

Signalling Record Society (Victoria) - SOMERSAULT.
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Deadline for November 1987 issue is 18 October 1987.

NEXT MEETING: Friday, 20 November 1987.

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

MINUTES OF SEPTEMBER 1987 MEETING

HELD AT: A.R.H.S. Library Room, Windsor Railway Station on Friday,
18 September 1987.

MEETING COMMENCED: at 2010 hours.

PRESENT: Jack McLean, Stephen McLean, Wilfrid Brook, Jim Brough,
Roger Jeffries, Bruce McCurry and visitor, Andrew Waugh,
Bob Whitehead, and guest speaker Gary Pallister.

WELCOME: was extended to Gary Pallister.

MINUTES OF PREVIOUS MEETING: were read and adopted. (Brough/Whitehead)

BUSINESS ARISING: Nil

CORRESPONDENCE: Inwards - Two new members, Andrew Barnett of Alice Springs
and Dr. Richard Heine of Lower Hutt, N.Z.
Dr. Heine is our first overseas member and it was agreed to
allow the one subscription rate to cover surface postage
anywhere in the world. (Brough/Whitehead)

Outwards - A phone call to Andrew Ward to thank him for his
cheque. He wants a membership application form, and as we
haven't got one, this is something which should be done.

TOURS: Show Day organization in hand. Details as arranged; expect to
pay about \$6 for the bus trip.

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QUESTIONS:

1. Have they removed Elphinstone yet? - No.
2. What has happened as Barnawatha and Chiltern? - Chiltern has been de-interlocked and the main line slued through the platform. Barnawatha has lost the platform road.

REPORTS:

Cope Cope is no longer a staff station and rodged derails are being installed. Sutherland switches in and out. Rodded derails are to go in at Litchfield and Curyo. Staff and Ticket is to come in between Colac and Warrnambool.

SYLLABUS ITEM:

Gary Pallister spoke on the resigalling of the N.Z. North Island Main Trunk in connection with the electrification between Palmerston North and Hamilton. Gary was working in N.Z. for McKenzie & Holland who were awarded the signalling contract. He said that the CTC was not particularly different from anyone else's CTC and concentrated on the engineering aspects of the project, including some impressive relocations of the line. The talk was illustrated by slides which covered the landscape, signalling, engineering work and trains with snow-topped mountain backgrounds.

MEETING CLOSED:

at 2205 hours.

SIGNALLING ALTERATIONS

- 22.7.1987 MANGALORE GRADE CROSSING. The controlled signals were renumbered as follows:-
23/2 - MGE/2 and 23/4 - MGE/4. (A 604/87)
- 22.7.1987 LONGWOOD LOOP. The controlled signals were renumbered as follows:-
25/2 - LWD/2, 25/4 - LWD/4, 25/U4 - LWD/U4, 25/6 - LWD/6, 25/U6 - LWD/U6 and 25/8 - LWD/8. (A 604/87)
- 22.7.1987 NORTH BENDIGO JUNCTION-ELMORE-ROCHESTER-ECHUCA. The Electric Staff system was abolished and replaced by the Train Staff and Ticket system with the same sections. The Divided Staff for Epsom Racecourse in the North Bendigo Junction-Elmore section was removed and The Up and Down signals at Epsom Racecourse were abolished. (A 617/87)
- * 20.8.1987 QUYEN. A new connection from the main line to the yard was provided at the down end of the yard. The points are plunger locked and a quadrant lever fitted with an Annett Lock was provided at the points to operate the Up Home signal. A SP key operated switch was provided to work the Down Home (Light) signal on Post 6. (O 95/87)
- * 21.8.1987 MORDIALLOC. Pedestrian boom barriers were brought into service on the up side of Bear Street level crossing. The booms will work automatically for Up and Down movements.
- * 23.8.1987 JOLIMONT TO MERRI. Signalling diagram No 33'87 became effective and diagram No 13'86 is cancelled. The principle alteration is the re-signalling of the section between Clifton Hill and Merri, the style "VR" and "R" signals being replaced by style "GEC" signals.

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The down home arrival signal at Merri was replaced by permissive signal T211 but remains controlled by Merri signal box. A new permissive signal T196 was provided and existing permissive signals TS184, TS188, TS208, TS212, TS179, TS193 and TS201 were replaced insitu by the new permissive signals but the prefix for these signals is now only 'T' and not 'TS'. Permissive signal T184 is controlled from Clifton Hill "B" signal box.

- WN33/1987 EMU. A speed board was provided 1250 metres on the down side of the Up Home signal applicable to up trains. The board is painted yellow with black letters and shows "F - 60, F - 60, G - 40". (D 89/87)
- 24.8.1987 BAIRNSDALE LINE. Line closed to all traffic and shown in circular WTT 21/87.
- * 25.8.1987 SPRINGHURST. The Down and Up Distant signals, Posts 1 and 9 respectively, were converted to motor operation. (D 117/87)
- * 25.8.1987 SEYMOUR "A" BOX. The Down Home signal No U53 was converted to a controlled permissive signal No E3117. The signal is controlled by lever 53. (D 161/87)
- * WN34/1987 TRARALGON. The following track and signal alterations have been made:-
1. The centre road of Sidings "A" and the crossover to the Ballast siding has been removed.
2. No 11 double compound points have been replaced by a single turnout from No 1 Siding "A" to No 2A road.
3. No 11 points are interlocked with signals 7, 18, 19 and 24.
(D 116/87)
- * WN35/1987 NORTH BENDIGO JUNCTION-RANGELEA. The Train Staff was withdrawn for this section and this line will be worked under siding conditions.
- WN35/1987 RULES AND REGULATIONS - RULE 31 (TESTING CONTROLLED SIGNALS). Delete the above rule and insert the following as a new rule 31 on the same page:-
31. WHEN SIGNALMAN AT BOX IN ADVANCE IS NOT IN ATTENDANCE FOR FIRST TRAIN AFTER AN INTERVAL BETWEEN SHIFTS.
1) Should there be an interval between the end of one shift and the start of another at the signal box at "B", and
2) the signalman at "A" not receive an acknowledgement of the Is Line Clear? bell code, and
3) the train for which the Bell code is sent is the first train for the next shift, the following steps must be taken:-
(i) The signalman at "A", provided the "Train Arrival" bell code was received for the preceding train must:-
(a) advise the Driver and Second Person (where the train is worked by a Driver and Second Person) of the circumstances.
(b) instruct the Driver to proceed cautiously to the Home Arrival signal at the signal box at "B".
(ii) The Driver on receiving these instructions must:-
(a) proceed cautiously to the Home Arrival signal at signal box at "B",

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- (b) if that signal is at Proceed position, proceed to the platform,
 - (c) obtain written instructions from the Signaller at the signal box at "B" to proceed to the signal box at "C",
 - (d) on arrival at the signal box at "C", deliver the written instructions to the signaller,
 - (e) should the Home Signal at the signal box at "B" be at the Stop position comply with Regulation 75.
- (iii) The signaller at the signal box at "B" must upon reporting for duty:-
- (a) communicate with the signallers at the signal boxes at "A" and "C",
 - (b) obtain from the signaller at the signal box at "C" an acknowledgement of the 1s Line Clear? bell code for the train,
 - (c) place the fixed signal applicable to the train to the Proceed position,
 - (d) issue the Driver with written instructions to proceed to the signal box at "C".
- (iv) No other train must be permitted to follow until the signaller at the signal box at "A" receives the Train Arrival bell code from the signaller at the signal box at "B". (O 151/87)

WN35/1987 RECLASSIFICATION OF SIGNALS. Commencing forthwith the Starting and Advanced Starting signals at the following locations are re-classified as shown hereunder:-

NEWPORT

- Post 65 - Down Starting signal renamed Down Home signal
- Post 66 - Down Advanced Starting renamed Down Starting signal.

BELL

- Post 14 - Down Starting signal renamed Down Home signal.
- Post 16 - Down Advanced Starting renamed Down Starting signal.

KEON PARK

- Post 29 - Down Starting signal renamed Down Home signal.
- Post 32 - Down Advanced Starting renamed Down Starting signal.

HASTINGS

- Post 3 - Up Starting signal renamed Up Home signal.
- Post 1 - Up Advanced Starting signal renamed Up Home signal.

SUNBURY

- Post 4B - Up Starting signal renamed Up Home signal.
- Post 4 - Up Advanced Starting signal renamed Up Starting signal.

ELPHINSTONE

- Post 4 - Up Starting signal renamed Up Home signal.
- Post 2 - Up Advanced Starting signal renamed Up Starting signal.

BENDIGO "A" BOX

- Post 3 - Up Starting signal renamed Up Home signal.
- Post 1B - Up Advanced Starting signal renamed Up Starting signal.

BIRCHIP

- Post 3 - Up Starting signal renamed Up Home signal.
 - Post 2 - Up Advanced Starting signal renamed Up Starting signal.
- (O 121/87, O 124/87, O 2080/87)

* 31.8.1987 COPE COPE. No 2 road was abolished. Hayes type derails were provided in the siding until installation of rodded catch points. (O 136/87)

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- * 1.9.1987 WATCHEM. A signal repeater to repeat the aspect displayed on the down home signal was provided at the quadrant lever which operates that signal. (O 142/87)
- * 2.9.1987 BROADMEADOWS. A lever lock was placed on No 40 lock bar. (O 2103/87)
- * 3.9.1987 CHILTERN. a level crossing predictor was installed at Beechworth Road. Distinctive approach indicator boards shown were erected at the start of the the up and down approaches to the crossing. This will indicate that through trains are not to accelerate within the approaches. The level crossing predictor provides constant warning times for the flashing light operation irrespective of the speed of the train. (O 160/87)
- * 6.9.1987 SOMERTON. Pneumatic assistance was provided to operate No 12 points. A rotary type switch was provided on the block shelf above lever 12. (O 163/87)
- * 8.9.1987 SPENCER STREET No 1 SIGNAL BOX. A pilot lever No 19 was provided and it must be operated before operating lever No 10. (O 168/87)
- * 8.9.1987 COMENG SIDING. Whistle posts were erected at the Comeng Siding between Dandenong and Cranbourne and are located as shown hereunder:-
Down trains - at 33.215 Km.
Up trains - at 33.786 Km. (O 172/87)
- * 9.9.1987 INVERLEIGH-MARCOONA. Signalling diagram No 10'86 became effective and diagram No 26'69 is cancelled. The main line plunger locked points at the Ararat end of Marcoona were equipped with trailable point equipment and lie normally for No 1 road. The mechanical up home signal was abolished and replaced by a light signal operated from SP key operated switches at the points and on the platform. Signal repeaters were also provided at both locations. A notice board lettered "Maximum speed to crossing 35 Km/h" was installed at the Portland end of the yard. Up and Down location boards will be erected. (O 177/87)
- * 9.9.1987 CORIO. The aspects on down permissive signal G2103 was altered to display a Normal Speed Warning aspect instead of a Medium Speed Warning aspect for down trains which are required to stop at Corio. (O 178/87)
- * 10.9.1987 BOWSER. The signal box was abolished. The arms of all signals were removed and the junction points were spiked. (O 171/87)
- * 10.9.1987 BARNAWATHA. No 1 road was abolished. Nos 2, 3 and 4 roads were renumbered Nos 1, 2 and 3 respectively. Points Nos 14 and 21 were disconnected from their operating levers and spiked normal. Levers Nos 13 and 22 became Pilot Levers. The left hand arms on Posts 6 and 8 and the right hand arms on Posts 5 and 7 were removed. Levers Nos 6, 7, 14, 21, 29 and 30 were sleeved normal. Unless special instructions are issued to the contrary, two passenger trains MUST not cross at Barnawatha. Passenger trains MUST be routed through No 1 road. (O 166/87)

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- * WN36/1987 WOODEND SIGNAL BOX. Block Hours - Commencing Monday, 14.9.1987
Woodend will be switched in as under:-
Mondays-Fridays - From 0610 hours until the clearance of No 8065
each day.
Saturdays and Sundays - Closed. (O 165/87)
- * 15.9.1987 TIMBOON JUNCTION. All signalling and safeworking equipment was
removed. (O 203/87)
- * WN38/1987 RIDDELLS CREEK. The down end turnout leading from the Goods siding
to the down line has been abolished. The down arm on Post 3 has been
renamed the Down Starting signal. (O 212/87)
- * 17.9.1987 ST ARNAUD. The Turntable Road and associated Annett Lock equipment
were abolished. In addition points "G" and the Down Home signal Post
5 were also abolished. (O 214/87)
- * 25.7.1987 EPPING. The following track and signal alterations were brought into
service:-
1. The existing platform was replaced by the island platform and the
main running line was slued to the final alignment for the island
platform.
2. The points in the main line were spiked to lie for the left hand
side of the island platform and leads to the dead end extension.
3. The down home signal was relocated to the right hand line of the
new main line.
4. The platform signal quadrant lever for the Down Home signal was
relocated to a position off the down end of the new island platform.
Insert a reference on Diagram No 1'7B. (O 2010/87)
- * 27.7.1987 EPPING. The new trackwork will be brought into commission and the
existing main line removed.
- * 27.7.1987 CROXTON. The Down platform was reduced at the down end by eight
metres and the Up platform reduced by seven metres at the up end.
(O 2021/87)
- WN30/1987 SALE and STRATFORD. The composite staff exchange boxes will be in
use as under:-
FRIDAYS No 8431 Full Composite Staff.
SATURDAYS No 9430 Ticket "A" portion.
No 8412 Ticket "B" and Staff portion.
No 8407 Full Composite Staff.
No 8432 Full Composite Staff.
No 8431 Ticket "A" portion.
SUNDAY No 8481 Ticket "B" and Staff portion.
No 8494 Ticket "A" portion.
No 8496 Ticket "B" and Staff portion.
No 8487 Ticket "A" portion.
MONDAY No 9459 Ticket "B" and Staff portion.
NOTE:- SALE station is manned for all trains except for 9430 on
Friday and 9459 on Monday and the signalman will be responsible
for delivering the correct portions of the composite staff to the
other trains. (O 12/87)

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- * 29.7.1987 BEALIBA was disestablished as an electric staff station. The new sections became Dunolly-Emu-St Arnaud with a new long section Dunolly- St Arnaud. The fixed signals at Bealiba were secured in the proceed position. (O 3/87)
- WN30/1987 OPERATION OF "H" CAR SETS AND "P" LOCOS. Modifications have been carried out so that push-pull working of "H" sets may be carried out provided ONE loco is a "P" class. The other loco may be a "T" or "Y" class. The power cable is connected between the car set and the "P" class loco only. (O 5/87)
- 31.7.1987 FLINDERS STREET-ST KILDA. The overhead wiring on the St Kilda line was taken out of service. (O 2030/87)
- * 1.8.1987 FLINDERS STREET-ST KILDA. The above line was closed for passenger traffic and the Up and Down lines will be worked as sidings whilst the Special Plant trains are operating. Signal post 941 will display a Low Speed Indication only and post 951 will be secured at the Stop position. Signal posts Nos 940, 942 and 944, and points 842 will remain in service for the present. Signalling Diagram No. 4'81 is cancelled. The signal box and interlocking at St Kilda was abolished. (O 2029/87)
- * 5.8.1987 COPE COPE was disestablished as an electric staff station the new section becoming Sutherland-Donald with a new long section St Arnaud-Donald. The fixed signals at Cope Cope were secured at the reverse position. (O 50/87)
- * 5.8.1987 SHEPPARTON. The boom barriers at High Street were co-ordinated with the traffic light operation. (O 28/87)
- * 6.8.1987 LAKE BOGA. The Up Home signal "D" was abolished and the down end plunger points were converted to staff locks. On 20.8.1987 the Down Home signal "A" was abolished and the up end plunger locked points were converted to staff locks with Hayes derail and wheel crowder. (O 41/87)
- * 9.8.1987 CHELSEA. Points 11 and dwarf signal No 10 were abolished. (O 2040/87)
- * 9.8.1987 GEELONG "B" SIGNAL BOX. Siding "B" was abolished. The following alterations were brought into service:-
1. Points No 34U were abolished and replaced by catch points.
2. Points No 30 were abolished.
3. The disc signals on posts 23 and 26 were abolished.
4. The right hand disc signal on post 25 was abolished.
5. Levers Nos 32 and 42 were sleeved in the normal position.
(O 54/87)
- WN30/1987 BLENHUNTLY-MORDIALLOC. Commencing forthwith, Engineer's Diagram No 41'87 became effective and Diagram No 31'87 is cancelled. (O 2024/87)
- * 12.8.1987 BALLAN. The mechanical home signal on post 1 was abolished and

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- * 13.8.1987 MARYVALE. Boom barriers were added to the flashing lights at Tramway Road level crossing at 148.244 km. The operation of the booms will be automatic for main line moves and up siding moves, a push button has been provided for down moves on the siding. An up automatic signal No 2 and a down automatic signal, with co-acting signal, No 1, have been provided on either side of the crossing. 5P key switches have been provided clear of the approach track sections to enable these signal to be restored to stop to prevent unnecessary operation of the flashing lights during shunting movements. (D 42/76)
- * 17.8.1987 SEYMOUR "B" SIGNAL BOX. The diamond crossing over the standard gauge line near the platform was abolished. Levers Nos 4, 6, 7, 8 and 10 were sleeved normal. The right hand disc on post 18 and the right hand disc on post 22 have been abolished. (D 57/87)
- WN32/1987 ST ARNAUD-DONALD. The signalman at St Arnaud may cease duty on the departure of No 155 on Saturdays. The staff used for No 155 on Saturdays may also be used for No 9118 on Sundays without being placed through the staff instrument at Donald. (D 79/87)
- * WN32/1987 WORKING TIMETABLE GENERAL INSTRUCTIONS. Page 144 delete the whole of the instructions for locomotives assiting in the rear of trains for the following locations:-
NORTH EASTERN REGION
Seymour - Stop Board at 104 km.
Seymour - Mangalore.
Mangalore - Stop Board at 112 km.
Wangaratta - Glenrowan.
Echuca - Stop Board at Up end of Murray River Bridge.

EASTERN REGION
Traralgon - Stop Board at 158.923 km (Sale line)
Traralgon - Stop Board at 159.216 km (Maffra line)
Bairnsdale - Stop Board at 273.186 km. (D 61/87)
- * 21.9.1987 LINTON JUNCTION. A new Ballast Siding was brought into use on the down side of the Ring Road level crossing utilising a portion of the former Skipton line. A baulk has been provided 547 metres on the down side of the Ring Road level crossing and a hinged derail has also been provided on the siding 196 metres on the up side of the Ring Road level crossing. A flashing light indicator board was provided adjacent to the hinged derail. (D 207/87)
- * 23.9.1987 EAST NATIMUK. All fixed signals were removed. The plunger locks on the up and down end main line points were removed and replaced in lieu by WSA levers, hand locking bars, pins and padlocks. Scotch blocks were installed at the up and down ends of Nos 2 and 3 roads, and a location board was installed 400 metres in the up direction from the up end points. (D 221/87)
- * 25.9.1987 WARRENHEIP. The Down Distant signal Post 1 (Geelong line) was relocated 496 metres in the up direction. (D 230/87)

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- * 28.9.1987 ROCKBANK. Flashing lights were brought into use at Troupe's Road level crossing at 27.819 km on the down side of Rockbank station. (O 234/87)
- * 28.9.1987 GOLDEN SQUARE. The signal box was abolished and Golden Square was closed as a Switching Block Post. All signals with the exception of the Up Starting signal for Bendigo "A" Box on Post 1B were abolished. The Annett Lock on the down facing points was removed and all points were spiked normal for removal at a later date. (O 232/87)
- * 29.9.1987 DONALD. The BP and MOBil Oil Company's siding was abolished. The points and associated staff lock were removed. (O 248/87)
- * 30.9.1987 FLINDERS STREET. The following alterations were carried out:-
1. Dwarf signal 942 and points 842 were abolished.
2. Signal 951 is permanently secured at Stop.
3. Points 844 were spiked Normal.
4. All trackwork on the down side of signal post 944 was removed. (O 2151/87)
- * 2.10/1987 KANGAROO FLAT was closed as a Double Line Block Post and all signals were removed. The points were spiked normal and will be removed at a later date. (O 236/87)
- * 2.10.1987 NORTHCOTE. Crossover No 11 was abolished and lever No 11 was sleeved normal. (O 2155/87)
- * 3.10.1987 SOMERTON. No 16 points were renewed in situ. In addition pneumatic assistance was provided to operate the points. (O 260/87)
- * WN39/1987 STRATFORD. No 2 road was abolished. Nos 3 and 4 roads were renumbered Nos 2 and 3 respectively. The Hayes derrails at either end of No 3 road were removed and the points at each end of No 3 road will be secured by hand locking Bars for No 2 road. (O 254/87)
- * 4.10.1987 MERRI-NORTHCOTE-THORNBURY. Signalling Diagrams Nos 37'87 (Jolimont-Merri) and 39'87 (Northcote-Epping) became effective and diagrams Nos 33'87 (Jolimont-Merri) and 1'78 (Northcote-Epping) were cancelled. The alterations were as follows:-
1. The Double Line Block system between Merri and Thornbury was abolished and replaced by three position signalling.
2. The two position signals at Merri and Northcote were removed and Post 4 at Thornbury was converted to a two position light signal.
3. Automatic signals T222, T229, T240, T249, T252, T259, T266, T271, T280, T285 were brought into service.
4. The lever control of T211 at Merri was abolished.
5. The following signals are controlled as shown:-
T219 and T222 by Merri signal box.
T249 and T252 by Northcote signal box.
T259 and T266 by Gatekeeper Beavers Road.
T271 and T280 by Gatekeeper Woolton Avenue.
T285 and Post 4 by Gatekeeper Normanby Road. (O 2156/87)
- * 7.10.1987 MELTON. The Up Distant signal Post 8 will be converted to a light signal and fixed at caution. (O 240/87)

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The following article has been published in order that members will gain an idea of the enormous changes that are to be made to the Mildura line over the next couple of years. The line as we know it is changing, a lot of it has already changed.

CANAC - AN OVERVIEW

Grain traffic has for many years been a major contribution to Victorian rail revenue and for some time, as re-organisation of the Victorian Railways proceeded, plans were being formulated and steps were being taken to improve the grain handling procedures in order to reduce costs.

A team of consultants was engaged to advise the Government on ways and means of improving grain handling methods. The consultants engaged were CANAC Consultants of Montreal, Canada, the consulting arm of the Canadian National Railways. Their report was submitted in September 1984.

The main recommendations were:-

1. Extend the Central Receiving Point concept to 29 locations over five years.
2. Operate dedicated grain block trains of 48 VHGW wagons to Portland and Geelong.
3. Increase the fleet of bogie hopper wagons, and phase out the use of four wheel wagons.
4. Alter grain rating structures to reflect bulk handling rather than small wagon lots.
5. Modify barley receiving locations to permit the operations of block trains.
6. "Light Lines" - retain Springhurst-Wahgunyah as is, and retain and relay Swan Hill-Piangil. Close all other grain light lines - 604 km.
7. Replace the Echuca rail bridge.
8. Defer reconstruction of the Tocumwal bridge until the future of border grain is resolved.
9. No new rail routes be established (i.e. Minyip-Litchfield)
10. Phase out Inland storage (Marmalake and Dunolly) and double handling.
11. Upgrading of certain G.E.B. facilities.

A "Grain Handling Review Committee" was set up in early 1985 to review the recommendations of the CANAC Consultants and advise how much of the report should be adopted, and a timetable of implementation.

At the time of this review, actions already being undertaken included:-

1. Re-construction of the Ararat-Portland line, substantially in place.
2. Rolling stock improvements - an on going programme.
3. Skipton branch line assessment.
4. Central Receiving Points, 21 agreed to, and already developed, and a start on a further 29.
5. Rail improvements at Portland and Geelong.

CENTRAL RECEIVAL POINTS

The Central Receival Point system provides for the establishment of large grain receival points at selected locations. CRPs are to have a high outload rate wherever possible and be capable of handling the loading of up to 20 VHGY wagons at any one placement. They are to be open to receive grain for at least 12 hours per day and to outload at any time in a 24 hour period.

Other grain silo stations are designated as "Fill and Close" silos.

During the harvest period, grain is delivered to both the "Fill and Close" and CRP silos, but rail outloading only takes place at CRP locations.

When a "Fill and Close" silo becomes full, it is closed and excess grain from the area is trucked by the growers to the designated CRP. It is guaranteed that grain can always be delivered to a CRP. Railoutloading at CRPs during the harvest period must be regulated to ensure that the CRP can always accept grain from the growers.

During the harvest period, grain block trains are scheduled to clear grain from up to three or four CRP locations on each trip in order to ensure the highest possible utilisation of wagons and locomotives. Limited shunts and fast turnaround with blocks of up to 20 wagons supplied to each CRP.

During the "post harvest" period grain will be cleared from both CRP and Fill and Close locations as required with the grain block trains terminating each trip in the main at a CRP where the train will wait to load the wagons before commencing the return journey.

Each grain block train will return to the sea port terminal with the same wagons which made up the train on the outwards journey.

At many CRPs, the outload rate is in excess of 450 tonnes per hour, so that a 20 VHGY vehicle block can be loaded in 2.5 hours. Some selected CRPs which currently have a slow outload rate, will over a period of time have the outload rates increased as GEB funds become available. The overall time to load a given rake of wagons at a terminal location is considerably improved by utilising the locomotives to assist with the loading operations.

At the time of the CANAC report, reconstruction of the Ararat to Portland line, with longer, more evenly spaced crossing loops, heavier rail and increased ballast, was substantially complete.

Orders for a further supply of VHGY wagons were in hand, as also were orders for new "G" class locomotives, and work at some CRP silo sidings was in hand or had been completed.

Further decisions of the Grain Handling Review Committee included:-

1. Retain and relay the Shepparton-Dookie line.
2. Retain and relay the Mildura-Yelta line.
3. Retain and upgrade the Manangatang-Robinvale line.
4. Replace the Murray River bridge at Echuca with a new rail bridge.
5. Carry out a detailed study of the lines comprising the Geelong grain network to determine a programme for upgrading.

Normally, some 60% of the total Victorian grain harvest is trucked to Geelong, the remaining 40% being forwarded to Portland, this generally being the extent of the harvest in the Wimmeria area.

Of the total volume flowing to Geelong, 75% moves through Maryborough, the remaining 25% is derived from the North East, moving through Seymour.

A detailed study of "G" class locomotives performance on the line between Donald and Warrenheip showed that the optimum load for two "G" class locomotives to be 3080 tonnes or 40 VHGY wagons.

As the greatest Geelong grain volume flows over the Donald-Maryborough-Warrenheip line, this then dictates the standard load for the

Geelong network grain trains to avoid shunting to increase or decrease train lengths at Geelong.

Having ascertained the optimum train size, a study of available crossing facilities showed that with the exception of the double track section between Warrenheip and North Ballarat, no crossing loop existed of sufficient length to accommodate a 40 VHGY vehicle block train on the Geelong-Mildura line.

It was decided that the standard length for crossing loops for the Geelong grain network should be 850 metres, comprising 760 metres clear standing length, and 90 metres for safe working overrun for possible future installation of an updated safeworking system to replace the Electric Staff system.

A grain block train consisting of 40 VHGY wagons and two locomotives, "B" class, measures 640 metres in length. It will be seen that there is some room for increased train loads in the future if more powerful locomotives become available.

It was realised there was an urgent need to upgrade crossing facilities on the Geelong-Mildura line, as well as some need on other lines comprising the Geelong grain network.

It was also determined that most CRP locations would need to have trackwork upgraded, either due to the sidings being too short, in poor condition, or consisting of light rail no longer suitable for "B" class locomotives and heavy bogie wagons.

The crossing loops on the Mildura line, as well as being too small in all cases, in some cases far too small, were either not spaced to the best advantage for present day train operations, or were in locations which would be difficult, very costly, or almost impossible to extend to the optimum desired length.

In determining the location and spacing of crossing loops, it was decided that wherever possible, crossing loops should be located at stations which were designated as CRPs. There are nine CRPs on the Mildura line.

A complete program was compiled of requirements for rolling stock, trackwork and infrastructure and costed out for funding approval.

The total CANAC Project budget is in the order of \$140m:-

	(\$m)	
VHGY wagons	22.6	(Total fleet of 700 VHGY wagons)
Locomotives	44.3	("B" class)
Sidings	9.5	
Line Upgrades	32.5	
Echuca Bridge project	11.6	
Other	19.8	

Total	140.3	
	=====	

The optimum number of crossing loops considered necessary for any given length of line was determined by taking the results of sectional running times between crossing loops and comparing the results with possible different configurations of loops.

The criteria aimed at was a crossing loop configuration over a given section of line resulting in a less than 60% line occupancy, this being considered the maximum figure which would allow reasonable flexibility of train operations.

Other factors considered included future traffic projections, peak seasonal traffic the daily peak period of normal traffic, and the amount of shunting which could occur at intermediate sidings.

The North Geelong to Mildura line had 27 crossing loops, of which four - Emu, Sutherland, Litchfield and Curyo, were switching Electric Staff stations, in recent years switched in only infrequently.

The final configuration of crossing loops between North Geelong and Mildura provides for 23 crossing loops, a reduction of four.

The details are as follows:-

NORTH GEELONG - WARRENHEIP

The four existing crossing loops are to be retained to allow sufficient flexibility for high speed train operations, (Passenger trains at 115 kph), particularly as this line has surges of traffic due to re-routing of trains at times. A not infrequent occurrence.

1. GHERINGHAP. "A" Siding, the up end refuge siding, is extended by 110 metres to 800 metres in length.
2. LETHBRIDGE to be extended at the down end to 850 metres clear length. This proposal is subject to further investigations.
3. MEREDITH to be extended at the down end to 920 metres clear length, longer than the standard length due to the need to move the down end points further out so they would not be in the curve at this location.
4. LAL LAL to be extended in the up direction to 850 metres clear length.

NORTH BALLARAT-MARYBOROUGH

This section of line, although not steeply graded, has frequent changes of grade, many curves and level crossings. It was decided that three loops, the number now existing, would be needed, however, they should be spaced differently to gain more equal sectional times.

The existing crossing loops at both Creswick and Clunes are very short, particularly that at Creswick, and could not be readily improved or extended due to the presence of level crossings and grades at each end.

It was also considered desirable to locate a loop close to Ballarat where a train could be held clear of the main line if the Warrenheip-North Ballarat area was blocked by other train movements.

The arrangements will be as follows:-

1. SULKY LOOP. A new loop six kilometres on the down side of Ballarat North Junction, at 128 km, actually at the site of the former Waubra Junction. It takes its name from the former station named Sulky not far in the down direction from the new loop site. The safeworking cabin will be located only a few metres from the Waubra Junction signal box site.
2. CRESWICK will be disestablished as a crossing loop and all sidings disconnected when Sulky Loop is commissioned.
3. TOURELLO LOOP. A new loop at 149 km between Creswick and Clunes, at the site of a former station of that name. One of the few locations suitable for a long loop in the immediate area of Clunes, and located some six kilometres in the up direction.
4. CLUNES will be disestablished as a crossing loop and all sidings disconnected when Tourello Loop is commissioned.
5. TALBOT to be retained as crossing loop and extended at the down end to 850 metres clear standing. This will involve relocation of a level crossing.
6. MARYBOROUGH to be retained as a crossing station. The trackwork at the down end of the yard is to be altered by re-arranging the junction for the Castlemaine line and the connections to the former locomotive depot sidings. Nos 2 and 3 roads will gain length to approximately 930 metres clear standing.

MARYBOROUGH-DONALD

Again a section of railway "blessed" with frequent changes of gradient, level crossings, bridges and curves. The six existing loops will be reduced to four.

1. DUNOLLY to be retained as a crossing loop and to be extended at the up end to approx. 810 metres, the maximum available between the creek bridge at the up end and the level crossing at the down end.

The connection to the down side grain loading complex will be altered. This location is a CRP. The junction arrangements for the Inglewood line will remain the same as at present.

2. REALIBA closed as a crossing loop on 29 July 1987, however, No 2 road is to be retained for the present. Bridges and level crossings at each end of the yard would have rendered extension difficult.

3. EMU was made available as a permanent crossing loop on 29 July 1987 and No 2 road was extended at the down end to 850 metres. It is now a switching electric staff station in the Dunolly-St Arnaud through section.

4. ST ARNAUD will be disestablished as a crossing station at a later date but will be retained for the present. It is a CRP location. The yard trackwork will be modified later as the project progresses.

5. SUTHERLAND was made available as a permanent crossing loop on 5 August 1987 and No 2 road was extended at the up end to 980 metres in length. This length is provided in case 50 vehicle block grain trains in the Portland network are diverted into the Geelong network for interzonal grain movement. Sutherland is a switching electric staff station in the St Arnaud-Donald through section.

6. COPE COPE was closed as a crossing station on 5 August 1987. Level crossings at both ends would render it difficult to extend the crossing loop. No 2 and 3 roads have been removed and the rail used elsewhere. The curve which placed a severe speed restriction through this station has been eased out and the speed increased.

7. DONALD The existing crossing loop is short and confined by busy level crossings at both ends of this station yard. Donald is a CRP.

A new crossing loop is being provided on the upside between the Campbell Street and Sunraysia Highway level crossings, providing 700 metres clear length.

A new connection will be provided to the grain Sub-Terminal for loading, suitably graded to allow for loading without locomotive assistance when necessary.

Donald station passenger platform will then be located on the single line section Donald-Watchem when the alterations are carried out.

DONALD-QUYEN

This section of line has much easier grades, in fact, hardly any at all and in the main, not a great deal of curvature or other restrictions.

There are no less than 15 intermediate stations, all possessing grain silos, many of which have considerable capacity. It includes four CRPs at Watchem, Birchip, Woomelang and Speed, so the decision was to retain all of these as crossing loops.

The former switching electric staff stations at Litchfield and Curyo have been disestablished as crossing loops.

1. WATCHEM has now been extended (July 1987) to provide a crossing loop of 960 metres in length, and the silo siding extended and graded to accommodate 15 VHGY wagons as a stage 1 development. Stage 2 would see the silo siding extended to accommodate 20 VHGY wagons (if the Grain Elevators Board at some time in the future provide additional silo facilities).

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2. BIRCHIP is to be extended to provide a crossing loop 850 metres in length by moving the up end main line connection in the down direction, clear of the passenger platform, and providing a new down end connection further out in the down direction.

The CRP silo siding (the upside installation) is being extended to accommodate 15 VHGY wagons (as a stage 1 development) and regraded. A stage 2 proposal is to further extend the CRP silo siding to 20 VHGY wagons (if the GER provide additional silo facilities).

The passenger platform will be located on the single line in the Watchem-Birchip section.

3. WOOMELANG. The crossing loop at this location, 570 metres clear, is considered of sufficient length for the time being. It would be only on rare occasions that more than one 40 vehicle grain block train would operate with a full load beyond Birchip on any one day.

The silo siding has been extended and graded to accommodate 20 VHGY wagons serving the new Jumbo silo.

4. SPEED. Again, the crossing loop is considered of sufficient length for the present, at 650 metres. The silo siding has been extended and graded to accommodate 20 VHGY wagons.

5. QUYEN to be retained as a crossing station. The crossing loop was extended to 890 metres in August 1987. The CRP silo sidings were extended to accommodate 22 VHGY wagons serving the new Jumbo silo in November 1986.

Modifications to the trackwork at the up end of the yard at Quyen later in 1987 will provide for the Pinnaroo line to junction from No 2 road, and the main line points at the up end moved out in the up direction over the highway level crossing, which will have the effect of providing about 930 metres clear standing room in the crossing loop. This work is not part of the CANAC scheme.

QUYEN-REDCLIFFS

Consideration was given to providing a new crossing loop about mid-way between Quyen and Redcliffs, however, Carwarp was designated as a CRP, so this station had the crossing loop extended to 540 metres length, with the possibility of extending to 640 metres at a later stage. The silo siding has been extended to accommodate 20 VHGY wagons and regraded.

REDCLIFFS-MILDURA

There are no plans to alter Redcliffs or Mildura under the CANAC scheme. A proposal for the closure of Irymple station as a crossing loop have been developed but this will not be part of the CANAC project.

On other lines, which, with the Mildura line, form the Geelong grain network, some extension and re-construction work has, or will, be undertaken.

KORONG VALE - reconstruct and extend an existing siding.

WALLAN - Reconstruct and extend an upside refuge siding.

BROADFORD - Reconstruct and extend the down side refuge siding.

MURCHISON EAST - Extend the crossing loop to 850 metres.

All Central Receiving Points have been studied and plans developed for improvements to siding facilities.

Other than those already listed on the Mildura line, details are as follows:-

BRIDGEWATER - Siding upgraded and extended before the CANAC report.

Silo complex in November 1986 with a capacity of 20 VHGY wagons.

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WYCHEPROOF - siding to be regraded and extended (Sub-Terminal)
BERRIWILLOCK - No work required at this Sub Terminal.
QUAMBATOOK - Sidings to be altered and regraded.
BOORT - No work required at this Sub Terminal.
ULTIMA - Minor upgrade work.
MANANGATANG - Silo siding to be extended and graded.
ROBINVALE - Silo siding to be extended and yard trackwork upgraded.
TANDARRA - Siding to be reconditioned and regraded.
MITIAMO - Siding was reconstructed, extended and regraded to serve a new Jumbo silo complex in November 1986.
KERANG - Silo siding to be reconstructed and regraded and extended.
SWAN HILL - No work required.
NYAH WEST - Silo siding reconstructed, extended and regraded in November 1986.
PIANGIL - Silo siding reconstructed, extended and regraded in November 1986.
GOORNONG - Silo siding to receive some attention.
ELMORE - Silo siding was extended and regraded in 1986. Further regrading to be undertaken.

ECHUCA - Silo siding to receive some attention.
DENILIQVIN - Silo siding to be reconstructed and graded.
BUNNALOO - Silo siding to be reconstructed and graded.
MURCHISON EAST - Silo siding extended and regraded in November 1986.
KATUNGA - Silo siding to be extended and regraded.
DOOKIE - Sub Terminal siding to be converted from a dead end to a loop siding and the yard trackwork altered.
YARRAWONGA - Silo siding to be extended and graded, and yard track altered.
OAKLANDS - Silo siding to be extended and graded, and yard track altered.
RUTHERGLEN - Silo siding and yard trackwork to be reconstructed.
UNDERBOOL - Silo siding to be extended and reconstructed.
MURRAYVILLE - Silo siding to be extended and reconstructed.
YELTA - Silo siding to be extended and regraded.

Other siding work is to be undertaken at CRP locations in the Portland network, including Murtoa, Jeparit, Hopetoun, East Natimuk and Dimboola.

OTHER ARRANGEMENTS

Between Gheringhap and Warrenheip, the main line points at crossing loops will be high speed turnouts. Between North Ballarat and Redcliffs, with the exception of Maryborough and Ouyen, all main line points at crossing loops are being upgraded and will later become Trailable Facing Points. All up trains will run through the straight road at crossing loops, while all down trains will take the diverging road, regardless of which side of the main line the loop is located.

In this way, crossing loops on the Mildura line have been planned to enable easy integration and use of a possible upgraded safeworking system to replace the existing electric staff working in the future.

The CANAC programme also involves the rebuilding of the following branch lines to allow the use of VHGY wagons and "G" class locomotives.

1. Woorinen-Piangil completed in November 1986.
2. Shepparton-Dookie completed in October 1987.
3. Horsham-East Natimuk
4. Mildura-Yelta
5. Manangatang-Robinvale upgrade only (not to be relaid)

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Branch lines to close under the CANAC scheme are:-

1. Jeparit-Yanac closed
2. Bowser-Peechelba East closed
3. Lubeck-Bolangum closed
4. East Natimuk-Noradjuha closed
5. East Natimuk-Carpolac closed
6. Redcliffs-Meringur

These works, together with the construction of a new rail bridge over the Murray River at Echuca, will allow elimination of the four wheel GH hopper wagons from grain traffic. In this respect, a decision as to the eventual action to be taken with the Murray River bridge at Tocumwal has yet to be decided.

As a result of other upgrading programs, the CRP silo sidings have been upgraded at Warracknabeal Sub Terminal, Hopetoun, Nhill, Kaniva and Glenorchy, while some other upgrade work may be undertaken at the Beulah Sub Terminal.

At a later stage, some extension work could be undertaken at a small number of "Fill and Close" locations, which have a significant silo capacity and harvest yield but are served by short silo sidings.

Where other upgrading or rationalisation projects are proposed or planned although outside the scope of the CANAC planning or funding, account is being taken of the requirements of the CANAC programme, particularly as far as siding lengths are concerned, suitable for 40 or 50 VHG vehicle grain block trains.

As at the time of writing, the CANAC programme is on time and spending so far is within budget. The target date for completion of the programme is December 1989. Works so far completed, or well advanced in the CANAC programme:-

1. Rebuilding of the Woorinen-Piangil line, official reopening 17 December 1986.
2. Rebuilding of the Shepparton-Dookie line, scheduled to be completed in October 1987. (official reopening 1 November 1987?)
3. Gheringhap - Siding "A" extension commissioned.
4. Meredith - loop extension, scheduled to be completed in November 1987.
5. Tourello Loop - scheduled to be completed in November 1987.
6. Emu Loop - loop extended 23 July 1987.
7. Sutherland Loop - loop extended 5 August 1987.
8. Watchem - extended loop commissioned 20 August 1987.
9. Carwarp - extended loop commissioned 25 June 1987.
10. Ouyen - extended loop commissioned 20 August 1987.
11. Sulky and Birchip - earthworks for new loops commenced.

CRP siding works have been completed at Ouyen, Carwarp, Speed, Woomelang, Charlton, Mitiamo, Murchison East, Elmore, Nyah West and Piangil.

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WOODEND - BANK ENGINE INSTRUCTIONS

1. An Up Goods train with a load exceeding that for a single engine may be assisted by an engine in the rear from Woodend towards Macedon as far as the STOP BOARD at 46 miles 25 chains.
2. To safeguard the operation, an Annett Key is provided on the Interlocking Frame at Woodend and during the absence of the key from the Lock, the Cross-locked Crossover points at the Up end of the station, the INTERlocked crossover from down to up line at the down end of station, the points leading from Siding "C" to the Up line and the Home signal on post 11B will be secured in the Normal position.
3. Before the train proceeds on its journey, the signalman must withdraw the Annett Key from the Lock and hand it to the Driver of the Bank Engine. This will authorise the Driver of the Bank Engine to assist the train as far as the STOP BOARD and return to Woodend, but the Driver on the return must bring the Engine to a stand clear of all points and crossings, and must not proceed further until verbally instructed to do so by the signalman.
4. The Guard of the train to be assisted must inform the Driver of the train engine that there will be a Bank Engine in the rear, and the Driver of the Bank Engine, when ready to start, and is in possession of the Annett Key, must give three whistles-one long, one short and one long-and the Driver of the Train Engine must not proceed until this intimation has been given and the Whistle Signals referred to in Regulation 173 have been exchanged.
5. After the Up train with the Bank Engine has started from the Station, the Signalman at Woodend must not accept the "Is Line Clear" signal for a following Up train, nor permit any conflicting movement until the Bank Engine has returned and has been dealt with in accordance with the rules.
6. (a) If the Bank Engine fail when assisting, and it becomes necessary to divide the train, the Driver of the Train Engine must return from Macedon or Gisborne (whichever is the next Block Post) for the rear portion of the train on the WRONG LINE, in accordance with Regulation 243, but, before the Train Engine leaves with the first portion, the Driver of the Bank Engine must endorse the Guard's Wrong Line Order, to the effect that he will not move the rear portion of the train. Detonators must be placed upon the Line about 200 yards from the front vehicle of the rear portion, in accordance with clause (d) of Regulation 243.
(b) As soon as possible after the failure, the Driver of the disabled Bank Engine must hand the Annett Key to the Fireman with instructions, whereupon relief must be arranged and a relief engine allowed to enter the section under the following arrangements:-
 - (i) The Driver of the Relief Engine must be in possession of the Annett Key which must be handed to him, in the presence of the signalman, by the Fireman of the disabled Engine. The Fireman must accompany the Relief Engine back to the place where he left his own engine.
 - (ii) The Driver of the Relief Engine must retain possession of the Annett Key until he returns with the disabled Engine to Woodend.
- (c) When proceeding to Woodend for assistance, the Fireman of the disabled Engine must place detonators upon the Line in accordance with Regulation 239. If the disabled Engine returns to Woodend before the Train Engine has returned for the rear portion of the train, the Guard must, continue to protect the train in accordance with the Regulations.
7. Should the Bank Engine fail when returning from the STOP BOARD, the Driver and Fireman must comply with paragraphs (b) and (c) of clause 6.
8. When assisting from Woodend to the STOP BOARD, the Bank Engine need not be coupled to the train.

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TRAIN ORDERS TO REPLACE 100-YEAR OLD TRAIN STAFFS
(from "The Monthly News" - Westrail, November 1986)

The system of controlling trains, known as train orders, is about to come to Westrail. It will mean the beginning of the end for the system of train staffs, the standard method of safeworking on single tracks for over 100 years.

Train Orders will do away with the need for train crews to stop and collect staffs at the beginning of each section of track. Instead, the crews will receive instructions that are good for entire journeys including crossing of other trains.

The changeover to the new system will be made gradually. It is proposed to introduce train orders early next year in the lower South West between Picton Junction and Pemberton, including the branch lines to Wonnerup and Boyup Brook. Orders will at first be passed to train crews "manually" either by telephone or by written instructions on standard forms.

The existing electric staff system between Picton Junction and Lambert will be withdrawn and the movement of all trains (and the larger Civil Engineering track machines) will be regulated by train orders issued by the Train Controllers at Picton.

Existing staff stations such as Kirup and Greenbushes will become Train Order Crossing Stations. Stations such as Palgarup and Yornup, which do not have crossing facilities but do have telephone communications with Picton Control, will become Train Order Non-Crossing Stations.

The long awaited change to Train Orders has allowed alterations to the Safeworking Rule Book to be made and training of staff to begin. New trackside signage is also being produced.

Operationally, the change has been made possible by the decline in the number of train crossings, the increase in the length of sections, and therefore, the decline in the need for retaining and maintaining the existing staff equipment.

The benefits of Train Orders will be felt immediately. The new high capacity wagons worked in unit trains will be operated much more efficiently, with fewer costly stops and faster turnaround.

However, the full potential for train orders will be seen when radion communications are improved to allow instructions to be passed to train crews on the move.

A complete Great Southern radio network based on microwave links to wayside stations is now being evaluated, and could form the basis for this ultimate development of train orders.

This is what a train order might look like (diagram).

It will either be handed directly to a member of the train crew, or dictated by phone to him. The contents of the order is the responsibility of the Train Controller working from a standard train control diagram. It is the Train Controller therefore who is accountable for the safe passage of the trains.

The system of train orders allows up to about 10 trains a day to be worked on a single track railway, so it is ideal for much of the Westrail system.

---oDo---

S.R.S.V. CROSSWORD No 21
compiled by Stephen McLean

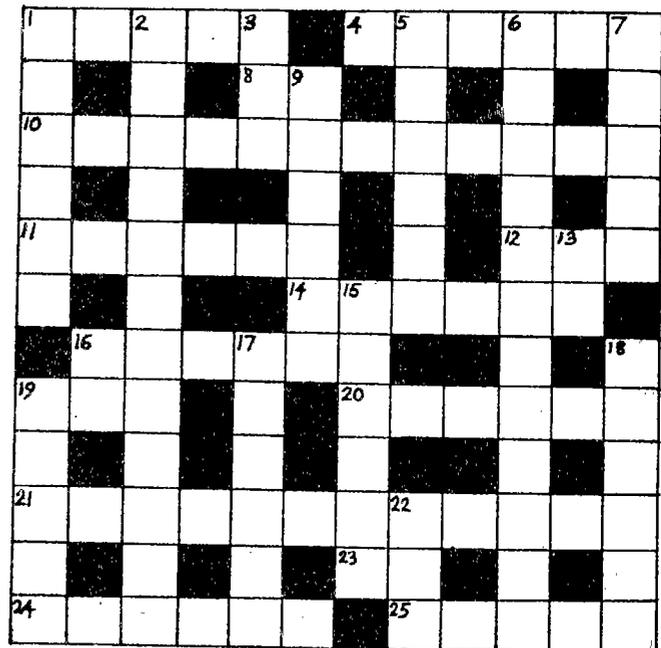
(This time the compiler has produced a symmetrical crossword, so that readers are not inconvenienced should the editor accidentally publish the diagram upside down).

ACROSS

1. Men park around this turning facility in NSW (5)
4. Firm line adopted by French carriage builders (6)
8. The gauge of the railway in New Cross Gate (2)
10. The sort of run you can no longer experience between Warragul and Traralgon (12)
11. Acted foolishly, having started to uncouple (6)
12. Have a meal break in Heathcote (3)
14. As S is too weak, help by reducing by 50% (6)
16. Call again at Furlong (Ginifer) (6)
19. Abbreviation of station name formed by not putting the end on (3)
20. Station right in the south? The truth is a little different (6)
21. Not the ordinary route from Flinders Street to Richmond Junction (7,5)
23. An extremely economic service? Hardly! (2)
24. Dug up the garden to put in a signal (6)
25. Pounds the railcar back on the Brighton Line (5)

DOWN

1. Alters the WTT at midday (6)
2. Oddly enough, NER gets water from another company (7,5)
3. One of the "gares" to be found in Paris (3)
5. Bids for line clear? (6)
6. Special to be arranged; rings the terminus (5,7)
7. Not a heavy signal (5)
9. He is found at the end of double line (6)



13. Down to the exact point where we are (2)
15. Get comfortable on the line from Leeds to Carlisle (6)
16. Buffet car among the worst! (2)
17. Get to where I've sat under a railroad (6)
18. A petrol station? (6)
19. Started early and slowed engine deliberately (6)
22. Shunts off second and fourth from the local - a feature of a system which hasn't yet gone in for block trains or container traffic (3)

Answers to Crossword No 20.

ACROSS: 1. Abt, 3. Pump, 7. JLB, 10. BA, 11. Panel, 12. OL, 13. Yanni, 14. Avoca, 16. Toot, 18. Pan, 19. Beaconsfield, 20. US, 21. CPR, 23. NR, 24. Galvanometer, 25. Rockhampton, 28. Ki, 29. NER, 31. East Hills, 32. WC.
DOWN: 1. AB, 2. Bayles, 3. Pantograph, 4. Union, 5. ME, 6. Platform, 8. Local, 9. Blandford, 11. PN, 15. Operation, 17. OS, 19. Bungaree, 21. Clocks, 22. PV, 23. Normal, 26. Kit, 27 New, 30 RC.

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