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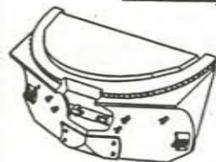
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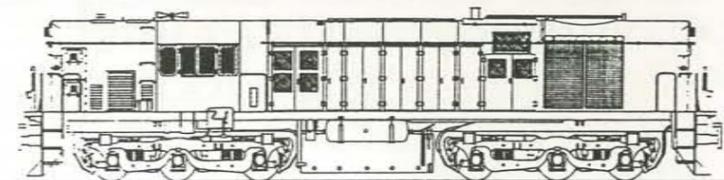
MAGAZINES and VIDEOS

AUSTRALIAN, AMERICAN, NEW ZEALAND, BRITISH VIDEOS.
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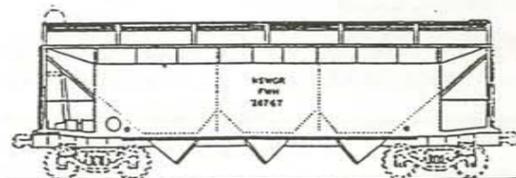
SNOW PLOWS



AIR HORNS



COOLING FANS



NUMBER BOARDS



MAIN LINE

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Main Line is the official journal of the Australasian Region of the National Model Railroad Association Incorporated. It is published four times per year in approximately February, May, August, and November. Articles, letters, members classified advertisements and club notices are solicited from the membership and are considered to be donated free for the benefit of the hobby.

They should be mailed to:-

**THE EDITOR, Main Line,
7 Booralie Road,
TERREY HILLS, N.S.W. 2084.**

or by Fax No. (61) 008 025 009.

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Paid advertising is welcomed. Current rates for four issues are \$130 for a full page, \$70 for a half page, \$40 for a quarter page and \$150 for the back cover. All enquiries regarding advertising should be directed to the Editor.

WAYBILL

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MEETING SCHEDULE

15th Feb	Bruce Ballment (02) 489 3836	14 Kooranga Place Start 2.00 pm	Normanhurst NSW
15th Feb	David Goddard (053) 41 3725	311 Eddy Avenue Start 11.30am	Mount Helen VIC BYO, BBQ
7, 8, 9th March	Camberwell Exhibition Both Laurie Green and Gerry Hopkins will have layouts at this exhibition.		Melbourne VIC
14th Mar	CANBERRA MEETING As Graham Hodges has been transferred to Cairns, we have had to make some changes in the arrangements for the March meeting in Canberra.		

It just so happens that the weekend of 14 & 15 March is a Long Weekend in Canberra and there are a number of activities planned including a model railway exhibition at the Wesley Uniting Church Hall in National Circuit which is just to the East of the new Parliament House building. Hours are 10 to 6 Saturday, 1 to 6 Sunday and 10 to 5 on Monday.

The Railway Museum will be open and apparently there will be fan trips along the route of the Molongolo branch. We will be meeting at the Exhibition at 3.30 pm for our usual few words and later at a local restaurant, much as we did on our last enjoyable visit. (Hopefully, this time it wont be as cold!).

More for Sydney members at the 15 February meeting at Bruce Ballment's. Other members may contact Kerry McPherson on (06)258 1421 for further information.

28th Mar
Saturday **SPECIAL SALES MEETING**

We will be hosting an extra meeting at John Gordon's home at Roseville to sell a large portion of John's model railroad collection.

John is not well and has decided to dispose of the bulk of his locomotives, cars and railroad books. He is offering all items at most reasonable prices and he might just have that item that you have been wanting for some time.

John's address is 14 Dudley Avenue, Roseville NSW and we will be most welcome between 2.00 and 4.00 pm.

All enquiries should be directed to John Saxon on (02)949 4767 (Evenings) and not to John Gordon please.

11th Apr Glen Coventry 16 Lanai Place Beacon Hill NSW
(02) 452 2131 Start 2.00 pm

18th Apr A.M.R.A. Club Rooms 92 Wills Street Glen Iris VIC
(03) 885 7034 Start 11.30 am
BYO, BBQ and layout running - bring a train

17-20th April **Bendigo Exhibition** Bendigo VIC
If you missed Laurie and Gerry at Camberwell - they'll be here!

9th May **MINI CONVENTION** Ramsgate NSW
See Details On Next Page

13th Jun John Baker 12 Roseberry Road Kellyville NSW
(02) 629 2349 Start 2.00 pm

20th Jun Graeme Nitz 20 Alpha Street North Balwyn VIC
(03) 857 6959 Start 2.00 pm

15th Aug Laurie Green 20 Nambour Drive Sunbury VIC
Start 2.00 pm

8th Nov **ZIG ZAG Railway** Clarence NSW
SUNDAY Train leaves 10.30am from Clarence Station, BBQ lunch at Gerry Hopkins
"country estate" look for the Red Dragon between Bell and Clarence.

21st Nov Peter Myers 19 Marjorca Road Maryborough VIC
(054) 61 2323 Start 11.30 am BYO, BBQ



NMRA Sydney Convention

9th May 1992

A Full Day and Evening of Fun

8.30am-8pm

- Clinics, Clinics, Clinics, Clinics, Clinics
- Operating Layouts on Display
- Commercial Stands
- Model Contest
- Model Displays
- Silent Auction
- Morning and Afternoon Teas included
- Evening Sausage Sizzle (small extra cost)
- Evening Videos and Slides

VENUE - St. Andrew's Church Hall, Cnr Rawlson St & Rocky Point Rd, Sans Souci.

Send Your Registration Form (Included with Mainline) to:

Kevin Brown 33 Tobruk St. St. Marys, NSW 2760 Ah Ph (02)623 7612

Cost A\$20 if paid Prior Apri 12th 1992 A\$25 afterwards

8.30am - 8pm Including Morning & Afternoon Refreshments

1992 One Day Convention -- 9th May

The N.M.R.A - 1992 One Day Convention is being organised to achieve maximum participation by all attendees and this will include everyone - Yes! - even officials and presenters.

To achieve this a number of new concepts are being introduced and by reading this article YOUR participation has begun.

Clinics:

We are looking for members who have an idea or technique that they would like to show to other members but don't feel that they would like to prepare and conduct a full 60 minute clinic.

To allow us to achieve a full program we will be grouping a number of small clinics to provide a full 40 - 60 minute program.

The type of clinic we are after has been experienced by all who have attended any of the monthly meetings. Please consider giving a mini-clinic its not a difficult as you would think and the mini format allows the presentation to be given with little or no preparation.

Of course if you have finished that full 60 minute clinic don't be put off we will welcome you.

Model Display:

Many members produce fine models for their individual model railroad - but to be practical they may not be up to a placing in a modelling contest.

In line with the participating formula of the 1990 Convention we have decided to set up a display area for these LAYOUT QUALITY MODELS.

The model can be a simple boxcar that is a weathered, kitbashed and detailed craftsman kit - or how about that rare or unusual model?

If you are proud of it - **BRING IT** - we're proud to **DISPLAY IT**.

All models will be on display in the main conference room so they will be seen and admired by all. The modelling contest will be conducted in the same room and the judging will also be open to registrants -- but **NO** talking to the judges please.

Should anyone wish to discuss these matters further or have any suggestions please ring-

Gary Spencer-Salt on (02) 622-1916 in the evening

1992 ELECTIONS

Yes, it's that time again! In May we need to hold our usual biennial elections for the positions of President, Vice President, Secretary, Treasurer and for all five Divisional Directors roles.

All interested members are invited to contact Phil Knife who will be delighted to explain the responsibilities of the positions and the steps necessary to nominate.

Come on! Be in it! Believe us, it really is a lot of fun working for the betterment of the Region and the Hobby. Sure, it does interfere with the modelling time but it is very satisfying to be able to return some of the benefits gained from belonging to our great NMRA to others in this way. Also, service counts towards securing an award in the Achievement Program and that's a reward in itself.

So give Phil a call on (02)529 7196 or write REAL SOON to

Rev. Phillip Knife,
1 Newcombe Street,
SANS SOUCI NSW 2219

PRESIDENTS REPORT

I would like to wish all the members a Happy and Prosperous New Year and I trust 92 will be the year Australia climbs out of the "Great Recession we all had to have"!

The major event we have planned for this year as you will all know is the Mini Convention in May. Planning is coming along nicely and it should be a really super day. The venue is fabulous and we will for the first time be able to run concurrent clinics. The program will be repeated so you won't miss out on anything and it means the presenters don't miss out on too much either. We still need more clinic presenters. Don't be put off by modesty or shyness, the format does not require full scale, long (50 minute) clinics, 15 minutes with question time are all you need to prepare. So call Garry Spencer-Salt with your ideas for a clinic that you want to share with us. You never know you might even enjoy it and everybody has something worthwhile to

contribute.

March will see us at Canberra for the first time in a nearly two years and to make the trip even more worthwhile our great public service city is holding a festival in our honour with lots of thing to do and don't forget there is a rail museum right on the doorstep and it's open all weekend. So check the meeting schedule for more details and with luck the weather should be warmer than our last visit.

May will see our biannual elections taking place so its more fun being involved so give it a go and put your name forward for a position on the board. Phill Knife is the person to contact for details. Please see the notice elsewhere in the magazine. That's about it for now.

**Sowerby Smith
President.**

WELCOME ABOARD

Murray WEYMOUTH
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ST MARYS NSW 2760

Robert J LEWIS
33 Chisholm Cres.
CAMPBELLTOWN NSW 2560

Per HASSEL
3 Cotswold Street
WESTMEAD NSW 2145

Ken J. MacLEAY
12 Chowne Street
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Ken SCALES
19 Goliath Ave
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36 Cobham Avenue
WEST RYDE NSW 2114

Roger HORD
14 Francis Street
CASTLE HILL NSW 2154

Mrs J COOPER
47 Lincoln Avenue
COLLORROY PLATEAU NSW 2284

John BOOTH
60 Berkley Street
SPEERS POINT NSW 2284

Please welcome the above new members.

When you are asking for a members discount at selected hobby shops, you **must** show your **Australian Membership card not the US card.**

Meeting Report

Sydney N Scale Model Railway Club

In the recent membership survey we were asked, among other things, if we were interested in expanding our activities to include a permanent clubroom and operating layout. So it was very timely and interesting to be able to see such a club in action. Our November meeting was as guests of the Sydney N Scale Model Railway Club, in their clubhouse at Ramsgate.

The club was formed in 1972 and met for many years in church halls, to which they would bring modules and have to pack up again afterwards. Then in February 1984 they were able to obtain their present rented premises, and began to build their permanent layout.

Their layout at present fills a bit less than half the layout room of about 30'x20'. It's a twice around continuous folded oval, and being N Scale the main line is several scale miles long. On display was a model of their proposed layout extension, which will nearly fill the room and double the mainline length.

The main line is partly double track, but the portions of single track mean operation is not straight forward when several trains are running at once. Perry, the dispatcher, hardly seemed to come up for air the

whole time we were there.

The layout as such belongs to the club, but all the locos and rolling stock are owned by the individual members who bring them along for each operating session. Control is by plug-in walk round cabs with a number of sockets distributed around the layout, providing for up to eight cabs to be in use.

Most rolling stock is American, but there is no restriction and some members run trains of NSW or European prototype. The train I most enjoyed watching consisted of 40 odd Norfolk and Western coal hoppers, headed by two big N&W Mallets.

The club is open every Saturday, with operating and building on alternate weeks. They also have under construction an exhibition layout. Having permanent premises has some other benefits besides a club layout. It gives the members a permanent regular place to meet, with room for storage and work under construction. It also allows the library to be set up for easy access at all times.

Mini Clinics have become a regular part of our meetings this year. So have the presenters (this is a hint that we'd welcome some new faces to give mini clinics). Gary Norwood gave us some tips on maintaining and improving the running of steam

locos. The one I liked best was the 60 cents repair. Someone gave him a loco which would not run, so Gary told him it would cost him 60 cents to fix. He gave Gary 60 cents and he placed the coins on the tender and away it went. The problem! Not enough weight in the tender for good electrical pick up.

Sowerby Smith promised us a one minute clinic on forming handrails and other detail parts. Anyone who's tried it knows it helps if you are an octopus. For the rest of us, he showed us how useful Blu Tack is, and one minute stretched to 2,5,10 - all useful stuff. After the Mini-clinics the club had laid on a sausage sizzle for us in the garden. Thanks to president John Hall and the members for inviting us to their club.

Christmas meeting at George and Celeste Paxon's

When I began writing the report for this meeting I realised there was no layout as such to write about. Not much I can say here about operation, scenery, track plan or whatever. This made me wonder perhaps when I have reported members meetings I put too much emphasis on their layout. After all the prime purpose of the meeting is to give the opportunity for us to get together on a regular basis, and the committee would not want a member to be reluctant to host a meeting just because he didn't have a layout. And yet don't we always come away from a meeting full of ideas.

However, layout or not you couldn't fail to be impressed after a visit to George's railroad room. There for our inspection was the most delightful array of 0 Scale models. Most were 0n3, with the majority of those being D&RGW, though I noticed some East Broad Top as well. There was also a mine tippie, a couple of bridges and several buildings, all beautifully detailed. How many people are going to go away and look at their layout rooms again and decide, "Yes I could fit an 0n3 layout in here."

George has done a great job of turning unused under floor space into a comfortable, cool, dry, useful railroad room. It's an interesting building project, which George described on page 17 of the May 1991 Mainline. How many people are going to go away and look under their house and realise, "yes maybe we do have room for a layout"?

By the way, George may not have his layout finished yet, but he sure has a backdrop. Grey, green, cool and moody. Far off hills, rain threatening. I'd be prepared to bet that once the scenery is finished, many visitors wouldn't even notice the backdrop. And that I believe is the way it should be, just like a picture frame, unnoticed but necessary.

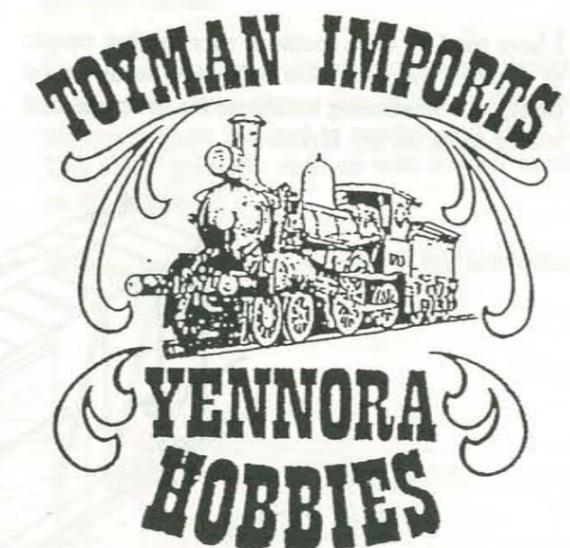
At the Christmas meeting, in contrast to the other meetings, a lot more members are accompanied by their wives and this year was no exception. Over sixty members and their families turned up, which is just as well, as there was a mountain of good food. Thanks to Celeste Paxon for preparing such a fine repast and to all the others who brought a plate, our thanks.

Shirley MacMicking sells raffle tickets in such a no-nonsense way that it was not until the raffle was drawn that I realised I had no idea what the prize was. Garry Norwood won the prize which was a selection of Detail parts donated by Easiway. The raffle raised \$40.00 for the associations fund, so thanks Easiway and thanks Shirley.

After lunch and the usual announcements Garry Spencer-Salt presented a Mini-clinic on freight car tune up, concentrating on trucks and couplers. If you missed it you missed a heap of good tips for better running. Maybe, just maybe, he'll do it again at the Mini-Convention.

After several days of solid rain we were lucky it stayed dry for the meeting. I'm sure Celeste cringed at the thought of over 60 people having to eat inside, fortunately it was not necessary. It started to rain just 15 minutes after I left. Thanks George and Celeste and all who helped make it such a great day.

Glen Coventry



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WEATHERING BY CHALKS

by Fred Gill

Over the years there has been a lot said and written in magazines and books about weathering structures, rolling stock and scenery. Some modellers will argue for using a paintbrush method, others for air-brushing and still others for the pastel chalk techniques of applying the weathering. Personally I feel that all the methods have their own merits and a modeller should use the method that is most suitable to him.

There is also a lot of opposition from some modellers that all rolling stock and structures should be left in pristine colours so that the true nature of the model can be viewed. Other modellers will have a very light coat of weathering on some items on their layout whilst still other modellers will coat their models in a heavy layer of grime and dust. In some cases I have seen rolling stock and structures lose their original colouring completely and they then all end up appearing the same colour - a grey-brown colour.

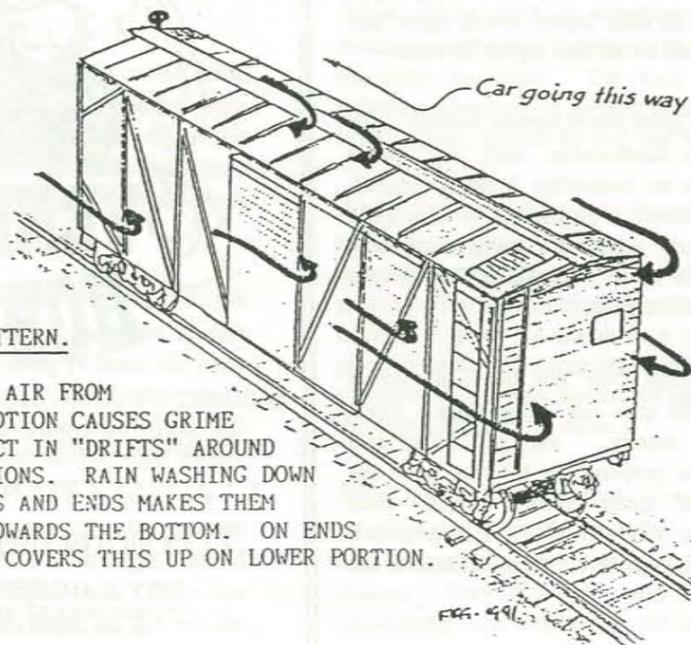
A lot of modellers have needless misgivings about weathering their structures and rolling stock. Weathering is not a difficult task and careful weathering makes a model look "natural" and like the prototype. Also, weathering can sometimes cover errors in assembly and finishing of models.

I have tried all three methods over the last couple of decades and have now settled on using pastel chalks as a weathering technique for structures and rolling stock on my layout.

As my railroad is modelled in the period from 1880 to 1910, the structures and rolling stock are a mixture of old and new models. There are no items on the layout that have "just come out of the paint shop", but at the same time, all models are not weathered with the same amount of dust and grime. Some are lightly dusted whilst "older" items are more weathered in a heavier fashion.

Pastels are coloured chalks that when ground to a fine powder will provide a coloured powder that can be applied to a model with an applicator (soft paintbrush, cotton bud or even a finger) for some delicate weathering effects. Many of the subtle colours and tones possible with chalks are far beyond the capabilities of a paintbrush or airbrush.

Pastel chalks can be purchased at any art supply store and you should look for SOFT artists chalk sticks (round or square), but DO NOT use the hard blackboard sticks. Most art shops sell individual sticks, but some shops only stock sets of chalks which means that you will end up with colours that you will not need in your work. I use two brands, FABER CASTELL and SCHMINCKE, the first one is of the square type and cost around \$2:50 a stick whilst the later one is worth around the \$3:00 MARK. Some modellers may think that this is a lot of cost, but you need only buy the colours that you require and secondly the sticks will last for a period of years, so the final cost is not that great at all.



GRIME PATTERN.

SWIRLING AIR FROM CAR IN MOTION CAUSES GRIME TO COLLECT IN "DRIFTS" AROUND OBSTRUCTIONS. RAIN WASHING DOWN CAR SIDES AND ENDS MAKES THEM DARKER TOWARDS THE BOTTOM. ON ENDS THE DIRT COVERS THIS UP ON LOWER PORTION.

The colours that I use are black, burnt sienna, burnt umber, ivory, buff, light grey, dark grey, dark brown and a light green (this is for scenery work). The mixing of colours will allow you to make lighter or darker shades of colour. If you are wondering why I don't use white chalk, I use talcum powder instead as it is the softest powder that I know of and it mixes well with all the other colours.

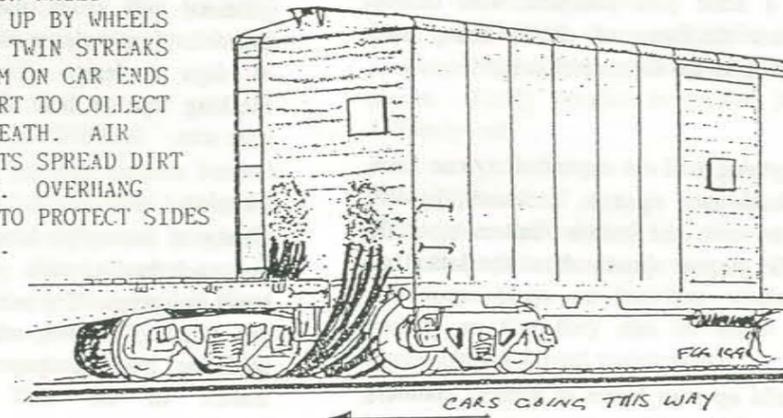
Grind the chalk to a fine powder by rubbing very gently across a sheet of medium sandpaper or a coarse file, and collect the residue in a small container. I store my powders in small clear plastic bottles so that I can see the colours easily, and when I want to use them I sprinkle some out into a plastic tray which has small compartments in it, and then use the chalk from here.

Now comes the application method, there are a few different ways of applying the powder to the model, you can use a soft brush to brush it on with, a cotton bud to do the same job or you can use one of the earliest tools invented, a finger. I use all three methods plus the "sprinkling or blowing" method, which consists of sprinkling the powder onto the model and then blowing away the excess powder. This leaves a residue which appears to have been windblown onto the model or if you like you can pat the powder on more firmly to the model surface.

If you use a wide brush, then broad strokes should be applied to give an even appearance, a small brush or the edge of a wide brush will allow you to make narrow streaks of colour. To obtain a blotchy appearance you can use a scrubbing action with a cotton bud. A splattered effect can be obtained by tapping a full brush against your finger a short distance from the surface of your

MUD PATTERN.

WATER ON RAILS KICKED UP BY WHEELS CAUSES TWIN STREAKS TO FORM ON CAR ENDS AND DIRT TO COLLECT UNDERNEATH. AIR CURRENTS SPREAD DIRT AROUND. OVERHANG TENDS TO PROTECT SIDES OF CAR.



model and any excess can then be blown away after reaching the desired affect.

Too much rubbing with either a brush, cotton bud or finger will cause the powder to take on a shine, so easy does it. Chalks always work better on a matt finish, as this type of surface gives the powder something to grip onto. Powder is the only medium that duplicates dust in model form.

Some modellers do not like using chalks on rolling stock as the need is always there to handle the model quite often, so the weathering has a tendency to wear off or show fingerprint marks on the model's surface. To overcome this problem I use brighter colours than I require and after they have been applied I spray the whole structure or piece of rolling stock with Testors Dullcote. Be careful here as too much fixative will darken the tone of the powder, so the fixative should only be sprayed on so that it barely dampens the powder, which will turn dark at first, but will become lighter as it dries.

Sometimes I leave structures alone after their powder application, as they will not be handled at all once they are installed on the layout. In the case of coaches and freight cars I may only spray the sides of the cars and leave the roofs alone. If a roof is smudged accidentally then it is no problem to "re-powder" it and match it up to the previous colours.

There are a couple of illustrations on weathering rolling stock, but I always like to have a photo of the type of unit I intend to weather and copy it. This I find generally ends up with a better result on the model.

Well go to it and try your hand at this interesting section of our hobby.

TOWARDS LIGHTWEIGHT LAYOUTS

By Lyndon Spence

Part 2 - Construction and Finishing Methods

Last issue I described the Wollongong Model Railway Club's experiences in building its lightweight exhibition layout "Gum Creek". This issue I'd like to discuss some details of construction and finishing techniques using expanded styrene foam (also called "styrofoam") to build portable layouts.

SAFETY WARNING

Let's get the nasty part out of the way first. There are two dangers about the stuff that must be considered. Firstly, the sawdust created when cutting it and secondly, the fumes emitted during certain processes.

Sawdust

If you're working alone, clean up often using a vacuum cleaner. Better still, have an assistant arm the vacuum while you do your cutting and shaping. The sawdust is so light and fine it can be inhaled or end up in your eyes. After an unpleasant personal experience with a blocked tear duct, I now always wear safety goggles while cutting and shaping it. Although inconvenient, not to mention uncomfortable, I keep them on until I've thoroughly vacuum cleaned my hands and my clothes.

Fumes

If working with heat or solvents, foam can emit horribly toxic fumes. Therefore, make sure the room is well ventilated. Better still, do this work outside

CONSTRUCTION METHODS

Planning

Draw up a scale plan complete with contour lines to suit thickness of sheets being used. Transfer plans to the sheets and cut out.

Cutting

Almost anything will cut expanded styrene foam. I've used bushsaws, ripsaws, hacksaws, jigsaws, x-acto razor saws and hotwire cutters especially built for the purpose (more about the latter in a future issue).

Assembly

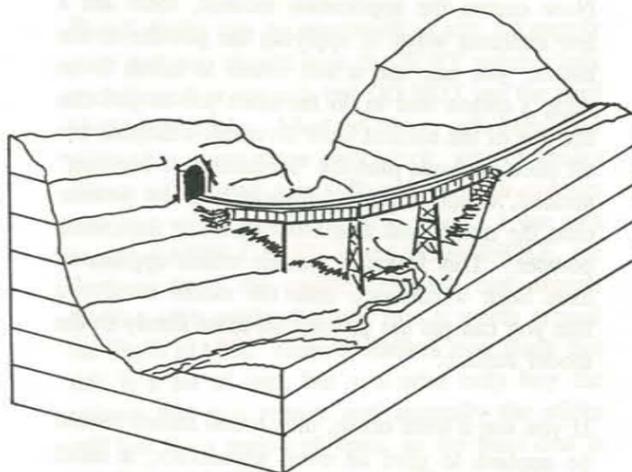
As you build up your layers of scenery contours, try temporarily tacking them together with

masking tape (Fig 1). Don't be afraid to pull a whole section apart if it displeases you and try again. Once you are happy with the shapes and contours, then glue the assembly together. This method allows mistakes to be rectified easily and also saves wasting glue.

FIGURE 2

FINISHING THE LAYOUT

"Baseboard" and Scenery: - Laminations of 50mm Sheet-Foam



Shape, finish and lay track as per text

Gluing

An ideal glue to use for foam is a PVA White Glue. Examples of this are Selley's Aquadhere and Sturdee Woodworking Adhesive. This type of glue is safer to use with foam than contact adhesive. Some types of solvent-based contact adhesive will attack the foam and should be avoided. Leave the sections to dry for a couple of days at least. Use weights, clamps or masking tape to hold them together while the glue sets.

Shaping

Plenty of favourites here. They all work well and each has its own place, depending on the result you want. Try using a wire brush, saws as per "Cutting" above, electric drill wire brush, soldering iron, sandpaper. Remember a great feature of the stuff is that results are instantaneous.

Finishing

Undesired cracks, fissures and holes can be easily filled with paintable acrylic caulk. Use the cartridges applied with a caulking gun. They are cheaper and easier to use. Excess can easily be wiped off and applied elsewhere. Clean up with water. Remember that flexibility and resistance to damage I discussed last issue? The acrylic caulking carries on this theme. It can also be used in place of plaster to simulate rock strata. Wait until its almost set and carve it as you would plaster. I haven't used rubber moulding but it may be that you could use the caulking for this purpose. Perhaps some feedback from someone on this?

Colouring and Foliage

Paint the whole lot with an el-cheapo water based plastic house paint from one of the chain hardware stores or K-Mart. Use a sandy-clay colouring as a base colour that will suit the area you're modelling. It's surprising how tough a skin the paint forms over the foam. Grasses and foliage can be then added using one of the 101 types of methods covered in the various model railway guides and magazines over the years. I particularly like the advice of Dave Frary in his book published by Kalmbach Books "How to Build Realistic Model Railroad Scenery".

Creeks and Rivers

Once the foam is sealed with the plastic paint and thoroughly dry, casting resin can be poured to represent water.

Tracklaying

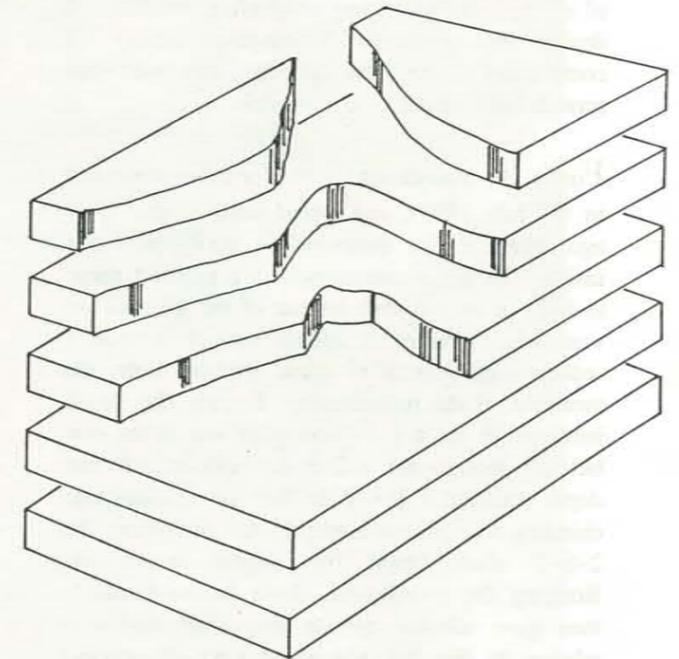
Obviously tracklaying directly onto to foam doesn't work because it will not hold spikes or trackpins. Gluing the track direct to the foam is also not practical. Therefore, the solution is to glue down a sub-roadbed of either plywood (best) or chipboard (not as good since it can be affected by humidity). To that, glue down roadbed cut from either canite or cork (or both) and then proceed with your own tracklaying method (Fig 2).

Switch Machines (or Point Motors)

Cut a square hole in a suitable location beneath the turnout. The machine can then be screw-mounted on a scrap piece of plywood which has been glued in place. Hand throws can be screwed onto pieces of 3-ply also glued in place. Hide the ply with ballast or dirt.

FIGURE 1

ASSEMBLY OF CONTOURS (TYPICAL)



Cut Sheets into Contours as per your plan, then white-glue together

Wiring

Groove a slot on the underside of the foam baseboard to take the wire runs. Once the wire is in place, cover with 50mm wide masking or packing tape. Push a hole through the foam with a sharpened metal rod (or knitting needle) and pull your wire through as required.

Other No-No's

Just a few more no-no's before I leave you this issue. Don't use solvents, paint thinners, turps, petrol etc. unless you're prepared to see all your work end up in a gooey mess on the floor. If in doubt with a technique always experiment first on a piece of scrap foam (outside!).

Avoid "Sticky" Clothing

It's a good idea to wear anti-static clothes such as denims when you're in the cutting and shaping phases. Fluffy woollen or mohair jumpers are definitely out.

Next Issue

Next issue will feature how to adapt these methods to your own home layout. I'll also give you some ideas on building whole areas of scenery so that they can be made completely removable for layout maintenance.

DESTINATION DURANGO

Part 2

By Laurie McLean

Some of you would have seen the first section of my new layout at our convention in 1991. It depicts the Durango locomotive facility in compressed form and all the structures are scratch built on the 6' x 3' module.

Firstly the roundhouse. The original was built in the late 1800's and lasted until a few years ago when a fire destroyed it with the loco's inside. To get it compressed to a model I chose to build it as a 8 stall instead of the 10 stall yet was able to make it appear correct because I reduced the length of track leading from the turntable to the roundhouse. I made the length just enough for a 2-8-0 to 'stand out in the sun' but not enough for a 2-8-2. The roundhouse depth equalled a 2-8-2 so that the smoke/steam chimney was proportionate to the prototype, the 2-8-2 class being the largest locomotive. Bringing the roundhouse closer to the turntable then gave me the correct side wall angles in relation to the 'pit' and so it gave the correct appearance even though it was 2 stalls short! There were no plans available that I knew of so I drew my own using all references, photos and other information including practices employed in other roundhouses N.G. and standard gauge. Some of these plans were provided by friends, the rest from magazines.

To get the height I counted the number of bricks on the walls and converted allowing for mortar. Problem was that I thought in Australian standard size bricks and didn't think that American would be different. There were three brick manufacturers in Durango and one could imagine the sizes would vary somewhat. Anyhow the height had to be enough for the model locos to clear and this was allowed for in the final construction plans.

I used 'Holgate and Reynolds' sheet brick for the exterior and interior walls and gave them support with a frame of 'Evergreen Styrene' scale 10 inch square. The two side walls constructed it was time for the curved rear wall. This would have to be built from a base so I purchased a 3 foot square sheet of 0.040" styrene and scribed the layout of the whole roundhouse, tracks and turntable on it. Using scale 10 x 10 inch styrene, it was glued on the base bending it to the curve of the rear wall.

The 'Holgate and Reynolds' brick sheet had the

windows cut out (internal and external) and then it was glued to the base rail 10 x 10. Additional 10 x 10's were glued in between the brick sheets to give added support and strength and finally a capping was added again in styrene. The side walls previously built were glued in place and abutted the rear wall.

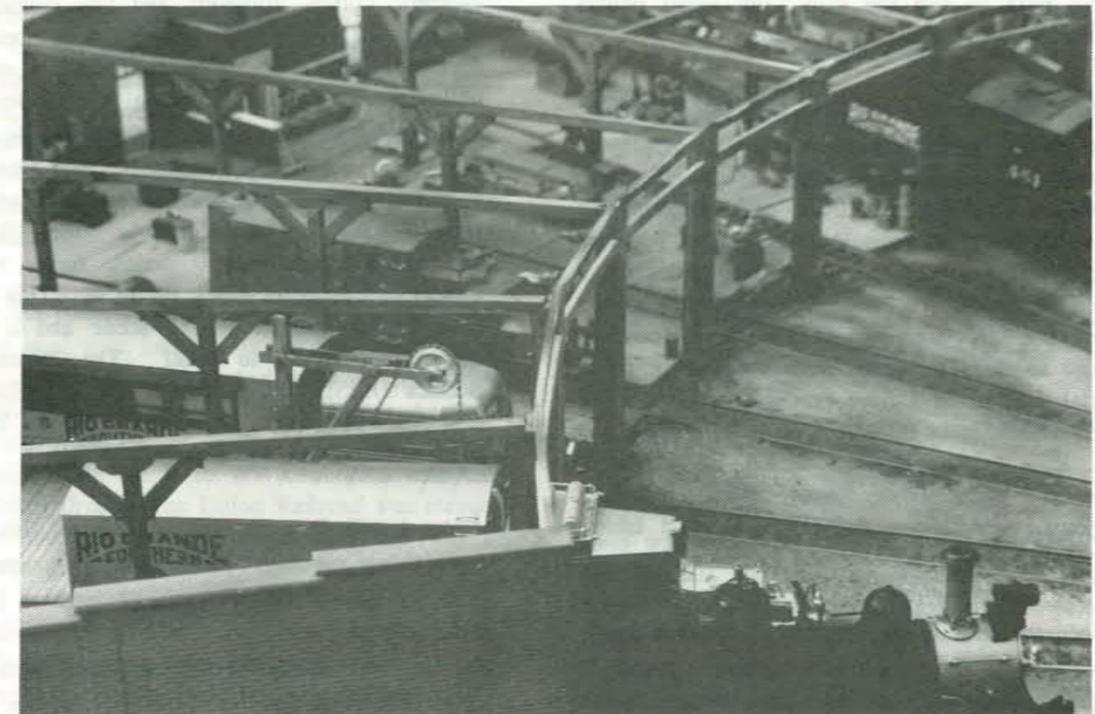
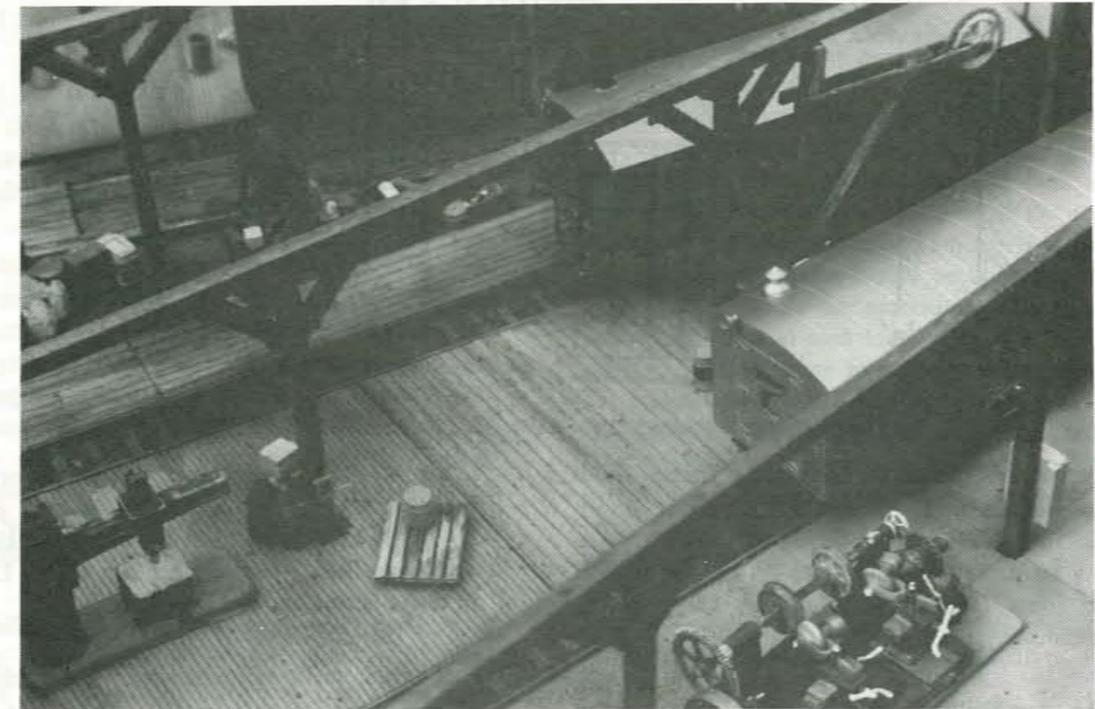
Photos show some very fancy brickwork on the rear wall and this was cut out from the brick sheet stock under a magnifying glass using a sharp 'xacto' blade and cutting the same shapes into the narrow brick strip. The prototype brickwork was also proud of the wall therefore layering of the narrow strips was necessary to build it up. Some fancy cornice frames stood on top of brick support piers and these were made using Grandt Line HO items adding nut bolt and washers.

The rear window openings were arched at the top and I used 0.015" styrene arcs to represent the stone curve over these windows and glued them in place. The front stall doors when open backed onto their opposite door and a 12 inch square timber beam supported them.

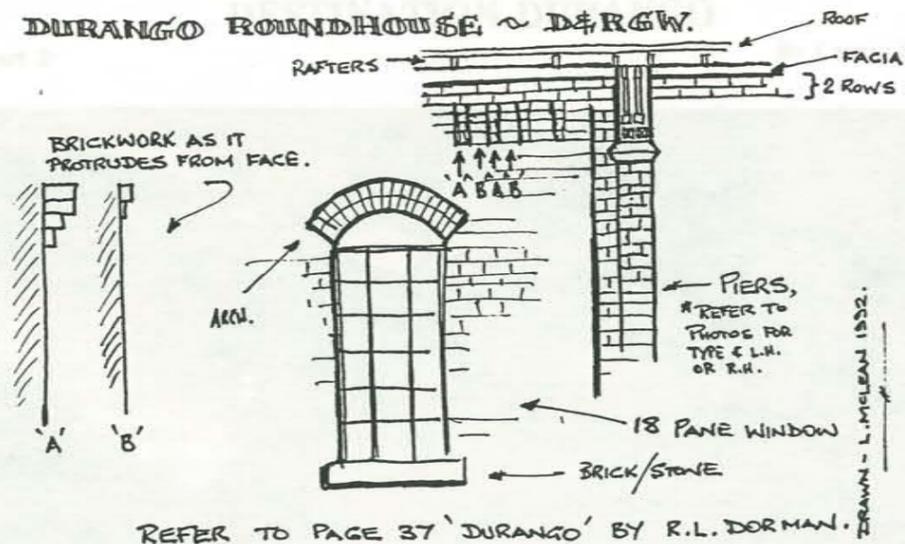
Now, because I moved the roundhouse closer to the turntable pit and compressed the structure, this posed a problem of door widths between the stalls. I had measured across the steam cylinders of the largest K-class locomotives and knew that 13 scale feet was required plus some clearance and luckily I was left with 13'10"! This gave enough for a 10 x 10 upright post between each stall entrance and so these were cut and fitted and the fascia boards and horizontal beams were added.

So the basic structure was complete minus the roof. This stage, with its trials and errors took over 3 months of nights and it got its coat of paint (tuscan and roof brown mix) to give it a better appearance and feel to work with. Refer to construction photos. The roof posed a problem. How to support such a large area and WHAT MATERIAL TO MAKE IT FROM ?

Being a model and knowing a loco may stall inside and would need the cobwebs swept out every so often, it had to be removable. Also interior frames and details needed to be accessible.



DURANGO ROUNDHOUSE ~ D&RGW.



Timber was chosen for the interior frames and it was prestained, jig cut and N.B.W. details glued. The roof itself would be 0.040" thick styrene with tar paper (masking tape) on top and bearers and joists (styrene scale pieces) glued to the underneath.

This was built as a sub-assembly on the bench and check fitted as construction moved along. Holes were cut for the smoke and steam vents and the vents were made of 0.015" styrene, all jig cut on my "cutter". The roundhouse doors were built to suit the stall front using photos which showed variation over the years.

Sheet scale timber was cut and fitted between the tracks inside the roundhouse to represent floorboards. The prototype did not have floorboard, rather dirt floor and concrete and possible brick or stone in some places, however for model purposes the timber floor adds detail with its nail holes etc and looks better giving clearer/cleaner viewing of the detail castings glued to it. The detail parts are mostly white metal with some I have produced myself using silicon moulds of masters I made in styrene and plastic. Details are as would be expected; wheels, tools, boxes and crates, machines brooms, cans, pipes, timber, chairs and tables, racks, benches, cupboards and lots more.

Once the roof is on you realise its dark inside and to see the detail and make it prototype lighting needs to be added. I am using 1.5 volt micro lamps and super-glue them inside "GRANDT LINE" lamp shades drilled out to permit the globe to sit in and look better. The very fine wires are connected to .012" brass wire which represents conduit. The main roof support beams (Horizontal) have the conduit running each side so that it gives electrical separation for

+ and -. The conduit runs down rear or side walls and electrical connection to the power supply of 1.5V (see article by Gerry Hopkins in a previous issue) is made beneath base. Lamps fit under beams and not over tracks.

All engine sheds or roundhouses had machinery of some sort of this require power. As the Durango roundhouse also required steam from a boiler I have chosen to model an overhead belt drive system for the 'Scale Structures' white metal machinery set. This has lathes, drills, grinders, cutters, trimmers and I've included a blacksmith's forge and tools with bellows operated fire. The Prototype had a single boilerhouse to the left which was a lean-to structure. The 'Builders in Scale' boiler is very close, however it is a twin boiler and Durango only had a single. Again I chose to change a little and use the beautiful twin boiler (B.I.S.) and added steam valves, drains, boiler water indicators and other pipes etc to it. This then gave further realism to the scene and a nice conversation piece to boot! The 'Woodland Scenics' DIESEL FUEL FACILITY supplied the fuel pump and extras required to heat the boiler using underground fuel storage.

Later I will fit a speaker beneath all this and have a tape running with machinery, steam and workshop sounds.

In the next articles I will continue with the construction of the sandhouse, turntable and drive mechanism. The articles after that will be the coal tower and coach shed, then water tank and track. The next module section will have the Depot and the town and some of the history of occupants of various abodes.

PITTSBURGH & WEST VIRGINIA RAILWAY

A Railroad You Can Model

Part 2

By George Paxon

The last article took a quick look at the history and the setting of the prototype P & WV. This article will explore P & WV modeling possibilities.

A highly realistic model of the P & WV could be constructed in modest space. To accurately depict P&WV operations, the schematic track diagram in Figure 1 is proposed. I have not attempted to develop a layout plan as that would depend on the space available and the shape of that space. However the schematic track diagram could be developed into an excellent HO layout plan for an average sized room or one car garage.

Ideally a P & WV track plan would place Rook yard near the centre of the line with a single track mainline extending in both directions. Adequate passing sidings and industrial spurs would need to be provided to ensure operational interest. Suggested industries would include several coal mines, light manufacturing plants, agricultural suppliers, scrap metal yards, oil depots, and building products suppliers. At each end of the mainline loops can be located to simulate the interchanges with the connecting roads, the Wheeling and Lake Erie or Nickle Plate Railroad, on the west end and the Western Maryland on the east end. Bridgeville, Pennsylvania was always an important interchange point.

At this point trains of coal, coke, iron ore, and scrap steel were handed over to the Pennsylvania Railroad for delivery to steel mills served by the Pennsylvania in the Pittsburgh area. Another important source of traffic was the Clariton branch where the P & WV connected with the Union Railroad. The Union Railroad was owned by Unites States Steel Corporation and was a switching line connecting the Company's major steel making facilities in the Pittsburgh area. Again loads of coal, coke, iron ore, and scrap steel would have been delivered to the Union. These interchanges could be modelled and would add considerable operating interest.

On the P&WV operations centred at Rook. Engines were maintained there and most were based there. Freight trains departed from Rook in both directions as needed. When reaching the interchange terminals at both ends of the line,

the engines were serviced at the connecting lines engine facility then sent back to Rook with the next available train. On arrival at Rook, engines were serviced or changed and the train switched, or if a through train, it continued on to the other end of the line after a change of power and train crew. The bare essential would be to model only a few parallel tracks for receiving, holding, and dispatching trains at each loop at the two ends of the line. One of these interchange loops should be hidden under the other to conserve space. Considerable operational interest would result from modeling the details of one of the interchanges. Since Connellsville was always of great interest to me, that would be the one I would recommend. This would allow partial modeling of some of the extensive Western Maryland, Baltimore & Ohio, Pennsylvania, and Pittsburgh & Lake Erie Railroad facilities that existed at Connellsville at one time.

On the west end of the line the standard operating practice from the beginning of P&WV operations and continuing to this day was for trains to run through Pittsburgh Junction and continue on Wheeling & Lake Erie or Nickle Plate rails to Brewster, Ohio which was a division point on the W&LE. Pittsburgh Junction was nothing more than a few sidings with a set of points connecting to the W&LE and a simple combination passenger and freight station. This feature would be simple to model.

Another feature that would add considerable operating interest to a model of the P & WV would be the stub Pittsburgh passenger and freight terminal just west of Rook yard. The prototype Rook yard was built on a ledge high on the hillside overlooking the valley of Saw Mill Run, a meandering creek. The yard was crowded by nature. At the west end the yard limit was established by the need for a bridge. On the east end the yard tracks were quickly squeezed together to permit them to dive into a tunnel. Just west of the tunnel was a wye (triangle) formed by the mainline to the west and the east as two legs and the stub line into the city of Pittsburgh as the third leg. Once on the stub after clearing the wye the track entered a mile long tunnel. It exited the tunnel onto a high bridge which crossed the mainline of the Pennsylvania's Panhandle Division, the mainline of the Pittsburgh & Lake Erie Railroad, and the Monongahela River. Once over the River, the line continued on a viaduct about thirty feet

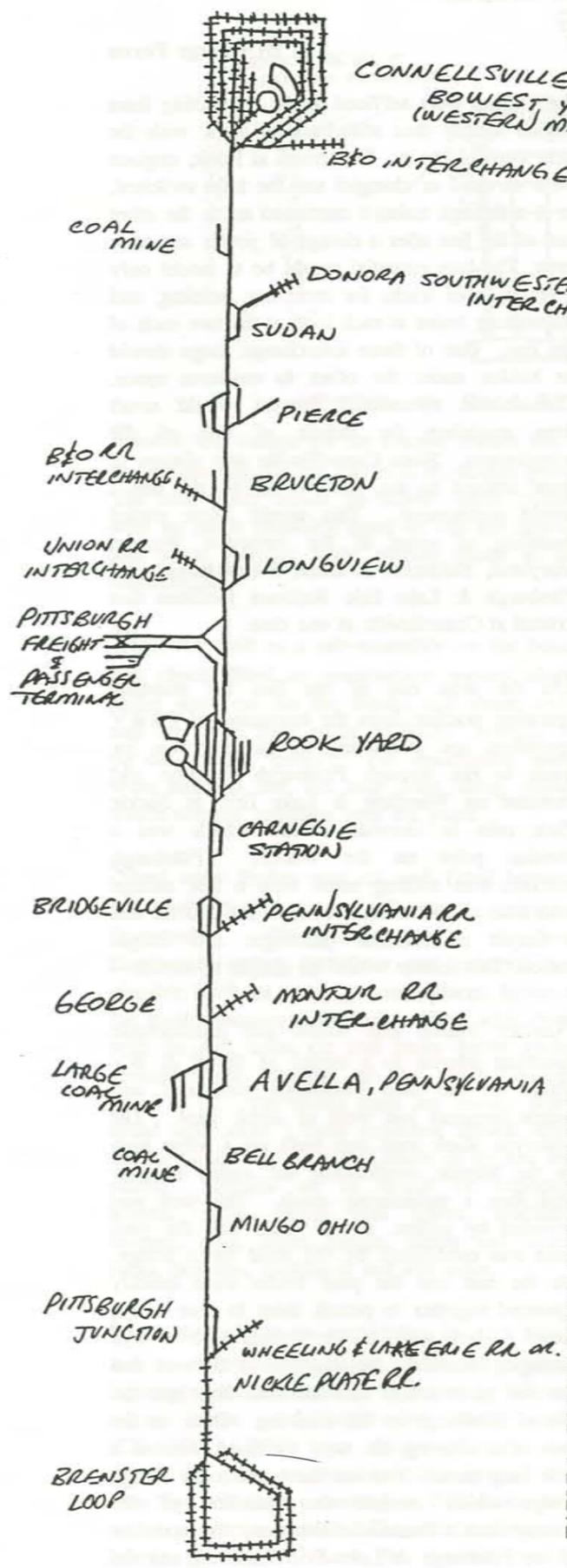


TABLE 1. P & WV MOTIVE POWER HISTORY

Period	Passenger	Local Freight	Mainline Freight	Switching	Month/Year	Hoppers	Gondolas	Refrigerators	Flat Cars	Box Cars	Covered Hoppers
1904-1917	4-4-0 & 4-4-2	4-6-0 & 2-8-0	2-8-0	0-6-0 & 0-6-6-0	6/17	2438	758	2	31	100	10
1917-1934	4-4-0 & 4-6-2	2-8-0	2-8-0 & 2-8-2	0-6-0	3/23	2909	755	2	27	201	35
1934-1953	NONE	2-8-0 & 2-8-2	2-8-2 & 2-6-6-4	0-6-0	7/32	3758	1230	2	49	207	79
1953-1965	NONE	FM H-20-44 & H-16-44R	FM H-20-44 & H-16-44R	BLW VO1000	1/39	2810	1198	2	20	100	10
1965-PRESENT	NONE	EMD GP7, GP9 SD9 & GP35	EMD GP7, GP9 SD9, GP35, SD40, SD45, U30B & C630	EMD GP7, GP9 & GP35	1/54	1666	1077	2	49	201	35

Table 2. Types and Numbers of Freight Cars Owned By the P & WV for Select Years

Month/Year	Hoppers	Gondolas	Refrigerators	Flat Cars	Box Cars	Covered Hoppers
6/17	2438	758	2	31	100	10
3/23	2909	755	2	27	201	35
7/32	3758	1230	2	49	207	79
1/39	2810	1198	2	20	100	10
4/47	1666	1077	2	49	201	35
1/54	1238	967	2	49	201	35
1/60	1162	606	2	43	207	79

above street level fanning out to form a small stub end passenger and freight yard. Engines pulling passenger trains ran from Pittsburgh Junction head first into the passenger station, discharged what few passenger made the journey, uncoupled from the passenger train and then backed the two miles to Rook yard for service. The line from Rook yard to the wye and from the wye to the Pittsburgh freight and passenger terminal was a rare piece of double track which could easily be duplicated.

Gould had envisioned a substantial passenger business (which did not materialise) and had ordered the building of a grand passenger terminal in Pittsburgh during the original construction of the line. The passenger station was about eight floors high and occupied most of a large triangular shaped city block. Behind the elaborate station was a two city block long train shed which fully covered six tracks. Alongside the passenger facility were several tracks which provided access to large freight unloading sheds. Remember that all this trackage was elevated about thirty feet above the streets below. The freight shed was a busy place with the Rook yard switcher delivering loaded cars and picking up empties throughout the day. The passenger station was a different story and was a lonely place with only a few local passenger trains pulling in each day. The entire downtown Pittsburgh facility was destroyed in a spectacular fire just after the end of World War II. The Railroad decided not to replace the freight facilities, and the stub line and the impressive Monongahela River bridge were removed in 1946 and the mile long tunnel sealed. The grand station building, which had been used for many years as the corporate headquarters of the railroad as well as office space for other firms, finally gave way to urban renewal in the 1950's and was demolished.

Model motive power will depend on the era modelled. Table 1 divides the life of the P & WV into eras and suggests the appropriate locomotives for each. The only truly unique power was the J Class 2-6-6-4's. No model has ever been made available commercially in any scale to the best of my knowledge. Kitbashing or scratch building a J Class would be a fascinating modeling project. I am now gathering parts for mostly scratch building one in "O" gauge, and building it in "HO" would be considerably simpler as many more parts could be bought for it. The 2-8-2's and 0-6-0's were standard USRA designs and are readily available in all scales. Several of the 2-8-0's were third hand Pennsylvania H-10's obtained from the Detroit, Toledo, and Ironton and they are

available in all scales. The majority of the other 2-8-0's were rather standard looking heavy consolidations and could be adapted from commercially available models with little effort. The Fairbanks Morse diesels are available in HO. For anyone interested in the post merger period, the Norfolk & Western EMD'S are also easy to obtain in any scale.

Additional motive power variety is possible. Operating agreements found Nickel Plate 2-8-2's and even the grand 2-8-4's running through and into Rook yard. At Connellsville P & WV power shared the engine service facilities with Western Maryland 2-10-0's and 4-6-6-4's as well as Baltimore & Ohio 2-8-2's, 2-10-2's, and the big 2-8-8-4's. Pittsburgh & Lake Erie and Pennsylvania engines could be justified as well.

In a future article we will look at rolling stock owned and operated by the P & WV as well as the assortment of foreign equipment that would typically be found on the Railroad.

PRODUCT REVIEW

By Gerry Hopkins MMR

In an age of advancing technology it is only a matter of time before some of the "new fangled gadgets" get used in model railways, such is the case with LIRPACELLS.

The Lirpacell is an Australian Development. You will no doubt have heard of solar cells which use the sun's rays to generate power. Well, the Lirpacell is very similar but only needs ordinary inside lighting.

The cells are in the form of black crystals (looks like HO coal). These crystals have to be mounted in a small container between two plates (the inside of a tender?). Light falls on the cells and this produces a voltage across the plates. There is enough power to supply a normal can motor and a small radio receiver/controller.

The radio control technology has been in use in radio control cars for the past ten years by Novak and Tekin companies.

Channels can be selected by changing crystals in the TX and RX units. I believe there are 15 channels available at present.

The transmitters are available in two types: AM

(Average Modulation) and FM (Fast Modulation - for diesels) either type can be used but an AM transmitter must be used with an AM.

Another property of the cells is that they hold a little power when the light is removed which allows a coasting effect and is great when your loco passes under a tunnel or bridge. The manufacturer advises that the cells will be on the market on April 1st.

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Shirley MacMicking is anxious to fill orders for any of the following items whilst still in stock. Remember, much of the stock will be sold at the upcoming Convention on 9th May so don't delay, contact Shirley soon!

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3 Inch Decals: (Inside/Outside)	\$2.00 pair	50c
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Turnout Templates: Sets of O or HO	\$5.00	\$2.00
Data Books in Quality Three Ring Binder	\$35.00	Ask for Quote.

Orders should be addressed to Mrs Shirley MacMicking at 247 Eastern Valley Way, Middle Cove NSW 2068 or telephone (02) 958 5988. Cheques should be made payable to NMRA.

RELIABLE TURNOUT CONTROL

Part One By Lawrence Nagy

This two part article will describe two cheap and easy methods of reliable turnout control.

In any scale, reliable turnout control encompasses two functions. Firstly, the points must be firmly mechanically locked to either route the turnout provides. Secondly, the polarity of the frog needs to be controlled concurrently with the turnout throw. If you're not using live frog turnouts, you've seriously compromised reliable slow speed running.

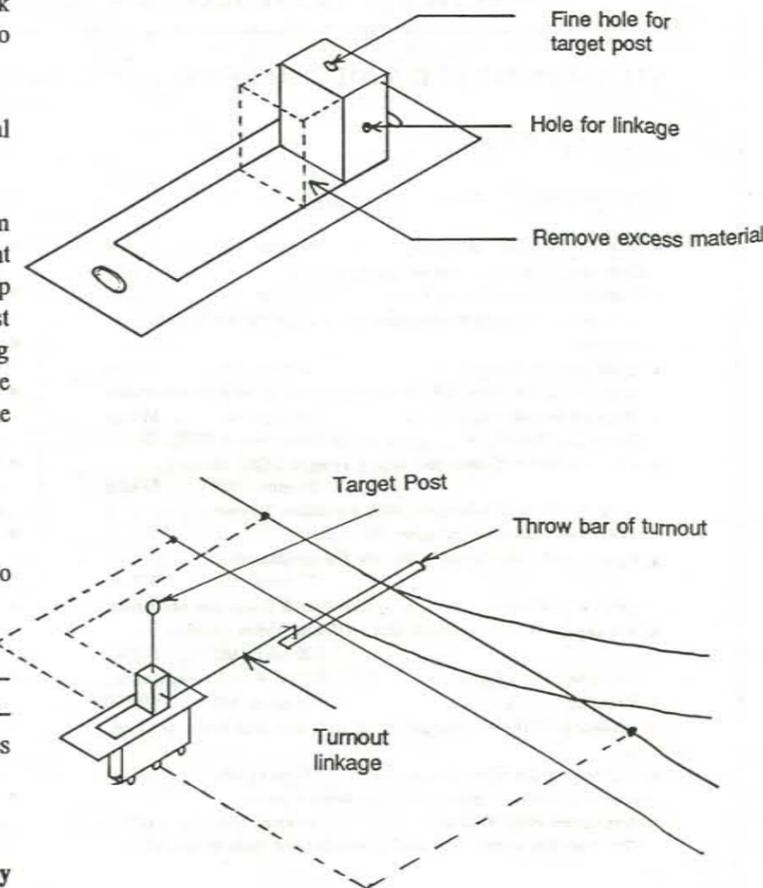
Many modellers use Caboose Industries ground throws for mechanical turnout control. They work well, but are grossly over scale (especially in N scale) and they don't switch electrical current. The scale problem can be minimised in HO scale by using the N scale ground throw, which works well for most commercial turnouts. However, there's still the problem of switching frog polarity.

This article describes using a Single Pole Single Throw (SPST) sub miniature slide switch for a compact mechanical and electrical switch. I first saw it in use on John Saxon's H.O. layout and it worked so well I stole the idea and adapted it for N scale. It's non-prototypical, yet blends in unobtrusively with the scenery. It's so easy to install I use it exclusively where I've altered trackwork in scened areas, because installation doesn't disturb surrounding scenery.

Here's the M.O. on installation.

1. Buy the SPST switches from either Dick Smith (part no. P-7610) or Tandy (part no. 275-406).
2. For N scale, reduce the section of the slide toggle with a razor saw or Dremel. The switch can be used as is for H.O.
3. Drill a hole in the side of the toggle to take the turnout linkage. The size of the hole depends on the wire you use - piano wire is okay for HO or N.
4. Drill a hole in the top of the toggle to accept a simulated target post - 20 thou Ø for N.
5. Drill or rout slot in baseboard next to turnout throw bar to accommodate slide switch's body.

6. Fabricate linkage from piano wire and connect throwbar to toggle. Check throw and secure slide switch to baseboard with screws.
7. Paint toggle and base either a gun metal or concrete colour.
8. Cut a simulated target board from shim brass and solder to 20 thou wire. Paint target signal red. Insert into hole in top of toggle. The target has to be robust enough to withstand handling. Throwing the turnout involves grasping the toggle (not the target!) and throwing it just like any other slide switch.
9. Connect wires as shown.
10. Cover base plate with ground cover to disguise it and mounting screws.



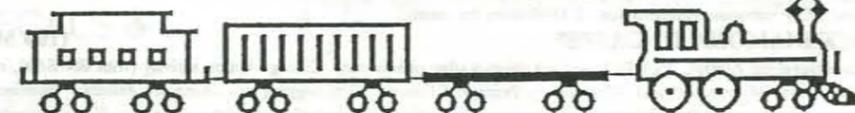
The next article will show how to use micro-switches under the layout linked to either self-locking Peco turnouts or Caboose Industries groundthrows.

Lawrence Nagy
Phone (A.H.) 639-5530

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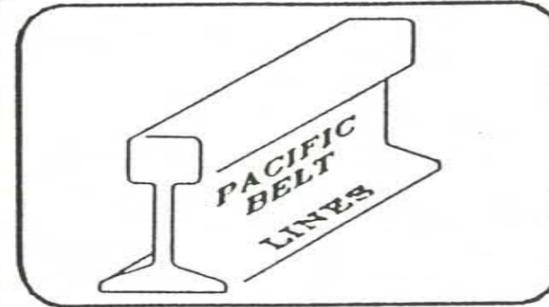
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Step aboard for the trip of a lifetime, as "The Canadian" crosses a vast winter fantasyland. Ice-encrusted rocks pass beneath as we skirt the north shore of Lake Superior. Our ride, from late Dec 1989 and the first days of 1990, occurred weeks before the end of service vial the Canadian Pacific. Great on-board views of the Kitchen at breakfast, and making up the uppers and lowers. Cab views through Rogers pass and Spiral Tunnels in deep snow. And a few views of earlier days to start things off. Railfan or not, this is a sure bet!
- "CANYON DAWN" (90 Minutes) \$68.00
Ride the cab of "The Canadian", and also a caboose through the rugged Thompson and Fraser Canyons east of North Bend, B.C. Cab ride begins in darkness, as daylight begins to increase. Long-continuous sequence! The caboose ride features an extended "race" with a CN freight across the Thompson! (Like the "Canadian", C.P. cabooses vanished Jan 15 1990 from the main).
- "BLACK DIAMOND TO GASPE" (104 Minutes) \$68.00
Experience travel on Amtrak, VIA Rail, and a Lehigh Valley private car! Chicago Union activity (with BN E-9s), ride to NY on "Broadway" - 5 and a half hours late - then "Montrealer" and "Chaleur" to Perce and Gaspe! Cliff-hugging ride along the Atlantic! Sunrises at 4.15 am. Beak-duelling gannets of Bonaventure Island. And, Perce Rock. Return trip includes "Capitol Limited" Washington Chicago. If you enjoy travel, enough said!
- "DOMINION STEAM" (60 Minutes) \$68.00
Look and listen to the twilight of mainline steam in southern Ontario, both C.P. and C.N.C.P. action centres around Guelph Jct, with several doubleheaders (2-8-2s, 4-6-2s, Hudsons etc). On the CN, 4-6-4s and 4-8-4s predominate on fast passenger and freight, plus the Fort Erie mixed. Ends with CN Consolidation #1551 in 1990, on the New W & LE.
- "TRANS-CANADA LIMITED AND STEAM EXPO" By Good Medicine (60 Minutes) \$68.00
Ride the restored "Limited" from Cranbrook to Vancouver, B.C. for a visit to the 1986 "Steam Expo"! 17 loco's pass in a Grande Parade. Ends with Last Run on the Kimberley Mine Branch, Feb 1, 1990. 3% grades and switchbacks, seen from caboose.
- "THE GREAT CANADIAN STEAM EXCURSION" By Good Medicine (60 Minutes) \$68.00
C.P. Consolidation 3716 pulls freight on B.C. RAIL, then is doubleheaded with 2860 (Royal Hudson). Then CN 6060/2860 get together, some fantastic bridge scenes! Also - BC RAIL School Train, Cab ride on CN freight in the Fraser, and vintage CP Steam in the West!

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