheaters. Ian's loco won the LBSC Memorial Bowl Competition in 1984.

North Staffs Models Society. P. Mackay. North Eastern Railway "T1" class 0-8-0. ("Netta"). Peter Mackay, a service, sales and installation engineer with Vickers Ltd. started to build "Netta" in 1975, taking three years to complete, and the engine is a regular runner on the North Staffs track in Newcastle-under-Lyme. It has won the club's annual efficiency trial for the past three years, and came third in the 1981 LBSC Memorial Bowl Competition. Peter is currently building a Clayton Undertype Steam Wagon, and crews on a full-size Burrel traction engine.

Wrexham & District Society of Model Engineers. D. Wilson. 3½″ gauge L.M.S. Class 5MT 4-6-0 ("Black Five"). The first of the 3½-inch gauge entries, Dave's locomotive uses slide valve cylinders, the castings used being intended for a GWR "Hall". The general arrangement has been re-drawn by Neil Simkins.

Barnsley Society of Model Engineers. Les Davis. 5″ gauge G.W.R. Manor class 4-6-0 ("Torquay Manor"). Built to the published Martin Evans' design with only minor detail modifications, this locomotive was completed in 1981 after about two-and-a-half years' work. Les has painted it in the style of the early 50s. It has completed approximately 1200 miles to date, and is the first of three "Manors" running in this competition.

Wigan & District Model Engineering Society. W. R. McCleave. 5″ gauge London & North Western Railway "Precedent" class 2-4-0. Mr McCleave is a retired engineer and belonged to the Merseyside Live Steamers before joining the Wigan M.E.S. five years ago. His L.N.W.R. "Precedent" class locomotive (commonly known as "Jumbos") was built from F. C. Hambleton's "Locomotives Worth Modelling" outline drawings and reference to the full-size prototype. Building commenced 1967 and the loco was running in 1968. It is good to see engines of one of the old companies which existed before 1923, North-Western engines in particular seem a bit rare on our club tracks.

Leyland Society of Model Engineers. A. Howarth. 5″ gauge L.M.S. "Royal Scot" 4-6-0. Alan had a fine run with this engine at Bristol last year, occupying first place until being knocked down to second by Les Pritchard. After that experience, Alan will doubtless by out to improve on last year! The locomotive is to his own design from L.M.S. drawings and won the Championship Cup at the 1979/80 M.E. Exhibition. It is equipped with needle-roller bearing axle boxes.

North Wales Model Engineering Society. H. Barton. 3½″ gauge L.M.S. "Patriot" class 4-6-0. Harold has been fifty years "on and off the drawing board", mostly in machine tool design and was, before retirement, a member of Leicester M.E.S., moving to Colwyn Bay ten years ago. His locomotive is equipped with a stainless steel firebox arch, backhead regulator and superheater across the fire. Its three cylinders are of scale size (1-1/16″). The valve gear permits running at very short cut-offs and there is exhaust clearance.

Private Entry—Alan Crossfield (Blackburn). 5″ gauge Great Northern Railway class "O1" 2-8-0 ("Nigel Gresley"). Alan, a telephone engineer by trade, built this engine in the period 1978-81, and it has proved a reliable and capable machine. Martin Evans' drawings were used, plus photographs of the original. These engines were an early design by H. N. Gresley whilst with the G.N.R., and not to be confused with one of the much later "A4" class Pacifics which carries his name. The engine ran at the Leyland IMLEC in 1982.

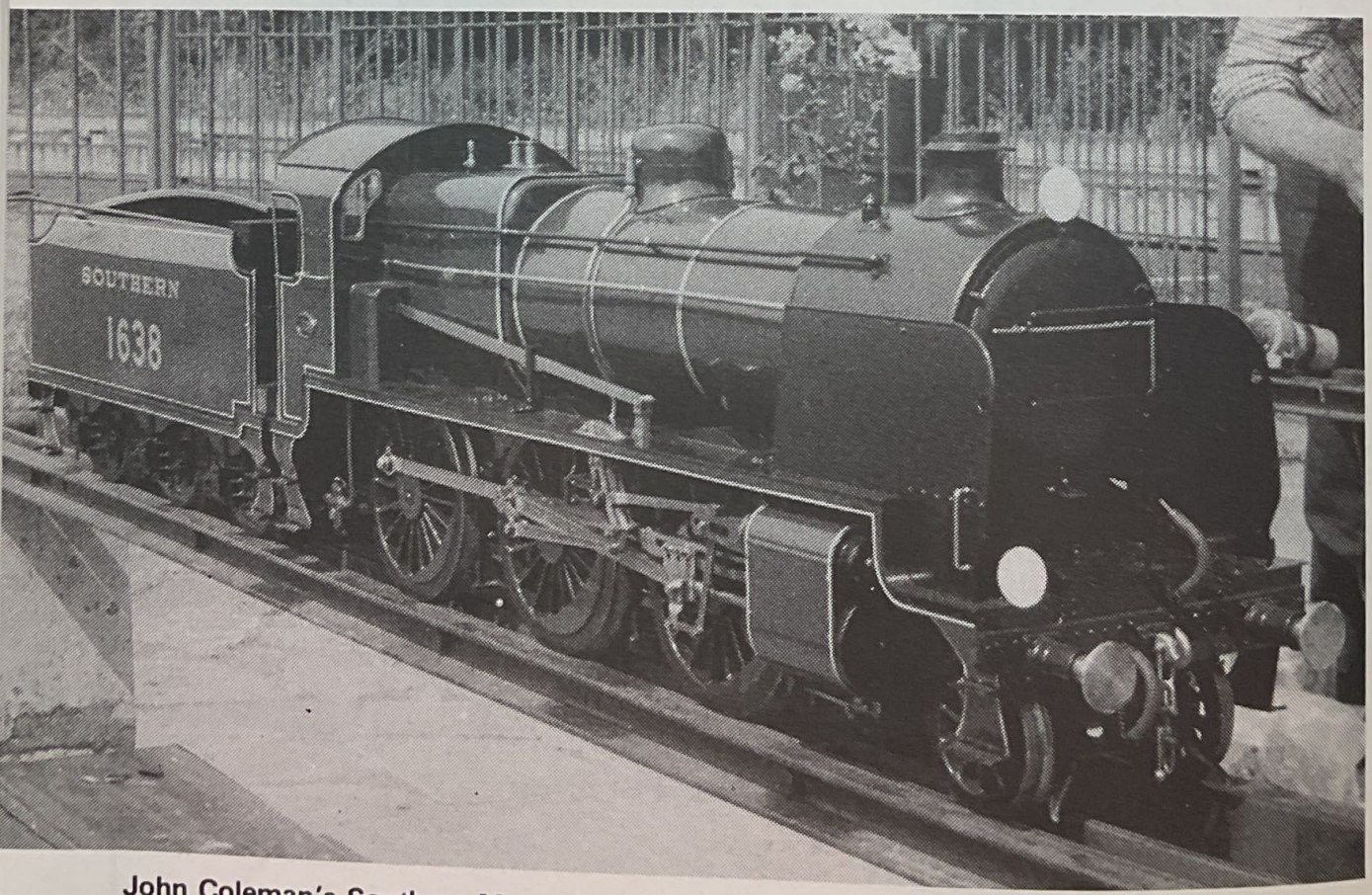
D. G. Sutcliffe's Beyer-Peacock District Tank. These engines were fitted with condensers to allow working underground

Chelmsford Society of Model Engineers. J. P. Dalton. 5″ gauge British Railways Standard Class 7 "Britannia" 4-6-2. *William Wordsworth* is fitted with a variable blast nozzle and the boiler has a combustion chamber.

Romford Model Engineering Club. A. Jacobs. 3½″ gauge G.W.R. "Hall" class 4-6-0. This engine was running in 1963 and completed in 1966, so is about on its 21st birthday! Prior to running in the 1984 "Curly Bowl" competition it had lain under a pile of rubbish in the garage since 1974. The locomotive is fitted with ball-bearing axleboxes, and a regulator-controlled duplex sight-feed lubricator.

Ardeer Model Engineering Club. N. K. Geddes. 5″ gauge Freelance 0-6-0 Tank ("Simplex"). Neil built this engine over three years whilst a member of the Aberdeen society, and is a first attempt. "Simplexes" have had some good results in this competition, though never a winner, the best being a third at Leyland in 1982. However, Neil won the Scottish Model Locomotive Efficiency Trial in 1983 with this engine, so Dr. Geddes must have diagnosed what is needed!

Chesterfield & District Model Engineering Society. F. Eaton. 5″ gauge L.N.E.R. "A3" class 4-6-2. Fred Eaton competed at last year's IMLEC at Bristol, but was most unlucky as his run terminated with a seized cylinder caused by lubricator failure, and he had to retire. *Windsor Lad* was built using Fred's own drawings; castings are used only for the wheels, many parts being cut from solid metal. The boiler is pressed to 125 p.s.i. and the engine weighs in at 380 lbs.



John Coleman's Southern Mogul is the entry from the Bristol Society

Sunday's competitors

Worthing & District Society of Model Engineers. Lionel Flippance. 5" gauge British Railways Standard Class 7 "Britannia" 4-6-2. After many years building model aeroplanes, Lionel chose to build a "Britannia" after seeing one at the M.E. Exhibition, and is his first engine. Building took 3½ years. The boiler is all-silver soldered using only propane gas (assisted occasionally by his terrified wife!) and is equipped with a combustion chamber.

Blackburn Society of Model Engineers. 5" gauge Beyer Peacock District Railway 4-4-0 Tank. A maintenance fitter by trade, Mr Sutcliffe has been model engineering since starting his apprenticeship in 1956. During this period he has built six locomotives from 2½" to 7¼" gauge, plus various stationary engines. Equipped with only a 1946 Myford "M" type lathe with milling attachment, "the rest," he says, "is handwork, so I do struggle at times." Struggle or not, he won the Premier Award for locomotives at the 1975 Northern Models Exhibition. The Beyer Peacock tank was built completely from scratch, including pattern making. His only drawing was a general arrangement of the "A" Class tanks in "Loco Profile", and "on the back of the proverbial fag packet". Construction took about 16 months. This is the third season of running.

Rolls-Royce Model Engineering Club (Glasgow). Iain Mackenzie. 5" gauge British Railways Standard Class 4 2-6-4 tank. Built from B.R. works drawings.

Stockport & District Model Engineering Society. A. Holdsworth. 3½″ gauge "Princess Marina" 2-6-0. A popular design by "LBSC", based on Stanier's first design for L.M.S.

Rugby Model Engineering Society. F. G. Winsall. 5″ gauge G.W.R. "Manor" class 4-6-0. *Hook Norton Manor* is now ten years old and came second in the 1976 event at Kinver. Since then the engine has had very little use and last year was steamed for the first time in eight years. She is once again in fine fettle to have another attempt at the trophy. Fred will not be driving the engine himself this year, he is handing over to his son Glyn, who has a fair amount of experience in IMLEC himself.

Birmingham Society of Model Engineers Ltd. B. Andrews. Freelance 0-6-0 Tank ("Simplex"). This is a first attempt at locomotive building by Brian, who is a Technical Officer with British Telecom. Having acquired a Drummond round bed lathe in 1977, he completed the chassis and motion, and then thought "let's make it different." With a bent to G.W.R. he came up with the result you see today, taken from an engine Swindon-treated in 1896. It was five years in building and has done three years had work on the Birmingham track and portable track events. Fittings include a twin sight-seed displacement lubricator, vacuum ejector, and top feeds from the injectors.

Bristol Society of Model and Experimental Engineers. John Coleman. 5″ gauge Southern Railway "U" Class 2-6-0. Of the "big four" railway companies, engines of the old Southern seem to be least modelled. John has partly remedied this with his fine Southern Mogul. It is based generally on Martin Evans' "Ashford" design, with some modifications.

Chingford & District Model Engineering Club. J. Dabson. 3½″ gauge Southern Railway "King Arthur" 4-6-0.

Stroud Society of Model Engineers. V. E. Hicks. 5″ gauge G.W.R. "Manor" class 4-6-0. Mr Hicks is a carpenter by trade and started model engineering four years ago. His first engine was a "Speedy", the "Manor" followed taking 19 months and was completed three months ago. *Hook Norton Manor* is built to Martin Evans' drawings.

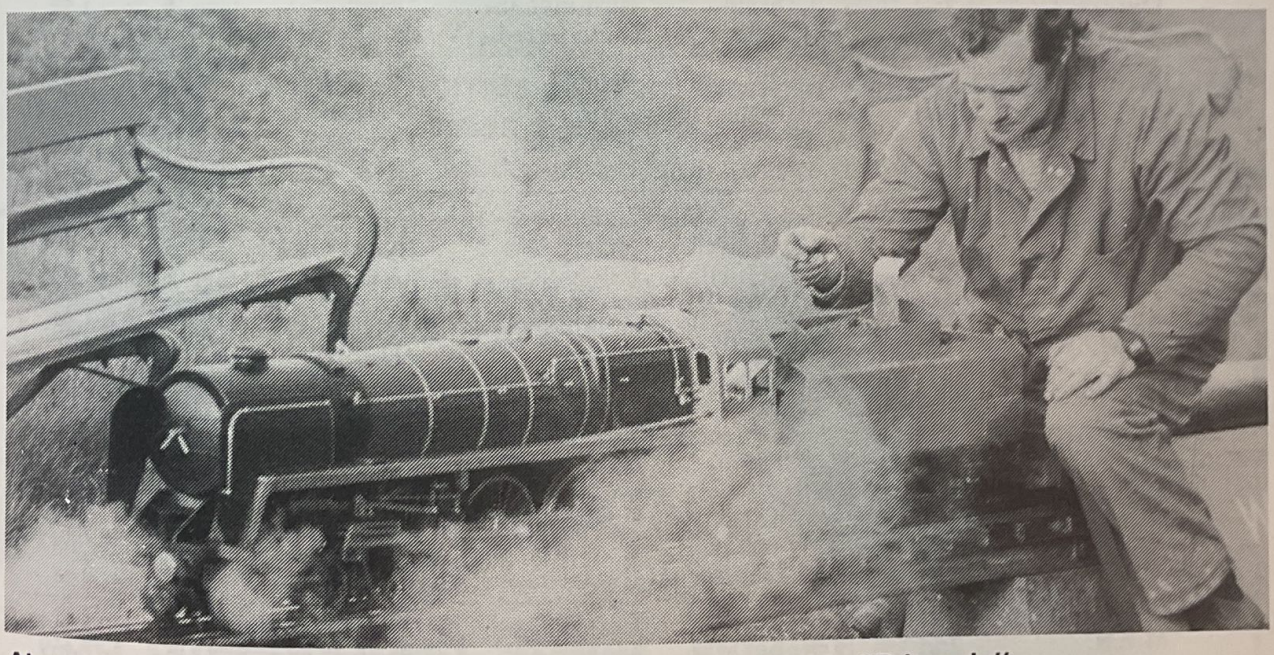
Brighouse & Halifax Society of Model Engineers. D. Wainwright. 5″ gauge G.W.R. 1500 Class 0-6-0 Pannier Tank ("Speedy"). "Speedy" is David's first attempt at loco construction, but he has been active in modelling all his life, mostly aircraft and boats. Built to the "words and music" but incorporating Don Young's valve gear modifications, the engine took 950 hours to build, being completed Easter 1984. David finds it relaxing in his workshop after a hectic day at the bakery where he is manager.

Fylde Society of Model Engineers. Denis Evans. 5″ gauge British Railways Standard Class 5 4-6-0. This locomotive is fitted with Caprotti valve gear and poppet valves, and has had a previous IMLEC run, at Guildford in 1978. Denis is well known for his work on Caprotti valves, having also built a 7¼″ gauge 3-cylinder *Duke of Gloucester* and a magnificent 3½″ gauge engine similarly equipped. The driver today will be Robert Shaw.

Private entry (Barnsley). Frank Croft. 3½" gauge Beyer-Garratt Articulated 2-6-0+0-6-2. Based on photographs of an original engine working in Yorkshire, Frank has designed this locomotive utilising two chassis of Martin Evans' "William" design. The engine took only twelve months to build. It will be driven by Leslie Donn.

Private entry (Hemel Hempstead). T. Lewis. 5" gauge Freelance 0-6-0 Tank "Sweet Pea". Mr Lewis's version of this narrow gauge tank locomotive is generally of more substantial construction than the published design, and he has equipped it with a tender and a proper cab.

Harlington Locomotive Society. L. C. Pritchard. 5" gauge Rebuilt "Royal Scot" class 4-6-0. Followers of IMLEC should need no introduction to Les Pritchard and his Rebuilt Scot, having won at Guildford in 1983 and at Bristol last year with the astonishing figure of 3.662%. Whether such a figure can be achieved on the ups and downs here at Urmston remains to be seen, but doubtless Les will be out for the hat-trick! In addition to its IMLEC successes, *Royal Scots Fusilier* won a Silver Medal at the 1982 M.E. Exhibition.



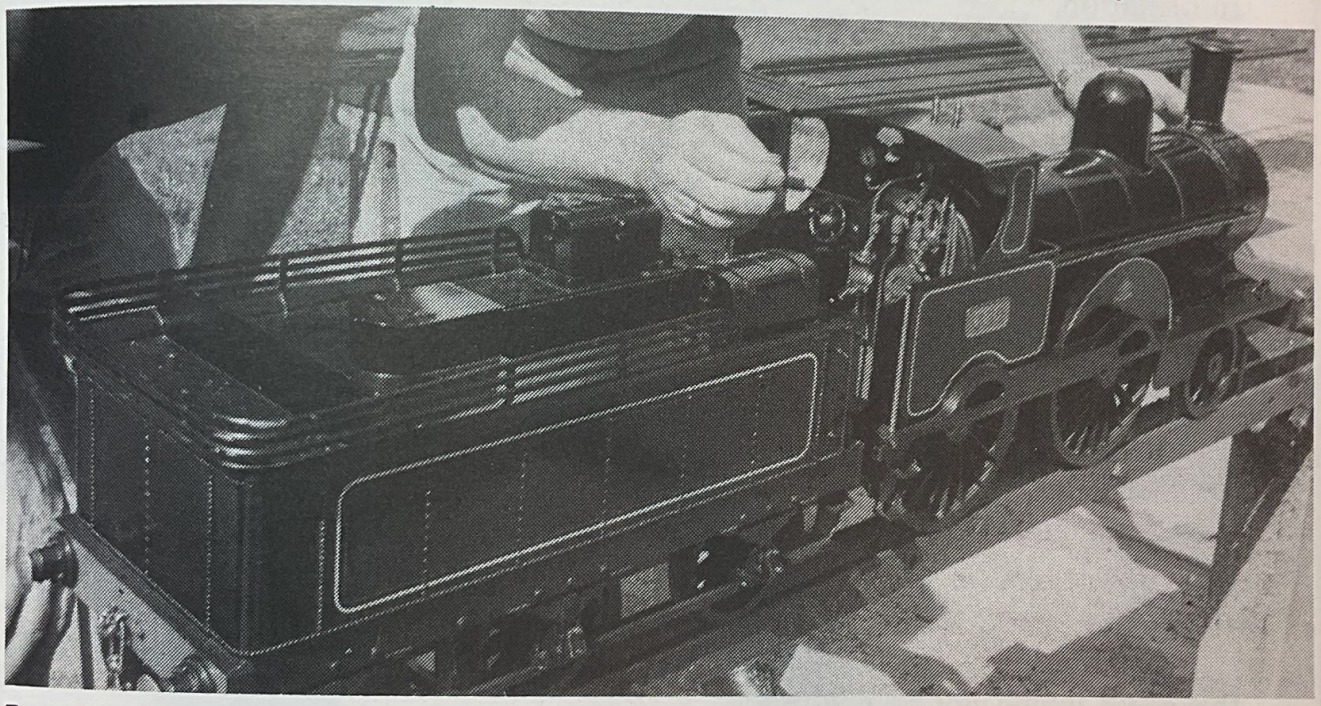
Above: Lionel Flippance has an early start on Sunday with his "Britannia".
Below: This "Pansy" by Ian Jameson of Wirral is a "Curly Bowl" winner.

Previous IMLEC Results

Year	*Host Club*	*Place*	*Owner*	*Club*	*Engine*	*Gauge ins.*	*Efficiency %*
1969	Birmingham S.M.E.	1st	J. Drury	Birmingham	Royal Scot	5	Not
		2nd	N. Spink	Private Entry	GWR Gooch	5	Quoted
		3rd	A. Bowling	Cheltenham	Green Arrow	3½	
1970	Whitney & West Oxford S.M.E.	1st	L. Labram	Birmingham	"Firefly"	5	Not
		2nd	P. Dupen	Romford	M.R. "999"	5	Quoted
		3rd	J. Cousins	Willesden & W. London	"Speedy"	5	
		1st 3½	E. Kellet	Bristol	GWR Hall	3½	
1971	Southampton & District S.M.E.	1st	A. Hayden	Newton Abbott	GWR Dean Single	5	Not
		2nd	C. R. Amsbury	Derby	GWR 51xx	5	Quoted
		3rd	G. Hawkins	Bristol	GWR King	5	
		1st 3½	F. Morley	Portsmouth	"Maid of Kent"	3½	
1972	Tyneside S.M.E.	1st	N. Spink	Chesterfield	GWR 57xx	5	1.06
		2nd	L. Bennett	Chingford	GCR Director	5	1.05
		3rd	H. Reeve	Kinver & W.Mid.	"Nigel Gresley"	5	—
		1st 3½	A. Jacobs	Romford	GWR Hall	3½	1.03
1973	Chingford & District S.M.E.	1st	W. Longstaff	S. Durham	LNER L1	5	1.6
		2nd	L. Labram	Birmingham	"Firefly"	5	1.58
		3rd	T. Arnott	Sunderland	"Doris"	3½	1.47
1974	Bristol S.M.E.E.	1st	F. G. Winsall	Rugby	"Nigel Gresley"	5	2.54
		2nd	C. R. Amsbury	Derby	GWR 51xx	5	2.138
		3rd	A. H. Castle	Worcester	Freelance	5	1.933
		1st 3½	D. Alford	Bracknell	GNR K2	3½	1.018
1975	Tyneside S.M.E.E.	1st	L. Joyce	Chingford	GWR King	3½	1.552
		2nd	F. G. Winsall	Rugby	"Nigel Gresley"	5	1.392
		3rd	D. W. Horsfall	Brighouse	LSWR	5	1.355
1976	Kinver & W. Midland	1st	W. Perret	Southampton	"Speedy"	5	1.58
		2nd	F. Winsall	Rugby	"Torquay Manor"	5	1.37
		3rd	J. Coleman	Bristol	SECR "D"	5	1.36
		4th	P. Wood	Chingford	"Maid of Kent"	5	1.21
1977	Chingford & District M.E.S.	1st	W. Perret	Southampton	'Speedy"	5	2.32
		2nd	Club loco	Rugby	"Netta"	5	1.79
		3rd	F. A. Beard	Peterborough	"Eva May"	5	1.694
		4th	B. Woolston	Coventry	"General D'Arcy"	5	1.687
		1st 3½	B. H. Dunster	Canterbury	LNER A4	3½	0.68
1978	Guildford M.E.S.	1st	P. Wood	Chingford	"Maid of Kent"	5	1.614
		2nd	D. Pring	Bristol	"Pansy"	5	1.469
		3rd	B. Perryman	Worthing	LBSC "Gladstone"	5	1.266
		4th	G. Thomas	Llanelli	LNER B1	5	1.199
1979	Bristol S.M.E.E.	1st	D. Morriss	Urmston	GNR Stirling Single	5	2.178
		2nd	A. Hall	Harlington	LNER B1	5	1.984
		3rd	G. Thomas	Llanelli	LNER B1	5	1.892
		4th	M. Leahy	Romford	GWR Manor	5	1.787
		1st 3½	J. Love	S. Africa	SAR C1.6C	3½	1.786
1980	Bedford M.E.S.	1st	P. Wood	Private	BR Class 7	3½	1.378
		2nd	K. Moonie	Chingford	LSWR Adams T.	5	1.231
		3rd	R. Wilkinson	Erith	GWR Manor	5	1.209
		4th	A. Hall	Harlington	LNER B1	5	1.167
1981	Bournemouth & District S.M.E.	1st	P. Wood	Chingford	LNER J39	5	2.419
		2nd	R. Wilkinson	Erith	"Torquay Manor"	5	2.133
		3rd	G. Moore	Guildford	LBSCR "Minx"	5	2.018
		1st 3½	L. Gillett	Northampton	SR Merchant Navy	3½	1.641

1982	Leyland S.M.E.	1st	R. Amsbury	Derby	GWR De Glehn	5	1.506
		2nd	G. Moore	Guildford	LBSCR "Minx"	5	1.329
		3rd	C. Summersall	Harrogate	"Simplex"	5	1.181
		1st 3½	M. Zabrocki	Romney Marsh	LBSCR "Mona"	3½	1.166
1983	Guildford M.E.S.	1st	L. C. Pritchard	Harlington	Royal Scot	5	1.3583
		2nd	J. Ewins	Maidstone	Experimental 0-8-0	5	1.2222
		3rd	P. Wood	Chingford	Hunt	5	1.1082
		4th	J. Etheridge	Staines	"Simplex"	5	1.0974
		1st 3½	D. R. Wilkinson	Reading	Maisie	3½	0.6345
1984	Bristol S.M.E.E.	1st	L. C. Pritchard	Harlington	Rebuilt Scot	5	3.662
		2nd	A. Howarth	Leyland	Royal Scot	5	2.060
		3rd	D. Bannister	N. Cornwall	"Maisie"	3½	1.997
		4th	Club loco	Malden	"Maid of Kent"	5	1.924

Above: a touch of "live steam" atmosphere for Alan Crossfield's "Nigel Gresley".



From Wigan comes this fine Webb "Precedent" by W. R. McCleave.

Average Speed Table for Urmston Track

To find average speed divide 1445 by lap time in seconds.

4 m.p.h.	6 min	01 sec.	9 m.p.h.	2 min	41 sec
5 m.p.h.	4 min	49 sec	10 m.p.h.	2 min	24 sec
6 m.p.h.	4 min	01 sec	11 m.p.h.	2 min	11 sec
7 m.p.h.	3 min	26 sec	12 m.p.h.	2 min	00 sec
8 m.p.h.	3 min	01 sec	13 m.p.h.	1 min	51 sec.

Acknowledgments

The Urmston and District Model Engineering Society with to thank the following for their help, without which IMLEC '85 would not have been possible:

The Birmingham Society of Model Engineers for the loan of their dynamometer car.

The Bristol Society of Model & Experimental Engineers for the loan of their dynamometer car.

The Leyland Society of Model Engineers for much helpful advice and information.

May & Baker Ltd. for the loan of precision scales.

Dr K. A. Barlow, Assistant Director of the Greater Manchester Museum of Science and Industry for presenting the prizes.

St. John's Ambulance Brigade.

Trafford Borough Council for allowing the hire of the park.

Model Engineer magazine for supplying photographs and advice.

John Stubbs for organising the public address system.

Mrs Beryl Cantwell for her work as 'Secretary's Secretary'.

Geoff Johnson and the Club Ladies for their planning and provision of catering services.

All club members for their work before, during and after the event.

Our advertisers in this programme. They have supported us by taking advertising space, please support them.

...and last but by no means least, the COMPETITORS, without whom this event would not be possible.

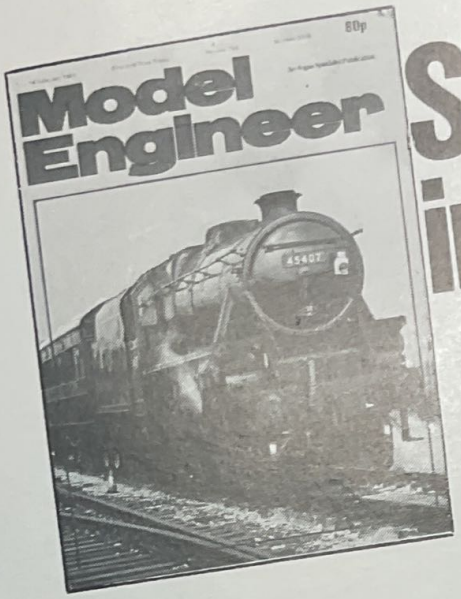
A date for your diary...

IMLEC 1986

KING'S PARK, BOURNEMOUTH

5th and 6th July 1986

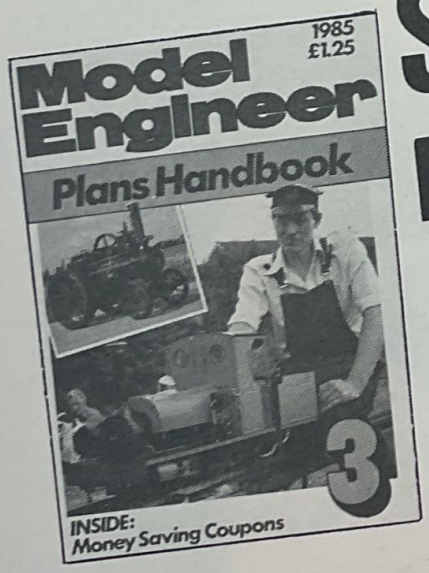
John Roberts & Sons Printers (Salford) Ltd., 172 Chapel Street, Salford M3 6BG.



STEAM in miniature

twice every month, MODEL ENGINEER presents to the modeller and steam enthusiast the finest features in precision model engineering from worldwide acknowledged experts. For steam enthusiasts, there's always interest in MODEL ENGINEER.

Published 1st and 3rd Friday of every month. price 80p



STEAM model plans

A unique collection of precision model engineering plans and drawings covering the widest and most interesting range of subjects possible. Several hundred superb plans each a masterpiece in model engineering, illustrated and described in our **PLANS HANDBOOK No. 3**

price £1.25

MODEL ENGINEER is available from model shops and bookstalls, or by annual subscription **£22.00** for one year including index and a souvenir guide to the Model Engineer Exhibition. In case of difficulty contact:

MAP

Argus Specialist Publications Ltd.

WOLSEY HOUSE, WOLSEY ROAD, HEMEL HEMPSTEAD, HERTS. HP2 4SS. Tel: Hemel Hempstead (0442) 41221.