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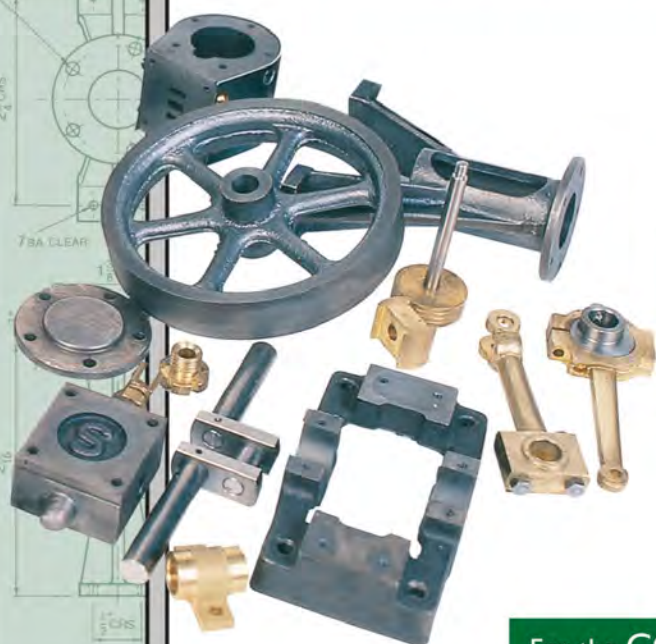
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FRONT COVER

Steve Elliott's stunning 6 inch Burrell gold medal tractor.

EDITORIAL



WELCOME

“Change is inevitable – except from a vending machine.” – Robert C. Gallagher

So it falls to me to fill this page for the first time in the Editorial chair. I must start by saying thank you to Martin Evans for passing EiM over to me in such good shape. Martin has been incredibly helpful and without his efforts, the changeover would not have been as smooth as it has been.

Looking at the collection of articles waiting for my attention, choosing what to put in this issue has been a challenge. As it happens, my hand has been forced slightly with several event reports that call for inclusion so we have quite a lot pieces lead by their photographs, but then it's been a pleasure to look at so many models.

This pleasure will continue in real life with the Midlands show previewed elsewhere. I'm also getting out and about to visit model engineering societies, my job is not to hide behind a keyboard after all, so I'm watching the Diary closely to fill my weekends with trips out to inhale smoke from as many steam engines as possible. Not that I have anything against internal combustion, it's just that like most of us, I find the aroma of hot steam engine is inexplicably pleasant.

My first “official” trip out was to the Hereford Society of Model Engineering (www.hsme.co.uk) to meet John Arrowsmith and see a club in action. Despite being a Tuesday morning, the warm welcome by the members made me wonder why more people don't get involved with this hobby. I appreciate that lack of technical knowledge can seem a barrier, but every club needs maintenance so if you can wield a paintbrush or hold the end of a piece of wood while someone is cutting it then you are going to be welcomed with open arms. In return, there will be plenty of people to help you gain valuable skills.

EiM isn't just about pretty pictures however, we need to get people building things and the more the better. It's my (possibly controversial) opinion that the world needs more engineers than media studies students so we have some articles to hopefully inspire people to get out to the workshop.

Ultimately, I can only publish what I'm sent, so should finish with an appeal for anyone who would like to see their work in print to get in touch. I'm looking for a wide range of topics – if something appears at a model engineering show, then it could be justified in these pages (OK, maybe not Lego or plastic kits). Drop me a line at phil.parker@warnersgroup.co.uk to chat.

Phil Parker
Editor

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Midland Model Engineering Show preview

MMEE is one of the 'must-visit' shows of the year. The editor looks forward to this year's show

40 Years? That's a pretty good innings and it tells you everything you need to know about the popularity of the Midlands Model Engineering Show. In an era where we are told people can't be persuaded to shift themselves from the comfy settee in front of the television, the show brings together like-minded enthusiasts from around the country. I can't remember how long I've been a visitor but every one has been a joy.

The big draw is of course, the models. Around 1000 on show with everything from wooden wheelbarrows to gas turbine locomotives being proudly displayed by their owners. Everyone has their own favourites, I'll admit to paying special attention to the boats and steam lorries, but even if you the prototype doesn't excite you, the incredible craftsmanship will.

Supporting all this is a wide range of trade stands literally selling the nuts'n'bolts of our hobby. Tools, materials, castings, fixings, paint and so much more – it's a good job the extensive free car park isn't very far away as most of us will leave with plenty of purchases.

Running from Thursday, October 19th through to Sunday, October 22nd. It's open from 10am to 5pm on Thursday to Saturday and 10am to 4pm on the Sunday. The show takes place at the Warwickshire Exhibition Centre, Fosse Way, Nr Leamington Spa, CV31 1XN.

Full details of both exhibitors and trade can be found on the show's website www.midlandsmodelengineering.co.uk

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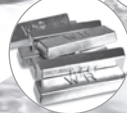
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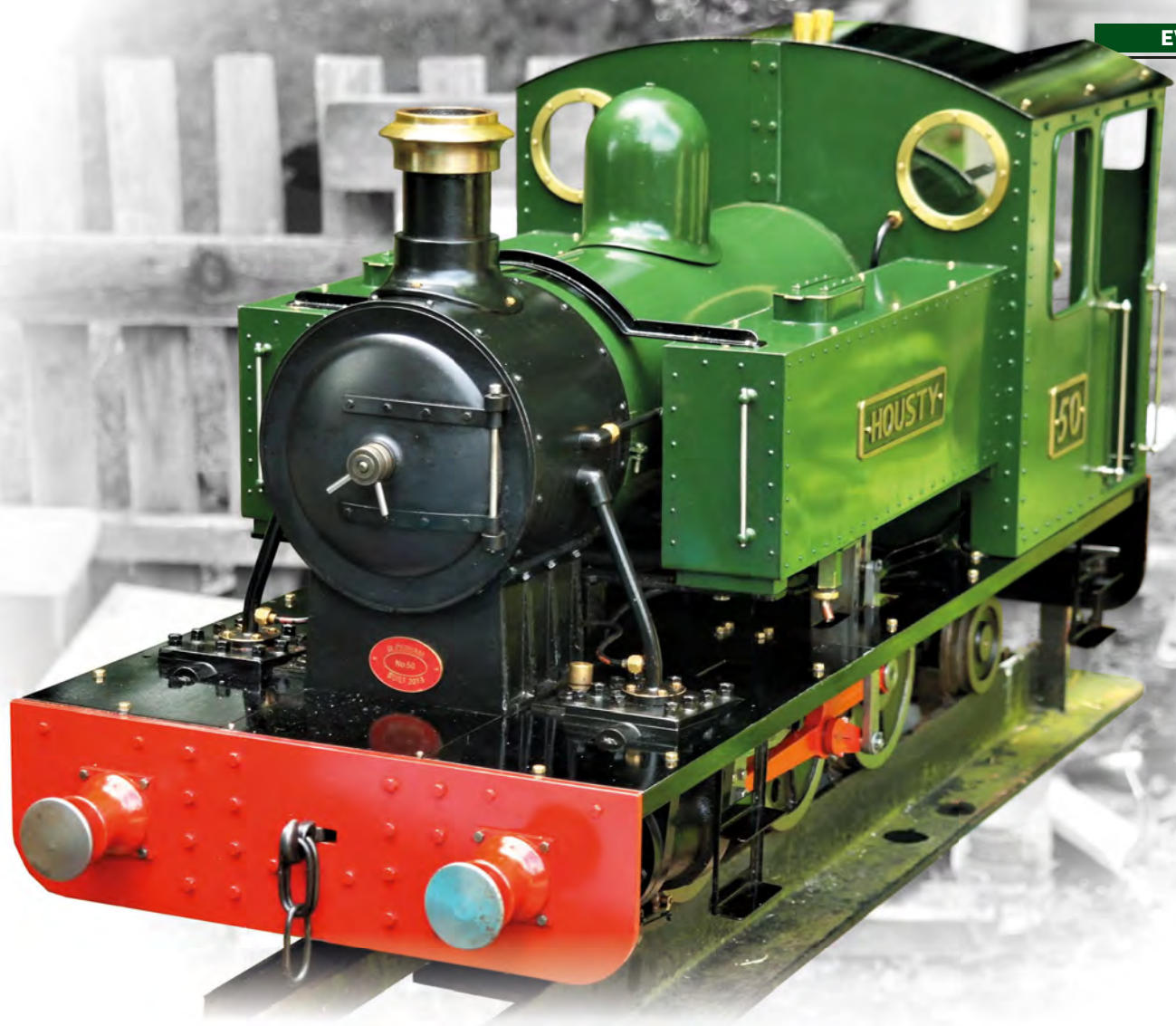
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The Sweet Pea Rally 2017

John spends a day with the owners of this classic locomotive design

BY JOHN ARROWSMITH

This popular event was held at the impressive Rainsbrook Valley track site of the Rugby SME over the weekend of the 9/11th June. A good turnout of locomotives ensured there would be lots of track activity and operations to keep the attendees satisfied.

The ground level track here is an imposing one mile in length which takes approx 12 minutes to complete the circuit. It was a real test for drivers with the interesting track layout which saw trains passing over and under the bridges through cuttings and then open parkland.

A good turntable area provided servicing facilities for drivers who needed them. The elevated track was also a well laid out circuit which had a range of different elements for drivers to enjoy. A wooded section opened out onto a wide flat section which had superb views over the surrounding countryside.

It was a crowded steaming bay area that greeted me on arrival with a number of locomotives being prepared. This year's event was notable because for the first time in its 25 year history, all three gauge variations of the locomotive Sweet Violet, Sweet Pea and Sweet William, were together and operating. A commemorative cake had also been baked to celebrate the weekend.

The presentation of the June Drake trophy is always eagerly anticipated and this year it was awarded to Paul Godin from the North London Society for his example of a Sweet Pea in 5" gauge,

"Housty". The trophy was presented to him by Ron Drake to the acclaim of the assembled club members and visitors.

Another notable feature of the event was the excellent hospitality of the host club with a superb buffet lunch on both days and a great bar-b-que on Saturday evening. No one went hungry here, the ladies ensured everyone was well fed. Our thanks to all the organisers for the weekend, you certainly maintained the traditions of the weekend by ensuring everyone enjoyed themselves.

ABOVE: PHOTOGRAPH 1

"Housty" built and owned by Paul Godin was presented with the June Drake Trophy.

BELOW: PHOTOGRAPH 2

After the presentation Ron Drake, Jacquie and Phil Owen with Paul Godin the winner of the trophy.





3



4

PHOTOGRAPH 3
Three gauges of the model pose for the camera.

PHOTOGRAPH 4
Waz Godin with his 3½" gauge Sweet Violet.

PHOTOGRAPH 5
Past winner of the trophy "Sweet Rocket" is now owned by Nigel Ball and family.



5



6

PHOTOGRAPH 6
Phil Owen starts his 7¼" gauge Sweet William away from the station.

8



7

PHOTOGRAPH 7
Lots of activity in the station.

PHOTOGRAPH 8
Plenty of steam as Lady Margaret owned by Brian Remnant gets ready for a turn on the track.

PHOTOGRAPH 9
Jack Colby is going well out in the country with Phil Owen's "Sweet William."



9



10



11



12

PHOTOGRAPH 10

With Sweet Jay going nicely, Nigel Linwood crosses the Girder Bridge in style.

PHOTOGRAPH 11

John Ollerenshaw concentrates on firing as he crosses the access bridge.

PHOTOGRAPH 12

Linda Gearing has "JT" going well as she emerges from the woods.



14

PHOTOGRAPH 13

A relaxed Peter Jackson has plenty of steam as he crosses the access bridge.

PHOTOGRAPH 14

Happiness all round as Brian Holland takes his grandson for a ride.

PHOTOGRAPH 15

This double Sweet Pea is electrically powered and belongs to Phil Brien.



13



15



16 The ground level double header, with Chris Ball and Gordon Roberts on the regulators, is pulling well.



17 Denis Edwards stops "Imogen" at the water tower to fill up.



18 A wide variety of locomotives and styles stored around the turntable.



19 Plenty of activity in the raised track steaming bays.



20 Not a whisp of steam in sight as Malcolm High comes off the girder bridge completely at ease.

A 6 inch scale Burrell Gold Medal Tractor



Alan recounts his friend Steve Elliott's model engineering journey culminating in this superb engine

BY **ALAN BARNES**

In common with a good many of today's steam engine enthusiasts Steve Elliott's interest began on the kitchen table when as an eight year old he was given a Mamod traction engine for Christmas.

While he may have started by "playing" with his new toy it was not too long before his interest blossomed into miniature engineering when a friend of his father gave him a small stationary mill engine. This model had some parts missing, mainly from the valve gear and with help from Dad and using some of his hand tools in his workshop the new parts were made. They also built a small multi tube boiler which ran at around 25psi to power the mill engine and many happy hours were spent playing with the engine and getting it to drive a dynamo and a winch.

A subsequent visit to the Model Engineer Exhibition in London resulted in an encounter with "Minnie" a 1 inch scale traction engine and Steve left the show with a copy of a book by L C Mason which detailed the building of the model. Steve was inspired to build the model for himself but realised that the kitchen table would probably be unsuitable as a workshop and more tools would certainly be needed.

BELOW

At work with Stemp Brothers some time during 1930s. Photo courtesy of the Walker Family





With his father's help a 4.5 inch centre height LeBlond lathe was tracked down and duly installed in the workshop enabling the young lad to embark on his first "real" project. The build took him seven years but during that time he learnt the skills and techniques which would hold him in good stead for the future. His enthusiasm for scale engineering translated into the real world when he left school and began an engineering apprenticeship. The company had its own model engineering club which Steve joined and as the club had 3½ inch and 5 inch gauge railway tracks he began building steam locomotives. Over the next few years a 5 inch gauge BWR "Metro" Tank and a 5 inch gauge Midland Railway Johnson Spinner were completed.

Having married and now with a house of his own he was able to set up a new workshop which he equipped with a 4 ½ inch South Bend lathe and a second hand Naerok milling machine with 20 x 16 inch table. By this time Steve had also tired of building steam engines which just ran around in circles on tracks and he spent a couple of years building a 2 inch scale Clayton steam wagon, a model which was awarded a Bronze Medal at the Model Engineer Exhibition.

His next engine was a step up in scale with a 3 inch scale Plastow Burrell which took three years to build and in 1991 this engine took the Silver Medal at the Model Engineer Exhibition. Steve was now keen to go one better and deliberated on his next model which he thought should be something a little out of the ordinary to catch the judges attention although of course the build quality would also have to be of the highest standard. He eventually decided a 3 inch scale Fowler Z7 Ploughing Engine and with some of the parts being on the large

ABOVE LEFT
Building begins in July 2010 with the smokebox.

ABOVE RIGHT
August 2010, the first castings arrive from Edward George.

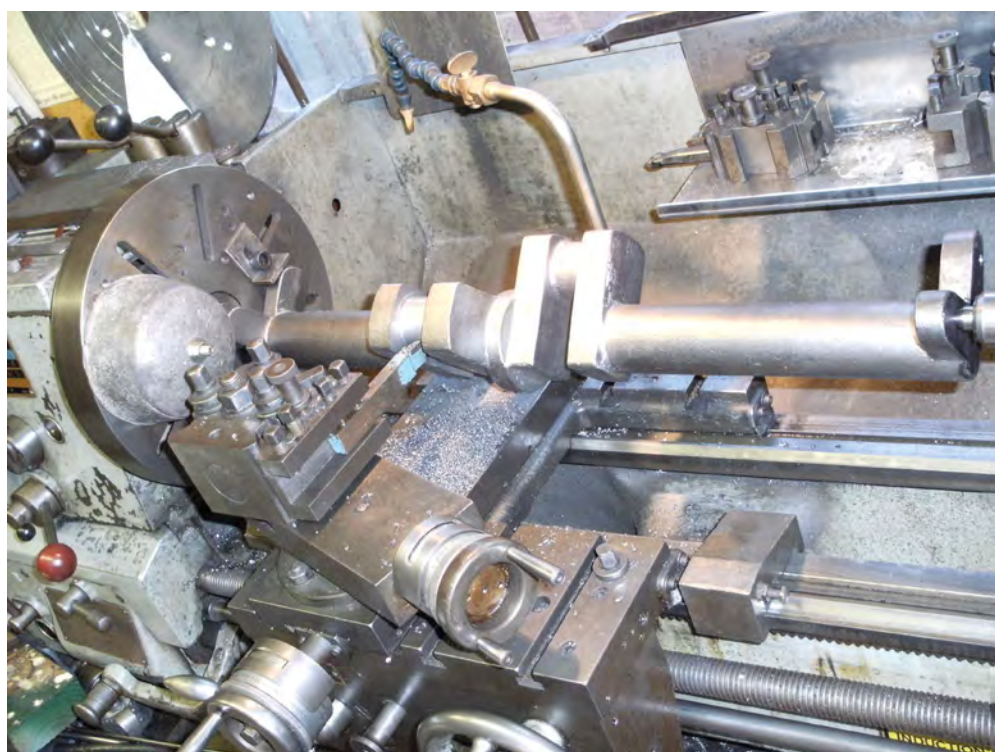
RIGHT
Con-Rods after machining and assembly.

BELOW
Machining the Crankshaft.

size new equipment was needed and a Colchester Student flat top gap-bed lathe replaced his old machine.

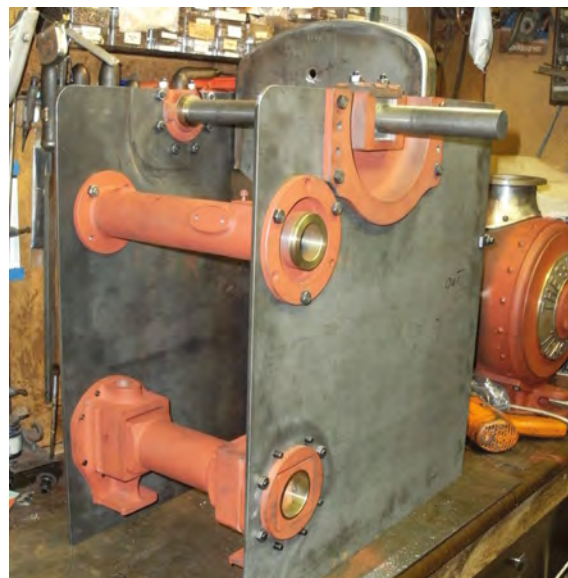
He also spent much time researching drawings and photographs and obtaining information about the Fowler from the Museum of English Rural Life in Reading. This was

to prove to be a very involved and lengthy project with Steve making his own patterns for the castings and fabricating many of the other parts. The Fowler took ten years to build but all the time and effort resulted in the award of the coveted Gold Medal at the 2001 Model Engineer Exhibition.





ABOVE LEFT
Using a Beaver milling machine to complete the cylinder block.



ABOVE RIGHT
Building the hornplate.

During the next few years other models were built and the Fowler was rallied regularly but the engine was not really suitable for road runs and Steve was beginning to get fed up with watching the other miniature engines setting off on their "excursions" leaving him behind at the rally field. He needed an engine which would be big enough for a road run but which could also be transported fairly easily.

Later Steve heard that Edward George of Little Samson Models was producing castings for a 6 inch scale Burrell Gold Medal Tractor and this seemed to be the just the type of engine that he was looking for. A set of drawings was ordered and in 2009 the project was started with the order for the boiler being placed with AJB Engineering in Derby. There was a nine month delivery date and Steve was very pleased that the new boiler was completed dead on time.

The drawings which Steve had obtained were based on Burrell Works Number 4072 an engine which was

built in 1927 having been ordered by the Stemp Brothers in Cranleigh, Surrey for use in their timber haulage business. The engine worked with the Stemp Brothers until 1949 when it was bought by Chris Lambert in Horsmonden. In the years that followed the engine changed ownership a number of times until it was bought by Ron Walker in 1976. The engine is still owned and rallied by the Walker family and has been restored to its original condition and carried the Stemp Brothers livery.

Steve decided that not only would he build a Burrell Gold Medal Tractor but he would build and finish his engine as Works Number 4072. Fortunately the full sized Burrell was kept only a few miles from Steve's home so arrangements were made with the Walker family to measure and photograph their engine. Steve's intention was to build a model which was as close a representation of the original as possible.

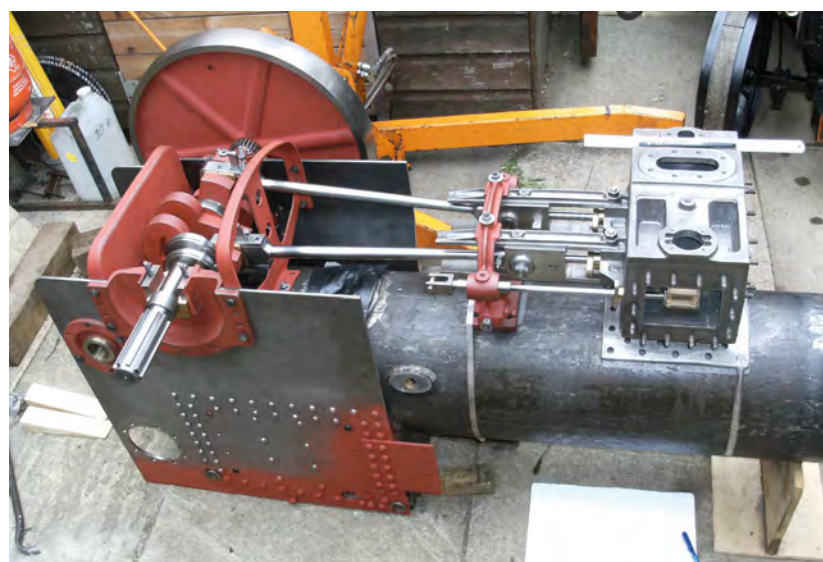
The build began with the making of the smokebox which is often the

starting point for many models. The first batch of castings were collected from Edward George, perch bracket, wheel hubs, main crank bearings, crankshaft and hornplates which was more than enough to keep Steve occupied for a few weeks. Steve had a high opinion of the castings and told me that "the castings were very good and Edward has done a superb job with the cylinder pattern which is all fully cored out, as in the full-sized engine"

One problem which Steve encountered was the size of the cylinder block proving to be too big for him to machine on his own mill. However he was able to arrange to use a Beaver milling machine which was used to make some of the larger components. This mill was also used to machine the crankshaft splines, the con rods and the front axle was also milled out of a piece of solid steel. The gear blanks were also machined and while Edward George offered a cutting service for most of the gears the two large final drive gears were cut at Rochester Gears.

BELOW LEFT
Assembling the rear suspension on the bench.

BELOW RIGHT
The Burrell of Burrell starts to come together



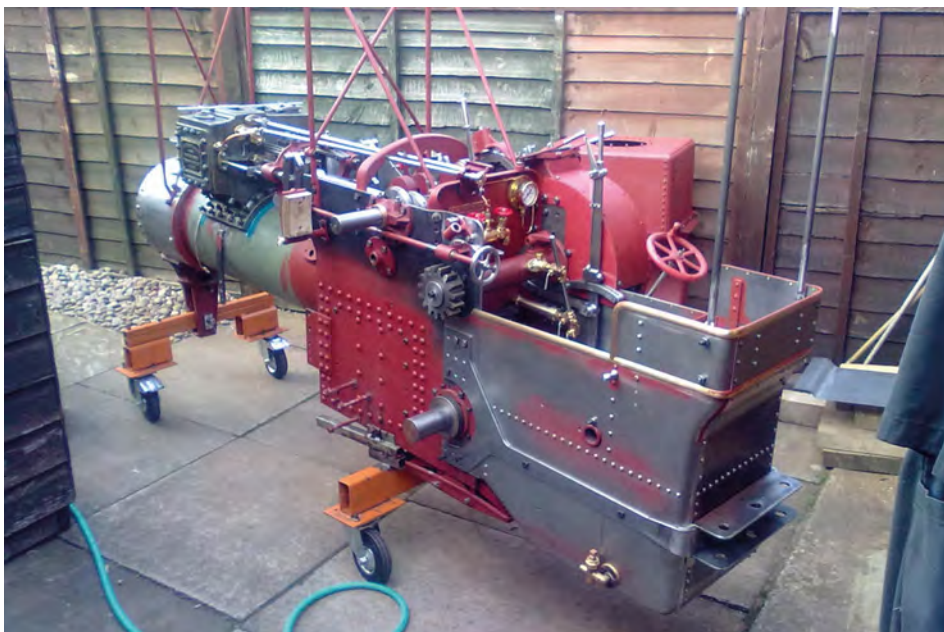
Although Steve had also bought the belly tank pressings the tanks which were fitted to the full sized 4072 were the large capacity type. The pressings were cut up and another three inches was added to the height and a small TIG welder was used to weld up the rebuilt tanks.

Building the wheels caused another slight headache as there was not enough room in the workshop to weld up the steelwork. Working in the garden welding T-rings under an umbrella in the pouring rain convinced Steve that he needed a bigger shed. The Burrell build came to a temporary halt as he spent six weeks adding a 10ft extension to the workshop and the additional space now meant that he had room to work and store the Fowler and in time the completed Burrell. It also meant that he could now continue welding the wheels in the dry!

To put the rivets into the wheel spokes Steve built a rivet squeezer, a 2 1/2 inch bore hydraulic ram powered with a hand pump originally used for tilting truck cabs. This was pumped to around 4000psi to squeeze the 5/16 rivets down cold. Once the wheels were completed they were taken to Reliant Rubber in Yorkshire to have the tyres fitted.

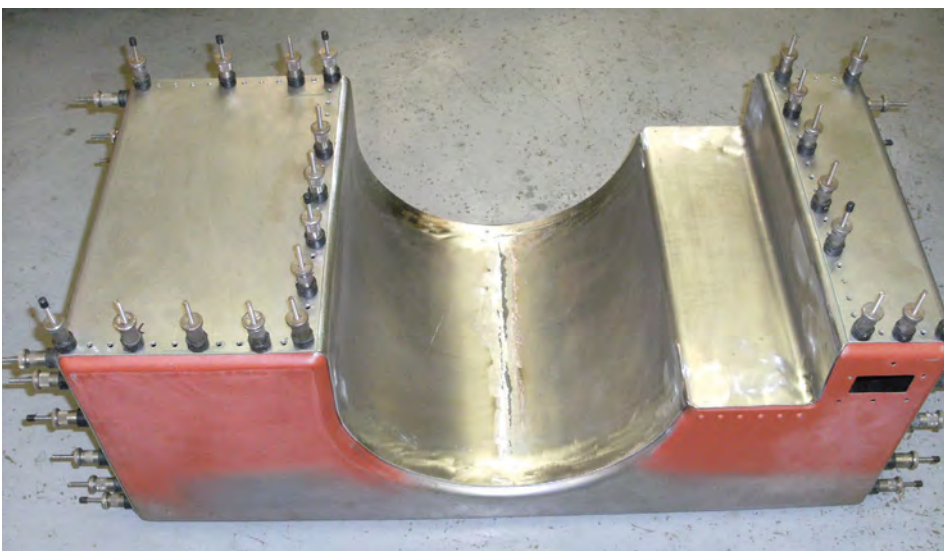
Much of this work had been completed while awaiting the delivery of the boiler and by the time this was ready for collection Steve had a good number of parts all ready for assembly. With the boiler now in the workshop the first stage of the assembly proceeded very well and it was not long before the engine could be given a test run on air. The first test went well although some of the parts were just clamped into place but as everything seemed to work as it should the build continued. The engine was built up over the course of the next twelve months or so and when nearly complete was run again on air to make sure everything was in order.

Once the engine was built many of the parts are inaccessible when it came to painting. Steve was confident that the engine was working as it should and decided to paint it before it was steamed for the first time. Having spent a year building the scale Burrell the engine was now gradually dismantled prior to preparation and painting. The painting began in October, not really a good time to begin such work as warm, fine, dry days usually give the best results. Many of the parts were spray painted outside when the weather permitted while some of the smaller parts were brush painted. With so few days of good weather it was February before all the painting was completed. When it came to the lining the long straight lines were applied using a Beugler lining tool while the other lines were added using a home-made lining pen working around templates to get the curves correct.



ABOVE

The tender is attached to the rear.

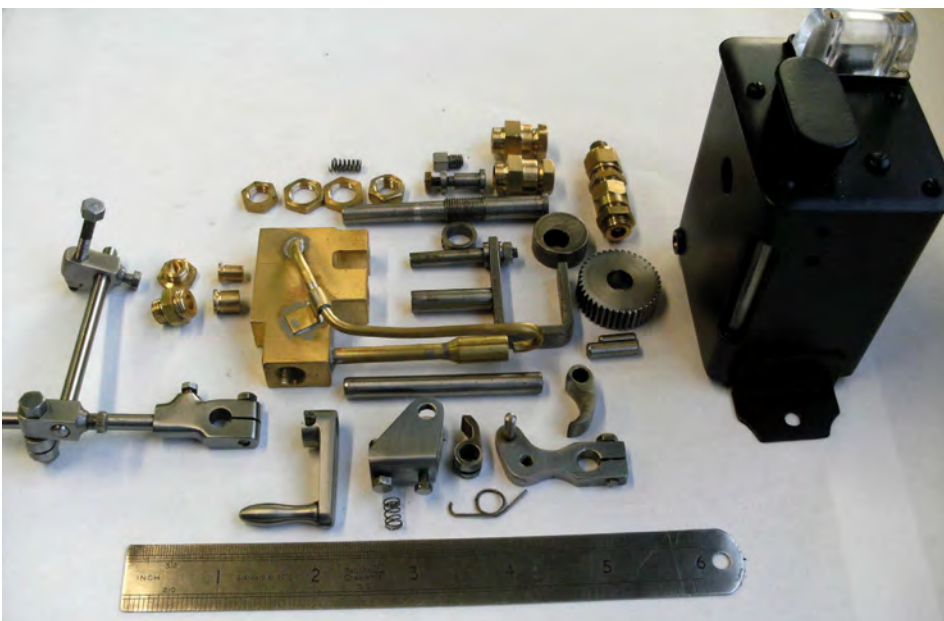


ABOVE

Fabricating the belly tank.

BELOW

Oil pump component.



As with the full sized engine a canopy was fitted and this was built from tongue and grooved boards which were covered with a thin canvas which was then sealed by the application of several coats of an oil based paint. The canopy boards were painted lined and lettered with the Stemp Bros details.

With the build now more or less complete a final hydraulic test on the boiler was carried out and apart from a few drips on the cylinder studs everything proved to be sound and the minor drips were soon dealt with. The day after that test a fire was lit in the engine for the first time just to make sure that everything was OK before the official boiler test.

As Steve recalled "The main thing I needed to test was the safety valve which I had set it on a test rig using nitrogen, as my compressor would not go up to 200psi. I wanted to test that the valve opened at the correct pressure and hold there when on steam. It opened exactly on 200psi and shut quickly at 190psi and it only climbed to around 210psi with the blower on so all was good."

A date was arranged with Peter Hawkins for the test and the engine passed with no problems whatsoever. For the test the engine had been fitted with a prototype HP injector which had been borrowed from Bob Branson to get the engine through the test. As this worked well Steve had the final design of Bob's injector fitted to the engine when it became available.

The building of the Fowler Ploughing Engine had been something of a marathon taking around ten years but the Burrell Tractor had been completed in just a little under three years. When the engine had been finished Steve resisted the temptation to steam it very much and kept it clean and in pristine condition to be entered in the 2013 Midlands Model Engineering Exhibition where the judges awarded the superbly presented Burrell the First Prize.

At the Bedfordshire Steam & Country Fete at Shuttleworth Park in 2014 the full sized Burrell and its 6 inch scale "cousin" were both on show together both engines carrying "The Cranleigh Belle" nameplate.

According to Steve the engine performs very well on the road and travels comfortably at 10mph but would certainly be able to do a lot more if pushed. It has proved to be economic as far as consumption of coal and water is concerned and will do around nine or ten miles on a bunker of coal. The belly tanks hold about 18 gallons which also gives the scale Burrell a good range.

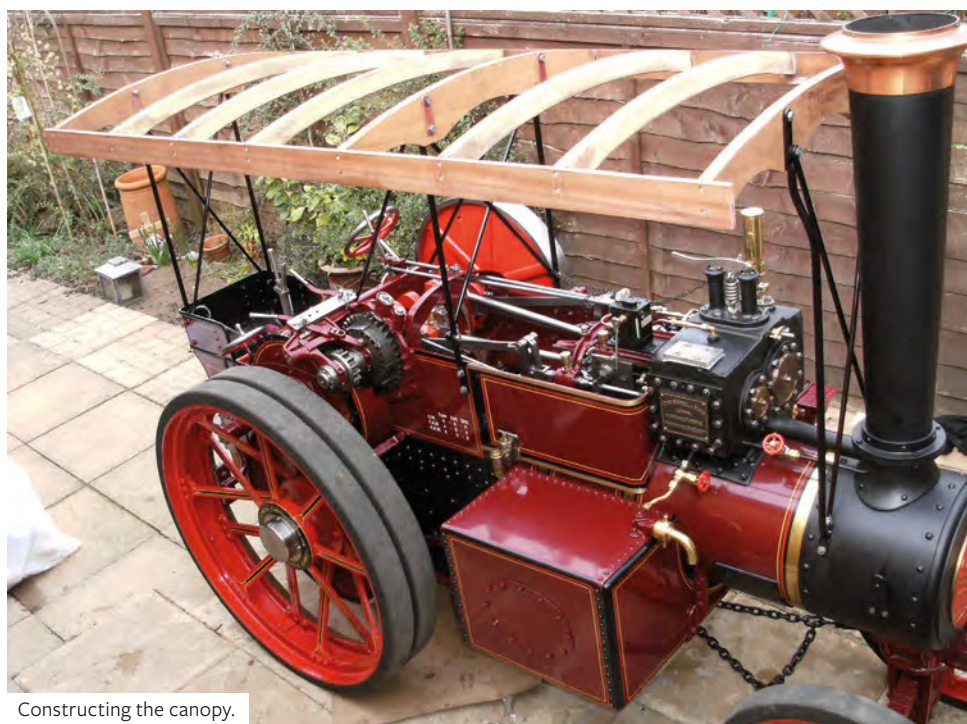
RIGHT

Wheel building in rain, the point at which an extension to the workshop seemed like a good idea!



BELOW

Painting the engine, a process that took 5 months.



Constructing the canopy.



Since the engine was completed Steve has now built a traction wagon to hold all those “vital” bits and pieces when out on a run. Recent work has included a modification to the fire door which as Steve told me “would sometimes jam if the engine was left sitting for a long time just ticking over for example if we were in the beer tent!”

My thanks to Steve for providing the information and photographs of the Burrell build and also to the Walker family for the details of their splendid engine. ■

ABOVE LEFT
Lamp
components.

ABOVE RIGHT
Details include
a hessian sack.

RIGHT
Completed
lamps.

BELOW
The Walkers
and the Elliotts
with the
Cranleigh Belles.



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BOOK REVIEW

HOLY WAR – FROM LLANBERIS TO LLANUWCHLLYN

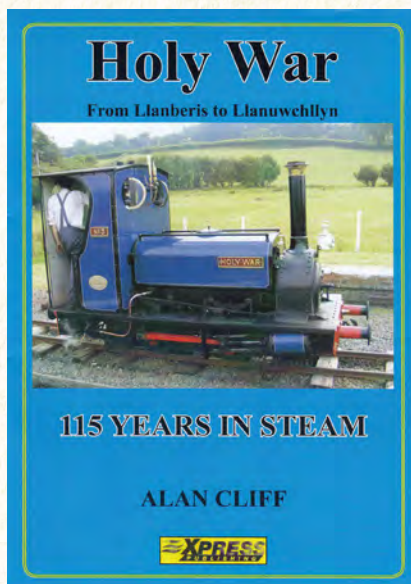
BY ALAN CLIFF

Published by Xpress Publishing

Price: £3.00. Pages: 12.

ISBN: 978-190-1-056563

"Holy War", the name commemorates a racehorse, was the last narrow gauge steam engine to work in a quarry in Wales. The author knows the prototype well having brought her back to Wales from the Buckinghamshire Railway Centre in 1975. She is now owned by the Bala Lake Railway from whom this book can be purchased.



2017 sees the 50th anniversary of the locomotive finishing work at the Dinorwic quarry at Llanberis.

A slim volume, it nonetheless succinctly tells the story of this particular locomotive along with 20 photographs from both the quarry days and preservation.

Quarry Hunslets are a popular modelling subject, but one story suggests that engineers might like not to copy the prototype feature of unequal expansion links bequeathed to her by sloppy workmanship from the Dinorwic maintenance crews!

A light read, but pleasant enough for anyone who enjoys old photos of small steam engines in their original place of work. ■

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The Treasures of Statfold Barn



Mark visits a hidden gem in the Midlands and finds an amazing selection of narrow gauge locomotives

BY MARK SMITHERS

Straddling the Staffordshire/Warwickshire border, one of the finest steam-based attractions in the West Midlands of England has certainly to be the Statfold Barn Railway. Although not open to the general public on a daily basis, admission to visitors is permitted on an 'invitation ticket' basis on special 'Enthusiasts' Days', for which admission is normally restricted to those over the age of fourteen. However, during May 6th-7th 2017, a special 'Giant Miniature Weekend' family event was staged, which featured the operating railway, several steam road vehicles, and models of both road- and rail-borne steam items, all of great interest to model engineers generally. Several photographs taken during the Saturday of this weekend have been selected and will appear next month, but before covering the present-day Statfold Barn Railway and its attendant workshops and museum in detail, it will be useful for readers to give an outline of the venue's history.

During the late 1990's, Graham and Carol Lee installed a 2ft gauge railway around a lake in their garden at Statfold Barn Farm. The acquisition of a suitable steam locomotive to operate on the railway became an urgent priority. With Graham's engineering company, the LH Group, acquired the Hunslet Engine Company in 2004, the first 'target' steam locomotive for the collection was the last Hunslet steam locomotive to be built, a 750 mm gauge 0-4-2ST *Trangkil* No. 4 (W/N 3902 of 1971) based on the Kerr, Stuart 'New Type Brazil' class, which had been exported to a sugar mill in Indonesia when new.

Following its return to England, this locomotive, *Trangkil* No. 4, received a thorough overhaul and was re-gauged to 2ft, but its purchase had also paved the way for the acquisition of other narrow gauge steam locomotives from the Indonesian sugar industry, all of German manufacture,

TOP: PHOTOGRAPH 1

Bagnall 4-4-0T 2820 of 1945 *Isibutu* is seen here with a train consisting of Statfold Barn 'matchboard' bogie carriages returning to Statfold Junction from Oak Tree Halt on April 9th 2016.



ABOVE: PHOTOGRAPH 2

This view shows replica compressed air underground mines locomotive *Issin* 'Sid' on display at Statfold Barn on June 2nd 2102. Its inside cylinder configuration is a marked contrast with the outside cylinder arrangement found on the typical H.K. Porter specimens found in the U.S.

and three of which, along with a Belgian 0-4-0T that was acquired from the Bredgar & Wormshill Railway in Kent, were of 2ft 6in gauge and (albeit partly in the case Orenstein & Koppel of 1473 of 1905 *Pakis Baru* No. 5) inside framed and therefore did not lend themselves to easy re-gauging.

These additions to what soon became an extensive collection of steam and industrial locomotives determined the direction of evolution of the Statfold Barn Railway during a period of nearly two decades of operation. At the main terminus, a station was constructed, eventually incorporating island and bay platforms, a footbridge and a canopy incorporating stanchions from the former Eastern & Midlands Railway (later M&GNR) South Beach station at Great Yarmouth. A replica signal box of Midland Railway pattern was constructed and this guarded entry to the dual (2ft/2ft 6in) gauge 'main line' which, after making connections with the shed and workshop facilities, and the

original 2ft gauge 'lake' line, now forming the Garden Railway. By 2014, a 2ft gauge train making the return run could either double back on itself from a balloon loop, stopping at Oak Tree Halt's only platform, to re-visit the main terminus, or take the 2ft gauge-only 'Upper Line', running parallel to the mixed gauge line and incorporating a concrete road for farm vehicles, eventually passing the signal box on the remote side from the mixed gauge route and terminating at a higher level from the main terminus adjacent to the car park area.

More recently, major policy changes have occurred in the operation of the Statfold Barn Railway during 'Enthusiasts' Days' and these have resulted in some major changes to the general layout of the site. The most significant change has been to dispense with 2ft 6in gauge operation altogether and hence most provision for it in the permanent way configuration. The main running line is now 2ft gauge-only.

**PHOTOGRAPH 3:**

Orenstein & Koppel 0-6-oWT+T W/N 10750 of 1923 *Sragi* No. 14 waits outside the signal box at Statfold Junction for the authority to proceed onto the main line towards Oak Tree Halt and the balloon loop. This photograph was taken on April 9th 2016.

Today, the first sights that will greet the visitor entering from the car park area are the main terminus, designated Statfold Junction, approached by the former 'Lower Line', with the former 'Upper Line' siding now often being used on 'Enthusiast's Days' by the 'Goose' petrol railcar completed on-site in 2015. The two platform lines and former 'Upper line' terminate at a turntable, which also serves the Locomotive Storage Shed via a traverser. The Boiler Shop, Carpenter Shop, and Museum are also located here.

**BELOW – PHOTOGRAPH 6:**

One of the consequences of Hunslet Engine Co.'s acquisition of the Kerr Stuart goodwill and intellectual property rights following the latter concerns unfortunate demise in 1930 was that the Leeds company produced Kerr Stuart-designed locomotives into the 1950's. Three such examples are currently to be found at Statfold Barn and in this view, 'Old Type Brazil' class *Howard* (W/N 1842 of 1936) and updated 'New Type Brazil' *Trankil* No. 4 (W/N 3902 of 1971) are seen engaged on banking duties near Statfold Junction on April 9th 2016. This view well illustrates the differences in valve gear and cylinder/steam chest arrangements between the two classes.

**PHOTOGRAPH 4:**

This indirect-drive 0-6-oPT *Minas de Aller* No. 2 was built by the French manufacturer Corpet-Louvet in 1884 (W/N 439) for a coal mine in Spain and was returned to working order in 2012. It is seen here posing next to the 'main line' in company with Avonside 0-4-oT *Marchlyn* (W/N 2067 of 1933) on April 9th 2016.

Almost at perfect right angle, in an anti-clockwise direction, to the Storage Shed/Museum/Workshop complex, another line from the turntable serves a three-road Running Shed, equipped with an inspection pit and external watering facilities, from which the main (former 'Upper') running line is reached via another almost perfect 90 degree anti-clockwise turn on a severe downward gradient.

Between this approach line and the connection between the 'Main Line' and 'Garden Railway', there are two sidings: one serving the Lower Yard (with its own turntable), and the other serving a two-road Carriage Shed. Although Oak Tree Halt is nowadays equipped with two platforms, normal operational practice is still to run outward via the former 'Lower' and back via the former 'Upper' routes (stopping at Oak Tree on the return run), although it is still possible to use either line for forward or return purposes (owing to the track configuration on the Balloon Loop) and a platform has even been provided at Cogan Holt in the Balloon Loop, arranged for 'reverse' running on the former 'Lower Line'.

It is common on 'Enthusiasts' Days' for trains to run with four locomotives, arranged as a pair each, 'topping and tailing' and facing 'outwards' for photographic effect (so that each pair

LEFT – PHOTOGRAPH 5:

Ex- Harrogate Gasworks Peckett 0-6-oST W/N 2050 of 1944 poses for the camera on siding between Statfold Junction and Oak Tree Halt on April 9th 2016. The raised-height cab and chimney fitted during the preservation era to this locomotive certainly improve its appearance, even at the expense of sacrificing historical authenticity.

**PHOTOGRAPH 7:**

Hudswell Clarke 'P' class 0-6-0PT *Alpha* (W/N 1172 of 1922) spent its working life in India before returning to England to be restored to working order in time for the Enthusiasts' Day of April 9th 2016.

takes it in turns to face forwards on the outward and return run), and the line is divided into staff sections (colour coded) for signalling purposes, with radio communication the order of the day.

Immediately before Oak Tree Halt is reached on an outward run on the former 'Lower Line', a siding serves another two-road Carriage Shed forming part of the Grain Store complex. Here is situated a collection of historic road vehicles and the Round House, which is the main display area for locomotives not currently in service. In addition to the 2ft gauge exhibits, the 2ft 6in gauge items can be found here, along with certain standard gauge items, including a Baguley 10HP four-wheel inspection railcar with reversible tramcar seats (W/N 1097 of 1920) originally built for the French Government; a 0-4-0 petrol-mechanical locomotive by the same maker (W/N 680 of 1916) built for the Ministry of Munitions at Aintree, Liverpool (but later sold to the nearby Jacob's biscuit factory with its White & Poppe engine being replaced by a 60 HP Baguley unit in 1927), and early outside cylinder Hunslet 0-4-0ST *Hodbarrow* (W/N 299 of 1882).

■ Next month we return to Statfold Barn for the 'Giant Miniature Weekend'.

PHOTOGRAPH 8:

Ex-War Dept. Light Railways Baldwin 4-6-0PT W/N 44657 of 1916 looks somewhat work-weary from a career whose final stages were spent in company with *Alpha* at the Ryam Sugar Company's premises in India's Bihar State. This view shows the modifications that were made to the engine during its working life, including upward and outward extensions to the water tanks, partly obscuring the cab spectacles. The locomotive is seen here on display in the Grain Store on April 9th 2016 awaiting restoration to original condition and working order.

**PHOTOGRAPH 9:**

C.S.R. No.19 and fellow Hudswell Clarke product, 'G' class 0-6-0WT G.P. No. 39 W/N 1643 of 1930. Although built for Surrey County Council Highways Dept. in connection with construction work on the Guildford by-pass, this engine and its long-scrapped sister G.P. No. 40 (W/N 1645) were built to a design originally developed for the W.D.L.R.'s during World War One.

**ABOVE – PHOTOGRAPH 10:**

In 2005, two new locomotives were completed at Statfold barn to the Dinorwic 'Port' class variant of the 'Quarry Hunslet' specification. These were Hunslet W/ Ns 3903 *Statfold* and 3904 *Jack Lane*. The latter locomotive is illustrated in this September 10th 2016 photograph, with the Statfold Junction signal box in the background.

BELOW – PHOTOGRAPH 11:

Colonial Sugar Refining Co. 0-4-0ST No. 19 is another Hudswell Clarke product, slightly older than *Alpha*, having been built in 1914 as W/N 1056. As outside steam chests and Walschaerts' valve gear were standard fittings on other C.S.R. Hudswell products, whether used in Fiji or Australia, No. 19 also received these items, although none of its closest relatives was similarly equipped.





PHOTOGRAPH 12: Ex-Penhryn 'Large Quarry Hunslet' W/N 995 of 1909 Gertrude was shipped to Canada in 1965 and suffered the indignity of being sectioned for display in the Ontario Science Centre before return to England in time for display in the Grain Store by March 2017.

PHOTOGRAPH 13: The Enthusiasts' Day of March 25th 2017 saw the 'unveiling' of the newly-restored Peckett o-6-oST Liassic (W/N 1632 of 1923). The engine is seen here, on the 'shed road' from Statfold Junction on the same day.

PHOTOGRAPH 14: Statfold Barn undertakes the repair of locomotives from other preserved railways and the South Tynedale Railway's ex-Harrogate Gasworks Railway's unique Thomas Green o-6-2ST Barber (W/N 441 of 1908) is seen here in the Grain Store awaiting attention on May 6th 2017.

PHOTOGRAPH 15: An important representative of the German school of narrow gauge steam locomotive design to be found in the Grain store on May 6th 2017 was this Arnold Jung o-4-4-oT Mallet Jatibarang No. 9 (W/N 4878 of 1930) imported from the Jatibarang Sugar Mills, Brebes, Indonesia and which first ran on the Statfold Barn Railway in 2011.

PHOTOGRAPH 16: The third Hunslet locomotive of Kerr Stuart design currently to be found on the Statfold Barn Railway is this 'Tamar' class o-4-2PT (W/N 3756 of 1952) originally built for the Cameroon Development Corporation. Apart from the tank configuration (which on this example was slightly foreshortened; on the original Kerr Stuart design the tanks reached the smokebox front), there was little to distinguish the 'Tamar' class from the 'New Type Brazil'. A recent repatriation, the engine is seen here in the Grain Store on May 6th 2017 awaiting restoration.

17 Former Penrhyn Quarry locomotives Sybil Mary (Hunslet W/N 921 of 1906) and Marchlyn are seen here on a passenger working on September 10th 2016, a day when weather conditions were far from ideal!



BOOK REVIEW

CONSTRUCTING 5" GAUGE WAGONS

BY DOUG HEWSON

Published by The Historical Model Railway Society
(www.hmrs.org.uk)

Price: £50.00. Pages: 320. 16 sheets of drawings.

ISBN: 978-0-902835-34-4

When a book arrives in a beautifully printed box complete with a ribbon to aid extracting it, you can't fail to be impressed with the presentation. An 320 page A4 hardback illustrated with over 900 photographs, the package also includes 16 double-sided A3 drawings covering a range of vehicles.

Well known to EiM readers from his many articles over the years, Doug Hewson is a builder of superb quality 5 in gauge wagons that run on ground level lines and operate in exactly the same way as the real thing. Each is a highly detailed miniature that includes all the parts found on the prototype including full working chassis.

The author takes the reader through all stages in making each component up to assembling, painting and weathering several wagons. A detailed run through of the various types of wagon is included in the body of the text.

Chapters cover: Choice of materials, components, wagon brake gear, choice of wagons, wagon construction (with 11 fully worked examples), vacuum brake, (controversially) weathering, bibliography and full index.

The book covers open wagons, mineral wagons, vans and brake vans, mainly those built between 1923 and the end of the traditional wagon on British Railways. In addition to the text, there are over 900 prototype, model and construction photographs plus diagrams showing construction details.

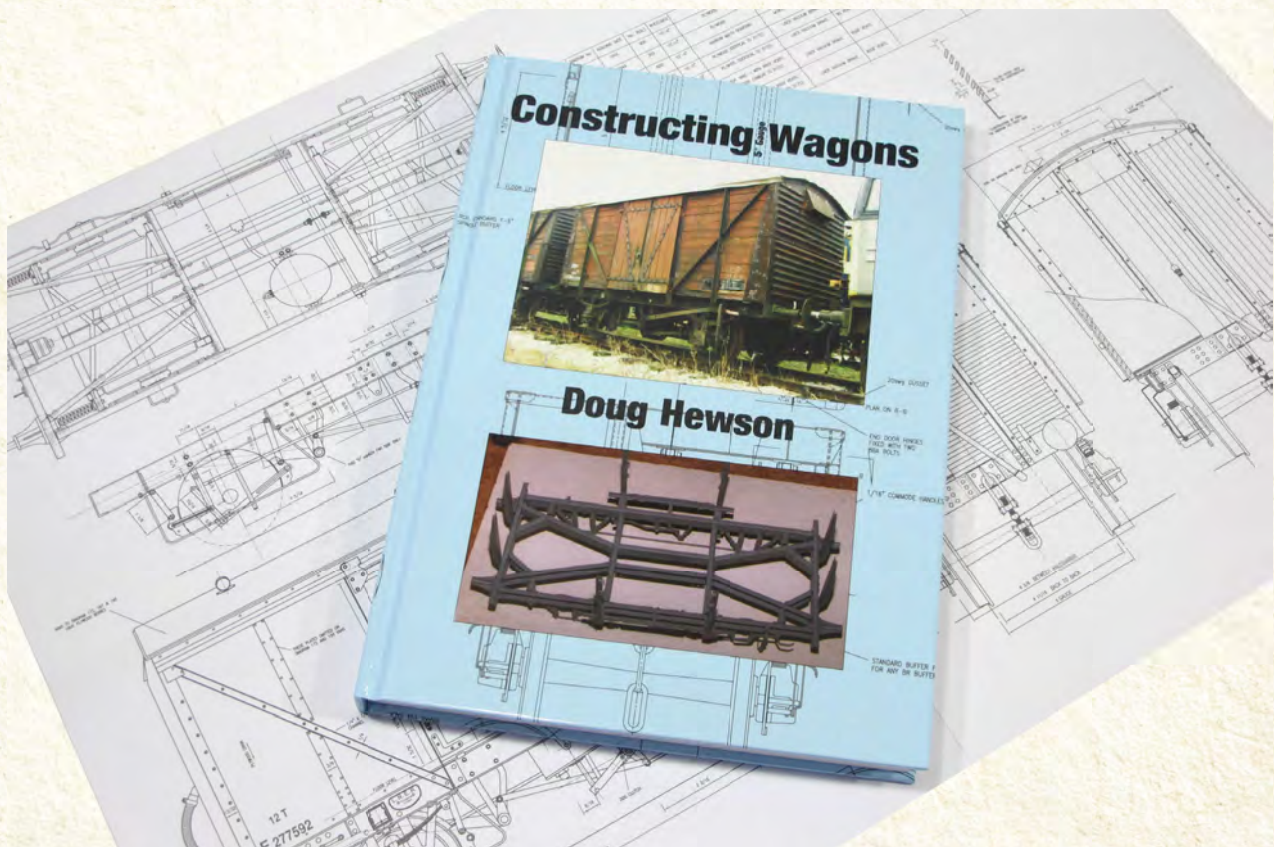
For the wagon enthusiast, this is a fantastic addition to the library. While large scale models are the focus, Gauge 1 and Gauge 3 modellers will also find much in here for them, there is loads to learn if you are interested in how a real railway wagon is built and works.

The plans are generally sharply reproduced, although a couple of slightly lower resolution drawings have made it through the production process but they are still clear enough to be useful. For a publication aimed at engineers, the real joy is the text which is a pleasure to read and packed with information.

On the face of it, this might look like an expensive publication, but quality doesn't come cheap and this is a reference that you will return to many times in the future.

Plans included as separate sheets:

- LMS D1666 Open Wagon
- LMS D1892 Open Wagon
- GWR 16ft 0in Open Wagons – Diag. O2, O3, O4, O9, O10
- GWR 16ft 0in Open Wagons – Diag. O11, O14, O15, O18, O20, O22
- LMS D2110 Open Wagon
- 1923 RCH Mineral Wagon
- BR 16T riveted Mineral Wagon
- BR 16T welded Mineral Wagon
- LNER standard Merchandise Van
- LNER 12T Van Diag. 25, 116, 121, 171
- BR 12T Van
- GWR Van Diag. V23
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- SR 12T Van Diag. 1458
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- BR Open Diag 1/037
- GWR Brake Van
- LMS Standard Brake Van
- LNER Standard Brake Van



Narrow Gauge IMLEC at Oswestry



John strives for efficient in Shropshire

BY JOHN ARROWSMITH

The annual Narrow Gauge International Model Locomotive Efficiency Competition (NGLEC) competition organised and sponsored by the Northern Association of Model Engineering Clubs was held this year at the Oswestry Society of Model Engineers. The very first competition of this type was also held at Oswestry way back in 1998 and this year's competition was the third to be held at this track. The dynamometer carriage for the competition was kindly lent by the Warrington & District MES.

The event was blessed with dry weather on Sunday but activities were curtailed on Saturday due to heavy rain, not starting until 13.30pm. Entries from eight model engineering clubs ensured there would be a good competitive atmosphere for the event.

SATURDAY

On Saturday only four locomotives entered and although there were a couple of good performances two of the competitors had problems which affected their results. The first run was with Matthew Higgins driving Sweet Pea "Hero" which is owned by Dave Dilnot he struggled in the wet conditions and did not produce a winning attempt.

Roger Pugh's "Sweet Pea" was next on the track and it too suffered in the conditions and was not able to perform to its potential.

The third run of the day by Steve Milns, with his 5" gauge Hunslet "Charles," ran well and eventually finished in overall fourth position in the competition.

Final run of the day was by Trefor Milns with his 5" gauge South African locomotive "Lawley". A good performance by this locomotive ensured he finished in overall First place.

ABOVE

Winner of the NAME Trophy was Mike Barnett with his 5" Garrett which is running well here.

WHAT IS IMLEC?

The International Model Locomotive Efficiency Competition was first held in Birmingham in 1969. Using a dynamometer car, the average horsepower over a measured run time and amount of coal consumed to do this are used to calculate the overall efficiency of model locomotives.

Joe Holdsworth of the Wrexham Society of Model Engineers, felt that narrow gauge engines were being overshadowed by models of standard gauge machines and so evolved the Narrow Gauge International Model Locomotive Efficiency Competition with the promise of giving the little engines a chance to show their paces.

The competition rules are now largely in line with the mainstream IMLEC rules. The main difference being the load comprises the driver's choice of loaded loose-coupled slate trucks, rather than passenger trucks. In addition, speed is limited to 5mph. As with IMLEC, the standard run time is half an hour.

For more information and details of previous contest, visit the Northern Association of Model Engineers website: www.nameng.org.uk/



ABOVE LEFT
Sweet Pea driven by Matthew Higgins starts the competition on Saturday.

ABOVE RIGHT
Roger Pugh at the controls of his Sweet Pea concentrates on his fire.

BELOW
Going well on his way to winning the competition is Trefor Milns with his SAR locomotive.

The second locomotive away was the 3½" gauge "Conway" built and owned by Marcus Peel from the Southport club. Marcus, like Mike, is a previous winner of the competition and for a small locomotive Conway started off with quite a heavy load and made good progress round the first part of the circuit. However it was not to be and despite a couple of attempts to make the gradient on the steepest section of the track Marcus had to set back and uncouple his train in order to complete his run which he did without further problems.

Run 3 was made by Alan Reid from the Fylde Society with his Bremme valve geared Sweet Pea. Alan is another experienced driver in this competition and had no real trouble in putting in a good performance.

The next run was greatly anticipated by the spectators as it was another 3½" gauge locomotive in the shape of a superbly built "Mountaineer" by Norman Tuck from the Wrexham club. Driven by Martin Hines a young member from Wrexham MES, the engine performed faultlessly under his





control. He completed his time without any problems whatsoever.

Next on the track was Nigel Thompson from the Erewash Valley Society with his 3½" gauge Conway "Betty." As usual Nigel's run was uneventful and he completed his time without any difficulties, I don't know what his passengers thought but they seemed to enjoy the experience.

The final run of the day and the competition was again by Marcus Peel who this time entered a 5" gauge Polly 0-6-0 "Gwendoline." With thirteen wagons plus an observer Marcus completed his run without any problem.

When all the results from both days had been collated they produced some interesting performances. The overall winner was Trefor Milnes from the Derby Society with an efficiency of 1.89%

ABOVE

The Hunslet of Steve Milns put in a good performance to finish fourth overall.

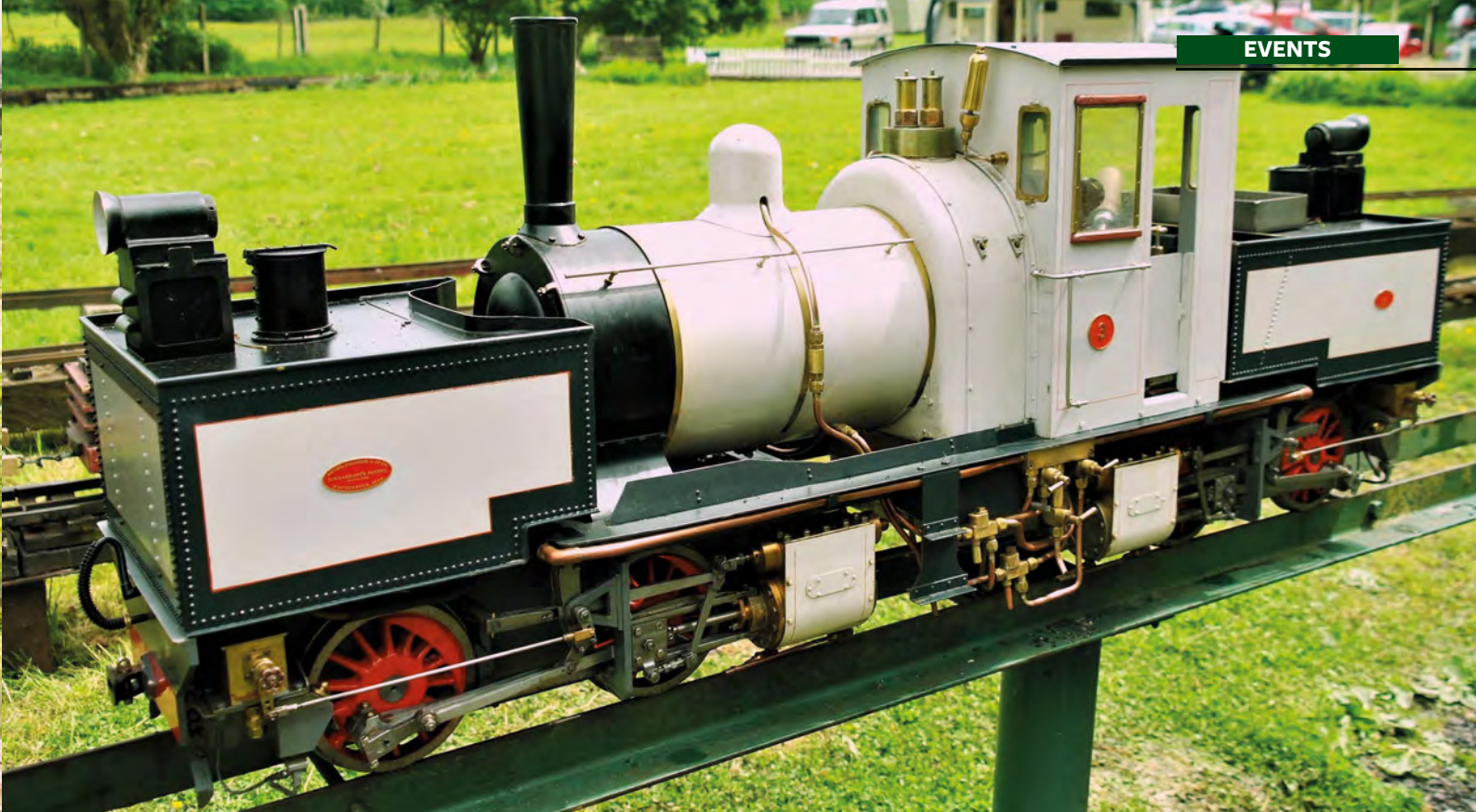
RIGHT

Alan Reid coasts into the station on the completion of his run which saw him get 6th place overall.

BELOW

Marcus Peel with his 3½" Conway at the start of his attempt on the gradient.



**ABOVE**

Mike Barnett's winning 5" gauge Garrett.

**LEFT**

Martin Hines from the Wrexham club concentrates on his driving with "Mountaineer".

BELOW

Careful not to drop any coal is Nigel Thompson from the Erewash Valley Club.

Trefor was awarded with the Past Winners and Narrow Gauge IMLEC Shield.

In Second place and winner of the NAME Trophy was Mike Barnett from North Staffs. His Garrett locomotive returned an overall efficiency of 1.45%.

Third place and winner of the 3½" Gauge Cup was Norman Tuck from the Wrexham & DMES. The overall efficiency of "Mountaineer" was 1.29%.

In concluding my notes on this weekend I would like to thank the Oswestry Society for their organisation and hospitality, it was all most enjoyable. In presenting the awards Frank Cooper Chairman of NAME, thanked all the competitors and supporters for attending and providing a good weekend of entertainment. He thanked the host club Oswestry & North Shropshire SME for all their efforts and hospitality and he hoped that next year's event would be another excellent competition. ■



**ABOVE**

Final run of the weekend saw Marcus Peel attain 5th Place overall in the competition.

RIGHT

Winner Mike Barnett with the NAME Trophy.

**ABOVE**

The 3½" gauge Cup.

**ABOVE**

The Past Winners Shield.

BELOW

The handsome NAME Trophy.



Harlech Castle for the garden



David Anderson builds a model for his garden railway powered by an aircraft engine

BY **DAVID ANDERSON**

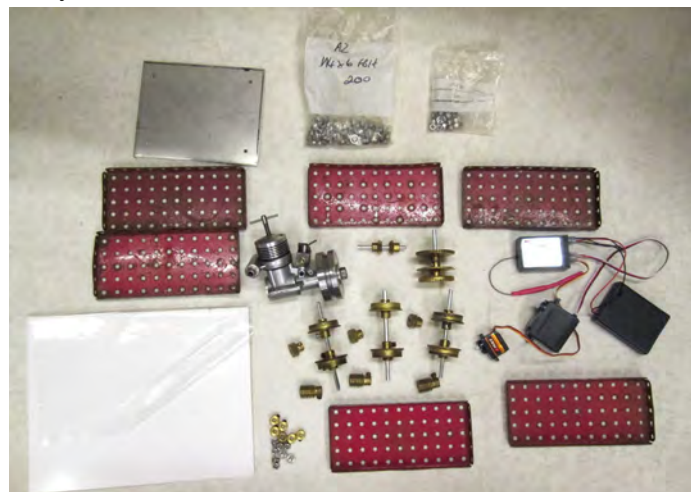
My model is loosely based on the Criccieth Castle/Harlech Castle locomotives used on the Ffestiniog 2 foot gauge railway. It uses Meccano for its chassis and mechanism and 2.4ghz radio control. Previous successful ventures building electric locomotives using Frank Hornby's product clad with 2mm styrene sheet persuaded me to try something a little more ambitious.

The raw materials were assembled: these included a job lot of standard flanged plates, 30mm diameter flanged wheels, modern Meccano tri-flat axles, 4mm hex button head bolts and nyloc stiff nuts – you don't want the thing shaking itself to pieces after all. I purchased a P.A.W. model aero diesel engine and a standard radio control servo and a mini one for the throttle. I also needed a Skyfly RX and found a nine channel one for £12. A little over the top as only two are needed but a bargain not to be missed. I already had a matching computer programmable TX ready to go. P.A.W. are a UK based manufacturer, it stands for Progress Aero Works.

Essential tools are an angle grinder fitted with a 0.8mm thick cutting disc, and a set of medical forceps for holding nuts in the places where fingers can't go. All usual safety precautions apply.

BELOW: PHOTOGRAPH 1

Materials assembled – Meccano components, a diesel engine, radio control bits and styrene sheet.

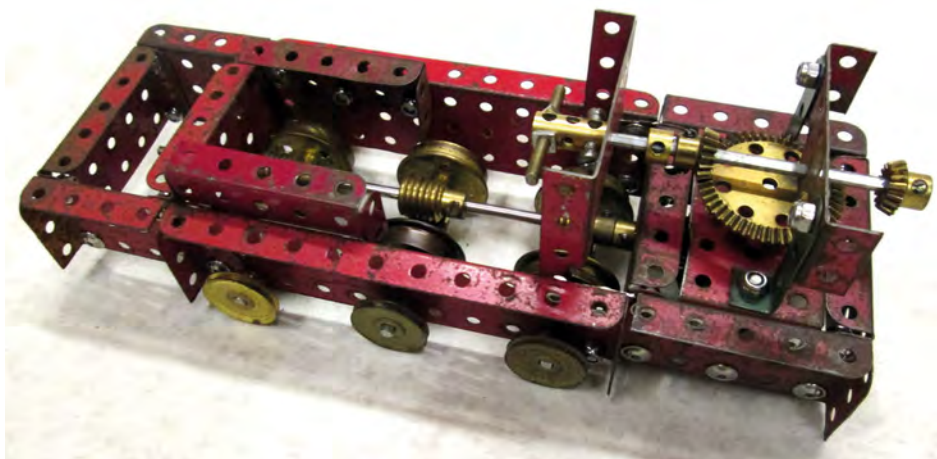


I had a rough idea of what I wanted but no plans. I worked out dimensions from other similar models and set about building the basic chassis. Working back from the wheels I arranged the three axles to run in brass collars soft soldered to short Meccano strips bolted to the chassis. All the bearings are made this way. If you solder the collars to the strips with the grub screw holes facing upwards they form handy oiling points. The wheels on one side need to be modified as the pinions need to be mounted centrally. This involves soldering a 1" pulley to the outside of the wheel and cutting off the original boss. For the centre wheels that need to be flangeless I filled the void inside the flange with solder then ground it off by mounting the wheel in a slow turning drill held in a vice and using the angle grinder to remove the flange. Care needed, don't remove too much or the treads may fall off! I don't think the wheels could be adjusted to 45mm gauge but this might be possible if designed in from the outset. Instead of using Meccano wheels it is a good idea to replace them with lathe-turned steel replicas as these will run truer. I plan to do this later.

I scratched my head a bit over how to make the gearbox but an Internet search gave me the inspiration I needed. Meccano has been around a very long time and there isn't much that hasn't already been made!

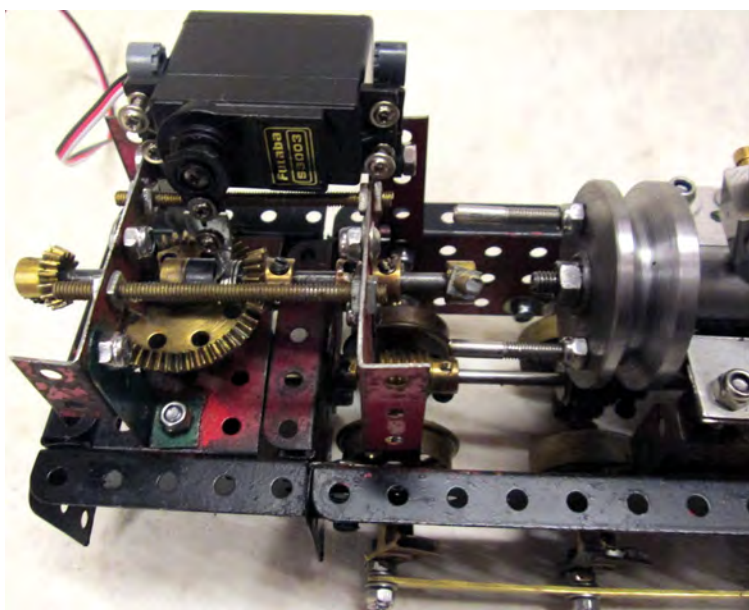
The axles have a major advantage that once the wheels' are done up they can't spin (rotate) on the shaft. The full length layshaft holds three worm gears and this is driven by a contrate wheel on a vertical shaft. The other end of this shaft (the top) has a bevel gear which is driven by smaller bevels on a horizontal shaft which is moved fore and aft by the servo and a gear selector type fork. This movement gives neutral at mid point and forward and reverse at each extremity. There is no clutch as there is not enough room. This makes starts a bit sudden (even on engine idle) as it is effectively a "crash" gearbox but in this size (16mm /foot) you can't have it all. The movement of the shaft means that the pins (bolts) protruding from the flywheel have to be long enough to keep driving when the shaft is fully withdrawn. This area is encased in a Meccano plate finger guard/ containment shield in case something should let go. Everything on this model has to be made vibration proof with Loctite, epoxy, contact adhesive or using stiff nuts (nylon insert type).

The engine is fitted with a heavy steel flywheel (this was turned by a friend with a lathe) as in model boat practice. It has a groove for a starter belt. I use thick laces from trainers or boots. This belt is fitted round the flywheel for each start, joined by tying a knot. This is cut and removed after the engine is running and stabilized. It needs to be long enough to



ABOVE PHOTOGRAPH 2

Chassis assembled showing the contrate wheel.



RIGHT PHOTOGRAPH 3

The servo operated gearbox.

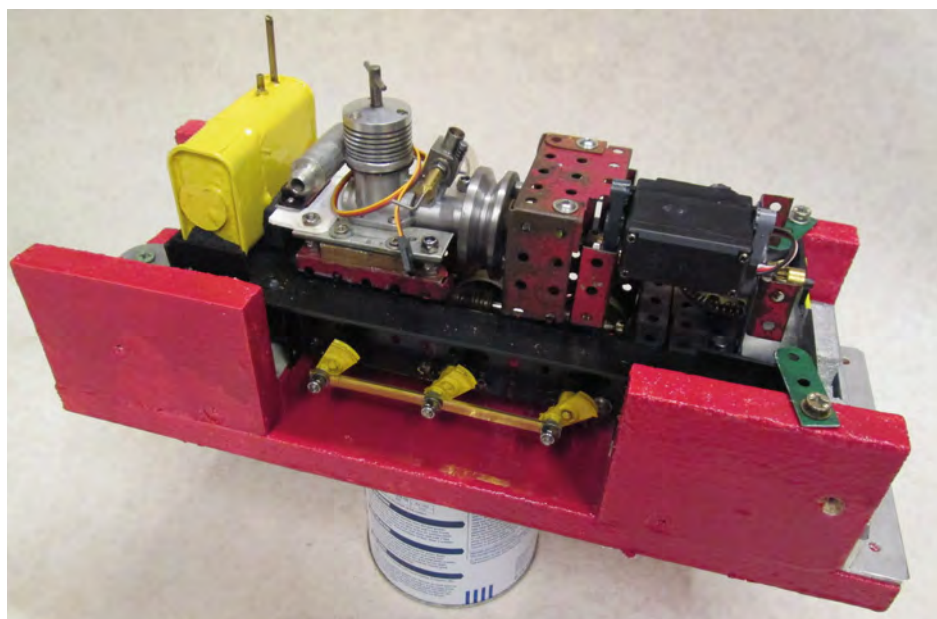
BELOW PHOTOGRAPH 4

The loco ready to be started sat in its wooden "shoe".

loop over the 12v model engine starter's pulley when held over the model. One hand for the starter the other for adjusting the compression and needle valve.

For starting the model needs to be held securely so you are hands free. I made a wooden "shoe" into which it can be fitted and held and in turn this can be G clamped

to a workbench. This holds the wheels off the ground but don't forget to put it into neutral before placing on the track! The shoe holds the wheels off the ground so is useful as a test stand. The body is removed for starting and only dropped on after the engine is running and adjusted ready for the off.



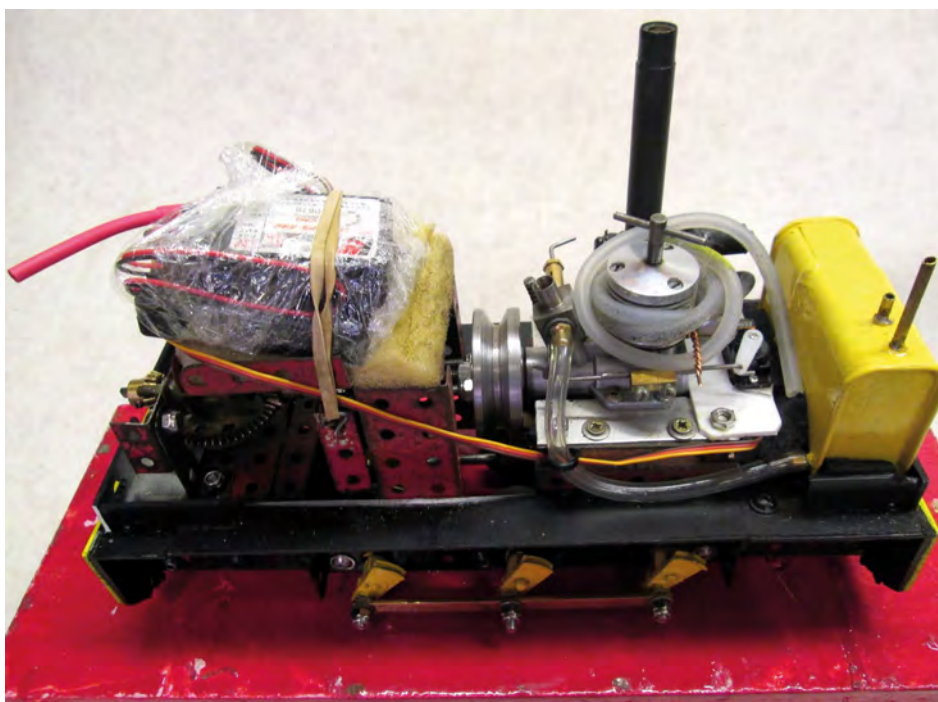
A word about model diesels. These are compression ignition engines, they have a compression adjustment screw on the top of the cylinder head and a carburetor instead of fuel injection as on most large engines. They rely on the unstable nature of the Ether (and sometimes other additives) in the fuel to detonate in the cylinder head when conditions are right. The amount of compression and the fuel/air mixture has to be within certain limits. Outside these limits it will not fire. If you have no experience of model diesels do not be put off. The golden rules are at all costs avoid applying the starter if over compressed and/or flooded. To a degree the belt may slip but you risk breaking the Con rod. So- back compression right off and spin the motor up. Slowly increase compression until it fires. It's a lot easier and safer than finger-flick starting with a propeller. Same principle with the fuel-start dry and increase until it fires. There's lots on YouTube about starting model diesels. I suggest you bench mount your engine to get the hang of it first but if you are an old hand probably no need.

If you have any doubt about over compression or an over-wet engine do NOT apply the starter and find out the hard way. Turn the model to drain excess fuel out, you should be able to turn the engine over top dead centre by hand turning the flywheel. You may remember old style model diesels with a propeller, no throttle barrel, just a wide open venturi and needle valve adjusted to suit. These ran flat out at 10,000rpm and usually had no silencer so they were to put it mildly a bit anti-social. (A modern silenced, throttled engine is an altogether tamer beast). It is possible to start an engine with the old style set up but one with radio control carb. where you can set the throttle just a little open is much easier. It's a bit like starting your car engine with the accelerator pedal pushed down to the floor. You don't do it in normal circumstances, (maybe only to get over a flooded engine).

A Glow Plug engine could be substituted for the diesel but I like the uncomplicated diesel and the smell and sound they make. Shouldn't a diesel loco be powered by real diesel? No glow batteries needed either! A model aeroplane four stroke engine might be worth considering, something like the O.S. FS 20 or similar if you don't like the high pitched two stroke buzz.

I have not found any extra cooling is needed if you leave the engine bay top open, the diesel needs heat to work and can be adjusted accordingly. It is not necessary to use high (and heat generating) RPM anyway when on the track.

I did need to turn the carb. through 180 degrees to allow the throttle linkage to be connected to the mini servo behind the silencer. Easy to do, slacken the mounting screw then rotate and re-tighten.



ABOVE PHOTOGRAPH 5
The completed chassis.



RIGHT PHOTOGRAPH 6
Styrene bodywork under development.

The cranks are 1 inch pulleys cut down, Other Meccano parts will do the job e.g. the bush wheel part 24. The wheels are soft-soldered to the boss to prevent spinning and drilled for the 4mm bolt which forms the crankpin. Its head is ground away on one side to allow it to be as close to the boss as possible and this again prevents spinning.

Drill next to the threaded hole on the boss so all cranks are identical. When fitted to the tri-flat axle the cranks can only be "thirded" not quartered but this does not cause a problem as the axles are all driven by gears not the Con-rods. They are for appearance only. I have not fitted a fourth external drive shaft and its con-rod as found on the prototypes as it makes extra complication that I didn't need.

The fuel tank is a cut down soft soldered lighter fuel tin. Strip to bare metal, use plumbers paste flux and resin core thin solder from a reel. Heat the metal just enough to melt the solder by conduction, easy and "Simples!". No soldering iron needed. This works for me. Maybe practice first if you are new to this. It's not difficult. It does not have to be pretty as it won't be seen but with experience you can get neater. Test the tank for leaks by fitting fuel tube and blowing into it underwater, just like mending a cycle inner tube. You might not get it right first time but just re-heat and apply more solder until there are no more bubbles. Brass tube is soldered in for the filler, vent and feed tubes. Wash the tank out thoroughly with paraffin to remove any loose particles before use.

The body is 2mm styrene sheet. The footplate and buffer beams (a double thickness) are bolted to the Chassis. The removable part is a loose interpretation of the Harlech Castle type with adjustments made where the underlying functional parts dictate. It is not a scale model, just a representation of the type. I think it will convince most people. At the short/rear end I had to compromise by leaving an opening for the gearbox shaft to move fully rearwards. As the model will mainly be moving forward I don't see this as problem and anyway when a model is a few feet away on the track its amazing what you don't see. Rivet counters can only work at close quarters! Hopefully the unusual nature of the model will compensate for any lack of "correctness" anyway.

I find styrene sheet very easy to use and it reminds me of building Airfix kits many years ago. The smell of polystyrene cement – lovely. Thin styrene solvent is recommended too for those places where you just let capillary action carry the fluid in.

The golden rules of using /cutting sheet are: Use a box cutter knife with a new, sharp blade. Use a metal straight edge and clamp everything securely in place. Measure twice, cut once. Keep all fingers behind the knife blade, score several times then snap the sheet. You will need all your fingers for operating the model and blood and plasters, or worse a visit to A&E, does tend to slow down the model building a bit. To make windows, mark them out, a card template/mock body pattern is useful, drill 8mm diameter holes at the corners then using a 4mm diameter bit, stitch drill an X pattern to the centre. Snap out the triangles to leave rounded corners to your windows. The roof is thin vinyl floor covering sprayed with satin paint and permanently stuck on with contact adhesive. You can get at everything when the body is off. Paint is car aerosol grey primer. Decorate to your own design.

WATCH THIS LOCO IN ACTION

You can see David's model in action by visiting:
www.youtube.com/watch?v=N-zB9VV9ac0

The exhaust system is brass tubing cut and soldered to form a horizontal /vertical pipe with a drain from a sump for the excess exhaust oil (of which there is quite a bit) so the engine does not drown. This oil can be led away with thin tube to oil a bearing or gears (or into the cess). No modifications to any part of the engine are necessary. Cut the brass tube parts to length, drill where

needed and clean to bright metal. Apply flux and hold the parts in place with clean copper wire. Heat with a blowtorch to allow the conducted heat to get the areas where solder is needed to get hot enough. Don't apply the flame directly where you want to solder. Apply solder and leave to cool. Heat resisting black spray completes the job. The exhaust is held in place by one screw through the engine mounting plate and a length of copper wire looped round and twist tightened. Seal the joint at the silencer to tubing join with silicon sealant.

There was quite a bit of trial and error in building this model, but that's part of the fun of prototyping. The gearbox in particular involved a lot of try it and see, assemble- test and re-build but I hope I have done the research and you can copy the idea for yourself.

I used a Servo tester to set up the linkages for the throttle and gears as it means you don't have to use the radio control. I arranged the gears to be operated by a channel using the right hand knob on the top of the TX and the throttle on the left hand stick. On the model the batteries are 4 AAA types held in a box with integral switch to save space. The project started in September 2015 and was my Winter project. Get the chassis done and you can add a little at a time when you feel like it. No need to finish before Spring, in any case you will then have to think of a new project! Watch this space.

The eagle-eyed may notice that the engine in the parts laid out photo is a P.A.W. 29 which was found to be too big (physically) and later the 0.9 was substituted. The 29 is being reserved for another creation that I have in mind.

I wonder if Frank Hornby could ever have imagined his product would be in use 100 years after it was invented and in such a way?

Testing and running showed that there is quite a bit of waste oil coming from the exhaust pipe even with the drain to below working. I hastily fitted a very non-scale piece of tube to deflect this away, maybe later I will devise a more elaborate trap in the exhaust system. Starting is easy and the speed is about right with the engine running at just above idle, maybe about 1000 RPM. After a few snags with the transmission gears coming loose which was solved by grinding flats at the point the fixing bolts grip the axles and using epoxy to stop vibration shaking them loose, all is well.

A sound generator is not needed but the loco isn't noisy either, no problems here. Smoke generator also not needed, smell not unpleasant a bit like jet exhaust at the airport, that's the paraffin in it!

I have YouTube channel called Triang Big Big train if you want to see some of my creations in action. ■

David's scratchbuilt model sat beside the Roundhouse battery electric version.





A new track foundation

Faced with unstable track, but unable to lay a permanent bed,
Jan-Eric develops a novel solution

BY **JAN-ERIC NYSTRÖM**

I've had some problems with my too-lightly built "portable" lawn track, which has become virtually permanent over the years. The track follows the contour of the ground a bit too closely, causing dips and bumps where it crosses the somewhat uneven lawn. Also, the rails are welded to very narrow flat iron ties, which don't give much support, so they tend to sink into the ground.

Strips of tarpaulin laid under the track helped for a while, but the forces of nature were too strong even for that. Something just *had* to be done; a better foundation was mandatory.

A crushed granite roadbed would be ideal, easy to level and keep in shape – but, that would not be permitted by the rest of the occupants of your shared summer house, not to speak of the risk of stones and gravel destroying the lawnmower – and any nearby windows, too. What kind of support for the track would be easy to lay, but still be trouble-free *and* removable?

PAVING SLABS

Checking out our local hardware store, I noticed heaps of cheap concrete paving slabs, 300 x 300mm in size, around 40mm thick – might this be a solution? Such slabs are easier to remove than gravel, and with new soil and grass seed added, the lawn would be as good as new in a year or two.

The cost was moderate, less than two pounds per slab; but how many would I need? A quick calculation – considering that some parts of the almost 150 metre long track were already on a steady enough foundation, or at least, on the more stable and easily adjusted gravel yard – resulted in a reasonable number. Only 240 slabs would be needed, similar in area to a modest patio of 4 by 5 meters meters. Total cost for the slabs: well under £500.

ABOVE: PHOTOGRAPH 1

Strips of tarpaulin were overcome by nature. Time for a change!



ABOVE: PHOTOGRAPH 2

Almost three tons of paving slabs being delivered to the trackside.

But – weighing a whopping 11 kilograms each, the whole shipment would weigh almost 3 tons! My own trailer, used for transporting my rolling stock, has a legal weight limit of only half a ton – that would mean at least six trips back and forth, plus back-breaking loading and unloading. Not something I'd be willing to do voluntarily. With trepidation, I asked what the delivery charge would be for such a purchase, and was *very* pleasantly surprised – £30 (yes, only *thirty* pounds), door to door! I whipped out my credit card in no time.

Within two hours, a truck fitted with a hydraulic lift arrived and lowered two full pallets of slabs right beside my track. That's what I call great, local service! The lifting arm was rated for only 1 ton fully extended, but the pallets weighed almost a ton and a half each – this meant that the truck driver had to be *very* careful, lest the automatic safety cut-off would switch off the hydraulic power to the arm, and lock it up! Fortunately, he had a lot of experience handling similar heavy loads with this equipment, so everything worked perfectly and I got the two pallets exactly where I wanted.

CHILD LABOUR

Since the whole load of slabs was now adjacent to the track, I used some neighbourly, volunteer child labour and my little "Quickie" battery engine for transporting the slabs to their intended locations around the track. (Note to all child protection organizations, labour union representatives and workplace safety officials: I did all the lifting myself; the kids just ran the loco back-and-forth happily – and *how*!)

BELOW: PHOTOGRAPH 3

The neighborhood kids loved to help transporting the slabs with "Quickie", the "little battery engine that could".



ABOVE: PHOTOGRAPH 4

Tools for levelling the slabs.

Placing the slabs beside the track before removing it made the job easy; I just flipped the slabs from the cars onto the lawn, one-by-one. Then, I could remove the part of the track adjacent to the slabs. I tore away the tarpaulin strip, and used the depression in the lawn as a guide to placing the slabs, as seen in the photo, where you can also see the implements used, clockwise from left: half-hidden by grass, a small ratchet wrench for the track bolts; a little garden rake/shovel to level out bumps in the lawn (a larger shovel was needed only in a few places); a smaller, lighter slab to pound down tiny bumps in the soil; a bucket of sand to fill any voids, a spray can of rust-dissolving oil for loosening the track bolts that had now been untouched for several years; a spirit level; a foam knee pad; and finally, a pair of old, thick leather gloves – necessary in order not to cut my hands on the very rough concrete slabs.

BELOW: PHOTOGRAPH 5

One day of work, a third of the track now has a foundation.





ABOVE: PHOTOGRAPH 6

Work in, and around the garden. My sister tends to her flowers, while I have covered "Quickie" for the night.

My first day of work and I got almost a third of the way round. Not bad progress though I say so myself. Looking from the other side of the garden, "Quickie" is covered with a tarpaulin to protect it from rain and dew during the night, and I've collected the old tarp strips into a huge, black garbage sack. While I was doing the track work, my sister (co-caretaker of lawn and garden) tended to her primroses and pansies.

All this took place in mid-May, when the growing season had just started here in Finland – a month or two later, the garden was overflowing with phloxes, irises, peonies and asters, as the currants were ripening on their bushes.

MORE SLABS AND AN ANT PROBLEM

The following day, I continued the work. "Quickie" was again in action, but this time, without the young engineers. To maximize the efficiency, I loaded a total of twelve slabs onto two cars and walked beside the engine holding the remote "dead-man's switch".



ABOVE: PHOTOGRAPH 7

"Quickie" is hard at work.

For years, there had been an unsolved problem with ants digging passages under my track and chewing up the tarpaulin. In addition to an anthill close to my track, they had also appropriated the soil under the tarpaulin – and were raising new generations at record speed.

Usually loath to kill even small creatures, I reluctantly decided that my railroad was no place for millions of ants, so I used some ant poison to get rid of them. The chemical *Imidacloprid* is a very common insecticide, available as several different brands. It is very effective against ants, but virtually harmless to humans and other mammals. A single, small bottle sufficed for several bucketfuls of water, poured over the infestations. A few months later, the track was still ant-free.



ABOVE: PHOTOGRAPH 8

A new generation of ants was hiding under the tarp.

The very last slabs put in place are the foundations for a short spur track. Cleaving a couple of slabs, I got suitable pieces to support the middle part of the switch.

Two whole 12-hour days of work, and the new trackbed was in place. The following morning, I did discover some muscles I didn't even know to have existed – I was pretty sore in the back and sides from all the digging and lifting...

BELOW: PHOTOGRAPH 9

The last slabs are in place. Now, the track can finally be re-assembled.



MINIMISING VISIBILITY

Since our lot is adjacent to a street (and my track in fact encroaches slightly onto town property – but let's keep that a secret), I wanted to make my track as invisible as possible; this was no problem earlier, with a lawn-coloured tarp under an in-grown, rusty track.

Unfortunately, some summer festivals tend to bring undesirable elements to this little town – one year we found a Rhododendron bush uprooted and thrown onto the middle of the lawn – thus, minimal track visibility is a must. I bought a bucket of dark grey concrete paint, and painted all the slabs close to the street – the contrast is evident in the photo below.

Also note the gap between the slabs for accessing the cover for the underground water main shutoff valves – never used so far, but in an emergency, it's best not to have it covered!

In this way, passing potential vandals will hopefully not notice anything special and leave the track alone – they usually have quite blurred vision if they have ventured this far from the festival venues. Letting the grass grow a bit helps, too, and doesn't interfere with running the trains, thanks to the concrete slabs being 300mm wide – my 7¼" track gauge is narrower than that, the ties are 280mm long. ■

RIGHT PHOTOGRAPH 10

Painting the slabs minimizes visibility from the street.

BELOW PHOTOGRAPH 11

Viewed from the street, the track foundation and the rusty rails are not very noticeable, almost disappearing into the grass. Hopefully, potential vandals will pass by and not notice anything special.



The Atkinson Steam Wagon

Graham concludes with the assembly of the camshaft into the engine and tests the engine

BY **GRAHAM SADLER** – CONTINUED FROM PAGE 38 AUGUST 2017

ASSEMBLY

To assemble the cams, use medium strength Loctite. Set the nearside bearing in the vice with the shaft vertical. Lay the components in line and get a bit of scrap tube to act as a spacer. For tasks like this I always do several dry runs to make certain all is ready and the procedure is correct. So, with the cam complete with pin (loosely in situ), slide it onto the shaft core, apply the adhesive, then quickly push it into position, rotate and push the pin home, drop on the central spacer with a bit more adhesive, add the tube spacer then a washer and nut which is tightened by the handily placed spanner. Phew. That's one done! Leave it for an hour or so to initially cure then do the second cam and offside bearing. While that's setting, prepare the lubricator key – I had to cut mine from 2.5 x 10mm flat. File a short taper on the end so it can be tapped inside the bearing. Bond in place with high strength adhesive. When the main assembly was fully cured, I found that something must have moved a little in the final assembly of the crankcase, or perhaps the shaft wasn't fully straight, so a little work was needed to remove high spots with 180 grit emery tape to get a smooth action in the bearing housings. The finished shaft is shown in photograph 1.

One of the problems of cams with flat flanks is that they result in an infinite acceleration velocity which is bad news in cam design. The cams should be curved and it is possible to file gentle curves thus narrowing the lobe at the top, but do not under any circumstance let the

file get to the tangent point between cam lobe and base circle or the events will be dramatically shortened. Its up to you, but I didn't and the shaft works well. Perhaps it's because of the low speed (in terms of cams) of operation. Comments please!

TESTING THE ENGINE

So now comes the great moment we have been waiting for – the air trial! But first the timing needs setting. Very carefully clean out the crankcase and fill it with light oil. Check the pistons are correctly positioned for end clearance then finally fit the cylinder fronts. Squirt a good dose of oil through the access plugs. For the timing, use a spanner on the output shaft nut and turn it clockwise until the offside crank is at front dead centre. Set the lateral position of the camshaft to the 80% cam. Now push on the camshaft drive gear (which should have the three screws loosened) and use this to rotate the camshaft anticlockwise by hand, but put a finger on the lower offside tappet. Stop rotating the camshaft and push the drive gear fully home the instant any movement of the tappet is perceived. This is a very sensitive test. Fully push home the drive gear and check, remembering backlash, that the position is correct and tighten the set screws in the gear assembly. Fit the camshaft end cap and connect up the compressor. Do a final check that the valves are properly seating and are leak free before proceeding and sort out any problems. Each valve can be checked in turn, and you will be surprised by the force needed on the valve stem to open it.

Now fit the push rods. As designed, we need a small clearance on the tappets, a matter of just over 0.14mm. This amounts to screwing out the adjuster until it is just and only just tight, then backing it off one flat and locking it in place. I did a CAD test of the effect of this clearance. A 0.005" clearance will need the camshaft to rotate 18° in order to take this up, so the clearance should be as small as practicable. It is this clearance which I think caused the short cut-off cam to be almost unusable with my original shaft, although I was a bit slapdash with clearance on the tappets. I am a lot more careful now. When the engine is in steam and fully warmed up, just check there is still a tiny bit of clearance on the pushrods, and adjust if needed, but don't overdo it or the events will be all over the place.

I used a bayonet fitting for the air line, removing it before making any adjustments. Under no circumstances should you try to move the crank with the spanner while the air is on or I can guarantee you will be sorry; either the spanner will fly at warp speed, or it will stay in place and smash the gearbox change mechanism. This is a very powerful engine. Don't be disappointed if the running is a bit laboured at first. I took my engine to the club and ran it all afternoon on the big compressor there. When I fitted the new piston caps and camshaft the beat was very uneven. On removal of the offside piston I found that despite very careful cleaning a tiny bit of swarf was stopping the rear cap from sealing. On reassembly the difference was remarkable. Very soon you will be skipping round the workshop with the engine banging away on the bench and it will be time to crack open the bubbly!

Adjust the timing by moving the set screws forward and backwards. The cutouts are designed to give just over 1.5 teeth of the gear adjustment. You will know when it's correct as the engine will sound sweeter and not rock and buck about so much when you find the sweet spot. At an earlier date I stated that the adjustment on the drive gear did not seem to make much difference. However, now that the engine is fully run in, I can categorically state that a small change does make a surprising difference to the sweetness of running of the engine. I advise you to get the engine onto the

PHOTOGRAPH 1

Camshaft construction comparison.



PHOTOGRAPH 2
Steering extension
and coal firing tube.



bench after its first season on the rally field and sort this out. The longer you can run the engine on the bench the better as there's a lot of parts to bed in.

The new shaft is significantly better than the original, and I show you two photographs of the shafts for comparison and you will agree about the machining of solid cam groups and its improved quality. When in steam, the engine is now far more responsive and the reduction in lift has not had any effect. What is noticeable is the ease with which the cut off is changed even with the engine running, sometimes a struggle or impossible before due to things jamming on the transitions between the cams. Now it's slick and smooth. The 83° cam is now far more usable than the old 90° one. The warming cam can be used now that the reverse cam doesn't have to be climbed over by the tappets in order to be selected. Photograph 12 shows my incorrect initial assembly and the reasons for this difficulty are obvious.

FINAL ADVICE

I'm showing in photograph 2 two very useful pieces of kit. A 1.5" square tube cut off at an angle is perfect for firing; it just fills the firing chute in one go and shown is the quantity of coal used in each charge. This coal is then warmed and ready to be pushed in with the poker or gloved finger. The tube stands filled ready to replenish the charge by the nearside door. The second is a steering tool; it's very easy to twiddle between two fingers to steer without having to bend over, unless of course you need precise control near people, cars or the host of other obstacles around at a rally. Some bolt big extensions onto the steering wheel and put another above the cab. These look terrible...

As for coal, when the engine is moving I use bean size but, when stationary for long periods, it has been found to be advantageous to use nuts which will just pass through the clinking hole. For the damper control (which by the way is never needed – it's just about dropping the ash pan) I fitted a lever and shaft to a quadrant just right of the water heater. Some engines have complex geared systems fitted to the top of the boiler, making it difficult to remove the top for sweeping the tubes (only 3 active bolts and 9 dummies).

The ash pan is circular (a saucepan) in the style copied from the Whitby bus mentioned before. The original design I thought would not be easy to clean out and I didn't like the fixing of it, which needed a pin through the foundation ring. In addition, I fitted a male/female cone on the exhaust pipe secured with elliptical flanges – just hidden from view under the front apron. They are held together with two pointed cheese head screws which have 'O'-rings on them to stop them from getting lost. This is another aid for removal of the boiler top. The chimney is a push fit and easy to remove.

When you make the steering column secure the collar inside the stand with a taper pin. Mine has come loose several times and the original single grub screw has become two, then three and now the 'pin'. Mine is secured by an extension to one of the grubs into the shaft, as to fit a taper pin here now would mean removing the boiler, and also the cab to access the fixing bolts for the stand to the footplate. This task must be done on the bench to maintain the required small clearance in order to avoid slack steering.

THE BOILER

When the safety valves blow off there is a lot of take up of water so I advise dropping the height of the water gauge by

10mm and increasing the height of the top of the boiler by 12mm to give more steam space (there's loads of room to do this). In addition, things are very tight in the smokebox for the super heater, so an additional 15-25mm of depth above the tube plate is advisable. The canopy can be lifted by half this amount to disguise it, but I can assure you nobody will know! I did this but didn't go far enough. Ray Prime suggested the clinking hole is an option – no, it's completely essential! – lighting the fire and raking it over would be impossible without it. Perhaps it could be made a little deeper at the bottom only (or it will foul the chassis) by 4 or 5mm and perhaps 10mm wider to ease the entry of the larger coal. The fire hole tube is not long enough to reach the firing chute so make it project at least 25mm from the boiler shell then cut to exact length after trial assembly.

A drain for the water heater is essential; my original one was directly under it but was difficult to reach in use. It was relocated to just behind the back of the cab by an 1/8" tube and a valve was put on it, but I rarely close this as the restricted bore means the condensate is constantly flushed without losing blast power.

WELL THAT'S ALL FOLKS!

Prospective builders, please contact me to let me know how you are getting on. I know of five in the UK (I have met two of them), Jason Dowey who runs JLD Steam Fittings is making a 6" version based on my original drawings and one in Australia. However, "gestation time in model engineering can be quite long" (said our old editor Chris Rayward, who persuaded me to submit this series) so there should be more builders in the future. Email: sadlergp@gmail.com ■

CLUB NEWSROUND



BY JOHN ARROWSMITH

September already, where is the year going? We have a preview of the Midlands Model Engineering Exhibition elsewhere in this issue, but that's not the only event of interest to model engineers.

Before the trip to Warwick, there are a couple of major events which hopefully will attract your attention. Starting with the Southern Federation Annual Rally, this is to be held at the **Fareham & District SME** on Saturday 9th September. If you need further information or want to book in, contact Linda Gearing on e-mail marlingearing@hotmail.com. The other major event is the **7¼" Society** Annual rally and AGM which is to be held at the **Burnley & Pendle MRS** in Thompson Park at Burnley BB11 2AA over the weekend of the 22nd /24th September. If you need to book in or to attend please contact the Society direct on secretary@sevenandaquarter.org for more information. The **St Albans & District MES** are holding their Annual Exhibition over the weekend of the 23/24th September and this year the Society are celebrating their 70th Anniversary so no doubt this will be a special event for them.

Reading through the **Cheltenham SME** webpage I noted that the club has been included in the Cotswold Tourist listings as being one of the best things to do in the Cotswolds, in fact it was listed as No 5. For clubs who struggle to publicise their events, using the local Tourist office could be a good thing for them. There was also a very good selection of reviews by Barry Leach on the trials and tribulations he

has been through in building various locomotives over the years. The most amazing is the difference in the cost of various castings and fittings he has found over a wide range of locomotives and gauges. For example, one set of castings has gone from around the £280 mark to over a £1100 and then to be told they couldn't replace a faulty casting as it was too difficult for the foundry. I can only wonder how they think they will continue to function with that sort of attitude.

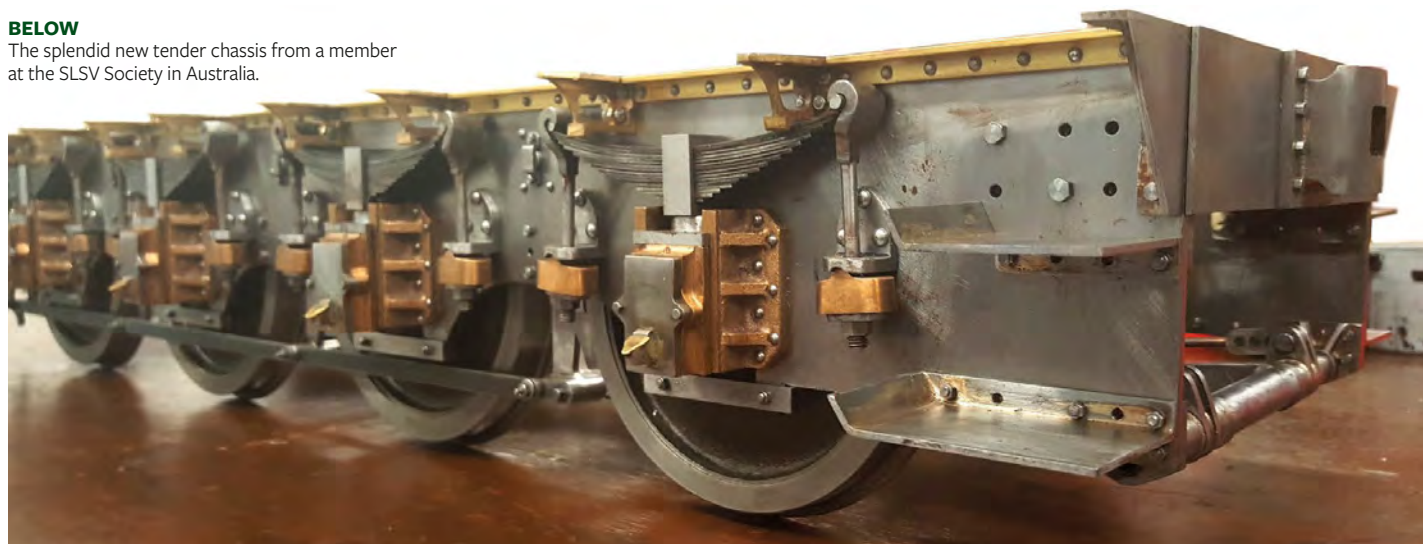
The Annual Rally of the **Isle of Wight Society** was another successful event for the club. There were eight visiting clubs with both members and locomotives. Ten visiting engines went well with the two Morgan three wheelers and vintage motorcycles who also attended. In addition to all this activity the Garden Railway was also very busy as was the Boating pool. Everyone seemed to enjoy themselves and are looking forward to the 2018 event already. The clubs Open Days have been well supported this year after virtually no public running last year. They will also be attending the "Garlic Festival" this month as well which is an interesting event in itself. After a number of years without full electrical inspections of the clubs electrical installations, the committee decided to have such an inspection carried out. This threw up some deficiencies which needed to be rectified. A suitable contractor was

brought in to do the work so they now have a full EICR certificate for their site which gives confidence to both members and visitors.

In the June issue of "Conrod" the club magazine from the **Otago MES** in New Zealand members are mourning the passing of two very long serving life members. Bob Bell joined the club in August 1957 which has meant that he has been involved in nearly 60 years of the clubs 81 years existence. Ken McIntyre joined in 1955 so he has an even longer history with the club. Both have contributed a great deal to the operations over the years and both will be very sadly missed. We offer our sincere condolences to their families and fellow club members at this sad time. Like many clubs in the UK the club are looking at different ways to attract a younger element into their ranks. They think that many people are put off simply because they don't have the motivation to try something new. I think this is an interesting view of the problem. The club itself have a number of good projects on the go with a new traverser being discussed. Members have a varied selection of models in progress including 5" gauge Evening Star loco which looks to be a fine model. The magazine reports that at the Cross Creek Club in Featherston, a new engine shed extension has been opened which will provide additional storage facilities.

BELOW

The splendid new tender chassis from a member at the SLSV Society in Australia.



There has been some good progress on different projects being undertaken by the **Steam Locomotive Society of Victoria** in Australia. The new retaining wall around Petticoat Junction has been completed and with the re ballasting the area is now operating very well and this was combined with the completion of the Goods Yard in time for the Kindred Run Weekend which was a great success. Further ground level track work is being undertaken in the turntable yard with new signalling and point actuators being installed. All this work will enable them to improve their shunting skills and train make up and they are hoping members will make good use of it in the future. One member James Stanton has started building a 5" gauge LNER A4 Pacific in May 16 to the Don Young design and has made excellent progress on the tender with what looks like a high quality locomotive. The photo illustrates the fine skills that have been applied so far and I look forward to seeing the progress over the next few months.

As I mentioned above the **St Albans Society** are celebrating their 70th Anniversary this year with their Annual Exhibition being the highlight of the year. To coincide with the anniversary, the committee have revisited their rules and regulations for operations at the Puffing Field track site. In addition, the Boating Rules have also been upgraded so that all operations now comply with the various health and safety recommendations. It is also much easier now to find their track

site as they are now able to publish a post code. For those of you with the appropriate "app" a Google map is available. The post code is WD4 9DA. Members provided a small display and rides on their portable track with the clubs Sweet Pea locomotive at the Stockwood Discovery Centre in Luton in May. This was another popular event and the portable track was kept busy throughout the day. The "Gazette" contains an interesting little article by a club member who has a 3 year old son who is "train mad" and who finds himself drawn into the modelling world by the enthusiasm of his son. He is talking about model railways as opposed to model engineering but his closing comment is very true when he says he, his 3 year old and handful of middle aged men were gathered round in silence gazing into the past. Are we all gazing into the past in our world of model engineering or are we maintaining an hundred year old tradition whilst using the modern world technologies. Something to natter over a pint, make a change from Brexit!!

The new club house at the **Tyneside SMEE** is already proving its worth when it was used by members for a Project Day earlier in the year. The new room allowed members to display their work and have plenty of space to see everything. Members have also held their very first Model Boat Regatta when a group from the Heaton Model Power Boat Club, who are also members of TSMEE, organised an excellent event at the club. There was a good number of entries with both steam

and electric models on the water and with the good food and drinks supplied by the ladies everyone enjoyed themselves. It is hoped that this may become an annual event. A couple of club visits have also been enjoyed when the Wylam Brewery provided a very hospitable evening's tour including sampling session and following on in May a visit to the G5 Locomotive Company who have completed almost two thirds of this new build 0-4-4. The original was designed by Wilson Wordsell and this locomotive is one of about 20 new build locomotives currently under construction in the UK. The class had all been scrapped by 1958 so this work at Shildon will again see one of these popular engines back in steam in the North East. They have also had eleven new members join this year so they must be doing something right, let's hope it continues.

At the **Vale of Aylesbury MES**, work has taken place to improve the visual details for drivers such as cutting back on bushes and moving signals to help them get clearer views sooner. They have had good comments from the Quainton Railway about how well they operate on busy days so they must be doing something right. The sidings adjacent to the signal box have been improved along with improved servicing facilities. A new canopy over the rear door of the workshop has provided a useful working area in showery weather. The canopy over the garden railway is progressing more slowly but no doubt will be very useful when complete. ■

The new canopy in position on the Garden Railway at VAMES.



YOUNG ENGINEERS

BY JOHN ARROWSMITH

I think that most model engineering clubs in the country are concerned about attracting younger people to their organisations because by and large the current membership is getting older and are finding that doing things is becoming just that little bit more difficult. I appreciate very well that doing something about this problem is not easy. However, it is not just the model engineering world that is suffering; all sorts of different organisations are having the same problems so why not try a different approach.

In the Traction Engine world the National Traction Engine Trust have a Steam Apprentice Club as part of what they offer and I have mentioned before in these notes how they seem to attract younger people into their ranks on a regular basis. Recently, they held a driver training day to try and encourage a new group of recruits to take part in their activities. They had over 50 younger people turn up for what was a very successful event. I am therefore suggesting that the model engineering club world should consider doing the same thing. After all we have many different rallies around the country such as the IMLECS, the Polly Owners Group, Sweet Pea and the Northern and Southern Fed Rallies and so on. The Ryedale club have regular driver training days at Gilling which are generally well supported so why not have a Driver training Day on a National scale. Perhaps one of the Federations could act as co-ordinator for this and if one of the larger clubs with good facilities could host the event it may provide a good shop window for model engineering. Another example of this is the full size heritage railways which hold similar events all the time. They are very popular and you can wait up to 12 months to get a place on one as I know from personal experience. I would appreciate your thoughts on this as the problem is not going away.

One club who want to start a junior section is the Tyneside SME where secretary Linda Nicholls is asking club members to get involved by bringing grandchildren along to the club to see how things work and get up close to locomotives and to help in their preparation. This is a positive way to include youngsters and I hope it works out for them. Another club who regularly hold a Summer holiday workshop is the Worthing Society & District Society of Model Engineers who have been running courses for 20 years, having been started by founder member and now President John Rea. The courses which are held in August each year consist of two three day courses of twelve students per course, manned by volunteers from within the Club.

A new trainee at the Tyneside club.



Over the years various models have been constructed from Pop pop Boats, Balsa Gliders, rubber powered Aircraft and Prop Boats. The courses now begin with an introductory lecture with hands on demonstrations of working steam engines ending with a Mamod model running a small generator powering a diode to explain that even today we still use steam to generate electricity.

The Students then build a simple steam turbine from a tin and lid adding the turbine blades and jets. They also construct a propeller driven car constructed mainly from balsa with all materials supplied. This project was designed by one of the previous Head Tutors, John Fuller. All

models are then tested to make sure that all students take home two working models. On completion the Students then race the Propcar in the Field Place Pavilion, a large barn used for Wedding functions within the Field Place complex. On the third day of the course they are instructed to drive steam and electric models on the Club track with parents and family arriving early afternoon so that the students can take their family members for a ride. The Club provides the guests with tea and biscuits and the course ends with each student presented with a Certificate of Achievement, with the victor of the car race winning a small Hobby construction kit.

These courses are a partnership with Worthing Borough Council and now South Downs Leisure who run the Field Place site. W&DSME works closely with the site management in handling the booking and advertising of the event. Going forward, they are looking to add an element of 3D printing into a new model project while retaining the driving of steam models into the courses. This is a splendid example of what can be done if the club membership is prepared to put themselves forward to organise it. I am sure the Worthing club would be more than happy to offer advice to any club who may be interested in this approach. ■

BELOW

A student driver under instruction.



SEPTEMBER DIARY

2/3 Bedford SME. Gala Weekend at Summerfields Railway. 10.30am – 16.00pm each day.

2/3 East Herts MR. Public running at Great Amwell. 11.00am – 17.00pm.

2/3 Steam Fair at Harewood House, Harewood, Nr. Leeds from 10.00am. LS17 9LQ.

2/3 Merthyr Tydfil MES. Public running in Cyfarthfa Park 12.00noon – 17.00pm every weekend.

2/3 Saffron Walden & DMES. Public running at Audley End from 12.00noon.

2/3 Sussex Miniature LS. Public running at Beechhurst 14.00pm – 17.00pm every weekend.

2/3 Sutton Coldfield MES. Narrow Gauge weekend from 10.00am each day. Contact Alan Leary for more information.

2/3 Vale of Aylesbury MES. Public running at Quainton Railway Centre from 10.30am.

2 Brandon & DSME. Family running day at Weeting from 12.00 noon.

2 Birmingham SME. Rally at Illshaw Heath from 11.00 am.

2 Ickenham DSME. Public running 12.00noon – 17.30pm.

2 MES of Northern Ireland. Public running at the Ulster Folk Museum 13.00pm – 17.00pm every Saturday.

2 North Wales MES. Public running at West Shore Railway 12.00noon – 16.00pm every Saturday.

2 Nottingham SME. Visitors Rally.

2 West Wilts MES. Club Track meeting 10.00am – 16.00pm.

3 Ashmanhaugh LR Open Day. Public running 14.00pm – 17.00pm.

3 Nottingham SME. Public running at Ruddington 11.00am – 16.00pm.

3 Basingstoke & DMES. Public running at Viabes Craft Centre 11.00am – 16.00pm.

3 Bournemouth SME. Public running at Littledown Park 11.00am – 15.30pm every Sunday.

3 Bressingham Steam Museum Model Railway Show at Diss Norfolk, IP22 2AA.

3 Carlisle & DMES. Public running at Upperby Park 14.00pm – 16.00pm.

3 Chelmsford City MR. Public running at Meteor Way 14.00pm – 16.30pm. CM1 2RL.

3 Cheltenham SME. Public running at Hatherley Lane 14.00pm – 17.00pm.

3 Chesterfield MES. Public running at Hady 12.00noon – 16.00pm.

3 Chingford & DMEC. Public running in Ridgeway Park 14.00pm – 17.30pm every Sunday.

3 City of Oxford MES. Public running at Cutteslow Park 13.00pm – 16.30pm.

3 City of Sunderland MES. Open Day in Roker Park from 13.30pm.

3 Coventry MES. Public running at Ryton Pools Railway 13.00pm – 16.00pm every Sunday.

3 Crawley MES. Goffs Park Light Railway 14.00pm – 17.00pm every Sunday.

3 Doncaster MES. Public running in Thornes Park 11.00am – 15.00pm every Sunday.

3 Esk Valley MES. Public running at Vogrie Park Railway 11.00am – 17.00pm.

3 Frimley Lodge MR. Public running at Sturt Road 11.00am – 17.00pm.

3 Fylde SME. Public running at Marsh Mill Railway Thornton Cleveleys.

3 Grimsby & Cleethorpes MES. Public running at Waltham Windmill 10.00am – 16.00pm.

3 Harrow & Wembley SME. Public running at Roxburgh Park 14.30pm – 17.00pm every Sunday.

3 Kinver & West Midlands SME. Public running 14.00pm – 16.30pm most Sundays.

3 Lancaster & Morecombe MES. Public running at Cinderbarrow 10.30am – 15.45pm every Sunday.

3 Leyland SME. Public running at Worden Park 11.00am – 16.00pm.

3 Lincoln SME. Public running at North Scarle.

3 Malden & DMES. Public running at Thames Ditton 14.00pm – 17.30pm.

3 Mid Cheshire MES. Public running at Sandiway Wood. 12.00noon – 16.00pm.

3 Moorlands Railway. Charity Open Day 14.00pm – 17.00pm between Scarborough & Whitby.

3 North London SME. Public running at Colney Heath 14.00pm – 17.00pm.

3 North Wilts MES. Public running at Coate Water Park 11.00am – 17.00pm.

3 North Staffs MES. Public running at Broughton Park. ST5 0QP. 14.00pm – 16.30pm.

3 Northampton SME. Public running at Delapre Park 14.00pm – 17.00pm.

3 Plymouth MS. Public running in Goodwin Park 14.00pm – 16.30pm.

3 Polegate & DMEC. Public running at Polegate Oaks 14.00pm – 17.00pm.

3 Portsmouth MES. Public running at Bransbury Park 14.00pm – 17.00pm every Sunday.

3 Rochdale SME. Public running in Springfield Park from 12.00noon every Sunday.

3 Ryedale SME. Public running at Gilling 12.30pm – 16.30pm.

3 Scottish Model Engineering Trust. Public running at Wester Pickston 11.30am – 16.00pm.

3 Southport MES. Public running at Victoria Park 11.30am – 16.30pm.

3 South Cheshire MES. Public running at Willaston 12.00noon – 16.00pm.

3 Taunton SME. Public running at Vivary Park 14.00pm – 17.00pm.

3 Teesside SGR. Public running at Preston Hall, Stockton on Tees 13.00pm – 16.00pm. TS18 3RH.

3 West Cumbria Guild of ME. Public running at Curwen Park 13.30pm – 15.30pm.

3 West Huntspill MES. Public running at New Road 14.00pm – 16.30pm every Sunday.

3 Wirral MES. Public running in Royden Park 13.00pm – 16.00pm.

3 Wolverhampton MES. Public running at Baggeridge Park 13.00pm – 17.00pm.

9/10 Avonvale MES. Public running at Dunnington 11.00am – 16.00pm.

9/10 Sale Area MES. Annual Open Weekend 12.00noon – 16.30 each day.

9/10 International N Gauge Show at the Warwickshire Exhibition Centre. From 10.00am each day.

9/10 44th Yesteryear Rally at Hampton Heath, Malpas, Cheshire from 10.00am.

9 Bridgend MR. Public running at Parc Slip Nature Reserve 12.00noon – 16.00pm

9 Brighton & Hove SLM. Public running at Hove Park 13.30pm – 16.30pm.

9 Picnic Fields Railway, Saffron Walden Narrow Gauge weekend from 11.00am.

9 Polly Owners Group Rally at Nottingham SME contact direct for more information.

9 Southern Federation Rally at Fareham MES contact Ivan Hurst to book or more information.

9 Southampton SME. Rolling stock day at Riverside Park 10.00am – 16.00pm. Enquiries David Goyer.

10 Bristol SME. Diesel Electric Gala Day at Ashton Court 12.00noon – 17.00pm.

10 Cambridge MES. Public running at Fulbrook Road 12.30pm – 17.30pm

10 Canterbury MES. Public running at Marlow Meadows, Sturry 14.00pm – 16.00pm.

10 Hereford SME. Public running at Broomy Hill 12.00noon – 16.30pm.

10 White Horse Model Engineering & Garden Rail show White Horse Country Park Westbury 10.00am – 16.00pm.

10 Worthing MES. Public running & Big Charity Day at Field Place 12.00noon – 17.00pm.

15/16/17 Bedfordshire Steam & Country Fayre at Old Warden Park Biggleswade from 10.00am.

15/16/17 Narrow Gauge Weekend at Echills Wood Railway. Public running Sunday from 11.00am.

16/17 Great Henham Steam Rally Henham Park Southwold from 10.00am. NR34 8AQ

16/17 Papplewick Pumping Station in steam with 7¼" gauge railway in operation. From 11.00am.

16/17 West Huntspill MES. 50th Anniversary Celebration weekend Public running from 14.00pm on Sunday.

16 Bromsgrove SME. Get Together Day, Open Invitation contact John Spooner for more information.

16 South Durham MES. Hurworth County Fair 10.00am – 16.00pm Hurworth Darlington.

16 Westland & Yeovil DMES. Public running at Westland Leisure Centre 11.00am – 16.30pm.

17 Cardiff MES. Public running in Heath Park 13.00pm – 17.00pm.

17 Chichester MES. Public running at Blackberry Lane 14.00pm – 17.00pm.

17 Guildford MES. Public Open Afternoon in Stoke Park 14.00pm – 17.00pm.

17 Northolt MRC. Public running at Northolt Village Community Centre 14.00pm – 17.00pm.

17 Pinewood (Wokingham) MR. Public running Pinewood Leisure Centre 13.30pm – 16.00pm.

17 Plymouth MS. Exhibition and Charity Day from midday at Goodwin Park.

17 Rugby MES. Public running at Rainsbrook Valley Railway 14.00pm – 17.00pm.

22/23/24 7¼" Gauge Society Rally and AGM at Thompson Park, Burnley BB11 2AA. Contact direct to attend.

22/24 Llanelli MES. Annual Miniature Rail & Road Rally at Pembrey Country Park contact club direct for more information.

23/24 Claymills Pumping Station Steam and Miniature Traction engine weekend from 11.00am.

23/24 Kettering Vintage & Steam Fayre, Cranford, Northants from 10.00am each day. NN14 4AW.

23/24 Vale of Aylesbury Traction Engine Rally at Quainton from 10.30am each day.

24 Stroud MES. Public running at Stratford Park 14.00pm – 16.30pm.

Details for inclusion in this diary must be received at least EIGHT weeks prior to publication. Please ensure that full information is given, including the full address of where every event is being held. Whilst every possible care is taken in compiling this diary, we cannot accept responsibility for any errors or omissions.

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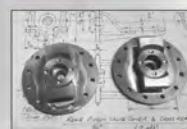
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7 ¼" gauge GWR Collett Goods Doncaster 2016



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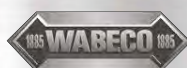
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