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NINE MILE

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NINE MILE

By 'Professor Klyzlr', with help and photographs from ***John Dennis.***

Come with us deep into the Australian bush, back to an era when we could hear the soothing sounds of babbling creeks and native forest animals mixed with the staccato bark of hard working steam locos, and the piercing blast of the winch whistle.

These were simpler days, when two-man teams used nowt but crosscut saws and axes to cut only the tallest and straightest selections from stands of cedar, ironbark, and other choice hardwoods. Raw bush ingenuity and a healthy dose of steam power hauled the logs from where they fell to the tramway, and thence to the sawmill, where the logs were sawn into structural timbers. Australia's early development relied heavily on such lonely 'bush industries', quietly going about their business amongst the tall timbers. It is this evocative, yet relatively unknown, part of Australia's history which has been captured in miniature by the On30 exhibition layout, *Nine Mile.*

The sawmill and log camp end of the *Broughton Vale Tramway* has been previously built as a small HOn30 layout, and this 1/4" scale layout is also considered a part of that tramway. This layout should perhaps be more properly known as 'The Nine Mile bush end of the Broughton Vale Tramway'.

Theme

The desire was to build a layout that showcased 1900s to 1930s Australian East Coast logging operations. Many people would build a freelanced generic logging layout, but Nine Mile accurately replicates the feel of a lonely winch outpost at the end of an Aussie logging tramway. Taking specific scenes from individual East Coast logging tramway prototypes, and blending them together into a single layout, the aim has clearly been achieved. While *Nine Mile* is geographically placed in the South Coast area of NSW, it contains renditions of prototype logging scenes from Queensland, New South Wales, and Victoria, and plays host to accurate replicas of log train consists and operations from those states as well as Tasmania.

Layout Tour

Having travelled up the tramway from the sawmill at Broughton Vale, our first real look at the area around 'the Nine Mile' comes as we pass the abandoned log landing at Lahey's Junction. The junction was originally formed to gain access to a small ground snig landing at the entrance to Kangaroo Valley, but now is only used by the occasional ganger crew to store their equipment out of the way of the regular log trains. This area is sub-rainforest coastal bush, and our geared loco fights for traction on the dew-wet and slippery rails. The staccato exhaust blasts into the trees, breaking the sweet sounds of the forest birds and wildlife.

As we swing upgrade around a right hand curve, and head into the valley itself, we cross a small trestle bridge over Langley Creek. The bridge itself is based on many bridges found on the Langley Vale tramway, which operated in Landsdowne State Forest, NSW.

Punching through a short cutting our train emerges into a small clearing, and approaches possibly the most photographed of all the bridges on the line, the 'Pig Sty Pier' trestle. This bridge was built on-site, and features a strategically lopped stump as one of the trestle supports. A similar bridge features in many pictures of Longworth's tramway, near Kendall, NSW. The resulting image has inspired many an Australian logging tramway researcher.

Shortly thereafter we find ourselves easing to a stop on the mainline end-of-track at 'the Nine Mile'. To our right, the landing crew are arranging logs on the loading platform with a crab winch and 'trewhella jacks', in anticipation of our arrival. To our left a Harman 'pair of 8s' steam winch and under-fired stationary boiler are hard at work running the Highlead snigging system. Our crew will set the train of empty bellbraked log bogies into the landing spur, and then avail themselves of a hot cup of tea from the billy on the fire beside the crab winch platform.

Top: *Lahey's 16-ton Class A Shay waits at Nine Mile Landing for log loading to be completed.*

George Bond Collection

H. Russell, courtesy LRRSA

Lahey's Junction

Above: While a number of East Coast Australian logging operations were large enough to support multi-locomotive rosters, few such as Lahey's, located at Canungra in south-east Queensland, could boast a loco shed full of US manufactured geared steam locos. Lahey's tramway was built with 1 in 12 grades and 120 foot radius curves, so when it came to motive power Lahey's opted to employ the Shay and Climax type geared steam locomotives as they were purpose designed to operate in such tight turning and steep climbing environments. Here, Lahey's shay locomotive No.5, ex-Nth Mt Lyell Mining (Tas) 16 ton Class A Shay S/N 697, is waiting on a stubbed off spur with a string of loaded Climax type 1 skeleton log cars, while Class B Climax No.1694 heads up the tramway.

Lahey's are known to have held the Australian distributorship for Climax locomotives and equipment during the early 1900s. This may explain why they appear to be one of the very few East Coast logging tramways operations that used bogie log cars, particularly of the skeleton design, as opposed to the 'normal' disconnected log bogies. Climax type 1 and type 3 skeleton cars are in evidence in most Lahey's period photographs, and replicating them in model form is relatively easy with the help of Ian Lindsay Models' detail kit.

Russell and Dyers

Visiting logging tramway officials are always welcome. Here we see a Jerewangala Tramway dignitary being toured along the line by Broughton Vale owner Thomas Edward Pogson. On this occasion the train is powered by a small diesel lokie, not dissimilar to the Days Engineering 'Fordson tractor' loco conversion seen on Russell's tramway in Victoria. The Broughton Vale loco is another heavily kitbashed creation from the WayWood Locomotive Works, and runs beautifully.

Unfortunately the passenger accommodations on this train are not so refined, being simply a pair of bellbraked log bogies. These bogies use the wide-tread curly spoke style wheel castings common on Australian wooden railed 'sparline' tramways, which were sourced from a New Zealand manufacturer. The wooden 'bellbrake' wedge design found favour especially in Victoria and Tasmania, as the braking system could be easily fabricated by bushmill blacksmiths, and it suited the operating style of the tramway brakemen.

Logging Brakeman

It's a simple concept. Heavy logs, travelling downhill, are hard to control. However, far away from the main line with its continuous brakes and solid automatic couplers, safely descending the 1 in 20 and steeper grades of William Langley's Langley Vale NSW tramway with a trainload of hardwood was a formidable task.

The challenge of overcoming dew-wet and slippery rails, a Class A 18 ton Climax locomotive with barely adequate steam brakes, and a train of loaded disconnected log bogies fell to the brakemen. These fearless souls rode the sides and tops of loaded log bogie pairs, one hand steadying them against the bucking train, the other hauling back on a rope which activated wooden 'bellbrakes' on each bogie set. It was commonly stated that, should a new brakie stay alive until lunchtime, he was cut out for the job.

On some tramways, such as Victoria's Powelltown, a loaded train faced both up and down grades, bringing the additional hazard of a tail-end runaway, due to a broken reachpole or other mechanical calamity. One common solution was to sprag a branch or sacrificial reachpole into the drawhead of the last log bogie. Should the tail of the train break away, the sprag would dig into the sleepers and ballast, acting as a fairly efficient 'handbrake'.

Langley's Tramway

The 18-ton Class A Climax is seen here (right) crossing the 'Small Bridge' over Langley Creek. This bridge displays a two pile, bedlog design featuring significantly accurate mortise and tenon bent construction, and diagonal sway bracing. The bridge design itself is based on the bridges located on the Langley Vale tramway, New South Wales.

Longworth's 'Pig Sty Pier Bridge'

While most Aussie logging tramways were little known operations, a notable few seemed to take an active approach to early 1900s public relations.

Longworth's tramway, operating during the 1920s and 1930s in the Kerewong State Forest, NSW, was one such concern. Semi-regular picnic trains and 'photo specials' took period photographers deep into the forest to capture the loggers and Longworth's 25-ton Class B Climax No.1375 in action. Managing Director Robert Longworth was a regular tour guide for these 'Special Runs', and he well knew that the tramway's 'Pig Sty Pier' trestle made for a natural photo location.

The bridge is an example of the simple, sturdy 'pigsty' construction technique used by many East Coast logging operators. Using timber cut onsite, assembled using basic bushmans' tools, these cribwork pier designs allowed many million superfeet of timber to be carried out of the bush.

Logs were hauled from the forest over the tramway, and were then transshipped to steam powered 'drogher' at Kendall. From there the logs were transported down the Camden Haven River, to the sawmill at Laurieton for processing.

Forests NSW

Nine Mile Log Landing

The log-loading scene from which Nine Mile derives its name is inspired by the old photo (below right) taken in Victoria's Rubicon forest during the 1930s. This photo shows Clark and Pearce No.1 log landing.

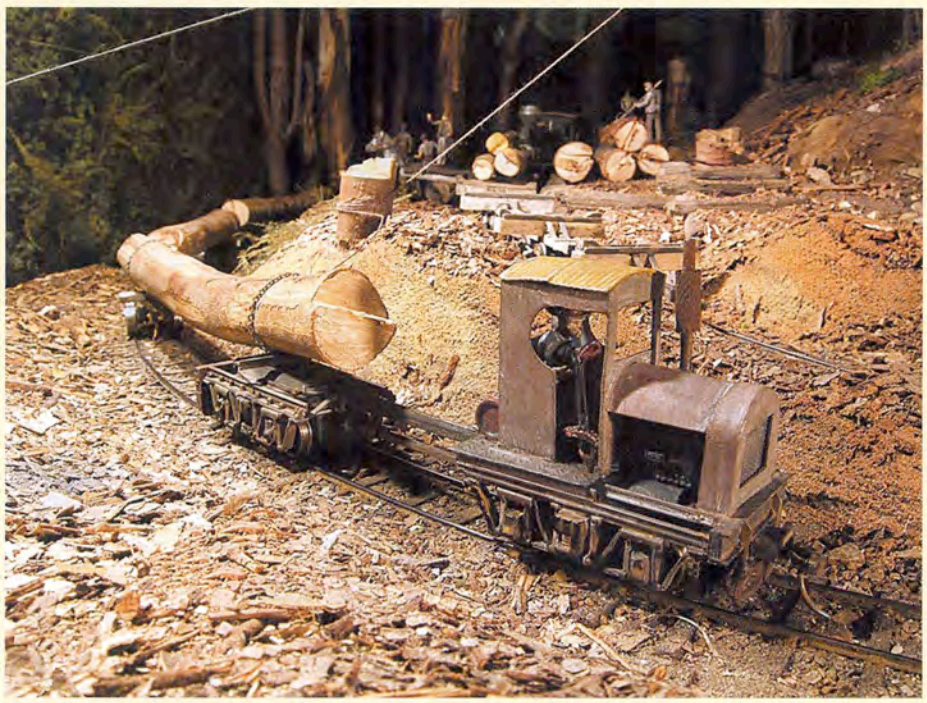
The modelled version includes all of the equipment required to get logs down from the forest and onto the waiting log bogies – including instructions being given by the 'Bush Boss', and the all important billy, quietly simmering away on the campfire. Key features of the scene include a scratchbuilt log landing platform and crabwinch, the loading crew moving logs on the landing with peaveys and trewhella jacks, visible remains of a previous ground snig setup on this site, and a working steam powered 'high lead snig' winching system.

Use of steam winches in the bush made available stands of prime timber which were previously inaccessible by horse or bullock team and greatly improved the speed and efficiency of timber-getting operations. They also represent an intriguing area of steam power development and industrial archaeology research, as winches were used in most major 'model-worthy' industries.

Australian winches, unlike those in the US, tended to take steam from independently mounted physically separate boilers. These could be second-hand mining or industrial boilers, or even units retrieved from retired steam locos. The boiler at 'the Nine Mile' winch site is an Under-Fired Multitube unit based on the Rubicon No.2 mill boiler, and features full internal atmospheric and lighting effects. The winch itself replicates the appearance and prototype operation of a Harman 'Pair of 8s' two drum winch, as rigged for 'High Lead Snigging' operation.

With the sound of the winch whistle blowing '3 short, haul-in', and smoke wafting from the boiler stack as the winch starts its pull against another incoming log, the winch site visitor would be well advised to "stand clear of the winch rope!"

Eleanore Taylor, courtesy Peter Evans Collection



Internal Combustion Oddities

After their homespun 'Marshall' steam traction engine locomotive failed its boiler inspection in 1954 Britton Bros tramway in Tasmania went in search of new motive power. Their search led them to the Allport Engineering Works, in nearby Smithton. There, Brittons found a pair of geared locomotive bogies from the ex-Salmon River (Tas)/ex-Langley Vale (NSW) Class A Climax. These were duly slung underneath the power plant of an ex-Tasmanian Hydro Dam construction four-wheel diesel locomotive, thus creating Britton Bros 'Diesel No.1'. With the diesel engine and cab riding on one bogie, and the cardan shaft powered second bogie carrying the leading edge of the first log load, this little loco was capable of hauling a full train of five loaded log bogie pairs at ten miles per hour. Similar twin 'powered log bogie' designs were used to convert all manner of road-going internal combustion engined vehicles for logging service, especially Fordson farm tractors.

As larger road vehicles became available, so too the complexity of such logging locomotive conversions grew. One example is this rail truck, which has been completely rebuilt in model form from the ground up by the WayWood Locomotive Works. Starting with a cheap tabletop truck, WayWood removed the road wheels and replaced them with a fully suspended dual bogie mechanism. Using the weight of the trailing log load over the rear driven bogie provides measurably to the available tractive effort, and makes this locomotive a star performer in the bush.

That B***dy Harman!

When the Forestry Commission tramway at Tyers Valley in Victoria went shopping for motive power in 1927 they had specific requirements in mind. Apart from being able to haul fully loaded log trains over the steep grades and tight curves of the tramway, the locomotive had to be 'of Empire or Local manufacture'. Only one builder accepted the challenge, Alfred Harman and Sons of Melbourne. Harman were known in East Coast logging circles for their successful steam log winches. The geared locomotive they produced was based on these same winch style components.

Unfortunately, the Harman had many design faults. An oversize underframe water tank made the loco too heavy, damaging the 30" gauge tramway. Flexible steam lines leaked, causing rusting and breakage of the bogies' chain drive systems. The relatively small boiler was not able to provide adequate steam pressure. It was a powerful, lightly treading geared locomotive in theory, translated into an impractical over-weight brute. The Harman travelled only seven miles in testing, at a maximum speed of around two miles per hour.

After the spectacular failure of the Harman loco the requirement for 'Empire or Local manufacture' was relaxed, and Tyers Valley obtained 25-ton Class B Climax No.1694, symbolically considered to be the 'Last of the Climaxes'.

These images show the Harman locomotive in what was to become its natural state: broken down. Early one morning a dignitary from the nearby Jerewangala Tramway (who has had many years' experience in the building and modification of such complex geared locomotives) looks on as the Harman is inspected and 'bush repairs' are made. Eventually No.1694 arrives to haul the Harman and its train back to the depot at Collins Siding, on the VR Walhalla line.

The Longworth Climax heads an empty train towards the 'Pig Sty' bridge.

Construction

After many years' experience with exhibition layouts a number of lessons had been learned. Lightweight modules are mandatory, so light cross-section framework has been topped with laminated extruded polystyrene foam. This forms the datum level for most trackwork, and gives plenty of scope for under-track earthworks. Raised roadbed sections use 5mm Foamcore and the time-honoured 'cookie-cutter' technique.

The fascia is 3mm MDF, covered with charcoal grey coloured car carpet. This gives a nice presentable finish to the layout without detracting from the model scenes, and also provides a ready surface to attach information panels with Velcro.

A fully enclosed ceiling and lighting valance, both constructed using laminated sheets of 5mm Foamcore, completes the design. This material has proven to be a strong, light, and highly adaptable, capable of being used for roadbed and light load bearing surfaces.

Staging of trains on exhibition layouts is a critical design feature. *Nine Mile* needed a system capable of handling 900mm long consists within a space of only 1200mm. The solution uses cassettes, made from L channel aluminium, MDF, and a length of flextrack, which allows maximum train length handling in a minimum space environment.

Trackwork

The track is 'technically' hand laid, but uses an unusual approach. Three sleepers out of every four are removed from Peco HO flex, the track is then laid onto wooden sleepers and spiked in place. The remaining plastic sleepers are then broken out leaving perfectly gauged trackwork, minimizing the need for a track gauge.

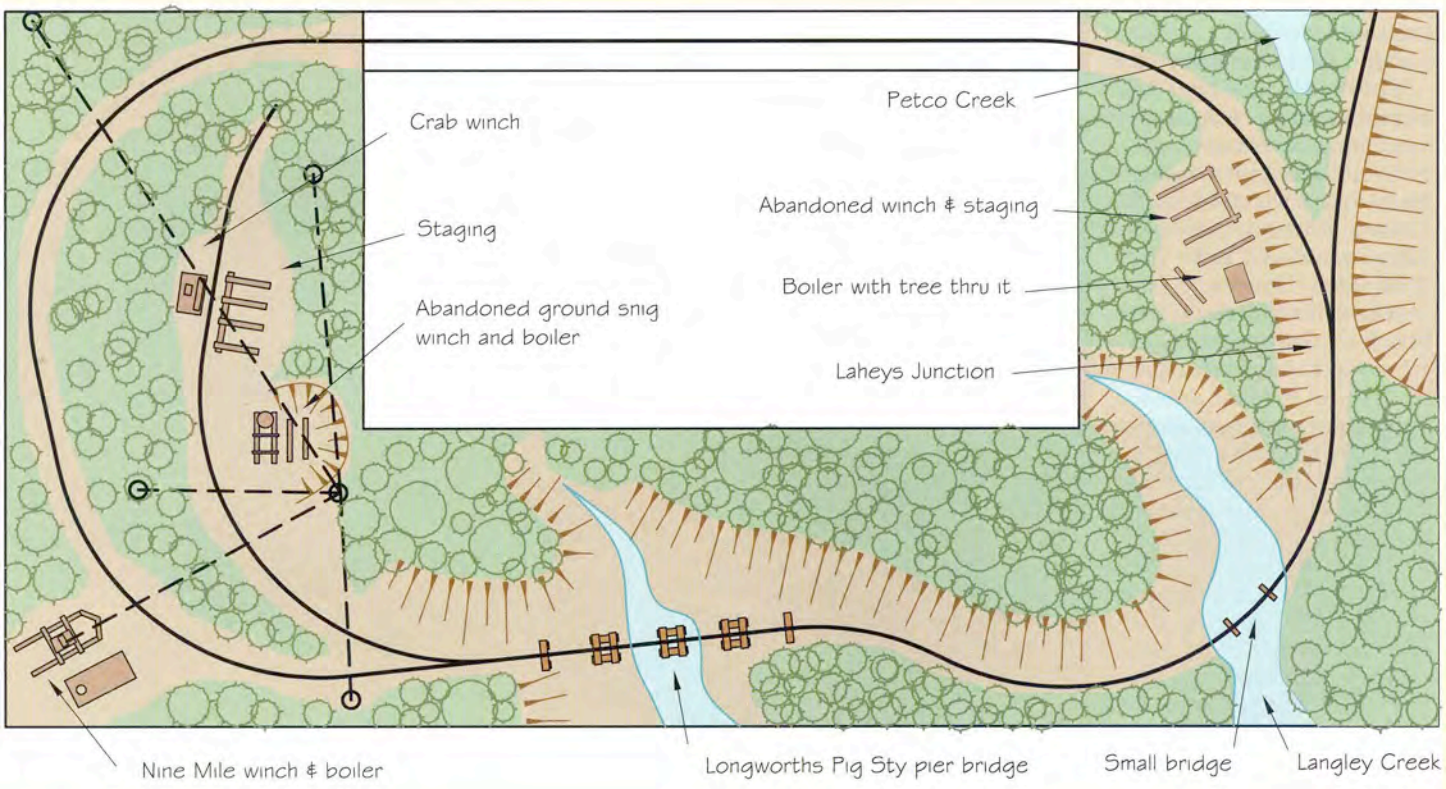
Scenery

The scenery techniques are a direct tribute to Mark and Angela Fry and their HO logging layout Swan's Crossing. All above-ground earthworks are hollow, using cheap expanded foam profile boards, then a latticework of cardboard strips, and two layers of Chux wipes covered with brown Selley's No More Gaps. This lightweight base is then covered with many layers of natural materials such as ground eucalyptus leaves, 'pickled' asparagus fern, and soils collected from around the Broughton Vale area.

'Soft Rocks', as developed by Mark, are also used to replicate the sandstone outcropping common to the Illawarra and South Coast region. Creeks are created using Selley's All Clear silicon caulking, and dry-brushing, both of which are very forgiving.

Lighting

Nine Mile is unashamedly Australian, and in order for the scenery to take on an overall olive hue, lighting with lower colour temperature was deemed the most suitable. The wide usage of natural scenery materials on the layout also dictated that light in the UV spectrum was to be avoided, as the result is faded and



degraded plant cell structure. The overriding concern of keeping weight down, and a desire to avoid running 240VAC power through the modules, also had to be accommodated.

The system chosen uses 12 volt halogen downlights, powered by lightweight switch-mode supplies. Gimble mountings allow accurate focussing. To avoid patchy 'hotspot' lighting effects diffusers were fitted.

One concern was heat, particularly given the use of Foamcore for the ceiling. However, even with the gimbles located in holes cut directly through this material, there have no been no problems with heat after 18 months of operations.

Waywood's Tractor propelling empty log bogies across Langley's 'Small Bridge'.

Bridges

Nine Mile has a rendition of Longworth's 'Pig Sty Pier' trestle, as modelled directly from the NSW Forestry archive photo. The 'Small Bridge' over Langley Creek takes its styling cues from the 250' long curved 'Big Bridge' on William Langley's tramway through the Landsdowne State Forest. Both model bridges were constructed from basswood and balsa, and feature prototypical mortised or bridge-spike assembly as appropriate.

The Winch

The under-fired multi-tube boiler powering the winch is scratchbuilt from plans of the Rubicon No.2 Sawmill boiler, contained in *Rails to Rubicon* by Peter Evans (Light Railways Research Society of Australia). The boiler features LED flame lighting effects in the firebox, a Seuthe smoke generator in the smokebox area, and an internal smoke fluid reservoir, formed from a 35mm film canister.

The winch began life as an Ian Lindsay Models kit, and was heavily modified to take it from a static US style 'yarder' model to a fully working Aussie machine, reminiscent of the common Harman 'Pair of 8s' two-drum winch.

Locomotives

The Bachmann On30 range has provided the fodder for three locomotives. Longworth's 25-ton Class B Climax has been equipped with a replacement cab and bunker, has had significant modifications to the frame, and has had many additional details added. Tyers Valley Climax No.1694 has had modifications made to cab, bunker and boiler. And Lahey's Class A Shay has a new cab, and additional detailing.

Black Beetle power units also feature in the roster. Langley's Class A Climax has them under a Bachmann On30 flat car, with a scratchbuilt body, while Britton Bros Diesel No.1 has one under a scratchbuilt body, and a second as the powered bogie under the leading log. Both these units have appropriate Climax-styled bogie sideframes.

The Harman also features Black Beetles under its powered chassis, the scratchbuilt locomotive having a second, unpowered, mechanism allowing the loco to be towed, and also shown 'under repair'.

The two 'Waywood Locomotive Works' units have many scratchbuilt elements. The little diesel tractor is heavily modified from a Boulder Valley 'Mighty Midget', and the Railtruck has a scratchbuilt mechanism under a truck body kit-bashed from a Woolworths toy truck.

Rollingstock

In common with the majority of East Coast logging operations, *Nine Mile* uses four-wheel log bogies. Inside framed bogies have wide-tread, curly spoke wheels from The Model Co. of New Zealand, while the outside framed versions have been adapted from AR Kits 2AA passenger bogies. Models of the Lahey's skeleton log cars have been constructed from stripwood, combined with Ian Lindsay Models 'hardware only' skeleton log car detail kits.

Sound Effects

Sound effects are a relatively easy addition to most layouts, and if used judiciously can add great impact to their presentation. *Nine Mile* uses sounds from a number of sources, with many specifically recorded for the layout. This involved a number of 'in the wild' excursions to capture the morning chorus of the birds of Broughton Vale, appropriate steam powered winch and log train noises, and various other sounds.

These elements were merged onto a CD and are played through a four-speaker distributed sound system. This combination provides high quality audio, and eliminates the need to turn a tape over every 30 minutes during exhibitions, a welcome improvement.

Acknowledgments

Firstly, thanks to the Master Modeller, Jesus Christ. His is the ultimate prototype to model, both in miniature, and in life.

Thanks to my circle of modelling friends here on the South Coast of NSW, and further abroad. Mark and Angela Fry, John Cheek, and Wayne Weatherstone have all contributed much to the design, building, and crewing of *Nine Mile*. It is the fellowship with these modellers that allowed *Nine Mile* to become a reality.

Credit must be given to the Light Railways Research Society of Australia for their excellent books on Australian logging, and specifically to Peter Evans. Without the tireless efforts of dedicated researchers such as Peter, who spend countless hours in archives and tramping along old roadbeds in dense bush, and then more importantly, are prepared to make available their findings, we as modellers would not have such inspirational prototype resource information available to us.

Many thanks to John Dennis for the fantastic camera work, and for giving up part of his holiday to photograph a small On30 logging layout.

Finally, thanks to the many narrow gauge modellers and friends in NSW and Victoria who knew of this project, and provided encouragement and support.

Lastly

We have a wonderful hobby. There's room for all modellers, of all ages and stages, each with their own skills and abilities. Encourage your fellow modellers every chance you get.

Happy modelling, aim to improve.

Professor Klyzlr