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Deadline for September 1987 issue is 22 Aug 1987.
NEXT MEETING: Friday, 17 May 1987.
VENUE: A.R.H.S. Library Room, Windsor Rly Station.

MINUTES OF MAY 1987 MEETING

HELD AT: A.R.H.S. Library Room, Windsor Railway Station on Friday 15 May 1987.

MEETING COMMENCED: at 2000 hours.

PRESENT: Alan Jungwirth, Jon Churchward, Wilfrid Brook, Keith Lambert, Roger Jeffries, Colin Rutledge, Brad Wooding, Bob Whitehead, Andrew Waugh, John Sinnatt, Jim Brough, Phillip Miller, Stephen McLean.

APOLOGY: Jack McLean.

MINUTES OF PREVIOUS MEETING: Adopted as read (Churchward/Waugh)

BUSINESS ARISING: Nil

CORRESPONDENCE: A phone call from David Langley
(a) explained his absence due to illness
(b) apologised for putting the wrong diagram in for the crossword in the REPRINTED January issue of SOMERSAULT. (The correct diagram is in the FIRST edition of the January issue of SOMERSAULT-Ed.)
(c) apologised for the transposition of pp 37 and 38 in the March issue.

Stephen McLean also pointed out an error in the crosswords - in No 19, clue 30 down is a 4-letter word, and one of the black squares should be white.

TABLED: Article from New Scientist explaining why our trains run on the left hand track on double lines. (from R.Whitehead)

CONGRATULATIONS: from R.Whitehead to G.Cumming for his article on the Camberwell line.

QUESTIONS AND ANSWERS: 1. Is the control for Ararat-Wolseley CTC in West Tower?
a) A signalman in West Tower works it. The train controller in Transport House has an identical panel in front of him.

2. Does a driver need the permission of Train Control before passing a red automatic signal?
a) Yes on CTC (e.g. Barnawatha SG).
No on non-CTC (e.g. Officer).

3. Are V/Line and Met radios on the same frequency?
a) No.

4. On Easter Monday, the special Stawell train terminated at Stawell, not at Deep Lead Loop as scheduled. On departure from Stawell it stopped at all automatic signals to Great Western Loop. Should this have happened?
a) Opinion was divided, although most thought it should not have. If something had failed, the same set of circumstances may occur only once a year. The discussion led to an explanation by C.Rutledge of the difference between a 2-wire and 4-wire system.

NEWS: 1. Extended loops at Emu (end of May) and Bealiba closed, Sutherland (end of June) and Cope Cope closed. The points will be suitable for trailable operation and there will be a through straight road.

2. MORDIALLOC. The mechanical signalling has been replaced by power signalling. For a period of three days there was "radio interlocking" between the power panel and the mechanical gate wheel.

3. TALLAROOK and DYSART signal boxes are closed, although Dysart remains as a temporary relay room. The block section is Broadford-Seymour "A". Some of the automatic signals have been placed out of use.

4. A new panel is in use at Glenhuntly.

5. Crib Point is to be closed as a staff station.

6. Two-position light signals are in use at Sale.

SYLLABUS ITEM: John Sinnatt presented the fourth part of his treatise on level crossing protection, this time dealing with flashing lights at (mainly) non-interlocked stations on single lines.

MEETING CLOSED: at 2240 hours.

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SIGNALLING ALTERATIONS

6.4.1987 WERRIBEE. Guard's Indicating Lights for Up Home signal No 12 were provided. (A 2198/87)

10.4.1987 GARDINER. Signalling Diagram No 19'87 (Heyington-Glen Waverley) became effective and diagram No 23'86 is cancelled. The tramway square was relocated to the centre of the Burke Road dual carriage way. The tramway catch points are now electrically operated and the tramway discs were replaced by light signals. Boom barriers are provided across both tram tracks. (A 2197/87)

12.4.1987 FRANKSTON. The following alterations became effective:
1. Down Home signal Post 18 was abolished.
2. The left hand arm on the Up Home signal Post 19 was abolished.
3. A baulk was placed across the rails two metres on the down side of the platform in No 1 road. (A 2203/87)

12.4.1987 MELTON. No 9 points and No 8 Lockbar were abolished. Levers Nos 8 and 9 were sleeved normal. (A 243/87)

14.4.1987 EAGLEHAWK-DINGEE-PYRAMID-KERANG. The Electric Staff system on the above sections was abolished and replaced by the Train Staff and Ticket system on the same sections. The Miniature Electric Staff Locks at Raywood and Tandarra were replaced by large type staff locks. (A 264/87)

25.4.1987 SPRINGVALE. The boom barriers were converted to automatic operation. Trains may be held at Home signals Nos 38 and 46 without activating the boom barriers. Switching facilities were provided and illuminated letter "A" lights were provided on posts 38, 46, 54 and 60. A 5P key switch was provided at Sandown Park to hold signal D780 at the stop position should a train be held longer than normal and Springvale is switched OUT. The signalman must switch Westall out before switching Springvale out. (A 2216/87)

26.4.1987 GLEN IRIS. High Street level crossing was relocated 15 metres in the down direction. (A 2218/87)

29.4.1987 TULLAMARINE LOOP. The up Home Arrival signal No 6/8 was renumbered TME 8. (A 316/87).

3.5.1987 BELL. The down line between 11.843Km and 12.093Km was slued onto a new alignment and a turnout placed at 11.898Km spiked for main line running. The realigned curve has a speed limit of 70 Km/h.

3.5.1987 TALLAROOK AND DYSART. The signal boxes at Tallarook and Dysart were abolished. The following alterations were carried out:-
1. The automatic signalling between Tallarook and Dysart, and Dysart and Seymour "A" Box was abolished and replaced with the Double Line Block Telegraph system. The Broadford instrument at Tallarook was relocated to the block shelf in Seymour "A" Box. The Train Description Bells were removed and the line utilised for the block circuit.
2. The points and signals at Tallarook, and the points and signals at Dysart associated with the Defence Departments siding, were abolished.

3. Automatic signals E3048 and E3116 had their lights extinguished and are crossed in accordance with Regulation 91.
4. Automatic signal E3047 was converted to a Repeating Light signal.
5. Signal post Nos 2, 9 and 7 at Dysart were renumbered 47, U53 and 53 respectively.
6. MODIFICATION TO BLOCK RULE 4-At Seymour "A" Box, the "Is Line Clear" signal may be accepted for Down trains provided the line is clear to Post 53.
NOTE:- Up trains waiting "Line Clear" should be held at Post 46.
Signalling diagram No 16'61 (Tallarook) is cancelled and diagram No 4'78 (Dysart-Seymour) will be amended in the near future. (A xxx/87)

* 6.5.1987 MERRIGUM. All signals were abolished. All points, except for the points leading to Carnation Siding, were spiked normal and will be removed. The existing "A" pattern annett key was relocated from the platform quadrant to a Staff/Annett Key exchanger located near Carnation Siding points. (A 324/87)

* 6.5.1987 AVOCA. The Home signals and plunger locks were abolished and the main line points were provided with large pattern staff locks. No 2 road was abolished and the points leading to No 3 road were spiked reverse to lie for No 3 road. The points leading to the Silo Road are secured by Hand Locking Bar and Padlock. All points in the yard are worked from WSa levers. A "Limit of Shunt" board was provided 365 metres on the up side of the Sunrasya Highway level crossing. (A 317/87)

* 7.5.1987 JEPARIT. The following alterations were carried out:-
1. The Home Arrival signals were abolished.
2. All signal quadrants, mechanical detectors and plunger locking were removed.
3. The Yanac line points were spiked normal and will be removed at a later date.
4. The main line points were provided with WSa levers and are secured by pin and padlock.
5. Location boards were provided 400 metres out from the facing points.
6. Jeparit will remain a Staff Station and the instructions for crossing trains at stations without fixed signals should be adhered to should a crossing be made. (A 328/87)

11.5.1987 SEYMOUR. The existing telephone switch board was abolished and the telephone services at Seymour were connected to the V/Line I.S.D.N. network.

WN18/1987 BACCHUS MARSH. The Down Distant signal was electrically lit and temporarily fixed at Caution. (A 318/87)

WN18/1987 SPENCER STREET PASSENGER YARD. Commencing forthwith, up passenger trains are not permitted to be signalled via the DOWN Main Country line between Franklin Street Junction and Spencer Street No 1 Box. However, light engines for passenger trains may be signalled in this manner. (A 2232/87)

WN19/1987 NORTH GEELONG "C" BOX. In order to facilitate the sending of the "train arrival" signal to Gheringhap for up trains arriving at North Geelong "C" Box, a camera has been installed on a pole at Thompson's Road level crossing.

This camera is focussed in the up direction so as to exhibit to the Signalman, through a closed circuit television monitor in the signal box, the complete view of the rear of up trains passing over Thompson's Road level crossing.

1. When an up train is passing over the Thompson's Road level crossing, the signal man at North Geelong "C" Box must:-

a) observe the illuminated diagram on the signal control panel until the whole of the train has cleared the Thompson's Road level crossing, and that the flashing light signals have ceased operating;

b) observe the closed circuit television monitor and ensure that the up train is complete with the Regulation train signal; and

c) provided that the up train is complete, collect the staff from the Driver and place it in the North Geelong "C"-Gheringhap instrument and send the "train arrival" signal to Gheringhap.

2. The closed circuit television monitor must be switched on at all times.

3. Any malfunction of the system must be reported to the Signal Maintenance Technician. (A 337/87)

* WN19/1987 WATCHEM. The down end extension of No 2 road has been abolished. (A xxx/87)

* WN19/1987 CURYO. No 2 road has been abolished. (A xxx/87)

9.5.1987 CAULFIELD-MORDIALLOC. Signalling diagrams Nos 23'87 (Glenhuntly-Mordialloc) and 25'87 (Caulfield) became effective and diagrams Nos 33'85 (Caulfield), 11'87 (Glenhuntly- Parkdale) and 35'81 (Mordialloc) were cancelled.

The alterations at Glenhuntly are:-

1. The signalbox was replaced by a new signalbox on the upside of Glenhuntly Road. The signals, boom barriers, pedestrian boom barriers, tramway signals and catches, and the overhead traction switch are controlled by miniature levers on a control panel in the new signal box.

2. Automatic signal F 378 was replaced by FM 380.

3. Two position signals, posts 3 and 4, were replaced by three position home signals Nos 1 and 6.

4. The tramway signals and catches are operated from lever 12 and are interlocked with the home signals.

5. The control of signal F 377 from Glenhuntly was abolished and the control of automatic signal FM 398 is by lever 8 at Glenhuntly.

6. In the event of the overhead traction switch failing to operate from the boom lever, the paper seal over the 5P key may be broken and the key used to operate the 5P key switch to release the locking.

7. If the overhead switch still fails to operate, the 5P key may then be used to gain access to the cabinet which houses the manual operating hand;e, which is attached to an 11P key.

8. The 11P key must be operated to release it from the switch and then the handle may be used to manually operate the overhead traction switch.

9. In the event of a failure of a tramway catch, the respective paper seal over the 5P key switch may be broken and the switch operated.

The alterations at Mordialloc are:-

1. The hand gates at McDonald Street were abolished and replaced with boom barriers. Pedestrian boom barriers are provided on the

down side of the level crossing.
2. The interlocked gates at Bear Street were abolished and replaced with boom barriers. Pedestrian boom barriers are provided on each side of the level crossing.
3. The signal box and all mechanical signals and points were abolished, and replaced by three position signalling and electro-hydraulically power operated points worked from a control panel in the station.
4. The panel can be switched out so that up and down trains will run through their respective platforms.
5. A point handle has been provided in the control panel, the removal of which will permit manual operation of the points, but will secure all signals at the stop position. (A 2243/87)

10.5.1987 KEON PARK. The up home signal, post 30, was moved 10 metres in the down direction and three metres out from the track. (A 2245/87)

WN20/1987 TOTTENHAM YARD. 1. When a down train train worked by a Driver and a Secondman is to arrive into Tottenham Yard, the Class 3 shunter in charge of the respective yard will arrange to have a shunter in position to stop the train and operate the hand points leading into the yard. After receiving the authority from the Leading Shunter in charge, the shunter must signal to the Driver to set back. 2. When it is necessary for a train worked by a Driver and a Secondman to shunt from the Up Independent Goods Lines. the Secondman must detach the loading where required and rejoin the locomotive. The shunting staff will be responsible for signalling the vehicles ahead and setting back to the yard. On completion of the shunt, the shunting staff will be responsible for returning the locomotive to the train. The Secondman must conduct the modified continuity test prior to departure.
These instructions will remain in force until further notice.
(A 354/87)

14.5.1987 HOPETOUN. The following alterations took place:-
1. The Up and Down Home signals were abolished.
2. All plunger locking, signal detection equipment and signal quadrants were removed.
3. The staff lock on the Silo Siding was removed and replaced by a WSa lever secured by a Hand Locking Bar, pin and padlock.
4. The main line points were also provided with WSa levers and secured by pin and padlock.
5. A location board was provided 400 metres out from the facing points. (A 343/87)

19.5.1987 SALE. The following alterations took place:-
1. The existing staff locks were removed and the main line points at each end of the crossing loop together with the points leading to the freight centre, were equipped with plunger locks.
2. A down home arrival (light) signal and an up home arrival (light) signal have been provided and are worked from quadrants located on the platform or from the respective ends of the crossing loop.
3. A down home departure (light) signal was provided on the upside of Raglan Street level crossing and is also worked from the platform or from the down end points. This signal and the up home arrival signal are interlocked with the flashing lights at Raglan Street.
4. A pilot quadrant was provided on the platform with an annett

lock, the key of which is used to unlock the main line points leading to the service siding. The quadrants at both ends of the crossing loop are also provided with annett locks.
5. The arrangements shown on A 482/83 and published in WN 22/83 relative to Sale being a non-crossing staff station are hereby cancelled. (A 347/87)

20.5.1987 WODONGA. Flashing lights were provided at Cochrane Road level crossing at 294.873Km, on the upside of Wodonga. The operation of the lights is automatic for broad and standard gauge movements, and, unusually, a telephone has been provided - not connected to the Station Service but to the Telecom network. (A 344/87)

23.5.1987 BAXTER. A Composite Staff Exchange Box was provided and also a Composite Electric Staff for the sections Frankston-Baxter and Baxter-Somerville. Prior to the signalman at Baxter ceasing duty each day, he must confer with the Line Controller, Metrol, and ascertain what trains are running during the time he will be off duty and whether the Staff Exchange Box or the Composite Staff Exchange Box will be in use. It will not be necessary for the Guard or Driver to send/receive the "APIX" or "ACRE" messages at Baxter, the necessary messages are sent between Somerville and Frankston. When the Composite Staff is in use, the second or third train must not be permitted to depart until the "ACRE" message has been received from the manned station in advance. In the event of a failure of communications, the second train must not be permitted to depart Frankston or Somerville until the full running time for the TWO sections has elapsed after the departure of the preceding train and the driver has been handed, in addition to the correct portion(s) of the composite staff, a "NOTICE OF TRAIN AHEAD" which will apply to both sections subject to the proper exchange of staff portions at Baxter. Should any emergency arise that cannot be dealt with by the train crews, the Officer in Charge at Baxter must be called on duty.
The days of running, train numbers and portions of the Composite Staff each train will travel on, is shown hereunder:-

MONS TO THURS		FRIDAYS		SATURDAYS		SUNDAYS	
No	Portion	No	Portion	No	Portion	No	Portion
9521	"B"+Staff	9521	"B"+Staff	9521	"B"+Staff	8500	Full Staff
8518	Full Staff	8518	Full Staff	9522	Tkt "A"	8501	Full Staff
8521	Full Staff	8521	Full Staff	8500	"B"+Staff	8502	Full Staff
9530	Tkt "A"	9530	Tkt "A"	8501	Full Staff	8503	Full Staff
8522	"B"+Staff	8522	"B"+Staff	8502	Full Staff	8506	Full Staff
8525	Tkt "A"	8525	Full Staff	8503	Full Staff	8507	Full Staff
		8530	Full Staff	8504	Full Staff	8508	Full Staff
		8529	Tkt "A"	9529	Tkt "A"	8509	Tkt "A"
				8505	"B"+Staff		
				8506	Full Staff		
				8507	Full Staff		
				8508	Full Staff		
				8509	Full Staff		
				9530	Tkt "A"		
				8510	"B"+Staff		
				8511	Full Staff		

If the above arrangements are to be varied, the authority of the Safeworking Department is required. (A 2282/87)

* 23.5.1987 CRIB POINT was closed as a staff and ticket station, the new section becoming Hastings-Stony Point. The Safeworking Office will arrange for Crib Point to be opened as a temporary staff station as required. The temporary staffs will normally be kept in a strong-box in the custody of the Station-master, Frankston. Guards of Up trains, before departing Crib Point, must operate the push button controlling the Up Departure Home signal. (A 2280/87)

24.5.1987 MORDIALLOC. The Down Home signal (co-acting) post MOR712 was moved two metres in the up direction. Illuminated letter "A" lights were provided and switching facilities brought into use. (A 2292/87)

* 27.5.1987 CASTLEMAINE-NEWSTEAD-CARISBROOK-NARYBOROUGH. Newstead was closed as an Electric Staff station and Carisbrook was closed as a switching Electric Staff station in the Newstead-Maryborough electric staff section. The new staff section is Castlemaine-Maryborough and is worked by Train Staff and Ticket.
At Carisbrook, the plunger locking and signals were removed and replaced by staff locks and WSa levers. Carisbrook may be opened as an Intermediate Block post as required.
At Newstead, the fixed signals were secured reverse and will removed at a later date. The Staff Exchange Box was abolished. Up trains travelling through Newstead must not exceed 30km/h and a notice board has been erected to this effect 400 metres on the approach side of the level crossing. (A 372/87)

WN21/1987 TAIL LIGHTS ON PASSENGER TRAINS. In the event of a failure of the tail lights on a passenger train, an End of Train Marker may be used on the rear of the last vehicle to signify that the train is complete. (A 386/87)

WN21/1987 STONY POINT. Commencing forthwith and until further notice, Guard in Charge conditions will apply for all trains at Stony Point. The Guard of arriving trains will be responsible for the safe working being carried out and he must make the necessary entries in the Train Register book. (A 2280/87)

WN22/1987 SALE. A Staff Exchange Box has been provided at Sale and commencing forthwith mya be used in accordance with the instructions on pages 68-69, General Appendix. In addition, a Composite Staff Exchange Box has been provided and may be used in accordance with the instructions on pages 70-71, General Appendix. (A 400/87)

28.5.1987 HAMILTON. The annett locked connections to the Car Siding and the Dock Siding, together with the annett locked crossover, were removed. Up Home signal Post 5 was abolished. Amend diagram No 42'86. (A 391/86)

1.6.1987 V/LINE-MetRAIL-MTA ISDN NETWORKS. On 1 June 1987, MTA Tram & Bus Division telephone system will be connected to the MetRail-V/Line ISDN networks. MetRail and the Tram & Bus Division will maintain a closed four-digit numbering system whilst V/Line will remain on five-digit operation. (continued on page 77)

SOME OVERSEAS PRACTICES

by Stephem McLean

Travel, they say, broadens the mind, and this is as true of railway signalling and safeworking as it is of any other aspect of life. The enthusiast reared on absolute block and electric staff who feels uneasy on his first trip interstate where they rely on pieces of paper will make stranger discoveries overseas.

Comprehensive knowledge of a safeworking system takes some time to accumulate, even given a friendly signalman and a rule book; the overseas traveller is unlikely to have the time to get to know a system well, and there is often the extra problem of working in a foreign language so the following notes can't hope to be complete, but it is hoped that the topics mentioned may be of some interest.

1. CONVOY OPERATION

In parts of Europe the distinction between train and tram can become blurred. On some rack lines in Switzerland, a frequent service is needed to cope with crowds of skiers, and the service has to be capable of adjustment to suit the demand. Long trains are not practicable on very steep lines, and it is not easy to couple two trains together when they have 4-wheeled ski trucks attached, so a tramway style of operation is adopted.

On the upper section of the Gornergrat Railway the line runs through the skifields and is double track. Through trains from Zermatt (in the valley) are supplemented by local shuttles which are not advertised in the public timetable. On this section of the line the trains are not separated by signals. The lower part of the route is single line, with some sharp curves and tunnels; here the through trains keeping as close as possible to the one timetable schedule.

The Wengeralp Railway (Lauterbrunnen and Grindelwald to Kleine Scheidegg) also operates its trains in divisions. Each train consists of motor car, driving trailer and ski truck, with the motor always at the downhil end. Up to three sets may run on the one service, although some of the divisions may terminate or originate at intermediate stations.

At intermediate stops the divisions close up on each other in the station area; at Kleine Scheidegg they often arrived on different tracks. For departure, each division needs a signal and also the right away from the Station-master (see later under "Lolly Pole" system). Each division except the last carries a disc to show that other divisions are following. In bad weather when it is necessary to run a snowplough this usually runs as a first division of a convey of trains.

2. TOKEN EXCHANGING

Few places overseas have mechanical exchangers as we do in Victoria. Thailand has a number of single lines worked by tablet, and tablet stations are equipped with fixed wooden exchangers at each end of the platform. The fireman of an arriving train leans out of the cab and drops the tablet (in its hoop) over a diagonal pole on the exchanger at one end of the platform, and on departure he takes a tablet which has been placed in the exchanger at the other end of the platform. There is usually a tablet runner to position and collect tablets. The method is used for all trains, whether they stop or not. Non stop trains can go through quite fast as the fireman has only one tablet to worry about at a time.

A system similar in principle is used on the Malaysian Railways, but men are used on the platform instead of posts. The Assistant Station-master collects the incoming key token, and the Station-master hands up the outgoing one. The two men stand far enough apart on the platform for the fireman to be able to carry out the exchange with one hand. Once again, the method is used whether

trains stop or not, and express trains can be quite fast.

The use of two men for the exchange is no problem in countries where labour costs are low. A similar move took place at Melton with the Royal Train to Ballarat in 19xx. It ran non-stop via the loop (while children waved from the platform), and as V/Line rules do not permit a hand staff exchange to be made by a signalman at ground level, two men were used, one for each staff.

3. "LOLLY POLE" SYSTEM

The standard European method of working trains on non track-circuited single lines seems to have been around for so long that it has no special name - in Sweden the rules simply refer to "the safety system". Since its most obvious outward sign is often a long pole with a disc on the end waved by the Station-master to the Driver, it is convenient to use the unofficial term "Lolly Pole" system.

Europeans expect their trains to run on time and cross on course. One Swiss private line even had painted boards up at the stations:

12 x 35
101 x 52

For a train to be able to enter a single-line section the Driver must be satisified that no crossing trains are overdue (as shown in his timetable), and the Station-master, who also ensures that other trains are clear of the section, then waves the pole at the Driver to signify that the train may enter the section. For out of course crosses, or when trains to be crossed are cancelled, written orders are used. Much responsibility is placed on the Station-master. In order that the right of way signal is given only by one person who knows how the trains are running, that person wears a red hat. This safety feature loses some of its respectability when you get into the office and find a rack of five red hats, one for each shift of Station-master!

Just as a Victorian Driver does not assume that the electric staff he has been handed by his friend the signalman is the correct one, but studies it carefully, so a Swiss Station-master may be yarning to the Driver of a train waiting time, and leaning on his "Lolly Pole" on the platform. When it is time for the train to go, he doesn't just say "Off you go", but very carefully waves the stick right in the Driver's face.

The "Lolly Pole" stick also functions as a platform right of way signal (like a white flag in Victoria) and is used even on track circuited lines where there are other safeguards for the track section ahead. At some big stations mechanical versions may exist (special signals in addition to the signals protecting points), but these are operated by the signalman under the authority of the Station-master, and complicated interlocking or communication devices may exist between the signal box and the station office.

The system is much safer than it sounds, although the Swedish rule book uses the word "risk" in describing the procedure for altering crosses. The Driver's main safeguard is a very accurate working timetable which shows in great detail the trains to be crossed, and what days or seasons they run. A head on collision occurred in Germany a few years ago because of a mistake in the working timetable. Following a few accidents, the Swedes banned crosses at unattended stations, but when traffic is light, trains can pass a number of unattended stations; the working timetable indicates this so that the Driver knows he may proceed without having to sight the "Lolly Pole".

Most railwaymen will allow enthusiast passengers to borrow their working timetable for perusal. Such was the case on the Centovalli Railway (Italy-Switzerland) where an Australian read the timetable in his seat while the Driver had theoretically had his safeworking taken away from him. On one occasion in Portugal there were so many passengers for a service that a second four-wheeled railbus had to be brought out of the depot. This followed the first division on absolute block until it had run out of passengers, then turned and came back empty to the junction (with three Australian enthusiasts still

aboard). On the way we crossed the next outward service; it was reassuring to see that our Driver had some times for his unplanned extra written in pencil on a piece of paper.

4. DISTANT AND NO HOME

If a Driver sights a clear distant signal, he knows that the road is clear through a station, so why have any more signals? If the distant is not off, he knows he has to slow down and be prepared to stop anyway. Such a signalling system is used in the Douro Valley in Portugal, where the distant signals are horizantally revolving discs. For an ordinary through train the Station-master pulls off the distant, and gives a right of way with his flapper board (the Portugese equivalent of a "Lolly Pole"); if the train has to stop for a cross, or go in the loop, the distant is left on, and a pointsman signals with flags or lights from the arrival points.

An even more basic version is used on some lines in Thailand. Here, instead of a moveable distant, there is a fixed wooden pole; the Driver on approaching the pole whistles and the signalman then gives a green flag for a through run (from his office), or signals by flags from the points if the train had to be stopped. The Thais are very keen on flags.

5. PUSHING ON THE RUNNING LINES

Apart from many instances of push-pull trains, where the Driver rides in a driving trailer vehicle in a rake of cars with an unmanned loco in the rear, there are other cases where passenger trains are run with the driver not in the first vehicle. Most of these are on rack lines where speeds are low. Many of the Swiss lines serve ski resorts, and in Winter there is a small four-wheeled truck to carry skis. This is placed at the uphill end of the train (which is most likely a one or two car electric set), and on uphill trips the Driver looks out over the truck load of skis.

Most rack lines now have modern EMU type stock, but occasionally a train or engine and carriages may be used. We rode from Goschenen to Andermatt on the Furka Oberalp Railway in Switzerland (a 15 minute trip) in a train of two ordinary passenger cars being pushed by a small electric loco. A railway employee rode next to us in the leading vestibule. In past years the through car from Rome to Cosenza ran in a steam passenger train up the rack from Paola, and for a couple of sections the steam loco pushed the train.

On flat lines, main line trains may be pushed for short distances. The German station at Konstanz is two minutes away from Kreuzlingen on the Swiss Schaffhausen-Romanshorn line, and through loco hauled trains which called at Konstanz would push in one direction to save two run rounds. Not dissimilar is the situation at Inverness where arrival trains may run past the station and back in (about a three minute run).

6. TRAIN FERRIES

Through cars from Denmark to Sweden are worked across the train ferry Helsingor-Helsingborg. At each end the carriages are shunted from the passenger station to the ferry by a small diesel shunter, with passengers on board. The cars are shackled down on the ship, and the toilets are locked; passengers may go up to the ship's restaurant and decks. Denmark also operates a train ferry Rodby-Nyborg which is part of an hourly Intercity service, and trains of eight cars or so go on board the ship. Some of the older diesel-multiple unit express trains also run across the water, and the eight car set is split into its two four car halves to fit on deck.

The Italian train ferry from Villa San Giovanni to Messina takes long distance express trains of, say, 14 cars. The ship had four tracks on deck and the train was broken into four pieces. An electric shunting loco manoeuvred the

14 cars round quite sharp curves to get them aboard. A theatre type light signal which displayed four aspects: E - Entrada (in), U - Uscita (out), R - Riduzione (slow), F - Fermata (stop). Once again passengers stayed in the cars as the shunter made four moves in and out to get the four sections all on the deck. This piece of water is fairly calm, so the cars were not shackled but simply coupled up to buffers at the dead end of each track. They got a very sight sway up while the boat was moving.

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SIGNALLING ARRANGEMENTS AT WAHRING

Commencing forthwith, Wahring will be worked by an Operating Porter only, and his rostered hours of duty will be 8.0 a.m. to 7.30 p.m. (Sundays excepted). Nos. 1 and 3 Down and Nos. 10 and 16 Up, or any Down or Up Special train, which may be sceduled to run between the hours of 7.30 p.m. and 8.0 a.m. will be worked through Wahring under the following arrangements :-

A Composite Staff is provided for the Section Nagambie-Wahring, Wahring -Murchison East. A combined special box partitioned off for securing the Composite Staff for the respective Sections is provided at Wahring and is fixed on the wall alongside the door of the Station-master's Office.

The Box is constructed and lettered as shown hereunder, the lids being secured by Standard V.R./G. Padlocks.

Prior to the Signalman at Wahring going off duty each day, he must confer with the T.R.O., Seymour, and Officer-in-Charge at Nagambie and Murchison East, and definitely ascertain what trains are running. A record of such messages must be logged by the T.R.O. and at Nagambie, Wahring and Murchison East it must be entered across the figure line of the Train Register Book.

A. WHEN SCHEDULED UP AND DOWN TRAINS ARE NOT RUNNING-

(i) On occasions when Nol 3 Down and No. 10 Up are not running an ordinary electric Staff must be withdrawn at Murchison East and Wahring for No. 16 Up before the Signalman at Wahring goes off duty, and the Staff withdrawn at Wahring for the Section Wahring-Nagambie must be placed in the box applying to such Section and the Up Home Signals placed to Proceed.

(ii) The Staffs for the Sections Murchison East-Wahring, and Wahring-Nagambie, which will be withdrawn from the Instruments at the respective Stations for No. 16 Up will also be used for No.1 Down without being placed through the Instrument at Wahring or Nagambie, and in this connection when No.16 arrives at Nagambie the Signalman must obtain the Staff from the Driver, and providing the train is complete, immediately place such Staff in the POCKET of the Instrument, being particularly careful not to place it through the Instrument and when it is required for the return journey, i.e. No. 1 Down, the Signalman concerned must then hand it to the Driver.

(iii) On arrival of No. 16 Up at Wahring, the Guard must obtain the Staff from the Driver and place it in the proper box, lock the Box and then withdraw the Staff from the forward Section Box and hand it to the Driver.

Prior to the train departing the Guard must (when the Engine of train has passed the Departure Home Signal in the regular way) place the Up Home Signals, Levers No. 4 and No. 5, to "Stop", and the Down Home Signal to "Proceed" (Lever No.2) for the Down train to arrive.

(iv) On arrival of No. 1 Down at Wahring, the Guard will act as laid down

for the Guard of No.16 Up (see first paragraph of section (iii) hereof), and prior to departing the guard must place the Down Home Signal to Stop (Lever No.2).

B. WHEN NO. 10 AND NO. 16 ARE THE ONLY UP TRAINS-

(i) Prior to the Signalman at Wahring going off duty, the Composite Stafs for the Sections Murchison East-Wahring, Wahring-Nagambie must be withdrawn from the Instrument at the respective Stations, and the Composite Staff for the Wahring-Nagabie Section placed in the Box applying to such Section and the Up Home Signals placed to Proceed.

(ii) No. 10 Up will be despatched from Murchison East on Ticket "A" portion of Composite Staff, and on arrival at Wahring the Guard must place the Up Home Signal (Lever No. 5) to Stop, obtain the ticket "A" portion from the Driver and lock it in the Box applying to the rear Section and open the Box for the forward section, withdraw the Composite Staff, detached the Ticket "A" portion, hand it to the Driver showing him the balance of the Composite Staff. The Ticket "B" and Staff portions of the Composite Staff must then be returned to the proper Box, the Box locked and prior to the train departing the "Apix" message sent to Nagambie and the "Acre" message to Murchison East, and the Up Home Signal Lever No. 5 placed to Proceed.

(iii) No. 16 will, subject to the receipt of the "Acre" message for the preceding train or the issue of a "Notice of Train Ahead" in case of failure of communication be despatched from Murchison East on the Ticket "B" and Staff portions of the Composite Staff, and on arrival at Wahring the Guard will obtain it from the Driver, place it in the Box applying to the rear Section, obtain the "Acre" message for the preceding train, withdraw Ticket "B" and Staff portions of the Composite Staff from the forward Section Box and hand it to the Driver as authority to depart. Prior to the train departing the Guard must (when the engine of train has passed the Departure Home Signal in the regular way) place the Up Home Signals (Levers Nos. 4 and 5) to Stop and the Down Home Signal to Proceed (Lever No.2) In event of communication having failed, the Guard must hand the Drivera "Notice of Train Ahead".

(iv) On receipt of the complete Composite Staff at Nagambie the Signalman must join it together and place it in the POCKET of the instrument being particularly careful not to put it through the Instrument, and when it is requred for the return journey he will act in accordance with the following instructions:-

(v) No. 1 Down will be despatched from Nagambie on Ticket "A" portion of the Composite Staff, and on arrival at Wahring the Guard must act as laid down for the Guard of No. 10 in Section (ii) of this clause and prior to the train departing he must send the "Apix" message to Murchison East and the "Acre" message to Nagambie and place the Down Home Signal to Proceed (Lever No. 2).

(vi) No. 3 Down will, subject to the receipt of the "Acre" message for the preceding train or the issue of a "Notice of Train Ahead" in case of failure of communication, be despatched from Nagambie on Ticket "B" and Staff portions of the Composite Staff, and on arrival at Wahring the Guard will act as laid down for the Guard of No 16 in Section (iii) of this clause. Prior to the train departing the Guard must place the Down Home signal (lever 2) to Stop. In the event of communications having failed, the Guard must hand the Driver a "Notice of Train Ahead".

C. WHEN Nos 10, 14 AND 16 ARE RUNNING-

(i) Prior to the signalman at Wahring going off duty, the Composite Staffs for the sections Murchison East-Wahring, and Wahring-Nagambie must be withdrawm from the instruments at the respective stations, and the Composite Staff for the Wahring-Nagambie section place in the Box applying to such section and the Up Home signals (levers 4 and 5) placed to proceed.

(ii) No 10 Up will be dealt with in the same way as when only one train is following. See section (ii) of clause B.

(iii) No 14 Up will, subject to the receipt of the "ACRE" message for the preceding train or the issue of a "Notice of Train Ahead" in the case of failure of communications, be despatched from Murchison East on the Ticket "B" portion of the Composite Staff, and on arrival at Wahring the Guard must place the Up Home signal (lever 5) to Stop, obtain the ticket "B" portion of the Composite Staff from the Driver and lock it in the Box applying to the rear section, obtain the "ACRE" message for the preceding train, withdraw the Ticket "B" section and Staff portions of the Composite Staff from the forward section Box, detach the Ticket "B" portion, hand it to the Driver, showing him the Staff portion. The Staff portion must then be replaced in the proper Box, the Box locked and prior to the train departing the "APIX" message must be sent to Nagambie and the "ACRE" message to Murchison East and the Up Home signal (lever 5) placed to proceed. In the event of communication having failed, the Guard must hand the Driver a "Notice of Train Ahead".

(iv) No 16 will, subject to the receipt of the "ACRE" message for the preceding train, or the issue of a "Notice of Train Ahead" in case of failure of communication, be despatched from Murchison East on the Staff portion of the Composite Staff. On arrival at Wahring, the Guard will obtain it from the Driver and place it in the proper Box, secure the Box and then obtain the "ACRE" message for the preceding train, withdraw the Staff portion of the Composite Staff from the forward Section Box and hand it to the Driver as authority to depart. Prior to the train departing the Guard must (when the Engine of the train has passed the Departure Home signal in the regular way) place the Up Home signals (levers 4 and 5) to Stop and the Down Home signal (lever 2) to Proceed. In the event of failure of communication, the Guard must hand the Driver a "Notice of Train Ahead".

(v) On receipt of the Composite Staff at Nagambie, the signalman must join it together and place it in the POCKET of the instrument, being particularly careful not to put it through the instrument, and when it is required for the return journey, he will act in accordance with the following instructions:-

a) No 1 will be dealt with in the same way as laid down for No 10, see clause B, section (ii). Prior to departure of the train from Wahring, the Guard must place the Down Home signal (lever 2) to Proceed.

b) No 3 will be dealt with in the same way as laid down for No 14, see clause C, section (iii). Prior to departure of the train from Wahring, the Guard must place the Down Home signal (lever 2) to Proceed.

c) No 5 will be dealt with in the same way as laid down for No 16, see clause C, section (iv). Prior to departure of the train from Wahring, the Guard of the train must place the Down Home signal (lever 2) to Stop.

D. WHEN Nos 10 AND 16 ARE RUNNING, FOLLOWED BY No 20 OR OTHER SPECIAL TRAIN, THEY WILL BE DEALT WITH IN THE SAME WAY AS LAID DOWN FOR No 10, 14 AND 16. SEE CLAUSE "C" AND SECTIONS THEREOF.

E. Guards of trains travelling on the Composite Staff, as set out on the preceding clauses, must record the arrival and departure times in the Train Register Book at Wahring; also the times the "APIX" and "ACRE" messages are exchanged.

F. District Superintendent to arrange for the Guards concerned to have access to the office at Wahring.

G. When the signalman at Wahring report for duty next morning, the Staff (Composite or Ordinary) must be inserted in the Instrument, at the respective Stations under the Cancelling Signal.

NOTE 1-When the Composite Staff working is in operation, a "Notice of Train Ahead" Book must, in addition to the Composite Staff, be placed in each Box, by the person in charge at Wahring before he finishes duty, and the Train Register Book and Forms to be used by Guards placed in a conspicuous position in the office.

NOTE 2-The attention of the signalman, Nagambie, Wahring and Murchison East is directed to the instructions contained in clause 9, page 636, General Appendix, which sets out that arrangements must be made for the Composite Staf to be at the end of the Section at which it will be required.

NOTE 3-The lid of each Box for securing the Composite Staffs, or Ordinary Staffs when Composite Staff working is not in use at Wahring, is secured by a VR/G Standard padlock and four (4) keys are to be kept at Nagambie and Murchison East for use by Guards.

Prior to the departure of each of the above trains the Officer-in-Charge at Nagambie for Down trains, and the Officer-in-Charge at Murchison East for Up trains, must instruct the Guard in writing as to his duties at Wahring, also what his train will travel on, i.e., Ordinary Staff, or if Composite Staffs are in use, what portion or portions of the Composite Staffs over the respective sections. He must also hand the Guard a key of the Box which must b collected at Nagambie or Murchison East according to the direction of the train and returned to the Home Station by the first available train.

NOTE 4-The attention of Train Crews is directed to the Instructions contained in clauses 16, 16A and 16B on pages 639-642, General Appendix, respecting Section obstructed by accident or by disabled train which will apply, and should any such emergency arise with which the Train Crew cannot deal, arrangements should be made for the Officer-in-Charge at Wahring to come on duty and take charge.

NOTE 5-Interocking at Wahring, situated at the Down end of the platform, is a small frame consisting of one Down Home Signal Lever (No 2) and two Up Home Signals Levers (Nos 4 and 5). These levers are controlled by Pilot Lever (No 3) with Annett Lock attached. To release the Home Signal Levers, the Pilot Lever must be in the normal position in the frame. When the Annett Key is required for use at the Siding, the Pilot Lever must be placed in the reverse position, where the key can be withdrawn. This operation holds Home Signal Levers in the Stop position.

A chain and padlock is provided at Wahring for the purpose of securing the Pilot Lever in the normal position prior to the Officer-in-Charge going off duty.
(A 1022/31)

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SIGNALLING ALTERATIONS

(continued from page 70)

However, to ensure inter-systems operation, it will be necessary for MTA users to allocate an additional digit "1" to V/Line numbers. This means that V/Line extensions will be programmed as SIX-digit numbers in the MTA PABX's.

To call V/Line extensions 1xxxx, 2xxxx or 6xxxx, simply dial 11xxxx, 12xxxx or 16xxxx.

To call Tram & Bus, and MetRail extensions, simply dial the required four-digit extensions, 2xxx, 3xxx, 5xxx, 7xxx or 8xxx

There will be no change for V/Line users accessing MetRail extension numbers.

For V/Line to call Tram & Bus Division and MetRail, dial 5 and then the extension.

Summary of dialling connections

From	To	Dial
MetRail	V/Line	1 then the 5 digit extension
MetRail	Tram & Bus	Tram & Bus extension.
V/Line	MetRail and Tram & Bus	5 then extension
Tram & Bus	MetRail	MetRail extension
Tram & Bus	V/Line	1 then the 5 digit extension.

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STATE RAIL AUTHORITY OF NEW SOUTH WALES
SIGNALLING ALTERATIONS - 1986

NYNGAN JUNCTION-BOURKE. On 29.1.1986, Girilambone, Coolabah and Byrock were closed as Train Staff and Ticket stations, the new section becoming Nyngan Junction to Bourke, 201.349Km long, with a Triangular Staff coloured White.

CANAL LOOP. On 30.1.1986, Canal Loop was closed as an Electric Staff crossing station. The new section became Narrandera to Yanco, 22.551Km in length.

MURRAMI and WUMBULGAL. On 6.2.1986, these stations were closed as Electric Staff crossing stations, the new section becoming Leeton-Griffith, 48.099Km in length. All signal signals will be removed and the points at Wumbulgal will be XL locked pending removal due to the station closing.

WESTMEAD-PARRAMATTA. Commencing on 8.2.1986 and continuing until 9.2.1986, the new Up Suburban Lines will be brought into use. The Up Main Line will be placed out of use. The new Up Suburban Line (see WN 25/1985) between Parramatta and the Up Dive will be extended towards Penrith to connect with the existing Up Suburban Line.

GIDGEERA LOOP. On 11.2.1986, Gidgeera Loop was closed as an interlocked Electric Staff crossing loop, the new section becoming Forbes-Parkes, 31.462Km in length. At Forbes the Pilotmans Key will be reinscribed "Forbes-Parkes".

ALLANS CREEK-PORT KEMBLA. Commencing 22.2.1986 and continuing until 26.2.1986 all the points and signals between Allan's Creek and Port Kembla will be converted to power operation and will be placed under remote control from Port Kembla North Control Panel. The mechanical interlocking machines at Allan's Creek and Port Kembla North, and the relay control panel at Port Kembla, will be placed out of use.

CONOBLE, ORICAR, MANARA, BOX TANK and THE GORGE. Since Tuesday, 25.2.1986, Conoble has been permanently closed as an Ordinary Train Staff and Ticket station and crossing loop, and Oricar, Manara, Box Tank and The Gorge closed as prescribed in the Western Local Appendix. The staff sections, Trida-Conoble-Ivanhoe-Oricar-Darnick-Manara-Kaleentha Loop, Menindee-Box Tank-Kinalung-The Gorge-Broken Hill are cancelled and the following new sections brought into service:-

Length	Section		Ordinary Train Staff		
	From	To	Shape	Colour	Key Staff
Km					
66.003	Trida	Ivanhoe	Heart	Green	-
64.273	Ivanhoe	Darnick	Round	Red	-
63.207	Darnick	Kaleentha	Triangular	White	-
62.664	Kaleentha	Menindee	Heart	Green	-
58.902	Mendinee	Kinalung	Round	Red	-
59.264	Kinalung	Broken Hill	Square	Blue	Yes

PARRAMATTA-WESTMEAD. On 2.3.1986, the new Down West Suburban Line between Parramatta and Westmead will be brought into use and temporarily named the Down Main as a preliminary to the quadruplication of the line. The existing Down Main

Line will be placed out of use. The new Down West Suburban Line will connect with the existing Down Suburban line at the Parramatta end of Westmead No 3 Platform. At Harris Park, the Down West Main Line will be broken at the Parramatta end of Harris Park No 4 platform and slewed via Nos 301 and 302 points to connect with the Down West Suburban Line. At Westmead, crossover No 307 Down Main to Down Suburban was brought into use. A new facing crossover No 306 will be formed between the Down Main and Down Suburban Line but will not be brought into use at this stage.

PORTLAND. On Tuesday, 4.3.1986, Portland will be closed as an interlocked Electric Staff station, the new section becoming Wallerawang West-Ben Bullen, 26.394Km in length. The mechanical interlocking frame and all signals will be removed. The Down Main Line and Down Platform were abolished and all Main Line trains run via the former Up Main Line and Up Platform.

BANGALOW. On Tuesday, 4.3.1986, Bangalow will be closed as a Train Staff and Ticket crossing station, the new section becoming Lismore-Byron Bay, 46.631Km long, with a Heart shaped staff coloured Green.

BYRON BAY-MULLUMBIMBY. On Tuesday, 11.3.1986, the Electric Train Staff working will be replaced by Ordinary Train Staff and Ticket, with a Square Staff coloured Blue.

EXCELSIOR and LUE. On Tuesday, 11.3.1986, Excelsior will close as an Electric Staff crossing station and on Tuesday, 18.3.1986, Lue will similarly close. The Electric Train Staff system will be replaced by Ordinary Train Staff and Ticket working. The new long sections will be Ben Bullen-Clandulla, Square Staff coloured Blue, and Rylstone-Mudgee, Heart shaped Staff coloured Green. The section Clandulla-Rylstone remains unchanged.

BURRINGBAR. On Tuesday, 25.3.1986, Burringbar was closed as an Ordinary Train Staff and Ticket crossing station, the new section becoming Mullumbimby-Murwillumbah, 36.613Km long with a Triangular Staff coloured White.

ABERDEEN. On Sunday, 4.4.1986, as a preliminary to the introduction of Centralised Traffic Control signalling on the Northern Line, the existing control panel at Aberdeen will be replaced by a new O.C.S. (One Control Switch) route setting control panel. The crossing loop was extended at the Sydney end to 650 metres. The existing signals will be replaced by new single light colour light signals.

OLD CASINO. On Wednesday, 9.4.1986, Old Casino will be closed as an Electric Train Staff crossing station, the new section becoming Casino-Lismore. On the same date, the North Fork of the Triangle Loop will be placed out of use and the Intermediate Electric Staff instrument adjacent to Frame "H" removed. The Ordinary Train Staff for the section North Fork-Old Casino Stopboard will be cancelled.

ILLAWARRA LINE. Commencing Saturday, 12.4.1986 and continuing until 13.4.1986, the control of all points and signals worked from Helensburgh, Coal Cliff, Thirroul and Port Kembla North signal boxes will be transferred to the Wollongong Control Centre. In addition, bi-directional signalling betwen Helensburgh and Wollongong will be brought into use on both Up and Down Main Lines. The existing control panels at the above locations will be switched out but will be retained for emergency use as required. Half pilot staffs will be provided adjacent to the Home/Starting signals at Helensburgh, Metropolitan Colliery Junction, Otford, Coal Cliff, Scarborough, Thirroul, Corrimal and Wollongong. These locations are where running crossovers exist between the two Main Lines.

RIVERWOOD-PADSTOW. Commencing Saturday, 3.5.1986 and continuing until Monday, 5.5.1986, the new Up Main Line between Riverwood and Padstow will be brought into service and the existing Main Line will become the Down Main Line. A trailing crossover remains at the Up end of Riverwood, where local trains can terminate at the Down platform and return direct to Sydney, and a facing crossover is located at the Up end of Padstow, where local trains can terminate at the Up platform. This last facility is protected by Up signals as far back as Revesby being controlled from the control panel at Riverwood. The former panel of Kellog keys at Riverwood has been replaced by a new panel with rotary switches and a closing key.

TOGAR. On Sunday, 18.5.1986, the mechanical signalling at Togar was replaced by colour light signals and power operated points worked from an O.C.S. panel located in the signal box. The electric staff system of working remains in force and accordingly, only one arrival signal may be cleared at a time and clearance of the Starting signals will be subject to the forward section staff being available. Entry to the Loop will be on the authority of the low speed signal with route indication and entry to the Main will be either the Main Running signal, if the Starting signal has been cleared, or by the Low Speed signal with route indication, if the Starting signal is at Stop.

CRYON. On Thursday, 15.5.1986, Cryon was closed as an Ordinary Train Staff and Ticket crossing station, the new section becoming Burren-Walgett witha Square Staff coloured Blue.

TULLIBIGEAL. On Wednesday, 21.5.1986, Tullibigeal was colsed as an Ordinary Train Staff and Ticket crossing station, the new section becoming Ungarie-Lake Cargelligo, with a Square Staff coloured Blue.

ABERDEEN-TOGAR. On Wednesday, 21.5.1986, the Electric Train Staff system will be cancelled and replaced by Single Line Track Control signalling as a prior stage to CTC working. A staff contact box was provided to provide a release for the Down Starting signals, this ensures that the signals cannot be cleared unless a forward section staff is available.
Special noticeboards (reflectorised) will be located as follows:-
Down Direction.
(a) A board showing a symbol representing a person holding an electric train staff will be located at the Down Distant signal, Togar.
(b) A board inscribed "Begin Electric Train Staff" will be located adjacent to the Down Starting signals, Togar.
(c) A board inscribed "End Single Light Indication" will be located adjacent to the Down Starting Signals, Togar.
Up Direction.
A board inscribed "Begin Single Light Indication" will be located at the Up Distant signal, Togar.

BRANXTON. On Sunday, 25.5.1986, the remaining mechanical signals and all points will be converted to power operation including one set of Clamp Locks on a facing crossover at the down end of the platform.

MARRAR. On Tuesday, 27.5.1986, Marrar was closed as an interlocked Electric Train Staff crossing loop, the new section becoming Old Junee-Coolamon. The main line was realigned via the Through Road and the Platform Road was placed out of use.

HEXHAM. On Monday, 2.6.1986, electronic weighbridges will be provided on the Up and Down Coal lines on the up side of Hexham. A gauntlett track will be provided to serve the weighbridges and the points and signals will be worked from a panel in Hexham signal box.

MATONG. On Tuesday, 3.6.1986, Matong was closed as an Electric Train Staff crossing station, the new section becoming Ganmain-Grong Grong. The main line was realigned via the Through Road and the Platform Road placed out of use.

SCONE. On Sunday, 15.6.1986, the mechanical points and signals were replaced by colour light signals and power operated points worked from an O.C.S. route setting panel in the signal box. At the same time, Single Line Track Controlworking replaced the Electric Train Staff working on the section, Togar-Scone. The notice boards at Togar were relocated to the respective signals at Scone. The staff contact box was also relocated.

WEETHALLE. On Tuesday, 24.6.1986, Weethalle was closed as an Ordinary Train Staff and Ticket crossing station, the new section becoming Barmedman-Rankin Springs, with a Heart staff coloured Green.

INVERELL. On 27.6.1986, the yard at Inverell was rationalised and de-interlocked. The Down Home signal was fixed at Stop and a Notice Board lettered "Non Interlocked Area" provided. The platform road has been renamed the Arrival Road and the Loop Road renamed Run Round Road.

CURLEWIS. On Sunday, 29.6.1986, the crossing loop was extended by 290 metres and mechanical signal No 2 has been replaced by a colour light signal on the Werris Creek side of the level crossing.

PARKVILLE. On Sunday, 29.6.1986, the mechanical points and signals were replaced by colour light signals and power operated points worked from an O.C.S. route setting panel in the signal box. At the same time, Single Line Track Control working replaced the Electric Train Staff working on the section, Scone-Parkville. The notice boards at Togar were relocted to the respective signals at Parkville. The staff contact box was also relocated.

MICHELAGO and BREDBO. On a date to be advised, these stations will be closed as Electric Train Staff crossing stations, the new section becoming Royalla-Cooma (87.81Km in length).

ADAMSTOWN-REDHEAD. On Thursday, 10.7.1986, the Electric Train Staff on this section was replaced by Ordinary Train Staff and Ticket working with a Square Staff coloured Blue. At Adamstown, a staff contact lock will be operated by the staff on signal No 208A.

WATERFALL. Commencing Saturday 12.7.1986 and continuing until Sunday, 13.7.1986, a stage of the yard re-arrangement was brought into service. The Up Refuge Siding was extended 100 metres towards Wollongong. The weighbridge siding was renamed Up Goods Loop and was extended 800 metres towards Sydney and will eventually become, in effect, a second Up Refuge Loop.

MURULLA. On Sunday, 13.7.1986, the mechanical signals and points were replaced by colour light signals and power operated points worked from a O.C.S. route setting panel located in the signal box. Electric Train Staff working remains in force on the sections Parkville-Wingen-Murulla-Blandford- Murrurundi. (NOTE: Wingen and Blandford are not being converted to CTC crossing loops and will be closed when the Electric Train Staff system is dispensed with. Ed)

WATERFALL-HELENSBURGH. Commencing on Saturday, 9.8.1986, and continuing until Sunday, 10.8.1986, bi-directional signalling will be brought into service between these two stations. Half-pilot staffs were provided adjacent to the Starting signals at both ends and will be available for emergency working as prescribed in the Regulations.

PARKVILLE-MURULLA. On 10.8.1986, the Electric Train Staff working on the sections Parkville-Wingen-Murulla was cancelled and Single Line Track Control signalling introduced on the section Parkville-Murulla. Wingen was abolished as a crossing station. The notice boards and staff contact box were relocated from Parkville to Murulla.

EAST GRETA JUNCTION-NEATH (South Maitland Railways). On Friday, 15.8.1986, the Electric Train Staff working was replaced by Ordinary Train Staff and Ticket working with a Square Staff coloured Blue.

WATERFALL. Commencing on Saturday, 16.8.1986 and continuing until Sunday, 17.8.1986, the final stage of the yard re-arrangement was brought into service. Various additional signals were provided as a result of the Up Goods Loop being brought into full service.

FARRER-BUNGENDORE. On Sunday, 17.8.1986, the large pattern Electric Train Staff instruments were replaced by miniature instruments with 50 staffs.

GOULBURN-TARAGO. On Sunday, 17.8.1986, the existing type C electric train staff instruments were replaced by type B instruments.

NEILREX. On Tuesday, 2.9.1986, Neilrex was closed as an Electric Train Staff crossing station, the new section becoming Merrygoen-Binnaway, 40.858Km long.

WEETALIBA. On Thursday, 4.9.1986, Weetaliba was closed as an Electric Train Staff crossing station, the new section becoming Binnaway-Premer, 69.604Km.

CLYBURN (CLYde-AuBURN). On Sunday, 7.9.1986, a weighbridge was provided on the down relief road.

YANNERGEE. On Tuesday, 9.9.1986, Yannergee was closed as an Electric Train Staff crossing station, the new section becoming Premer-Springridge, 36.432Km in length.

BAAN BAA. On Thursday, 11.9.1986, Baan Baa was closed as an Electric Train Staff crossing station, the new section becoming Boggabri-Turrawan, 32.448Km in length.

CLANDULLA-RYLSTONE. On a date to be advised, the balloon loop loading facilities at Charbon Mine will be brought into service. An intermediate electric staff instrument was provided at the junction.

TARAGO-BUNGENDORE. On Sunday 15.9.1986, the Ordinary Train Staff and Ticket working was replaced by Electric Train Staff working using type A miniature instruments.

BREEZA. On Tuesday, 16.9.1986, Breeza was closed as an Electric Train Staff crossing station, the new section becoming Burilda-Watermark, 18.407Km long.

ROTO. On Wednesday, 17.9.1986, Roto was closed as an Ordinary Train Staff and Ticket crossing station, the new section becoming Matakana-Trida, 84.629Km in length.

MURRURUNDI. Commencing on Saturday 20.9.1986 and continuing until Sunday, 21.9.1986, the mechanical points and signals were replaced by colour light signals and power operated points worked from an O.C.S. route setting panel located in the signal box. At the same time, the Electric Train Staff working between Murulla, Blandford and Murrurundi was replaced by Single Line Track Control working between Murulla and Murrurundi, Blandford being closed as a crossing station. The notice boards and staff contact box were relocated from Murulla to Murrurundi.

EDGECOMBE-ZIG ZAG. On Sunday, 21.9.1986, the bi-directional signalling was brought into service. Both ends of the section are worked from a control panel located in Lithgow Coal Stage signal box. Emergency control panels are provided at both locations.

LOCKHART. On Tuesday, 23.9.1986, Lockhart was closed as an Ordinary Train Staff and Ticket crossing station, the new section becoming The Rock-Urana.

URANA. On Tuesday, 23.9.1986, the signal box was placed out of use and the Down Home signal will be worked by a single lever - Lever A. The Up Home signal was removed and the Ordinary Train Staff and Ticket working between Urana and Stopboard (648.300Km) cancelled.

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S.R.S.V. CROSSWORD
Answers to Crossword No 19.

Across: 1. AD, 3. Crossover, 9. Roto, 11. Rod, 12. Turntable, 16. CE, 17. Rocket, 21. Flier, 22. High, 23. Lounge, 25. Switch Lock, 27. LA, 28. FH, 29. Orange, 33. Texas, 34. Bunyip, 37. Finials, 38. Glenelg, 39. PHS.
Down: 1. Art, 2. Double wire, 3. Concertina, 4. Oba, 5. Silo, 6. VR, 7. Eo, 8. Rd, 10. TR, 13. TER, 14. Brill, 15. Echuca, 18. Kink, 19. Egg, 20. The Chips, 24. Oolbun, 26. HBE, 29. OT, 30. Axle, 31. GS, 32. Nyah, 34. Big, 35. Nip, 36. ILS, 37. FL.

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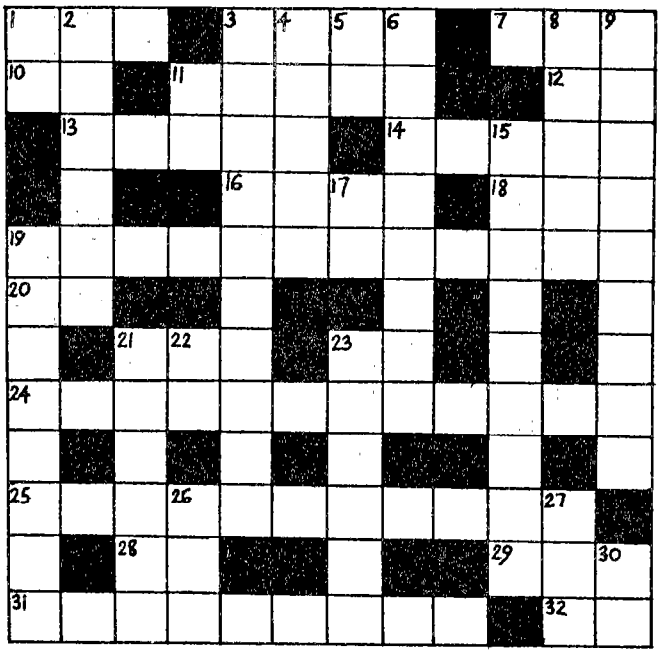
S.R.S.V. CROSSWORD No 20.
compiled by Stephen McLean



ACROSS

1. A clue to get your teeth into (3)
3. Feature of steam locos which works hesitatingly in quiet surroundings (4)
7. Well-known photographer of steam, electric and diesel locos (1,1,1)
10. This AN carriage is a degree more comfortable than most (2)
11. Signal control system installed by the Board (5)
12. The train "TA" (2)
13. Start your annual nighttime nap in this sleeping car (5)
14. A station with alternative routes to Melbourne - here's a very obvious case already, for a start (5)
16. Otto arranges to do the right thing at the whistle board (4)
18. Not to graph 3 down, but to photograph it moving very fast (3)
19. A station officer is past it (12)
20. Where they run trains on the right hand track? Not them! (2)
21. System with a superior coastal route (3)
23. Never take the first woman out on an Indian Railway (2)
24. Mal never got a changed indicator on the block instrument (12)
25. Likely terminating point of a train departing from Emerald (11)
28. Kit doesn't have time to repeat the name of a South Australian station (2)
29. Pre-grouping system which made up three quarters of the company after 1923 (3)
31. He's still confused about a suburban terminus (4,5)
32. Where relief is obtained on the west coast (2)

DOWN

1. NSW dining car on the Appenzellerbahn (2)
2. Closed station beyond Dandenong, but not quite by Sale (6)
3. A feature recently added to the A class (10) (5)
4. Not Northern, Western or Southern
5. Not on Mondays at Murchison East (2)
6. A long-standing feature of railway passengers (8)
8. Number sometimes associated with 15 down, a stopping train most likely (5)
9. Plain crossing place in NSW [now closed] (9)
11. Initially Paul Nicholson had two diesels [at a Torino station?] (2)
15. The theatrical business of running trains (9)
17. Safeworking system still seen in Proserpine? (2)
19. Gee, urban development this far out of Melbourne? (8)
21. They could be checked in a Scottish signal box (6)
22. Parcels van on the northernmost viaduct track (2)
23. Higher than medium (6) (3)
26. Associated with guards and bashing
27. Descriptive of castle in NSW and port in Victoria (3)
30. Self propelled vehicle found in a far corner of the yard (2)

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