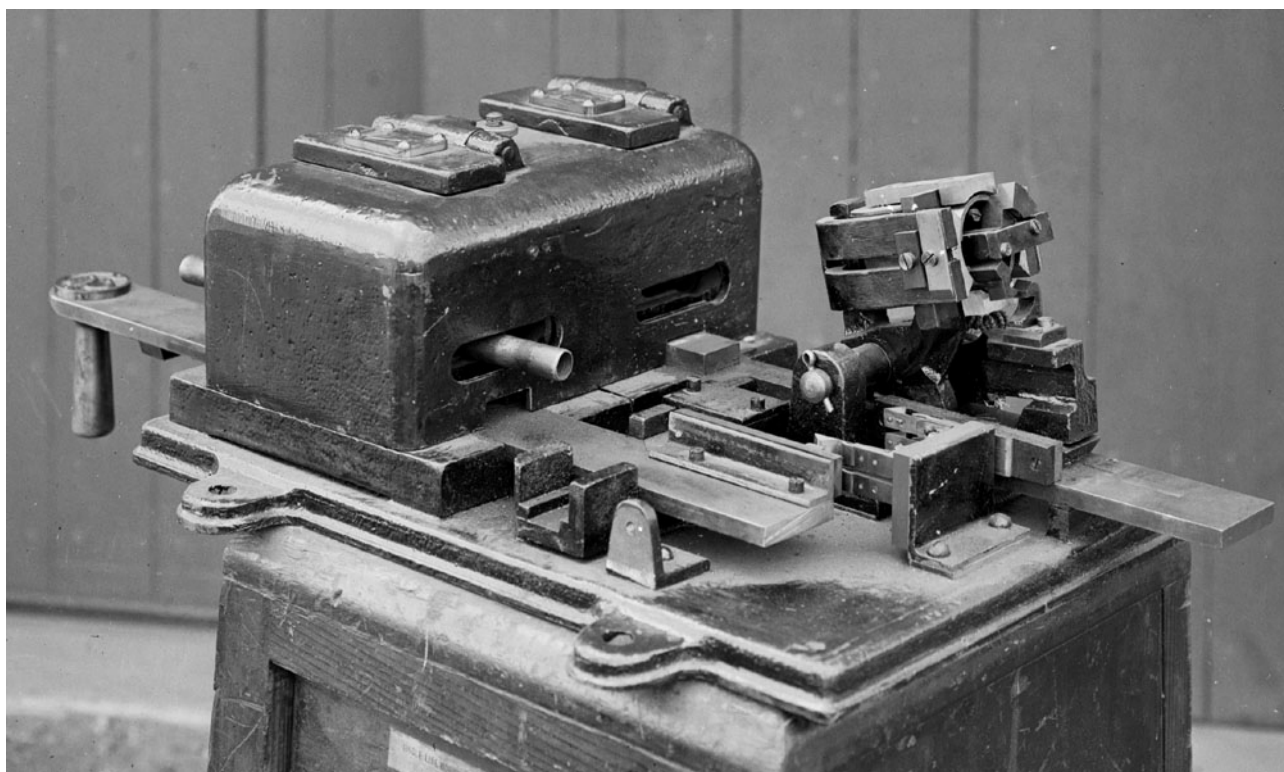


# SOMERSAULT

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## SIGNALLING RECORD SOCIETY OF VICTORIA INC



On 15 October 1929 switch boxes were provided to allow Pirron Yallock and Pomborneit to switch out in the Colac - Camperdown miniature electric staff section. The switch boxes used were to a design of the Railway Signal Company of the UK. In this system, two different switch boxes were used: intermediate switch boxes (provided at Pirron Yallock and Pomborneit) and a terminal switch box (provided at Colac). This is a view of the rear of the terminal instrument with some of the covers removed to show the operating mechanism.

The terminal instrument had two slides. When the intermediate stations were switched out, one slide contained a short section staff, and when the intermediate stations were switched in the other slide contained a long section staff. In this view, the instrument is shown switched out with a short section staff secured in the instrument and the short section slide (nearest the camera) pulled forward.

The front housing holds the staffs. The miniature staffs are inserted on the right hand side (in this view) of the slots, moved to the left through a gauge block, and then secured by pulling the slide forward. The gauges of the staffs were indicated by cast letters, and it can be seen that the long section Colac - Camperdown section used D pattern staffs, and the short section Colac - Pirron Yallock section used A pattern staffs.

The short section staff could be released from the switch box by inserting a long section staff and pulling the long section slide out. The interlocking between the two slides was by means of conventional tappet locking, and the channel in which the locking operated can be seen immediately behind the front housing. Once a long section staff was secured in the instrument, however, its release not only required a short section staff to be inserted in this box, but an electric release proving that the other two short section staffs (Pirron Yallock - Pomborneit, and Pomborneit - Camperdown) were secured in the intermediate switch boxes. The lock had two parts. The first was a heavy metal lock that physically engaged with a lug on the slide. The second was an electromagnet that could be used to lift the lock clear of the lug. Both can be seen in this view above the long section slide with the electromagnet above the lock. When the slide was pulled out the lock dropped down behind the lug to prevent the slide from being fully restored. The electromagnet also dropped down. If current was being received, the armature in the electromagnet rotates counterclockwise bringing a hook on the armature underneath a corresponding hook on the lock. As the slide is pushed in, the electromagnet is lifted and, if the hooks are engaged, the lock is also lifted allowing the slide to be pushed all the way home. This mechanism is identical that used in later miniature electric staff instruments to release a staff. The advantage of the mechanism is that the electromagnet only has to operate a light hook. It neither has to lift the lock itself, or resist an operator attempting to force the slide home.

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### MINUTES OF MEETING HELD FRIDAY MAY 15, 2009,

#### AT THE SURREY HILLS NEIGHBOURHOOD CENTRE, 1 BEDFORD AVENUE, SURREY HILLS

Present: - Noel Bamford, Mark Bau, Wilfrid Brook, Glenn Cumming, Graeme Dunn, Vance Findlay, Ray Gomerski, Chris Gordon, Judy Gordon, Bill Johnston, Keith Lambert, David Langley, Steve Malpass, Andrew McLean, Tom Murray, Trevor Penn, Brian Sherry, Peter Silva, Andrew Waugh, Andrew Wheatland, Bob Whitehead and Ray Williams.

Apologies: - Brett Cleak, Graeme Cleak, Michael Formaini, Chris King, Greg O'Flynn, Laurie Savage & Stuart Turnbull.

The President, Mr. David Langley, took the chair & opened the meeting @ 20:02.

Minutes of the March 2009 Meeting: - Accepted as published. Bob Whitehead / Andrew Wheatland. Carried.

Business Arising: - Nil.

Correspondence: - Email from Alex Ratcliffe advising a change of postal address.

Letter to Sandy Ireland of Bendigo welcoming him to membership of the SRSV.

Annual Return for 2008 sent to Consumer Affairs Victoria. Steve Malpass / Peter Silva. Carried.

Reports: - Glenn Cumming discussed a plan for a signal box tour in the metropolitan area later in 2009. Peter Silva provided an update on the Market Street Signal Bridge project.

General Business: - The Secretary provided an update on the matter of the locked access gates at Seymour. Victrack are attempting to resolve access issues for the SRSV but the keeper of the key to the gate still cannot be located. Investigations are ongoing.

Keith Lambert provided details on works on the Connex network: -

- \* Unit lever panel at Dandenong will be replaced by a VDU this weekend. Nos.6 - 9 Roads at Dandenong are to be removed
- \* Six additional stabling sidings at Craigieburn to be commissioned on 30 May 2009
- \* Extra sidings to be provided at Newport Workshops for electric trains
- \* The Nunawading grade separation project will see new crossovers provided at Mitcham. The control panel at Mitcham will be replaced as part of this work

Bob Whitehead provided details of recent progress on the North East Broad Gauge conversion project: -

- \* Works trains have been operating on the former BG Line
- \* Concrete sleepers for the 1962 Standard Gauge Line have been distributed from Violet Town to Springhurst
- \* Crossovers at Benalla and Wangaratta have been installed but are out of use
- \* Works have commenced for the Wodonga bypass
- \* A new platform is to be provided at Broadmeadows for the SG Line
- \* Work in Seymour Yard has not started

Bob Whitehead reported that the re - arrangements at Murchison East had been completed.

Glenn Cumming reported on the planned hand over of the Albion - Jacana BG Line to the ARTC. This will be followed by a 10 day shut down to allow the 3rd rail for the SG Crossing Loop to be installed.

Andrew Waugh asked about working of the 1962 SG Line before the CTC was commissioned. Were intermediate electric staff instruments provided at the opposite end of the long crossing loops to the Signal Box for the crossing of passenger trains? The answer was not known. A reference to this arrangement has been found in a VR document sent to QR in response to a question from QR suggesting that the idea might have been considered. A similar arrangement was provided at Salisbury Loop on the Western Line.

The arrangements and working of Donnybrook Loop prior to CTC was discussed with emphasis on the circuits for the level crossing.

Steve Malpass reported that survey pegs for the new triangle connection at Tottenham are in place. Steve Malpass suggested that the Style "R" signals between West Footscray and St. Albans will be replaced soon.

Steve Malpass also noted that some dwarf signals at Dandenong have been removed and the Style "R" signals at Dandenong are expected to be replaced.

Tom Murray tabled a diagram of the current track layout at Mildura, provided by Bruce McLean. The diagram shows the removal of tracks in the goods yard.

Andrew Waugh tabled two new signalling books from overseas. The subject of the first book is the signalling and interlocking at Frankton Junction in New Zealand while the second book concentrates on interlocking towers on the New Haven Railroad in the USA.

Vance Findlay noted that weed spraying had recently occurred on the Arart - Maryborough - Maldon Junction Lines.

Syllabus Item: - The President introduced member Keith Lambert to present the Syllabus Item.

Keith presented a collection of 20 slides from Victoria in the form of a "Where is it?" type quiz.

The slides were from the collections of Keith and Alan Jungwirth & featured a variety of locations, both country and metropolitan, and from different decades.

The meeting was given ample opportunity to view the slides & deduce, estimate or just plain guess the location of each slide, with each slide receiving the mandatory appreciative comments.

David Langley top scored with a few other members also scoring very well.

The presentation was thoroughly enjoyed by those present at the meeting, probably more for the great collection of slides rather than being able to identify all the locations.

At the completion of the Syllabus Item, The President thanked Keith for the entertainment & this was followed by acclamation from those present, along with the promise of a future invitation to do it all again at a future meeting.

Meeting closed at 21:52 hours.

The next meeting will be on Friday 17 July, 2009 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 11/09 to WN 20/09 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.*

- 18.03.2009 **Dunolly** (SW 27/09, WN 11)  
On Wednesday, 18.3., the signals were upgraded. The heads on Posts 1, 3, 4, and 5 were converted to LED. Post 2 was replaced by a new Post 2 with two LED heads. Amend Diagram 40/06 (Dunolly).
- 19.03.2009 **Ballarat - Beaufort** (SW 28/09, WN 11)  
On Thursday, 19.3., flashing lights were provided at the unprotected level crossings at Draffins Rd (130.879 km) and Powells Rd (132.673 km). Operation of both level crossings is via a predictor. Remote monitoring equipment is provided.
- 21.03.2009 **Spencer St No 1** (SW 70/09, WN 12)  
On Saturday, 21.3., gauge detection 407 (sic), 513, and 529 were provided for Posts SST507, SST513, and SST529 respectively. Approach clearing was provided for all three of these signals. In addition, the 'Clear Medium Speed' aspect of Posts SST515 and SST531 was abolished, and 'V' and 'S' indicators were provided on Post SST531.
- 21.03.2009 **Upper Ferntree Gully** (SW 71/09, WN 12)  
On Saturday, 21.3., Dwarf 26 was altered to display Clear Low Speed.
- 22.03.2009 **Maroona - Portland** (SW 131/09, TON 88/09, WN 11)  
Commencing at 1300 hours on Sunday, 22.3., this line will be transferred from V/Line Passenger to ARTC. Control of the line will be transferred from Centrol to ARTC Train Control Mile End, including control of Willaura Siding, Glen Thompson Siding, and Hamilton Yard. Operating Procedures 34-81 Maroona (SW 151/02), 34-85 Portland (SW 156/08), 34-86 Portland - Signaller not in attendance (SW 156/08), 34-87 Portland - Kalari Siding (SW 156/08), and TON 381/08 (Portland - Driver in charge for certain trains) have been cancelled. Master Keys 2 to 9 inclusive for this corridor have been transferred to ARTC.
- 24.03.2009 **Camperdown** (SW 33/09, WN 11)  
On Tuesday, 24.3., flashing lights were provided at the unprotected level crossing at Wire Lane (196.410 km) on the Up side of Camperdown. Operation is via a predictor and trains travelling at more than 50 km/h may accelerate after passing the predictor boards. Remote monitoring equipment is provided.
- 25.03.2009 **Terang** (SW 34/09, WN 12)  
On Wednesday, 25.3., flashing lights were provided at the unprotected level crossing at Boorcan Rd (211.217 km) on the Up side of Terang. Operation is via a predictor and trains travelling at more than 50 km/h may accelerate after passing the predictor boards. Remote monitoring equipment is provided.

- 25.03.2009 **Sea Lake Block Point - Kulwin** (TON 102/09, WN 12)  
Effective Wednesday, 25.3., the booked out portion of this line from 468.538 km to Kulwin has been transferred to the control of VicTrack.
- 25.03.2009 **Frankston** (SW 73/09, WN 13)  
On Wednesday, 25.3., Points 25 were returned to service.
- 26.03.2009 **Camperdown** (SW 38/09, WN 12)  
On Thursday, 26.3., a V5PSW closing keyswitch was provided on the platform. The keyswitch has three positions, two are labelled 'Attended', and 'Unattended', with a third central position.  
When permission has been granted by the train controller to place the signals to Stop, the signaller will place the closing switch to 'attended' and then restore signals 1, 2, 5 and 6 to stop. The 'attended' indicator will then light on the closing switch. To close, signals 1, 2, 5, and 6 must be cleared and the closing switch operated to 'unattended'. The 'unattended' indicator will then light.  
When the signalling is in the 'unattended' mode, signals 2 and 5 can be placed to Stop by the operation of their keyswitches to stop the operation of the flashing lights. If the signals are then cleared with a train in the platform there will be a delay of 12 seconds before the signals will clear.
- (31.03.2009) **South Geelong** (SW 40/09, WN 13)  
Signal Diagram 104/08 (South Geelong) replaced 48/05 as in service. The lettering on the noticeboards for the siding at Swanston St have been updated to read "Shunting trains must not enter the roadway until the booms are horizontal. Second train may delay starting of the crossing".
- 31.03.2009 **Sea Lake - Mittyack - Kulwin** (SW 41/09, WN 13)  
Effective 31.3., the Train Order section Sea Lake Block Point - Kulwin was replaced with the section Sea Lake Block Point - Mittyack.  
Kulwin was abolished as an Unattended Train Order Terminal Location and the End and Commence Train Order Boards will be abolished.  
Mittyack was established as an Unattended Train Order Terminal Location. End and Commence Train Order Boards were provided at 466.500 km (594m on the Up side of the Calder Highway). A location board was provided 2,500m on the Up side of the Train Order Boards. The Master key locks at the Up and Down end points was retained, together with the hand operated derails, operation of the flashing lights at the Calder Highway (467.094) and the Master Key/Plunger Locking on the Up end points. Baulks were provided at 468.538km. Any train terminating at Mittyack must be stabled in No 2 Road.
- 02.04.2009 **Swan Hill - Piangil** (TON 118/09, WN 14)  
On Thursday, 2.4., this section was booked back into service. The baulks at 347.250 km were removed. TON 26/09 is cancelled.
- 03.04.2009 **Donald** (SW 43/09, WN 14)  
On Friday, 3.4., the heads on Posts DON 1 and DON 2 were replaced with LEDs. The 5P keyswitches at Campbell St and Hammill St were replaced by V5PSW keyswitches.
- 03.04.2009 **Dandenong** (SW 84/09, WN 14)  
On Friday, 3.4. Nos 5, 6, 7, and 8 Tracks were booked out of service. Crossover 633 and Points 642, 646, and 656 were secured normal.
- 05.04.2009 **Flinders St** (SW 85/09, WN 14)  
On Sunday, 5.4. Platform 12 was extended 16 metres at the Down end. Co-acting signal 950P was relocated and was attached to the SPOT monitor.
- 05.04.2009 **Bell** (SW 80/09, WN 14)  
On Sunday, 5.4., traffic light co-ordination was provided at Bell St. The incandescent lamps in the flashing lights were replaced by LEDs.
- (07.04.2009) **Status of Train Order Locations** (SW 42/09, WN 14)  
Operating Procedure 131 was re-issued.
- 17.04.2009 **Hopetoun** (SW 46/09, WN 15)  
On Friday, 17.04., road traffic active advance warning signs were provided at Henty Hwy (406.496 km) on the Up side of Hopetoun.
- 17.04.2009 **Lascelles** (SW 47/09, WN 15)  
On Friday, 17.04., road traffic active advance warning signs were provided at Sunraysia Hwy (443.262 km). The pushbuttons at the Up end points to control the operation of the flashing lights were replaced by a V5PSW keyswitch which will indicate the operation of the active advance warning signs. Diagram 18/09 (Lascelles - Nunga) replaced 06/07.
- 19.04.2009 **Laverton** (SW 104/09, WN 16)  
On Sunday, 19.04., the local control panel was decommissioned.
- 19.04.2009 **Essendon** (SW 98/09, WN 16)  
On Sunday, 19.4., traffic light co-ordination was provided at Buckley St. The incandescent lamps in the flashing lights were converted to LEDs.

- 19.04.2009 **Craigieburn** (SW 103/09, WN 16)  
On Sunday, 19.04., Points 421 leading to the future Holding Road were provided. These points are not in service and are secured normal. Amend Diagram 120/07 (Craigieburn)
- 20.04.2009 **Benalla - Oaklands** (TON 144/09, WN 16)  
Commencing Monday, 20.4., this line was booked back into service. The baulks at 196.000 km were removed. TON 91/09 is cancelled.
- (21.04.2009) **Heidelberg** (SW 105/09, WN 17)  
Due to a continuing software issue, the panel must always be in automatic mode when switched out (not manual mode). The panel must be switched in should it be necessary to alter the precedence of trains when the panel is switched out.
- (28.04.2009) **Status of Train Order Locations** (SW 53/09, WN 17)  
Operating Procedure 131 was re-issued. SW 42/09 is cancelled.
- 28.04.2009 **Beaufort - Ararat** (SW 51/09, WN 17)  
On Tuesday, 28.4., the unprotected level crossings at Finnegans Rd (170.607 km), Old Shirley Rd (174.862 km), and Gravel Route Road (189.264 km) were provided with flashing lights. Remote monitoring equipment is provided.
- 28.04.2009 **Eaglehawk - Dingee** (SW 50/09, WN 17)  
On Tuesday, 28.4., the flashing lights at Loddon Valley Hwy (173.461 km) were upgraded to boom barriers and road traffic active advance warning signs were provided. Trains travelling at more than 50 km/h at the predictor boards can accelerate before reaching the crossing. Remote monitoring equipment is provided.
- 01.05.2009 **Murchison East** (SW 52/09, WN 17)  
On Friday, 1.5., the flashing lights at the Murchison - Violet Town Road (146.999 km) (formerly the Goulburn Valley Highway) will be upgraded to boom barriers. Road traffic active advance warning signs will be provided. A board lettered 'Maximum speed to crossing 50 km/h' for Up trains was provided 211 m from the Down end of the platform and the existing notice board was abolished.  
The existing mechanical Down Home Post 2 was replaced by a new LED signal located 68 metres on the Up side of the crossing. Up Home Post 3 was converted to a LED head. Up Home Post 4 was not altered. The Up and Down Location Boards were replaced by new boards located 2500 metres in the rear of the respective Home signals. The existing pushbuttons at the Up end points for operation of Post 3 and the level crossing were replaced by V5PSW keyswitches with indications to indicate the correct operation of the active advance warning system and the aspect of Post 2. A V5PSW keyswitch for the operation of Post 3 will be provided at the Up end of the platform together with an indicator for the active warning system. The existing pushbutton for the control of Post 3 near the platform quadrants will be replaced by a V5PSW keyswitch and indicators provided for the active advance warning system and Post 2.  
Operation of the boom barriers for Up trains will commence as the train leaves the platform provided Post 3 is at proceed. If Post 3 is at stop and a call is placed on the boom barriers, Post 3 will not clear until the active warning lights and the boom barriers are activated.  
Murchison East Block Point was abolished. Murchison East be a Crossing station when attended and an Intermediate Train Order station when unattended.  
Diagram 6/09 (Nagambie - Toolamba) replaced 38/07. Operating Procedure 131 will be re-issued.
- 02.05.2009 **Ormond** (SW 134/09, WN 21)  
On Saturday, 2.5., the control circuits for the boom barriers at Ormond Rd were altered so that all Down trains are treated as express trains.
- (05.05.2009) **Siemens Trains** (SW 112/09, WN 18)  
Commencing forthwith at locations where there is a automatic level crossing or pedestrian crossing within 100 metres of a platform the speed of all Siemens trains scheduled to stop in the platform must not exceed 30 km/h entering the platform. When approaching a signal at Stop, Drivers of a Siemens train must reduce speed to 30 km/h a platform length from the signal. SW 69/09 is cancelled.  
If a Siemens train overruns a platform, the driver must immediately press the data logger button. The train must not be moved until authorised by the Train Controller.  
A special Siemens speed board will be progressively introduced. This will be located 200 metres from a platform and will consist of a black 'S' over '30' on a yellow background.  
Stations where these instructions apply are: Carnegie (U), Murrumbeena (U), Hughesdale (U), Clayton (U), Westall (D), Springvale (U), Hallam (D), Narre Warren (U), Berwick (U), Beaconsfield (U), Merinda Park (D), Glenhuntly (U), Ormond (D), McKinnon (D), Bentleigh (D), Highett (D), Cheltenham (D), Mentone (U), Parkdale (U/D), Mordialloc (U/D), Aspendale (D), Edithvale (D), Chelsea (U), Bonbeach (D), Carrum (U), Seaford (U), Prahan (U), Ripponlea (D), North Brighton (D), Middle Brighton (D), Brighton Beach (D), Hampton (D), Yarraville (D), Spotswood (U), Altona (U), Westona (D), Aircraft (U), Hoppers Crossing (D), North Williamstown (D), Ginnifer (U), St Albans (D), Keilor Plains (U), Kensington (U), Moonee Ponds (U), Essendon (U), Pascoe Vale (D), Macaulay (U), Royal Park (U), Jewell (U/D), Brunswick (U/D), Anstey (D), Moreland (U), Coburg (D), Batman (U), Merlynston (D), Fawkner (D), Gowrie (D).

## ELECTRIC STAFF SWITCHING IN VICTORIA

### PART 2 - RSCo "WITHOUT TRAIN" SWITCH BOXES

The previous part of this series examined the "with train" switch boxes used on the Victorian Railways. The main issue with these switch boxes was the inflexibility and consequent staff costs caused by needing a train to be at the switching station when it switched in or out. The first "without train" switching system used in Victoria was a design of the Railway Signal Company (RSCo) which was placed in service on 15 October 1929. It allowed Pirron Yallock and Pomborneit to switch out in the Colac - Camperdown section of the south western line to Port Fairy.

The Railway Signal Company was a wholly owned subsidiary of the Westinghouse & Saxby Brake and Signal Company of the UK. This company also wholly owned the McKenzie and Holland Company of Australia, and, naturally, McKenzie and Holland were the Australiasian agents for the RSCo designs.

The RSCo switching system used in Victoria was patented by John T. Roberts, the then Signal and Telegraph Engineer of the LNWR, Percy W. Hardman, one of his assistants, and Walter S. Roberts of the Railway Signal Company in 1922 (UK Patent 188097). Descriptions of the system were published in 'The Railway Engineer' for March 1924, May 1929, and November 1929. The first installation was around 1923 on the Bletchley - Sandy section of the former LNWR with Goldrington switching out in the Willington - Bedford section. By March 1929 the article notes that the system had "been extensively applied in this country, Ireland, Brazil, Chile, Egypt, Uruguay, and is also now being introduced in Australia", presumably a reference to the pending installation on the Victorian Railways.

#### Technical description

The original installation, illustrated and described in the March 1924 article, used large type electric staff instruments for the short section and miniature instruments for the long section. The switch boxes were consequently massive cast iron pillars which looked more physically imposing than even the large instruments themselves. These illustrations were repeated in the May 1929 article, however the Railway Engineer then published a followup article in November illustrating a physically more compact version of the system using miniature staffs. Perhaps the Railway Signal Co felt that illustrations of the original, clunky, switch boxes would not lead to sales!

The following description is based on the description in the November 1929 article as it is unusually detailed, containing both circuit diagrams and drawings of the switch boxes. Victoria used a simplified version of the switch boxes as it was not necessary to interlock the switch boxes with an interlocking frame.

The underlying idea of the switching system was ingenious and had the advantage that any number of intermediate staff stations could be switched in or out (however, they all had to be switched in or out at the same time). It used two types of switch boxes: an intermediate type placed at each switching station, and a terminal switch box placed at one of the long section staff stations.

The intermediate switch boxes normally had four slides. One slide was used to secure a short section staff during long section working. A second slide was used to release the short section staff when switching in. The third

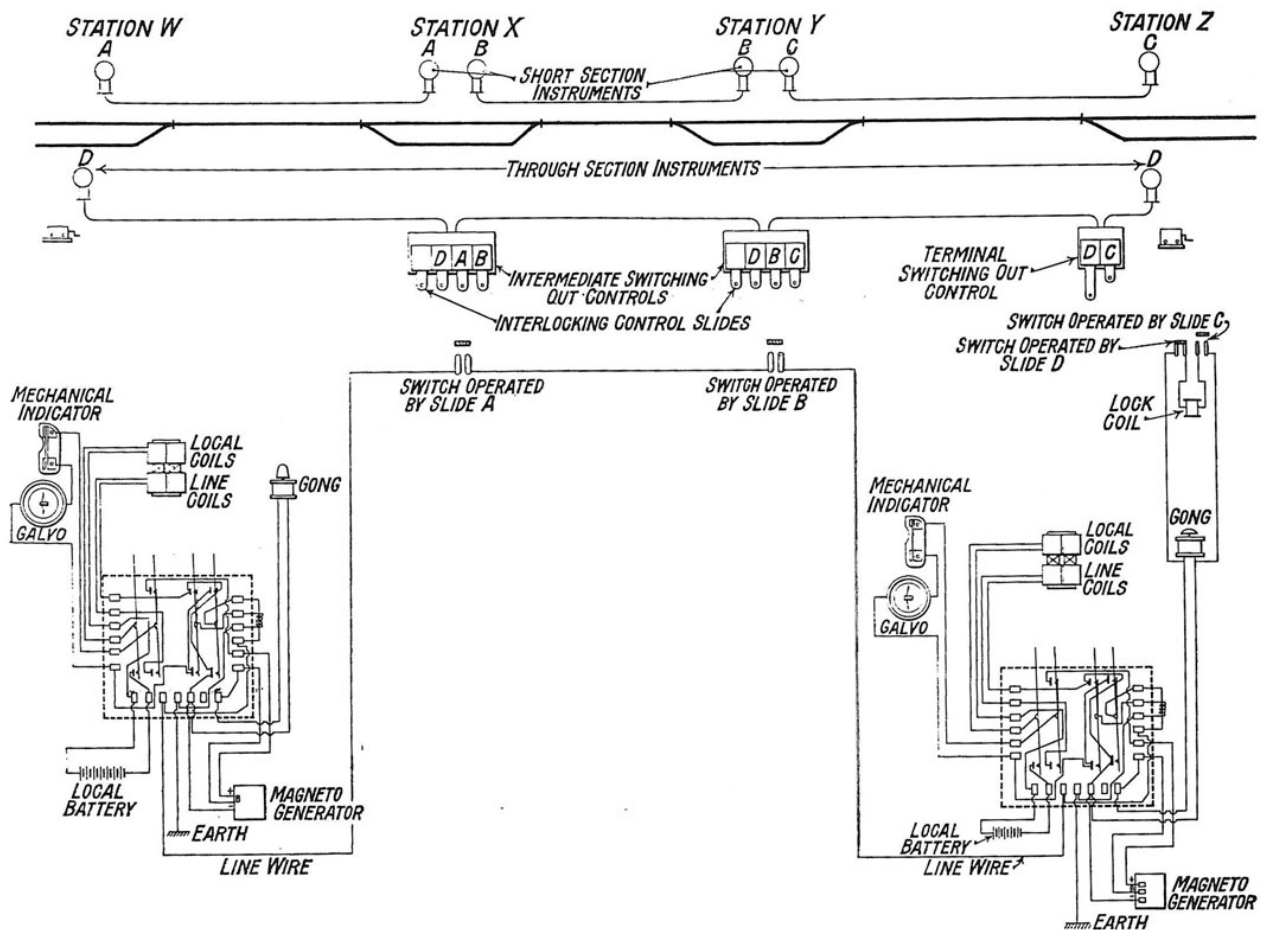


Fig. 53.—Working Diagram for Switching-out Apparatus.

slide interlocked the switch box with the interlocking frame and ensured that all the main line signals were off when the station was switched out. The fourth slide allowed a long section staff to release the interlocking when it was necessary to shunt the station during long section working. In Victoria, neither Pomborneit or Pirron Yallock were interlocked and so the third and fourth slides were not provided.

The terminal switch box had two slides. One held a short section staff during long section working, the other the long section staff during short section working.

In describing the operation of the system, we will follow the naming conventions of the diagrams in the 1929 article. The sections will be W-X-Y-Z with X and Y switching. When short section working is in force, a long section W-Z staff is secured in the terminal instrument, rendering the long section staff instruments inoperable. The long section line wire is also broken at X, Y and Z. When long section working is in force, one short section staff is secured in each intermediate switch box, and the final short section staff is secured in the terminal instrument.

To switch out when short section working is in force, the signalman at X withdrew a W-X staff and inserted it in the correct opening in the switch instrument (the openings necessarily proved the gauge of the staff to ensure that the correct staff was placed in the opening). This allowed the associated slide to be pulled halfway out, which, in turn, allowed the interlocking slide to be pulled halfway out. This operated a connection to the interlocking frame which suppressed the normal interlocking between the opposing home signals. The signalman then cleared the main line signals, including the distants. Reversing both distants allowed the interlocking slide to be pulled fully out, backlocking the distants, and allowing the staff slide to be fully pulled out. The staff slide then became mechanically locked and consequently the short section staff was secured in the switch box. Fully pulling out the slide also connected up the long section line wire at X.

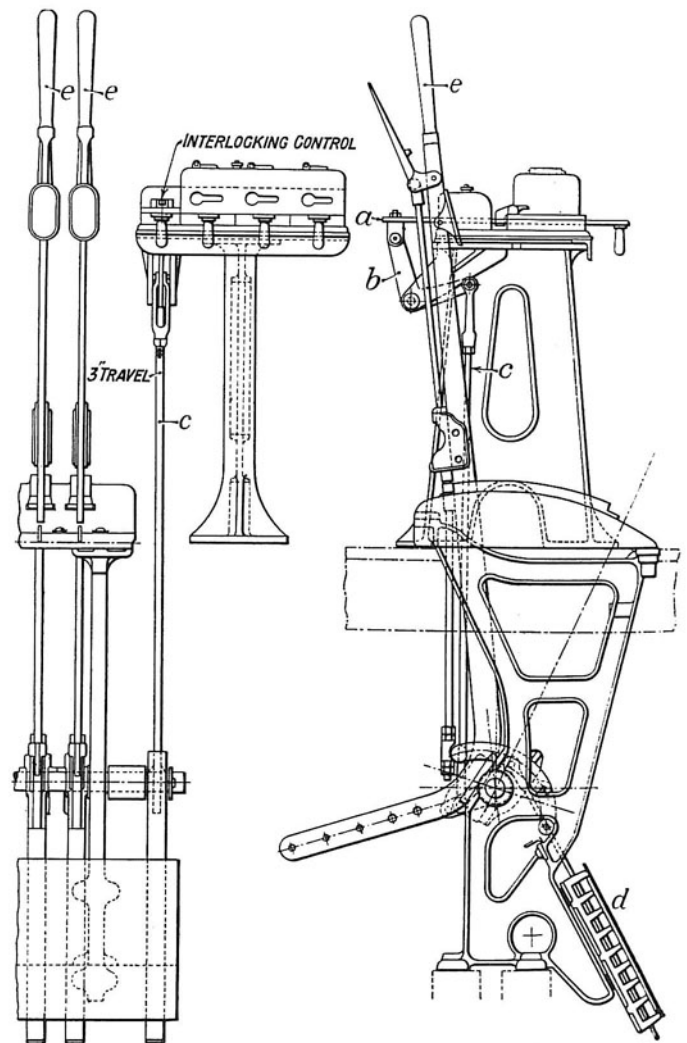


Fig. 55.—Intermediate Switching-out Control Apparatus with Shunting Control.

(Left) The circuit diagram for the long section instruments for the RSCo system (shown with the intermediate stations switched in). The only differences in the circuit to that used without switching was the staff switches at the intermediate staff stations, breaking the long section line wire when the short section staffs were out of the intermediate switch boxes, and the electric lock on the terminal switch box (shown at the extreme right) which was in parallel to the gong at the control station. Switches were provided in the lock operating circuit so that the lock only operated when both a long section and a short section staff were both in the terminal switch box (the lock allowed the long section slide to be restored so that the long section staff could be withdrawn). (Above right) A drawing of the intermediate switchbox used where the switchout station was interlocked (a simpler intermediate switch box was used in Victoria as neither Pomborneit or Pirron Yallock were interlocked). Three slides had staff openings. These were used to secure the short section staff during long section working, to release the short section staff when switching in, and for a long section staff to release the interlocking if it was necessary to shunt the station when it was switched out. The fourth slide provided the interlocking with the frame. (Right) A drawing of the terminal switch box (shown switched in). This had only two slides. The lefthand slide was used to hold a long section staff when short section working was in use, and the righthand slide was used to hold the short section staff when long section working was in use. This is identical to the instrument supplied to the Victorian Railways. A photo of the VR terminal instrument, with a discussion of the mechanism, is on the front cover. The illustrations are taken from 'Improved methods in the Operation of Single Tracks - VII' published in *The Railway Engineer*, November 1929.

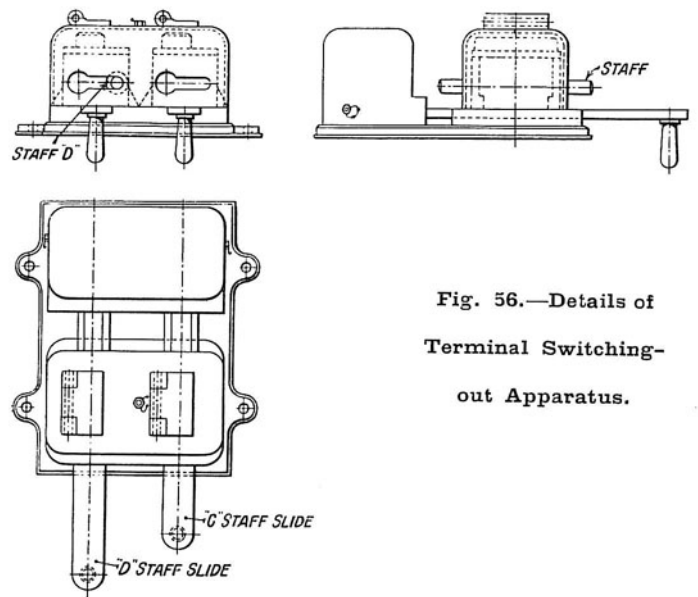


Fig. 56.—Details of Terminal Switching-out Apparatus.

The signalman at Y similarly withdrew an X-Y staff and secured it in the intermediate switch instrument at Y. Finally, the signalman at Z withdrew a Y-Z staff and secured it in the terminal switch instrument. The long section line wire between W and Z was now complete and the signalman at W sent current on the long section instrument to Z. This released an electric lock in the terminal switch instrument and allowed the long section slide to be pushed in, freeing the long section staff to be removed. Note that the electric lock was not polarised; receipt of the current at Z simply showed that all the short section staffs were secured in their respective instruments. The long section staff was then replaced in the long section instrument at Z and long section working resumed.

To switch in, the signalman at Z obtained a long section staff and inserted it in the long section slide of the terminal switching instrument. This allowed the slide to be pulled out. The slide then became electrically locked, securing the long section staff. However, pulling the slide out mechanically released the short section slide which could then be pushed in allowing the Y-Z staff to be removed from the terminal switching instrument. The signalman at Z then restored the Y-Z staff to the short section instrument. The signalman at Y then obtained a Y-Z staff from his instrument. This was inserted in the intermediate switch box and the slide pulled out. Pulling the slide out mechanically released the X-Y slide and allowed it to be pushed half way in. This, in turn, freed the interlocking slide to allow the interlocking frame to be switched in. When the interlocking frame was switched in and the interlocking slide pushed all the way in, the X-Y slide could be pushed all the way in freeing the X-Y staff. The Y-Z slide was now also free to be pulled out, and both staffs were removed and restored to their respective instruments. The signalman at X could now obtain a X-Y staff to release the W-X staff from his switching instrument.

The fourth slide in the intermediate switching instruments was to allow the interlocking to be freed for shunting when long section working was in force. The long section staff was inserted in the slide and it was pushed half-way in, releasing the interlocking.

As neither Pirron Yallock nor Pomborneit was interlocked, the intermediate switch boxes only had two levers, and were missing the interlocking slide and the long section slide. Insertion of the short section staff when switching out allowed the associated slide to be immediately fully pulled out.

### Rules

The rules for opening and closing the intermediate staff stations gave separate procedures for "without" train operation, and "with" train operation. As "without" train operation was probably most common, these rules are given first.

To close the intermediate staff stations without a train, the signalmen at X and Y obtained a short section staff for the W-X and X-Y sections and inserted them in their switch boxes. The signalman at Z then obtained a Y-Z short section staff. Before the Y-Z staff was placed in the terminal switch box, the signalman at Y exchanged the "Closing of Signal-box" signal with Z and X, and the signalman at X exchanged the "Closing of Signal-box" signal with W. The signalman at Z then inserted the short section staff in the terminal switch box (connecting the long section instruments) and sent the "Cancelling" signal to W. When acknowledging this signal, the Signalman at W held the bell key in on the last beat to release the long section slide at Z. This allow the long section slide to be pushed in to free the

long section staff. When the long section staff was withdrawn it could be used for the next train from Z to W without being passed through the long section instruments (note that Z did not need to obtain "Line Clear" for this train!). If the next train was from W to Z, the staff had to be restored to the long section instrument at Z and a staff obtained at W in the usual way.

To open the intermediate staff stations without a train, the signalman at Z obtained a long section staff "in the usual way", informing the signalman at W why the staff was obtained. The long section staff was then used to release the Y-Z short section staff at Z, as already described. The Y-Z short section staff was restored to the short section instrument under the "Cancelling" signal. The signalman at Y then obtained a Y-Z short section staff (again the bell signal to be used is not given) to release the X-Y short staff from the switch box. The X-Y and Y-Z staffs were then restored to the short section instruments and the "Opening of Signal-box" signal was then exchanged with X and Y, and then the "Cancelling" is exchanged with both stations. The signalman at X then switched in the same fashion.

The rules also allowed for closing the intermediate staff stations by a train travelling towards Z. A short section W-X staff was obtained at W and handed to the driver of the train, cautioning him that the train will be used to switch out both X and Y. On arrival at X, the signalman there obtained the rear section staff and handed over the forward section staff. He then exchanged "Train Departure" with Y, and then sent "Closing of Signal-box" to both W and Y. The X-W (rear section) staff was then secured in the switch box. At Y the same procedure was followed, except that the "Closing of Signal-box" signal was only sent to Z. Upon arrival at Z, the Y-Z short section staff was secured in the switch box (connecting the long section instruments) and the "Train Arrival" signal sent to W. When acknowledging the signal, the signalman at W held the bell key down on the last beat to release the long section staff from the switch box at Z. Again, the long section staff could then be used immediately for a train from Z to W, or replaced in the instrument to release a staff at W for a train from W to Z.

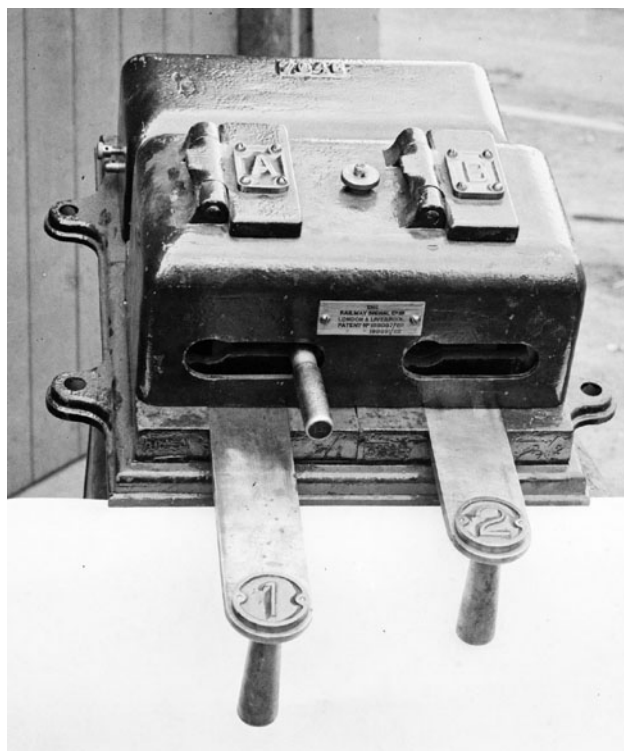
It was also possible to open the intermediate staff stations with a train travelling from Z to W. A long section staff was obtained at W in the usual way (informing the signalman at W why the staff was obtained). The long section staff was then used to release the short section staff which was handed to the driver as his authority to proceed to Y. The "Train Departure" signal was then sent to Y. On arrival at Y, the short section staff was used to release the X-Y short section staff. The Y-Z staff was then restored to the instrument, and the "Opening of Signal-box" signal exchanged with both X and Z. The "Train Departure" signal was then sent to X and the "Train Arrival" signal to Z. The train then proceeded to X where the procedure was repeated, and then to W where the short section staff was simply restored to the instrument under the "Train Arrival" signal.

### Use

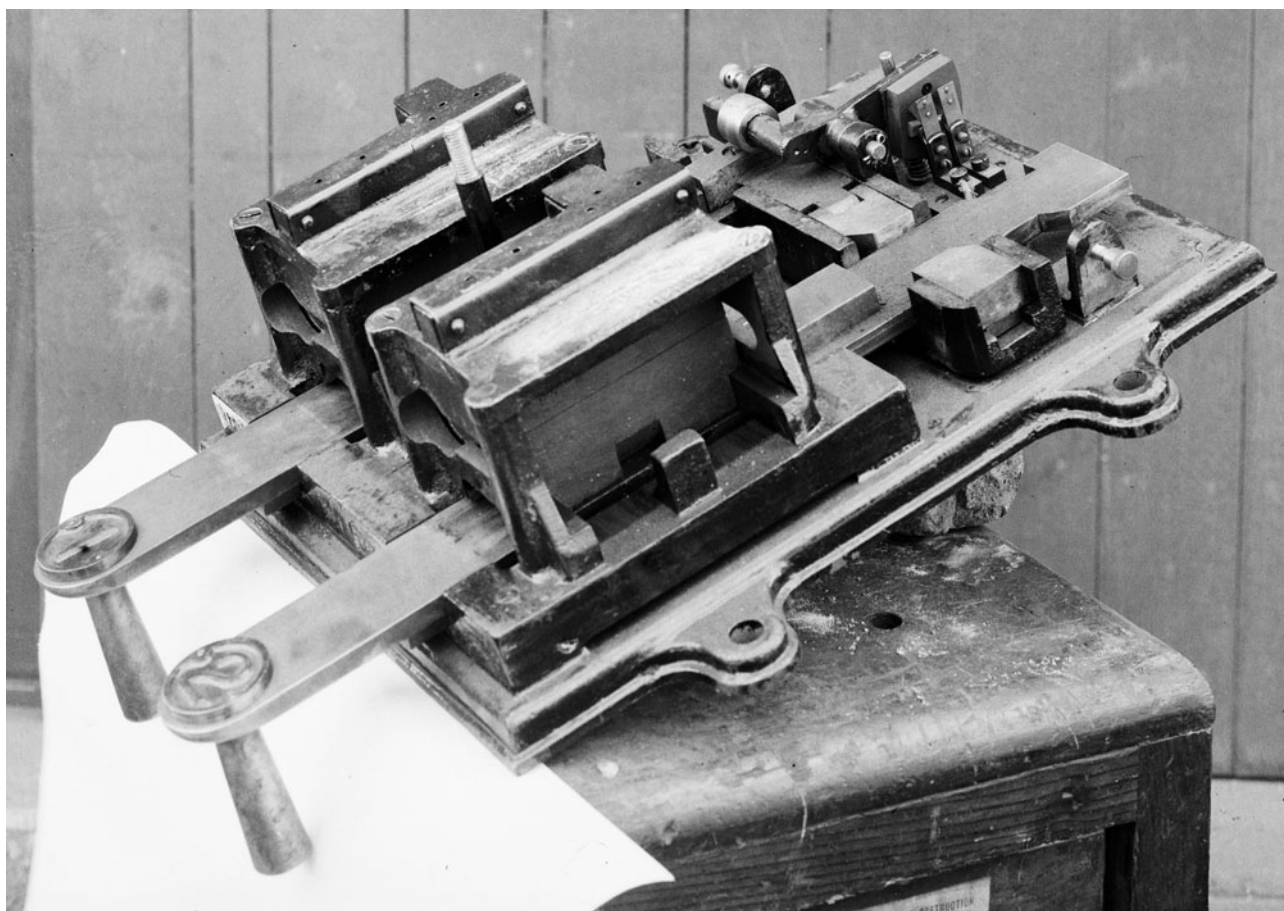
When the switching instruments were provided on 15 October 1929, Pirron Yallock and Pomborneit were switched in at 0900 daily and switched out at 1745. This was probably exactly one shift, with the signalmen switching in immediately he came on duty and out immediately before going off duty. In 1938, the Acting District Superintendent noted that that the introduction of the switching instruments had resulted in the abolition of one position; the employee concerned had worked half time at Pirron



(Left) The two slide intermediate switch box actually used in Victoria (shown switched out with the short section staff secured). The lefthand '1' slide is used to secure a short section staff when long section working is in force. The righthand '2' slide is only used to release the short section staff in the '1' slide from the switch box when switching in. The letters showing the gauges can be clearly seen, and it can be deduced that this switch box was installed at Pomborneit. From the photo on the front cover, it is known that the Colac - Pirron Yallock section was A pattern. Since this intermediate switch box also controlled an 'A' pattern section, the section must have been Pomborneit - Camperdown, with the switch box located at Pomborneit. It is also clear that the Pirron Yallock - Pomborneit section was a 'B' pattern. The staff, incidentally, is not a Pomborneit - Camperdown staff - on the original image it can be seen that the staff is actually for the section Croydon - Lilydale. (Below) A side view of the intermediate switch box with the covers removed showing the simple mechanism. Like the terminal instrument illustrated on the front cover, the front of the switch box contained mechanism for securing the staffs, and the interlocking between the two slides was by conventional tappet locking. The tappet locks can be clearly seen in this view, together with the ports in the '2' slide. Two tappet locks are provided. The lock between the two slides has a hinged section, and this, no doubt enforces the sequential locking between the two slides. Slide 1 (holding the short section staff) can be freely pulled out at any time (the hinged section of the lock lifting over the port), but the slide cannot be restored until slide 2 is pulled out, bringing the port opposite the lock. The second lock, on the outside of slide '2' appears to prevent the slide from being fully pulled until slide '1' is pulled out. The mechanism above and behind the tappet locking on slide '1' is the switch in the long section line wire. This appears to be operated by a roller working on a ramp secured to



slide '1'. The switch is closed when slide '1' is pulled out. Photos from the PTC collection, PROV. (VPRS 12800 P5, Unit 59, S1286 and S1287). Copyright, State of Victoria. Reproduced with permission.



Yallock and the other half of the time at Pomborneit.

By 1938 the two stations were switched in at 0830 daily and out when No 64 cleared Colac (the Up afternoon Pass, due at Colac at 1822). However, the Acting DS considered that the VR "were not getting the benefits from this installation which we anticipated." An average of 31 hours overtime was worked at each station each fortnight in the first half of 1938. Despite this, they frequently had to hold No 70 at Camperdown to cross No 47 when the cross could have been made at Pomborneit, in order to get the two stations switched out and to avoid working excessive hours. No 47 was the Down evening pass, due at Camperdown at 2052 where it was scheduled to cross No 70 Up Fast Goods ex Warrnambool. From the tenor of the comments, and the context (discussing the switching of both Armstrong and Great Western in the Ararat B - Stawell A section), it appears that one problem was that there was simply too great a jump from the short sections (9 1/4 miles, 9 1/4 miles, and 9 1/2 miles) and the long section (28 miles), which was compounded by the requirement that all three short sections had to be vacant to switch out.

By 1958, they were switched in from Monday to Friday from 0915 until No 19 cleared Camperdown. This was the local roadside goods which arrived at Camperdown at 1055. (The switching in time must have been in error because the goods is shown as crossing the Up Pass at Pirron Yallock.) and from 1500 until No 90 (the Up afternoon Pass) cleared Colac at 1747.

At the end of the use of the RSCo instruments, the two stations were switched in on Mondays from 1400 until No 90 cleared Colac, and on Tuesdays to Fridays from 0820 until No 90 cleared Colac. No 90 was the up afternoon Warrnambool Pass, which was scheduled to arrive at Colac at 1742 on Mondays to Thursdays and 1932 on Fridays. This gave a total switched in period of exactly 43 hours - one man on a forty hour week with three hours overtime. That the switching hours were timed around the staff time can be seen from the switching hours on Monday. On the other

days, the opening time of 0820 was clearly timed so that the two stations would be in for the running of No 21 Down Roadside which was scheduled to leave Colac at 0830 and cross No 38 Up Warrnambool pass at Pirron Yallock and No 72 Up Conditional Goods at Pomborneit. All three of these trains were scheduled to run Monday to Friday. Presumably, the Roadside was held at Colac (if running on time!) on Mondays until No 38 and No 72 (if running) had arrived.

The RSCo instruments were withdrawn from use on 15 June 1967 when Pomborneit was closed as an electric staff station. Pirron Yallock continued to switch in the Colac - Camperdown section. Although it would have been possible to simply remove the intermediate switching instrument from Pomborneit, the opportunity was taken to replace the entire system with a standard VR non interlocked "without train" switch box at Pirron Yallock. The probable reason is that this allowed the abolition of a non-standard method of working. It appears that the block hours of Pirron Yallock initially remained unchanged, but by November 1968 the hours were Mondays 1400 until No 120 (Up Roadside) cleared Colac at 1700, and Tuesday to Fridays from 0820 until No 120 cleared. This gave a total of 39 hours 40 minutes switched in.

### Conclusion

The RSCo was clearly successful in introducing the concept of "without train" switching as the VR switchboxes were subsequently introduced in 1932 (interlocked) and 1933 (non-interlocked). However, no further installations of the RSCo switch boxes were made. The probable reason for the use of an internally developed switch box was probably simply cost. Internal construction of the switch boxes, to an in-house design, would always be cheaper than purchase from a contractor, particularly as patent fees would probably be required.

## SIGNALLING ALTERATIONS

(Continued from page 59)

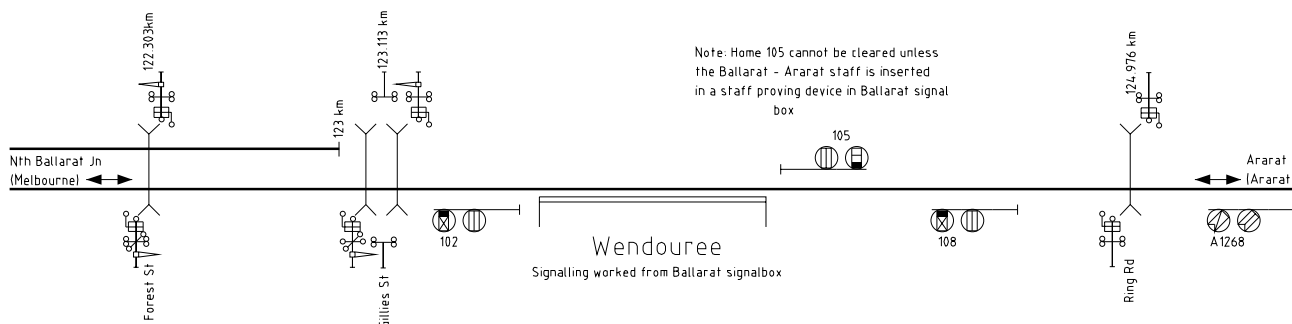
- (05.05.2009) **Spencer St** (SW 111/09, WN 18)  
Commencing forthwith the following routing instructions are effective at the south ends of Nos 2, 3, 4, 5, 6, and 7 due to the length of the headshunts.  
Sprinter or Velocity cars are not permitted to arrive or depart from No 2 South Track to No 2A Track via Points 417 reverse, No 3 South Track to No 2B Track via Points 451 reverse, No 7 Track to No 6A Track via Points 495 reverse. Single locomotives may arrive or depart from these tracks.  
Three car or longer Sprinter or Velocity cars are not permitted to arrive or depart from No 4 South Track to No 4A Track via Points 469 reverse, No 5 Track to No 4A Track via Points 479 reverse, or No 6 Track to No 6A Track via Points 487 reverse.  
This cancels SW 164/04.
- 10.05.2009 **Dandenong** (SW 115/09, WN 19)  
On Sunday, 10.5., Dwarfs DNG733 and DNG752, and Points 652 and 653 were decommissioned. Amend Diagram 121/06 (Dandenong - Hallam).
- 11.05.2009 **Ballarat - Wendouree** (SW 56/09, 57/09, 58/09, 65/09, WN 18 & 20)  
On Monday, 11.5., the new signalling at Wendouree will be brought into use. The existing unit lever panel at Ballarat will be replaced by a Phoenix VDU panel. New controls will be provided for the Lydiard St gates.  
The new platform at Wendouree will be provided, but is not yet in service. The platform is situated on the Down side of Gillies St near the former site of Linton Junction signalbox. Wendouree is considered part of the station limits of Ballarat.  
Up Repeating A1246 will be abolished. New Up Repeating signal A1268 will be provided 3302 metres on the Down side of Wendouree platform. Up Home 108 will be provided 1183 metres on the Down side of Wendouree platform. Up Home 102 will be provided 30 metres on the Up side of Wendouree platform,

between the platform and Gillies St. Down Home 105 will be provided 20 metres on the Down side of Wendouree platform.

Express/stopping selection is provided on Home 102 for the Gillies St gates. Down Home 105 will control the entrance to the Ballarat - Ararat Train Staff and Ticket section. Post phones will not be provided.

A staff proving device is located in the signalbox at Ballarat. The signaller must place and turn the Ballarat - Ararat staff in the staff proving box and operate the V5PSW keyswitch before Down Home 105 can be operated. Proving of the staff is indicated on the VDU and the release for Home 105 is cancelled by the passage of a train past the signal. The staff proving release can be cancelled on the VDU. The Ballarat - Ararat staff must be handed to the driver of an Ararat train at Ballarat.

Pedestrian gates were not commissioned at Gillies St (123.113 km). Down Home 6 at North Ballarat Junction was converted to LED and altered to display Normal Speed Warning.



## Wendouree 2009

Based on Signalling Diagram 08/09 and WN 18/09

The Train Order sections on the Geelong and Yelta lines were altered to be Warrenheip Loop - Ballarat East, and North Ballarat - Sulky Loop. Ballarat was abolished as an Intermediate Train Order Terminal Station and became an Attended Train Order Terminal Station. The 'Commence' and 'End' Train Order Boards at Post 52 were relocated to Post 50 and a board lettered 'Ballarat East' was provided. This board is the end of the single line section. Similarly, the 'Commence' and 'End' Train Order Boards were relocated from Post 2 to Post 4 and a board lettered 'North Ballarat' was provided.

The West Line is baulked on the Up side of McArthur St.

Diagram 08/09 (North Ballarat - Wendouree) replaced 90/07 (North Ballarat).

The following Operating Procedures were amended.

- \* Operating Procedure 67 (Sunshine - Bungaree Loop - Defective Signals) was updated (previously SW 261/05)
- \* Operating Procedure 69 (Ballarat) was updated (previously SW 1179/99 and SW 2030/04)
- \* Operating Procedure 71 (Ballarat West Siding) was cancelled (previously SW 15/05)
- \* Operating Procedure 72 (Ballarat West Line Siding) was updated
- \* Operating Procedure 74 (Ballarat - Wendouree Defective Signals) was issued.
- \* Operating Procedure 131 (Status of Train Order Locations) was amended.

11.05.2009 **Mildura** (SW 62/09, WN 19)

On Monday, 11.5., the following tracks were abolished:

- \* Nos 3, 4, and 5 Roads
- \* the loop siding at the Down end of the platform leading to the engine service bay and engine brake pit
- \* the dead end road in the car shed.

No 2 Road (with the hand derails at either end) and the turntable siding will remain. Rodded roll-out protection is to be provided in No 2 Road. TON 85/09 is cancelled. Amend Diagram 12/08 (Mildura - Yelta).

13.05.2009 **Bacchus Marsh** (TON 168/09, WN 20)

On Wednesday, 13.5., the turntable was booked out of service due to the condition of the sleepers.

14.05.2009 **Warragul** (TON 172/09, WN 20)

On Thursday, 14.5., the loop siding (former goods yard) was booked out of service except for track machines. Annett Locked 'B' points have been secured normal.

15.05.2009 **Spencer St** (SW 118/09, WN 20)

On Friday, 15.5., the heads on Post SST526 was changed from U2L tri-colour to standard U2L. There was also a minor change in the detection of Points 413D.

15.05.2009 **Albion - Broadmeadows** (SW 61/09, TON 166/09, WN 19 & 20)

From 0001 hours on Friday, 15.5., the broad gauge line between Albion and Broadmeadows was transferred from VLine to ARTC. The boundary between Connex and ARTC is at a point clear of the suburban lines at either end. SW 145/00 is cancelled.

## TALES OF THE TELEGRAPH

Jasper Ewing Brady

*Continued from Somersault Vol 32 No 4*

### **An old Despatcher's mistake, my first trick**

I had become thoroughly proficient and more frequently than ever Borroughs would let me "spell" for him for a while each day. Be it said to his credit, however, he was always within hearing, when I was doing any of his work. He was carefulness personified, and the following incident only serves to show what unaccountable errors will be made by even the best of men.

One cold morning in January, I started to the office as usual. The air was so still, crisp and biting that the air-pumps of the engines had that peculiar sharp, snappy sound heard only in a panting engine in cold weather. They seemed almost imbued with life. As I went into the office at eight o'clock to go to work, the night man remarked that I must be feeling pretty brash; my spirits seemed so high. And in fact, that was no joke; I was feeling fine as silk and showed it all over. But as I said good morning to Borroughs, I noticed that he seemed rather glum, and I asked: "What's the matter, Dad? Feeling bad this morning?"

He snapped back in a manner entirely foreign to him, "No, but I don't feel much like chaffing this day. I feel as if something was going to happen, and I don't like the feeling."

I answered, "Oh! bosh, Dad. You'll feel all right in a few minutes; I reckon you've got a good old attack of dyspepsia; brace up."

Just then the wires started up, and he gruffly told me to sit down and go to work and our conversation ceased. That was the first time he had ever used anything but a gentle tone to me, and I felt hurt. The first trick is always the busiest, and under the stress of work the incident soon passed from my mind. Pat remarked once, that the general superintendent was going to leave Chaminade in a special at 10:30 A. M., on a tour of inspection over the road. That was about all the talking he did that morning. His work was as good as ever, and in fact, he made some of the prettiest meets that morning I had ever seen.

About 10:35, I asked Borroughs to allow me to go over to the hotel to get a cigar. I would be gone only a few minutes. He assented, and I slipped on my overcoat and went out. I wasn't gone over ten minutes, and as I stepped into the doorway to come upstairs on my return, I heard what sounded like a shot in the office. I flew upstairs two steps at a time, and never to my dying day will I forget the sight that met my gaze. Borroughs, whom I had left but a few moments before full of life and energy, was half lying on the table, face downwards, dead by his own hand. The blood was oozing from a jagged wound in his temple, and on the floor was the smoking pistol he had used. Fred Bennett, the chief despatcher, as pale as a ghost, was bending over him, while the two call boys were standing near paralyzed with fright. It was an intensely dramatic setting for a powerful stage picture, and my heart stood still for a minute as I contemplated the awful scene. Mr. Hebron, the division superintendent, came in from the outer office, and was transfixed with horror and amazement when he saw the terrible picture.

Bennett turned to me and said, "Bates, come here and help me lift poor Borroughs out of this chair."

Gently and carefully we laid him down on the floor and sent one of the badly frightened boys for a surgeon. Medical skill was powerless, however, and the spirit of

honest Pat Borroughs had crossed the dark river to its final reckoning.

Work in the office was at a standstill on account of the tragic occurrence, but all of a sudden I heard Monte Carlo calling "DS" and using the signal "WK," which means "wreck." Bennett told me to sit down and take the trick until the second trick man could be called. I went over and sat down in the chair, still warm from the body of my late friend, and wiping his blood off the train sheet with my handkerchief, I answered.

It would be impossible to describe the state of my feelings as I first touched the key; I had completely lost track of trains, orders and everything else. However, I gradually pulled myself together, and got the hang of the road again, and then I learned how the wreck had occurred. About a minute after I went out, Borroughs had given a right-of-track order to an express freight from Monte Carlo to Johnsonville, and had told them to hurry up. Johnsonville is on the outskirts of Chaminade, and Borroughs had completely forgotten that the general superintendent's special had left there just five minutes before with a clean sweep order. That he had known of it was evident from the fact that it was recorded on the train sheet. Two minutes after the freight had left Monte Carlo, poor Pat realized he had at last made his mistake. He said not a word to any person, but quietly ordered out the wrecking outfit, and then reaching in the drawer he took out a revolver and snuffed out his candle. He fell forward on the train sheet, as if to cover up with his lifeless body, the terrible blunder he had just made. Many other despatchers had made serious errors, and in a measure outlived them; but here was a man who had grown gray in the service of railroads, with never a bad mark against him. Day and night, in season and out, he had given the best of his brain and life to the service, and finally by one slip of the memory he had, as he thought, ruined himself; and, too proud to bear the disgrace, he killed himself. He was absolutely alone in the world and left none to mourn his loss save a large number of operators he had helped over the rough places of the profession.

The wreck was an awful one. The superintendent's son was riding on the engine, and he and the engineer and the fireman were mashed and crushed almost beyond recognition. The superintendent, his wife and daughter, and a friend, were badly bruised, but none of them seriously injured. The second trick man was not to be found immediately, so I worked until four o'clock, and the impression of that awful day will never leave me. Pat's personality was constantly before me in the shape of the blood stain on the train sheet. It was a long time before I recovered my equanimity.

The next afternoon we buried poor Pat under the snow, and the earth closed over him forever; and thus passed from life a man whose character was the purest, whose nature was the gentlest: honest and upright, I have never seen his equal in the profession or out. I often think if I had not gone over to the hotel that morning, the accident might have been averted, because, perhaps, I would have noticed the mistake in time to have prevented the collision. But, on the other hand, it is probable I would not have noticed it, because operators, not having the responsibility of the despatchers, rarely concentrate their minds intensely on what they are taking. A man will sit and copy by the hour with the greatest accuracy, and at the same time be utterly ob-

livious of the purport of what he has been taking. There can be no explanation as to why Pat forgot the special. It is one of those things that happen; that's all.

The rule of seniority was followed in the office, and in the natural sequence of events the night man got my job, I was promoted to the third trick from twelve midnight until eight A. M. and a new copy operator was brought in from Vining.

If any trick is easier than another it is the third, but none of them are by any means sinecures, When I was a copy operator I used to imagine it was an easy thing to sit over on the other side of the table and give orders, "jack up" operators, conductors and engineers, and incidentally haul some men over the coals every time I had to call them a few minutes ; but when I reached the summit of an operator's ambition, and was assigned to a trick I found things very different. Copying with no responsibility was dead easy; but despatching trains I found about the stiffest job I had ever undertaken. I had to be on the alert with every faculty and every minute during the eight hours I was on duty. While the first and second trick men, have perhaps more train order work attached to them, the third is about on a par with them as far as actual labor is concerned, because, in addition to the regular train order work, a new train sheet has to be opened every night at twelve o'clock, which necessitates keeping two sheets until all the trains on the old one have completed their runs. There is also a consolidated train report to be made at this time, which is a re-capitulation of the movements of all trains for the preceding twenty-four hours, giving delays, causes thereof, accidents, cars hauled, etc. This is submitted to the division superintendent in the morning, and after he has perused and digested its contents he sends a condensed copy to the general superintendent. Many a man loses his job by a report against him on that train sheet.

To show the strain on a man's mind when he is despatching trains, let me tell a little incident that happened to me just in the beginning of my career as a despatcher. Every morning about five o'clock, the third trick man begins to figure on his work train orders for the day and when he has completed them he sends them out to the different crews. Work train orders, it may not be amiss to explain, are orders given to the different construction crews, such as the bridge gang, the grading gang, the track gang, etc., to work between certain points at certain times. They must be very full and explicit in detail as to all trains that are to run during the continuance of the order. For regular trains running on time, no notification need be given, because the time card rules would apply; but for all extras, specials, and delayed trains, warnings must be given, so that the work trains can get out of the way for them, otherwise the results might be very serious, and business be greatly delayed. Work orders are the bane of a new despatcher's existence, and the manner in which he handles them is a sure indication as to whether he will be successful or not. Many a man gets to a trick only to fall down on these work orders.

I stumbled along fairly well the first night as a despatcher, and had no mishaps to speak of, although I delayed a through passenger some ten minutes, by hanging it up on a siding for a fast freight train, and I put a through freight on a siding for a train of an inferior class. For these little errors of judgment I was "cussed out" by all the conductors and engineers on the division when they came in; and the division superintendent, on looking over the train sheet the next morning, remarked, that delaying a passenger train would never do in such a tone of voice that I could plainly see my finish should I ever so offend again.

The second night passed all right enough, and by 5.30

A. M., I had completed my work orders and sent them out. From that time on until eight o'clock when the first trick man relieved me I was kept busy. He read over my outstanding orders, verified the sheet, and signed the transfer on the order book, and after a few moments' chat I went home. I went to bed about nine o'clock, and was on the point of dropping off to sleep, when all at once I remembered that an extra fast freight was due to leave at 9 15 A. M., and that there was a train working in a cut four miles out. I wondered if I had notified her to get out of the way of the extra. That extra would go down through that cut like a streak of greased lightning, because Horace Daniels, on engine 341, was going to pull her, and Horace was known as a runner from away back. I reviewed in my mind, as carefully as I could all the orders I had given to the work train, and was rather sure I had notified them, but still I was not absolutely certain, and began to feel very uncomfortable. Poor Borroughs had just had his smash up, and I didn't want "poor Bates," to have his right away. Maybe it was the spirit of this same old man Borroughs, who was sleeping so peacefully under the ground that made me feel and act carefully. I looked at my watch and found it was 9 :20. The extra would leave in twenty-five minutes and I lived nearly a mile from the office. The strain was beginning to be too much, so I slipped on my clothes and without putting on a collar or a cravat, I caught up my hat and ran with all my might for the depot. As I approached I saw Daniels giving 341 the last touch of oil before he pulled out. Thank God, they hadn't gone. I shouted to him, "Don't pull out for a minute, Daniels; I think there is a mistake in your orders."

Daniels was a gruff sort of a fellow, and he snapped back at me, "What's the matter with you? I hain't got no orders yet. Come here until I oil those wheels in your head."

I went up in the office and Daniels followed me. Bennett, the chief, was standing by the counter as I went in, and after a glance at me he said, "What's up, kid? Seen a ghost? You look almost pale enough to be one yourself."

I said, "No, I haven't seen any ghosts, but I am afraid I forgot to notify that gang working just east of here about this extra."

The conductor and engineer were both there and they smiled very audibly at my discomfiture; in fact, it was so audible you could hear it for a block. Bennett went over to the table, glanced at the order book and train sheet for a minute and then said, "Oh, bosh! Of course you notified them. Here it is as big as life, 'Look out for extra east, engine 341, leaving El Monte at 9 145 A. M. What do you want to get such a case of the rattles and scare us all that way for?"

I was about to depart for home to resume my sleep, and was congratulating myself on my escape, when Bennett called me over to one side of the room, and in a low, but very firm voice, metaphorically ran up and down my spinal column with a rake. He asked me if I didn't know there were other despatchers in that office besides myself; men who knew more in a minute about the business than I did in a month; and didn't I suppose that the order book would be verified, and the train sheet consulted before sending out the extra? He hoped I would never show such a case of the rattles again. That was all. Good morning. All the same I was glad I went back to the office that morning, because I had satisfied myself that I had not committed an unpardonable error at the outset of my career.

In case of doubt always take the safe side.

## MENTONE

Balcombe Road, now known as Mentone, appears to have been somewhat of an afterthought. It was not opened until about a month after the line was opened, and unlike the other original stations it was not provided with a standard station building. Balcombe Road first appears in the service time table of 11 January 1882, while the line opened for public traffic on 20 December 1881. The station is situated 14 miles 29 chains 2 links from Melbourne, just south of the road of the same name.

Like the other stations on the line, it appears that Balcombe Road was opened with little facilities and 1882 was devoted to the providing the basics. The February 1882 WTT noted that Balcombe Road had a carriage dock, although it was not open for goods at this time. Sometime between 1 March and 3 April 1882 Staff and Ticket working was introduced on the line and Balcombe Road became a staff station with the sections Cheltenham - Balcombe Road - Mordialloc. By 1 December 1882 Balcombe Road had been opened for light goods not requiring crane power or shed accommodation. The facilities provided by the end of 1882 would have probably been a loop siding south of the level crossing with a single platform on the loop and a goods siding on the east side of the line. The main line points would have been secured by hand locking bars and a single arrival home provided in each direction. Hand gates were provided at Balcombe Road and Patty Road, north of the station, and Moorabbin Road (now Warrigal Road), south of the station.

By the 1 September 1882 issue of the service timetable, Balcombe Road had been renamed to plain Balcombe. It was subsequently renamed Mentone on 7 January 1884.

It appears that initially only a shelter shed, and possibly a small office, was provided. In September 1884 the residents requested more accommodation, and this was estimated to cost £220. In April 1885 the Traffic Branch noted that a two roomed office, estimated to cost £90, was badly wanted. In June 1885 Traffic asked if any provision had been made for additional office accommodation and urinals, but were told there were no funds. A portable house and urinal was estimated to cost £110. In August 1885 closets and urinals were erected, but in September 1885 it was noted that nothing was to be done about office accommodation pending the Commissioners instructions. A small lamp room was provided in 1886. In November 1886 the residents asked, via their MP, for a ladies retiring room. This was approved in January 1887, a contract let to J Hossack & Co for £68-6-5, and completed in April 1887. The Traffic Branch once again requested proper office accommodation in December 1887, which was estimated at £65. This was approved in January 1888, but it took the form of a portable house which was erected in March 1888.

The line was duplicated between Caulfield and Mordialloc on 9 December 1888. The Staff and Ticket working was abolished and double line block working introduced, however, the sections remained Cheltenham - Mentone - Mordialloc. Not much is known about the layout at this time, but it is likely to have been similar to the layout after interlocking. Up and down platforms would have been provided south of Balcombe Road with at least one goods siding (and possibly two) behind the Down platform trailing into the Down line. At least one main line crossover would have been provided. Up and Down Home and Starting signals would have been provided, but it is known that Distant signals were not provided. The Register of Signals at Non-Interlocked Places is moderately unclear, but it suggests that there were two starting signals,

with an additional home signal provided sometime after 1 July 1899, and possibly a disc signal.

The sandy soil around Mordialloc was ideal for racehorses. Racecourses were constructed at Mentone, Mordialloc, and Aspendale between the late 1880s and 1910. Mentone Racecourse was constructed in 1888 by a private company on a site roughly half a mile to the east of the station. It was situated on the north side of Balcombe Road beyond Point Nepean Road (now the Nepean Highway). The first race meeting took place on 8 September 1888, and the Government Gazette showed that a special train conveying horses and patrons departed on that date from Princes Bridge at 1055 and returned from Mentone at 1830. Additional special trains for passengers only departed Flinders St at 1157, 1207, 1217., 1228, 1235, and 1306 and returned immediately after the last race. The special trains only stopped at Caulfield. No details are known about where the special trains stabled, or how this 10 minute service was run on a single track! Special trains were run to Mentone for subsequent meetings. In 1905 the VRC cut the race meetings to five per year, however the course was also used for training racehorses.

A level crossing with hand gates was constructed at Mitchell St just south of the station, probably around 1890. The provision of the level crossing may have been related to the letting of a contract to Faulkner & Salmon for the erection of a gate cottage at Mentone for £160-10-6. The contract was published in the Government Gazette of 2 May 1890.

A contract was gazetted on 23 January 1900 to Young Brothers for the erection of station buildings.

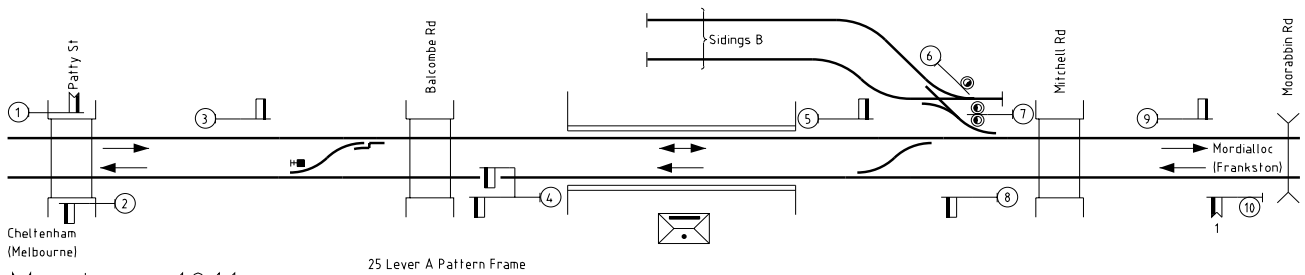
In October 1910 cattle pits replaced the hand gates at No 20 Crossing (Moorabbin Road).

### Interlocking

Mentone was interlocked on 17 October 1911, and the Weekly Notice entry gives a concrete idea of the layout. The passenger platforms were situated south of Balcombe Road with the goods sidings situated behind the Down platform and trailing into the Down line. There was a set of safety points at the exit of the sidings, but how far south the dead end extended is not known. Main line crossovers were situated at both the up and down ends. The up end crossover was signalled to allow Up passenger trains to originate from the Down platform. This facility was probably provided for race traffic, as I have not found any evidence that normal suburban trains terminated at Mentone. The 25 lever interlocking frame (9 spaces) was situated in a signalbay, probably in the Up side station buildings. The gates at Balcombe Road were still hand operated and, in 1912, it was recorded that they were worked by a Class 2 female gatekeeper with a Class 4 female gatekeeper as her assistant. By December 1913 the gates were classified as a privileged gate and were worked by the Traffic branch (i.e. the station staff).

One additional disc was provided on each of Posts 6 and 7 on 1 April 1912 to control movements between the goods sidings and the dead end siding. It is possible that the provision of these discs marks the extension of the dead end to become Siding A which was used to stable race trains.

The up station building was destroyed by fire around the end of May 1913. How the signals and points were operated subsequently is not known, but it is possible that the frame was reconditioned and a temporary cabin built around it. As a result of the fire, however, a new signalbox



### Mentone 1911

Based on WN 43/11 & box diagram undated, but after 1915

was provided at the Up end of the Down platform on 27 February 1914 adjacent to Balcombe Road. The new box was unusually tall to provide the signalman with a view over the Down station buildings towards the goods yard. The box contained a 26 lever frame A pattern tappet frame which initially worked the existing layout. On 26 March 1914 the hand gates at Balcombe Road were replaced by interlocked gates and the wickets were connected to the frame.

A siding was provided for Caudwell Brothers in late May 1914 and was open for inwards and outwards traffic in truck loads. It is believed that the siding served a woodyard. The siding lead from the outside track of Sidings B (the goods siding) at the Down end and crossed the adjacent road. Engines were not to enter the siding, and trucks were to be hauled between the station yard and the siding by horses. QB trucks and the then new 50 foot Q trucks were not to be loaded for the siding, no doubt indicating the presence of sharp curves in the siding. A sketch of the line in the mid twenties shows that the siding terminated in two dead end spurs.

At some time after 1914 Sidings A and B exchanged names. The long dead end siding became Siding B, while the goods yard tracks became Sidings A.

### Electrification

Preparation work for electrification commenced early with the provision of a siding for the substation on the Down side of the line at the Up end in 1915. Post 3 was relocated 40 yards further out in mid September 1915 to provide room for the points, and the siding was provided on 1 November 1915. The new siding trailed into the Down line. Disc 9 was provided on the right hand doll of Post 4 to control moves into the new siding, and a new Post 2A (with Disc 11) was provided to control moves from the siding. The siding points and the safety points in the siding were worked from lever 11. The war substantially delayed electrification and the overhead between Moorabbin and Mordialloc was not energised until 30 May 1922 with the full electric service to Mordialloc commencing on 6 June 1922. When electrification was provided, it appears that

the inner road of Sidings A and the long dead end Siding B were wired to allow for the stabling of race trains.

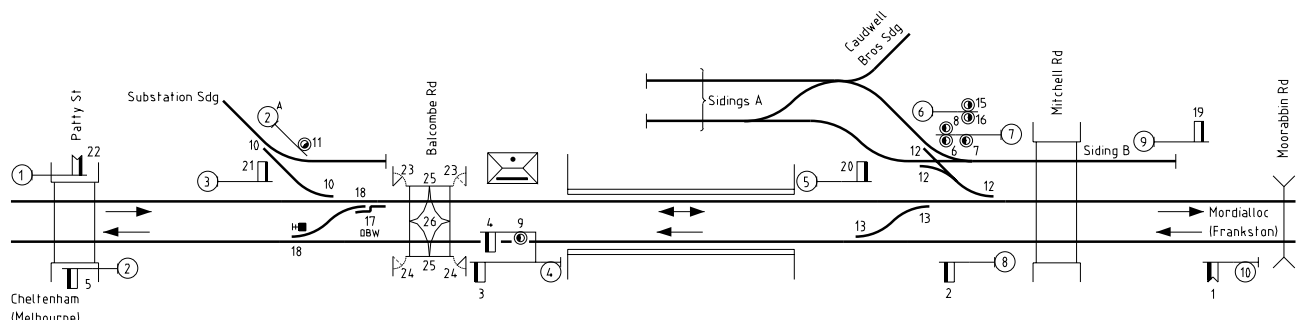
The acceptance conditions of Up trains were modified at the beginning of January 1923 when it was permitted to accept Up trains under full Line Clear provided the line was clear to Post 4. This would have allowed an Up train to be accepted from Mordialloc while a second Up train was signalled to depart from the Down platform on race days.

Special race trains continued to run for race meetings at Mentone Racecourse and were stabled in the two wired sidings. In June 1924 the Metropolitan Superintendent noted that as 7 car trains were now in use for race trains at Mentone, the '6 car' markings in the sidings no longer applied and the sidings need to be remarked. In March 1926 the Chief Engineer Way and Works noted that when race trains stand in the Siding B they only left a 5 or 6 foot gap at the foot crossing at 14 miles 51 chains, 57 links (Mitchell St) on the Down side of Mentone. The view of approaching trains to pedestrians was consequently obstructed. Suitable instructions were issued, although it is not known what these were.

Around the mid 1920s it appears that the Mitchell St hand gates were closed and a foot crossing was substituted. The level crossing still existed in 1918, when it was recorded that both it and the Patty Street gates had Class 4 women gatekeepers, but the memo from the Chief Engineer already quoted shows that a pedestrian crossing had been provided by March 1926.

### Down end sidings

In June 1925 the VR secretary asked whether the provision of refuge sidings at Cheltenham and Mentone was justified. The Metropolitan Superintendent recommended providing a direct crossover from the Down line at Mentone to the "Car Storage Siding" (presumably Siding B) however the proposal was put on hold due to its cost. A year later the Superintendent had another go when a query was raised about delays to road traffic at Balcombe Road. The Superintendent stated that these delays could only be avoided by providing a facing crossover from the Down line to the "refuge siding" (again presumably Siding B). It



### Mentone 1915

Based on box diagram undated, but after 1915

26 Lever A Pattern Frame  
Spare: 14

was noted that plans were being prepared by the Chief Architect, but nothing eventuated at this time. Possibly as a result of complaints about delays at Balcombe Road, the interlocking between Disc 6 (leading from the Down line to Up line) and the interlocked gates was removed in mid February 1927 to allow (race) trains to be docked into the Up platform without opening the gates. Subsequently, instructions were issued for stabling and docking the race trains in November 1929. When stabling arriving trains, they were to be driven to the Down line beyond Post 7 then pushed back into the inner Siding A and finally driven into Siding B. To dock a local race train it was to be driven from Siding B to the inner Siding A, pushed back onto the Down line, and then driven through Crossover 13 to the Up platform. No wonder the Metro Super wanted a direct connection to Siding B! No mention was made of starting race trains from the Up platform, and, indeed, the move from the Down line beyond Post 7 back into the Down platform was not a signalled move (and indeed, had never been a signalled move). It seems likely that the terminating facilities in the Down platform were only used for race trains that immediately returned to Melbourne.

It appears that electrification caused some problems with sighting the signals through the overhead masts. On 21 June 1926 lop bracket mast Post 2 was replaced by a straight mast 5'2" further from the track. In late July 1927 Post 3 was relocated 26 feet further out and 15 feet further from the track to give a better view for train crews as a result of a suggestion from the Rolling Stock Branch. By early May 1937 the Down Distant was relocated 2'6" further from the track as the backlight could not be seen from the signalbox.

The notice board in Caudwell's Siding was relocated 6 feet to an overhead stanchion in January 1928 to provide greater unloading space. The board was to be lettered 'Engines must not go onto private siding line'.

With the construction of electric locomotives to work suburban goods traffic, authority was granted around the end of April 1929 to wire the goods sidings on the Frankston line, including those at Mentone. By mid November 1929 the remaining track in Siding A had been wired together with the substation siding as far as the electric train terminating board. Caudwell's siding was not wired, nor was the short dead end at the exit of the substation siding. Electric locomotives were scheduled to take over the goods service as from 18 November 1929.

Flashing lights were provided at Moorabbin Road (now Warrigal Road) on the Down side of Mentone on 16 March 1932. At the beginning of November 1932 the circuits for the flashing lights were revised to prevent the flashing lights from operating when a shunting goods train passed Post 9 at stop (clearly the goods trains were too long to fit between Posts 7 and 9). The circuits were taken through an arm contact on Home 19 such that the flashing lights would not commence to operate until the train reached a point

near the crossing when the signal was at danger. Staff were instructed that the starting signal on Post 9 should not be lowered until the train was ready to proceed on its journey.

Caudwells Brothers' Siding was deleted from the Goods Rate Book at the beginning of April 1935.

In October 1937 a suggestion that the clearance point for Down trains be altered so that trains could be accepted under full line clear while the sidings were being shunted was declined. The reason was that the clearance point would only be 316 yards in advance of Post 3 on a falling grade. Even if adopted, there would be little benefit as the section time was only 2 1/2 minutes for stopping trains (and less for express trains) and Post 3 could not be cleared with the points to the goods siding reversed.

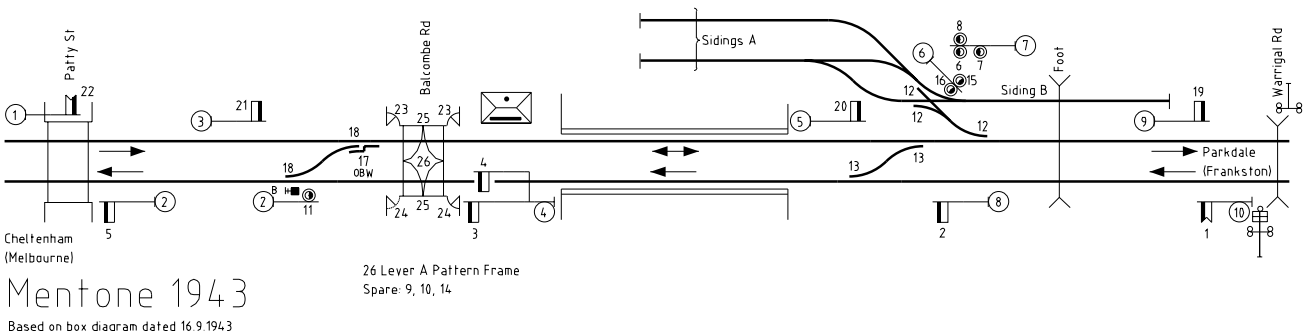
**Up end connections**

In January 1941, the Sustenance Board requested permission to load firewood on the substation siding. The Metropolitan Superintendent initially recommended that the request be declined, but the Secretary asked for a review. The Chief Electrical Engineer had no objection provided trucks were hand shunted to protect the loading bay doors. On 15 April 1941 the request was approved by the Commissioners. Trucks were to be placed by Down goods trains on arrival at the Home, but if this was likely to cause delays to electric trains the trucks could be placed during shunting. Trucks were to be delivered between the catch points and the scotch block and movements to the loading site near the doors were to be done by hand by the Labour Department. The Substation attendant was to operate scotch block. By March 1942 the use of the substation siding to load wood was no longer required - by that date there would have been few unemployed in Australia.

This led to the substation siding being abolished. The Chief Civil Engineer had recommended the removal of most of the substation sidings on 28 October 1941, however Mentone was to have been retained. Investigations in early 1943 showed that the siding had only been used three times in the previous six months. Instructions were issued for its removal on 1 July 1943, and the points were removed on 21 July. Disc 11 on Post 2B and Disc 9 on the right hand doll of Post 4 were removed on 1 September 1943.

In the discussions on the removal of the substation siding it was suggested that Post 2B be relocated to control the "frequent set back moves through the [adjacent] crossover". This was approved subject to the cost not exceeding £10. Post 2B was relocated and brought back into service as the set back disc from the Up line on 20 September 1943. Lever 11 was consequently restored to use. It was, however, destined to have only a short life in its new position.

The Chief Civil Engineer noted that Crossover 18 required renewal on 10 November 1948 at a cost of £3156. The Metropolitan Superintendent was asked if the crossover



Mentone 1943  
Based on box diagram dated 16.9.1943



could be abolished as the race traffic had been discontinued (the final race meeting at Mentone had been held on 24 July 1948). There was no objection, and the CCE was instructed to spike the points for two months to see if the crossover was actually required. The points were spiked on 21 February 1949. After two months the Metro Super noted that no use had been made of the crossover, but recommended waiting a further three months. After no use for six months, it was suggested that a decision should be postponed until after the summer traffic. Finally, on 23 January 1950 the Metropolitan Superintendent acknowledged that as there had been no use in 11 months, there was no objection to the crossover being removed. The crossover was removed on 1 March 1950. Disc 11 on Post 2B was once again removed and this time Post 4 lost its right hand arm (Home 4). Levers 4, 11, 18 and 19 were removed from the frame.

**Post war renewals**

On 17 September 1958 the slamming type wicket gates at Balcombe Road were replaced by normally open tubular steel wicket gates. The new type of wickets required a separate lever for each gate, and to convert the four wickets would have required the addition of two wicket levers to the frame. This was not done, and it appears that the wickets on the Up side of Balcombe Road were abolished leaving the original two wicket levers (23 and 24) to work the remaining two wicket gates on the Down side of the road.

In December 1958 a proposal was floated to renew the crossing work at the Down end. The proposal included a direct connection to Siding B so that it could be used to stable trains (the Metro Superintendent of the '20s must have been smiling!). On 17 May 1959 the alterations were carried out. The trailing main line crossover 13 was relaid 42 feet closer to the platforms and a facing connection was provided from the Down line to Siding B. A new disc was provided on Post 5 (applying to Siding B) and a new Post 5B (one disc) provided for moves from the Down line. Post 6 was relocated 28 yards further out and Disc 16 was removed, and Post 7 was relocated 27 yards further out and Disc 7 was removed.

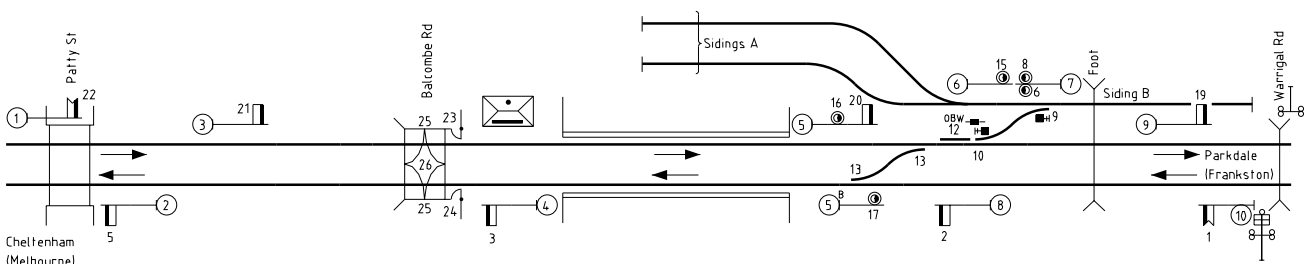
Possibly as part of the same renewal program, the in-

terlocked gates at Balcombe Road were replaced by manually controlled boom barriers on 5 October 1959. As was usual, the booms were worked by the former gatetop lever 25. The two wicket gates on the Down side of Balcombe Road were replaced by a crib crossing. At this stage, Mentone was still open as a block post for all trains. The Chief Civil Engineer proposed the provision of switch out facilities on 22 September 1960, but the Traffic branch initially rejected the proposed alterations as they felt the linking the operation of the boom barriers to the block switch would tempt signalmen to irregularly switch in to get manual control of the booms if a train was disabled on either outer approach. The Traffic Branch suggested continuous automatic operation of the booms. A revised plan was subsequently accepted which still had the booms operating automatically when Mentone was switched out and manually when it was switched in. The switching facilities were provided on 1 February 1961 when closing lever 14 was provided. By August 1968 Mentone was switched in daily for the morning and afternoon peaks. On Wednesdays it was also switched in for the roadside goods to shunt from 1135 to 1250. On Saturday it was switched in for the morning and midday peaks. Mentone was not switched in on Sundays. This pattern of switching lasted until at least 10 years.

The Patty Street level crossing (14 miles 2 chains 62 links) was probably closed around 29 June 1965. The Executive Council had approved the closure on 5 May 1964 provided a foot crossing was retained at Patty Street, and the Latrobe St crossing had been equipped with boom barriers.

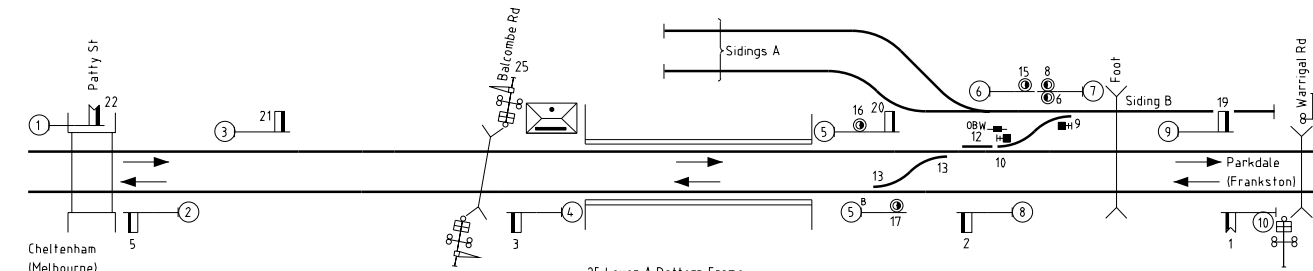
Minor alterations occurred in the mid to late sixties. In late December 1965 a phone was provided at the Down end of the Up platform so that Guards of Up trains could advise the signaller that the train was complete. In late October and early November 1966 Posts 2, 4 and 7 were renewed. On 5 November 1970 Post 7 was relocated 30 feet in the Down direction to prevent the standing of electric trains over the Mitchell St crib crossing.

Complaints were received in May 1970 about the operation of the boom barriers at Balcombe Road when Mentone was switched in. An investigation revealed that some staff were in the habit of clearing the distant signals



Mentone 1959a

Based on box diagram dated 1.2.61 & Interlocking Skelch B279 amended to 17.9.58



Mentone 1959b

Based on box diagram dated 12.6.61 & Interlocking Skelch B279 marked up to 1959

for stopping trains. Instructions were issued to the staff to cease this practice.

Closure of the signalbox

In August 1976 the VR stated to the ARU that it was expected that Mentone signalbox would be abolished with the provision of power signalling, possibly in 3 years if the stabling facilities were removed. In the event, it was to be another 9 years before the box was actually abolished.

Mentone was closed for goods in late October 1981 (it had previously been open for goods in truck loads). The sidings were not taken out of use until around the beginning of May 1984 when the main line points were spiked normal. The overhead wiring over the sidings was taken out of commission on 8 May 1984. The sidings, together with the main line crossover, was abolished on 12 August 1984. Posts 5B, 6, 7, and 9 were abolished together with the disc on Post 5.

On 27 July 1983 the flashing lights at Warrigal Road were replaced by boom barriers. Pedestrian boom barriers were also provided.

The box remained intact until three position signalling replaced the double line block working Cheltenham - Mentone - Parkdale on 7 December 1985.

Since the provision of automatic signalling, there has only been two recorded signalling alterations at Mentone. On 20 March 1981 automatic pedestrian gates were provided at Balcombe Road. Pedestrian gates were also provided at Mitchell St (74.568km) on 20 November 2005 and Down Automatic F571 became approach cleared for stopping trains.

Acknowledgements

Information about the Mentone Racecourse has been taken from 'The Mentone Race Course', Veronica Hahn, http://localhistory.kingston.vic.gov.au/htm/article/1.htm

ERRATA

Chris Gordon has provided some corrections to the diagram of Clifton Hill published in the March issue:

- \* Up Home CHL119 should be CHL127, and it can display a Medium Speed Warning aspect.
- \* Track circuit 119T should be 127T.
- \* Up Home CHL117 can only display R/R, R/Y, R/G, and R/R/Y.
- \* Crossover 25 should be Crossover 029.
- \* Up Home CHL125 should be CHL129.
- \* Points 3, 4, 8, 15, 18, and 21 should be 003, 004, 008, 015, 018, and 021 respectively.
- \* Track circuit 25T should be 29T.
- \* Track circuit 125T should be 129T.
- \* Track circuits 124T, 127T, and 129T are numbered incorrectly but the correct number is not known.

