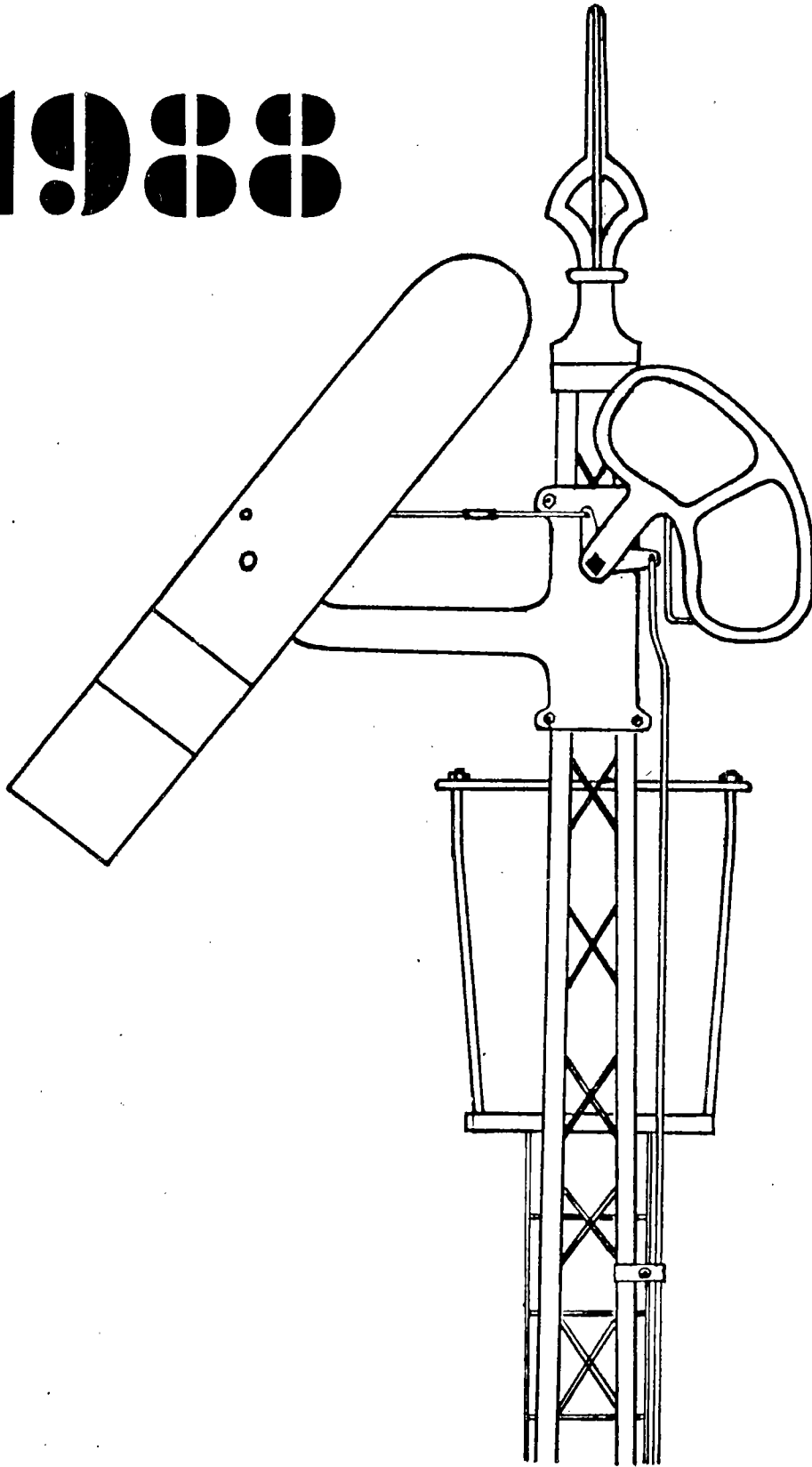


# SOMERSAULT

1988



SRSV

Signalling Record Society (Victoria) - SOMERSAULT.

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Deadline for March 1988 issue is 21 February 1988.

NEXT MEETING: Friday, 19 February 1988.

VENUE: A.R.H.S. Library Room, Windsor Rly Station.

MINUTES OF NOVEMBER 1987 MEETING

HELD AT: A.R.H.S. Library Room, Windsor Railway Station.

HELD ON: Friday, 20 November 1987.

MEETING COMMENCED: at 2015 hours.

PRESENT: Jack McLean, Stephen McLean, Jim Brough, Wilfrid Brook,  
Andrew Waugh, Warren Doubleday, Bob Whitehead, John Sinnatt,  
Colin Rutledge, Alan Jungwirth, Jon Churchward, Peter Pay,  
Roger Jeffries.

MINUTES OF PREVIOUS MEETING: adopted as read, subject to the admendment -  
"Waugh" should read "Ward" (Sinnatt/Brough)

WELCOME: to Dr. Ian Scrimgeour, our second overseas member.

CORRESPONDENCE: Postcards from Ralph Montagu in New Zealand were received by  
J. McLean and A. Jungwirth.

REPORTS: The Show Day Tour to stations Castlemaine-Sunbury  
(inclusive) was very successful, with two SWO's. The tour  
recorded a substantial profit.

GENERAL BUSINESS: 1. SOMERSAULT:-

(a) Crossword No 21 - note 2 down should be (5, 7) not  
(7, 5) as shown. 9 down was correct when the crossword was  
compiled in about July, even if things have changed since  
then!

(b) Terminology. In the editor's absence, the meeting decided that the terms "permissive signal" and "engineer's diagram" are editorial licence rather than official Victorian usage, and hopes that the official forms will be used whenever possible.

2. SUBSCRIPTIONS. The suggestion that the subscription be raised for 1988, mainly because it is not normal for a society to keep its subscription at one rate for many years, was generally not favoured by members.
3. QUESTION. What has happened at Beelong "B" Box? It is believed that a dead end siding has been removed.

NEWS:

1. Peter Brook has done an essay on Continental railway signalling for a Year 11 History project. It is hoped that this may be the basis for a Somersault article and/or a syllabus item in the future.
2. The St Kilda light rail ran today (20 November 1987), with the public service starting on Sunday. The booms at Bridport Street have been removed.
3. Alan Jungwirth explained the tramway signalling arrangements at the Spencer St./Bourke St. corner. This was followed by a discussion on the signalling of single line tramways.
4. The Melton-Bacchus Marsh ATC has been commissioned (using a pilotman in the temporary stage). When Ballan-Warrenheip is introduced in early December, temporary staff and ticket will be used.
5. The J.C.M. Rolland collection contains 40 pages of items from the 1930's.
6. Self restoring switches at stations Coonamia to Stirling North were explained.
7. Pneumatically assisted points were explained.

SYLLABUS ITEM: Not able to be arranged at short notice.

MEETING CLOSED: at 2135 hours.

--oDo--

Answers to Crossword No 21

Across: 1. Angle, 4. **Corail**, 8. SG, 10. Electrifying, 11. Detach, 12. Eat, 14. Assist, 16. Rename, 19. ESS, 20. Thurso, 21. Special Lines, 23. EC, 24. Danger, 25. LBSCR.

Down: 1. Amends, 2. Great Western, 3. Est, 5. Offers, 6. Aice Springs, 7. Light, 9. Graham, 13. At, 15. Settle, 16. RS, 17. Arrive, 18. Bowser, 19. Eased, 22. LCL.

--oOo--

SIGNALLING ALTERATIONS

- \* 11.10.1987 PORT MELBOURNE LINE. The Flinders Street-Port Melbourne line will be closed to passenger traffic. Signalling diagram No 14'81 is cancelled. Points No 819D at Montague were converted to WSA lever operation, points No 819U were spiked reverse and points No 821 were spiked normal. All other points, signals and level crossing protection equipment on the down side of Post 930 at Flinders Street were removed. Signal post No 930 will remain operational for the time being. (D 2169/87)
- \* 13.10.1987 GLENROY. Up Home signal, Post 3, was converted to a permissive signal, numbered E532. The control panel was also abolished. The new arrangements are indicated on signalling diagram No 3'86 (Glenbervie-Somerton). (D 2173/87)
- WN 41/1987 LILYDALE-CAVE HILL SIDING. The number of vehicles that may be pushed to Cave Hill Siding has been increased from 14 to 16. (D 272/87)
- \* 14.10.1987 TONGALA. The following alterations were carried out:-  
1. The mechanical down home arrival and departure signals were abolished.  
2. The up end plunger locked points became staff locked.  
3. A location board for down trains was provided 400 metres on the up side of the staff locked points.  
4. The signal quadrants and push button on the platform were abolished.  
5. A quadrant lever (to operate the Up Home signal) and a 5P key operated switch (to operate the Down Home (light) signal) were provided at the down end of the platform.  
6. A staff/annett key exchanger was provided near the points leading to Nestle's Siding. Exchanging the staff for the annett key will switch the flashing lights to manual operation. (D 284/87)
- \* 16.10.1987 BROADMEADOWS. Down and Up Home signals BME2 and BME4 were converted to permissive signals. (D 296/87)
- \* 17.10.1987 MELTON-PARWAN LOOP-BACCHUS MARSH. Signalling diagrams Nos 16'87 (Bacchus Marsh-Ballan) and 18'87 (Melton-Parwan Loop) became effective and diagrams Nos 47'82 and 4'84 respectively were cancelled. The alterations are as follows:-  
1. The electric staff system between Melton-Parwan Loop-Bacchus Marsh was abolished and replaced by the Automatic and Track Control of signalling.  
2. The points and signals at Parwan Loop are controlled from the signal box at Bacchus Marsh.  
3. Pilot keys are provided in the signal boxes at Melton and Bacchus Marsh, and the respective telephone cabins at Parwan Loop.  
4. At Melton, the Down Starting (light) signal, post 6, was converted to a three position down home signal and renumbered 11 and the Up Distant signal, post 8, was abolished and replaced by permissive signal - A 394.  
5. The Down Repeating signal at Parwan Loop was converted to a three position permissive signal - A 427 and the Up Repeating signal was abolished.

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6. The former two position Home signals at Parwan Loop, Nos 10, 12, 30 and 32, were converted to three position Home signals and will display the following proceed aspects:-

Signal No 10 - Normal Speed Clear.

Signal No 12 - Medium Speed Clear.

Signal No 30 - Normal Speed Clear or Normal Speed Warning.

Signal No 32 - Medium Speed Clear or Medium Speed Warning.

The Normal and Medium Speed Clear aspects on posts 30 and 32 will only apply when ALL the down signals at Bacchus Marsh are at proceed.

7. Down and Up Arrival Clearing Boards were provided 396 metres and 365 metres respectively from the Home Arrival signals at Parwan Loop.

8. A new Down Home Arrival (light) signal No 11 was provided at Bacchus Marsh and is controlled by lever 1, and the down fixed distant signal was abolished.

9. The Up Starting (light) signal, post 2D, was converted to a three position home signal and renumbered post 17. (O 273/87)

\* 18.10.1987 BELL - Block Hours.  
Will be open for all trains. (O 2183/87)

\* 18.10.1987 THORNBURY-BELL. New signalling diagram No 47'87 (Northcote-Epping) became effective and diagram No 39'87 is cancelled. The alterations are:-

1. The Double Line Block System between Thornbury and Bell was abolished, and replaced by three position signalling.

2. Signal posts Nos 3, 4, 5 and 6 (Thornbury), 7 and 9 (Oakover Road) will be abolished.

3. Permissive signals T300, T310, T315, T330 were brought into service and signals T315 and T330 are controlled by the Gatekeeper at Oakover Road. (O 2180/87)

WN 41/1987 WESTALL - Instructions for the operation of the Apex trains.

1. On arrival at Westall yard, the train is to be drawn forward into the shunting road, then set back into the Apex Siding.

2. When the load of the train exceed 10 hopper wagons, the train is to be divided in the Apex Loop Siding before being placed in the discharge area. It is essential that no more than 10 wagons be placed for unloading at one time.

3. Discharging is effected by placing each hopper individually over the discharge pit.

4. When all wagons have been unloaded and the had previously been divided, the train must be remmarshalled to enable the train examination to be undertaken. This must be carried out on the Apex Siding, not the Shunting Road.

5. A Notice Board lettered "Train Movements must not pass this board until authorised by the signalman, Springvale" is erected at the exit of the Apex Siding. A Driver must not pass this board until permission from Springvale has been obtained.

6. A similar board is erected at the junction of the Shunting Road and the Through Goods Siding.

7. The Apex Siding within the company discharging area is equipped with warnin devices consisting of flashing lights and a warning

siren operated by a three way switch situated in a box affixed to a light pole near the entrance of the company compound. First position of the switch is "Off", the second operates the "Warning Lights" and the third both the "Warning Lights and the Siren".  
(O 283/87)

- \* 19.10.1987 MARIBYRNONG RIVER GOODS LINE (FOOTSCRAY GOODS). This line will be worked under siding conditions. The Automatic Electric Staff Instruments at South Kensington and Footscray Goods Office were abolished. When a train arrives complete at Siding "C", the signalman at South Kensington must be advised that the line is clear to Siding "C" and also the anticipated time of departure on the return. After this message has been exchanged, the line outside Siding "C" must not be fouled without the permission of the signalman at South Kensington. When the train is ready to return, the secondman must contact the signalman at South Kensington and obtain permission to depart. (O 250/87)
- \* 19.10.1987 COPE COPE. The Up and Down Home Arrival signals and associated operating quadrant levers were abolished. Large electric staff locks were provided inlieu of the plunger locks. Until catch points can be provided in the siding, scotch blocks were provided on each end of No 2 road. (O 331/87)
- \* 19.10.1987 CURYD. The Up and Down Home Arrival signals and associated operating quadrant levers were abolished. Miniature electric staff locks were provided inlieu of the plunger locks. Until catch points can be provided in the siding, scotch blocks were provided on each end of No 2 road. (O 331/87)
- \* 20.10.1987 NORTH SHORE. The Phosphate Siding was abolished. (O 305/87)
- \* 21.10.1987 SHEPPARTON. Flashing Lights were brought into operation at Fords Road level crossing at 186.706 km, on the down side of Shepparton (181.847 km). Yellow whistle posts have been provided indicating that this crossing as a "Healthy State" indication warning light. When the red flashing light is operating it indicates that the level crossing equipment is operating normally but if the crew of a passing train observe that the red flashing light is NOT operating, even if the level crossing appears to be operating normally, the Train Controller must be notified immediately and he must notify the Signal and Communications Supervisor. (O 313/87)
- \* 21.10.1987 LAL LAL. The points leading to No 3 road were abolished pending the removal of the siding. Amend diagram No 22/84. (O 341/87)
- \* 22.10.1987 TALLAROOK. Up Home signal TLK10 was converted to an permissive signal. (O 300/87)
- \* 22.10.1987 MANGALORE. Down and Up Home signals MGE2 and MGE4 were converted to permissive signals. (O 300/87)
- \* 22.10.1987 ALUMATTA. Up Home signal 30/10 was converted to a permissive signal. (O300/87)

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- \* 22.10.1987 BOWSER. Down and Up Home signals 31/6 and 31/8 were converted to permissive signals. (O 300/87)
- \* WN 42/1987 OAKLEIGH - Block Hours.  
Commencing forthwith, Mondays-Saturdays from 0600 till 2200 hours each day. Oakleigh may be switched in at other times as arranged. (O 2181/87)
- \* WN 42/1987 CHELSEA - Block Hours.  
Chelsea will be switched in only as required. (O 2182/87)
- \* WN 43/1987 MORDIALLOC - Switching Hours.  
Mondays-Saturdays: From 0445 hours until 2045 hours each day. (O 2203/87)
- \* WN 43/1987 PARWAN LOOP. The Up and Down Home Departure signals Nos 12 and 32 respectively have been provided with illuminated 65 speed indicators. (O 349/87)
- \* 25.10.1987 LAVERTON. No 3 crossover points were relocated 108 metres in the Up direction. (O 2198/87)
- \* 25.10.1987 BRIGHTON BEACH. Signal post No 15 was relocated 66 metres in the Up direction. (O 2192/87)
- \* 27.10.1987 LANGI LOGAN. The Portland end staff locked points were abolished. (O 323/87)
- \* 27.10.1987 BALLARAT "D" BOX. Rotating red lights were installed at the Gillies Street interlocked gates. (O 340/87)
- \* 28.10.1987 WATTE GLEN. The flashing lights at Wilson Street were converted to boom barriers. A SP key operated switch was provided at the down end of Watte Glen platform to allow Signal A to be placed to Stop should a Down train be required to be held at the platform. (O 2204/87)
- \* 5.11.1987 SPENDER STREET No 1 BOX. A closing lever (No 50) was provided and the circuits for drawf signals 12, 48 and 53 were altered so as to display a proceed aspect when the closing lever has been reversed. The right hand blades of No 43 compound points were converted to hand operation. (O 363/87)
- \* 5.11.1987 NORTH CRESWICK. The staff locked points were abolished. In consequence, the special electric staff working between Creswick, North Creswick and Clunes was cancelled and all associated equipment removed. (O 361/87)
- \* 5.11.1987 BIRCHIP. The Up Home arrival signal was relocated to the opposite side of the line. (O 370/87)
- \* 8.11.1987 MERRI-NORTHCOTE-THORNBURY. New signalling diagrams Nos 51'87 (Jolimont-Merri) and 53'87 (Northcote-Epping) became effective and diagrams Nos 37'87 and 39'87 were cancelled. The interlocked gates at Northcote were replaced by boom barriers and the signal boxes at

Merri and Northcote were abolished. Lever controls on signals T217, T222, T249 and T252 were removed and the Train Number Transmitter at Merri was relocated to Bell signal box. (O 2224/87)

- \* WN 46/1987 BACCHUS MARSH. The following alterations have been carried out:-
  1. No 30 points, leading from No 2 to Siding "B" and No 33 lock bar, have been abolished.
  2. The disc signal on post 7 and the left hand disc on post 9 have been removed.
  3. Signal post 8 was abolished.
  4. The remaining disc on post 9, lever 29, will now apply to Nos 3, 4 5 and 6 roads.
  5. Levers 20, 28, 30 and 31 have been sleeved normal and levers 33 and 34 have become pilot levers.
 Amend diagram No 16'87 accordingly. (O 410/87)
  
- \* 9.11.1987 MACEDON - Block Hours.  
 The following hours will apply:-  
 Monday-Fridays: from 0615 hours until 8021 clears each day,  
 Saturdays and Sundays: switched out. (O 385/87)
  
- \* 13.11.1987 BARNAWATHA. The Down Distant signal, Post 1 (lever 1), was converted to motor operation. (O 398/87)
  
- \* 16.11.1987 NOWINGI. The Colonial Sugar Refining Company siding was spiked normal. The points and associated staff locking will be removed at a later date. Amend diagram No 48'82 accordingly. (O 406/87)
  
- \* 20.11.1987 BALLARAT "A" SIGNAL BOX. A signal repeater for the proceed aspect only was provided for the Up Home signal on post 20. The repeater displays a green light when the arm on post 20 is at the proceed position and will display no light when the arm is at Stop. The repeater is located on the signal bridge 46 metres in advance of post 20. In addition, the arm on post 17 was replaced by a disc. (O 411/87)
  
- \* 22.11.1987 BARNAWATHA. The following alterations were carried out:-
  1. Signal posts Nos 5, 6, 7 and 8 were abolished.
  2. Points 14 and 21 together with lock bars 13 and 22 were abolished.
  3. The former platform road was abolished.
  4. The dead end extension of No 3 road was abolished.
  5. No 23 compound points were replaced by a turnout.
  6. Wheel crowders were provided in Nos 2 and 3 roads, and are operated by levers 23 and 24.
  7. Switching facilities were provided and when Barnawatha is switched out, the section will be Springhurst-Wodonga "A" Box.
  8. Closing lever No 15 was provided.
  9. Home signals Nos 4, 5, 6, 7, 29, 30, 31 and 32 were abolished.
  10. A balancing magazine was provided for the Springhurst-Wodonga "A" section.
 Barnawatha will be switched in as arranged by the Senior Train Controller, Seymour.  
 Amend signalling diagram No 11'84 accordingly. (O 431/87)



- \* 18.11.1987 ARARAT. The down end of No 47 points was abolished and a rodde d deraill provided in the Portland Dock road. In addition, the Home signal on post 18 (lever 56) and the disc signal (lever 13) on post 9 was abolished. Amend diagram No 10'85. (D 437/87)
- \* 22.11.1987 BACCHUS MARSH. The following signal alterations took effect:-  
 1. Signal post 9 was abolished.  
 2. A new disc signal post 8 applying from No 3A to No 3 road was provided.  
 3. Main line points No 36 were relocated 27 metres in the up direction and the normal lie is to No 2 road. (D 448/87)
- \* 24.11.1987 DIMBOOLA. Flashing lights were provided at Ellerman Street level crossing at 364.381km on the down side of Dimboola. (D 442/87)
- \* 25.11.1987 CAMPBELL'S SIDING - Shepparton. The following alterations were carried out:-  
 1. The rodde d deraill at the up end was removed and replaced with a hinged deraill.  
 2. The small point lever operating the points at the down end of the siding was abolished and replaced by a WSA lever secured by staff lock.  
 3. The safety points leading to the Campbell's Soup Siding were provided with a WSA lever secured by Hand Locking Bar, pin and SP padlock. (D 441/87)
- \* 26.11.1987 CRESWICK-TOURELLO LOOP-CLUNES-TALBOT. The electric staff sections Creswick-Clunes-Talbot were abolished and Clunes was closed as a crossing station, all points being spiked normal and with the signals, will be removed later.  
 The automatic electric staff sections Creswick-Tourello Loop-Talbot were brought into service and Tourello Loop was opened as a crossing loop. The loop located at 149km has standing room for 850 metres and the trailable points are set for normal right hand running. Location boards were provided at both ends of Tourello Loop. (D 444/87)
- \* WN 47/1987 SEYMOUR "A" BOX. A closed circuit television camera has been mounted on a post near No 47 signal and the rear of a down train may be observed via the monitor in the signal box. When the signalman observes the End of Train Marker on the monitor and the track circuits show unoccupied in the rear of the train, the Train Arrival signal may be sent to Broadford. (D 110/87)
- \* 27.11.1987 BARNES-CALDWELL-WAKOOL. In order to provide for absolute occupation of the line between Caldwell and Wakool from Friday 27.11.1987, Caldwell will be opened as a staff station. All trains running in the Caldwell-Wakool section must carry the Train Staff.  
 Whilst Caldwell is open, the signalman at Echuca must advise all trains that Caldwell is open as a staff station. (D 420/87)
- \* 29.11.1987 NORTH GEELONG "A" BOX. Lock bar No 41 was abolished and replaced with a lever lock and track circuit. (D 458/87)

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- \* xx.xx.1987 LONGWOOD. No 1 road was spiked out of use and unless specially authorised two passenger trains must not cross at Longwood. Passenger trains must travel via No 2 road. (O 447/87)
  
- \* 30.11.1987 NAR NAR GOON - Block Hours.  
 Mondays - From 0620 hours until 1520 hours.  
 Tuesdays-Fridays - From 0700 hours until 1600 hours and at other times as arranged by the Train Controller, Transport House.  
 (O 485/87)
  
- \* 30.11.1987- BIRCHIP. The following alterations will be carried out:-  
 4.12.1987
  1. No 2 road was taken out of service and the down end plunger locked points were abolished.
  2. The up end plunger lock points to No 2 road were abolished and the annett lock and rodded derail for the up end points to the Goods Shed were abolished and replaced by a WSA lever secured by hand locking bar, pin and padlock with a hinged derail.
  3. The Down Home Arrival signal was converted from quadrant operation at a 5P key operated switch located on the platform.
  4. The Down Home signals on posts 4 and 6, and the Up Home signal on post 5 were abolished. A new Up Home (light) signal was provided on the down side of Sea Lake Road level crossing.
  5. The plunger locking on the points at the down end of the goods siding were converted to annett locking and the annett key is secured in a circuit controller on the platform.
  6. The flashing lights at Berriwillock Road (both directions) and Sea Lake Road (down trains only) are controlled via a Harmon Crossing Processor but healthy state indicators will not be provided at this stage.
  7. A new crossing loop with trailable points set of right hand running was brought into service and has clear standing room of 740 metres.

In order to prevent unnecessary operation of the flashing lights at Berriwillock Road, a notice board lettered "TRAINS MUST NOT STAND BETWEEN THIS POINT AND THE LEVEL CROSSING" was erected in No 2 road 110 metres from the fouling point at the down end. (O 480/87)
  
- \* 2.12.1987 SPENDER STREET No 1 BOX. The low speed aspects which apply into No 1 road for the signals on posts SST178, SST513, SST514 and SST516 had the time delay removed from their control and became approach operated. (O 449/87)
  
- \* 2.12.1987 GLENHUNTLY-MORDIALLOC. Signalling diagram No 63/87 (Glenhuntly-Mordialloc) became effective and diagram No 41/87 was cancelled.
  1. At Mordialloc, down permissive signal MOR700 was converted to a three position Home signal.
  2. The medium speed, low speed, and illuminated letter "A" lights on MOR712 were lowered to improve sighting of the signal. (O 2274/87)
  
- \* 2.12.1987 COLAC-CAMPERDOWN-TERANG-WARRNAMBOOL. The miniature electric staff sections Colac-Camperdown-Terang-Warrnambool will be abolished and the Train Staff and Ticket system provided on the sections Colac-Camperdown-Warrnambool. Terang is now closed as an electric staff crossing station and the staff balancing magazine for the Colac-Camperdown section was abolished.

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A Staff Exchange Box and a Staff Ticket Exchange Box were provided at Camperdown. A hinged wooden exchange box was provided at Colac and can be used for staff exchange or staff ticket exchange as required.

The staff locks at Boorcan were converted from miniature to large pattern.

Two Master Keys have been provided for the Camperdown-Warrnambool section.

Terang may be opened as a temporary staff and ticket station as required. The fixed signals will normally be secured reverse by chain and padlock. A speed restriction of 65km/h for up non-stopping trains will apply from Simpson Street level crossing at 220.510km to Thompson Street level crossing at 219.910km.  
(O 472/87)

- \* WN 49/1987 SHEPPARTON-DOOKIE LINE. The following extensions and alterations to sidings on this line have been completed.  
Pine Lodge - The loop siding has been extended to 325m and the vehicle capacity is now 10 VHGY wagons.  
Cosgrove - The existing loop siding has been retained and the vehicle capacity is five VHGY wagons.  
Dookie - The 692 metre GEB sub-terminal siding extension was connected to the main line and now provides a siding of 765 metres. The capacity remains at 22 VHGY wagons. The station loop was removed and No 1 road is a dead end siding of 475 metres. The former No 3 road was converted to a siding providing 190 metres and is connected to the former main line at the up end only. The station silo capacity remains at 7 VHGY wagons.  
Hayes derails were provided at each end of the loops at Pine Lodge, Cosgrove and Dookie GEB. Hand locking bars are provided on the main line points at the above sidings and also at the up end of Dookie yard. (O 501/87)
- \* 9.12.1987 DIAMOND CREEK. Boom barriers were added to the flashing light signals at Allandale Road level crossing at 30.544 km.
- \* 9.12.1987 ARARAT. Dwarf signal No 34 was relocated 23 metres in the up direction. (O 491/87)
- \* 10.12.1987 GARDINER. Power operated manually controlled pedestrian gates were provided at Burke Road level crossing. The gates are controlled by lever 2.
- \* 11.12.1987 CALDWELL was closed as a temporary staff station.
- \* 11.12.1987 MURTOA. A switch locked connection to the up end of Marmalake was provided. (O 499/87)
- \* 12.12.1987 NORTH GEELONG "A" BOX. The following alterations took place:-  
1. Nos 18 and 19 points forming the connection from the Harbour Trust siding to the East line were abolished.  
2. No 21 double ended points from the East to the West line were abolished.  
3. Locks bars Nos 20 and 22 were abolished.

4. Dwarf signals Nos 17 and 38 leading from and to the Harbour Trust siding were removed.

5. Levers Nos 17, 18, 19, 20, 21, 22 and 38 were sleeved normal. (O 502/87)

\* 13.12.1987 BALLAN-BUNGAREE LOOP-WARRENHEIP. Signalling diagrams Nos 20'87 (Bacchus Marsh-Ballan) and 22'87 (Bungaree Loop-Warrenheip) became effective and diagrams Nos 16'87 and 8'85 respectively were cancelled. The principle alterations are as follows:-

1. The Train Staff and Ticket system between Ballan-Bungaree Loop-Warrenheip was replaced by three position signalling worked under the rules for Automatic and Track Control.

2. The points and signals at Bungaree Loop are worked from a panel at Warrenheip signal box.

3. Pilot keys for emergency working are located at Ballan signal box, Bungaree Loop telephone cabins and Warrenheip signal box.

4. At Ballan, the Down Starting signal Post 10 was converted to a three position Home signal and numbered 21. The Up Distant signal post 8 was replaced by a two position Up Home (light) signal. The Up Repeating signal was abolished.

5. At Bungaree Loop the departure Home signals were converted to three position Home signals and show the following aspects when cleared:-

a) Signal No 10 - Clear Normal Speed.

b) Signal No 12 - Clear Medium Speed.

c) Signal No 30 - Clear Normal Speed or Normal Speed Warning.

d) Signal No 32 - Clear Medium Speed or Medium Speed Warning.

Up and Down Arrival Clearing boards were provided 394 and 370 metres respectively from the Home signals at either end of the loop.

6. At Warrenheip, a new two position Down Home (light) signal post 7 lever 20 was provided. A new three position Up Departure Home signal No 25 was provided. (O 500/87)

\* 16.12.1987 HEYINGTON-GLEN WAVERLEY. Signalling diagram No 69'87 became effective and diagram No 19'87 is cancelled. The level crossing at Moira Street, Darling, was closed and the boom barriers abolished. No 9 lever became a pilot lever. (O 2294/87)

\* 18.12.1987 LINTON JUNCTION-WINDERMERE-BURRUMBEET-TRAWALLA. Windermere and Burrumbeet were closed as electric staff crossing stations. The signals at Burrumbeet were abolished and the points spiked normal. The signals at Windermere will remain for the time being until alterations have been made to the flashing light circuits. Trawalla was converted to a permanent electric staff station, the switching facilities being removed. The new electric staff sections are Linton Junction-Trawalla and Trawalla-Beaufort. (O 516/87)

\* 18.12.1987 SPENCER STREET No. 1 SIGNAL BOX. Pneumatic assistance was provided for points operated by levers 44, 74, 75, 83 and 124. A rotary switch was provided on the block shelf above the respective levers. (O 523/87)

\* 18.12.1987 MOOROODPNA - Northern Pear Siding. The up and down end points were spiked normal. (O 512/87)

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- \* 20.12.1987 MOORDOOPNA. The Duplex lock at the up end was converted to miniature electric staff operation. At the down end the large pattern staff lock was replaced by a miniature electric staff lock. (D 512/87)
- \* 20.12.1987 MURCHISON EAST-TOOLAMBA-SHEPPARTON. Toolamba was closed as an electric staff crossing station, the new section becoming Murchison East-Shepparton. The large pattern electric staff instruments were abolished and the new section is worked using miniature electric staff. An intermediate electric staff instrument has been provided at Toolamba and is used by trains leaving the main line and proceeding to the Kyabram line. All signals except the up home signal for the Kyabram line were abolished and all plunger locking abolished. The junction points are fitted with a miniature electric staff lock. The goods siding points are spiked and will remain so until derails and wheel crowders have been provided. At SHEPPARTON the large pattern staff lock at the down end of the Oil Company's siding was replaced by a miniature electric staff lock whilst the duplex lock at the up end was converted from large staff to miniature staff operation. A Master Key is provided at Shepparton for use during a failure of the staff instruments. (D 511/87)
- \* 20.12.1987 GEELONG CONTROL room was closed and transferred to Transport House, Melbourne. (D 537/87)
- \* 22.12.1987 CASTLEMAINE "B" BOX. Nos 13 and 14 points forming the connection from the Up line to "X" were abolished. Lock bar No 11 was abolished. Disc signal Nos 8 and 15 were abolished. Levers Nos 8, 13, 14 and 15 were sleeved normal. (D 1/88)
- \* 22.12.1987 WESTMERE. The Annett locked points leading from No 2 to No 3 roads at the down end were rodded together to form a double ended crossover operated by a small point lever. The scotch blocks at the down end of Nos 3 and 4 roads were removed. (D 520/87)
- \* 23.12.1987 LAVERTON. 65 km/h indicators were provided on signal posts LAV2, LAV10, LAV12, LAV16 and LAV20. The figures 65 will be displayed in conjunction with the Medium Speed aspects. (D 532/87)
- \* 24.12.1987 FLINDERS STREET. Signal posts 941 and 951 were abolished. Baulks were placed across the tracks at the end of platforms 10 and 11. (D 2301/87)

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JUNEE CTC

by Ken Date

(reprinted from NSW Digest - June 1987)

Three years ago, in March 1984, the SRA brought into use CTC signalling on the Main Southern Line between Junee South Box and Albury Station Box, controlled from a new Control Centre at Junee.

The following is a brief description of the system and how it works. It is not a history of Centralised Traffic Control signalling in NSW, nor does it attempt to provide a technical appraisal of the equipment or an analysis of effects on train working.

The single line between Junee and Albury, some 160 Km in length, had been a source of operational worry for some time, and its insufficiencies were particularly highlighted by the opening of the Albury-Melbourne standard gauge line in 1962. The mechanical signalling of the NSW line placed limits on the length of crossing loops, which meant that trains could not necessarily be as long as those between Sydney and Junee (on double line) or in Victoria, where the loops were designed for trains of up to 870m in length. Also, by the time of its replacement the mechanical equipment had been in place for many years and was certainly reaching the end of its useful life.

The electric staff system of safeworking, although recognised as being extremely safe is a cumbersome method of working. The system on the Southern Line had been developed to its "fullest" possible extent, with the use of automatic exchangers to speed through working, but the delays for crossing trains, or for trains who did not successfully exchange the staff or could not use the exchanger, were definitely not suited to main line working of the 1980's.

Without going into the history of CTC in NSW, it did take many years more than it should have for this improvement to be made to the Southern line. From soon after its opening in 1962, the Victorian standard gauge line had been equipped with CTC signalling, and its efficiency was amply demonstrated to the railway management of NSW. This apparently provoked the lengthening of Harefield crossing loop in 1968, perhaps in anticipation of a larger upgrading eventuating, but no further work was attempted until the contract for the present CTC project was let.

The specific impetus for the installation of CTC came from a study by the Bureau of Transport Economics entitled "Evaluation of a Range of Options for the Melbourne-Sydney Rail Link". This report examined a number of options for upgrading the line, specifically in the area of improving the efficiency of train working, and concluded that the simplest way of upgrading was to extend all the crossing loops and introduce remote control signalling.

Three schemes were proposed:-

1. Extension of crossing loops to 915m and resignalling.
2. As for (1) plus certain section automatic signals and facilities at Wagga Wagga, The Rock and Culcairn, to enable the crossing of three trains.
3. As for (2) plus consolidation of signalling at Junee and Albury.

Financial constraints dictated that scheme 2 was adopted which meant that the mechanical signal boxes at Junee North and South, and Albury Station were retained.

Tenders for the project were called in October 1979. The successful contractor was to design, manufacture, supply, deliver, install, test and bring into service the CTC system.

In addition to resignalling, the specification required the upgrading of existing level crossings and the provision of level crossing protection of eight (subsequently increased to 12) new locations.

Tenders closed in February 1980 and the contract was let to DML Engineering in October 1980.

The system, as it was installed, mainly followed principles already established with the North Coast CTC project, which had also been carried out by DML. However, there were some important variations. All loops were extended to a standard length of 915 metres and additional loops provided at three locations. (On the North Coast there was minimal alteration and no loop extensions carried out at the time of installing CTC. It is only now that selected loops are being extended.) During planning for Junee-Albury it was decided to locate all running signals on the driver's side of the line, necessitating the construction of signal gantries at each location. (Very few North Coast loops were treated in this manner.) At Table Top an entirely new loop was constructed to the north of the old one.

Kapooka crossing loop, between Wagga Wagga and Uranquinty, was one of the first casualties of the CTC project. The length of the sections either side of Kapooka added up to the same distance as most of the other sections on the line, so Kapooka was deemed to be surplus to requirements and was duly closed in January 1982.

During the construction period a number of factors combined to delay the completion of the project. One was an apparent shortage of funds and another was the weather, between April and September 1983. With these delays, the commissioning of the remote control signalling system did not occur until 16 March 1984.

#### FIELD EQUIPMENT

All signals are of the single colour light type, with home signals having subsidiary small lights with route indicators to display shunting or low speed indications. The distant signals are automatic and have an offset marker light.

All the corresponding signals and points at each location carry the same number with Down signals having odd numbers and Up signals having even numbers. Outer Home signals, if any, are numbered 3 and 4, Arrival Home signals are 5 and 6, the Departure signals at the end of the loop are 25 and 26 (main line) and 27 and 28 (loop line). At some locations, these are also the Starting signals but at others there is another signal located beyond the last set of points which is the Starting signal and is numbered 29 and 30.

The points at the Junee end of the loops are numbered 51 and those at the Albury end are 55. Any other controlled points are numbered 52, 53 or 54, as required.

A small telephone hut is located at each end of the crossing loops. Next to these boxes is a small steel cabinet fitted with a hooter and a flashing blue light that the signaller activates to attract the attention of any train crew with whom he wishes to communicate. A telephone and items of emergency safeworking equipment are kept inside the hut. The huts are cylindrical in appearance, with a little 'cap' for a roof. They are fondly referred to as 'penis huts'.

Half pilot staffs are located in a box on the Starting signal post and these are utilised to introduce pilot working in the event of track or signal failures. In simple terms, the joining of the two half staffs from opposite ends

of the section creates a staff that becomes the authority for trains to travel through the section.

Some of the sections have intermediate automatic signals, the purpose being to allow closer headways between following trains. The signals are identified by a plat displaying their distance from Sydney, measured in kilometres. Each automatic signal has a distant signal to act in conjunction with it.

The provision of power signalling had a particular effect on operations after the loops were converted to power working but before CTC was introduced. Electric staff working was dispensed with and a form of "single line automatic working" was introduced as an interim measure until full CTC working was introduced. This was, of course, of great benefit to XPTs and B1 class locomotives, neither of which are fitted with staff exchangers.

There are a number of branch lines that diverge from the main Southern line between Junee and Albury. At most junction stations, the branch line connects to the loop rather than the main line. The exception is at Henty where the line to Rand junctions slightly north of the station yard. (This is because of the presence of a small creek crossing at the Junee end of the yard and it was deemed unnecessary to widen the embankment when the Rand line was first constructed, the points and appropriate signals being controlled from a ten lever ground frame located adjacent to the actual junction, and released by key from frame 'A'.)

The junction points are controlled from ground frames which are unlocked by the ordinary train staff for the branch after the staff itself has been 'released' by the CTC signalman. The staff is either kept in a hut at the ground frame or in the SM's office. A home signal, consisting of a fixed red light and subsidiary light activated by push-button at the ground frame, is provided for trains coming off the branch. (Such a signal was even installed for the Holbrook line at Culcairn which, at the time of installation, hadn't seen a train for some years. The Holbrook line connection has since been broken and the signal is now unlit, although it still appears on the diagram.)

#### CONTROL CENTRE

The CTC Control room is at Junee Railway station, in the Train Control Office. The actual panel is located in a room that is divided in two by a glass panel. On one side sits the signalman, who faces the illuminated diagram, which covers one wall. Behind him, on the other side of the glass screen, sits the train controller, who also faces the diagram.

The train controller at Junee is responsible not only for Junee-Albury but also for the main line south from Joppa Junction and the branches from Cootamundra to Temora and Parkes, and also from Junee to Griffith and Tocumwal. Although an automatic recording device was provided for the CTC area, this didn't always work, and has now been removed, leaving the train controller to labour over the traditional graph.

The signalmen, working under the direction of the train controller, actually operates the CTC signalling equipment.

The system works on 'route setting' principles and the commands are entered via a keyboard.

Each location has a two digit numeric address, commencing with 01 at Harefield, and, using these and the signal or ground frame numbers, the signalman inputs various alpha-numeric codes to cause functions to be carried out. A route is set by the signalman inputting the address code for the location followed by the signal number of the signal at the 'entrance' to the route and



then selecting an 'execute' key. The setting of all points and signals for a through main line movement can be achieved by the selection of a 'Down Through' or 'Up Through' movement key. Various other keys are provided to activate the releases of ground frames, individual control of points, cancellation of route or alarms, etc.

The track diagram presents a diagrammatic display of the line and each interlocking between Junee South signal box and Albury Station signal box. It is not drawn to scale. All signals are shown, with a light to repeat their indications except that the distant and automatic signals which are depicted but not 'repeated'. The signal on the diagram shows a red light for Stop and a green light for any Proceed indication. Some of the signals which, in the field have a number of subsidiary lights, have a second light on the diagram to show that a subsidiary indication is being exhibited.

Pale green 'route set' lights indicate the lie of the points by showing one light following the points on the track for which they are set. (This is a departure from the system which is used in most previous route setting installations where white lights illuminated all along the route that had been set.)

Track occupancy lights are red and illuminate when any portion of the track is occupied by a train, or in the event of a track failure.

A train describer works in conjunction with the illuminated diagram. The train descriptions are displayed to the signalman and the train controller by way of VDUs situated on their respective desks.

The purpose of the train describer is to identify to the signalman the identity of each train within the control area. The track is divided into 'berths' and a description of each train, using a four digit alpha-numeric or, simply numeric, code is displayed in the berth corresponding to the track circuit occupied by the front of the train.

The signalman enters the train code, which is usually the train's number, by way of a keyboard as the train enters the system. The code is then stepped along as signalling inputs are received by the train describer. As the train passes each station, the signalman enters the time onto a train register which, for this system, takes the form of loose leaf pages specifically designed for CTC working.

An emergency local control panel is provided at each crossing loop. It is situated in the stationmaster's office or in a traffic room attached to the relay building. A local panel can be operated after being 'switched in' which is done by turning a key in a lock on the panel. (A similar principle to the old style 'Closing Key'.)

The local panel shows a diagram of the interlocking at the location including the signals and their indications. The route setting function is carried out by pushing buttons instead of using a keyboard. There are blue buttons for Up signals and yellow buttons for Down signals, and one is provided for each signal. In addition, a rotary switch is provided for each set of points to facilitate the movement of the points without clearing a signal. For main line through movement, Down and Up Through route setting buttons are provided.

When a panel is in local control, the track and signal indications continue to be displayed on the main diagram at Junee.

#### OPERATING RULES AND REGULATIONS

The rules and regulations for "Remote Control Signalling on Single Lines" were published in Circular 101 of 1981. Basically, long established principles of single line working in NSW, with some adjustment to allow for

technological change, are embodied in these regulations. The important feature of this style of working is that trains proceed through the section solely on the authority of the fixed signal governing entry to the section.

The CTC systems in use in NSW do not allow 'passing on the move', i.e. the simultaneous entry of trains to an interlocking through opposite ends of the interlocking, with one train taking the main line and the other taking the loop (quite permissible in Victoria and is known as a 'running cross'). In NSW, if two trains arrive at opposite ends of a crossing loop at the same time, one must wait at the Home signal until the other stows itself.

#### JUNEE CTC TODAY

The operations on the main Southern line since CTC commissioning have undergone some changes. The longer crossing loops have facilitated longer trains and this, combined with an apparent falloff in business, means that fewer trains now run than was the case a few years ago. Through running of locomotives is now an everyday reality with B1 and G class locomotives hauling practically all trains. The geographical advantages provided by the portion of the main Southern line between Junee and Albury mean that these powerful locomotives have no trouble in sustaining high speeds throughout.

The combined technological advances represented by the motive power and the CTC signalling system means that between Junee and Albury, a truly modern system of railway working is in operation.

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#### CAMBERWELL 1882-1902 ADDENDUM

by Glenn Cumming.

In my previous article on Camberwell 1882-1902, (SOMERSAULT May 1987, pp 46-55), I made an error concerning the first interlocking frame that was provided at Camberwell.

Further research has shown that the original frame of eight levers was brought into service on 4 May 1885, not 7 May 1885, as previously stated. Although I have been unable to find a diagram of the arrangements at this time, I can tell you that lever No 4 was a point lever as stated in the interlocking register because on 4 February 1886 the cam stud was worn so badly that it needed replacing.

On 2 October 1887, a NEW eight lever frame was provided and the old frame was removed. I can find no reason for this to have taken place except for a curious remark in the Interlocking Register, adjacent to the entry in the Register, the person making the entry has written "McKenzie and Holland frame".

This is a very curious remark. It is common knowledge that McKenzie and Holland had a near monopoly when it came to supplying the Victorian Railways with interlocking frames late in the 19th century and early in the 20th century so why would this entry have been made unless the first frame at Camberwell was of some manufacture OTHER than McKenzie and Holland.

The first frame at Camberwell was installed one year after a Saxby and Farmer frame had been removed from Richmond and a Saxby and Farmer frame had been installed at St Kilda. From the various arguments that have been circulated about the Saxby and Farmer frames, it would appear as though there is some

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uncertainty about the fate of the Saxby and Farmer frames and in my mind, the doubtful origin of the first frame at Camberwell, only compounds the issue.

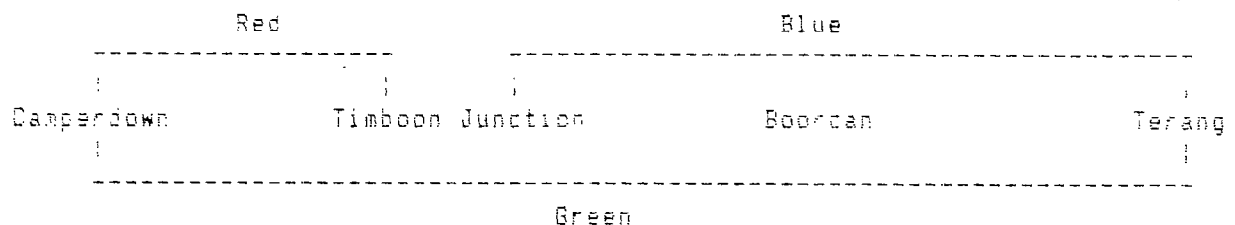
My final point relates to the ground frame at Camberwell. Originally I stated that the ground frame had been provided on 1 July 1899 but this is incorrect, the ground frame at Camberwell was provided on 3 July 1898. (1 July 1899 is that date the Victorian Railways started using the present Interlocking Register.) The ground frame consisted of two point levers crosslocked with the frame in the signal box. One extra lever was added to this ground frame on 4 November 1900 and this was used to work a disc signal that applied from the Ashburton line to the sidings. This disc signal is incorrectly shown on my first diagram as being adjacent to the down main line but it should be mounted adjacent to the Ashburton line as it is in the second diagram of Camberwell. It is shown mounted on a bracket post at the down end of the yard.

Any further additions and comments would be most welcome.

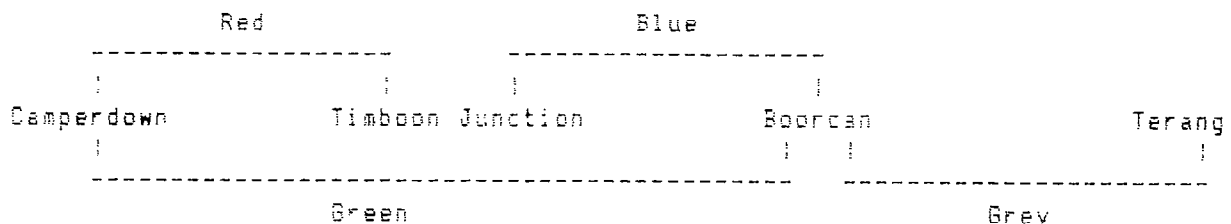
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Letter from Glenn Dunning  
"Suidhe Chuidein"  
58 Nicholson Street,  
Warrnambool, Vic., 3280.

.....Work is continuing on my article on Timboon Junction and the Timboon line. A puzzling aspect of Timboon Junction is as follows-  
In 1911, Timboon Junction was established as a switching electric staff station with the arrangements thus:



Then in 1912 Boorcan became a temporary electric staff station where it is opened and closed as such by an electrical fitter coming along and taking the long section staffs out and putting the short section staffs in. The arrangements were then this; as has been suggested to me by Jack McLean.



My question now is this - would the blue and green instruments used at Terang be moved to Boorcan when that place was opened as a staff station or would Terang and Boorcan have separate blue and green instruments?

I would appreciate any information or suggestions regarding the above query.

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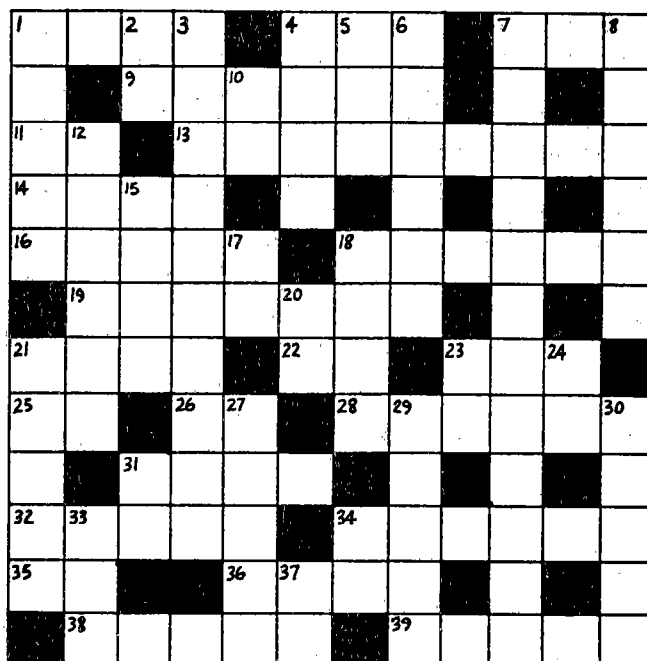
**S.R.S.V. Crossword No 22**  
compiled by Stephen McLean

**Across**

1. Feature of computer programming which can usefully be applied to single-line railways (4)
4. Brought Mac back part of a rocker interlocking (3)
7. Settle in Sandringham (3)
9. Working book, a GA, Rules and Regs. found round this station (6)
11. Junction near Werris Creek loses a useful loco (2)
13. Feature of braking on the Epping line (9)
14. He started everything with this 4-6-0 (4)
16. Staff, or what we should do with them (5)
18. Station where Mum very loudly opens Railfreight account (6)
- 19 and 28. Query: was a tram derailed where it crossed the railway? (7,6)
21. Side track found in USA (4)
22. This carriage can be seen in S-set or in Morisset (2)
23. Feature of track associated with sleepers (3)
25. Somersault producer is part of 12 down, or part off 12 down (2)
26. Extremely economic European express train (2)
28. See 19 across.
31. System is the same with or without railcar (4)
32. Nice signal box? (5)
34. Reason the railway obtained this type of power? (6)
35. Train with no passengers seen in Tecoma (2)
36. Sounds like V/Line drivers were (4)
38. What to do at 2339 or in 23 during 39 (5)
39. Thing shifted to give a shift (5)

**Down**

1. Signal associated with traffic (5)
2. State of clock and signals in Tallarook? (2)
3. Remit a plan for underground station (10)
4. Most stations have one of these boxes (4)
5. Time is up for the association (3)



6. Dining car passes under the bridge at Tocumwal (6)
7. Grief and poor production when this part of timetable isn't well done (5,7)
8. Country station needs an addition to become suburban (6)
10. Loco builder starts getting experience (2)
12. Depart in confusion - train has become uncoupled (6)
15. Part of the Walhalla railway now has commuter trains (4)
17. Norm had no alternative - this loco appeared at 29 down.
18. Tonnage of trains in service (4)
20. Type of train in which the last vehicle ought to flash by (2)
21. Part of SRA system permanently despite its name (5)
23. Old carriage found in Korumburra (2)
24. Railway house and maybe its occupant (2)
27. Can't really explain why everyone started at this junction (5)
29. Bruce was on the way to this S.A. station (5)
30. Lynton loco struggle with rail tractor (5)
31. Carriage in the wash (2)
33. N and X locos are signalled by this system, but it isn't NX (3)
34. Title of an English railway (2)
37. The direction from 13 to 3 in this crossword! (2)

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