

# Sussex Miniature Locomotive Society Ltd

Issue No. 402  
April 2013

## BEECH HURST NEWS



### **Cover picture: -**

*New Model:* The latest new locomotive at Beech Hurst is an 'Ajax', recently purchased by the Club. This stocky loco should prove to be a useful addition to our fleet and provide very suitable training, as well as passenger hauling capabilities. A small piece appears in this issue...

### **Editor**

Andrew Brock  
189 The Welkin  
Lindfield  
RH16 2PW

[andy.brock15@btinternet.com](mailto:andy.brock15@btinternet.com)

SMLS Ltd, The Clubhouse, Bolnore Road, Haywards Heath,  
West Sussex, RH16 4BX.

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## **Editor's Notes**

As I write these notes, there is blue sky and sunshine outside, the thermometer is reading just under 20°C (70°F in old money) and the birds are singing – a definite sign that spring is finally with us! Our start to 2013 has been one of up's and down's with a couple of washed out days already recorded and many below par due to the cold nature of the weather thus far. That said, the days during which the sun has shone for us have been busy and it is nice to see the railway operational once more.

From the February edition, I would like to thank to Andrew S and Steve T for their respective articles and pictures too.

In this newsletter, there are articles by Andrew S, Roy P & Steve T, a new Officers / Workers list for 2013, all our regular writings and more importantly a substantially updated Diary to September, so please read on and enjoy...

**Andrew**

## **Chairman's Notes**

This year the Club has a full compliment of Officers. I thank everyone who has wished me well as I take the Chair once again. Steve Turner has taken on Vice-Chair, John Baldwin continues as Secretary and Andrew Brock as Treasurer. The Committee remains as before along with new Committee member Steve Steer who has taken the place vacated by Geoff West, who stood down last year. So, a welcome 'on board' to Steve S and many thanks go to Geoff for his many years of service on the Committee, latterly as Vice-Chairman. Thanks go too, to John B for chairing the Committee meetings last year and the last AGM, as well as his Secretarial duties.

On the membership front, we welcome new member Dave Barnwell. He has visited the Club a few times already and I hope he will quickly feel 'at home' with us. For those of you who remember the late Larry Bradley, Dave has taken on the 5" 'Britannia' which Larry had been building. I'm sure Larry would have been pleased to know it was progressing well and we look forward to seeing it take to the rails in a few years time.

The running season has begun! Easter at Beech Hurst was more like Siberia! Still, thanks to some hardy members and equally hardy members of the public, we took some fares! In fact, we did reasonably well and it did at least stay dry but the wind and low temperatures were an endurance test! I drove on Easter Monday wearing 17 items of clothing and was only just warm enough! All was fine until I needed to move around! As I write, this weekend is supposed to be warmer..., maybe spring is coming, better late than never.

During the last 2 months, the Club has acquired a new band saw and a second steam locomotive, an 0-4-0 'Ajax'. Adam, Andrew B and Laurie will be looking after the 'Ajax'.

Outside, Roy P, along with John G & John R, has at last been able to get to work on the track, checking and levelling up some piers ready for the main season. The painting of the track steelwork was started last year and Roy is keen to finish this and will be looking for help in May, when hopefully the weather is warmer.

This is a job which needs doing every 3 or 4 years, a bit like the Forth Bridge (used to be!). He will be working on some Tuesday's and Friday's (weather permitting), if you can help.

Nick Edwards and Dan Evans are our Operations Managers and the running book is 'ruled up' for the season, so please sign in (in pencil) if you are available to help. Please also sign up if you can 'walk the line' any day before running and check the track for us. If you are running an engine also please make sure there is no oil on your wheels, so we can avoid the dreadful task of track cleaning and finally please keep your speed down in passenger service! I know some kids love a 'fast ride' but let's leave this for them to enjoy at the fairground! It is imperative these days that we are seen to be careful and steady. Let them enjoy a longer ride instead and if the Traffic Controller requests you slow down a bit, then please comply graciously; we thank you in advance for your co-operation, and wish you a very enjoyable season on the track.

In the workshop, Mike W has the 'bit between his teeth' and is embarking on a big tidy up and re-organisation. We are also hoping to get the workshop re-wired this summer following the now finished job of re-wiring the engine shed. Thanks to Steve T for organising this task.

I'm pleased that Peter C has fully recovered and has now finished his new electric locomotive (with a little help on the wiring from Graham). We look forward to seeing this loco in service soon.

Dan has also completed the refurbishment of the body shell for the Club loco 'Florence Nightingale', and (when he gets time), Graham is to arrange easier charging arrangements for this engine so that the body shell doesn't have to be removed each time with the potential for damage again.

The one good thing about the cold weather is that nothing is growing, so no gardening yet but give it another month and we will require gardeners again. Anyway, so far, so good for 2013 and I wish you an enjoyable running season, and better weather for all of us!

**Mike**

## **Club History**

Continuing the series, you will find my next 2 pages (5 & 6) stapled to the rear of your newsletter, which follow the last 2 published in the February edition.

**Steve T**

## **Election of 'Officers' and 'Workers' for 2013**

At our first Committee meeting following the AGM we always elect members to fill the Officer's & other 'Working' positions within the Club, this list is for 2013:

**Chairman:** Mike Porter

**Vice-Chairman:** Steve Turner

**Secretary:** John Baldwin

**Minutes Secretary:** Andrew Brock

**Treasurer:** Andrew Brock

**Other Committee Members in Addition to the Above Officer's:**

Daniel Evans, John Gange, Graham Mundy, Steve Steer & John West

**Operations Managers:** Nick Edwards & Daniel Evans  
**Signals Engineer:** Graham Mundy  
**Assistant Signals:** Steve Turner  
**Workshop Manager:** Mike Wakeling  
**Assistant Workshop:** Steve Turner  
**House Manager:** John West  
**Materials Manager:** Andrew Brock  
**Assistant Materials:** Peter Marten  
**Social Secretary:** Val West  
**Librarian:** Ray Parsons  
**Assistant Librarians:** Andrew Brock & Geoff West  
**Newsletter Editor:** Andrew Brock  
**Boiler Coordinator:** John Richardson  
**Boiler Inspectors:** Mike Porter, Paul Tomlinson, Steve Turner & Geoff West  
**Custodian of Wharfedale:** Andrew Brock  
**Assistant Custodian:** Vacant  
**Custodians of Ajax:** Andrew Brock & Adam Cro  
**Assistant Custodian:** Laurie Anderson  
**Custodian of Club Electric Locomotives:** Graham Mundy  
**Carriage Valeters:** Graham Mundy & Ian Thompson  
**Webmaster:** Stephen Hutton  
**Clubhouse Cleaners:** Andrew Brock & Mike Porter  
**Track Maintenance:** Roy Preston  
**Carriage & Wagon Maintenance:** Andrew Brock  
**Assistant Carriage & Wagon Maintenance:** Andrew Strongitharm

The position of Assistant Custodian of Wharfedale remains vacant this year. Any changes to the above will be communicated through the newsletter.

**Andrew**

### **A New Club Locomotive**

As previously mentioned and with reference to the picture on the front cover, the Club has recently purchased a new steam locomotive. 'Ajax' is a freelance design by Dick Simmonds and many very successful examples have been built, including 2 in the past at Beech Hurst. The idea behind the purchase is to give members without a steam locomotive the chance to learn and drive on a small locomotive, without the need to use 'Wharfedale', which although relatively easy to drive is big and cumbersome for a beginner and has a soft-soldered boiler. The 'Ajax' is available for any competent member to drive and has already got 1 afternoon of passenger service under its belt! Adam Cro will custodian the locomotive, with day to day cleaning looked after by junior member Laurie Anderson. If Adam is away at University then I will carry out any repairs in his absence. We hope members enjoy our new acquisition and it will be good see different people driving steam at Beech Hurst, as well as learning the procedures for preparing and disposing of a locomotive before and after each run.

**Andrew**

## **Winter Work**

As we have now reached the end of the closed season, our winter work programme is complete and below is a summary of the work since the AGM.

Outside, Roy P and a small gang have continued levelling sections of the track and replacing broken pier bases. Work will continue on the bitumen painting from next week, assuming that the weather does not 'turn' against us yet again!

Also outside, the Council have cut down a number of trees to the rear of the clubhouse and the last of the leaf debris is now clear from the cuttings too. Hopefully with this spell of warmer and dry weather the ground will begin to harden off too because it is still pretty treacherous in places near the long tunnel.

Inside, Andrew S & I have finished our truck maintenance and there are a couple of ongoing jobs that we will continue with during the summer as wet days permit. All trucks are in service and the works bins have been hibernated for the summer to allow our freight train to be stowed in the carriage shed.

Also inside, Graham, Peter C and Steve S have pretty much finished fabricating our display track sections, which will soon have their own racking in the carriage shed workshop. A couple of 'bonus' lengths are still in the process of manufacture and will be finished as time permits during our summer season.

Recently, Graham and Peter C have also wired up another locker with a 24v battery charger, so we now have 5 lockers in total with charging facilities. The latest recipient, locker 18, will house Peter's new Class 73, which has been constructed during the last 12 months and turned out in original 'Gatwick Express' livery.

The body for 'Growler' locomotive 'Florence Nightingale' has recently received a 'birthday', thanks to Dan Evans, and is now ready to return to traffic. At our last Committee meeting we decided to keep the body for 'Michael Faraday' too, in case of damage to 'Florence's', and so we can swap these over periodically as a change for the travelling public – even if the chassis is the same!

Since the AGM, our new electrics have been a little troublesome with an outage on the AGM day itself, although thankfully after the conclusion of the meeting! Steve T is currently working on this with a couple of contractors and it seems that we have a number of ongoing neutral faults, with wiring being replaced bit by bit. All areas now have power, with the exception of the station building, which will need new cabling to it and this will conclude when time permits.

Finally, Mike Wakeling, who has taken over as Workshop Manager, has started a major tidy and re-organisation in both workshops. A lot of surplus clutter has already been disposed of and a useful run to the scrap metal yard has been made too! New racking and bench space will follow, and once complete our electrics will be renewed in the coming months – watch this space...

On a final note, thanks must go to everyone who helped out during the closed season and a lot of work has been completed during that time. 'Winter Work' will now be in hibernation until the October edition and our 2013/14 winter season. Any work completed during the summer will be reported as it occurs, however apart from the electrics / track there are no major projects in the pipeline.

**Andrew**

## Beech Hurst Track Monitoring Vehicle – Article 1 of 3

### Introduction

Measurement and monitoring of the cant and gradient of miniature passenger carrying railway tracks is an essential part of maintaining the tracks in excellent running order. If detailed measurements of these quantities are made every few feet around a track, the results allow assessments to be made of the location where remedial action is needed. Furthermore, if these measurements can be made at different times during the year it is possible to monitor changes, changes that may be caused by weather condition, ground movement, programmed works, etc.

Whilst it is possible to use spirit levels and lasers to do these measurements position by position around a track, the whole process is very time consuming. Modern technology offers alternative methods, methods that can be accurate and fast. One such device is a digital inclinometer that can be used to measure angles in two orthogonal directions and the readings read by a computer. Such devices are now available at relatively low cost and with accuracies of 0.05 degrees and resolution 0.01 degrees. The Track Monitoring Vehicle described here incorporates such a device and has been specifically developed for measurements on the Beech Hurst 5 inch gauge track at Haywards Heath, although it could easily be adapted to be used on any track of any gauge.

### Track Monitoring Vehicle Hardware

The vehicle is a simple construction with a top plate consisting of an 1/8" thick steel plate 24" x 12" which is mounted on a rigid frame. The primary requirements are rigidity and to be fairly massive. The vehicle has four flanged wheels and two axles. One axle is rigidly linked to the main frame and the second one is pivoted about an axis which is longitudinal to the vehicle, the pivot axis being midway between the wheels and just below the top plate. This type of arrangement provides the top plate and frame with essentially a three point support off the track, or kinematic support. The wheels are 3.5" diameter and on each tread is a 1/2" wide rubber band to reduce wheel-on-rail vibration.



The Track Monitoring Vehicle (TMV) is shown (picture left). On the top plate of the TMV, and above the rigid axle, the inclinometer sits in a register. At the other end of the plate the lap-top computer sits laterally on a plywood table. Between the two is an interface module.

A fifth wheel is used to provide a means of measuring the distance the TMV has travelled. This measuring wheel is made of plastic and its tread machined parallel and of known diameter, approximately 3.9 inches giving a circumference close to 12". This wheel is mounted on an axle which runs in ball races mounted in a frame. The frame is pivoted so that the wheel bears on the rail midway between the main axles of the TMV. At the other end of the axle is a small magnet, set radially to pass close to a fixed reed switch. Every turn of the wheel actuates a closure and opening of the reed switch. The reed switch is connected to the RTS 'Request To Send' and CTS 'Clear To Send' pins of an RS232 interface.



**(Picture left):** The measuring wheel.

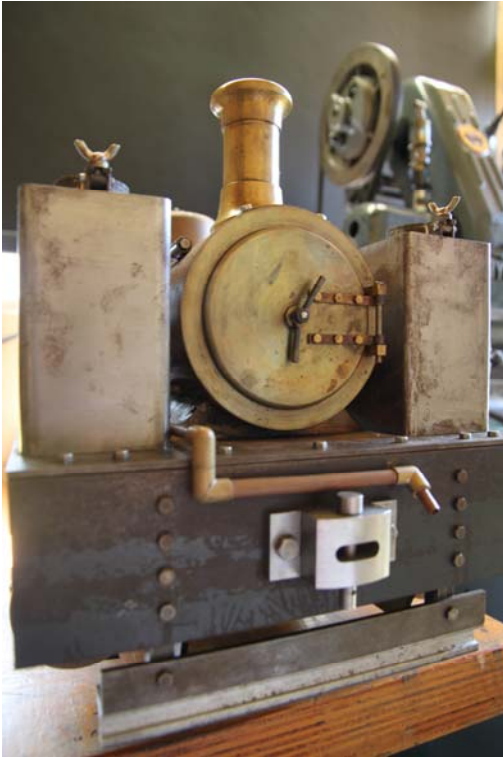
The two-axis digital inclinometer used is an LD-2M made by the company Level Developments Ltd and it sits on the top plate in the register. Its RS232 output is connected to a two-port RS232 to USB converter which is connected to a USB port on the computer. The other port accepts the input from the reed switch.

The inclinometer can be sent a command over the RS232 interface to take a pair of readings (two orthogonal axes) and the resultant readings can be read by interrogating the RS232 interface. The inclinometer has a number of internal functions that can be set. For this application, the most important ones are that it can be calibrated, set up to run continuously (not timing out) and a degree of on-board averaging is available. Perhaps the most critical of these is the ability to set the zero level for the angle measuring capability (referred to as 'calibration' which is strictly incorrect). This zeroing is achieved using the built in 'calibration' software which involves the inclinometer taking readings and the operator rotating the unit through 180° and a new set of readings then taken. The inclinometer would take the average of the readings and if the average is not zero a correction would be applied. Experience shows that it is essential to rotate the whole of the TMV and not just the inclinometer, otherwise small but significant errors in the measurement of the angles can occur if the top plate is not absolutely parallel to the track. An error of 0.01° has been shown to be significant.

**Roy Preston**

**EdNo.** To be continued in the June edition with the TMV Software requirements.

## Building a W&L 'Dougal'



Although at times it has seemed as if progress has been non-existent over the past two months, many fiddly components have been manufactured for both the guard irons and the fake side tank filler lids. As stated before, the lack of any drawings has not helped, as well as a few minor but nonetheless irritating mistakes along the way.

As talked about in the last article, the guard irons are made out of aluminium rail and this had to be drilled and tapped to attach it to the piece of angle mounting below both buffer beams. This process was to say the least 'good fun'....! **(Picture left: The front of 'Dougal' showing the completed guard iron and vacuum pipe work waiting for a bag to be fitted)**

As the side tanks themselves are for decoration only, the filler lids needed to look the part but not actually work. These were

thankfully completed yesterday and contain many tiny parts soldered together. The main block was turned and a small groove machined around the top giving the impression of a lid separate from the body. The bolt holes in the base were then drilled using a dividing head and small headed (thank you to John G) 6 BA bolts were placed in these holes to give the impression of them holding the filler lids down to the top of the side tanks. This allowed the two channel pieces to be positioned directly opposite each other and soldered in place; this was another task which was easier said than done.

The channel had previously been cross drilled to accept bolts, one to form the



main pivot for the lid and the other to pivot the catch supposedly holding the lid down. Further soldering was required to add pieces on top of the channel to give the impression of a working hinge and catch. I then made miniature brass handles and associated threaded upright to clamp the lid in place.



Although these have taken the best part of two months of work they do enhance the detail on the loco, however they are still only decoration at the end of the day. (Picture previous page: A close up of one of the fake filler lids)

**Andrew S**

## **Forthcoming Events**

The April edition normally heralds the start of the summer social season and this year is no exception.

Starting in May, we have a special day planned for Saturday 25<sup>th</sup>, when as many small locomotives as possible will feature (7 already pencilled in) during the afternoon, including a couple of 3 ½" gauge – hopefully! Running times and fares will be as normal for this day and of course the public will get to ride behind many locomotives not normally used in passenger service. If you would like to help out during the day then please add your name to the growing list on the blackboard and all assistance will be greatly appreciated!

Heading into June and our Club Night on the 6<sup>th</sup> will also be an evening when we host our friends from the Lavender Line at Isfield. These evenings have been good fun in the past and we run trains for our guests to drive and ride too. Hopefully we will be blessed by a summer like evening and not an autumnal one, like we experienced at the same time last year!

Then on the 8<sup>th</sup> June, we have been invited to travel to Chelmsford Club for a visit. This has always been a very pleasant day out, if a little chilly last year, and one which I look forward to going on. A list will be started on the blackboard and if you are interested then please add your name so I can advise our hosts accordingly.

The following Saturday, the 15<sup>th</sup>, we then host Chelmsford Club at Beech Hurst. I hope we can lay on a nice day, like 2012, and enjoy the company of our guests from Essex, as well as seeing several different locomotives on our track.

At the end of June, we have a double-bill on the last Saturday, the 29<sup>th</sup>. During the day we will be hosting our friends from Basingstoke Club and then in the evening we will hold our first 'Bring Your Own' BBQ of the year. The normal format of onions and puddings will be provided, however the main course is all yours! To have a warm and sunny day / evening will be a lot to ask but we can but hope and if our June BBQ last year is anything to go by then it is possible!

Into July, and we have another special day planned for Saturday 20<sup>th</sup>. This will feature 3 double-headed trains and fares will be £1 per ride or £3 to ride all afternoon. These days have always been popular in the past and provide great fun for drivers and spectators alike. We plan to run our normal hours and again if you would like to volunteer to help out then do please add your name to the list on the blackboard and there are plenty of useful jobs to be filled!

Finally for now, our second 'Bring Your Own' BBQ will be held on the Bank Holiday Saturday in August, the 24<sup>th</sup>. The format will be as per June and will start promptly at 18:00 to maximise daylight hours.

Reports and pictures from the above will be publicised in the June edition, as well as any further events other than those already listed. It is hoped to be able to arrange a return visit to the Lavender Line sometime during June / July and hopefully a Bowls Match during the summer too, however these have yet to be confirmed and will be publicised here if possible or on the blackboard at the Club otherwise.

**Andrew**

### **Diary of Events**

2<sup>nd</sup> May 2013 – Club Night – Will start at approx. 19:00

25<sup>th</sup> May 2013 – Small Engine Special Day from 14:00

6<sup>th</sup> June 2013 – Club Night and Lavender Line to visit Beech Hurst from 18:00

8<sup>th</sup> June 2013 – SMLS invited to visit Chelmsford Club

15<sup>th</sup> June 2013 – Chelmsford Club to visit Beech Hurst from 10:00

29<sup>th</sup> June 2013 – Basingstoke Club to visit Beech Hurst from 10:00

29<sup>th</sup> June 2013 – Evening 'Bring Your Own' BBQ – Will start from 18:00

4<sup>th</sup> July 2013 – Club Night – Will start at approx. 19:00

20<sup>th</sup> July 2013 – Double Headed & £3 all afternoon Special Day from 14:00

1<sup>st</sup> August 2013 – Club Night – Will start at approx. 19:00

24<sup>th</sup> August 2013 – Evening 'Bring Your Own' BBQ – Will start from 18:00

5<sup>th</sup> September 2013 – Club Night – Will start at approx. 19:00

**NB.** Certain events may be organised at short notice and will not therefore appear in the newsletter. Please check black / notice boards in the clubhouse for details of such events.

**Andrew**

**PS.** If you are wondering whether I have not forgotten the back cover this time then I haven't! It is just that the pagination was not conducive to one on this occasion and also I have only the 1 picture of the 'Ajax', which I thought would suffice!

## History of The S.M.L.S.

Information Found			Names	Relevant Information	Notes
Place	No	Date			
Signing of the Lease		22 September 1952	E.A.H.Brown		The Lease was signed.
			S.R.Bostel		
A.G.M. Minutes	1	01 November 1952	22 In Attendance		
			Ernest Brown (Father)	Chairman	After a walk round the Beech Hurst site, the meeting started in the Hall at 4pm. The Secretary reported that nearly £300 had been subscribed but after purchasing the Rail & Sleepers there was only £65 left in the bank.
			Ron Bostel (S.R.)	Secretary & Treasurer - Track Committee Member	L.Whittington presented some trucks to the Club acquired from Lt.Comdr.Harding.
			Les Clarke (A.L.)	Track Committee Member	It was suggested that all members try to raise £10 from friends etc..., to help with the funds.
			Bert Perryman (A.C.)	Worthing Society Member	A subscription of £0.15.0d (75 pence) was agreed.
			Jack Austen-Walton	Track Committee Manager	A Track Committee was elected.
			J.B.Hughes		It was agreed that the brickwork be contracted out to Mr J.Ashdown.
			R.P.Holdstock		Eric Rowland was keeping a photographic record of the building of the track.
			Arthur Ayliffe (A.E.)	Committee Member	Jack Austen-Walton stated that he wanted to make the track the finest in existence, complete with signals.
			G.D.Edwards		The work could start on the building of the track straight away.
			C.W.Hudson (Sen.)		
			C.W.Hudson (Junr)	Track Committee Member	
			H.A.Lovell		
			W.M.Hebblethwaite	Secretary Lewes & District M.E.S.	
			Alf Funnell	Track Committee Member	
			J.Fancourt-Bell		
			Leonard Whittington	Track Committee Member	
			Monet		
F.Barrows					
F.W.Wilkins					
Bowis					
C.T.Filkins					
Dick Rawlins (R.C.)	Track Committee Member				
H.B.Cahill					
Track Committee Meeting		20 January 1953	6 In Attendance	Apologies:- J. Austen-Walton.	Minutes of the previous meeting were read & confirmed as correct, then signed by the Chairman
			Ernest Brown (Father)	Chairman	It was agreed that the first working party be arranged for the 7th & 8th February 1953.
			Les Clarke (A.L.)	Track Committee Member	Mr Priest (surveyor assistant) offered with the setting out.
			Alf Funnell	Track Committee Member	
			Dick Rawlins (R.C.)	Track Committee Member	
			Leonard Whittington	Track Committee Member	
Track Committee Meeting		14 November 1953	Ernest Brown (Father)	Chairman	Minutes of the previous meeting were not read as they had been left at home.
			Jack Austen-Walton	Track Committee Manager	The design prepared by the surveyor be approved. It was also mentioned that the track would have to be removed to enable the tunnel to be constructed.
			Alf Funnell	Track Committee Member	It was agreed where to put the station & to use second-hand paving slabs for the base but not on which side of the track to put it on.
			Leonard Whittington	Chairman Track Committee	The steaming bay was to be formed by a second curve being laid on the outside of the main line running northwards from the south end of the west straight with the steaming bays going off in a westerly direction.
			Dick Rawlins (R.C.)	Track Committee Member	The provisional date of 23rd January 1954 was set for the A.G.M.
			Ron Bostel (S.R.)	Secretary - Track Committee Member	A discussion on signalling was held.
			Les Clarke (A.L.)	Track Committee Member	

## History of The S.M.L.S.



Early levelling of the site - 1952  
(IPB-0256)



Track Build Start - 1952  
(IPB-0013)



The Setting out of the Tennis Court Straight - 1952  
(IPB-0276)



Laying out the Brick Stacks for the piers - 1952  
(IPB-0274)



Laying the wooden sleepers on brick pillars along the  
Bowling Green Straight - 1952  
(IPB-0272)



Les Clarke - 1954  
(IPB-0280)