

Modelling Cane Railways

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Lomo Lomo
Fijian On30
Cane Tram

CaneSIG: <http://www.zelmeroz.com/canesig>

Steve Pettit's On30 Lomo Lomo Fijian Sugar Cane Tramway

Steve's layout was still a work-in-progress when these notes were compiled but shows great potential as an exhibition layout. The text and the construction

photos have been adapted from Steve's clinic notes and workshop presentation at the 2013 Australian Narrow Gauge Convention.



Lomo Lomo on exhibition at the 2013 Australian Narrow Gauge Convention. These two modules are relatively complete, although a purpose built stand and additional lighting (there were three overhead lamps arching out from the backscene at this time) will be added for future exhibitions.

Introduction

Last year a family holiday to Fiji allowed me to do some narrow gauge railfanning, albeit a bit restricted as we were there two weeks after some major floods that washed away a lot of the main island Viti Levu. I'd always known Fiji's cane railways were still in operation but hadn't really done any full-on research.

Once I arrived back in Sydney I bought Ian Dunn's book *Clydes Among the Cane*—a great pictorial account of the current operation of the 600mm gauge cane railway system of Fiji.

So when Grant McAdam made his annual Christmas pilgrimage to Sydney and asked me what modelling I was working on for the 2013 NGC, I thought that I'd build a layout inspired by and based on the Fiji Cane railways.

Layout construction

I have for the past ten years used 25mm Queblok Aluminium framing and extruded polystyrene for my layout frames and sub-roadbed. I'm comfortable with these materials/have the tools to shape the contours and as such have managed to build strong lightweight layout bases quite readily. I usually get the Queblok cut to length at the suppliers and knock it together with a rubber mallet at home as required I cut/shape/gouge/melt the extruded polystyrene to the contours I want and changes can also be made later with minimum hassle.



The layout base is aluminium framing and dense extruded polystyrene. The rough profile for the stream and bridge abutments are shown here. The 'bridge' is temporary and the cut between the polystyrene/cork (right) is the joint between the two modules. Steve Pettit photographer.

I build up my scenery base using squares of Chux super wipes (I buy the big rolls from Bunnings), smeared with a slightly diluted Topping Coat mix. This shell takes about two days to harden and dry but it's convenient/doesn't drip and hardens with just two coats. Once dry, I brush a layer of undiluted PVA over the entire shell and sprinkle white sand into the PVA.

The sand gives the scenic base some "tooth" and provides a good base to build up subsequent layers of scenic materials. It's especially good for providing tractions on sloping terrain for ground cover. I think I

first learnt of this idea from Pelle Solleborg in one of his *Model Railroader* articles.

My finished base of blue foam/*Chux* impregnated with topping coat and white sand glued on top provides a good surface to work from. On this layout I used a range of commercial and home made scenic materials for ground covers, etc.



Scenery base and detailing (right to left): *Chux* embedded in plaster, sand topping glued in place, various colouring and ground cover materials.

Palm Trees

I knew that if I wanted to create a believable Fijian cane railway scene I'd have to teach myself how to model palm trees and sugar cane!

There are some very good commercial palm tree models readily available, the drawback with these is their cost. I had to come up with a better way to economically model multiple palm trees. I had previously bought some cheap palm trees from eBay sellers and revisited these once again.

I bought a range of palm trees that out of the bag were extremely toylike and unrealistic but I decided with a bit of work these would be my best option.



One of many mini-scenes on the layout. Figures are standard O scale models painted with appropriate skin tones to represent Fijian workers.

I discarded many of the plastic trunks and replaced them with similar diameter Poplar and Casurina

twigs. Those trunks that I kept were sanded back/filled with *No More Gaps* and painted/drybrushed to a grey brown colour. The best feature of these palms were the fronds. Anyone who has ever modelled any kinds of trees will agree that if you have an armature ready you've got a headstart. I trimmed any flash from the fronds and airbrushed them with a mix of various yellow green/mid greens.

Once glued to the trunks I represented the husks/dead fronds at the base of the lowest whorl of fronds with a mix of sugar cane mulch/commercial ground foam blended in my trusty coffee grinder and glued up to the base of the fronds. Many of the palms I bought were used as is, with only the fronds getting an airbrushing/handpainted trunks and husk material added.

I'm reasonably happy with the results and even without my deadline to complete the layout in time for the NGC, I'd probably use similar methods in the future if I was modelling any volume of palm trees.

The only thing that's actually missing are coconuts.

Sugar Cane

I also wanted to model sugar cane fields in the foreground and background. After reading plenty of articles and spending ages on Lynn Zelmer's CaneSIG website, I decided upon the following as an acceptable compromise.

I bought several millet broom heads from *Bunnings* and cut the finer strands from the very tips of each broom to approximately a scale 2.5m height. I then ran a heavy bead of *Liquid Nails Fast Grab* down balsa strips and "planted" the millet in clumps into the glue. Once the glue had dried I chopped into the line of cane to create some randomness.



Two of Steve's experiments creating sugar cane rows for his fields. The bottom row is simply tufts of millet and *Liquid Nails* sandwiched between two strips of balsa. The top row has larger clumps of millet held to the wood strip with the *Liquid Nails*, plus a strip similar to the bottom strip behind.

Unfortunately neither construction will bend to fit the contours of the layout, so Steve modified the technique, using a sharp knife to separate the millet 'hedges' and their thick bead of *Liquid Nails* from the wood. The result is a flexible strip that holds the millet in place and can be bent to the contour.

It took a few attempts to find a mix of light green that matched cane field photos I was referring to in Ian's book, but I found a mix of *Humbrol # 80* Matt with a few drops of *Floquil* Reefer White was a pretty close match. I varied this colour mix as the layout progressed—not for any particular reason except that I ran out of the *Humbrol # 80*!!

I airbrushed the green from front on and then down at an angle to each cane "hedge" and allowed the colour to fade out about 2/3 the way down each stalk. I then mixed up a muddy grey/brown and brushed this colour up from the base. I set each strip of cane hedge aside to dry until I needed it.

Once I decided upon the location of each cane field, I used (carefully) a # 11 blade to separate the cane hedge from the balsa. The thick bead of *Liquid Nails* is flexible when dry and bends to follow terrain contours once planted.

I experimented with adding various ground covers/static grasses to the cane to give some body but in the end decided to stick with just the millet. One technique I was happy with was using real sugar cane mulch ground up in my coffee grinder and sifted fine to represent remnant cane cuttings around loading tracks. Nothing like the real thing to model the real thing eh?

Although I don't for one minute profess that my cane fields are the pinnacle of sugar cane modelling, but I'm happy enough with the results given the short time frame I'd set myself to complete the layout.



A realistic Fijian scene with the only qualifier being the shadow of the trees on the backscene, the result of overhead lamps providing light to the front of the layout and a hazard with any narrow layout.

Trees

I also realised that to model the broad spreading canopies of native Fijian trees such as Mahoganies and Coral trees, I'd have to build my own as no commercial models of these trees were available. I used *Scenic Express* and *Hornby* HO scale branches glued to the extremities of a florist wire superstructure to get the form of each tree that I wanted.

I mixed up a thick *No More Gaps* mix and built up the trunks over several layers. Various shades of grey/brown were used to colour the trunks. Teased out foliage netting from *Woodlands* and *JTT* was used to represent the foliage and after a light dusting of hairspray, I added some dark green fine foliage to the lower canopy and lighter shades of green to the top. Trees were then planted into the blue foam scenery base.

Backdrop

I printed out and copied a distant views of prototype scenes of the area I'm modelling and "analog photo shopped" them together to form an acceptable (to me) back scene. By this I mean where two scenes joined and didn't quite blend I used a foam pad and similar coloured paint to merge both photos.

I then cut each scene to match the contours of where my scenery meets the backdrop. Once the scenes were glued together lengthwise, cut to meet contours, and merged, I took them down to *Officeworks* and had them laminated in "matt finish" You can ask for anything to be laminated in matt, they just use the opposite side of the film.

I then used double sided tape to mount each scene to the backdrop.

Locos and Rollingstock

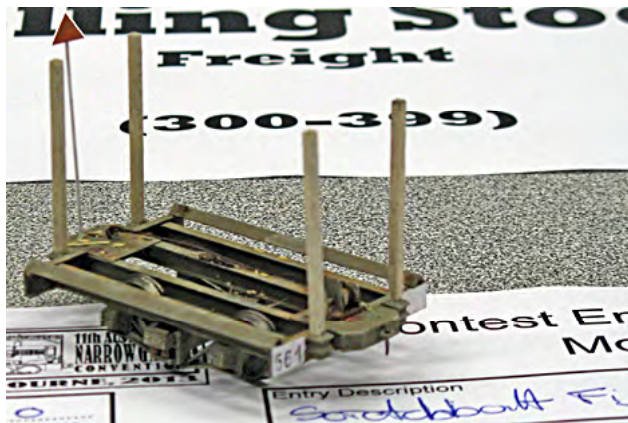
I used a jig to build multiple cane car frames ready for painting/detailing and finishing. I cut many lengths of *Evergreen* C Channel and I Beam to size, and by using the jig managed to build up enough car frames. *Grandt Line* stake pockets/timber buffer blocks and additional details have been added, particularly to the empty cars. Loaded cars do not have same degree of detail—"Life is too short to model something that won't be seen". The frames were fitted onto *Bachmann* On30 low rider trucks.



Cane trucks: the frames (upper left) are assembled using the jig (right). Mounting the frames on low profile *Bachmann* trucks eliminates the need to build carefully engineered bearing mounts, etc.

By the time of the Convention I had made one train of empty cars and one train of loads. Unfortunately, the loaded cars proved to be too wide for the

clearances between my cane fields and will have to be trimmed after I return home from the Convention.



Completed cane car with end of train marker as entered into the Convention model contest.

One of the major reasons I had for starting work on this layout was that I had two *Bachmann* Davenport locos handy (these are no longer in production) and, although the prototype Clyde locos used in Fiji are 0-6-0s, I thought the *Bachmann* 0-4-0 side rod models were an acceptable compromise.

Major changes to the *Bachmann* bodies include:

- Raising the cab height (this was actually a requirement to get a standing crew to fit under the roof).
- Downsizing the vertical windows to a squarer shape.
- Adding cab sunshades and visors similar to Fijian practice.

I airbrushed each unit to a gray and yellow typical of Fijian cane locos and decaled in a black separation stripe.

Prototypical details, including mufflers, exhaust stacks, orange beacons and tiger striped pilot beams were delayed, but fitted once scenery on the layout was done.



An 0-4-0 locomotive painted and detailed to represent the 0-6-0 Clyde locomotives common in Fiji.

I threw the *Bachmann* factory decoders straight in the bin and replaced them with **TCS**. I used code 83 On30 *Micro Engineering* track and one turnout on

the layout knowing full well that most of the track would be covered in ground cover as per prototype practice—this saved a lot on track ballasting!!.

I did have to backwire the frog on the turnout as the 0-4-0 wheelbase of my locos happens to be just less than the length of the *ME* frogs.



Manually turning the train: Steve drives the train onto a train length insulated metal 'bridge', which he then turns end-for-end to allow the train to run back across the layout.

A good beginning...

Building this layout/locos and rolling stock from scratch in under twelve weeks has been a challenge and I've had to make some compromises that I wouldn't have usually done otherwise. But had there not been the impending deadline of this Convention the layout would have remained one of those projects that I thought about, but never got round to actually building.

I'm back off to Fiji in April 2013 and when I return I'll be working on a construction article for *Narrow Gauge Downunder* and potentially an extension to the layout!

Acknowledgements and Further Information

Photographs by Lynn Zelmer unless indicated otherwise.

CaneSIG web site: www.zelmeroz.com/CaneSIG for photos and information (eg **Cane Tram Notes 09: Fiji Over the Years**).

Dunn, Ian (2010). **Clydes Among the Cane: Fiji's sugar railway on Viti Levu in the twenty-first century**, Matraville: Everleigh Press.

Dyer, Peter and Hodge, Peter (1988). **Cane Train: The Sugar-cane Railways of Fiji**, Wellington, New Zealand: NZRLS.

Light Railways magazine (LRRSA) for current and historical industry information.

Narrow Gauge Downunder—Steve hopes to have an article on the construction of Lomo Lomo ready for publication later in 2013 or early 2014.



Two modules under construction: the 25mm Queblok Aluminium framing and extruded polystyrene define the layout's dimensions, with the joint between modules visible to the right of the photo. The extruded polystyrene has been roughly shaped and track location determined. Steve Pettit photographer.



The cane cars may not be absolutely authentic with a freight truck as their underframe but a slowly moving train through the cane fields creates a credible scene representative of the Fijian industry... although not many Fijian farm workers would be able to relax like this during the crushing season. ©



#27 crossing the bridge with an empty rake of wholestick trucks. Details such as the vegetation, the overgrown track, figure's skin colouring, the faded blue of the bridge steelwork, the representative locomotive and the backscene hills identify this as Fiji.

Editor's Note

Cane stalks dragging on the ground, and even derauling cane trucks as they met obstacles near the track, was one of the hazards of the wholestick era. Wholestick cane varieties may have been taller in earlier eras in Queensland or perhaps contemporary Fiji workers are cutting the cane stalks short for loading on a wholestick truck, as many prototype photos show cane stalks laid almost flat and just extending slightly out the side of the truck.



The cane in Steve's fields is made from the tips of millet straw as it represents growing cane with leafy tips. However those

tips get cut off during the harvesting process, meaning the loaded bins can be filled with straws cut further from the tips.



Trees and cane fields are planted just slightly too close to the rails for loaded cane trucks to pass, thus only empty rakes of cane were hauled on the layout during the Convention. Steve hopes to be able to roughly trim the loads enough for operation.

In any event, the width of Steve's loads appear reasonably accurate, although they are still slightly too wide for the clearances on his layout.

Of note to prospective cane railway operators, Steve's empty cane trucks operate well when pulled

but cannot be pushed because of their light weight and couplings. Hopefully loaded cane trucks will be heavy enough (weights hidden by the loads?) to be shunted back and forth.

In only 12 weeks of construction Steve has achieved a very credible start on his exhibition layout.



FSC standard steel cane trucks showing deck structure (top) and underframe details (below). Lautoka Mill, 2007.



FSC 14 (Clyde) near Lautoka, 2007, with even more potential model detail.



A Fiji Sugar Corporation rail bridge in Lautoka, 2007, painted the typical faded blue that Steve portrays on the layout.



Fiji Sugar Corporation operations near Lautoka, 20 July 2006. Note particularly the rail and field worker's clothing and the amount of trash on the ground. Dave Bullock photographer (http://eecue.com/images_archive/eecue-images-27173-fiji_train.html).



Rarawai Mill's #22 (Hunslet) approaching Malele loop, 24 November 2009. Many of Fiji's cane fields have similar mountains in the background, providing the inspiration for Steve's backscene images. Ian Dunn photographer.



Rarawai Mill's #27 (Clyde) with a small rake of loaded wholestick cane trucks on the Tivora branch, October 2009. Although not painted blue, this bridge follows standard FSC construction practices. Ian Dunn photographer.