

WEALDEN RAILWAY GROUP Newsletter

April 2022

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Cover Pictures

Left; O scale Q1 posing in the garden,
Les Coleman

Below; Restrunging a layout
Andrew Knights

Both projects are covered in this edition



Editorial

No more pictures of the coins of the realm this month. The new membership/round robin list has been made up. Most managed to dive down the back of the sofa, or pockets deep in the car and find their subscription for the year! The main reason being not just to top up the Group's coffers but also to ensure compliance with the various data protection acts for the Internet world. All done for the rest of this year at least.

While on the subject of the Internet I must mention what is going on in the back ground. Namely our web site. You will have noticed, possibly, that when you went to download this issue, that the back list of newsletters seems to have vanished. Problems with the existing web site have lead us to decide that in its current form the archive was of little use. Don't worry the archive is being reconstructed in a better and, I hope, more useful format. One year only has been sorted so far and I and Alan are waiting to see if this stays workable and un modified by external factors. Assuming it does, I hope to process more years and then make a larger announcement, probably in the June, for the July issue.

Enough on the world of computers. Well not quite. I have made some progress on the rolling stock for Mertonford Summer 1983 HO. Seven log carrying cars have been printed, assembled and painted. I hope to tell some of the story later this year. As the printing was quite an adventure for myself, but a rather dry subject for you to read about, I may do a combined article on these and the Whisky Blues, these will have chassis made on the printer, at least for the new ones in addition to the older models. The next major push for the HO will be what may be two tank trains. I have a few, again left overs from previous usage. I have several LIMA vehicles awaiting conversion to British Rail use.

Then, no longer able to procrastinate further, will be the passenger rolling stock, several BR MK1 coaches. A little 3d printer and more use of the Silhouette Cutter and Alan Monk's coach files!

Lately, more time has been devoted to DIY projects around the house and preparing for the the next season afloat. With a forthcoming exhibition fast approaching, some action has taken place in the loft.

Part of this has spelled the end of MaP extension delusions. More complication track wise the MaP does not need. That does not mean that all is fixed in Ahern County, far from it. The “descenicked” corner of Lawnton has seen some action. Building locations sorted. A double sided back scene for the central divide. Low level platforms have been scribed, stained and planted. All the yard trackage has been lifted and re laid to better use the space available. A three way point was added, improving the yard access to a point. That point. After all was in place, painted, ballasted, and cleaned, a discovery was made. “Moaning Myrtle” the much used goat for Lawnton, being an 0-4-0, stalled on the two outer routes of the point. The reason being, the two dead frogs encountered for these routes are to the exact same spacing as the loco wheelbase. As a result there has been much out of area trundling of what are normally location restricted locomotives. The bogie goat from Mertonford (constructed from bits in a scrap box involving parts of an early Bachmann motor bogie driven F7) now works at Lawnton. The Pine Tree goat was half inched for a while, but Myrtle did not really enjoy running there, again that short wheelbase caused some rough riding and stalling. The good part was that the Pine Tree goat received a visit to the shops. It was discovered that it was collecting power on three wheels for much of the time. Broken wire and mal adjusted contacts being to blame. Now back in Pine Tree the Bachmann Doodlebug based loco runs much more smoothly. Currently Myrtle has found work at Mertonford. However the similarity between this engine and the C50 (Continental Modeller) means that she may well end up as a multi use loco on the branch, assuming a new reliable running goat can be found for either Lawnton or Mertonford. The scarp box contains a few chassis that may be of use. A case of watch this space?

Space, not the final frontier, but the final loft location. The local timber yard supplied some cut plywood sheet and timber of approximately 2”x 1”. Over a couple of days a new presentation area was set up. This will hold one of the show “coffins” for much of the time. It can be used to house one for a pre show brush up and test too. Currently it is housing Sylvester Road. In this issue there will be more about this. It was a little more intense than was originally intended, as is the case with most “simple” projects.

Kitland’s Light? Very little to report here. The last train ran the week before Christmas, the day itself being too wet for any short term running, plus the discovery of Loco No1 in a terminal sulk. No1 is the main theme I wish to attend to this season. A rebuild from the frames up of the motive power plant. The aims to dispense with the need for a reverse running camera, and the ability to operate at arms length. The problem being, that after the aforementioned DIY and need to access a much buried set of large steps, the normally cluttered shed/workshop is mostly inaccessible and both benches have somehow vanished from sight! Not much chance of work on No1 under these circumstances. Shed tidying, garden tidying, it would be great to see the whole of the route, let alone run along it. This to do first, and then No1 rebuild.

I will tell you all about this once it has happened, and also the date of an afternoon’s chance to play, drive and chat in said garden. The KLR Operating Day- will happen assuming all of the above are fulfilled. Another watch this space!

The boat was in the water over Easter, with the cat and myself pootling around the Broads for the first time this season. As usual, Barton House Railway was running. As usual, this was the first Easter session for three years. Quiet a few changes had taken place in the interim. Much relaying and enhancement of the existing lines and the museum collection. A change of opening times, this caught the Editor by surprise! The main change is the amount of work that has been carried out on the new line. This will run from a new station adjacent to the museum, alongside the house then loop around the lawn. Simple? Well it is but the two stations are quite a distance apart, vertically. A ruling gradient of 1:40 may be interesting for the small engines! They are hoping to have a service of sorts by the end of this season. If I can have a ride over the Summer, I’ll tell you all about that too.

Which brings me to the Editor’s usual request. If you have a ride or experience similarly, would you put fingers to keyboard or pen to paper even and tell us all about it? Modelling successes, ventures of not quite so successful projects (Giles tells of one such in this issue-Thanks!) then let us know too. It may give some one an idea, or stop them falling down the same pot hole.

Ice Cold Control

Geoff Latham

Glacier is an N scale micro-layout designed for front operation with manual controls. At 36in long a couple of exhibitions revealed its shortcomings, so on the basis of limited experience it was decided to see if full radio control could be implemented, the initial thinking being that it ought to be fairly easy to stitch together appropriate snippets found on the Internet. The objective was realised but it took seven months and involved considerable research and plenty of p – patience and perseverance.

Operations. The operations on the single turnout switching layout were:

- shuffle picture cards to allocate car spots
- set turnout to required route
- run loco
- couple/uncouple cars.



In reverse order of complexity:

couple/uncouple cars. Micro-Trains couplers were used with a single fixed magnet, non Micro-Trains stock being fitted with replacement couplers or trucks. No changes needed.

run loco. Previous experiments had been with large L298N H-bridge motor drivers but it was decided to trial a very small TB6612FNG that had been obtained. The Arduino produced noisy running and the cure was to increase the pwm (pulse width modulation) on the enable pin above the human audio frequency range.

set turnout. To motorise the turnout a hole was carefully excavated underneath sufficient to take an SG90 servo on its side. A length of 1mm wire was threaded through the outside holes in the short arms of the cruciform servo horn and into the hole in the Peco throw bar.



The over-centre spring and frog polarity micro switch were retained.

A small slot was cut in the fascia for a servo socket and a shallow groove made to connect to the servo and take the extended servo cable.

The VarSpeedServo library was used to get a slow motion switching action.

Shuffle car spots. This was the most difficult part of the project. The idea was to replace the cards with coloured LEDs on a track diagram. Ultimately, individually programmable LEDs were chosen, specifically SK9822 because they have separate clock and data lines giving less susceptibility to timing issues and constant current control. It was proposed to match a LED colour to the colour of each car used with the remaining spots plain and for the colours to be randomly shuffled



on a button press. The two challenges were finding a sorting algorithm and incorporating it into the FastLED library used to program the LEDs.

Two shuffle modes were wanted, four cars on eight spots and six cars on eleven spots.

Other components needed were:

Arduino boards. Pro Minis were chosen for their small size. As they do not have USB sockets a HobbyTronics basic+ breakout board is used for programming them.

Radio transceivers. nRF24Lo1 radio transceivers are small and powerful and are used with adaptor sockets to convert the Arduino 5v output to 3.3v and add protection. The nRF24Lo1 library is used for the radio settings.

To implement the radio control some further functions were needed: turnout signal. It was decided to use two LEDs to indicate the turnout position. The LEDs extinguish whilst the turnout is moved and relight to show the new setting.

switches. The ez_switch_lib library is used to set, debounce and control the switches.

indicator light. The power switch on the controller incorporates an LED. By creating a voltage divider fed to an analog input the Arduino can light it solid when on or flash it to indicate low battery power.

Hardware. The control system is in two parts, a hand-held transmitter and a receiver panel attached to the layout.

The transmitter is a proprietary battery box that contains: Pro Mini, transceiver, voltage divider (on stripboard) and 2S 7.4v lithium polymer (lipo) battery. The controls are: latching push button on/off switch with indicator LED, latching push button mode switch, momentary push button servo switch, momentary push button shuffle switch and potentiometer loco control. The mode switch selects four car or six car shuffle and the shuffle switch initiates it.

The receiver panel contains: Pro Mini, transceiver, and motor driver. On the front face are inset thirteen LEDs. Cut from a 1m length they are rewired in three groups: eight outer LEDs, three

inner LEDs and two central LEDs. The outer LEDs are for the four car shuffle, inner and outer LEDs for six car shuffle and the central LEDs for the turnout setting, triggered by the servo switch. On the rear are two bolts that slide into the original controller phono sockets and carry the traction current and three pins that fit into the servo socket. On one end is a socket for the 5v 3a power supply.

The components are mounted on stripboard for strength and enclosed in a plasticard shell.

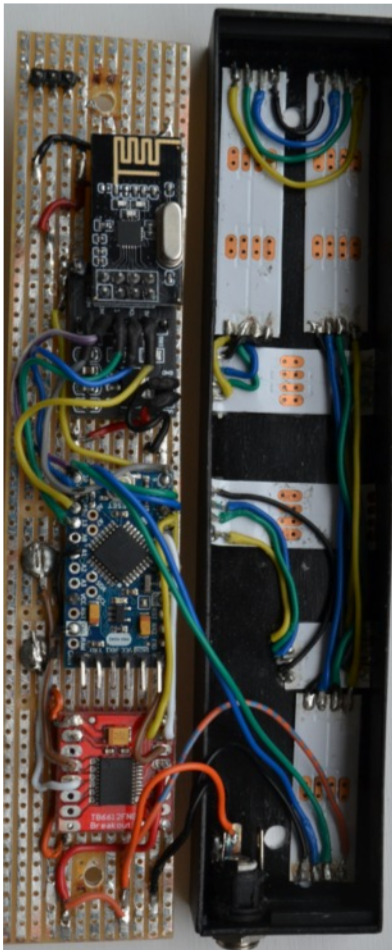
Software. The heart of the project is the code that was tested and assembled one function at a time. For the radio it was found that a single sketch (programme) could be used in both transmitter and receiver by writing an analog pin high but connecting it to ground on the receiver, so they could determine which was which. Being very much a first time effort there are areas capable of improvement, but it does what was wanted.

Lessons. It was a complex project evolving as it progressed. Trialling on a single Uno board some of the analog pins were needed as digital outputs and because pins 0 & 1 were in use the serial monitor could not be used for troubleshooting. With two breadboards

(perforated boards for creating electronic circuits) in use and a multiplicity of jumper wires it was difficult to tell if problems were due to faulty components, radios not talking to Arduinos, or each other, or poor connectivity. A couple of sketches were useful for testing: TMRh2o library courtesy of Yvan at Brainy-Bits.com for testing transmission <https://www.brainy-bits.com/post/how-to-use-the-nrf24lo1-2-4ghz-wireless-module-with-an-arduino> and a radio connection test by Robinz <https://forum.arduino.cc/t/simple-nrf24lo1-2-4ghz-transceiver-demo/405123>.

With hindsight and time spent on more complicated coding the LEDs could have been mounted in two pieces instead of six.

Whilst the 5v supply is sufficient for this application and locos used, 12v for traction regulated to 5v for the electronics, LEDs, and servo would better suit other applications.



Q1

Les Coleman

I'd always been fascinated by the Q1 class of locomotives, designed by Oliver Bulleid



for the Southern Railway during the Second World War as a short-term utility measure when materials were in short supply and which in the end soldiered on into the 1960's. 40 were built and but one survives in the NRM at York, after working on the Bluebell Railway for some time. They were the most powerful 0-6-0 locomotives ever built.

When I discovered that the wheel diameter and wheelbase of the Lima 0 gauge 4F was spot on, I had to try to build one on the Lima chassis I had. This was re-motored using a £20 clip-in motor unit from Strathpeffer Junction, which is basically a 12 volt CD motor in a 3-D printed housing. It runs very smoothly.

The body is in card, as usual. A framework of strong mounting board overlaid with a thin card skin. This latter is soaked where necessary with thin superglue, which strengthens it enormously Shellac is used for the same purpose by some modellers, notably Jim Read who build his locos entirely from card, including the chassis! Brass kit builders please turn away now.



The Q1 Firth-Brown boxpok wheels were going to be a bit of a challenge, until I mentioned it to our esteemed editor who quietly went away and 3-D printed them! Thank you Andrew, your generosity surmounted my biggest problem.

I tried a new (to me) technique to attach body to chassis, i.e. molybdenum button magnets at each end of the chassis which attract and hold rectangles of thin steel (cut with scissors from tin cans) glued underneath the smoke box and cab. It worked, and had the advantage that the body could be taken off with ease multiple times during the build. You can lift the model by the body without the chassis falling off, as long as you don't shake it too much!



The tender was built in the same way as the loco, on the Lima tender chassis. All the ladders and steps are either thin brass from brass kit waste or copper wire stripped out of electrical cables. If you hold one end in a vice and pull on the other end with a pair of pliers, it not only straightens the wire but seems to "work harden" it as well. A simple jig from wood and card was used while soldering the parts together. Vacuum and air-brake pipes were made for nothing by wrapping thin brass wire (I couldn't find my fuse wire) around thicker copper wire. Other details were from bits and pieces, e.g. the chimney was a section cut from the nozzle of an empty tube of silicon sealer which had exactly the right taper. The

final cost of the project was about £40, not bad for an 0 gauge tender loco. Anyway, apart from the huge cost saving, I prefer scratch-building. You are following your own logic, not that of a kit designer. And if a part doesn't work out (my first Q1cab attempt looked like an inverted horse shoe), just rebuild it, nothing lost except time.

Catamongo (Almost...But not quite)

Giles Barnabe

The story continued from the March edition's account of the project...

Post script: The trial locomotive went together better than I'd hoped, although the final appearance was not quite as planned. However, a trial run proved to be a disaster as the balance of the engine had been altered by the bodywork alterations and it rocked its way along the straights and ground and shuddered around the curves; the extra weight did not help either, as haulage was badly affected. In the end it was sadly decided to abandon the project and return to On30.



"Coffin" Display and other things...

Andrew Knights

A while ago there was a plan to extend the branch line on the MaP. After a while sense won, but this was after a cluttered work bench had been relocated. Beneath Lornton and immediately at the top of the loft stairs there was a gap full of junk. A scenic approach to the MaP!



It was after this line abandonment that I decided on a new plan, to display and store some of the exhibition "coffins". Be this for storage, display, or pre show testing, it seemed a good idea. So an order was placed with my local timber shop and a few days later a sheet of 4mm ply, cut to size, was delivered along with some other timber.

It was not long afterwards that I had fixed

one sheet to the top of a small cabinet at one end and a wooden beam at the peninsula end. The whole eight feet of the sheet was available and a back sheet was added to seventeen inches height, a "coffin" has a nominal overall height of fifteen inches. Once this had been assembled, it was given a couple of coats of matt white emulsion.

The wooden framing along the front found home to several tea towels to finish the setting and hide that which lurked below. Currently bits stripped from the MaP at Lornton, latterly another folded "coffin" Overall the whole project will allow for the construction of three new show layouts.

Approaching is a one day local show at Sompting village hall. I have been invited to take Sylvester Road along. I dug around in the corner that acts as long term storage for the micro layouts. Sylvester road was dragged out and...

A list of things to do was drawn up. Not least hide even more of those purple bricks. Maybe this is a timely warning for those us using downloaded models or scanned and chopped card models. A



couple of years ago, the last time this layout went out, I had noticed that the main structures had all gone purple. Not in sunlight, but some effect had allowed the “compatible” ink to significantly colour shift. Then, I gave the buildings a light spray with a brown wash. This looked better and still looked okay this time around. A couple of areas, bridges and retaining walls had gone almost pink over the last couple of years. Now, a set of Epson inks for my inkjet are just under £100, the compatibles around £30. The cost of downloaded buildings is quite low and a lot could be printed with a set of inks. Pre printed card kits seem to range from £10-£30. So maybe the cost of “real” inks maybe considered worthwhile? The real problem is that the buildings are made from several layers, so just sticking a new building in is not really an option, if most of the buildings have changed enough to be of no use then that could well spell the worthwhile end of that layout’s life.

I do have a colour LASER printer but the colour definition is nowhere as good as the inkjet, it is , however, much more stable in or out of sunlight.

This time around the main areas that required attention were a bridge and top wall, a retaining wall and buffer stop. The bridge area was given several light washes of brown acrylic. The retaining wall and buffer stop were all painted to resemble concrete. Probably more prototypical anyway.

Scenery attended to, the next problem was the fiddle yard. Originally made to suit the weird operating position of the layout, at the depot end panel on the back. The effect was akin to playing the accordion while playing trains. The fiddle yard was small, cramped, had a point motor on a long lead, and a front screen to prevent observation and stock prodding by the public.

I made up a 2 x 1 frame and topped this with some 4mm ply, a raised deck for the higher level freight line. Slightly longer, this yard brings the whole layout up to 5ft 11 3/4ins, still less than two metres.

A single freight road, the very last of my SMP bullhead, and three passenger sidings each of which may hold a two car DMU make up the yard tracks.

Having attached this and stood alongside, the thought occurred to me. That I could easily dispense with the proposed use of one of my servo point motors. If the operator stood at the usual end then the



yard point is well within prodding range. The only problem is the panel was on the diagonally opposite corner of the layout. I made up a new panel. Removed the old one. Repaired the building which had previously hidden the back of this from view. Then wire by wire replaced the old switch connections with an extension to the new panel switches. At the same time a fundamental change was made. Formerly the point switch changed the crossing polarity and selected the coil on the point motor. Activation being by the depression of two buttons, hence the accordion allusion. As per Ponts Mill, I adapted the DPDT switches so that one side was a change over switch, for the crossing polarity. The other, still a change over, had the centre pin wired to the switch toggle itself. As per



Ponts Mill, the switch is changed and a wire is touched to the switch front, completing the point drive circuit. This gives a simple and uncluttered panel, as per the attached picture.

Tracks all tested and cleaned,the next modification was lighting. Sparkz too!

I have some sheets of ply in the shed, which due to not being kept flat and dry are not suitable for use as baseboard material. Two 1m x 1ft sections were coated with spray adhesive and topped with aluminium foil. Once this had set, five strips of warm white LED tape were fixed along the length of each. The strips being wired in series. Thus each board has the equivalent of one reel of LED tape attached. Spring clip connections and a couple of jump wires allow a single power feed from a PSU to drive both boards or either independently. A system I have used at shows for some time now. I though this would be ideal for illumination of a displayed “coffin”, act as a spare for show use, and be less ideal for the illumination of Sylvester Road, the final fixing has yet to be ascertained. In May all will be revealed? Ten years on, it looks as though the layout may have a continued existence.



The Start of Something Small – Practical oo/Ho Part 11

Operating the Points

Andrew Walters

This part of the article describes how the points on the Layout are operated.

Background to the points and operating needs on the layout : the trackplan needed to be precisely designed and arranged due to the very small size of the baseboards. It was quite a juggling act to provide a realistic and usable geometry in a small space, and this resulted in the following constraints.

The low height of the baseboard framing meant that there was probably insufficient space underneath the baseboards to fit some types of point motor, with the possible exception of the solenoid type. The close proximity of the points to the edges of the baseboard left little room underneath for the point motor to be directly under the point, and it was felt that it wasn't worth considering them for this type of layout. The electrical connections between the baseboards were limited to folded brass fingers for the track power, and nothing else. No provision was intended for inter-baseboard cabling which would have included power from a control panel to the point motors.

Wire-in-tube operation wasn't considered either. The track is laid directly onto the baseboards without a buffer layer, and there is no opportunity to excavate a trench for the tube. Also, due the size and face-to-face packing constraints, it was decided that nothing would protrude from the front or the back of each baseboard. This also avoids the potential problem of scuffing damage due to the small size and handling nature of the baseboards.

How it was done : Very simply and very effectively! A length of brass tube was used, with an angled piece of very thick copper wire soldered into one end. The end of the wire was inched into a point. It was decided that the *crochet* would operate the points via the hole in the tiebars on the points. The protruding edges of the tiebars were removed with a scalpel as they were no longer needed. The same *crochet* is used for coupling / uncoupling stock. During testing it was noted that it was very difficult to see the end of the crochet when aligning it with either couplings or tiebars, so the other end was secured to a small LED torch with a jubilee clip. It's not perfect and other means are possibly better or more effective, but for my modest needs it works.

