7th Heaven



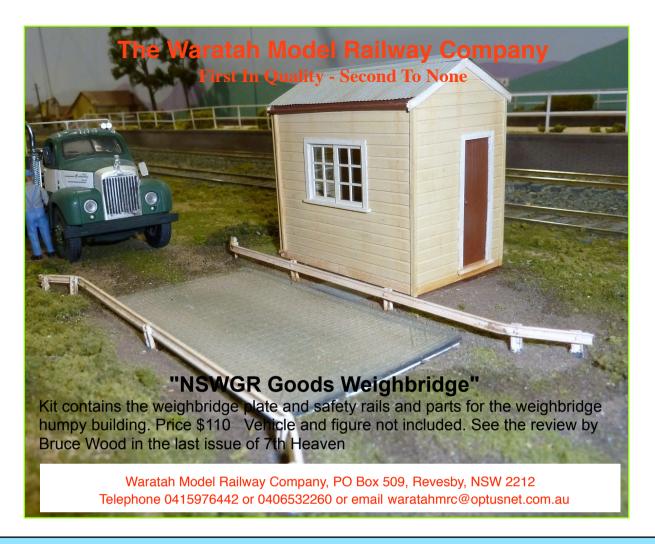
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Straight Down the Line - Opinion

by John Fogarty

My Priorities. In response to Opinion in issue31

In my early years I cherished annual holidays around Bowral and Bundanoon in the NSW Southern Highlands. I spent hours sitting at stations and trackside waiting for steam hauled trains to pass. I was to learn during that time, in the mid 1960's, that steam was gradually giving way to the diesel. However I would see the Southern Highlands Express and conditional goods on many occasions hauled by 38's or 36's. At Moss Vale I remember the Sunday night passenger via the loop line, 36 hauled, and a 30 tank working to Woollongong.

With the loss of the steam engine, I left the railway scene for around a decade but I have a group of 'train modelling' friends going back to school days. We began meeting every 3 months from the late 1970's. Two of the group were keen modellers from that time and modelling NSW in HO gauge became the group preference.

I began railway modelling in the mid 1980's, assembling HO scale kits from Casula Hobbies and assembling a DJH 32 class (with superglue – and it is still holding together). I continued to 'collect models' and 'assemble kits' as the NSW HO market grew. Around the year 2000 a spare bedroom enabled me to construct my first 'model layout'.

After laying track to run trains (and 'test run') with part scenery and some structures, I soon stalled at a time when the HO market was being saturated with new models. I became a little disillusioned. The bedroom was reclaimed and the model layout went into storage in a new garden shed purchased for that purpose.

At 'Liverpool' one October, I was drawn to the detail and presence of the Waratah S wagon on Stringybark Creek. I purchased one from Chris Harris and so O gauge began. It began because I successfully constructed and weathered that particular model.

I now have a new 'log cabin' (built a year ago) in the backyard for an O gauge layout approximately 5 metres by 4 metres. Construction commenced in February this year. I am not finishing any one section at a time, I am track laying, building kits, building structures, planning and test fitting scenery all at the same. I might spend hours one week and none the next. Everything is incomplete. *That is my priority.* I am being creative at my leisure. The layout may remain a 'work in progress' recreating a memory of the NSWGR's during the 1950's. *That is my way.*

Thank you to all those modellers, unselfishly and enthustically sharing their skills through the hobby.

Articles Needed

As always the future articles file is very thin indeed. Please consider sharing your work with your fellow Aus7 members by telling us about your layout (planned or under construction), some rolling stock you have built, a kit you have modified, some materials or tools you have found useful, techniques that work for you or just send some photographs for the Showcase page. Dont think that your efforts are not good enough or not of interest to others. Send me something!

Paul Chisholm Editor

Aus7 Modellers Group Inc

P.O. Box 3404 Asquith NSW 2077 www.aus7modellersgroup.org

www.aus/modellersgroup.org

President

Trevor Hodges trevorhodges@dodo,com.au

Secretary

Ray Rumble ausdude6@gmail.com

Treasurer

Anthony Furniss anthonyfurniss@rocketmail.com

Vice President

John Parker johnrbp@tpg.com.au

7th Heaven Editor

Paul Chisholm paulchisholm@bigpond.com

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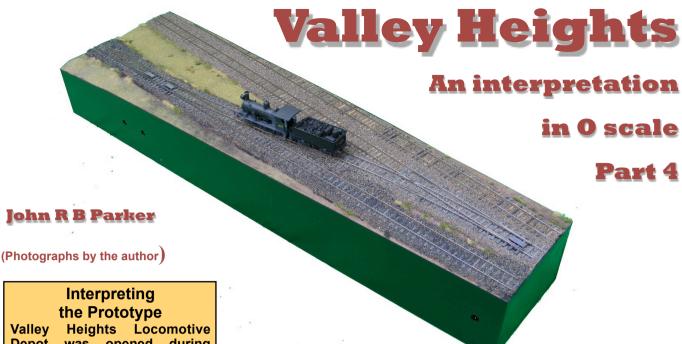
Issues 1-14 sold out. Issues 15+ are \$7.00 each \$1.50 p&h for one or two copies. \$2.50 p&h for three or more copies.

All opinions expressed are those of the respective authors only and do not represent any official view of the Aus7 Modellers Group Inc.

On The Cover

A scene on "Beyond Black Mountain"; the layout of O-Aust proprieter Peter Krause. Peter has promised an article on his layout for a future issue. He assures us the ballast train is on its way.

Photo courtesy of Trevor Hodges



Depot was opened during 1913-14 to service banking engines used to assist trains travelling westwards up the Blue Mountains. In addition to the more obvious 60ft diameter turntable, engine shed and elevated coal bunker included a most unusual piece of railway infrastructure. The de-ashing facilities were based around a small tunnel bored underneath the two turntable roads. The Valley Heights Ash Tunnel was equipped with a hand pushed trolley running on a short length of narrow gauge track. Remains of the tunnel can still be seen at the Valley Heights Heritage Museum.

Part 3 of this series concluded with the virtual completion of Module 3, the smallest of the three modules. The wiring has now been completed on the second module together with the basic ballasting of the track. A Wiring Diagram was produced but to save space it is not included, as it follows the same principles that were outlined in the previous part of this series.

The Ash Tunnel was then installed in its final location and basic scenery placed around the steps. One of the compromises made in my interpretation of Valley Heights Loco

was a slight compression in the depth of the layout to fit the available modelling space. As a consequence the model includes more cut-away sandstone cliff faces than that which existed in the real world.

These are modelled using a technique pioneered in the late 1990's by Angela and Mark Fry under the name; Soft Rocks. The process is relatively simple and it has a number of advantages particularly on portable layouts as it is very light and resistant to damage. It is based upon broken and carved pieces of soft foam which are effectively modified with appropriate sieved soils to produce a soft, flexible rock with real colours and textures.

The main modifying medium is brown or earth coloured 'No more gaps' or any other similar water soluble sealing caulk. The resulting 'rocks' can then be finished with the addition of paints and gloss finishes to represent weathering and water seepage. Scenery materials can also be added in the crevices within the rocks to represent grass and small bushes.

The following photographs show some of the stages involved in transforming foam salvaged from an old mattress into the cliff-side at Valley Heights.





These close-up photos show the steps involved in the transition from the initial application of brown "No More Gaps", paint, dust, ash and finally various ground covers to replicate the vegetation which inevitably grows on cliff faces. The foam can be cut to a suitable size using whatever tools you are comfortable with using. I used a combination of knives, Surform tools and my fingers to tear the foam into a representation of the desired rockface. In this instance the foam is being used primarily to create the side of a cliff so it can be handled in a larger sheet form, but is also a simple matter to create separate larger rocks.

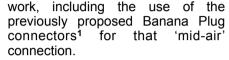
Another of the necessary compromises resulting from the compression in depth can be seen in this view of the under





construction second module. Due to space restraints a Waratah Models water column is placed alongside the second of the two ash roads, rather than the prototypical location between the two tracks.

One of the most challenging elements of this layout was always going to be the difficulties associated with constructing the switch-back coal trestle access road and the coal storage bins in two parts as the trestle actually straddles two modules. This requires a 'midair' connection, the photographs of the test installation have given me just enough confidence that it will



Considerable detailing is required on the trestle road and coal bins including the installation of more than a thousand Grandtline Nut Bolt Washer Castings, (NBW2) of various sizes. (Approximately 500 already installed.) After completion the trestle will be attached to the foam scenery base with threaded rods³. These rods commonly used by model aircraft modellers, are threaded through holes in the trestle and glued to the trestle sleepers. They are essential to effectively smooth out the transitions in the grades by clamping the trestle sleepers to the underside of the layout.

This approach also permits the removal of the trestle if necessary as it is not glued to the surface of the layout.



Much of the surface area of Valley Heights Depot was covered by fine ballast, ash, asphalt and concrete, but there was also a considerable amount of grass, weeds and other natural vegetation. A multi-stage approach has been used to represent this natural environment.

The first step involves covering the foam used for the module construction with an appropriately earth coloured flat plastic paint. Conventional interior acrylic wall paint purchased in handy sample pots is ideal. The actual colour is not particularly important, the main aim is to seal the foam and blend in any variations caused by cutting, filling and the shaping of the surface.

The next step is the addition of soil as the basic ground cover. This is simply achieved by coating the target area with PVA glue kept wet by spraying with water, to which a little detergent has been added to improve 'wetting'. The 'soil', actually a fine clay from the Chuck's Ballast range, is sprinkled in place using an old stainless steel mesh strainer previously used to apply icing sugar to cupcakes. Allow time for this thin 'mud' coating to dry properly before proceeding with the next step.

There are a number of methods of representing grassed areas but in O scale I feel that you need to be able to see individual blades of grass and one of the ways of achieving that is with static grass fibres⁴ 'planted' using a static grass applicator. These applicators⁵ are regretfully ridiculously expensive, but are simple to use and very effective.

Empty your previously used water sprayer and half fill with a 50/50 mix of PVA glue and water together with a drop of detergent. Spray a thin coating of glue on the soil base. (Spraying is essential, if you apply the glue directly with a brush onto the previously prepared surface, you will simply end up with a muddy mess.) Prepare the applicator for use with the installation of a fresh battery and then fill the container with a suitable mix of coloured static fibres, (I used 6mm fibres), to represent the colour effect you wish to achieve. Stick a pin into the wet surface and connect the earth lead from the applicator, switch on the applicator and you are ready to plant the grass.



The individual fibres are drawn by static electricity from the applicator to the wet glue in such a way that most will be vertical, or at least not flat. I found it helpful to invert the applicator a number of times and apply with the head of the unit quite close to the surface. Obviously it takes time for the glue to dry and I have found that passing the nozzle of a vacuum cleaner just above the

surface helps in encouraging most of the fibres to stay vertical. It does take a little experimentation to get the best results. Don't forget to decant the glue mixture from the spray bottle. If you clean it by thoroughly rinsing it in water it can be used again and again.

The outline of the cutaway engine shed can just be seen in the far distance in this under construction view of the first and second module. Before finalising the buildings and completing the scenery we will invert Module 1 on the work bench to carry out the last of the under-layout wiring. The three modules will then be interconnected for the first time providing the opportunity to at last actually run a train.

As is obvious from the photographs much still needs to be completed before the layout is ready for its first public viewing. This final stage may take longer than the normal publication cycle so Part 5, the final chapter, may not appear in the next issue of 7th Heaven.



1. Banana Plug-Jaycar #PP0391

2. Grandtline-Various

#G01-93,G01-44,etc

3. M3 Threaded Rods and Nuts-Micro Models Hobbyland

4. 6mm Static Fibres-Woodland Scenic/ Heki

5. Noch Static Grass Applicator-Various





Spring, Spark & Steam: a NSW addendum 1965–2003

By Jim Longworth.

Bruce Macdonald's seminal history of Australian O gauge model railway manufacturers *Spring, Spark & Steam,* (2005, Eveleigh Press) concluded in the 1960s, 1965 to be precise. Based on English and American model railway activity at the time, O gauge was said to be 'in revival'. Revival was perhaps more of a call-to-arms than an accurate description of the local modelling scene. The 1960s through 1990s were dominated by local production of HO and N scale models. Nevertheless, Australian O gauge manufacturing had not ceased altogether and has enjoyed a resurgence in the new millennium.

Trevor Hodges covered the range of local manufacturers as at 2003. But what had happened with local O gauge manufacturing between 1965 and 2003? This article focuses on only NSW history; although interstate activity doubtless spun off some collateral benefits in NSW as well.

Austral Railway Models

This was a backyard producer of O gauge rolling stock kits at Balgowlah in Sydney's North. It was owned by Frank Slovnik and produced both passenger and goods rolling stock kits of mainly wood construction with diecast bogies. The models were supposed to be NSW prototype; but had a distinctly American influence. The company operated into the 1960s.

Fleet Products

Gordon Usherwood's Fleet Products continued in production. A 1966 advertisement advertised new: diecast bogies, C38 finished wheel set, boiler fronts, nickel silver handrail knobs, silver steel and fibre gear sets and many other items. The springing and equalizing of the bogies was way ahead of the time. It is a pity that they are no longer available.

Col Shepherd

Well known model manufacturer Col Shepherd acquired some sides of Trimmingham's end platform cars. Col added his own floor and perhaps the roof. Col also had stocks of Fleet parts which he sold on and when Fleet ceased selling.

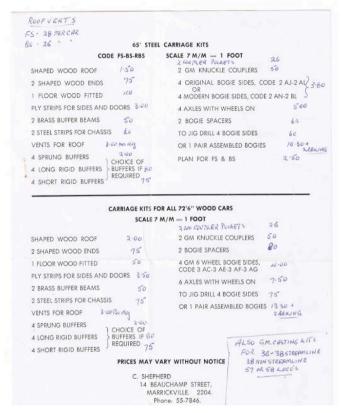
Bill Goddard and Maurice Haynes

Bill Goddard and Maurice Haynes produced a BCW bogie cattle wagon in cast aluminium, four wheel coal hopper and a two car DEB set. They proposed producing end platform suburban carriages but I don't know if any were actually produced.

BPR

Australian made Balwyn Pacific Railway (BPR) ¼in castings from Victoria had become unavailable. However by 1967 they were again available. Reputedly

none were better. I understand BPR also produced bogies for Frank Slovnik. Unfortunately they are no longer available.



Col Shepherd parts list, n.d. B. Lovett collection

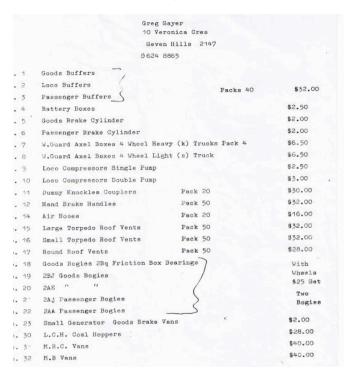
E. K. McIntosh

Ted McIntosh was introduced to model railways early. His father was the local agent in Moss Vale for Hornby, Dinky and Mecanno. During the late 1960s Ted McIntosh worked as a suburban pharmacist trading at 74 Broadarrow Rd., Narwee. He had a plastic Big Blue Train set running back and forth along the top of the shop cabinets, which he ran for his own amusement. He also placed an HO layout in the shop window which attracted interest from passing pedestrians. Ted advertised brass locomotives in ready-to-run condition. One was a 48 class. He also advertised suburban steam-type open-ended carriages. They were painted and assembled by Maurice Haynes. Ted is still an O gauge modeler and intends to erect a new layout, using Austral bronze rail or Peco.

Greg Sayer

Greg was another one of the cottage industry suppliers who kept NSW O gauge modelling going through the 1970s-1980s. Greg was situated at Seven Hills in Sydney and produced a small range of kits, namely an LCH, MRC and an MB. They were cast in resin and had

very good detail. Also in the range were white metal castings for locomotives, passenger cars and fittings for goods wagons, including axle guards for S and K wagons. To round out the range there were kits for 2AJ and 2AA passenger bogies and 2BJ and 2AE goods wagon bogies which had excellent detail and they were equalising. Nevertheless, for some reason the diecast parts weren't successful. They may have been pirated 1/4inch scale and were scrapped. I believe Gerard Imer, an excellent modeller, made the masters for the bogies and possibly the fittings and rolling stock. However Gerard and Greg parted company. Greg's son Adam acquired the moulds for the 4-wheel coal hoppers from an unidentified source and produced some.



Greg Sayer's price list, 1992, B. Lovett collection

Mansfield Hobbies

During April 1983, Mansfield Hobbies, 100 Pacific Highway, Waitara, announced it was considering having an O gauge C38 class, in both streamlined and non-streamlined versions, produced in brass. Mansfield HO scale brass was considered by many to be the best available at the time. Production would only be proceeded with if there were enough firm orders. Expected selling price was \$950. Presumably there were insufficient orders forthcoming, as I am not aware of the models eventuating.

Kerroby Models.

This company was established in 1986 at Picton, NSW. Although they did not actually produce kits, they had an extensive range of O gauge detail parts which seemed to grow at each exhibition. The items were cast in pewter and included locomotive and rolling stock fittings, people, locomotive crews and animals. They also did custom casting.

lan Lindsay Models

Originally based at Pendle Hill, this company produced very highly regarded HO scale kits and had a range of

O gauge fittings and narrow gauge rolling stock kits. The products were cast in either plastic or metal and were finely detailed. The company moved to Quirindi several years ago and closed down due to health problems. However, these problems were overcome and fortunately the company came back into business.

Fox Scale Models

The diverse and prolific output of Ron Fox included O gauge tinplate, Gauge 1 and HO narrow gauge. One group of models is particularly relevant to this story. That was a range of un-powered locomotive kits made with fiberglass bodies during the 1980s.

Ron worked in a brass factory in Sydney. Later he moved to Queensland and operated a bed factory. Ron started manufacturing railway models by producing Hornby O gauge tinplate lookalike locomotives, coaches, wagons and platform accessories. While developing fibreglass bodies around 1985-86; his first models of a NSW prototype were two tinplate type C38 class streamlined pacifics around 1986-87. Ron moved to Caloundra and built a small factory in a prefabricated shed. British models were built on one side, NSW models on the other side and a test track ran across the back. From 1984-87 he specialised in NSW prototypes.

Ron's fibreglass kits included the following classes of locomotives: 12, 13, 19, 20, 24, 25, 27, 30 tender; 30 tank, 32, 36, 40, 42, 50, 60, and a ROD 2-8-0. An FO and a terminal carriage were also produced. The 42 class resembled the Victorian S class locomotive, though production only ran to about three units. Kits were supplied as complete bodies which were cast in one piece, plus wheels to suit. Details such as buffers, chimneys and domes were turned out of solid brass.

The wooden moulds used for the casting showed signs of wear after about twenty uses, which limited the production of units per mould. The 32 class kits were very popular in the market warranting two batches. The first batch was produced from plans which had unfortunately shrunk slightly in the copying process. Therefore they were slightly under-scale. Not as small as ¼inch:foot, but less than 7mm:foot. A second set of moulds were made, this time to the correct scale sizes. The 50 class could be supplied with a Morts Dock tender, or the tender from the 32 class kit.

The fibreglass kits were provided without motors or drive gear. Ron had found a suitable motor in England; but the manufacturers changed the material used for the bearings from metal to plastic. When overloaded, through pulling an excessively heavy train, the plastic became soft so allowing the armature shaft to move which disengaged the gears. Six-wheel tenders could be motorized, to create a form of locomotive pusher, by inserting a six-wheel motorised frame out of an American Atlas diesel shunter. The motor was a bit too tall so protruded through the top of the tender which was not an ideal solution.

Ron's 'Fox Scale Models' was registered as a business name in Queensland on 7 June 1988. Ron Fox's name of 'O' Gauge House, which he gave to the factory and shop, is not to be confused with the earlier manufacturer of like name. Also that year he announced work on a C36 Class and the ever popular end platform

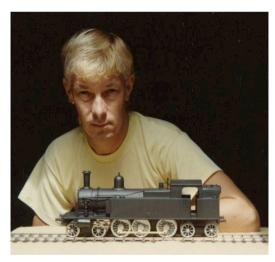
carriage, to be followed the next year by a Richmond Vale Railway ROD 2-8-0.

Ron treated model making like any process engineering, setting up a small scale production line. Once set up to make the initial model, subsequent models could be produced off the same patterns at minimal expense.

Ron also offered a model kit assembly service. Customers would supply him with two kits to be assembled. He would return one assembled kit to the customer, and the other he would keep for himself.

As well as being a manufacturer, Ron was an O gauge modeler. His layouts Bombala and Newcastle have featured in the *Australian Model Railway Magazine*.

Into the new millennium, but after 2003, Ron explored cast aluminum as a material for making locomotives. Kits for locomotive classes: 35, 36 and 59 were produced in small numbers but the experiment was not successful. More success was enjoyed with casting epoxy resin and combining it with timber pieces. Resin kits included a bogie BD open wagon, 4-wheel open S wagon, 4-wheel HG brake van, bogie milk tank BMT and a 4-wheel ICV van. Patterns for the S wagon were provided by O-Aust kits and they were made with thicker sides to impart added strength. Carriages were produced with pressed or cast aluminum sides and later resin sides. The aluminum sided carriages were not successful.



Ron Fox and his 30 class tank locomotive, prior to installing the connecting rods, n.d, G. Taylor collection.



Ron's components for the 30 class, G. Taylor collection.



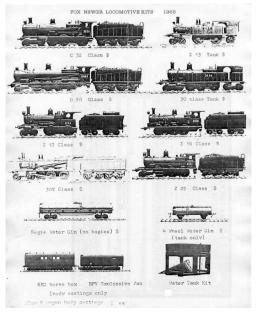
A Fox 30T, G. Taylor collection.



A Fox 25 class fitted with an Atlas 6-wheel tender drive, G. Taylor collection.



A Fox three-rail standard goods. The mechanism was made especially for the owner, using wheels and bearing block by C. Shepherd, G. Taylor collection.



Fox advertising for a portion of his fiberglass range of kits, 1988, G. Taylor collection

W&J O Scale Castings

W&J produced a range of NSWR tender, railmotor, freight and passenger carriage bogies, all produced from metal castings. Some included equalizing. Other items included a knuckle coupler, brake cylinder, locomotive air compressors, axle boxes, roof ventilators and buffers.

Keiran Ryan Models

Around 1990-1991, Keiran started selling silo detail kits and building and selling complete HO scale silos. While starting out slowly, Keiran intended to build up the amount of 7mm products in his range so that the scale grew in part through an ever increasing availability of bits and pieces.

MRC Scale Models

Perhaps better known for its extensive range of ground-breaking HO scale wooden and plastic kits produced during the 1960s-1970s, MRC had a brief foray into 7mm scale during 1993. The patterns were made specifically for Graeme Hearne of Iron Horse Hobbies. Kits were cast in plastic and included the MHG brake van, MLV louvre van, FME flat wagon with LCL containers and U open wagon with coal load. Also available were lost wax brass bogies for the above and 2AA passenger carriage bogies. The kits are no longer in production.

Precision Scale Models

In June 1995, PSM in Melbourne announced its intention to produce a dual-motored "O" scale "AD60" Beyer Garratt, to be priced at about \$5000. I am not aware of the model eventuating. Presumably it was considered too expensive for local purchasers.

Gago Models

Things continued to improve for 7mm modelling in NSW during the 1990s through the particular efforts of two individuals, Graham Holland and Gerard Imer. To arrange for production of the kits Graham approached Stuart Hedges at Berg's Hobbies who was responsible for Berg's injection moulded plastic HO scale passenger and goods wagon kit ranges. Stuart arranged for the manufacturer of their kits and also to do the moulding for Graham.

Graham and Gerard started a company called Gago, pronounced 'Gauge O', which began producing limited-run kits of local New South Wales government railways goods wagons in the scale of 7mm to one foot. The major body components of the kits were injection moulded plastic, with both lost wax and whitemetal detail castings. The kits were highly detailed and used finescale Slaters wheels as standard. These kits were a significant development over what was the rather coarse scale standard of the other O gauge products available at that time.

The first kit to be released was the ubiquitous steel-underframe composite bodied 4-wheel S truck in late 1991. The kit was soon sold out, warranting a re-run. Gago's second kit was for the 4-wheel RU covered grain hopper, in 1992. Like the predecessor it featured a fully-detailed one-piece injection moulded plastic body, full brake gear, working automatic couplers, Slaters wheels, decals and full instructions.

Other Gago items included a set of locomotive number decals and 18ft and 22ft long wagon underframe kits. Either underframe could be used to assist scratch builders produce quite a range of 4-wheeled goods wagons. Gago's third kit was for the PHG Guard's Van which appeared in late 1993. The kit was notable in making up into an outstanding and very detailed model.

Work commenced on producing a high-framed 32 Class locomotive kit; but was postponed in favour of proceeding with a kit for a diesel locomotive which never eventuated. Gago also manufactured an exact-scale working miniature version of the Alliance rolling stock coupler. It has been marketed by the Waratah Model Railway Company since 2002. Gago operated for a few years before Graham went on to start his own company, Century Models.



Gago Models price list 1992, B. Lovett collection

Century Models

Century Models was established by Graham Holland in the mid 1990s to provide locomotives and rolling stock to O gauge modellers of the NSW prototype in the scale 7mm to 1 foot. Century initially released two steam outline NSWGR tender locomotives, a Z19 0-6-0, and a D50 2-8-0 standard goods engine. The locomotives were accompanied by a small range of rolling stock kits. A 7mm K 4-wheel open wagon kit was released during late 1995. It had injection moulded sides ends and floor, supplemented with whitemetal and brass castings, wire and Slaters wheels. The following year a kit for the 4-wheel KF flat wagon was released, made similarly with timber planking for the deck.

In February 2006 O-Aust Kits purchased the rights to the patterns and future sales of the Century Models range of NSW prototype steam locomotives. The range, which included the Z19 and D50 continued to be offered by the new owner under the Century Models name.

O-Aust Kits

O-Aust Kits was established in 1999 as a medium to make available to other O gauge railway modellers the kits that the owner planned to develope to provide the necessary rolling stock for his own O gauge NSW prototype layout The first kit was a NSWGR WHX wheat hopper which evolved as the result of a requirement for a block grain train. It was more a collection of aids to assist the scratch builder rather than a kit in the true sense of the word. The collection consisted of cast urethane parts for the body, chassis, hatches, etc., white metal bogies and North Yard wheels. Other kits then followed using the same materials, including the MRC, S, BHG, MLV, UME, BCW, CW and ACM passenger carriage.

Recognising the need for a diesel locomotive a project to produce a NSWGR 48 class was planned. Due to the complexity of the task Bergs Hobbies were approached to become a partner with the project. The kit was finally launched in 2006 with either a K&M Engineering or a New Zealand manufactured chassis.

In 2005, the owner considered that the business had reached the crossroads, and it was time to either return to being a modeller or to upgrade to a sustainable business. Fortunately for the NSW modeller the latter course of action was chosen.

New kits continued to be developed, including prototypes other than NSW. Upgrades to the existing range also occurred where feasible. The full range of kits, with the exception of the WHX continued to be available with more goods wagons and passenger carriages being added each year.

Berg's Hobbies

During the fifties, sixties and seventies, Berg's imported many O gauge brass locomotives to order from the U.S.A. with the occasional ones not to order. Bergs first foray into supplying O gauge NSW prototypes seems to have been in the form of importing Slaters Loco Kits Manning Wardle K Class 0-6-0 saddle tank kits in 1989. While of overseas design the kit could be made up into a fair likeness of locomotive (P) 292.

The company's first manufacturing to meet the NSW-specific O gauge market appeared in the form of a lineside structure kit, released in late 2000. The kit was for the standard NSWR G1A skillion roofed small goods shed, and featured all wood construction, corrugated metal roof and plastic water tank.

Waratah Model Railway Company

Dave Morris formed Waratah in 2002, by purchasing the rights to produce Century Models 4-wheel freight rolling stock. Also included was the Alliance automatic coupler. This would then allow Graham Holland to focus on producing locomotives. Dave was joined by Chris Harris in 2005. Waratah Model Railway Company produced a large range of kits and components for the construction of models in 7mm scale of NSWGR rolling stock, infrastructure and lineside details.

The aim of Waratah was to supply quality 7mm model kits of NSWGR 4-wheel rollingstock to the discerning Finescale or S7 modeller and accessory components to suit the range. The company's intention was to produce

kits and components which were as accurate to the prototype as possible. Continuing to develop new products, the range constantly expanded.

The rolling stock kits were produced with polyurethane or styrene bodies and brass or whitemetal components. They came complete with wheelsets of finescale standard on tapered axles which were manufactured specially for Waratah. Each kit came with detailed instructions and background notes concerning the prototype.

A full range of kit parts were supplied together with other rolling stock components, such as couplers and bogies, to enable the kits to be backdated or customised and to assist the scratch builder.

In addition to the rolling stock kits, the company produced kits for railway infrastructure which were also designed to achieve prototype fidelity and came with detailed instructions and background notes. Many lineside details were available to dress-up a layout or diorama and give it that authentic appearance and atmosphere. Brass point frogs and slide chairs were produced which made the construction of points and crossings much easier.

The instructions provided with each of the kits were concise and well-illustrated to ensure that they were suitable for modellers of any experience. Dave Morris and Chris Harris were always available by phone or email to help with any queries that a customer might have.

Institutional Support

Small cottage industry manufacturers could supply a numerically small local market; but to increase the scale of the businesses required access to a larger market. Formation of the Gauge O Guild in England was credited with stimulating an O gauge come-back there. While several O gauge layouts existed at the turn of the 1960s, within both club and individual ownership, there does not seem to have been an organisation devoted specifically to modellers in the scale. An Australian "O" Gauge Preservation Society was proposed in 1967; but does not seem to have eventuated. That situation has now changed with the formation of the Aus7 Modellers Group Inc. in 2004. The Group is dedicated to the promotion of 7mm and O Scale modelling in Australia and is open to all modellers in O gauge 7mm to the foot or 1/4 in to the foot scales. The above manufacturers were fortunate to benefit from the growing institutional support for O gauge.

In the Model Railway Press

Articles on O gauge in the general model railway press and O gauge-specific modelling events encouraged demand for larger production runs and new products. Feature articles in the local model railway press on NSW O gauge included: The Mayfield Lines, by L. Clark, *AMRM*, July/August 1976; Pacific Seaboard Lines, by R. Gallagher, *AMRM*, January/February 1977; Upper Quadrant Semaphore Signals in 7mm Scale, by J.W. Page, *AMRM*, January/February 1980; A [static] C38 in "O" Scale, by A. Corkill, *AMRM*, February 1983; Field Motors for O Gauge, by C. Watt, *AMRM*, October 1983; Railway of Denbar, by D. Maurer, *AMRM*, December 1983; Creating an AD60 in Uncle Sam's

land, by R. Richardson, AMRM, August 1988; Starting Out in O Scale, by T. Hodges, AMRM, April 2002; ; Building 4811, by T. Hodges, AMRM, February 2003; and Getting "Stuff" in O Scale, by T. Hodges, AMRM, April 2003.

NSW O gauge layouts have also appeared in overseas railway modeling magazines. The 2-rail 7mm scale Pacific Seaboard Lines appeared as the front cover and lead article in the September 1976 issue of the British magazine Railway Modeller. The Editor of AMRM is understood to have been so miffed by a local layout first appearing in an overseas magazine he hastened to publish a photographic coverage of it in the January/ February 1977 issue of AMRM.

Binnabri, featured as the railway of the month in the September 1994 issue of the British magazine Continental Modeller.

O Gauge Modelling Workshops

In late 1994, Graham Holland suggested to Bruce Lovett that he organise an O gauge only day in the Sydney area. Bruce coined the name 'O Gauge Modellers Workshop' and together with the late Jack Mac Micking they organised the first one at Epping on the 7 October, 1995. It was so successful that further Workshops were held at various venues each year until the final one at Thornleigh in 2002. Due to other commitments the committee at the time was disbanded. Workshops continued annually until superseded by the first NSW 7mm Modellers Forum in 2004, which was organised by Nick Sheridan.

Acknowledgments

Thank you to you each, one and all. Significant assistance from Ron Fox, Bruce Lovett, Bruce Macdonald and Geoff Taylor is acknowledged and appreciated.

For Sale

CPH 22 never run - \$1400 K wagon - \$100

S wagon - \$100

KF flat wagon - \$100

MRC van - \$150

MLE wagon - \$100

Unbuilt Kits

19 class loco with bogie tendet, cut away cab -\$1300

2 K wagons - \$100 each

RU wheat hopper - \$100

LV van - \$100

PHG Guards Van -

Phone Mick \$450 0438629049

Misc bits

2 pkts fence - \$4

8 sheep - \$5

loco nos - \$5

2 scratch built points (L & R) - \$75







Illustrated above are the Hudswell Clarke, Manning Wardle and tools soon to be available from Ixion Models. Full details of these models are in Commercial News on page 19



Pilot model of PME 13 Class

HOW MUCH WILL IT PULL?????

TRACTIVE EFFORT (TE) CALCULATION

BY JOHN LEE

In 7th Heaven #27 (p. 14) I suggested that our 'O' scale group needed a library of Best of Practice which included comparative analysis work. One of the examples I gave was the need for what I called 'test track reviews' – the intention being that such documentation would give those proposing to purchase 'O' scale locomotives information to enable informed choices to be made – for example..' based on current draw what would be the appropriate DCC decoder for such and such locomotive'.

Tractive effort calculation is part of suite of measurements or determinations that have to be made before even the question re the DCC decoder can be answered. Those suite of measurements include things such as

- Minimum radius
- Slip and stall current
- voltage/current/speed relationships (DC) or speed/current relationships (DCC)
- A Start, mid and top speed in scale MPH or km/h

As we all know that techo stuff is in addition to qualitative assessments such as

- appearance...paint etc

and of course the all important 'how close to prototype is the model?

Those abovementioned factors are all part of the assessment that has to be addressed but as TE is one of the more esoteric, (and important), matters I have decided to deal with it first and leave the other matters to another time, (or. I would hope, other authors).

TE CALCULATION - A METHODOLOGY

There is a dearth of performance information in respect of the 'O' scale locos we use and only just recently did Roger Porter describe how he measured the slip current and tractive effort of his locomotives, 48131 and 4814. (See http://groups.yahoo.com/group/7mmAusmodelling/message/13772,)

To obtain those figures he used a Tony's Trains Rrampmeter ® to measure voltage and current – note the locomotives are DCC equipped – and a MicroMark digital scale to measure tractive effort (TE). Prior to Roger's post there had been little discussion on how measure TE but his post, which I'll call method (a), prompted two other suggestions to measure TE namely:-

- (b) Terry Flynn , 'nswgr1855' post # 13779 who suggested use of an inclined plane to calculate rolling resistance of a wagon
- (c) Brian Comerford Post # 13780 who suggested use of essentially what amounts to a model dynometer wagon

Given that method (a) has been adequately described I would now like to expand on method (b). [I leave the challenge of trying method (c) to those with more mechanical ability.]

I favour method (b), inclined plane, over method (a) because it avoids the variable results inherent in the use of a digital scale which is subject to oscillations in the digital 'spring'. Note however that I am not calculating rolling resistance but maximum tractive effort- which actually includes the effort that loco needs to exert to move itself up the grade.

Some definitions

TRACTIVE FORCE (TE).....The tractive force is the pulling force exerted by a vehicle, or machine or body. FACTOR OF ADHESION...In railroad engineering, the factor of adhesion of a locomotive is the weight on the driving wheels divided by the starting tractive effort.

SINE.....ratio of the length of the side opposite the given angle to the length of the hypotenuse of a right-angled triangle

ARC TANGENT... the inverse function of the tangent; the angle that has a tangent equal to a given number TANGENTratio of the opposite to the adjacent side of a right-angled triangle

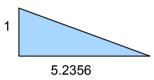
The following is based on an interpretation of Robert Higgins article 'Model Locomotives – How they Run Reports' in Railroad Model Journal (RMJ) March 1990 page 24. Higgins in the March 1990 article states that "After the locomotive is weighed and the driver tyres and test fixture rails are cleaned the slope of the fixture is increased until driver slippage prevents forward motion. The algebraic sine of the track angle times the locomotive weight gives the maximum tractive effort in ounces"

Prior to and following that article Higgins wrote a number of articles on model locomotive performance and I quote the following from a test of a P&D Hobbies 'O' scale EMD F9A, (basically a 4 axle version of NSWGR 42 class), locomotive that he published in June 1990 Railroad Model Journal page 36. Note that the article, being by an American author is in imperial measure. Where necessary I have converted Higgins figures to grams at 28.35g= 1 oz

uphill grade maximum 19.1(%) (this is the max grade the loco could climb before slipping to a standstill)

weight of locomotive 875g 30.88 ounces tractive effort (CALCULATED) 164g 5.79 ounces

Though not reported in the article the maximum grade that the loco obtained before slipping must have been 1 in 5.2356 viz:-



note 1:5.2356 is the same as 100mm/523.56mm

We need first to convert that ratio, (track angle), above to degrees

To convert the 1 in 5.2356 to degrees we require the arc tangent value 1/5.2356

1/5.2356 = 0.19100 (note that 0.19100 = 19.1% grade i.e., 19.1/100 = 1 in 5.2356)

Using either your calculator, Windows Calculator (found in Windows Accessories), EXCEL, a calculator off the Web or trigonometrical tables we determine that arc tan 0.19100 = 10.81326 degrees

To calculate TE Higgins' formula is

sine (TRACK ANGLE) X weight = TE (weight is 30.88 oz or 875g)

sine (10.81326) X 875 = TE (in grams)

therefore TE = $0.18760865 \times 875 = 164g$ (5.79 ozs)(1)

NUMBER OF WAGONS THAT CAN BE HAULED BY THE F9

As it turns out, see (FACTOR OF ADHESION) later, additional weight can be added to the loco but at this stage we will continue with the loco as originally tested

A 40 foot long US boxcar is 10 inches long (1:48 scale) and if weighted to NMRA standards (5 oz + 1 oz/inch) weighs 15 oz. I note that:

- (a) NMRA standards don't recognise 2 axle wagons and
- (b) the NMRA standard is regarded by many as being too heavy

however as Higgins conducted his tests using that standard I will use it recognising that the results can be easily adapted to whatever standard the loco tester wishes.

Higgins in his report on the F9 states that that with a TE of 5.79ozs the loco could haul 55 wagons and I have intrepreted this to mean that each wagon requires 0.1oz (1/10th ounce or about 3g) of TE approximately. I do not know where Higgins got his 0.1 oz/wagon figure from but in respect of H.O wagons Model Railroader states the following, :- "according to NMRA data, a "typical 4.25 ounce car (Atheam 40-foot boxes weigh 4 ounces) offers 0.043 ounce of resistance" (September 1984 p.20)

Note that from the foregoing the H.O. value is approximately half of that quoted by Higgins and it appears that he adopts 0.1 oz so that he can easily convert the TE to wagon numbers by simply multiplying TE by 10 i.e

FACTOR OF ADHESION (FA)

In deference to copyright I will not produce the full results table but from Higgins figures I also surmise that the factor of adhesion (FA) was

It should be at least 25% - modern prototype diesels can have up to 40% but F9 ratings in real life would have been 25%. on dry rail. The determining factor is whether the model locomotive's motor will draw too much current if the model's weight was increased.

Higgins reported that the manufacturer, P&D Hobbies, advised that the loco weight could be increased to 5lbs (80oz). Higgins increased the weight BUT HAS TO STAY WITHIN MOTOR CURRENT LIMITS WHICH HE DOES. Higgins actually increased FA to 22.5% (12.80 TE/56.88 weight) by adding 26 oz of weight. Note when he adds the weight, (26 ozs) the current at full load goes up from 1.2 amp to 1.8 amp – this is well within the Pittman 8514E stall motor rating of 8 amps. (Figures come from Higgins Electronics responses table.)

APPLICATION TO OUR MODEL LOCOMOTIVES

At the outset I point out that a loco hauling 55 wagons, (110 in NSWGR speak)?, on our 'O' scale layouts is at best 'academic'. Certainly we know from the foregoing the F9 and for that matter the O Aust 48 Class, (refer Roger Porters test figures in post # 13772), can certainly haul more wagons than the prototype would be required to haul. (Extrapolating from the Higgins material the O-Aust 48 Class, given Roger's figures, would be able to haul at least 75 'O' scale wagons). I would therefore propose that the prototype load tables, (10-30 wagons?), rather than 75 wagons is the benchmark against say the 48 Class should be judged.

TEST PROCESS

In the following **STALL** current is that which is measured when the motor shaft is not rotating (locked) **SLIP** current is that which appears when the locomotive wheels are turning but the locomotive is not moving.

- ▲ Get motor specifications particularly stall current. Note that stall current is only important in determining how much additional weight can be added. It is not important in determing which DCC decoder you use. The critical factor in choosing a decoder is **SLIP** current
- determine max current drawn by test loco at 12vDC on level **STRAIGHT** track.
- determine slip current at 12V on max grade. Model locomotive wheels vary in composition and this has an effect on propensity to slip but as rough rule of thumb slipping should normally occur at about 1:5 that is a 20% grade
- calculate TE
- ▲ calculate FA

If available, determine from published data what the real life loco was permitted to haul – for example see Preston R.G. "48 Backbone of the Railways", Eveleigh Press 2005, page 100. *(my opinion)...* If the model, e.g., O-Aust 48 = or exceeds the figure from the data, (which it does) do not worry about the next step. Subject to the previous proviso...if FA <25% add weight to loco until FA is achieved or max current on level =< slip current *AND MAX CURRENT ON LEVEL AT 12V IS* < 50% *OF STALL CURRENT AS PROVIDED BY MAKER* – retest as per Higgins. Finally keep in mind that it is only a hobby and in practical terms because of space limitations and other factors our 'O' scale model trains probably won't exceed 20 bogie wagons anyway!!

AN ADDENDUM

For those who have not worried too much about trigonometry since leaving high school the following shows how to use Windows ® Calculator to calculate a trigonometrical value- using slope angle of 1 in 5.2356 given in the preceding material. Note that a piece of track of length= 533mm approx, elevated 100mm at one end subtends a slope angle = 1:5.2356...... 533 being the value of the hypotenuse, (longest side of a triangle).

In Win7 or XP

- go to START- All Programs-Accessories-Calculator. (N.B. Many keyboards have a calculator button which will pull up a virtual calculator which will appear on your monitor - if you have that button you do not need to go to Programs and the calculator pops up
- Go to View and choose Scientific also ensure that the calculator is set to Degrees In calculation window click on 1/5.2356 = (gives a value of 0.19000.......) click on inv (inverse) click on tan (in Win7 will show up as tan-) gives angle value of 10.81326 click on sin (gives value 0.187608...)

then click on * (multiply) by 875, (loco weight in grams) which results in a TE (tractive effort) of 164 grams

Help Us Celebrate The Aus7 Modellers Group's 10th Birthday (In March 2014)

The Aus7 Modellers Group turns 10 in March 2014 and the Executive feel we should mark the occasion in an appropriate way. While the planning for what we might do to celebrate our 10th anniversary is in the very early stages at this time, the executive are proposing to members that we mark this event in the following ways:

An O-scale Exhibition

We have discussed holding a one off, single day model railway exhibition in a suitable location in Sydney in the first half of 2014 that showcases O-scale modelling in all its various forms. This showcase would include a range of standard gauge model railway exhibits in 1:43.5 and 1:48 and a selection of outstanding narrow gauge layouts. Venue and dates TBA, however it is unlikely to be held in the same venue as our bi-annual Forums.

A Bumper Issue of 7th Heaven

During 2014 it has been proposed that we produce an expanded, anniversary issue of 7th Heaven that will provide a souvenir of our 10th birthday. As always, this will depend upon contributions.

A Challenge to Members

We would like members to become involved to help us celebrate our 10th birthday. The executive cannot do this on its own. At this stage we would like to hear from members about what they think of the ideas outlined here and offers of help are always welcomed. What we really want to do is challenge members to set themselves a goal: to have an O-scale model, display or layout ready to exhibit in 2014 so that we can put on show the best Oscale has to offer.

Please submit your ideas or suggestions in writing to Trevor Hodges at trevorhodges@dodo.com.au or to the address in the front of each issue of 7th Heaven.

Trevor Hodges

President

VALE

It is with a great deal of sadness we have to report that Robyn Greentree has passed away. Her gallant fight with numerous health problems came to an end on Wednesday, 21st December, 2011.

Robyn joined Berg's Hobbies twenty nine years ago on a one day a week basis which soon stretched out to four and a half days a week, initially working for the late George Berg and later for George's son Peter. Her main role was bookkeeper, wages clerk, records etc., however, over the years she amassed a huge amount of knowledge of all the hobbies that Berg's catered for from trains to planes, from ships to cars. Customers, particularly men, were astounded that a woman could offer so much knowledge and advice on many different hobbies.

No longer when we 'phone Berg's will we hear her quick "Berg's Hobbies - can I help you" when she answered the 'phone.

To her husband John and the many, many friends she made by personal contact or by 'phone, we offer our deepest sympathies.

Robyn, we miss you.

Peter Berg and Jim Cattell.



The Aus 7 Modellers Group presents



LEAGUES CLUB

Saturday 24th March, 2012

- Clinics on model and prototype subjects
- Lucky door prizes
- Lucky door prizes
 A modelling competition for the 0-Aust Kits trophy
 Traders who specialise in 0 scale and other scales
 Bring your latest model Show & Tell (even if not complete
 \$25.00 includes morning/ afternoon coffee & tea
 Excellent lunch available in club bistro



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For further details see www. aus7modellersgroup.org

Showcase



Stephen Reynolds built this NSWGR lamp trike from a kit manufactured by Aus7 member Tony Smith. He then constructed the small diorama to place the Trike on and presented it to a friend as a birthday present.

lan Seers recently built this model of Public Works
Department locomotive no.78. It started life as a Tower models kit and he rebuilt the cab, rods, brake gear, buffers, shunters steps and added a bit more detail to make No.78.

LCL container constructed from Styrene by Stephen Reynolds. It will serve as a Fettler Hut.

An advance photograph of the small signal box being produced by Laurie Green and John Hunter from the Outback Model Company. This kit, available to all attendees, will form part of the presentations by John and Laurie at the next O Scale Modellers Forum to be held on March 24th this year. See elsewhere in this issue for details.

Commercial News

Trevor Hodges

O-Aust

O-Aust Kits info@oaustkits.com.au, and via the web site at www.oaustkits.com.au, at PO Box 743, Albany Creek, Qld, 4035, mob 0419680584 or (07) 3298 6283 have advised the availability of their range of locomotives kits as of the time of writing: (Z)19 0-6-0 (2 in stock), (D)50 2-8-0 (0 in stock), (C)32 4-6-0 (1 in stock), (C)30 4-6-0 tank (2 in stock) and NSWGR 48 class (0 in stock). Once stocks are sold out there are no plans to produce any more runs unless demand is sufficient to justify a re-run.

It is hoped that both the GSV and EHO will be ready in time for the April Aus7 Forum. The GSV is based on the 1948 steel under-framed version and will consist of the usual urethane and pewter castings. The bar modules are a brass etched frame with brass wire bars. An assembly jig for the bar modules will be provided with the kit. A BSV based on the 1959 version will follow the GSV. The EHO kit will be supplied initially as the mansard roof version.

After delaying the VR ELX project so an authentic VR bogie (XCS) could be produced to go with it, the kit should be available shortly. The bogie patterns have survived the Christchurch earthquakes and there have been resulting difficulties in obtaining the materials needed to produce the bogie. Hopefully these production problems are now resolved, allowing production to commence. The bogie will be available as a separate item.

Patterns for a 3 axle NSWR passenger bogie are almost ready and production should proceed shortly.

Waratah Model Railway Co

Waratah Model Railway Company, 149 Kyle Bay Rd, Kyle Bay, NSW, 2221 (02) 97851166 charris@nigelbowen.com.au and waratahmrc@optusnet.com.au have announced that the instructions for the BD are almost complete and that it is hoped that the kit for this wagon will be available for release at the April 2012 Forum. The kit is a mix of polyurethane, white metal and brass castings and will be supplied with buffers, hook draw gear and bogies. In further news Waratah are hoping that the HG Guards van will be ready for release at the Oct/Nov Forum. This kit will be available in three versions: single compartment, single compartment with guard's window and a double compartment versions.

Bergs/Haskell/O-Aust Kits

Bergs Hobbies, Keiran Haskell & O-Aus have passed on the news that final changes to the first pilot model of the NSWGR 44 class have been made and these have been sent back to the factory in China to allow completion of a final pilot model. These changes include a redesigned DC circuit board. An

interchangeable DCC circuit board will be available separately.

The 44 will come with a circuit board installed for use with DC power. The DCC board will be designed to sit on the same mountings as the DC board. The modeller will simply unplug and unscrew the DC board then screw in and plug in the DCC board. Any DCC decoder – supplied by the modeller – can simply be plugged into this alternative board.

Final production numbers have been provided to the factory. This number includes a buffer over and above the actual number of orders received so orders can still be accepted. However the availability of specific versions can no longer be guaranteed.

Ixion Models

Ixion Models, PO Box 303, Quakers Hill, NSW, 2763, Australia, (02) 9626 9273 or (02) 4957 415, info@ixionmodels.com and www.ixionmodels.com have indicated that the delivery date of the 7mm scale brass model of NSWGR 1021 has been set for March 15, and the locos are pre-selling now through Ixion's website. The locos will be supplied by Ixion from the UK, and the price is £425 post free to Australia (approximately \$AU630 at time of writing). Ixion have advised that numbers are limited and that potential customers should check the web site for availability.

The 7mm Hudswell Clarke 0-6-0ST is progressing satisfactorily. A recent visit to the factory in Hong Kong allowed a first painted sample to be brought back to Australia for careful examination. If the finish is satisfactory the next steps toward production can be taken. Ixion will be producing a range of 7mm scale injection moulded loco tools, which will be supplied with the Hudswell Clark, which will be available as separate items. The set includes the set of loco fire irons and shovels, as well as separate sprue with two oil bottles and a bucket. Price will be approximately \$6 - \$7.

David Peterson Modelling Services

David Peterson Modelling Services, PO Box 644 St Ives, NSW 2075, Tel 61 2 9144 1521, Mob 0402 156 048, email dwpeterson@optusnet.com.au has announced that the NSWGR (Z)13 4-4-2T suburban tank in 1:43.5 will definitely be produced. The production programme was being set at the time of writing: this is essentially the process of fitting the production of the kit into the UK manufacturer's production schedule. Orders are being accepted with a deposit. The kit will allow the construction of either the early or late version of the locomotive and can be built in either Fine7 or S7.

The motor/gearbox packs are now in hand for all those who purchased (Z)12 class kits. If you have not yet been contacted by DPMS please make contact and a motor/gearbox will be posted to you free of charge. Pickup can also be arranged.



PO Box 743 Albany Creek Qld 4035 Phone 07 3298 6283 Fax 07 32986287 Mobile 0419 680 584

Email info@oaustkits.com.au Web www.oaustkits.com.au

NSWR 30 CLASS TANK LOCOMOTIVE



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NSWR EHO PASSENGER GUARDS VAN NSWR GSV 4 WHL SHEEP VAN





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FINAL MODELS WILL HAVE ALTERATIONS AND IMPROVEMENTS