Formed 1929

IMLEC 2015

Nottingham Society of Model and Experimental Engineers Ltd.

present

The International Model Locomotive Efficiency Competition

for the

Martin Evans Challenge Trophy

THE 2015 INTERNATIONAL MODEL LOCOMOTIVE EFFICIENCY COMPETITION
for the
Martin Evans Challenge Trophy
on
Friday 17th July, Saturday 18th July and Sunday 19th July 2015

Prizes will be presented by Diane Carney, Editor of Model Engineer magazine.

The Overall Winner will be awarded, by courtesy of Model Engineer magazine the Martin Evans Challenge Trophy and £200.

2nd Prize £150.

3rd Prize £100.

The best 3½" gauge winner (if more than two completed runs by competitors) and not the overall winner will receive £75.

Winning Junior (if in top ten place) £50.

Wooden spoon prizes include:
Lowest efficiency, a bottle of champagne.
Burnt most coal, a bottle of champagne.

Front Cover:
John Cottam winner of the 2014 IMLEC with the Martin Evans Challenge Trophy.

2015 IMLEC Committee

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Nick Harrison

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Chairman's Welcome

On behalf of Nottingham Society of Model Engineers I would like to welcome you to our facility in Ruddington on the outskirts of Nottingham for this year's IMLEC.

After hosting the event 3 years ago we feel honoured and pleased to have been approached to hold the event again so soon.

We have assembled a small team of our members who have each taken responsibility for arrangements required for this event.

On your behalf I would like to thank them for the time and effort they have committed to ensuring the event runs smoothly. In particular I would like to thank Tony Knowles for his management of the competitors and Bob Bramson who took responsibility to manufacture our own dynamometer vehicle.

To hold an event of this size over 3 days requires a large number of people to help with a variety of tasks. We are pleased to have received a large response from our members who have volunteered to help run the event, but we have also received a large amount of help and advice from other societies such as Leyland

The event is proving very popular with 33 entries being received this year from all over the country. Although there is the serious side of the competition it is obvious the event has become a very popular opportunity for model engineers to get together and share their experiences from the various topics of our hobby.

Finally please enjoy your time with us and we hope to see you all again soon.

Nick Harrison *Chairman*

A Brief History of IMLEC

The history of the International Model Locomotive Efficiency Competition - or IMLEC, as most model engineers have come to know it - dates back to 1959 when a meeting was called at the Model Engineer magazine offices to discuss the possibility of organising an annual event to test the efficiency of miniature steam locomotives. However, its true origins can be traced back to around 1903; long before it was to become recognised as a competition in the true sense of the word: More of this later.

However, to first return to the origins of the competition, proper: In 1959 LBSC was consulted and later - in typical LBSC fashion - remarked that although he had been consulted, his views had been ignored. The then Editor of Model Engineer replied by saying that his response to the proposal had been negative. It is fair to say that LBSC was clearly against efficiency trials when he quoted a story about two fictitious friends who took part in a club trial and then fell out afterwards over the result. Of course, most model engineers would say that he was possibly missing the point. However, he was heard to say that; "Aim for efficiency, by all means; but do it for your pleasure and don't parade it at the other fellow's expense! I would rather see all so-called 'efficiency trials' abolished and the time better spent in giving joy-rides to children!". The following years have shown that both can co-exist for both the benefit of those interested in competition and those that derive pleasure in using their locomotives to give pleasure to children – plus adults too!

Despite this, soon a formula was agreed that was seen at the time as being an accurate way of measuring the efficiency of both 3½" and 5" gauges – the more common gauges of the time. This method was then drawn-up into a set of formulas and recommended for general acceptance by the various societies up and down the country. At this time, though, these rules did not take into account the calorific value of the fuel.

Printed alongside these published formulas was an indication that Model Engineer magazine was also considering the establishment of an annual national efficiency competition for passenger hauling steam locomotives of 3½" and 5" gauges based around these formulas; where It was expected that societies would hold their own individual trials early in the season and submit their two most efficient locomotives with drivers as entries in this national competition. Model Engineer magazine were to sponsor the competition as well as provide prizes for the winning entry – a tradition that continues to this day.

When this idea was published several societies indicated their interest in adopting the proposed efficiency formula; whilst some others went further by expressing their interest in Model Engineer magazines' proposal for a national competition. The proposal went even further by suggesting elimination contests to be held on society tracks, with the winners going forward to represent their respective societies at regional or national finals, with a trophy and a cash prize of £25 being awarded to the winning society.

Despite all this talk it is interesting to note that it was a further ten years before anything further happened and on March 7th 1969, Martin Evans, the then Editor of Model Engineer, announced that a locomotive efficiency competition to be known as The Model Engineer International Model Locomotive Efficiency Competition was to be held.

The first IMLEC was hosted by the Birmingham SME in July that same year. With a fine silver cup together with second and third prizes being donated by Model Engineer magazine, it was hoped that most of the major model engineering societies would enter, Some individual entries would also be welcome. A further announcement on 21st March that year confirmed that twenty locomotives of 31/2" and 5" gauges would compete for the Martin Evans' Locomotive Challenge Cup and £25, a second prize of £10 and a third prize of two years' subscription to Model Engineer. For the time, quite generous prizes!

Since 1969, the competition has been held on an annual basis with representatives from Model Engineer being on-site to photograph and later write-up the proceedings in the magazine. Organization has always been in the hands of the individual clubs whose locations so far have ranged from Tyneside in the north to Bournemouth in the south. Although rules of the competition itself have changed little over the years, those governing the entry criteria have been subjected to gradual adjustment, reflecting changes within the hobby. For example IMLEC 2000 saw the first entry of a kit built locomotive. Previously all locomotives entered had to have been built entirely by the competitor. Another rule from the same period, and now also relaxed prohibited locomotives from being entered into the competition on more than two occasions. This worked well enough in introducing fresh locomotives into the competition, but had the negative effect of eliminating locomotives at a faster rate than new ones could be built!

Since the millennium the competition has had mixed fortunes. IMLEC 2001, for example, was cancelled due to restrictions caused the Foot & Mouth epidemic. Between 2003 and 2009 organizers began to split the competition into two groups, segregating past winners into a separate category. The idea did not gain universal approval and has since been dropped. IMLECs held in 2007, 2010 and 2011 concluded with no indication as to where and when the next competition would take place. Competitors and spectators like to plan ahead and at this stage, it was felt that Model Engineer, as overall sponsors, should have been doing more to maintain continuity.

By the end of 2011 it was clear that a review of the rules was overdue and early in 2012 Diane Carney, then assistant editor of Model Engineer, organized a meeting at the headquarters of Nottingham SMEE. The purpose of the meeting was to evaluate the existing rules and provide guidelines in grey areas. Present at that meeting were Diane Carney, Alan Crossfield, Lionel Flippance, Steve Eaton and Pete Thomas. Pete represented Nottingham SMEE, who had, at rather short notice, volunteered to host the event later in the year. This went ahead and will be marked as the first occasion when IMLEC was spread over three days. This was a bold decision, made in order to accommodate all competitors and to rid the event of the need to draw names from a hat. At the closing ceremony it was announced that Leyland SME were to host the 2013 competition - which they did to great effect. Bournemouth again hosted the 2014 competition. Unfortunately at the close of the 2014 competition no offer to host the 2015 competition had been received. All was not lost when Nottingham SMEE at the suggestion of the Model Engineer agreed to host the 2015 competition and IMLEC is to be again run over three days allowing all entrants to take part……to be continued.

Prepared by Nottingham SMEE & Leyland SME

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Rules and Organisation : Abridged

(a full set of rules can be viewed in the exhibition tent.)

Preparation for the run

Competitors should arrive at the track at least one and a half hours before their run and report to the steaming bay reception. At this point the competitor shall :-

a. Present the necessary documentation including boiler certificate

b. State the amount and grade (size) of coal required for the run. The coal will be weighed and allocated in presence of the Driver.

Ample preparation time shall be allocated to the competitor and the competitor shall be ready to run at his or her allocated time. Failure to run on time may be regarded as a retirement. The Judge shall use discretion and make the final decision.

The Driver shall use his or her discretion with regard to the appropriate time to light up. (The Driver will be notified of any foreseeable delay to the running time before lighting up.)

The Driver will be provided with as much dry, or paraffin soaked, charcoal and wood as is required to raise steam. The Driver may use his own *wood* for lighting up purposes but this must be approved by the steaming bay Marshal

Any coal used during steam raising will be from the measured allocation.

The Driver may decide when to start to use coal but the locomotive must be burning coal before leaving the steaming bay.

The train will be prepared for the Driver with the dynamometer car at the front and sufficient passenger cars to carry the number of passengers he or she requires. For safety reasons this must be limited to a maximum of 28 persons including the Driver and Observer. (For practical reasons it may be necessary to limit the load or number of carriages pulled in the contest.) The train will be made ready before the locomotive leaves the steaming bay.

The Driver will be allocated an Observer. The Observer will oversee all procedures between and including raising steam and completing the run.

The Observer shall give an instruction to move to the start line at an appropriate time. The Driver shall advise the Observer of the number of passengers he/she wishes to take.

All coupling and uncoupling of the locomotive must be carried out by the host club Marshals, to the Driver's satisfaction.

The Observer will record the initial dynamometer car readings in the presence of the Driver.

The Driver shall inform the Observer when he is ready to start the run and the Timekeeper shall give the Driver permission to start.

If the Driver is unable to commence the run within a reasonable time of the designated start time he/she will be deemed to have retired.

The run

The run length is nominally 30 minutes.

- The Timekeeper shall inform the Driver when he has been running for a) 15 minutes and b) 20 minutes.

- The Driver will be notified when he/she has completed 25 min of the run, at which point the Driver can either finish the run at the finish line or continue for one (or more, if time permits) further lap but in any event the Driver must start the last lap no later than 30 minutes after the start time.

- Recording will commence and conclude at the Start/Finish Line. (A slight over-run at the finish line will be disregarded.)

In the event that the Driver does not complete his/her run, he/she shall be deemed to have retired. ('Completing the Run' means bringing the train to a stand upon reaching the Finish Line, the locomotive having reached the Finish Line entirely under its own steam.)

The total period the train may be stationary during the run will be eight minutes. If this is exceeded then the competitor will be deemed to have retired.

Water will be provided in suitable containers during the run to enable locomotive water tanks to be topped up without stopping. The amount of water used shall not be recorded or limited in any way.

Additional coal will be available to the Driver during the run and its use recorded.

Unused coal will be weighed and recorded in the presence of the Driver upon completion of the run. This will be debited to the recorded coal consumption.

Only the total weight of coal burnt will be used in the calculations. No allowance will be made for any unburnt coal in the firebox.

Maximum speed.

The host club shall have discretion in respect of safe operational speed limits and make them known to each Driver. The dynamometer car shall provide a speed indication at the Driver's position. The Observer will issue a warning to the Driver of the speed limit if necessary. Three such warnings may result in disqualification. The Observer will have the power to end the run should the Driver be considered to be driving unsafely. In the event of a disagreement the Judge's decision will be final.

The use of a hand pump is not permitted once the run has commenced. However, it may be used in emergencies when all other means of water feed have failed and in which case the locomotive must be retired and the run terminated immediately.

The Driver may elect to set down passengers during the run but only when the train is stationary and it is safe to do so. Passengers may not be picked up at any time. In the interest of safety, the guard may, at his discretion, instruct that passengers be redistributed throughout the train.

No external assistance is to be given to the train in any way whatsoever, at any time during the run.

The Driver shall have access to a train brake *for emergency use only*. Any use of the brake under non-emergency conditions may result in disqualification. This includes use of the brake to slow the train at any point. The brake may be used to stop the train at the end of the run.

The use of sand to improve adhesion will be at the discretion of the host club. Any Driver may *request* that the track be sanded. (If the host club has a strict policy on the use of sand on the track, this shall be made clear on the application form.) However, any locomotive fitted with working sanders shall be allowed to use them for the purpose of sanding the track.

The host club will endeavour to post the results of each run as soon as possible following the end of the run.

In all matters relating to the competition, the decision of the Judge is final.

Calculations and results

The dynamometer car measures and gives readings of the 'Total Work Done' in foot-pounds and 'Total Distance Travelled' in feet. In addition the 'Overall Run Time' in minutes and 'Weight of Coal' in pounds are recorded.

From these parameters the following calculations can be made :-

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

The calorific yield of the coal is assumed to be 14,000 B.T.U. per pound.

The number of ft-lbs per B.T.U. is 778. Thus :-

$$\text{Overall Thermal Efficiency \%} = \frac{\text{Total Work Done} \times 100}{\text{Weight of coal used} \times 14{,}000 \times 778}$$

The locomotive that returns the highest thermal efficiency is the winner.

Additional calculations

These calculations shall be made public alongside the Results Table for interest only.

$$\text{Average Drawbar Horsepower} = \frac{\text{Total Work Done (ft-lbs)}}{\text{Overall Running Time (mins)} \times 33000}$$

$$\text{Coal Consumption Rate} = \frac{\text{Weight of Coal Used (lbs)} \times 60}{\text{Overall Run Time (mins)}}$$

$$\text{Specific Fuel Consumption (SFC)} = \frac{\text{Coal Consumption Rate}}{\text{Drawbar Horsepower}}$$

$$\text{Average draw bar pull} = \frac{\text{Total work done}}{\text{Total distance travelled}}$$

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Previous IMLEC Winners 1969 - 2014

1969 Birmingham - John Drury 5" Royal Scot
1970 Witney - Len Labram 5" Firefly
1971 Southampton - A. Haydon 5" GWR Dean Single
1972 Tyneside - Norman Spink 5" GWR 57XX
1973 Chingford - Pat Killian / B. Longstaff 5" LNER L1
1974 Bristol - Fred Winsall 5" Nigel Gresley
1975 Tyneside - Laurie Joyce 3½" GWR King
1976 Kinver - Bill Perret 5" Speedy
1977 Chingford - Bill Perret 5" Speedy
1978 Guildford - Percy Wood 5" Maid of Kent
1979 Bristol - David Morris 5" Sterling Single
1980 Bedford - Percy Wood 3½" BR Class 7
1981 Bournemouth - Percy Wood 5" LNER J39
1982 Leyland - Roy Armsbury 5" GWR de GLEN
1983 Guildford - Les Pritchard 5" Royal Scot
1984 Bristol - Les Pritchard 5" Royal Scot
1985 Urmston - Alan Crossfield 5" Nigel Gresley
1986 Bournemouth - Alan Crossfield 5" Nigel Gresley
1987 Birmingham - Kelvin Moonie 5" LSWR Adams
1988 Leeds - Lionel Flippance 5" BR Proposed 2-8-2
1989 Leyland - Lionel Flippance 5" BR Proposed 2-8-2
1990 Guildford - Lionel Flippance 5" BR Proposed 2-8-2
1991 Bristol - Kevan Ayling 5" BR Proposed 2-8-2
1992 Leeds - Dave Sutcliffe 5" S&D 7F
1993 Leyland - John Heslop 5" Stanier
1994 Gravesend - John Heslop 5" Stanier
1995 Kinver - John Heslop 5" LNER Class P2
1996 Northampton - Alan Crossfield GWR Manor
1997 Llanelli - Len Steel 5" Britannia
1998 Kinver - Kevan Ayling BR Proposed
1999 Northampton - Jim Elliott 5" Speedy
2000 Leyland - Lionel Flippance 5" BR Proposed 2-8-2
2001 Cancelled
2002 Leeds - Geoff Moore 5" B1
2003 Bristol - Geoff Moore LBSC Minx
2004 Kinver - Glyn Moore 5" 01 2-8-0
2005 Northampton - Ballan Baxter 5" K1
2006 Fareham - Les Pritchard 5" L&Y 0-6-0
2007 Llanelli - Steve Eaton 5" Britannia
2008 Southport - Brian Remnant 5" N.G. 0-4-2ST
2009 Bristol - Neil Mortimer Freelance Polly III
2010 Bournemouth - Steve Eaton 5" Britannia
2011 Bromsgrove - Ben Pavier 5" Britannia
2012 Nottingham - Lionel Flippance 5" BR Proposed 2-8-2
2013 Leyland - Steve Eaton 5" Black Five
2014 Bournemouth - John Cottam 5" LNER P2

Friday 17 July 2015

Run	Time	Locomotive	Gauge	Wheel Arrangement	Entrant/ Driver	Club/ Society
1	13.00	LNER A4 No 60021 'Wild Swan'	5"	4-6-2	Roger Holland	Chesterfield
2	13.40	Polly VI	5"	2-6-0	Roy Hollingworth	Nottingham
3	14.20	BR 9F 2-10-0 No 92220 'Evening Star'	5"	2-10-0	David Kerry	Chesterfield
4	15.00	Freelance Tank 'Simplex' Design 'Lionheart'	5"	0-6-0	Mike Richardson	Bristol
5	15.40	GWR 'Manor'No 7822 'Foxcote Manor'	5"	4-6-0	Alan Gent	Nottingham
6	16.10	LMS 5MT No 5097	5"	4-6-0	Adrian Strachan	Fylde
7	16.50	LNER B1 No 61020 'Gemsboc'	5"	4-6-0	Les Pritchard	Harlington

Saturday 18 July 2015

8	08.30	LNER V4 No 3401 'Bantam Cock'	3½"	2-6-2	Steve Eaton	Chesterfield
9	09.10	BR Standard Class 9F No 92245	5"	2-10-0	Ben Pavier	Southport
10	09.50	Polly III	5"	0-6-0	John Williams	Southport
11	10.30	GWR 15XX	5"	0-6-0	Neil Skellon	Urmston
12	11.10	LMS Un-rebuilt Royal Scot 'Iron Duke'	5"	4-6-0	Graeme Monk	Gravesend
13	11.50	GWR 'County No 1011 'County of Chester	3½"	4-6-0	Lee Sutherland	Private
14	12.30	GNR 'Atlantic' No 3294	5"	4-4-2	Adrian Hinchcliffe	Leyland
15	13.10	LNER A2 'Hielan Lassie'	3½"	4-6-0	Karen Howard	Tonbridge

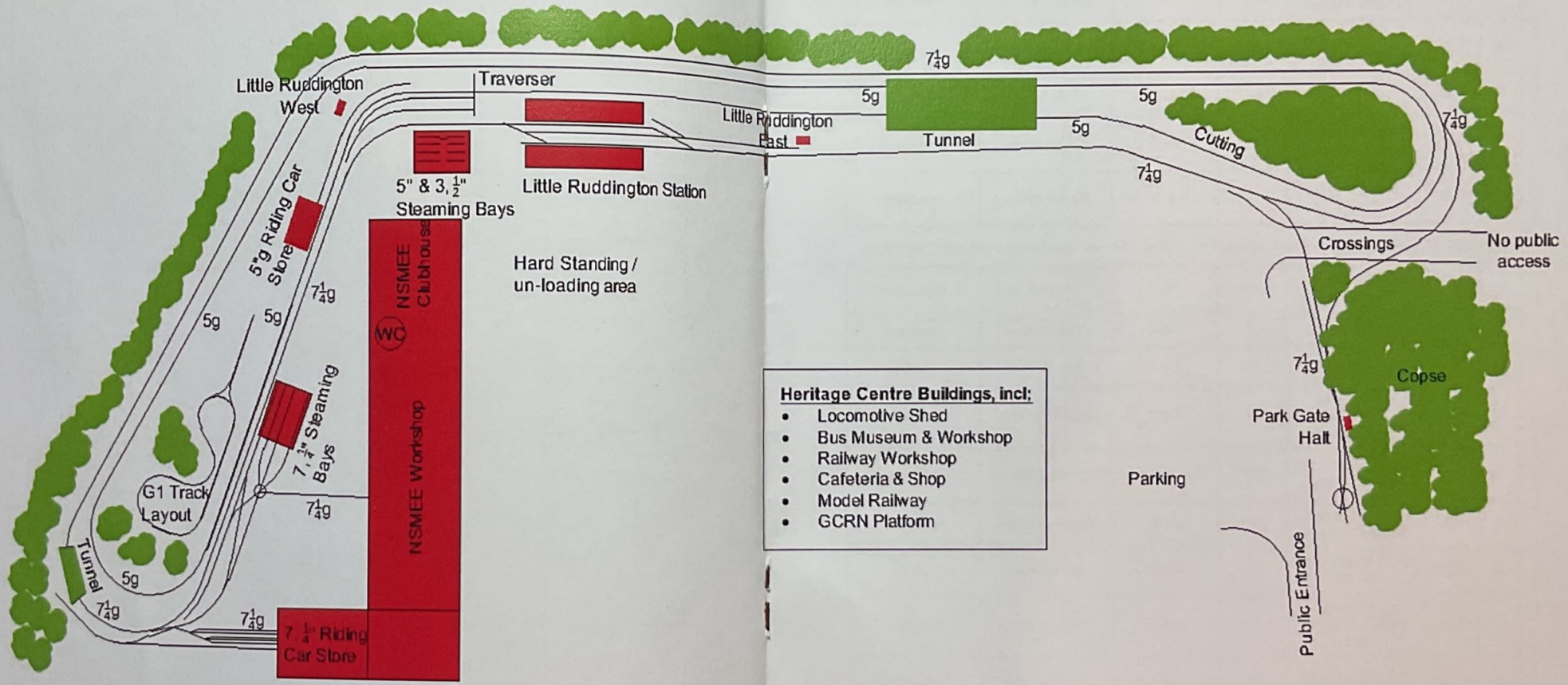
Saturday continued on page 16. For Sunday running see pages 16 and 17.

RUNNING ORDER

Load (Adult)	Running Time (mins.)	Distance (ft.)	Total Work (ft. lbs.)	Average Drawbar HP	Coal Used (lbs.)	S.F.C.	Efficiency (%)	Position

Note: Load excludes driver & observer. SFC is Specific Fuel Consumption with units of lbs/DBHP hr.

Site Plan



Nottingham Society of Model and Experimental Engineers Ltd

Saturday 18 July 2015

Run	Time	Locomotive	Gauge	Wheel Arrangement	Entrant/ Driver	Club/ Society
16	13.50	Narrow Gauge Tank	3½"	2-4-2	James Tilbury	Urmston
17	14.30	Freelance Tank 'Simplex' Design	3½"	0-6-0	Linda Gearing	Fareham
18	15.10	GNR Class 'O3' Smuggler	5"	2-8-0	Paul Pavier	Llanelli
19	15.50	Polly V	5"	2-6-0T	Keith Tilbury	Urmston
20	16.30	LMS Jubilee No 5612 'Jamaica'	5"	2-8-0	Karl Midgeley	Gravesend
21	17.10	Kitson Meyer Freight	5"	2-8-0 2-8-0	Kevan Ayling	Worthing

Sunday 19 July 2015

22	08.30	LNER V3 Tank 'Enterprise'	5"	2-6-2	Tom Parham	Maidstone
23	09.10	Polly IV 'Katie'	5"	0-6-0	Tim Jenkins	Southport
24	09.50	ex LNER BR 01	5"	2-8-0	Glyn Winsall	Rugby
25	10.30	BR Britannia No 70007 'Coeur-de-Lion'	5"	4-6-2	Paul Tompkins	Guildford
26	11.10	Beyer Peacock K1 Class Garratt.	3½"	0-4-0 0-4-0	Richard Prideaux	Leyland
27	11.50	Welsh Highland Railway 'Russell'	3½"	2-6-2	George Winsall	Worthing
28	12.30	LSWR Radial Tank No 521	5"	4-4-2	David Beale	Leeds
29	13.10	Beyer Peacock Narrow Gauge Tank	5"	0-6-2	Billy Stock	Urmston
30	13.50	BR Standard Class 9F 'Brayton Star'	5"	2-10-0	Judith Bellamy	Leeds
31	14.30	GWR 'Prairie' No 4587.	5"	2-6-2	Marcus Peel	Southport
32	15.10	LMS Coronation No 6233 'Duchess of Sutherland'	5"	4-6-2	Jason Pattinson	Sale
33	15.50	LNER P2; 2-8-2 No 2006 'Wolf of Badenoch'	5"	2-8-2	John Cottam	Chesterfield

RUNNING ORDER

Load (Adult)	Running Time (mins.)	Distance (ft.)	Total Work (ft. lbs)	Average Drawbar HP	Coal Used (lbs.)	S.F.C.	Efficiency (%)	Position

Note: Load excludes driver & observer. SFC is Specific Fuel Consumption with units of lbs/DBHP hr.

Lionel Flippance – Winner IMLEC 2012

Photograph : M Chrisp

The 2015 IMLEC Competitors

Kevan Ayling
Member of Worthing and District Society of Model Engineers.
5" gauge Kitson Meyer 2-8-0-0-8-2 Freight Locomotive. The prototype was built by Kitson of Leeds in 1935 for use on the 3 foot gauge Columbian National Railways and weighing 110 tons. It and its sister locomotive were the largest narrow gauge locos operating in South America. It has a welded steel boiler with 55 sq.in. grate area together with four 2" diameter cylinders driving 16 driving wheels. The model is 8ft long and weighs approximately 720 lbs in working order.

David Beale
Member of Leeds Society of Model and Experimental Engineers
5"gauge LSWR 4-4-2 Radial Tank no 521. Built to drawings by Kevin Moonie who previously won IMLEC with his locomotive. The driver performed like a beginner at the Bournemouth 2014 IMLEC retiring after ½ lap. Although fully familiar with the locomotive when it was gas fired; however when coal fired the blast arrangements needed modifying. Trial runs on my home club track suggested it was manageable – Not So on a new demanding track. Must Do Better This Time!! A good friend (now deceased) Stephen Botterill came 9th last time at Nottingham driving my LMS Black 5 – hence must improve my performance.

Judith Bellamy
Members of Leeds Society of Model and Experimental Engineers
5"gauge BR Standard Class 9F 2-10-0 'Brayton Star'. Construction of 'Brayton Star' was started by Arthur Bellamy who half built it based on the Les Warnett design. Due to ill health it was completed by David Mayall. It ran in the 2013 IMLEC at Leyland and gained the trophy for 2nd to last. We hope to improve on this.....unless whisky is still on offer!!

John Cottam
Member Chesterfield &District Model Engineering Society – winner IMLEC 2014.
5" gauge LNER P2; 2-8-2 No 2006 'Wolf of Badenoch'. This locomotive was started in January 2007 and built by me to Michael Breeze's drawings with my own additions. The build of the locomotive, boiler, tender and paintwork took 7½ years (retired from installing textile machines half way through!!) with completion in May 2014. It was placed third in IMLEC 2013 held at Leyland using my Merchant Navy tender and finished top of the list at the 2014 IMLEC held at Bournemouth.

Steve Eaton
Member of Chesterfield &District Model Engineering Society.
3½"gauge LNER V4 2-6-2 No 3401 'Bantam Cock'. The locomotive was built by Steve some 25 years ago to the LBSC 'Words and Music'. It has been entered into IMLEC several times and has won the best 3½"g entry twice.

Alan Gent
Member Nottingham Society of Model & Experimental Engineers
5"gauge GWR 'Manor' 4-6-0 No 7822 'Foxcote Manor'. The model was built to the Martin Evan's design and took approximately 3½ years to construct and is finished in BR green livery. Additional details were obtained from David Aitken's design for a 7¼"g tender as well as photographs of the full size locomotive. The boiler was built by John Ellis of Kinver. The full-size locomotive is preserved at the Llangollen Railway. The first twenty of the Manor Class were built by the GWR in the late 1930s but the last ten, including 7822, were built by British Railways in the 1950s. They were the smallest GWR 4-6-0 locomotives and were used for passenger duties on secondary lines.

Linda Gearing
Member Fareham & District Society of Model Engineers.
5"gauge 0-6-0 Tank Simplex design - 'Tom'. This engine was originally built 23 years ago by Tom Harrison of the Fareham DSME generally to the Martin Evans design. The major alteration from the design was that the locomotive was fitted with a steel rather than a copper boiler together with other details. We bought the locomotive in July 2014 after Tom had given up his membership through increasing health issues. The locomotive had served him well and had been used for public running on Fareham's Open Weekends; also having at one time been placed first in the in-house efficiency competition. Originally it was hoped that the steel boiler would pass the boiler test so that the locomotive could be run during the summer. Unfortunately it failed and was replaced by a new copper boiler built by Martin Gearing. At the same time Martin refurbished the running gear and the locomotive was run four times unpainted at the latter end of 2014 proving to be an excellent steamer. The donkey pump attached to the locomotive had also been built by Tom, the bottom half was to an LBSC design and the top half designed by Tom. Unfortunately for a number of reasons it didn't work properly and it was largely rebuilt to working order in February 2015. The locomotive was the partially stripped down to enable repainting during March and went back on the track in April. The locomotive has been named 'Tom' in honour of the gentleman who built it.

Adrian Hinchcliffe
Member Leyland Society of Model Engineers.
3½"gauge GNR 'Atlantic' 4-4-2 No 3294. This locomotive is 37 years old. It is to the basic 'Maisie' LBSC design and took 21 years to build. It differs from the 'Maisie' design in a number of ways being fitted with balanced slide valves, alloy pistons with 'O' ring seals and Ross pop safety valves. The locomotive is finished in LNER livery of the 1930s with Gresley modifications. The locomotive was awarded a silver medal, the New Zealand Cup and M.A.P Plans Trophy at the 1985 Wembley Model Engineering Exhibition. It also won the LBSC Memorial Trophy ('Curly Bowl') in 2010 held at Warrington MES.

Roger Holland
Member of Chesterfield & District Model Engineering Society
5"gauge LNER A4 4-6-2 No 60021 'Wild Swan'. This locomotive was built between April 2009 and December 2012 by the driver. The only castings used were for the six coupled wheels. The locomotive is regularly run at Chesterfield DMES and other clubs around the country. This will be the third time the locomotive has been entered in IMLEC; the first at IMLEC 2013 held at Leyland it did half an hour before the fire went out and last year at IMLEC 2014 held at Bournemouth it finished sixth.

Roy Hollingworth
Member Nottingham Society of Model & Experimental Engineers.
5"gauge Polly VI, 2-6-0 tender locomotive.

Karen Howard
3½" gauge LNER A2; 4-6-2 'Hielan Lassie' The locomotive was purchased as a 'rolling chassis', with the driving wheels and a set of un-machined castings. The boiler was purchased from Reg Chambers in 1989 and the locomotive was completed to a state where it could be steam tested and run in 1995.
It has run since 1995 with non-functional parts such as running boards, cab and smoke deflectors being added as time permitted. Towards the end of 2006, after a small child commented that it wanted to ride on the rusty engine (referring to the fact that the boiler was not clad and was a dull copper colour) it was taken into the workshop, stripped down, overhauled and missing parts made.
The painting was completed over a 12 month period with lining undertaken using both lining pen and transfers. The locomotive was painted in parts and then re-assembled after painting. This is Karen's first attempt at IMLEC.

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Tim Jenkins
Member of Southport Model Engineering Club
5"gauge Polly IV, 0-6-0 tender locomotive 'Katie'. The locomotive was bought four years ago and is over 20 years old. I completed a major overhaul of this locomotive from top to bottom in May 2012 This is the second time it has run in IMLEC; the first being at Leyland two years ago. Tim is at present completing a degree in mechanical design engineering.

David Kerry
Member of Chesterfield &District Model Engineering Society.
5"gauge BR 9F 2-10-0 No 92220 'Evening Star'. This locomotive was built by me to the Les Warnett design plus extra details from full size 9Fs and taking many photographs and sketches from York, Butterley and other preservation societies.
I built the boiler with assistance from my wife I have competed in IMLEC quite a few times with a 5"gauge 0-6-0 Tank 'SIMPLEX', a 3½" gauge LMS Class 8F 2-8-0 and now Evening Star.

Karl Midgeley
Member of Gravesend Marine & Model Engineering Society
5" gauge LMS Jubilee No 5612 4-6-0 'Jamaica'. This locomotive was built by Granddad Ben Healey alongside a freelance designed tank. The pair were started in 1985. After driving the 'tankie' in seven IMLECs I am looking forward to trying my luck with this Jubilee.

Graeme Monk
Member of Gravesend Marine & Model Engineering Society
5"gauge LMS Un-rebuilt Royal Scot 'Iron Duke', This locomotive is built to the Greenly design and named Iron Duke after the ship I served in whilst in the Royal Navy.
The locomotive was purchased from Paul Pavier in 2013. Since then she has had two rebuilds, addition of another injector, smoke deflectors and hydrostatic lubrication. The new lubrication system was kindly installed by Ben Healey and Karl Midgeley while I was having surgery. I served for 10 years in the Royal Navy and sadly in 2009 whilst on active service I was injured losing my left eye, leg and use of my left arm, broke my spine along with a long list of other injuries. Ben and Karl introduced me to 5"gauge locomotives and are responsible for saving my life. I still suffer with pain and PTSD and they continue to support me as does everyone else at the Gravesend Society.
This is my first attempt at IMLEC

Tom Parham
Member of Maidstone Model Engineering Society
5" gauge LNER V3 2-6-2 Tank 'Enterprise'. This locomotive was built by the late Adrian Gurr and left to me when he passed away. It was built in 1987 to the Martin Evans design and has been a regular passenger hauler ever since. During an overhaul a couple of years ago a new boiler was required at which point I added superheaters. The performance proved to be disappointing and during last winter checked it out. I found the cause was a broken piston valve. I am currently Vice Chairman of the Maidstone MES and have been part of the Club all my life. This is my third IMLEC, each time with this locomotive and hopefully in its best condition yet.

Jason Pattinson
Member Sale Area Model Engineering Society
5" gauge LMS Coronation No 6233 4-6-2 'Duchess of Sutherland'. This locomotive was built in 1994 by Geoff and Nigel Gregson of the Urmston District Model Engineering Society. This was the fifth Duchess built, the first was used by Geoff in IMLEC and the following four were commission builds. For the first 20 years the engine lived in a glass case before being sold at auction in 2013 when the engine was re-commissioned for running and is now used on a regular basis.

Ben Pavier
Member Southport Model Engineering Club.
5"gauge BR Standard Class 9F No 92245; 2-10-0. Built to the Les Warnett design with added detail and some practical changes. This locomotive was placed 2nd in the 2011 IMLEC driven by its owner Neil Skellon. Ben has competed in IMLEC a number of times gaining second twice; winner of the 2011 IMLEC and best 3½"g winner in 2010. He is currently building a 5"g NER 0-8-0 heavy goods locomotive based on the LBSC design but with a lot of additions and changes.

Paul Pavier
Member Llanelli and District Model Engineering Society
5"gauge GNR Class 'O3' 2-8-0 'Smuggler'. This locomotive is to the Martin Evans design. It is painted dull black with mixed traffic red lining. The locomotive is named 'Smuggler' because I am hoping to smuggle the Trophy from my son Ben who was the 2011 IMLEC Winner.

Marcus Peel
Member of the Southport Model Engineering Club
5"gauge GWR 'Praire' 2-6-2 No 4587. The Locomotive was built by the late William Deane from the Romford Club in the late 1960s. The locomotive won a silver medal and the Crebbin Memorial Cup at the Model Engineering Exhibition in 1971.
I bought this locomotive about seven years ago and ran it for a few years then sold it reluctantly. Some three years later I saw it for sale again and bought it back. The locomotive is now about 45 years all in its original condition.
I have been competing in IMLEC since 2006 and have won best 3½"gauge. I have also entered NGLEC and won with 3 different locomotives; 1st '5"g Sweet Pea', 2nd '3½"g Conway', 3rd '5"g Polly III'.

Richard Prideaux
Member Leyland Society of Model Engineers
3½"gauge Beyer Peacock 0-4-0 0-4-0 K1 Class Garratt. This locomotive was built by the late John Hartup of Lancaster and now owned by Richard Prideaux. The model was built to works drawings to a scale of 1.75ins to 1ft. True to the prototype compound, high pressure (HP) cylinders are 1.604in diameter; low pressure (LP) 2.333in diameter by 2.333in stroke. The cylinders are steel fabrications with dished pistons and blind bores with inside admission to the HP and outside admission to the LP piston valves. The copper boiler is all silver soldered and has ball type safety valves set to lift at 100lb/sq. in. A fully radiant superheater (not true to prototype) is fitted in the firebox. Fittings include working vacuum brakes, steam operated cylinder drains and hydrostatic lubrication. The only castings used are the wheels from the builder's own patterns. The receiver pipe below the boiler takes the exhaust steam from the HP engine through ball and socket joints with a telescopic joint under the ashpan to the LP engine. The platework of the water tanks, bunker and cab has true to scale riveting. The windows, including side drop down frames in wood are fully working replicas. Working leaf springs carry the locomotive which weighs 270lbs with coal and water. The locomotive was 8½ years in construction and successfully steamed in June 1997.

Les Pritchard
Member Harlington Locomotive Society.
5"gauge LNER B1 4-6-0 No 61020 'Gemsboc'. This locomotive was built by the late Alan Hall and was awarded a bronze medal at the 1978 Model Engineering Exhibition. At the 1979 IMLEC held at Bristol the 'B1' came second and at the 1980 IMLEC held at Bedford it came fourth. Alan sadly passed away 20 years ago. I entered the 'B1' at the 2014 IMLEC at Bournemouth and came fifth.

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Mike Richardson
Member Bristol Society of Model & Experimental Engineers
5"gauge 0-6-0 Tank Simplex design 'Lionheart' This locomotive was started in 1992 and completed in 1998. It is 2½ins longer and ½in wider than the standard design giving it a better proportioned shape with a bigger cab and slightly larger tanks.

Neil Skellon
Member Urmston Model Engineering Society
5"gauge GWR 15XX 0-6-0 Pannier Tank Engine. The locomotive was bought by my father in the mid 80's as a part built chassis and complete boiler. The locomotive was eventually completed in 1997. It has a bit of added detail and modifications to the valve gear to give full valve travel.

Billy Stock
Member Urmston Model Engineering Society
5"gauge Beyer Peacock 0-6-2 Tank Engine. The locomotive entered is a Narrow Gauge Beyer Peacock 0-6-2 Tank Engine in 5"gauge. The locomotive was built by Dave Roberts and was completed in 1996. In 2014 the locomotive won the Narrow Gauge Locomotive Efficiency Competition driven by Billy Stock. Dave runs the locomotive every other week (when he is not running this he is running his LMS Black 5) even throughout the winter. The locomotive is a great passenger hauler but can be slightly greedy on coal!!

Adrian Strachan
Member Fylde Society of Model Engineers
5"gauge LMS 5MT No 5097 4-6-0. This locomotive was one of a pair built to the Don Young design by Fylde SME member in the 1990s; one for himself and one for his wife! Unfortunately John passed away before completing the locomotives. They were purchased by (one each) by club members Geoff Hill and Ron Strachan, both finishing the locomotives around the turn of the century. 5097 was completed by Ron and is a regular performer on tracks in the North West. The locomotive is being driven his son Adrian who is also an experienced footplate man having worked on locomotives of many gauges and sizes since his introduction to model engineering.

Lee Sutherland
Private Entry
3½"gauge GWR 'County' No 1011; 4-6-0'County of Chester. This locomotive is owned by John Akinin of the Nottingham Society and driven by Lee Sutherland from Bo'ness ,Scotland.

James Tilbury
Member of Urmston & District Model Engineering Society
5" gauge 2-4-2 Tank based on an American Baldwin Narrow Gauge Locomotive.
Named 'The Beast'. This locomotive was built by Arthur Eve and is based on Baldwin Narrow Gauge Locomotive. It is an Urmston DMES Club locomotive. James and his father Keith are the Club's custodians of the locomotive.

Keith Tilbury
Member of Urmston & District Model Engineering Society
5" gauge Polly V 2-6-0 locomotive. This locomotive was built nine years ago and has been entered in IMLEC many times. James my son drove it at IMLEC 2014 at Bournemouth and came fourth. The locomotive has been modified during this time with a new grate, better super-heater, steel fire arch, balanced slide valves and modified blast in the hope that the results get better!! The locomotive is a regular passenger hauler at the Urmston Society.

Paul Tompkins
Member Guildford Model Engineering Society
5" gauge BR Britannia Class 4-6-2 No 70007 'Coeur-de-Lion'. This locomotive was a previous winner at IMLEC 1997 with Len Steel and second at IMLEC 2000.

John Williams
Member Southport Model Engineering Club
5"gauge Polly III, 0-6-0 locomotive. This locomotive is a tank engine that has been modified by the addition of a 'rail-motor' tender. It was built 5 years ago by Marcus Peel of the Southport Club.

George Winsall
Member Rugby Model Engineering Society Ltd
3½"gauge Welsh Highland Railway 'Russell'. The locomotive was built during the 1980s by Fred Winsall; winner of the 1974 IMLEC. After many years of standing in a shed it was brought back to running order in time for the 2014 IMLEC. The locomotive is a model of the Welsh Highland Railway's 'Russell'', preserved on the Welsh Highland Heritage Railway.

Glyn Winsall
Member Rugby Model Engineering Society Ltd
5" gauge SR U Class 2-6-0. The locomotive was completed in Spring 2013 to a much modified 'Ashford' design of Martin Evans. The locomotive has cast iron piston valve cylinders with cast iron rings. Steel tyres are fitted to the driving wheels. Boiler feed is by two injectors. The locomotive is finished in late British Railway's black livery.
I competed at the 2013 IMLEC at Leyland, a few weeks after the locomotive was completed, and placed 5th,

John Drury. Winner of the first IMLEC 5th September 1969.

Acknowledgements

The Committee of the Nottingham Society of Model and Experimental Engineers Ltd. extend their thanks to the following for their assistance in staging this event.

- Leyland SME.
- Station Road Steam, Lincolnshire.
- Polly Model Engineering Limited, Nottingham.
- Vision Express (UK) Ltd.

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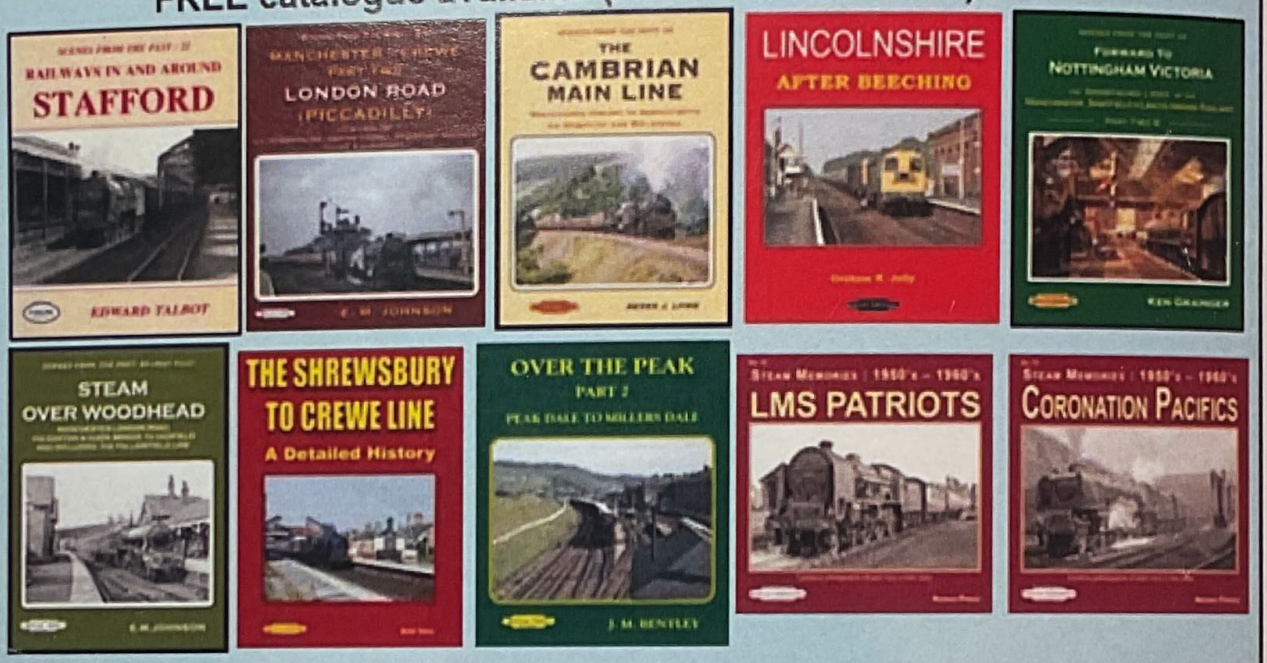

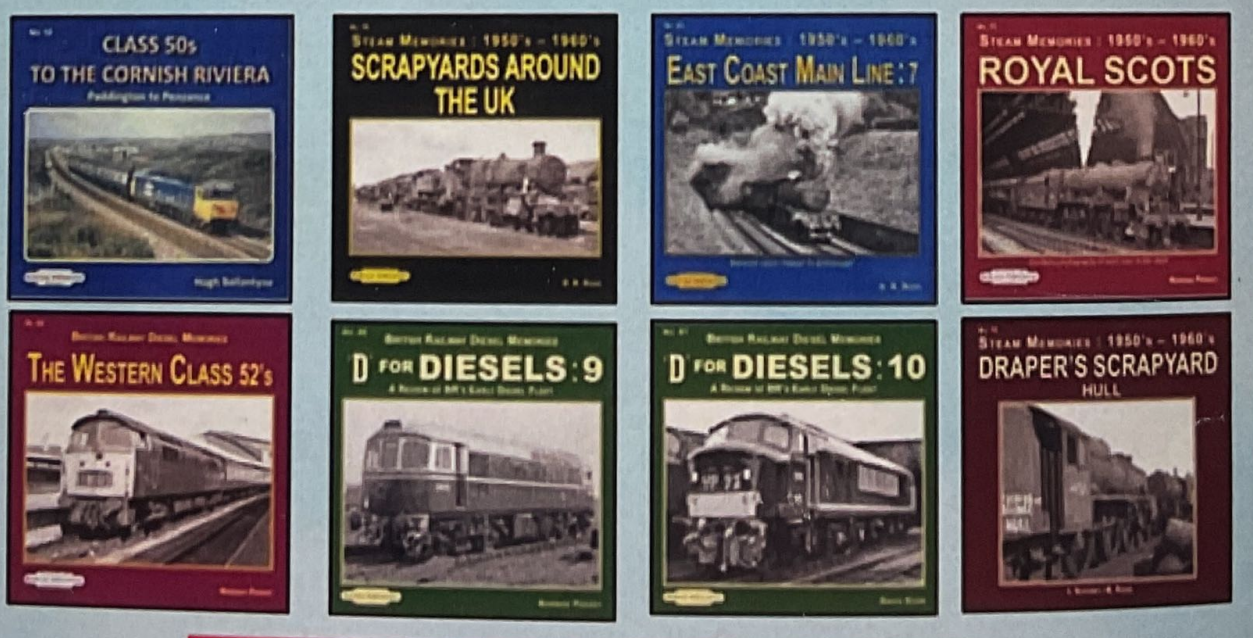

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