Getting Started with On30: Capricorn Sugar Rail Museum Part 3

by Lynn Zelmer

The first two parts of this article (NGDU issues 42 and 43) explored the development of the Capricorn Sugar Rail Museum (CSRM) as a modular mini-layout and the rationale for building it in On30. This part will look at the layout as it appeared in its final outings.

CSRM was initially inspired by the Australian Sugar Cane Railway (ASCR) with its minimalist engine facilities and loop of track through the Bundaberg Botanical Gardens. Starting with a single continuous running module, the layout expanded and developed, exhibition by exhibition, for three successive Brisbane Model Train Shows and the 2011 Australian Narrow Gauge Convention.

The three module mini-layout has been a success at exploring On30 modelling techniques and introducing novices to the hobby. Four wheel drive locomotives and pretty well all non-bogie Queensland cane equipment will operate around curves as small as 210 mm (8.5"), although automatic coupling of Kadee-type couplers often isn't possible. Since Queensland cane railways don't use automatic braking I generally remove the coupler's hanging arm with a good quality pair of side-cutters (use eye protection) and couple/uncouple manually.

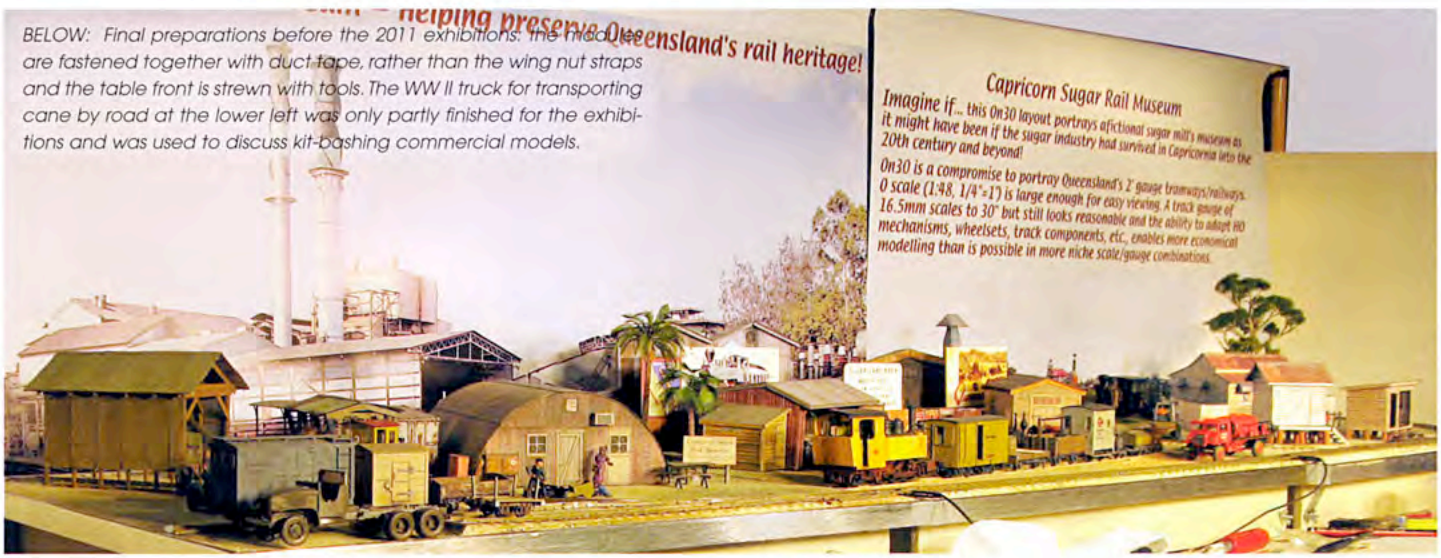
It's necessary to be quite careful when building four wheel rolling stock to ensure that all four wheels contact the rail evenly and axles are parallel, otherwise the wagon will rock and be prone to derailments. This was true with HOn30 cane modelling and is just as important for On30, especially with sharp curves. Weight is also important and I try to weight my models somewhere between the NMRA's HO and S scale recommendations.

Creating credible sugar cane was a concern when I started the mini-layout, but that was solved using Ron Aubrey's pickled couch grass (NGDU #35). I didn't need any scenery techniques other than those I had used with my HO modelling and likewise didn't require any additional track building skills.

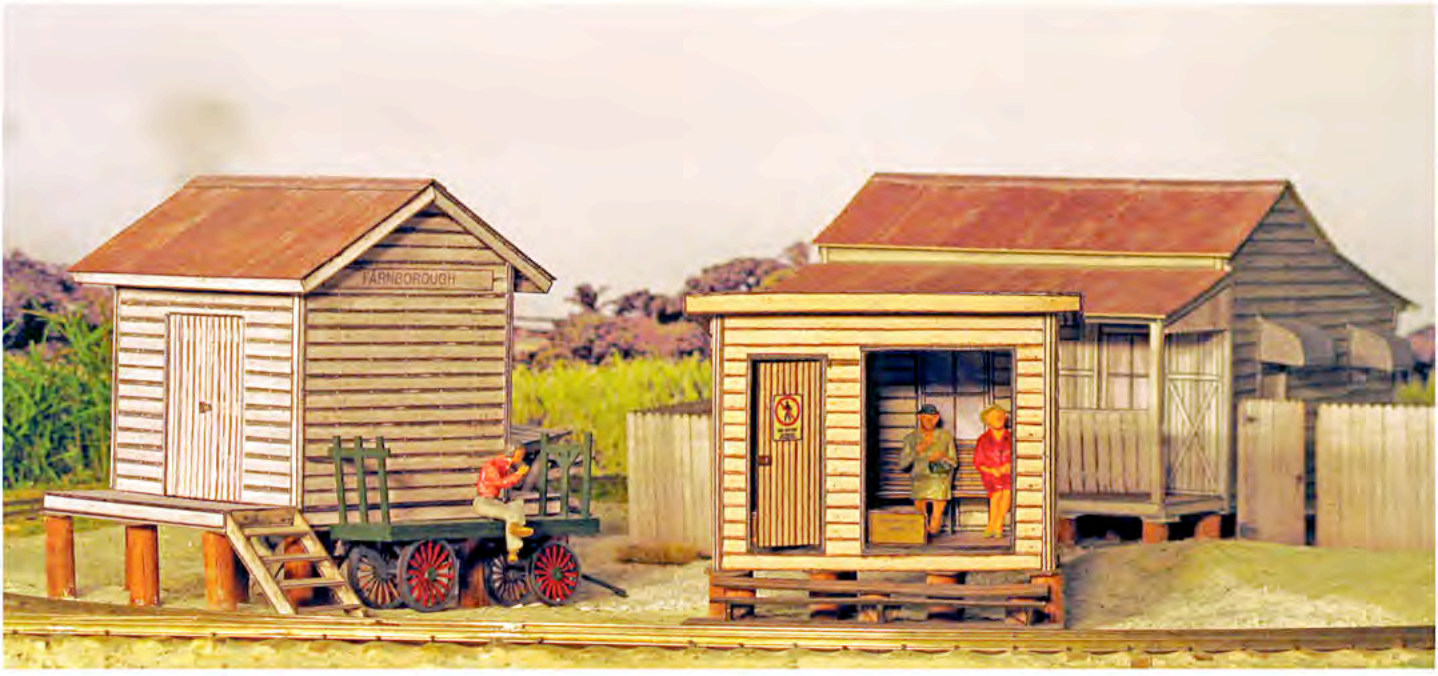
The space required for O scale structures was an initial concern, as was the potential cost and lack of available Queensland type models. This has been solved by using relatively small structures—you cannot get much smaller structures than a QR halt or cream shed, for example. Photorealistic card models have provided very acceptable buildings at minimal cost, leaving only the freelance loco shed to be constructed conventionally. Incidentally, someday I will probably rebuild the loco shed as a timber and card model, since the current model's metal foil corrugated iron sheets have frequently been bent or dislodged during transport.

The overall layout was never intended to be finished as it was used to demonstrate materials and techniques for the novice On30 modeller. Two of the three modules have now been demolished, with only

TITLE PHOTO: Looking beyond the museum precinct fence at the mill buildings, both model and on the backdrop. This view was impossible at an exhibition as the museum precinct structures and exhibits blocked the view.



BELOW: Final preparations before the 2011 exhibitions. The modules are fastened together with duct tape, rather than the wing nut straps and the table front is strewn with tools. The WW II truck for transporting cane by road at the lower left was only partly finished for the exhibitions and was used to discuss kit-bashing commercial models.



ABOVE: The new structures on the continuous run module: a scratchbuilt QR cream shed based on the restored shed at the North Bundaberg Rail Museum, a kit-bashed small halt based on a Jim Fainges (LadNDad) kit, and the scratchbuilt worker's cottage featured in NGDU 40 and 41. The stumps are dowels inserted in holes drilled in the plaster/grout scenery, the stump caps are attached to the buildings and help disguise any small gaps.

the loco shed module remaining in a usable form. This module will continue to be developed and exhibited in Central Queensland, and even may be 'completed' for wider exhibition some time in the future, perhaps with a short removable track extension to allow some out-and-back operation to complement the animation techniques I'd like to explore.

Where is the Sugar Mill?

CSRM was a minor player at its first outing, the 2009 Brisbane Train Show in company with Ron Aubrey's Sugar Valley On2 layout. While Ron extolled the virtues of scratchbuilding and true 2' gauge modelling with On2, I concentrated on explaining the basic details of O scale and getting started in On30 using a combination of kits and kit-bashing to represent typical sugar cane railway equipment.

The following year CSRM was on its own but with some significant additions, including several photorealistic card structures, a corner scene with a small field of sugar cane and a mill in the distance (on the backdrop). This allowed me to focus on explaining low budget modelling techniques while asking the viewers to enter into my virtual world where an imaginary sugar mill existed just over the back side of the layout.

The existence of this mill is important to the CSRM. Like both ASCR and the Australian Sugar Industry Museum (ASIM) at Mourilyan, the mill potentially provides museum volunteers, maintenance facilities and a source of museum exhibits. And just as important to my imaginary museum of the twenty-first century, the mill provides assistance with meeting the requirements (and paperwork) involved in Rail Safety. In my fictional world at least, museum track and equipment is maintained with the help of such mill staff, normally working as 'museum volunteers', and the mill's rail safety accreditation has been extended to the museum.

And have no doubt about it, rail safety and related health and safety requirements are perhaps the greatest challenge for real world rail heritage operators today. Yes, the aging volunteer work force is a challenge, but rolling stock cannot be moved from one point in the museum to another unless it, the track and the operators have all been properly accredited. Likewise, a volunteer may be prevented doing routine maintenance, such as painting the roof of a carriage, due to scaffolding regulations, and everyone potentially in contact with children must be the holder of a current 'Blue Card'.

My solution to all of these operational difficulties is the nearby mill. Rail safety also makes a very good talking point with parents and youngsters alike when explaining why the train was moving slowly around the layout, or why the older model steam locomotive was on display but couldn't be operated.

The narrow area behind the middle module had been designated as the location for the mill and in 2011 there were two mill structures, a fork lift, a standard 20' container and one or more workmen. Both structures are low profile photorealistic card models. The first is a small brick building set on a slight angle with a ducted chimney. The second is a timber frame warehouse sheathed in corrugated iron, with open doors and some interior detailing. Both structures were adapted (kitbashed) from structures on CDs from Clever Models LLC.

A conventional layout would likely have a continuous backdrop, either painted or sourced from photographs. Table-top portable layouts have a similar need, but different constraints. CSRM's 2011 backdrop combines an interpretive panel with two photographic scenes: cane fields with a mill in the distance behind the continuous run module, and a (Proserpine) mill photo behind the mill buildings and the loco shed module. They were hung on a dowel rod held up with tripod stands normally used for holding workshop lights.

Creating the Mill Buildings

The brick building was adapted from the Small Forge on Clever Models' O scale Bricks and Mortar CD. The kit building is rectangular with a large skylight but one side was perfect for a low profile building with a corrugated iron roof. The different length side walls position the building at a slight angle. This positioning, a boarded up window, a first aid post sign on the door and the ducted chimney provide additional character to what is a fairly plain structure.

The faded sign clearly identifies it, and by implication nearby buildings, as Capricorn Sugar. The purpose of this structure is otherwise undefined. It could be the mill engineer or chemist's office, a blacksmith or other maintenance shop, or even a small distillery. The back side of the model is open, allowing a weight or clamp (or duct tape) to hold it in place on the layout table.

The warehouse is an adaptation of the O scale steel mill building on Clever's Steel Industrial CD. The two end walls provided enough variation for a double-wide building with shed type out-buildings on either side. A deliberate decision was made to have the large doors open into the warehouse and the loaded pallet partly hidden by one door suggests more depth than is actually present.

ABOVE: Capricorn Sugar Rail Museum at the 2011 Brisbane Train Show. While trains were able to operate back and forth when requested by viewers, they generally only ran on the continuous loop. The computer screen displayed a random selection of several hundred Queensland Rail, sugar cane and heritage railway images, complementing a large free-standing poster.

Kitbashing such buildings is relatively easy. The CD-based kits come as a number of individual pdf files which can be printed as is or extracted and manipulated with Photoshop or other computer-based image programs. It would have been possible to build both structures from the files as supplied, however that would have required printing more pages than necessary. Instead, I extracted individual components, cropped the roof and side wall elements, etc., and assembled all of the materials on a smaller number of pages for printing.

The lettering for the faded sign on the smaller building was prepared normally on a text layer in Photoshop. It was then superimposed on the upper wall with its opacity adjusted to achieve the faded appearance. The other signs could have been printed on decal paper for application as wet decals, however they would still have needed a physical sign base, likely cut from styrene, so printing on card for applying after the building was assembled was easier. They were printed on normal matte finish card since the buildings are background models.

The 'enamel' signs on the museum precinct fence, however, were printed on glossy photo paper as they are much more prominent. Decals on styrene blanks would have accomplished the same purpose; the disadvantage for both is that they reflect light during photography, causing bright spots.

ABOVE: The worker's cottage described in NGDU 40-41 as installed on the layout with an individual board fence, etc. The porch LED light (hidden above the figure) is off for this photo, allowing natural shadows to appear under the roof.

RIGHT: The exhibit shed is another kit-bash of a Clever Models kit, their O scale wood shed. The shed was fitted with a battery and LED lamp under the front part of the roof and aimed at the white ceiling to illuminate the interior. The board-by-board walls and pressed metal roof are all made from printed card—the roof ridges are individual strips glued in place. Apologies for the lumps under the woman's feet... figures on the exhibit layout all had wires out of the bottom of at least one foot for positioning, however Blu-tac was used for this 'builder's photo'.

BOTTOM RIGHT: The DH class locomotive is one of the smallest ever used by Queensland Rail, but since the early 1990s many have been regauged for use on the cane railways. Here a borrowed bogie DH (owned by On42 modeller Mal Martin) temporarily sits on/astride On30 track to illustrate the size difference between it, my 4w DM locomotive, and one of the largest steam locomotives (0-6-2 Bundaberg Fowler) in cane railway service.

While I could have changed the colour of the bricks, window frames, etc., while Photoshopping, I generally only added a small amount of weathering to the model components. I also reduced the overall size of both structures by about 10% in order to fit the space available. Selective compression often means reducing the length and width of buildings. I had already reduced one dimension in converting to low profile buildings, compressing the overall height and width was more subtle with the office style doors, for example, remaining just slightly over a scale 6' (180 cm) tall. This compression may be more critical for a micro-layout than for a more conventional layout, but also makes sense when modelling any large complex. And modern sugar mills are very large industrial complexes.

ABOVE: The main wall print (reduced in size to fit this page) for the small forge building. The two side walls give an indication of the depth of the low profile building: two scale feet deep on the left, four the right. The weathered signage was added with Photoshop. And yes, the roof will slope to the rear, emphasising the perspective. The narrow side window also enhances the perspective, with the chimney duct appearing to be beyond it on the right side wall.

BELOW: The completed brick building with inset doors and windows, first aid post sign, etc. The three dimensional effect is enhanced by the multiple thicknesses of iron sheathing on the upper wall and roof, the protruding door and window sills, and the individual boards closing up the window opening. The chimney was printed on gray card, rather than white, to minimise the edge and under-surface touch-up.

Both buildings utilise layering to create a three dimensional effect. The main doorway for the warehouse, for example, is an opening completely through the wall. The 'interior' is a folded box with its open side somewhat larger than the door. The steel angle framing the door was cut separately and folded around the door opening. The door runners, and the door itself are all separate components standing out from the surface of the wall. The safety and other small signs are also separate components applied to the wall surface, as is the door lock and other hardware.

All sides of both models were finished with a mat spray to minimise moisture damage. A cardstock platform was also built to raise the forecourt and buildings to the same 'ground level' as the museum precinct. For exhibition purposes a pair of large metal bookends kept the buildings from falling over backwards, and bookends, platforms and buildings were held in place with duct tape.

The rest of the mill is represented on the backdrop itself, a photographic mural just a few centimetres behind the mill flats. With the layout located at table height most adults looked over the layout and mill buildings to the backdrop image. Younger viewers saw the backdrop mill buildings from a better perspective as they appeared behind the museum precinct. The second mill in the distance behind the cane fields provides additional evidence of a major sugar growing district.

Other Layout Changes

In 2010 the continuous run module had a mini-scene centred on the cane field in one corner and several people and non-railroad models in the centre of the loop. For 2011 the module contained three structures: the scratchbuilt worker's cottage described in earlier NGDU articles, a scratchbuilt QR cream shed, and a small kit-bashed QR halt. A board fence partially surrounded the cottage and provided space for a picnic table and other small details. The lighted porch drew attention to the cottage for viewers looking into the module, and youngsters particularly saw the two women sitting inside the front-facing halt waiting for a train to take them away.

The centre module had only one new structure, a kit-bashed exhibit building with a tractor in one bay and a refreshment area in the other. It is LED lighted, so the 'Coke' machine (another scratch-built card model), tables and tractor were visible inside. The loco shed module did not have any new buildings, but a partially completed styrene truck kit-bash was parked at the loading ramp on the front corner. It elicited lots of comments from viewers and provided an opportunity to discuss the rationale for kit-bashing (to achieve a unique Queensland prototype model) and the relative advantages of card, plastic and metal models.

The backdrop poster behind the continuous running module also included information on On30 modelling, replacing the separate poster from 2010. The large 2010 'Preserving Queensland's Rail Heritage' poster was also replaced with an even larger free-standing poster (1200 x 2000 mm) to compliment the several hundred historical images randomly displayed on the computer screen located on the end of the layout table. While not visible in any of the photos, the poster is now regularly on display with ATRQ (Association of Tourist Railways Queensland) events.

ABOVE: The low profile warehouse is a scale two feet deep (although the protruding eaves extend another foot forward) by sixty feet wide, and takes up much of the space behind the museum precinct fence. The various signs and pallet loads were sourced on-line and scaled to fit. Because of the way that the building was sheathed with overlapping iron sections the fans are slightly recessed and do appear to be inside the building.

RIGHT: A close-up of the warehouse building with a workman entering one side. A fork lift truck and a 20' shipping container completed the foreground details during the 2011 exhibitions. The plastic wrapped pallet loads were sourced from http://www.cgtextures.com/, a free on-line texture site. They were printed as normal, glued to heavy card, then cut out and mounted with a spacer behind to provide some distance from the surface they are mounted against. The pallet load inside the warehouse is partially obscured when viewed straight on.

Feedback from the 2011 exhibitions

Transporting exhibition layouts is not an easy task, and there are only a small number of narrow gauge modellers in Queensland, especially as most modellers of Queensland Rail consider it to be 'standard gauge'. Thus CSRM was one of only three layouts on exhibit at the 2011 Narrow Gauge Convention. While the layout attracted a number of positive comments, particularly from the less experienced modellers, most convention participants were looking for something larger and more demanding. However, it did generate some friendly, but still unresolved, discussion around whether a freelance museum railway could be considered a 'proper' railway.

Each Brisbane Train Show has been quite different. In 2011 there were fewer requests to see the trains run fast enough to go off the track, or to set up a head-to-head crash. The photographic backdrop and other rail heritage materials (computer images and large poster) attracted a lot of attention, as did the new Queensland heritage structures on the continuous run module. But even with the backdrop's interpretive panel, there were still lots of questions about where to find the real museum.

However, the most interesting comments for an On30 modeller of Queensland's sugar cane railways revolved around questions of scale and gauge. The average show viewer didn't seem to understand 'scale', and couldn't really visualise the difference between HO and O scale, even when looking at representative figures and structures from the two scales. The use of 16.5 mm gauge track and the diminutive size of most cane railway locomotives and rolling stock further complicates the issue. For many viewers then, 'what's the fuss about On30 if it's simply a variant of HO?'.

Mainline railways have never been of much interest to me, but my response to this has been to explore building one or more typical Queensland Rail wagons in the hope that seeing a familiar piece of main line rolling stock will provide more of a scale context. I've started with a QR camp wagon on a standard 32' underframe as camp wagons have often been used for off-track storage or temporary accommodation, and one might be found in a museum precinct in such use. While this won't work with every narrow gauge setting, I suspect that as modellers we should actively explore ways of implying scale and gauge without having to constantly explain it.

Finally, I live in a regional centre some 600 plus kilometres from Brisbane, so the Train Show provided an opportunity to have two of my scratchbuilt structures assessed for the NMRA Achievement Program. Generating all of the paperwork away from home was a challenge. Yes, I know that I should have done it all in advance—but ultimately both the cottage and the cream shed passed with flying colours. While I'm unlikely to follow through to build enough structures to qualify for Master Builder status, the assessment provided an assurance that my photorealistic card modelling met an acceptable community standard.

RIGHT: Mill buildings along the back of the centre module with the backdrop image hanging behind. Note the platform behind the fence, fabricated from mat card, to raise the mill building up to the level of the modules.

The iron fence is another Clever Models texture while the signs along the fence are from a variety of on-line and personal sources. They've been printed on glossy paper to more closely resemble enamel painted and commercial billboard signs.

What's Next?

There has long been a brief description and photos of the CSRM as part of the CaneSIG members gallery, but it will have its own web site (www.zelmeroz.com/csrm) by the time this article is published. Work is well along on the site which parallels a typical rail museum web site with mill/museum histories, construction details, photo gallery, etc.

As for the layout, while two of the three modules have already been dismantled an article on completing the loco shed module, and another on developing photo backdrops, will likely feature in coming NGDU articles. I'm also continuing to develop uniquely Queensland card models and, where scratchbuilt, these will also be documented in NGDU and available as card kits for free download from the web.

Until then, happy modelling whatever your locale, scale or gauge.

Acknowledgments & References

Clever Models LLC photorealistic card model kits, textures and modelling tips can be found on their web site (www.clevermodels.net).

Construction details for some of the Capricorn Sugar equipment, several free downloadable card kits, and general information, drawings and photos for the Queensland sugar industry can be found on the CaneSIG web site (www.zelmeroz.com/CaneSIG.

Photos and models by Lynn Zelmer unless otherwise credited. —

A selection of O scale (1:48) detail components. The door and its fittings (left) are from the Clever Models steel mill kit, the pallets and sacks (centre) were downloaded from the CG Textures web site, the bulletin board (top right) uses scanned newspaper articles, and the signs were sourced from somewhere on the web