SOMERSAULT

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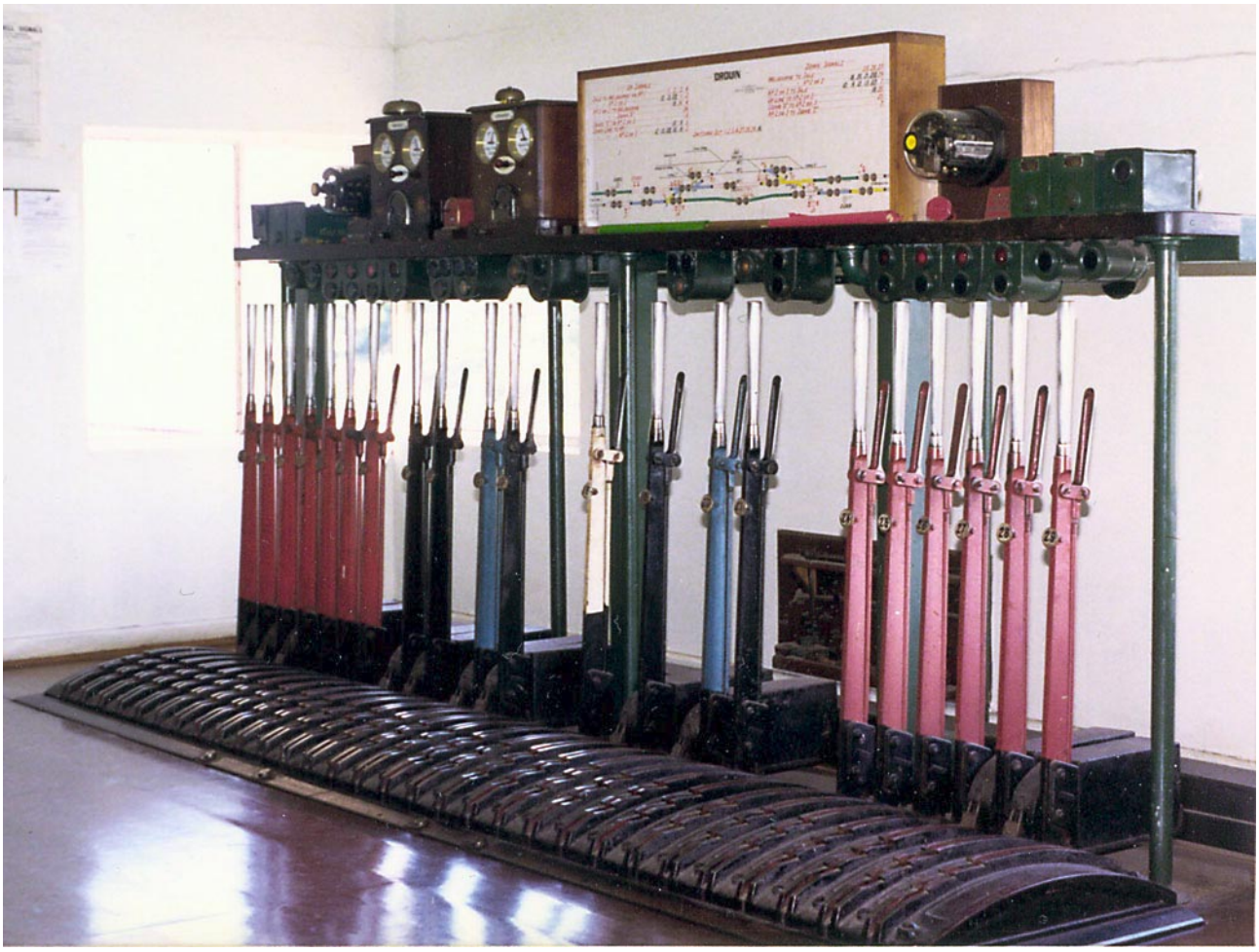
SIGNALLING RECORD SOCIETY OF VICTORIA INC



Drouin, situated on the Eastern line at the crest of the spur between Longwarry and Warragul, was a typical three position interlocked station, except that it was situated in double line block territory. This was because the sections on either side of Drouin were the first to be duplicated on the Eastern line. The section to Warragul was duplicated on the 20 August 1950, while that from Longwarry was duplicated on 22 June 1952. The station area itself was not duplicated, with the island platform being provided, until 29 June 1958. At this time the yard was resignalled with three position signalling (except for the Starting signals, which remained two position). Light signals were used for all running signals, and mechanical dwarfs for the shunting signals. The block shelf at Drouin was crowded with indicators and equipment. On the upper surface of the block shelf can be seen the block instruments (with the block switch between them), the illuminated track diagram, the two time releases for the home signals, the low speed push buttons (again for the home signals), and, at the extremities of the block shelf, the two approach bells. Underneath the block shelf are various one, two and three light repeaters. Nearly every lever in the frame is equipped with a lever lock. When this photo was taken on 14 October 1987 the frame was essentially unchanged since it was installed, and the local staff kept it highly polished. Drouin was abolished as a block post on 16 February 1988 and all points and signals were abolished.

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Minutes of Meeting held Friday May 19, 2006, at the Surrey Hills Neighbourhood Centre, 1 Bedford Avenue, Surrey Hills

Present: – J.Black, W.Brook, B.Cleak, G.Cleak, G.Cumming, V.Findlay, C.Gordon, J.Gordon, A.Gostling, C.Guy, W.Johnston, K.Lambert, D.Langley, S.Malpass, B.McCurry, A.McLean, L.Savage, B.Sherry, P.Silva, F.Strik, A.Wheatland, R.Whitehead & R.Williams.

Apologies: – J.McLean, G.O'Flynn, T.Murray, T.Penn & S.Turnbull.

The President, Mr. David Langley, took the chair & opened the meeting @ 20:32 hours, following the 2006 Annual General Meeting.

Minutes of the November 2005 Meeting: – Accepted as published. F.Strik / R.Williams. Carried.

Business Arising: – Keith Lambert noted that the signal failures at Caulfield described as occurring on Cup Day actually occurred on Derby Day.

Laurie Savage noted that the reference to the bike race should have been foot race.

Minutes of the February 2006 Meeting: – Accepted as published. W.Johnston / R.Whitehead. Carried.

Business Arising: – The location of the meeting was at the Diamond Valley Railway, not Surrey Hills.

Minutes of the March 2006 Meeting: – Accepted as published. B.Sherry / L.Savage. Carried.

Business Arising: – The slides shown by David Langley were from New Zealand, not the other locations as described.

Correspondence: – Letter from Diamond Valley Railway advising of an open day on 20th May 2006.

Letter from Richard Montgomery of Port Hedland with Membership Form.

Letter from Surrey Hills Neighbourhood Centre requesting a deposit for future meetings.

Letter to Surrey Hills Neighbourhood Centre with booking form for meeting dates for 2006.

Reports: – Tours. Glenn Cumming asked for suggestions for a tour later in 2006. Spencer Street No.1 Box seemed to be a popular choice.

General Business: – Graeme Cleak provided details regarding current track alterations at Spencer Street No.1 Box.

Keith Lambert advised that the re – signalling of Pakenham is scheduled for the long weekend in June 2006.

Keith Lambert noted that trains will be shunting at Berwick on Sundays over the next few weeks.

Keith Lambert reported that Victrack has called tenders for the remote control of Riggs Creek Loop and the junction at Benalla.

Keith Lambert noted that the interlocking frame is still in place at Royal Park.

Laurie Savage noted that the control panel at Warragul was now out of service.

Chris Gordon suggested that the control panel from Trafalgar had gone into the scrap bin.

Laurie Savage asked what happened to the Newport "B" Box diagram that was donated to the SRSV in the early 1980's. The answer was not known.

Andrew Mclean gave a report on the reliability of the Bendigo Line following re – signalling and noted that trains had been stopped and buses used in lieu after periods of rain.

Bob Whitehead reported on track work between Toolamba – Echuca with Kyabram and Tongala having been straight railed. This work is in preparation for the regular operation of freight trains to and from Echuca via Seymour.

Bob Whitehead provided details of track work between Mangalore – Murchison East involving thermit welding of rails and ballasting and between Bendigo – Echuca involving tie renewals.

Laurie Savage spoke about the recent announcement of transport projects including the upgrade of the Mildura Line. It is believed that this work will include the use of some concrete sleepers.

Ray Williams asked about Yarra Glen and wants to know what the interior of the building was like. The platform quadrants were inside the building, not on the platform. Three flat wheels were in the lead out in the pit. Ray is seeking additional information and pictures if possible.

Bill Johnston provided an update on the works for the electrification to Craigieburn. Concrete footings for the overhead masts are being poured and power lines have been relocated to make way for the overpass at Somerton Road.

Bob Whitehead noted that the foundations for the new Down Platform at Craigieburn have been poured and work has commenced on the down side of Somerton for the new passenger platform.

Andrew McLean described speed boards for Sprinters and Velocity railcars on the Bendigo Line.

Laurie Savage noted that the distant yellow flashing lights for the flashing lights at the Princes Highway level crossing at Warncourt had recently been covered with plastic. Does anybody know why?

Frank Strik reported that the Down Home Signal at Hastings had been dressed with a black cross because the operating wire underneath the roadway broke.

Brett Cleak described a proposal to provide a Standard Gauge connection into the sidings at North Shore involving a connection from the Standard Gauge Line and a grade crossing across the Broad Gauge Lines.

Andrew Wheatland described the staff exchange box being manufactured by the Puffing Billy S & C Department for use at Eltham to secure the short section staffs.

David Langley asked when the staff exchange box and short section staffs at Sale was placed into service. The answer provided was shortly after delivery.

Frank Strik reported that the line between Gheringhap – Ballarat was now listed with a line speed of 60 km/h.

David Langley reported on recent works at Shepparton where a crossover on the up side of the platform has been fitted with a plunger and a plunger indicator.

Keith Lambert reported that track machines had been stabled at Crib Point during recent track work.

Bob Whitehead advised that the Public Records Office of Victoria conduct tours of their facility at North Melbourne and asked if anyone was interested. More details will be provided.

Meeting closed at 21:37 hours.

The next meeting will be on Friday 21 July, 2006 at the Surrey Hills Neighbourhood Centre, Bedford Avenue, Surrey Hill, commencing at 20:00 hours (8.00pm).

Signalling Alterations

The following alterations were published in WN 16/06 to WN 25/06 and ETRB A circulars. The alterations have been edited to conserve space. Dates in parenthesis are the dates of publication, which may not be the date of the alteration.

05.04.2006 **Kinnabulla** (SW 103/06, WN 16/06)

On Wednesday, 5.4., the siding was booked out of service due to sleeper condition.

05.04.2006 **Wodonga Coal Sidings** (SW 97/06, WN 16/06)

On Tuesday, 5.4., the light units on Automatic E9974 were lowered 1.5 metres in conjunction with the provision of an overpass.

(26.04.2006) **Goornong** (SW 98/06, WN 16/06)

Permission is granted to use the siding, which had been booked out of service, for track machine movements only.

(26.04.2006) **Echuca** (SW 105/06, WN 16/06)

The crossover at the Up end from No 2 Track (Bendigo line) to No 3 Track and the Down end points to the Goods Shed Track will be secured to lie for the straight.

28.04.2006 **Berwick** (SW 118/06, WN 17/06)

On Friday, 28.4., Dwarf 30 was converted to a LED head.

29.04.2006 **Kensington** (SW 114/06, WN 17/06)

On Saturday, 29.4., the pedestrian gates on the Up side of the level crossing were relocated to a new position. The flashing light mast, Up side of the level crossing, Down side of the line, was also relocated and converted to LED heads.

30.04.2006 **Ringwood** (SW 115/06, WN 17/06)

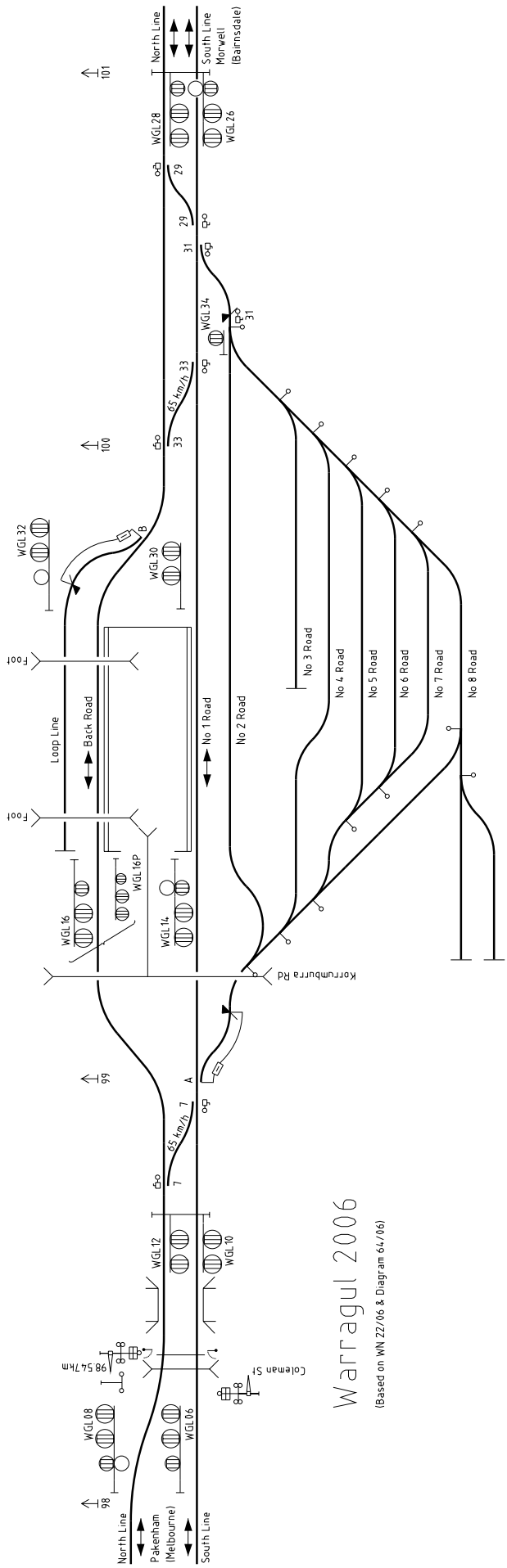
On Sunday, 30.4., automatic Pedestrian Gates were provided at the Ringwood Lake Bike Track crossing (26.466 km).

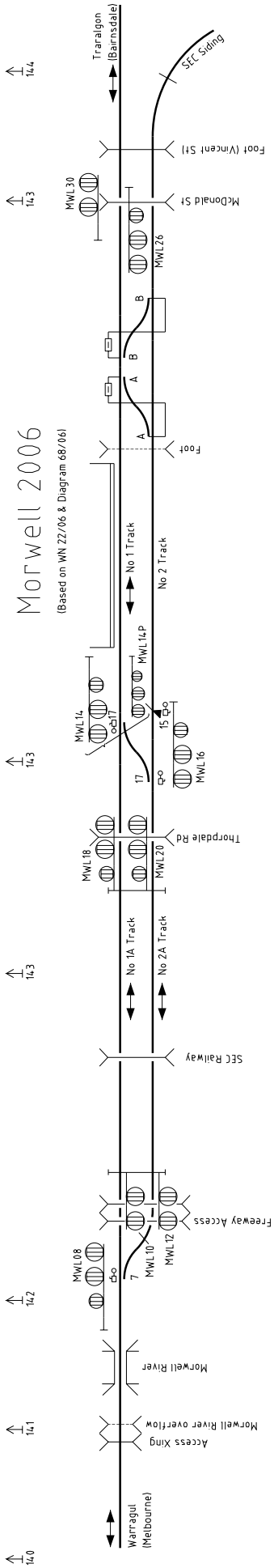
29.04.2006 **Glen Waverley** (SW 103/06, WN 17/06)

On Saturday, 29.4., additional track circuits were provided (Tracks 13, 15A, &15B) as part of the turnout fouling project.

30.04.2006 **Upper Ferntree Gully** (SW 103/06, WN 17/06)

On Sunday, 30.4., additional track circuits were provided (Tracks 17, 17A, 19, & 19A) as part of the turnout fouling project.


Warragul 2006
(Based on WN 22/06 & Diagram 64/06)
North Line
South Line
Morwell
(Bairnsdale)
Pakenham
(Melbourne)
WGL08
WGL06
WGL12
WGL10
WGL28
WGL26
WGL34
WGL32
WGL30
WGL16
WGL16P
WGL14
98 547km
Coleman St
Korrumburra Rd
Loop Line
Back Road
Foot
No 1 Road
No 2 Road
No 3 Road
No 4 Road
No 5 Road
No 6 Road
No 7 Road
No 8 Road
65 km/h
98
99
100
101


Morwell 2006
(Based on WN 22/06 & Diagram 68/06)
Traralgon
(Bairnsdale)
SEC Siding
Foot (Vincent St)
McDonald St
MWL30
MWL26
Foot
No 1 Track
No 2 Track
MWL14P
MWL14
MWL16
Thorpdale Rd
MWL18
MWL20
No 1A Track
No 2A Track
SEC Railway
Freeway Access
MWL08
MWL10
MWL12
Morwell River
Access Xing
Morwell River overflow
Warragul
(Melbourne)
140
141
142
143
144

30.04.2006 **Pakenham - Traralgon** (SW 111/06, 112/06 & 120/06, WN 17/06 & 20/06)

Between 0200 hours on Saturday, 29.4., until 2200 hours on Sunday, 30.4., the Automatic Block Signalling Pakenham - Bunyip and Longwarry - Moe, the automatic operation of the single line Bunyip - Longwarry, the Automatic and Track Control system Moe - Herne's Oak - Morwell, and the Electric Staff system (large instruments) Morwell - Traralgon was abolished. From 2200 hours on Sunday, 30.4., Train Staff and Ticket working was brought into service on the sections Pakenham - Warragul - Morwell - Traralgon. Train Staff Tickets will not be used and all trains must carry the Staff and the Track Force Co-ordinator for the single line section. On the double lines between Pakenham - Bunyip, and Longwarry - Moe, the Staff for the section will apply over either line. The former Down line has been renamed the North Line, and the former Up line the South Line. The Staffs are labelled "Pakenham - Warragul North South and Single Lines", "Warragul - Morwell North South and Single Lines", and "Morwell - Traralgon".

Operational windows are provided to allow the running of revenue freight services. These windows are from 1745 hours Monday - Friday until 0400 hours the following day, and 2200 hours Sunday until 0400 hours the following day. At other times the lines will be under absolute occupation for commissioning works. During operational windows all non-commissioned signals must be dark and fitted with black crosses. The maximum speed for revenue freight services between Pakenham and Traralgon is 50 km/h.

Automatics D1990, D2050, D2069 (Pakenham - Nar Nar Goon), D2177, D2178, D2228, D2229, D2279, D2282, D2335, D2354, D2389, D2402, D2463, D2478 (Nar Nar Goon - Bunyip), D2596, D2645 (Bunyip - Longwarry), D2806, D2951, D2980, D3017, D3052, D3149, D3202 (Longwarry - Warragul), D3310, D3341, 3517, D3561, D3562, D3622, D3777, D3828, D3829 (Warragul - Trafalgar), D3963, D3964, D4014, D4015, D4067, D4068, D4141, D4142 (Trafalgar - Moe), D4282, D4411 (Moe - Herne's Oak), D4534, and D4553 (Herne's Oak - Morwell) were abolished.

At Pakenham, Name Boards were provided at Signals D627 (North Line) and DD627 (South Line) at 62.639 km. Location Boards were provided at 64.639 km on the North and South Lines. The Name Boards are square with black lettering on a white background. The text is the name of the location. The Location Boards are of the standard type, triangular with black lettering on a yellow background. The text is the name of the location and the distance to the Name Board.

The relay interlocking at Nar Nar Goon was abolished. The control panel, Homes 28, U28, V28, 32, and Dwarf U32 were abolished.

The automatic signalling system between Bunyip and Longwarry was abolished, including Homes 6 & 14 at Bunyip, Homes 16 & 24 at Longwarry, and the keyswitches adjacent to these Homes. Points 7 and 27 will be placed in the hand operating position.

The relay interlocking at Warragul was abolished. The control panel, Homes 2, 8, 20 & 30 and Dwarfs 16 & 22 were abolished. Points 13 & 15 will be placed in the hand operating position. The Annett Lock on the Loop Siding was removed and the points secured by a point clip. All the new fixed signals were brought into service, but are not lit and are effectively fixed at Stop. The Signaller will issue the required authorities to pass the fixed signals. Name boards were provided adjacent to WGL06 (98.133 km South Line), WGL08 (98.133 km North Line), WGL26 (100.959 km North Line) and WGL28 (100.959 km Sourth Line). Location boards were provided on the North and South Lines 2000 metres from each Name Board.

The relay interlocking at Trafalgar was abolished. The control panel, Homes 4, 12, 14, 20, 22, & 28 & Dwarfs 6 & 26 were abolished. Note that the main line points at Trafalgar were removed some years ago.

The relay interlocking at Moe was abolished. Homes 6 & 8 were abolished. The Bank Engine Siding, Crosslock, and Annett Lock were abolished. Points 7 were placed in the hand operating position.

The relay interlocking at Herne's Oak was abolished. Homes 10, 14, 16, 18, 20, & 22 were abolished. Points 13 & 21 were placed in the hand operating position.

The relay interlocking and mechanical signalling at Morwell was abolished. Homes 38 & 40, and Posts 1, 2, 3, 4, 5, 7, 8, 9, 10 & 11 were abolished. Points 37 will be placed in the hand operating position and Catch 37 was abolished. Points B at the Up end of the platform were secured normal by means of a point clip, and the Annett Lock and adjacent signal quadrant was abolished. The Master Key for use at Maryvale or Morwell Industrial Siding was abolished. All the new fixed signals were brought into service, but are not lit and are effectively fixed at Stop. The Signaller will issue the required authorities to pass the fixed signals. Name Boards were provided adjacent to Signals MWL08 (142.020 km) and MWL 26 (145.739 km). Location Boards were provided at 140.020 km and 147.700 km.

The Intermediate Electric Staff instrumentsat Maryvale and Morwell Industrial Siding were abolished. The Down Automatic Post 1 (and co-acting Post 1A), and the Up Automatic Post 2 at Tramway Rd were abolished. The Staff Locks on the Up end points at the GIFT Siding and the Down end of the Maryvale Industrial Siding were abolished. The Staff/Annett Exchange Apparatus, Annett Keys, Annett Locks, and key switches at the Maryvale Exchange Sidings and the Maryvale Industrial Siding were abolished. All main line points will be secured with point clips.

A Name Board was provided adjacent to Post 1 at Traralgon, and the existing Location Board was retained.

Signallers will be in attendence at Pakenham, Warragul, and Morwell continuously until the corridor is reopened. Traralgon will be attended for train running or commissioning requirements.

The level crossing protection equipment will remain in service, but will be operated manually by means of the test switch. Location Boards will be provided 2000 metres from each protected level crossing. When passing a location board, the Driver must reduce speed and the Track Force Co-ordinator must communi-

cate with the crossing keeping. The crossing keeper must activate the level crossing protection equipment and display the 'All right' hand signal to the approaching train. If the crossing keeper does not confirm that the protection equipment is operating, the Driver must bring the train to a stand at the Whistle Board until it has been confirmed that the protection equipment is operating, or the level crossing is protected. The speed of a train over a protected level crossing must not exceed 15 km/h. The following level crossings have been closed during the works: Ryan Rd (60.523 km), McIntyre Rd (76.630 km), Nine Mile Rd (116.107 km), and Waterloo Rd (121.222 km).

Diagrams 8/86 (Nar Nar Goon - Tynong), 20/02 (Garfield - Longwarry), 16/88 (Drouin - Warragul) and 6/94 (Yarragon - Morwell) were cancelled. Operating Procedures 125 (Bunyip - Longwarry), 126 (Warragul), 127 (Moe), 128 (Morwell - Maryvale - Traralgon), and 130A (Morwell) were cancelled. Operating Procedures 129 (Australian Paper Siding & Maryvale Exchange Siding), 130B (Traralgon Staff Exchange Box - see SW 57/05), 130C (Sale Staff Exchange Box - see SW 57/05), 130D (Sale Staff closing box - see SW 57/05), and 130E (Bairnsdale - sww SW 93/05) remain in use.

01.05.2006 **Sale** (SW 115/06, WN 17/06)

From Monday, 1.5., Sale will remain closed as a Staff station (see Operating Procedure130D, Section 34, Book of Rules). Sale may be opened as a Staff station on a daily basis if required for train running or track infrastructure requirements. The Signallers at Traralgon and Bairnsdale must advise Train Crews when Sale is open as a Staff station.

07.05.2005 **Spencer Street** (SW 111/06, WN 18/06)

On Sunday, 7.5., the following signalling alterations were carried out.

The approach operation of Home 114 (No 8 South Track) was restored. If a move is signalled from Homes 536 or 548, past Home 114, to Home 116, Home 114 will be held at Stop and Homes 536 or 548 will display Medium Speed Warning. When the movement passes Home 536 or 548, and the speed is proven to be below 25 km/h, Home 114 will clear to Medium Speed Warning if No 8 South Track is unoccupied.

The overlap for Home 518 has been shortened to allow a movement to be signalled between No 8 Track and No 8 South or Suburban lines while a route is set from Home 518 to Home 548. Similarly, the overlap for Home 529 has been shortened to allow for simultaneous moves from Home 529 to Home 507 and between No 8A Track and the Down East Suburban. And the overlap for Home 535 has been shortened to allow a move to be signalled from Home 535 to Home 529 while a train is occupying the West end of No 8 Track.

(09.05.2006) **Tocumwal** (SW 119/06, WN 18/06)

The End and Commence Train Order Territory Boards have been relocated to the Up side of Caravan Park Road (250.528 km). The Location Board has been relocated accordingly.

(09.05.2006) **Hurstbridge** (SW 1/06, WN 18/06)

After 2000 hours, Monday - Fridays, 2045 hours, Saturdays, and 1345 hours, Sundays, Hurstbridge will be worked under Driver-in-Charge conditions. The Drivers will be responsible for carrying out all Staff and Ticket requirements. Operating Procedure 35 has been reissued.

12.05.2006 **Toolamba - Echuca** (SW 123/06, WN 21/06)

Commencing Friday, 12.5., this line will be reclassified from a 'non active' line to a 'construction' line for track upgrading purposes. Track machines and plant trains will operate as required.

13.05.2006 **Glenhuntly** (SW 123/06, WN 19/06)

On Saturday, 13.5., LED co-acting signals were provided for Up Homes 2 and 6. The co-acting signals were palced below the main signal units on the same mast.

13.05.2006 **Ormond** (SW 125/06, WN 19/06)

On Saturday, 13.5., the co-acting signals for Down Automatics F441 and FM441 were converted to LED units.

13.05.2006 **Moorabbin** (SW 126/06, WN 19/06)

On Saturday, 13.5., the co-acting signals for Up Home MRN709 and Down Home MRN710 were converted to LED units.

14.05.2006 **Altona Junction - Laverton** (SW 124/06, WN 19/06)

On Sunday, 14.5., Up Automatics G554 and GG554 were converted to LED units.

15.05.2006 **Spencer Street** (SW 128/06, WN 19/06)

On Monday, 15.5., the Annett locked hand gates on No 1 Track were removed. The Annett lock on Points 175 was removed and the points spiked normal. SW 235/04 was cancelled.

18.05.2006 **Hastings** (SW 140/06, WN 20/06)

On Thursday, 18.5., Down Home A was abolished (this post has been out of service since 10.5.06, SW 129/06). For Down trains, the electric staff section Somerville - Hastings now extends to the Down Departure Home E at the Down end. Amend Diagram 16/05.

21.05.2006 **Pascoe Vale** (SW 142/06, WN 20/06)

On Sunday, 21.5., pedestrian gates were provided at Tate St.

21.05.2006 **Oak Park** (SW 141/06, WN 20/06)

On Sunday, 21.5., pedestrian gates were provided on the Up and Down sides of Devon Road.

21.05.2006 **East Malvern - Holmesglen** (SW 132/06, WN 19/06)

On Sunday, 21.5., tri-colour LEDs replaced the searchlight signals in Automatics DG410, DG 446, DG460, and DG484.

22.05.2006 **Craigieburn** (SW 145/06, WN 20/06)

On Monday, 22.5., a turnout was installed in the Down line on the Down side of the station. The turnout is secured normal.

23.05.2006 **Tynong - Bunyip - Longwarry - Drouin - Warragul** (SW 147/06, WN 21/06)

On Tuesday, 23.5., the 2.2 kV signal supply from these substations will be decommissioned. The 415V power supply to these substations will be turned off.

25.05.2006 **Spencer Street** (SW 146/06 & 153/06, WN 21/06)

On Thursday, 25.5., No 1 Track was restored to use for standard gauge trains. The standard gauge connection was re-aligned. Home 164 (from No 1 Platform) was relocated 10 metres in the Up direction and will consist of a Style R4 LED, LED 'c' light, and LED 'V' and 'S' indicators.

27.05.2006 **Laverton** (SW 135/06, WN 19/06)

On Saturday, 27.5., tri-colour LEDs replaced the searchlight mechanisms in Home 12. The low speed light and the '65' indicator were also converted to LEDs.

28.05.2006 **South Kensington** (SW 147/06, WN 21/06)

On Sunday, 28.5., Points 671 and 674 were converted to claw locks.

28.05.2006 **Laverton** (SW 136/06, WN 19/06)

On Sunday, 28.5., tri-colour LEDs replaced the incandescent heads in Homes 2 and 14. The low speed light and the '65' indicator were also converted to LEDs.

01.06.2006 **Darling** (SW 148/06, WN 21/06)

On Thursday, 1.6., Crossover 6 was booked out of service.

03.06.2006 **East Malvern - Jordanville** (SW 151/06, WN 21/06)

On Saturday, 3.6., Down Automatics DG409, DG445, DG473, and DG489 were converted from searchlight mechanisms to LED heads.

04.06.2006 **Upper Ferntree Gully** (SW 152/06, WN 21/06)

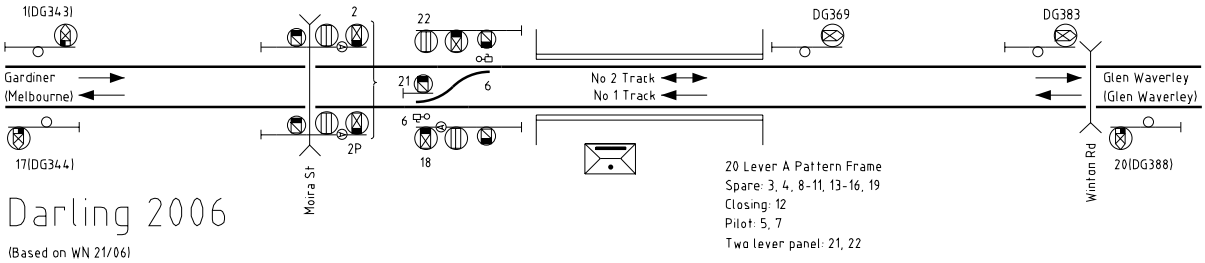
On Sunday, 4.6., additional track circuits (A33 and A35) were provided for the turnout fouling project.

03.06.2006 **Sunshine** (SW 154/06 & 137/06, WN 22/06 & 24/06)

Between 0100 hours Saturday, 3.6., and 0300 hours Sunday, 5.6., Homes SUN742 and SUN752 will be relocated to a new gantry 70 metres in the Down direction. The Start and End RFR boards were relocated to suit. Track circuits 740, 750, 743, and 753 will be altered in length to suit. The North and South Line Release (Control) switches were abolished and SW 245/06 is cancelled..

05.06.2006 **Darling** (SW 150/06, WN 21/06)

On Monday, 5.6., Crossover 6 was renewed with tangential turnouts. Dual control point machines were provided to work the crossover and the existing mechanical operation removed. A new Dwarf 21 (with operating train stop) was provided for set back movements from the Up line and the fixed train stop removed. Home 7 is now worked from lever 22 and was renumbered. Dwarf 21 and Home 22 are worked from a new unit lever panel. Lever 7 was taken out of service. A new track circuit 8T was provided on the Up line for indication purposes.



05.06.2006 **Pakenham - Nar Nar Goon** (SW 138/06, WN 24/06)

On Monday, 5.6., Automatics D1918, D1919, D1990, and D1991 were abolished.

(06.06.2006) **Spencer Street** (SW 146/06 & 159/06, WN 21/06 & 22/06)

The broad gauge connection to No 1 Track was restored to use. Connections were provided from the Country Line and the Bank Sidings. Points 9U and Catch 9D were provided to form the connection to the Bank Sidings. Dwarf 11 (Westinghouse U2L style LED on a 3 metre mast) was provided at the up and of the Bank Sidings shunting neck.

07.06.2006 **Irymple** (SW 136/06, WN 24/06)

On Wednesday, 7.6., boom barriers were provided at Calder Highway (603.191 km, marked distance via Lal Lal, or 566.191 km via Ballan) on the Down side of Irymple. Level crossing predictors were provided to operate the boom barriers at Calder Highway and the flashing lights at Irymple Ave (602.427 km marked). Posts 1, 2, 3, and 4 were abolished together with the Up and Down Location Boards. The quadrants on the platform and associated push buttons were abolished. Diagram 34/06 (Yatpool - Irymple) will

be issued, but the portion of Diagram 14/99 showing Mildura will remain in force.

13.06.2006 **Sea Lake - Kulwin** (SW 145/06, WN 24/06)

At 1500 hours on Tuesday, 13.6., the line between 424.900 km (on the Down side of the Sea Lake Gran Centre) and Kulwin was closed. Train Orders may be issued up to, but not beyond, the Sea Lake Grain Centre.

13.06.2006 **Pakenham** (SW 155/06, WN 22/06)

On Tuesday, 13.6., the existing relay interlocking, including panel, was replaced by a WestCAD interlocking. All signals were replaced by LED units and were prefixed by 'PKM'.

Dwarf PKM8 was replaced by a new mast. Homes PKM26 and PKM28 were replaced by a new gantry located 2 metres in the Down direction.

A new 80 km/h facing crossover (Crossover 31) was provided on the Down side of Racecourse Rd. Homes PKM6 were provided with '80' indicators for moves over Crossover 31 reverse. Dwarf 30 was abolished and Up Home 32 was replaced. A new Up Homes PKM30 (North line) and PKM32 (South line) were provided on a new gantry situated 294 metres in the Down direction from the former position of Dwarf 30.

New Down Homes PKM40 (North line) and PKM42 (South line) were provided on a gantry situated on the Up side of Ryans Rd. These signals will be fixed at Stop until the RFR works are commissioned.

TPWS was provided on the following signals PKM06, PKM24, PKM28, PKM30, PKM32, PKM40, PKM42, PKM34, PKM38. All track circuits on the Down side of Racecourse Rd have been changed to CSEE type track circuits.

The instructions for the operation of the line beyond Pakenham were re-issued to take in account the changes.

Diagram 51/06 (Narre Warren - Pakenham) replaced 15/05.

17.06.2006 **Caulfield** (SW 168/06, WN 24/06)

On Saturday, 17.6., Homes CFD748 and CFD768 were converted to LED. A Theatre route indicator was provided on Down Home CFD748 and will display 'D' for movements towards Dandenong and 'F' for movement towards Frankston.

18.06.2006 **Caulfield** (SW 169/06, WN 24/06)

On Sunday, 18.6., Homes CFD769, CFD675, and CFD765 were converted to LED. The 'b' arms on Posts CFD675 and CFD765 were replaced with an 8 inch tri-colour LED.

19.06.2006 **Sea Lake - Kulwin** (SW 174/06, WN 29/06)

Commencing Wednesday, 19.6., the line between the Sea Lake Grain Centre and Kulwin was reopened. SW145/06 was cancelled.

(20.06.2006) **Birchip** (SW 147/06, WN 24/06)

The interim operating procedures (SW 1027/02 and SW 1049/02) for the AWB Grain Outloading Facility have been re-issued.

The main line points (349.047 km) are secured by a Master Key lock and a lockable point clip. When it is necessary to shunt the siding, the train operator must provide a safeworking supervisor. The train movement will be authorised by an SW circular. The Train Controller will issue a bi-directional (return) Train Order stating "Proceed to Birchip Grain Centre and return to Watchem" with Master Key 00. The safeworking supervisor must be at the main line points 30 minutes prior to the arrival of the train and will operate the points for the arrival and departure of the train.

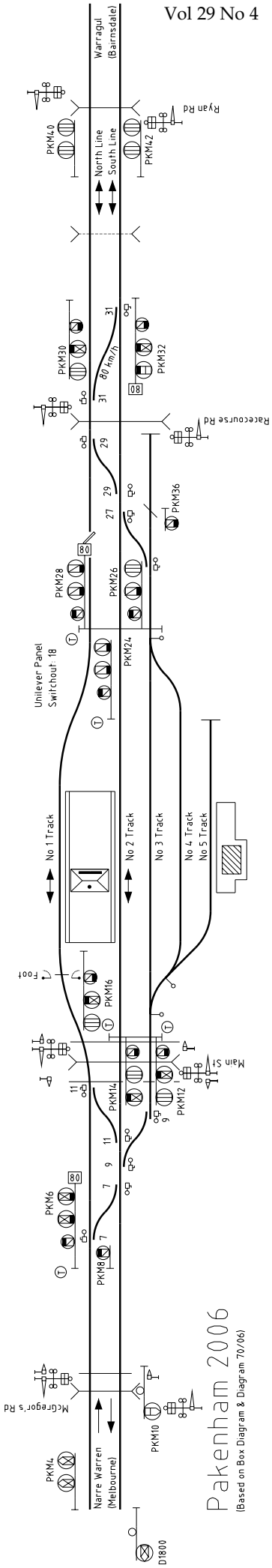
(20.06.2006) **Goornong** (SW 130/06, WN 24/06)

The siding may be used by track machines and plant trains for stabling and running around. Circular SW 98/06 is cancelled.

(20.06.2006) **Wodonga - Albury** (SW 150/06, WN 24/06)

Operating Procedure 107A was issued. This covers the passing of defective signals at Wodonga and Wodonga Coal Sidings (broad gauge), and the use of Track Warrants between Wodonga and Albury.

(Continued on Page 75)



South Dynon Accident 19 January 2005

The ATSB has released its report into the collision at Moonee Ponds Creek Junction on 19 January 2005 between a shunting movement from the Pacific National yard at South Dynon and the Melbourne bound XPT, train 8622. The shunting movement was pushed past a Stop signal, and, although derailed at a catch point, fouled the main line as the XPT was passing. No one was injured in the accident.

The Pacific National (PN) yard at South Dynon lies on the north side of the standard gauge main line between Moonee Ponds Creek Junction and Sims Street Junction. There are connections with the main line at each end of the yard. The connections are worked by the ARTC train controller at Mile End, Adelaide. Of immediate concern to the accident were four loading roads (Nos 4 to 7 Roads) situated at the western end of the yard. About halfway along the yard, these roads converge into No 1A Road which extends to the eastern entrance to the yard. At the eastern end of the yard the tracks converge into a single dual gauge lead onto the main line towards Spencer Street. The main line is protected by a dual gauge catch point 215D and Dwarf 214U mounted on a post.

The shunting crew on duty consisted of a team of four PN employees: the driver of the pilot, two terminal operators, and one trainee terminal operator. The team was considerably understrength. Normally there would be four or five terminal operators on each shift, however, two terminal operators were on personal leave and one was on sick leave. Replacements were not available, and this left the shift to be completed by the two terminal operators and the trainee. The shunting crew was supervised by a yard co-ordinator located in a 'control tower'. The Yard Co-ordinator was responsible for instructing the shunting crew as to the moves required, but was not responsible for their being carried out safely.

At the time of the accident, the yard crew at the PN yard were marshalling train 4MP5. This train was a regularly scheduled train from Melbourne to Perth. The train was to consist of 39 container vehicles and the planned length was to be 1415.4 metres. Despatching of trains of this length was a common occurence at the PN yard. Generally three trains made up to 1500 metres in length are despatched each day (except for Tuesday and Thursday when only one such train is despatched). Trains of this length cannot be loaded in a single rake as the sidings in the yard are not long enough. Instead, such trains are formed up as two shorter portions and marshalled together just prior to departure. The normal method of marshalling is for the rear portion to be pushed down into No 1A Road. If the rear portion fits in No 1A Road, the front portion is then pushed down onto the rear portion. If, however, the rear portion is too long to fit onto No 1A Road, the front portion will be pulled out the western end of the yard and then pushed back onto the rear portion.

On this day the rear portion of train 4MP5 was 697.2 metres long and had been loaded and marshalled in No 5 Road, and the front portion was in No 4 Road, and was 674.2 metres long. The rear portion was too long to fit on No 1A Road; with the tail of the rake at Dwarf 214U, the front two or three wagons would still be on No 5 Road. Accordingly, the Yard Co-ordinator decided to use the yard pilot, C508, to push the rear portion down No 5 Road, and use the train locomotives to haul the front portion out of No 4 Road and out the western end of the yard and push them back onto the rear portion in No 5 Road. Although the Yard Co-ordinator knew the length of the rear portion, and hence that it would not fit in No 1A Road, the shunting team did not know this information.

At 1947:14 the Yard Co-ordinator contacted the team by radio to instruct them to push the rear portion of 4MP5 onto No 1A Road, to uncouple, and then to attend to some defective wagons in No 9 Road. The trainee acknowledged the instructions and verified them.

After the pilot had been coupled to the rear portion, the first terminal operator instructed the trainee to 'go down the Melbourne end and I'll stay on the loco'. After the trainee confirmed that the pilot was coupled, the first terminal operator re-iterated the instructions, 'right you go to Melbourne end and then I'll push in clear, OK?'. The first terminal operator intended that the trainee would first remove a scotch block from No 1A Road, and then pilot the lead wagon towards Dwarf 214U and instruct the Driver when to stop. He did not, however, explicitly say this. The trainee, however, understood that he was to remove the scotch block and then remain where he was, ready to uncouple the pilot from the rake when the shunting move was completed. This misunderstanding was the primary cause of the accident. The instruction 'go to the Melbourne end' would have been clearly understood by another terminal operator, with a clear understanding of the safeworking required when pushing rakes of vehicles, however, the trainee did not have this understanding. Further, the PN operations manual required that a competent employee preceed all propelling movements to guide the driver by radio. The trainee had not been certified as competent and had previously only performed this role under direct supervision.

The Yard Co-ordinator then (at 1949) asked if anyone was available to set the road for the locomotives for 4MP5 to arrive into No 4 Road from the western end. The second terminal operator replied that he would carry out the task. He set the road and waited for the return of the pilot from pushing the rear portion. This removed one of the two qualified terminal operators from the shunting move. It was also not necessary as the train crew of the arriving train could have set the road for themselves.

The trainee drove a utility vehicle to the rear of the rake. At 1950 the driver radioed that the air brakes were charged and when the trainee got to the rear of the rake they were all right to start. The trainee replied '[unintelligible] a minute there [driver], so you could start'. The driver radioed that he would start coming down slowly, to which the trainee replied 'I can see ya [driver] it's all clear mate'. The yard co-ordinator queried if the block was off the rail on No 1 Road. The trainee confirmed that it was. Although the report does not comment on it, it seems unlikely that there was sufficient time for the trainee to get to the rear of the rake, remove the block, and get ready to pilot the rake down. There was only about a minute between the trainee being instructed and the driver starting to move. It would appear that this was why the yard co-ordinator queried whether the block had been removed.

During the first portion of the move, the first terminal operator queried where the rake was to be placed: 'you just want this past the catch point um past those um points don't ya yeah?'. The trainee responded 'yeah I'll put them down where the block is on um '4' road', to which the first terminal operator agreed 'yeah OK'. Notice the miscommunications. The first terminal operator first says 'catch points', possibly meaning beyond Catch 215D, but then corrects himself to probably mean just beyond the 4/5 Road points. The trainee appears to interpret this as the scotch block that he has just removed - which was actually on No 1A Road, not No 4 Road.

As the shunting movement progressed, the trainee communicated regularly with the driver (the operations manual requires that instructions must be transmitted to the driver every 10 seconds until the movement is complete). During this time the neither the trainee nor the driver could see each other.

At 1955:33 the trainee radioed 'yeah one platform to go there driver', so the shunting movement must have been nearly completely on No 1A Road. At about this time driver saw the trainee standing opposite the 4/5 Road points and immediately stopped the rake asking 'yeah, who's down the back there?'.

The yard co-ordinator then asked 'how far ar we off the light and how far are we from clearing the points on 4 and 5 road just out of curiousity?' The first terminal operator replied 'um I'm about a wagon away from it and back there probably just a bit under the scotch block.' The tower then asked the trainee 'how far do we got to two-one-four before we go out?', to which the first terminal operator replies 'wow, I will need [trainee] to find out...' About 15 seconds later the trainee reports, 'gone too far!'. The first terminal operator asks 'how far have we gone?', to which the trainee responds 'oh, it's hit the XPT.' The yard-cordinator then asks '[trainee], were you ah watching this?' to which the trainee replied 'I thought I had to watch where the um scotch block, at the other end'. Around this time Adelaide Control rang the Yard Co-ordinator and reported the collision.

The leading wagon of the rake, RQSY 34384B, had derailed and collided with the fifth car (Car D) of the XPT. It had then deflected. The second wagon, RQPW 60077T, had also derailed and brushed against Car C before contacting Car B. The third wagon, RQWW 22003J, had passed the Dwarf, but had not derailed. Although two wagons had been pushed off Catch 215D, the wagons remained in line and had been pushed foul of the main line. Photographs included in the report show that the catch points only gave a very small amount of diveregence to derailed cars and there was no deflecting rail provided. The report notes that there is no policy covering the function and location of catch points on the Victorian portion of the declared interstate rail network (DIRN). The function of catch points are not defined in Australian Standard or in the DIRN code of practice. This is compared with the RailCorp (NSW) standard and the QR standard, which both require the catch point to be designed and located to prevent a derailed vehicle from fouling the running line. The US Federal Track Safety Standards and the BR Group Standard have similar requirements.

Only minimal damage occurred to the XPT. It is, perhaps, fortunate that a temporary speed restriction of 15 km/h had been imposed on the main line between 2.2 km and 2.3 km through Moonee Ponds Creek Junction. The speed limit at this point is normal 55 km/h. The shunting movement had not exceeded the shunting speed limit of 15 km/h.

The ATSB report notes the following casual factors in the collision:

* A breakdown in communication between the members of the shunting team.
* A lack of qualified terminal operators on the team, which was excacerbated when one of the two terminal operators attended to another task.
* The lack of supervision and associated procedures, which resulted in a lack of a standardised approach and a common understanding of the marshalling task.
* The design of Catch 215D was not effective in preventing the rake from fouling the main line.

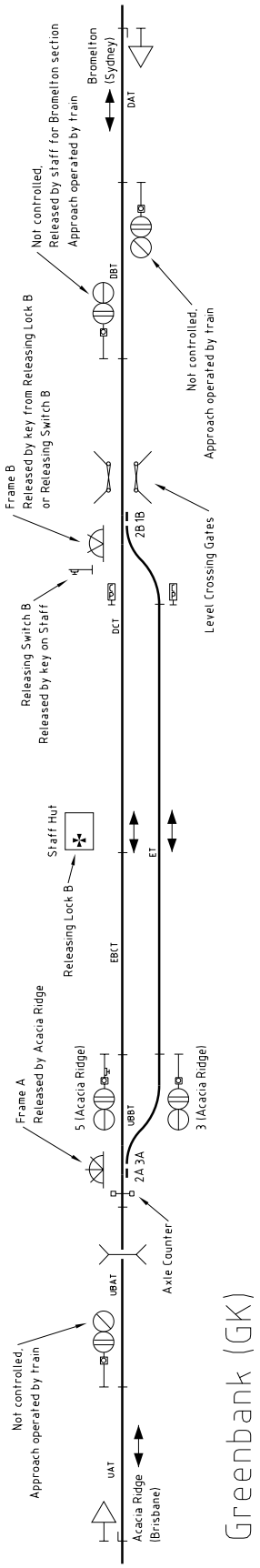
Collision Between A Train and Track Inspection Vehicle Grrenbank, Queensland 20 August 2005

At about 0947 on 25 August 2005, Brisbane - Sydney freight train 5BS7 collided with a track vehicle within the station limits at Greenbank on the standard gauge main line just south of Brisbane. No one was injured. The immediate cause of the accident was the implicit issuing of overlapping train authorities by the Train Controller to occupy the main track at Greenbank. Underlying this, however, was a lack of clarity in both the rules and procedures for issuing authority to occupy the main line. The ATSB has released its report into this accident and this is available on its web site. The following article is largely based on this report.

Greenbank is an unattended crossing loop on the standard gauge line between Sydney and Brisbane, located 17 kilometres south of the major Brisbane yard of Acacia Ridge. The line between Acacia Ridge and Glenapp, just north of the New South Wales border, is worked under the RIC (NSW) rules, although the line is owned and operated by QR. The section between Acacia Ridge and Greenbank is worked under the Rail Vehicle Detection (RVD) system where movement is controlled by signal indication only. South of Greenbank the line is worked by miniature electric staff with the section Greenbank - Bromelton. The instruments are worked by the train crews. Operation of the line is overseen by the South Western train controller located at QR Train Control in Brisbane.

The layout at Greenbank is shown in the diagron on the next page. Greenbank (Road) appears to have been opened as an unattended crossing loop in 1942. At that time, the points at each end of the crossing loop were worked from ground frames, and power operated upper quadrant arrival home signals were provided. A staff hut was provided at the centre of the loop to contain the staff instruments and the control phones. Trains were worked through the loop entirely by their crews. The home signals were normally at stop. When an arriving train passed the Landmark, the home signal would clear to caution (yellow) provided the main line between home signals was clear, both main line points were set and locked normal, the opposing home was at stop, and no train was approaching from the other direction. The arriving train could enter Greenbank and come to a stand at the staff hut for the train crew to exchange the staff and then proceed. If it was necessary for an arriving train to enter the loop, the train would be brought to a stand at the points. The fireman would use the electric staff for the previous section to release an Annett key from an adjacent releasing switch. The Annett key could then be used to unlock the ground frame. After the train had arrived into the loop, the Guard would restore the points for the main line and return the key to the releasing switch. A releasing lock was provided in the staff hut for when the loop was attended. The key in the releasing lock could unlock either ground frame, but removal of the key would secure both arrival home signals at Stop.

Greenbank (Road) appeared to remain unaltered until around 1991. At that time the section northwards (now to Acacia Ridge) was converted to Single Line Track Block (SLTB)



worked by axle counters. Under SLTB all train movements were by signal indication. At Greenbank, the major alteration was the provision of two starting signals for moves towards Acacia Ridge. The starting signals were worked from the Acacia Ridge panel, and the ground frame at the north end was also released from the panel. The homes were replaced by light signals located further out, but they continued to be operated automatically and are not controlled in any way from Acacia Ridge. An Up starting signal was also provided for moves toward Kagaru (then the next electric staff station south of Greenbank). This signal was apparently provided to ensure that southbound train crews remembered to take an electric staff before departing from Greenbank. It was also approach operated provided a staff for the section had been withdrawn and a staff contact switch had been operated in the staff hut. This starting signal was not controlled in any way by Acacia Ridge. At this time, it appears that Greenbank was attended for the majority of trains. In 1996, the safeworking personnel were withdrawn and a new crossing loop at Bromelton replaced Kagaru. After this, train crews were responsible for working their trains through Greenbank under the directions of the train controller. In September 2004 QR took over operational control of the line between Glenapp and Acacia Ridge. Train control was transferred from Broadmeadow (NSW) to Brisbane. The existing track workers were transferred from RIC to QR.

Greenbank is now rarely used to cross trains as the loop can only accommodate trains of 411 metres in length and most trains far exceed this length. It is occasionally used for stowing vehicles or crossing track vehicles.

The crew for train 5BS7 had signed on at 0350 hours and had boarded 5BS7 at Clapham shortly after this. Because this train was several hours late and had missed its allotted path south, the train did not leave Clapham until about 0825. It arrived at Acacia Ridge at 0840 where it was to attach some wagons.

At 0906 the South Western train controller was contacted by two groups of track workers at Bromelton who were seeking access to the track section between Bromelton and Greenbank. One gang was to work on tamping and re-sleepering, and the second was to perform a routine track inspection. It had been planned for both of these gangs to access the track, but the train controller informed them that, due to the late running of 5BS7, only 30 minutes of track access could be granted. The protection officer (supervisor) of the tamping gang told the controller that this would not be enough time to complete their task.

At 0913, after this conversation, the controller phoned the Acacia Ridge signaller and asked for an updated estimate of the departure time for 5BS7. The signaller replied that he '[reckoned] ready to go at 0945 at the latest'. The controller queried this, 'still looking at 0945, are we?', and the signaller confirmed, 'Yeah, yep, well he's on test now so we might do a bit better but that's the worst case scenario.' The report notes that, while the signaller meant that the 5BS7 would leave at the latest at 0945, the train controller may have interpreted this as meaning that 5BS7 would not leave before 0945. Given the 15 minute running time between Acacia Ridge and Greenbank, this would mean that the controller could have believed that earliest 5BS7 could arrive at Greenbank would be 1000.

The controller then rang back the track gangs at Bromelton at 0915 and informed the gangs that the 'worst case' scenario for the departure of 5BS7 from Acacia Ridge was now 0945 and that he could now authorise access to the Bromelton - Greenbank section for 45 minutes.

Although 45 minutes was still not long enough for the tamping job, it was long enough for the track inspection. The protection officer of the track inspection gang was given authority at 0915 to obtain an electric staff with a verbal instruction from the controller that they had to be clear of the track at Greenbank no later than 1000. The point of removal for the track vehicle appears to have been understood by both the train controller and the protection officer to be the take-off on the Down side of the Greenbank staff hut, however this does not appear to have been explicitly stated during the exchanges. The ATSB report implies, but does not state, that the train controller understood the location of this take-off, and, in particular, understood that the track vehicle would have to enter Greenbank yard to reach the take-off. The controller correctly endorsed the train control graph with a red box indicating that he had granted track occupancy to the track vehicle between Bromelton and Greenbank from 0915 to 1000.

Around 0930 the controller overhead transmissions on the radio that indicated that 5BS7 would soon be ready to depart. At this time the controller was supervising a trainee who was issuing an authority for a track vehicle to run from Talwood to Goodiwindi. The controller felt that it was important to issue this authority in a timely manner as, otherwise, an approaching grain train would considerably delay the track vehicle. At 0932 the signaller at Acacia Ridge confirmed that 5BS7 was ready for departure. The controller immediately gave permission for the train to depart, and immediately resumed supervising the trainee who commenced to issue the authority

to Talwood. The trainee was at the first stage of his training and was supposed to be merely observing the controller, however the controller liked to give trainees as much practical experience as possible. The train graph was correctly endorsed with a line representing 5BS7 departing Acacia Ridge at 0933 and arriving at Greenbank at 0948. This replaced an earlier line showing the departure from Acacia Ridge at 0945 and arriving at Greenbank at 1000.

The track vehicle arrived on the main line at Greenbank at about 0945 and was approaching the take-off point when the locomotive headlight of train 5BS7 was seen. As they were only about 20 metres from the take-off, the driver attempted to reach it and leave the main line. As the front set of wheels were being raised, it was realised that the approaching train would not stop in time and the gang abandoned the vehicle. The train collided with the track vehicle and pushed it 25 metres back towards the staff hut. When train 5BS7 approached Greenbank, the arrival home signal cleared for it as the track vehicle, like all track vehicles, would not operate the track circuits.

The key issue with the accident was the occupation of the main line at Greenbank by the track vehicle and the train at the same time.

Prior to 2001, the procedures for operating track vehicles were contained with the SRA manual "Safeworking Procedures for Engineering Work". Under this mode of working, track vehicles obtained possession of the track by means of a paper authority known as a T6400. Where a track vehicle was worked towards an unattended staff station, the track vehicle either had to take off from the line before entering the yard limits, or obtain permission from the train controller to enter the yard if the home signal did not clear. If the train controller gave permission to pass the home signal at danger, the train controller had to ensure that no train was approaching from the other direction.

In 2001 these rules were replaced by the RIC network rules and procedures. The operations of track vehicles was henceforward carried out under Track Occupancy Authorities (TOAs). A TOA authorises the occupation of track within specified limits for a specified period. A TOA may be issued from a defined clearance point within one yard's limits to a defined clearance point within a second yard's limits. In this case, defined points were the Staff hut at Bromelton and the take-off at Greenbank. The rules required the train controller to ensure that the protection officer understood and agreed to the limits of the TOA. There was no dispute subsequently between the train controller and the protection officer about the limits of the TOA, but the limits were not explicitly spelt out at any time.

TOAs may be written or verbal. Written TOAs are assumed to be the normal case, and it is specifically stated in the rules when a TOA form is not needed. One of these cases is where a track vehicle is to traverse an electric staff section. In this case, the rules state that the track protection officer is to obtain, if practicable, an electric staff and carry it with the track vehicle. In this case, a written TOA form is not needed. However, the rules do not give any guidance as to how to deal with the potential mismatch between the limits of the electric staff section and the limits of the TOA. An electric staff always applies between yard limits (in this case between the home signals at Bromelton and Greenbank). The TOA issued by the train controller, however, also applied within the yards at Bromelton and Greenbank. Possible methods of reconciling this mismatch would be to issue seperate written TOAs for the movements within the yards (the ATSB report suggests this might cause problems with the workload of the train controller), or to issue a written TOA for the entire journey (note that the rule states that a written TOA is not needed when the track protection officer has the electric staff, not that it cannot be issued). In practice, the ATSB interviewed employees working on the standard gauge and found that there was a widespread belief that possession of the staff authorised possession of the track within station limits at each end of the section. The ATSB interviewed past employees and current employees and found that the use of verbal TOAs to authorise movements in yard limits at each end of the sections occurred before QR took over operation of the standard gauge line in September 2004.

Before issuing a TOA, the rules require that the train controller must ensure the track covered by the TOA is unoccupied and will remain unoccupied. This requires care by the train controller at unattended crossing loops such as Greenbank where the arrival home signals will clear automatically for a train. For a train approaching Greenbank, occupancy of the main line within the station limits is granted automatically unless the signalling system detects a train occupying the main line or approaching the station from the other direction. However, because the axles of track vehicles are insulated, they do not operate track circuits, and will not be detected by the signalling system. Hence a train can be granted permission to occupy the main line at an automatic crossing loop even though the track is occupied by a track vehicle. After the accident, the train controller said that he realised when told of the accident that he should have instructed the traincrew of 5BS7 to remain at the Up home signal at Greenbank until advice was received that the track vehicle was off and clear of the main line. The ATSB report notes that the method of marking TOAs on the train graph is deficient in that there is no way of distinguishing a TOA granted to a station from a TOA granted within a station. Although not noted in the ATSB, it would seem to be risky to issue a verbal restriction of authority to a train, particularly as the restriction will apply at a signal that is showing proceed. It would seem to be preferable to hold the train at the previous staff station. Finally, the ATSB does not discuss the fact that the track vehicle passed the arrival home signal at stop, apparently without authorisation.

The immediate cause of this accident was that the train controller implicitly authorised the train and the track vehicle to occupy the main line at Greenbank at the same time. Specificly, the train controller failed to restrict the train from entering the TOA area. The train controller probably made this mistake because of the high workload as he attempted to give experience to the trainee, who should have been observing not acting.

Underlying this was practices that were not in accordance with the rules in force. These included: not explicitly defining the limits of the TOA when it was issued; the use of a verbal TOA to occupy the main line at an unattended location; and the passing of the home signal without authorisation. These practices were of long standing, and apparently also applied outside the QR controlled portion of the standard gauge line. In this context, it should be noted that the rules and systems in force on the standard gauge are 'orphans' in Queensland. They are the only place that these rules apply and the equipment is found. This means that there is no body of experience in their use, or oversight of the operation of the rules.

Finally, the work practices did not support the train controller in carrying out his duties. The marking of the train control graph to indicate the TOA did not provide any way to distinguish whether a TOA had been granted within the station yard at Greenbank.

The Hump

The New Melbourne Goods Yard

In late 1970 the Victorian Railways opened its new Melbourne Goods yard. Launched with much fanfare, the 'Hump' as it was commonly known was the first automated classification yard in Australia. In the old Melbourne yard, wagons *were* sorted by gravity, but they were routed and braked manually by shunters. In the new automated yard, wagons were routed and braked (retarded) without human intervention. A further advantage of the new yard was the much longer arrival and sorting sidings, which matched far more closely the train lengths in the new diesel hauled railway. This article will focus on the signalling and operation of the yard, but some discussion of the background will be given.

These articles are based on three publications dating from the opening of the yard:

* Melbourne Yard Re-arrangement, L.A. Reynolds, VR, c1970
* Melbourne Yard, Hump Working Instructions, VR, 15 June 1970
* Melbourne Automatic Hump Yard, E.P.A. Holman, IRSE (Aust), 13 November 1970

The articles consequently describe how the yard was designed, constructed, and intended to be used. The editor would be very interested to hear from readers how the practices and equipment described in the articles changed over time.

Background

Melbourne Yard was the single most important location in the Victorian Railways for most of the railway's history. Freight tonnage in Victoria was overwhelming primary produce shipped from rural areas to the ports for export. There were also significant secondary flows of rural products to Melbourne for consumption (or manufacturing), and manufactured goods from Melbourne, or the ports, to rural areas. With the exception of grain, most of this tonnage passed through Melbourne Yard to or from the goods sheds (for traffic to or from Melbourne), or the Melbourne ports (for import/export traffic). The efficiency, or otherwise, of Melbourne Yard was a critical factor to the railways in providing service to customers and to the cost of providing that service.

Around 1900, Melbourne Yard had been extensively rebuilt and expanded. The sorting of wagons in this turn of the century yard was by gravitation. Arriving trains were placed in the Receiving Sidings adjacent to Dudley Street signalbox. From there, cuts of wagons were uncoupled from the arriving trains and dropped through the Gravitation Neck into around 40 classification roads. However, there were several limitations on the throughput of wagons through the yard. First, the setting of routes and the braking of wagons as they rolled towards the classification roads was carried out manually by shunters. Second, the classification roads were dead ends. Sorted wagons could only be removed from the classification roads by hauling them back up the grade through the Gravitation Neck. This not only completely stopped sorting, but was slow as the small yard shunters hauled the wagons up hill.

Despite the considerable increase in traffic on the Victorian Railways after 1900 and the substantial increase in train lengths from the mid '20s, relatively few major alterations were subsequently made to Melbourne Yard. The only significant expansion occurred around 1914 when a second, smaller, gravitation yard was provided at North Melbourne to relieve the main yard. Additional roads were provided in the Cowper Street area in the 1920s, and sidings were added at Dynon in 1943. It is known that serious congestion occurred on the goods lines leading to Melbourne Yard in the '20s and '30s. It is possible that the diversion of bulk grain traffic to North Geelong around 1940 freed up enough capacity for the yard to cope. It is possible that the "straw that broke the camel's back" was the dieselisation of the Victorian Railways with the consequent increase in train lengths. When the new yard was completed in 1970, it was estimated that it would save $2 million annually due to increased efficiencies.

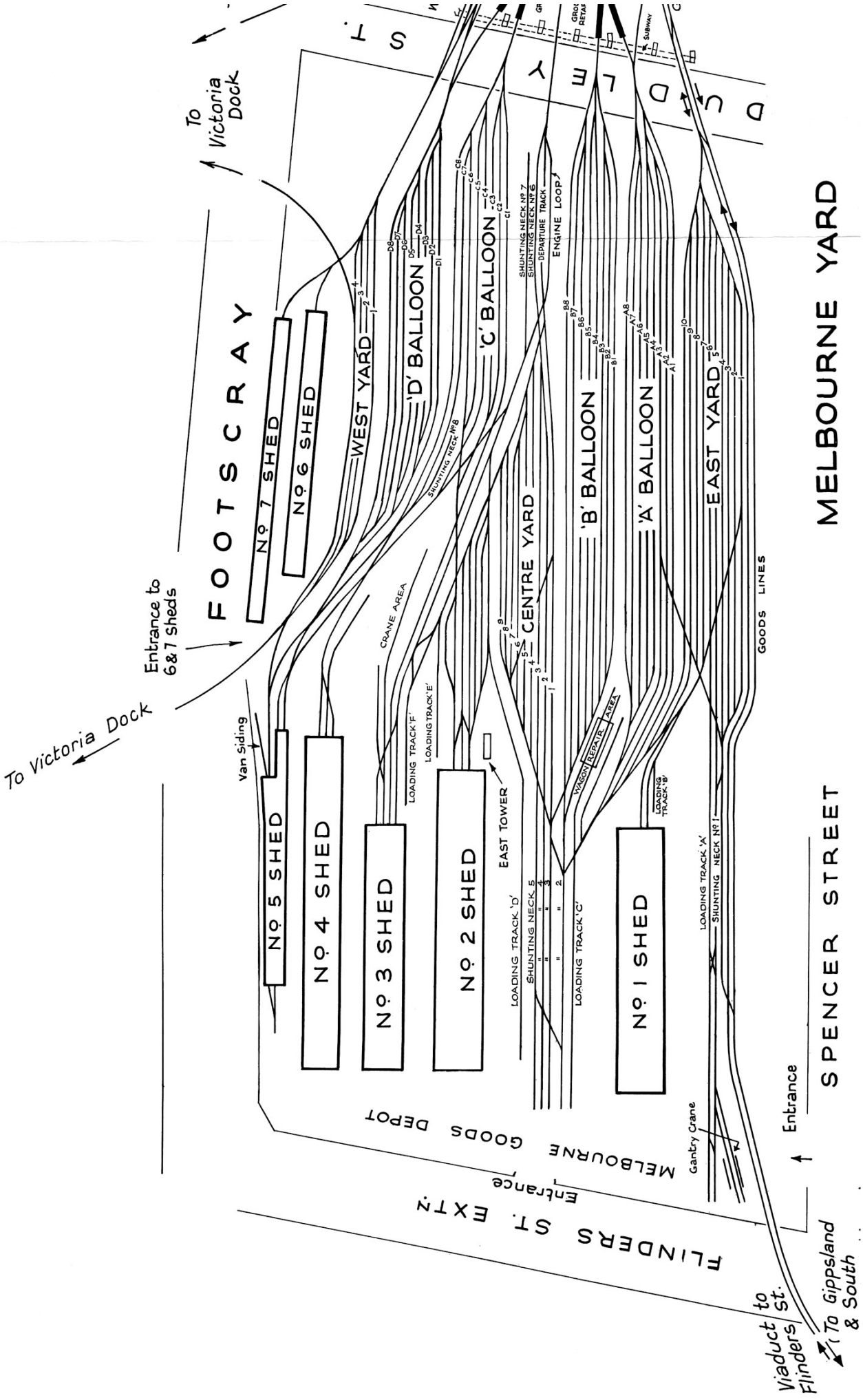
The VR administration were aware of overseas developments in marshalling yards. In 1964 a detailed investigation of the old yard was undertaken, clearly identifying the cost savings that could made with a new yard. As a result of this investigation, a decision was taken to rebuild the yard and work commenced in late 1964. The new yard was formally opened on 9 December 1970, but had been partially in use since at least June 1970. It had a very short life and was last used in September 1987. Its demise was largely brought about by the collapse of the wagon load traffic on the Victorian Railways.

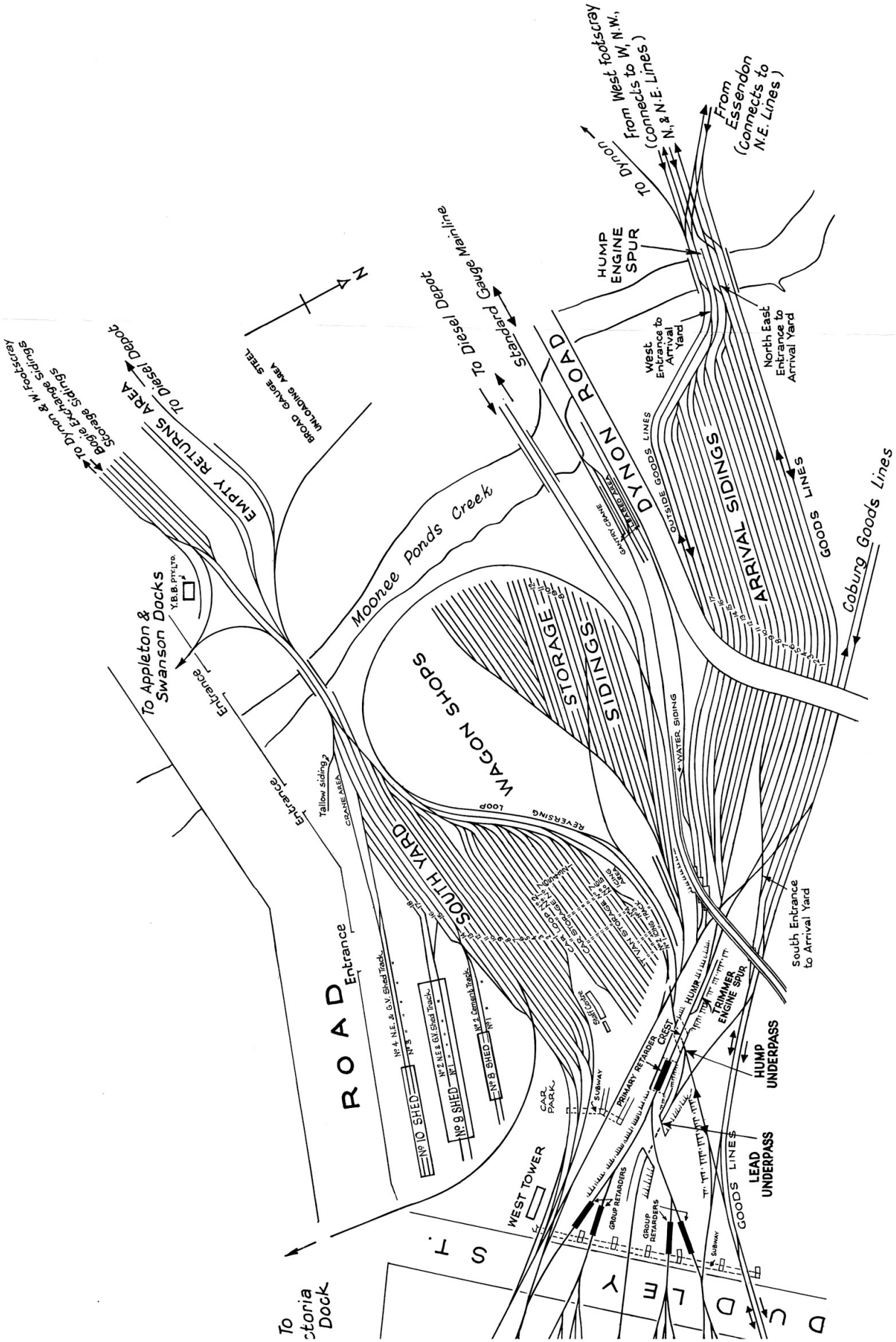
One important decision taken in 1964 was to rebuild the yard on its existing site. Overseas marshalling yards were normally constructed on green field sites where sufficient land could be obtained to lay out the new yard without constraint. In Victoria, however, most of the wagons arriving at the Melbourne yard were destined for the freight sheds or the adjacent port. Relatively small numbers of wagons were remarshalled into new trains for onward movement. It was considered that relocating the yard away from the terminal facilities would merely require most of the wagons to be tripped from the marshalling yard to the existing goods depot. This would add delays to the freight, increase costs, and tax the capacity of the tracks between the new marshalling yard and the Melbourne Goods depot.

Description of the new yard

The major components of the new Melbourne yard were the Arrival Yard, the hump and its associated automatic equipment, four balloons (A, B, C, and D) which formed the sorting sidings, and the three sorting yards known as East Yard, Centre Yard, and West Yard. (It should be noted that the various instructions and descriptions of the yard gave the various components slightly different names. I have tried to be consistent in this article.) The function of the hump and the balloons was to sort (or 'classify') the wagons on arriving trains and collect the wagons for the same destination on one track. The sorting yards were used to make up outgoing trains.

The Arrival Yard (or Arrivial Sidings) was used to receive incoming trains and prepare them for sorting. It consisted of 17 roads stretching between the Moonee Ponds Creek (between North Melbourne and South Kensington) and the Engine Flyover south of North Melbourne station. The easternmost seven roads were electrified and accessible from both the northern and southern ends. These roads were used to receive trains from the Eastern District, and the eastern and southeastern suburbs of Melbourne. The remaining 10 tracks were not electrified and could only be used by trains arriving from the northern end of the yard


MELBOURNE YARD
SPENCER STREET
FLINDERS ST. EXTN.
MELBOURNE GOODS DEPOT
Entrance
Entrance
Viaduct to Flinders St.
To Gippsland & South
Gantry Crane
FOOTSCRAY
No 7 SHED
No 6 SHED
WEST YARD
'D' BALLOON
'C' BALLOON
'B' BALLOON
'A' BALLOON
EAST YARD
CENTRE YARD
SHUNTING NECK No 8
SHUNTING NECK No 7
SHUNTING NECK No 6
DEPARTURE TRACK
ENGINE LOOP
GOODS LINES
CRANE AREA
LOADING TRACK 'E'
LOADING TRACK 'F'
EAST TOWER
WAGON REPAIR AREA
LOADING TRACK 'B'
LOADING TRACK 'A'
SHUNTING NECK No 1
LOADING TRACK 'D'
SHUNTING NECK 5
LOADING TRACK 'C'
No 1 SHED
No 2 SHED
No 3 SHED
No 4 SHED
No 5 SHED
Van Siding
Entrance to 6&7 Sheds
To Victoria Dock
To Victoria Dock
SUBWAY


To Dynon & W. Footscray Bogie Exchange Sidings Storage Sidings
EMPTY RETURNS AREA
To Diesel Depot
BROAD GAUGE STEEL UNLOADING AREA
N
To Appleton & Swanson Docks
Y.B.B. PTY. LTD.
Entrance
Entrance
Tallow siding
CRANE AREA
Moonee Ponds Creek
To Diesel Depot
Standard Gauge Mainline
DYNON ROAD
GANTRY CRANE
WAGON SHOPS
STORAGE SIDINGS
REVERSING LOOP
SOUTH YARD
ROAD Entrance
Nº 4 N.E. & G.V. Shed Tracks
Nº 2 N.E. & G.V. Shed Tracks
Nº 2 Cement Tracks
Nº 10 SHED
Nº 9 SHED
Nº 8 SHED
CAR STORAGE
PLAN STORAGE
SUBWAY
CAR PARK
WEST TOWER
GROUP RETARDERS
PRIMARY RETARDER
CREST
HUMP
TRIMMER ENGINE SPUR
HUMP UNDERPASS
LEAD UNDERPASS
GOODS LINES
SUBWAY
WATER SIDING
OUTSIDE GOODS LINES
ARRIVAL SIDINGS
GOODS LINES
West Entrance to Arrival Yard
North East Entrance to Arrival Yard
South Entrance to Arrival Yard
HUMP ENGINE SPUR
To Dynon
From West Footscray (Connects to W, N.W., N. & N.E. Lines)
From Essendon (Connects to N.E. Lines)
Coburg Goods Lines
To Victoria Dock
S T.
D O C K L E Y

from South Kensington or Kensington. At the northern extremity of the yard, between the Goods Lines, was a short spur known as the 'Hump Engine Track' (or Hump Engine Spur). This was where the hump locomotives were located between pushing rakes over the hump.

Located between the Engine Flyover and Dudley Street was the hump itself. This consisted of two leads from the Arrival Yard which combined into a single track over the hump crest. These leads were crossed by the Engine Flyover which carries the standard gauge main line and engine track into Spencer Street station. This flyover fixed the level of the hump leads prevented a gradual slope up to the hump crest, and a grade of 1 in 30 was required on the approach side of the hump. It must have been noisy when the hump locomotives were pushing a full length, heavily laden, rake up to the hump crest! Beyond the hump crest was located the primary retarder, the king and queen points, and the four group retarders. The king and queen points performed the primary split of wagons into the four Balloons. The primary retarder ensured a consistent speed of all cuts that left the hump, and the secondary retarders braked each cut to control how far along the sorting sidings the cut would run.

Just before the hump crest was a dead end siding known as the 'Hump Trimmer Spur' (or Trimmer Engine Spur). A locomotive was stationed in this spur and was used on a variety of shunting duties. These included sorting out misdrops (where a cut had been routed into the wrong sorting siding), pushing down cuts which had come to a stand too early in the sorting sidings, or had got stuck in the retarders, or removing wagons which could not be loose or hump shunted from the front of rakes before they went over the hump.

The 32 sorting sidings were located south of Dudley Street and were divided into four Balloons: A, B, C, and D, each of 8 tracks. 'A' Balloon was the easternmost balloon and was primarily used to receive wagons destined for the Eastern district and the eastern and south eastern suburbs of Melbourne. 'B' Balloon was next and was primarily used to receive wagons for the remainder of the state. 'C' Balloon was used to receive wagons for the main receiving sheds at the south of the Melbourne terminal, and 'D' Balloon was used to receive wagons for the Port of Melbourne and locations to the west of the hump yard (e.g. Dynon, Kensington, and Tottenham). Although each balloon had the same number of roads, the lengths of the balloons differed significantly. Each road in 'A' Balloon could accommodate 72 four wheeled vehicles; each road in 'B' Balloon, 69 vehicles; 'C' Balloon from 21 to 46 vehicles; and 'D' Balloon 45 vehicles.

In a conventional hump yard, makeup sidings would be located beyond the sorting sidings. These would be used to make up out going trains. However, at Melbourne there was no room for these sidings south of the sorting sidings. Melbourne yard was consequently a 'dead end' yard (an innovation) in which the makeup sidings were located next to and between the balloons in three yards. The East Yard was located between the Spencer Street passenger terminal and 'A' Balloon. It was used to make up trains destined for the Eastern district and the eastern and south eastern suburbs of Melbourne. The Centre Yard was located on the western side of 'B' Balloon and south of 'C' Balloon. This yard was used to make up trains destined for the remaining country districts. Trains from this yard departed north towards the hump, and this required the departure track to pass underneath the tracks leading from the hump crest via the 'Lead Underpass'. West Yard was used to make up trains that were destined for the Port of Melbourne and lay on the west side of 'D' Balloon. The trains in the East and Centre Yards were made up of wagons from incoming trains, drawn from 'A' and 'B' Balloons, and wagons that had been loaded with outgoing freight in the Melbourne Terminal.

Also located at the southern end of the yard, beyond B Balloon, was a light repair centre which could repair minor damage to wagons.

Located around the hump yard were a number of access lines. Running the entire eastern length of the yard were the Up and Down Main Goods Line which could be used to bypass the yard entirely, or for arrivals from Flinders Street, and for departures from the Centre Yard. The Departure Track led from the north end of the Centre Yard to the Main Goods Line via the Lead Underpass.

The South Hump Avoiding Track was the main service track on the western side of the hump. It provided the connection between 'D' Balloon, West Yard, and the Arrival Yard, with the western portions of Melbourne Goods yard, including the South Yard, Wagon Repair Shops, Appleton and Swanson Docks, South Dynon and Dynon. It also provided access to South Dynon loco depot via the Engine Tracks.

The North Hump Avoiding Track ran from the South Hump Avoiding Track, near the hump crest, underneath the hump via the Hump Underpass, to 'A' Balloon. In this short distance it provided connections to the Departure Track and the Main Goods line.

Finally, the Up and Down Outside Goods lines ran along the western side of the Arrival Yard. These commenced at the South Hump Avoiding Track and connected with the arrival and departure lines near Moonee Ponds creek.

The Melbourne Yard was overseen by two 'towers'. West Tower was roughly in the middle of the yard, near the hump crest, and was the base for the Yardmaster, the Signaller, and the Retarder Operator. The Yardmaster oversaw the operation of the whole yard, and in particular the classification of the incoming trains. The Signaller operated an OCS panel that controlled all the connections to the Arrival Yard, the Main Goods Line, the North and South Hump Avoiding Lines, and the Main Departure Line. The panel also controlled moves towards and away from the hump, but movements at the hump crest and down into the classification sidings were controlled by the Retarder Operator. The Retarder Operator controlled the humping of rakes. Normally, the Operator oversaw the automatic equipment, but he could intervene and manually control the retarders, enter or delete cuts, or control shunting movements by the Hump Trimmer.

East Tower was at the south end of the yard and was the base for the Assistant Yardmaster who was responsible for the supervision of the pilots removing wagons from the Balloons, shunting the Goods Sheds, and the making up of departing trains.

(To be continued)

Some Sidelights on the Tablet System on the NSW Railways

Noel Reed submitted the following and suggested that Charles Gavan Duffy might have been the author. The literary quote is certainly in Gavan Duffy's style.

Some years ago there came into my possession ("Conveyed the Wise it call" as says Ancient Pistol) a little file of rather acrimoniously polite correspondence between the Signal Engineer of the New South Wales Railways and the Electrical Engineer. Apparently the feelings of the first-named gentleman had been hurt because when making the key Electric Staff to unlock the points at Dora Creek siding, he had been told that the colour was Red whereas in reality it was French Grey! So now he required a list of all the sections, both Tablet and Electric Staff, with their shapes and colours, and these he now received.

Now this was in June 1900 so I do not pretend to write a history of the Tablet system but merely to set out the position as it was then. I believe that there was Tablet working nearer to Sydney before the double line reached Picton, and I know that it was in force over the George's River Bridge at Como prior to 1894.

The list starts with the Great Northern line, the first section commencing at Maitland (not West Maitland, but just Maitland as it now is once more). Apparently the Instrument was in the SM's office and not in the Signal Box. The first four sections were equipped with No. 3 type instruments, round nib, square nib alternately; the ensuing Tablet Stations being Farley, Lochinvar, Greta, Branxton. After that we have a change, as the sections to Minimbah, and thence to Singleton, are described as "Nos. 2 and 3" with a round nib and a V shaped nib respectively. I could never get anyone to explain how it was possible to have two different types of Instruments on a section, till recently when in Sydney I was fortunate enough to meet the man who knew, and the explanation is this: The No. 2 and 3 type Instruments were very similar and could be worked in conjunction. Minimbah was an afterthought, so when it was opened it was equipped with No. 2 Instruments which were on hand. Quite simple when you know!

Singleton - Nundah and Nundah - Ravensworth were again No.3 square and round respectively, but in the case of the latter section some one has made the "3" into a "2" and written in red ink "altered 17.9.00". Beyond Ravensworth we again have "2 and 3" to Toowong, and from that station to Muswellbrook, V shape and round respectively, so apparently Toowong was an afterthought also.

From Muswellbrook to Tamworth, the limit of Tablet working, the No 3 reigned supreme, square nib, round nib, and so on. The Tablet posts were at Aberdeen, Scone, Wingen, Blandford, Murrurundi, Ardglen, Willow Tree, Quirindi, Werris Creek, Currabubula, West Tamworth and Tamworth. After this Staff and Ticket took over.

Now going to the South Coast line we find that the double line extended to Waterfall, and on the first three sections south of that place were the original No. 1 type of Instrument, the Tablet Stations being Metropolitan Siding, Otford, and South Clifton. Then the section to Bulli had a No.3 Instrument, after which it was No. 2 all the way to Albion Park, the relative stations being Corrimal, Mount Keira, Wollongong, Mount Kembla, Dapto and Albion Park. It should be noted that provision is made for Corrimal to cut out, making the section Bulli - Mount Keira, with a V shape nib. With this exception the nibs are round, square all the way. Corrimal and Exeter are the only two examples which I have ever heard of in New South Wales where Tablet Stations were equipped with switching apparatus.

The last two sections Albion Park - Kiama, Kiama - Nowra were equipped with the much handier No.5 type of Instrument.

On the Southern line the Tablet started at Picton and thence to Moss Vale it was the No. 3 type of Instrument, the equipped stations beyond Picton being Thirlmere, Picton Lakes, Balmoral, Hill Top, Colo Vale, Mittagong, Bowral and Moss Vale with nibs square, round alternately.

It is said that when Mr. Archer had installed the Tablet on this section of line and had proceeded further south, he received an urgent cry of woe inasmuch as no one had remembered about the Bank engines, so that all the Tablets were accumulating at one end of each section! Something had to be done right speedily, so he is said to have selected Tablets with similar nibs which he had with him, pasted strips of paper over the names thereon and placed them in the Instruments requiring them, first writing the names of the sections on the slips of paper, and so tided over the crisis while fresh Tablets properly engraved were being got ready!

Beyond Moss Vale every section as far as Cootamundra is listed as being equipped with type "2 and 3" instruments with the solitary exception of Towrang - Goulburn, where there were No. 5 Instruments. The reason was found in the fact that the Cattle Siding and North Goulburn Ballast Siding had to be worked by Pilots and it was possible to replace a Tablet in the No.5 instruments without going through the section which was not possible with No. 2 and 3 Instruments, a source of much delay, to say nothing of woe and lamentation at times!

Beyond Moss Vale the Tablet Stations were Exeter, Bundanoon, Wingello, Barbers Creek, Marulan, Towrang, Goulburn, Yarra, Breadalbane, Razorback, Gunning, Oolong, Jerrawa, Coolalie, Yass Junction (just Yass in the list), Bowning, Goondah, Binalong, Rocky Ponds, Harden, Demondrille, Newington, Wallendbeen, Jindalee and Cootamundra. They start square nib, round nib but Exeter was fitted with switching out facilities, so the long section to Bundanoon has a "special" nib. Someone has sketched a tablet with a V nib opposite this information, and if he is correct we have an anomaly for the next section to Wingello also had a V, which is against all the canons of safe working!

Barbers Creek was only opened in the busy season in those days, but both long and short section Tablets at the Marulan end had round nibs.

Yarra, Oolong and Coolalie were also seasonal jobs, and we find the special nib on the long section in the first and third cases, but it also appears on the Jerrawa - Coolalie section. The Oolong long section was round.

Rocky Ponds was also cut out at times, and then the Galong - Harden nib was round.

Harden - Demondrille had the special nib, but the long section to Wallendbeen when Newington was closed was a square nib. The special V nib makes its last appearance on the Wallendbeen - Jindalee section. When the latter place was not open, a round nib was in use.

Cootamundra - Frampton section was equipped with No. 5 instruments with a square nib, as also was the long section Cootamundra - Bethungra when Frampton was closed. Frampton - Bethungra was No. 3 type with a round nib. Bethungra - Illabo was another No.3 with a square nib. The section Illabo Junee had No. 5 instruments with a square nib.

Between Junee and Wagga Wagga the changes could be rung. The usual section was between the abovementioned Stations with No. 5 instruments and a round nib but when Harefield was opened the section from Junee had No. 3

instruments with a special square nib, while Harefield - Wagga had No. 5 instruments and a round nib. One night coming home from school in the Melbourne Express Mr. Redshaw showed me the Harefield Tablets when he was on his way to open that place. Apart from the Wheat Season, this opening used to take place once every month to cross the Down Mail and the Interstate Special from Melbourne. To resume: when Bomen was open the section Junee - Bomen had No.3 instruments with square nibbed Tablets, Bomen - Wagga being No. 5 with round nib. Two things may be noted; one, that no provision was made for opening Bomen and Harefield together, that when Frampton was closed, and Bomen open, there were four successive sections with square nibbed Tablets, which seems queer!

Beyond Wagga there were five Tablet sections, all equipped with No. 5 type instruments, starting "square" and ending "square" with two "rounds". The Tablet stations were Uranquinty, Yerong Creek, Culcairn, Gerogery and Albury. At the last named place in the S.M's office the New South Wales and Victorian Tablet Instruments, both the same type, were side by side, each with a different code of bell signals.

And so ends this little dip into ancient history; it does not profess to be exhaustive. As time went on there were many and varied changes, - new Tablet posts opened and old ones closed, but the history of that must await a better a better Chronicler than the Writer.

It is curious that nowhere is the No. 4 Tablet mentioned, though it is described in contemporary literature.

Signalling Alterations

(Continued from page 64)

(20.06.2006) **Pakenham - Traralgon** (SW 141/06, WN 24/06)

The level crossing at McIntyre Rd (76.630 km) has been reopened for traffic.

20.06.2006 **Bairnsdale** (SW 126/06, WN 21/06 & 24/06)

On Tuesday, 20.6., the following alterations took place. A calling-on signal (light) were provided on Down Home Post 2 (applying along No 1 Road). A new Post 4 (light Home and light Calling-on) was provided for moves from No 1 Road to No 1A Road towards Post 3. The Calling-on arm will be used when the Home on Post 3 is at Stop. The signals on Post 3 will be operated from a new keyswitch 23 located in the station office. A new Dwarf Post 5 was provided for moves from No 2 Road toward Post 3. This will be operated from keyswitch 24 located on the raised keyswitches located at the Up end of No 2 Road. These raised keyswitches were relocated 16 metres in the Down direction. The level crossing predictor boards at Bosworth Road were relocated closer to the level crossing.

Key switches 17, 18, and 19 will be relocated 23 metres in the Down direction (and will remain out of service). New signals will be provided on Nos 1 & 2 Roads and alterations made to Post 2.

Bairnsdale must be attended by a qualified signaller for all train movements.

Diagram 12/05 replaced 10/05. Amended procedure 130D was issued.

23.06.2006 **Macleod** (SW 170/06, WN 25/06)

On Friday, 23.6., the illuminated letter 'A' on Up Home 111 was converted to LED.

25.06.2006 **Upper Ferntree Gully** (SW 171/06, WN 25/06)

On Sunday, 25.6., additional track circuits (A33 and A35 tracks) were provided as part of the turnout fouling project.

25.06.2006 **Bentleigh** (SW 172/06, WN 25/06)

On Sunday, 25.6., the holding time for the Centre Road level crossing was reduced from 35 seconds to 25 seconds.

26.06.2006 **Eltham - Diamond Creek - Hurstbridge** (SWP 4/06, WN 25/06)

On Monday, 26.6., a 'Train Staff Closing Box' was provided at Eltham and the 'Temporary Train Staff box' removed. The Train Staff Closing Box interlocks the long section Eltham - Hurstbridge staff with the two short section Eltham - Diamond Creek and Diamond Creek - Hurstbridge staffs. The closing box has three openings. When the long section is in use, the short section staffs will be secured in the outer openings. To open Diamond Creek as a temporary Train Staff station, the long section staff is inserted in the centre opening and turned. This releases the two short section staff. Removal of the short section staffs back secures the long section staff.

The following SW Circular was not published in the Weekly Notice:

24.03.2005 **Traralgon - Sale - Bairnsdale** (SW 57/05)

On Thursday, 24.3., a Staff Closing Box was brought into use at Sale. The box will secure the long section Train Staff (Traralgon - Bairnsdale) when the short sections (Traralgon - Sale - Bairnsdale) are in use, and vice versa. Ticket Boxes were provided for the Traralgon - Bairnsdale section, and the short section Staffs were renewed. A new operating procedure 130D was issued.