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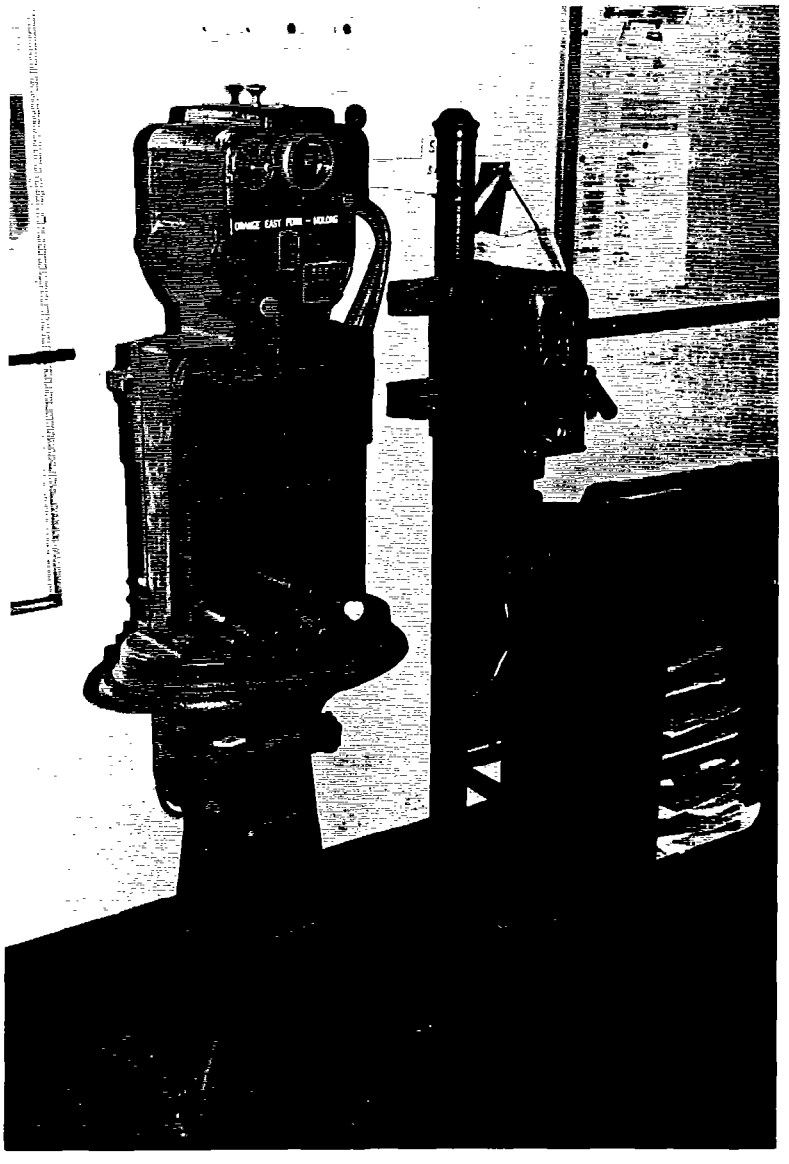
SIGNALLING RECORD SOCIETY OF VICTORIA INC



New South Wales has some very interesting signalling, take this photo from Orange signalbox as an example. Orange is the junction between the main Western line to Bourke and the line to Broken Hill (and eventually, Perth). The junction is located on the Sydney side of Orange station and consists of a triangle to allow Broken Hill line trains to run direct to either Orange or Sydney. The eastern and southern apexes of the triangle are worked by Orange East Fork Junction signalbox, the northern apex by Orange signalbox. The first staff section on the Broken Hill line runs from Orange East Fork to Molong. The instrument shown in the picture, which can hold 124 staffs, is an intermediate instrument in that section. The red device on the right is the release for the Shunting Key Staff. This allows the shunting engine at Orange to shunt sidings on the western leg of the triangle (i.e. within the section) while a train is approaching Orange on the single line. Photo: Andrew Waugh

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MINUTES OF MEETING HELD FRIDAY NOVEMBER 21, 1997.

Present:- A.Jungwirth, K.Ashman, J.Black, W.Brook, G.Cumming, A.Gostling, W.Johnston, K.Lambert, D.Langley, B.McCurry, J.McLean, I.Michaelson, N.Reed, L.Savage, P.Silva, R.Smith, A.Waugh & R.Whitehead.

Apologies:- J.Churchward, R.Cropley & G.O'Flynn.

Visitor:- V.Findlay & D.White.

The President, Mr. Alan Jungwirth, took the chair and opened the meeting @ 2008 hrs with a special welcome to Noel Reed from Sydney and Ken Ashman from New Zealand.

Minutes of the September 1997 Meeting:- Accepted as read. J.McLean / W.Brook. Carried.

Business Arising:- Glenn Cumming reported on a successful Showday Tour held on Cup Day.

Peter Silva advised that the R.T.A. had applied for permission to travel on the Upfield transfer trains.

Correspondence:- Various letters had been sent and received concerning the arrangements for the recent tour.
R.Whitehead / L.Savage.

General Business:- Bob Whitehead spoke about recent working bees at the Archives Room in Seymour, noting the efforts of Chris Wurr.

Glenn Cumming reported on the recent demise of the large mechanical interlocking machine at Rockhampton "B" Cabin and the use of the mechanical interlocking at Ascot complete with special rail car for training safeworking employees.

Jack McLean reported on the trialing of the Section Authority System on the Yelta Line. David Langley noted that this had lead to another reorganisation of train control rooms at Centrol.

Bob Whitehead spoke about the progress of the stabling sidings at Burnley & Camberwell.

Alan Jungwirth advised that the 16 day occupation at Flinders Street commences tonight.

Noel Reed advised that the commissioning of the SSI for the Olympic Stadium Loop at Homebush will take place tomorrow & will be controlled from Strathfield. Replacement of the pistol grip frame at Hornsby is now due in October 1999. There are plans for an SSI for the Sydney City Railway.

Wilfrid Brook reported on an electrical failure at Gardiner today that resulted in the catch points in the tram lines being worked by hand.

Andrew Waugh noted that new signal posts had appeared on the Upfield Line.

David Langley spoke about the arrangements at Box Forrest Road at Gowrie.

Bill Johnston noted that a new signal on the Up Goods Line at the Maribyrnong River Bridge did not have a "V" or "S" indicator. Bill also noted that the Footscray Goods Line is rusty.

Laurie Savage asked how many trains went to Webb Dock ? (The exact number was not known but it can't have been many.)

Bob Whitehead spoke on a proposal to relocate Bowser Loop to Toolamba.

Glenn Cumming descibed the new US & S end of train units in use on NRC trains that provide a constant pressure reading in the loco cab and also allow the air to be dumped at the end of the train in an emergency.

Keith Lambert spoke about a level crossing at Mascot Airport many years ago. Noel Reed was able to expand on Keith's comments and described the signalling arrangements to prevent trains crossing the runway while aircraft movements were taking place. David Langley mentioned a

similar situation at Burnie - Wynyard Airport in Tasmania and Ken Ashman spoke about the similar arrangements at Gisborne in New Zealand.

Syllabus Item:- The President introduced member Ken Ashman. Ken is a signalling technician with Tranzrail in New Zealand and spoke about the current rail situation in New Zealand with an emphasis on signalling & safeworking. Ken's presentation was assisted by a selection of slides, maps, posters and a variety of diagrams. Ken gave a demonstration of New Zealand CTC signal aspects as part of a summary of what can be seen in New Zealand today. The presentation included many questions and much discussion from everyone who was present.

At the conclusion of the syllabus item, The President thanked Ken for the entertainment and this was followed by acclamation from those present.

Meeting closed @ 2305 hrs.

The next meeting will be on Friday 20 February, 1998 at the Uniting Church Hall, Hotham Street, Mont Albert, commencing at 2000 hours (8.00 pm).

SIGNALLING ALTERATIONS

The following alterations were published in WN 38/97 to WN 41/97. The alterations have been edited to conserve space. Dates in parenthesis are the dates of the Weekly Notice.

22.09.1997 **Somerton - Seymour**

Commencing Monday, 22.9.97, the block hours will be:

Somerton:
Mondays - Fridays.....0310 hours to 1910 hours
Saturdays and Sundays ..... Switched Out

Donnybrook
Mondays - Fridays.....1600 hours to 2400 hours (or clearance of 9318)
Saturdays and Sundays ..... Switched Out

Wallan
Mondays - Fridays.....0600 hours to 1045 hours (or clearance of 8314)
.....1200 hours to 1500 hours (or clearance of 9319)
Saturdays.....1615 hours to 1945 hours (or clearance of 8337)
Sundays..... Switched Out

Kilmore East
Mondays - Fridays.....0535 hours Monday until 2200 hours Friday (or clearance of 8333)
Saturdays ..... 0700 hours to clearance of 8314 (Broadmeadows at 1129)
.....1800 hours to 2010 hours (or clearance of 8337)
Saturdays and Sundays .....1650 hours to 2025 hours (or clearance of 8336)

Broadford
Mondays - Thursdays .....0535 hours to 2000 hours (or clearance of 8329)
Fridays .....0535 hours to 2230 hours (or clearance of 8333)
Saturdays and Sundays ..... Switched Out

Seymour (will be attended by a Signaller)
Mondays - Saturdays ..... 0001 hours Monday to 2010 hours (or clearance of 8337) Saturday
Sundays.....0910 hours to clearance of 8339 (1041 hours)
.....1630 to clearance of 8336 (Kilmore East at 1953 hours)

(SW 344/97, WN 38/97)

22.09.1997 **Wodonga**

Commencing Monday, 22.9.97, the block hours will be:

Wodonga A (will be attended by a Signaller)
Mondays - Sundays.....1100 hours Sunday to 0800 hours the following Sunday

Wodonga Coal Sidings
As required for movements to or from sidings

(SW 344/97, WN 38/97)

(23.09.1997) **LSDU Fitted Locomotives**

NR97 has been fitted with a LSDU. (WN 36/97)

(23.09.1997) **West Tower - North Melbourne Carriage Washing Plant**

The Signaller, West Tower, must obtain permission before signalling a train into No 7 Track at the North Melbourne Wash Plant. Before granting permission, the Wash Plant Operator must check that the green indicator light for Points 209 is lit.

The Signaller West Tower must not operate Dwarf 160 until advised by the Wash Plant Operator that the train is ready to depart. (SW 326/97, WN 36/97)

(23.09.1997) **Newmarket**

A fixed Train Stop has been installed on the Down Racecourse line ahead of Dwarf 44 to prevent a reversing train from entering the Down platform. (SW 324/97, WN 36/97)

(23.09.1997) **Section Authority Workstations; Administrative Procedures**

Archive/Trip Expire

It is necessary to perform the Archive (which saves the log files to tape and copies the database) and Trip Expire (which deletes all trips older than a set time) functions periodically to maintain the operation of the workstations. These functions will be performed on Monday, Wednesday, Friday, and Saturday. As these functions require the workstations to be shut down, these functions must be performed under the supervision of the System Safety Officer (SSO).

The best time to perform an Archive/Trip Expire will be established by the SSO in consultation with the Train Controller. The SSO will prepare a checklist of all trains and track vehicles operating over the Section Authority Territory. The Train Controller must advise the Drivers of all trains that an Archive/Trip Expire is to be performed and the expected duration of the procedure. Drivers must not use the LSDU until advised that the Archive/Trip Expire has been completed.

The Train Controller must then print all the Train Graphs and check the printed copies against the Electronic Train Graphs. The SSO must check the printed copies against the checklist.

The Workstation will then be shut down. The Train to Base Radio will not work while the workstation is shut down. Drivers are to proceed as indicated on their Current and Next Section Authorities.

When the Technical Administration Adviser informs the SSO that the Archive/Trip Expire has been completed, the SSO will instruct the Train Controller to log into the Workstation. The SSO and Train Controller must confirm the details on the Electronic Train Graph with the printed paper graph, and the SSO with the train movements on the checklist. The paper graph must be endorsed when the check is complete. The Train Controller must endorse on the Electronic Train Graph (at North Geelong C) that a Archive/Trip Expire has been carried out. The Train Controller must advise the Driver of every train that the Archive/Trip Expire has been completed and that normal operations have been resumed.

Data Blanking

Data Blanking is performed whenever it is necessary to make any alterations to the Section Authority Software, including alterations to geography. The operation deletes all information in the workstation.

Data Blanking must not be performed unless seven days notice is given to the Superintendent Safeworking, and an SW circular has been issued giving the procedure.

The Workstation must not be shut down until every train is stationary at a Crossing Station or Loop and all outstanding authorities have been returned to the Workstation. When the Workstation has been restarted, the Train Controller must re-enter all active trains, re-assign their locomotives, and update the location reports. The Train Controller must read the screens of the LSDUs of all leading locomotives to ensure that there are no outstanding authorities in any of the LSDUs. (SW 327/97, WN 36/97)

(23.09.1997) **NR Class fitted with LSDUs**

Locomotive NR 97 has been fitted with LSDUs. (WN 36/07)

26.09.1997 **Eaglehawk**

From Friday, 26.9.97, the lamps on the Up Home signals have been replaced by reflective blinders. (SW 362/97, WN 39/97)

28.09.1997 **Gowrie**

On Sunday, 28.9.97, Gowrie was disestablished as a Staff station. The Train Staff and Ticket section Fawkner - Upfield replaced the sections Fawkner - Gowrie and Gowrie - Upfield.

The panel was abolished. Posts 68, 70 and 71 and Points F were abolished. Post 69 was converted to an Up Two Position Automatic and renumbered C.574.

Amend Diagram 23/97. (SW 340/97 & SW 348/97, WN 37/97 & 38/97)

(30.09.1997) **Newmarket - Failure of Signals**

Newmarket Switched In

Should Homes 34, 42, or 48 be at Stop with no train in advance of the signal, the Driver must contact the Signaller at Kensington. If the points are detected in the correct position for the move, the Signaller must complete a Signaller's Caution Order (2377) and dictate it to the Driver. Should Dwarfs 44 or 46 fail and the points are detected in the correct position, the Signaller will verbally instruct the Driver to pass the signal at Stop. If point detection is lost, a Signal Maintenance Technician must attend to operate the points to the required position and secure them with a point clip. The Signaller may then issue a Caution Order.

Should Home 36 be at Stop with no train in advance of the signal, the Driver must contact the Signaller at Kensington. If the line is clear to the next signal, the Signaller will give verbal authority to pass the signal at Stop.

Newmarket Switched Out

Should Newmarket be switched out when Homes 34 or 48 fail and the illuminated letter A is not illuminated, the Driver must contact the Signaller at Kensington. If the points are correctly detected, the

Signaller will give verbal authority to pass the signal at Stop. Should Kensington be switched out when Homes 34, 36, or 48 fail, the Rules 12b and 12c, Section 2, Book of Rules will apply.

(SW 341/97, WN 37/97)

05.10.1997 **Newport - Werribee**

Commencing Sunday 5.10.97, the East and West Lines between Newport South and Werribee and the Westona Line were transferred from Centrol to Metrol.

The Signaller Newport is responsible for issuing ATC Caution Orders for the Altona Junction - Laverton sections.

The Signallers Newport and Werribee are responsible for issuing System Caution Orders for the Laverton - Werribee sections. When the Home Departure signals at Laverton or Werribee fail, Down trains must be routed via the East Line and Up trains via the West line between Laverton and Werribee. Should the East Line Down Departure signal at Laverton or the West Line Up Departure signal at Werribee fail, the Signallers at Werribee and Newport must confer. Rules 6 & 7, Section 16, Book of Rules will apply. It will not be necessary to use Form 2382 for this section. The opposing Home Departure Signal must be sleeved and a note to this effect made in both TRBs for each train issued with a Caution Order.(SW 337/97, WN 38/97)

(07.10.1997) **Oakleigh**

Siding C has been reduced in length from 317 metres to 278 metres. Amend Diagram 11/85.

(SW 348/97, WN 38/97)

11.10.1997 **Flinders Street**

On Saturday, 11.10.97, the entrances to the Goods Siding and Test Track at Jolimont Junction were abolished. Dwarf 994 (Goods Siding to Main Lines or Test Track), Crossover 894 (lead to Goods Sidings), and Dwarf 991 (Test Track to Goods Siding) were abolished. Dwarf 996 (Test Track to Test Track Spur), Crossover 895 (Test Track Spur to Main Lines) and Dwarf 995 (Test Track Spur to Main Lines or Test Track) were abolished. (SW 363/97, WN 39/97)

12.10.1997 **Centrol**

In conjunction with the installation of the Section Authority System between Donald and Yelta, the assignment of lines to Train Control Rooms has been altered:

Room 2	Dunolly - Robinvale	Maryborough - Castlemaine
	Korong Vale - Kulwin	Ouyen - Panitya
	Ararat - Maryborough	
Room 4	North Geelong C - Yelta	Maroona - Portland
Room 5	Seymour - Tocumwal	Shepparton - Dookie
	Strathmerton - Cobram	Benalla - Oaklands

(SW 360/97, WN 39/97)

12.10.1997 **Donald - Mildura - Yelta**

From Sunday, 12.10.97, the Section Authority System Donald - Yelta replaced the Train Order System between Donald - Mildura and the Train Staff and Ticket System Mildura - Yelta. The single line sections are: Donald - Watchem - Birchip - Curyo Block Point - Woomelang - Gama Block Point - Speed - Ouyen - Hattah - Carwarp - Yatpool Block Point - Irymple - Mildura - Yelta.

The instructions in SW 325/97 are cancelled and the following extended instructions apply:

North Geelong C

The 'Commence Section Authority Territory' boards are located adjacent to Post 40 and are applicable to Broad Gauge trains only. A Shunt Authority to shunt outside the Home signal must not be issued at North Geelong C. Dwarfs 48 and 50 will display 'Clear Low Speed' for movements to the main line. The Driver may resume normal speed once the last vehicle has cleared the points. The Train Controller must inform the Signaller North Geelong C whenever a train departs the crossing location in the rear, or when a road/rail vehicle is granted permission.

Meredith

Meredith is a Switch In/Out location, when switched out the section will be Lethbridge Block Point - Lal Lal Block Point. When switching in or out, the Train Controller must ensure that no Section Authorities are outstanding between Lethbridge Block Point - Meredith - Lal Lal Block Point. The Train Controller must not switch Meredith in until the Signaller advises that the signals have been restored to Stop, and the Signaller must not clear the signals when switching out until the Train Controller advises that Meredith has been switched out in the Workstation. Notes must be made in the TRB and Electronic Train Graph when Meredith switches in or out.

The Train Controller must inform the Signaller Meredith whenever a train departs the crossing location in the rear, or when a road/rail vehicle is granted permission.

Ballarat

Ballarat is an 'Attended Crossing Station' and must be attended for all train movements.

The 'Commence/End Section Authority Territory' boards for the Melbourne line are located at Post 52. It is not necessary to issue a Section Authority for a train from the Melbourne line to enter Ballarat.

When a Medium Speed indication is displayed on Post 6, the speed restriction only applies until the train has cleared the points.

The Train Controller must inform the Signaller Ballarat whenever a train departs the crossing location in the rear, or when a road/rail vehicle is granted permission.

Maryborough

Maryborough is an 'Attended Crossing Station' and must be attended for all train movements. Maryborough must not be switched out for DICE operation or closed in the Workstation.

The 'Commence/End Section Authority Territory' boards for the Ararat line are located at Post 2, and for the Castlemaine line at Post 24. It is not necessary to issue a Section Authority for a train from the Ararat or Castlemaine lines to enter Maryborough.

When a Low Speed indication is displayed on Dwarfs 14, 16, or 18, the speed restriction only applies until the train has cleared the points.

The Train Controller must inform the Signaller Maryborough whenever a train departs the crossing location in the rear, or when a road/rail vehicle is granted permission.

Dunolly

Dunolly is an Open/Close location. When closed, Dunolly is a Trailable Points Loop and the Section Authorities will be to 'DUNOLLY LP'. When open, Dunolly is an Attended Crossing Station and the Section Authorities will be to 'DUNOLLY'. Dunolly cannot be opened while a train with a Directional Block is standing at Dunolly. Dunolly must not be closed while a train is standing in the Loop or on the Main Line. Shunting movements must not be allowed to foul the Loop or Main Line when Dunolly is closed.

When opening or closing Dunolly, the Train Controller must ensure that no Section Authorities are outstanding between Maryborough - Dunolly - Emu. The Train Controller must not open Dunolly until the Signaller advises that the signals have been restored to Stop, and the Signaller must not clear the signals when switching out until the Train Controller advises that Dunolly has been closed out in the Workstation. Notes must be made in the TRB and Electronic Train Graph when Dunolly opens or closes.

The 'Commence/End Section Authority Territory' boards for the Korong Vale line are located at Post 7. Dunolly must be open before a Section Authority can be issued for a Down Korong Vale line train to leave Maryborough. Dunolly need not be open or attended prior to a Train Order being issued for an Up Korong Vale line train to leave Arnold Block Point, but Dunolly must be open prior to admitting the train to Dunolly yard. It is not necessary to issue a Section Authority for a train from the Korong Vale line to enter Dunolly.

Dunolly must be open before a Section Authority can be issued for a Standard Gauge train to proceed to or from Maryborough. The Section Authority for a Down train from Maryborough may be relinquished once the train is clear of D points. The locomotive will then be detached from the train and unloading operations commenced. Once all the vehicles have been unloaded, the locomotive will draw the vehicles forward until they are clear of J points. The locomotive will then run around via H points, the Main Line, and J points. The Signaller will then reverse D points using an ST21 key to allow the train to depart. Only one Standard Gauge train may work Dunolly at a time.

The Train Controller must inform the Signaller Dunolly whenever a train departs the crossing location in the rear, or when a road/rail vehicle is granted permission.

Donald

Donald is an Open/Close location. When closed, Donald is a Trailable Points Loop and the Section Authorities will be to 'DONALD LP'. When open, Donald is an Attended Crossing Station and the Section Authorities will be to 'DONALD'.

When opening or closing Donald, the Train Controller must ensure that no Section Authorities are outstanding between Watchem - Donald Loop - Sutherland. The Train Controller must not open Donald until the Signaller advises that the signals have been restored to Stop, and the Signaller must not clear the signals when switching out until the Train Controller advises that Donald has been closed out in the Workstation. Notes must be made in the TRB and Electronic Train Graph when Donald opens or closes.

Donald must be open for all trains shunting at Donald. Donald cannot be opened while a train with a Directional Block is standing at Donald. When open, it will not be necessary to issue a Section Authority for a train to proceed from Donald Loop to Donald station or vice versa. Donald must not be closed while a train is standing in the Loop, on the Main Line, or in No 1 Track. Shunting movements must not be allowed to foul the Loop, Main Line, or No 1 Track when Dunolly is closed.

When Donald is closed, Home E on Post 2 will be operated by the Driver of a Down train using DICE. The Driver must be in possession of a DONALD LP - WATCHEM Section Authority before entering the DICE code for Home E. The DICE code is displayed on the DICE Approach Zone Board and the DICE Subsidiary Board. DICE operation is selected by means of the Remote/Local keyswitch at Donald.

The Train Controller must inform the Signaller Donald whenever a train departs the crossing location in the rear, or when a road/rail vehicle is granted permission.

Ouyen

Ouyen is an Open/Close location. When closed, Ouyen is a Block Point and the Section Authorities will be to 'OUYEN BP'. When open, Ouyen is an Attended Crossing Station and the Section Authorities will be to 'OUYEN'. Ouyen must be open for all Mildura line trains which originate or terminate at Ouyen. When Ouyen is closed, no shunting movements must be allowed to foul No 1 Track, nor can Ouyen be closed while a train is standing in No 1 Track.

When opening or closing Ouyen, the Train Controller must ensure that no Section Authorities are outstanding between Speed - Ouyen - Hattah. The Train Controller must not open Ouyen until the Signaller advises that the signals have been restored to Stop, and the Signaller must not clear the signals when switching out until the Train Controller advises that Ouyen has been closed out in the Workstation. Notes must be made in the TRB and Electronic Train Graph when Ouyen opens or closes.

The Train Controller must inform the Signaller Ouyen whenever a train departs the crossing location in the rear, or when a road/rail vehicle is granted permission.

Hattah

Hattah is an Open/Close location. When closed, Hattah is a Block Point and the Section Authorities will be to 'HATTAH BP'. When open, Hattah is an Attended Crossing Station and the Section Authorities will be to 'HATTAH'. When Hattah is closed, no shunting movements must be allowed to foul No 1 Track, nor can Hattah be closed while a train is standing in No 1 Track.

When opening or closing Hattah, the Train Controller must ensure that no Section Authorities are outstanding between Ouyen - Hattah - Carwarp. The Train Controller must not open Hattah until the Signaller advises that the signals have been restored to Stop, and the Signaller must not clear the signals when switching out until the Train Controller advises that Hattah has been closed out in the Workstation. Notes must be made in the TRB and Electronic Train Graph when Hattah opens or closes.

The Train Controller must inform the Signaller Hattah whenever a train departs the crossing location in the rear, or when a road/rail vehicle is granted permission.

Irymple

Irymple is a Switch In/Out location, when switched out the section will be Yatpool Block Point - Mildura. Irymple must not be switched in unless authorised by the Superintended Safeworking.

Irymple must not be switched out while No 1 Track is occupied. When switched out, a train must not foul No 1 Track unless in possession of a Section Authority for the Mildura - Yatpool Block Point section.

When switching in or out, the Train Controller must ensure that no Section Authorities are outstanding between Yatpool Block Point - Irymple - Mildura. The Train Controller must not switch Irymple in until the Signaller advises that the signals have been restored to Stop, and the Signaller must not clear the signals when switching out until the Train Controller advises that Irymple has been switched out in the Workstation. Notes must be made in the TRB and Electronic Train Graph when Irymple switches in or out.

The Train Controller must inform the Signaller Irymple whenever a train departs the crossing location in the rear, or when a road/rail vehicle is granted permission.

Mildura

Mildura is an Attended Crossing Station, but Driver in Charge conditions will apply for the arrival of Train 9139 Tuesdays to Fridays. Prior to ceasing duty, the Signaller must clear Homes K, A, and D. Upon arrival of 9139 the Driver must ensure the train has arrived complete, relinquish the Section Authority, secure the train, and lock away the Master Key and radio is the box in the Train Crew radio room.

Yelta

Yelta is a Section Authority Terminal Station. There are no fixed signals and the points are secured by Hand Locking Bar and padlock. Commence/End Section Authority boards are located 450 metres outside the Up end points and this point is defined as Station Limits.

The Driver will be in charge of signalling for all trains at Yelta. The Driver of a Down train must not relinquish the Mildura - Yelta Section Authority until the train is complete within the End Section Authority Board. No part of the train may foul the line outside the Commence Section Authority board unless a Section or Shunt Authority has been issued for the Yelta - Mildura section. It will not be necessary for the Driver to obtain an ETM sighting before pressing the 'Depart' button when the train leaves Yelta. However, the Section Authority must not be relinquished at Mildura until it has been checked that the train has arrived complete.

Track permission for Road/Rail vehicles will only apply to the End Section Authority board at Yelta. The Road/Rail vehicle must not enter Yelta if there is a train there. (SW 354/97, WN 39/97)

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VICTORIAN BOX TYPES

Andrew Waugh

Introduction

This article is a preliminary classification of Victorian signalbox types.

The identification scheme has been chosen to match the existing NSW signalbox classifications. Box designs are broadly classified into eleven categories, identified by a letter, and these categories are subdivided where necessary by numbers.

The eleven broad categories are:

A Pre-standard boxes.
B Wooden construction with a hipped roof with narrow eaves
C Wooden construction with a gable roof
D Brick construction with a hipped slate roof
E Wooden construction with a hipped roof with deep eaves
F Brick and concrete construction with a hipped brick roof
M Signal bay
W Signal room
X Covered Ground Frames
Y Non standard designs
Z Unknown

Just over half these categories (A, M, and W to Z) represent functional divisions. **Type A** signalboxes are those erected before the introduction of standard designs around 1880 (e.g. Swan Street). **Type M** are signalbays. It is clear that there were standard designs and approaches for signalbays and a future categorisation might expand the categorisation for signalbays beyond one type letter. Some Victorian 'signalbays' were standard signalboxes attached to station buildings. Examples include Braybrook Junction and Trawalla. These are considered as signalboxes in this classification. **Type W** represent panels or frames which are placed in station offices, or in a room in the station building, without the normal 'bay'. This was standard for panels, but a few frames were installed in this way (e.g. Gheringhap and Wallan (1996)). **Type X** are covered ground frames, normally some form of hut. An example is Kyneton Auxiliary. **Type Y** signalboxes are built to a non standard design. Normally these designs were 'one offs' (e.g. Footscray A), but a small number of examples might exist (e.g. the brick signalboxes at Kensington and South Kensington). **Type Z** is simply a place holder where the box design is unknown.

These signalbox classifications are not 'official' and it should be noted that these are preliminary notes and that much work remains to confirm the details.

Brief history of signalbox designs in Victoria

Like the interlocking frames they contained, the early Victorian signalboxes owe their origins to the UK. The first mechanical signalbox in Victoria was opened by the Hobson's Bay railway at Swan Street (Richmond) in 1873 and contained a Saxby and Farmer frame. A VR photograph [1] shows it to be similar to the Saxby and Farmer Type 1b (although by the 1870s, this design had been largely superseded in the UK) [2].

Similarly, when McKenzie and Holland began to install signalboxes on the VR, they closely resembled their UK products.

The first recognisable style was the **Type B**, introduced by 1880 (the first known example is Newmarket, opened that year). The **Type B** was a simple hipped roof box with close eaves. The design was similar to the British McK&H Type 1 [3], except that it had the deeper six pane windows of the British McK&H Type 2. As the British McK&H Type 2 had replaced the Type 1 in 1875, it appears that Victoria was well behind in signalbox fashions. Most of the known examples of the **Type B** were brought into service after the development of the **Type C0**, but it is thought that these represent relocated boxes. This represents a theme in Victorian signalbox design. The dry climate and use of local hardwoods meant that boxes had long lives. Reuse was consequently common, particularly of the **Type C0** and **Type C1** boxes.

Around 1883, the **Type C0** was introduced. The earliest known example is Flinders Street West (1883). The **Type C0** is a wooden signalbox with a gable roof wooden. The bargeboards were scalloped in a fancy pattern. The design appears to have been derived from the British McK&H Type 3 which had been introduced during 1875/6 [4]. It is believed that the **Type C0** was erected by McKenzie and Holland. Although only in use for around three years, the Victorian Railways had started a large program of interlocking and a large number of these boxes were erected in a few years.

In late 1886, the Victorian Railways began using local building contractors for the erection of signalboxes (as was then standard practice for the erection of all other major buildings on the railways). Two designs were tried. The first, an ornate brick design was only used at two locations (Kensington and South Kensington) and was not repeated, probably because of the cost.

The successful design was the **Type C1**. A wooden design clearly derived from the **Type C0**, the major distinguishing feature was a change to the decorative treatment of the bargeboards. Instead of the fretwork, a tall wooden finial was provided which extended below the roof line and was cross braced to the bargeboards. The **Type C1** was erected on a large scale until the early 1890s when the collapse of the Victorian economy largely brought about an end to the installations of new interlocking. Indeed a number of relatively new boxes at minor stations were closed during the depression. Some of these boxes appear to have been relocated for the small amount of new work undertaken during that period.

The end of the 1880's also saw the beginning of a new policy; the inclusion of the frame in the station building instead of a in a separate signalbox. The frames were generally installed in a bay window jutting out onto the platform. The first signalbays were provided in 1889 at some very minor stations at the extreme western end of the Western line. This was not, in fact, a major departure in policy as many of the earlier **Type C1** boxes on the Western line were at platform level and would have been operated by the station staff.

Signalbays had only marginally poorer sighting, and were much more convenient for the staff.

There were many signalboxes that could have been replaced by signalbays during the depression (with a consequent saving in staff), but curiously this did not seem to happen. This may reflect a lack of capital to invest in new works, but may also reflect a desire by the railway management to avoid laying off staff. Construction of new signalbays resumed in the late 1890s, but still appeared to be restricted to replacing the smaller signalboxes. Many of these were probably already operated by the station staff.

The new century brought a resumption in new construction as the economy improved. Construction of **Type C1** boxes resumed, but non standard boxes were also built (e.g. the very tall brick box at Footscray Junction in 1901). The reconstruction of Flinders Street yard in the first decade of this century resulted in the construction of the five **Type D** boxes, the first (Flinders Street B) in 1901 and the last (Flinders Street D) in 1910. These were quite different to anything that had gone before: brick with a slate hipped roof and large eight pane windows. The windows were shaded by generous eaves, foreshadowing the **Type E** boxes introduced just before the first world war.

However, signalboxes were only being provided where the signalling could not be worked from signalbays. Typically, signalboxes were provided at locations where their was a lot of shunting or there was some special reason (e.g. interlocked gates) where the frame had to be located away from the station building. Further, the new styles of station building such as the 'Gisborne' style [4], which was very widely erected before the First World War, included a signalbay irrespective of whether the station was interlocked (or ever likely to be).

New construction of signalboxes increased dramatically in the years prior to the First World War and the **Type E0** was introduced in 1913. About the only common features shared between the **Type C1** and **Type E0** was that both were wood with a corrugated galvanised iron roof. The **Type E0** had a hipped roof, with exceptionally deep eaves along the front wall to shade the windows. This gave a unusual 'cap' effect. The lower four panes of the standard six pane windows (which had been used in all boxes since the **Type B**) were replaced by a single large pane to give a three pane windows. Tall **Type E0** boxes were provided with a stage on the front wall, accessed by a door in each end wall. An internal staircase was provided. The first **Type E0** was erected at Creswick in 1913, but only a few more were erected. The last (Korumburra) was, however, not brought into service until 1915.

In 1913, the design was altered by giving deep eaves to all four walls, producing the **Type E1**. The first example was erected at Hamilton in 1913. During the next few years, the Victorian Railways enlarged and interlocked a several major yards (e.g. Hamilton, Cressy, Wallan, Lilydale) and a number of **Type E1** boxes were erected. The economic pressures of the World War eventually suppressed this program in 1916 and at least one **Type E1** (Maroona) was erected and never brought into service.

The post war period had two themes which affected signalbox development. The first was the provision of power signalling in conjunction with the electrification of the Melbourne suburban network. This resulted in a number of boxes being closed or replaced by new power signalboxes. Power boxes were of a new design, the **Type F**, similar to the **Type E**. **Type F** boxes were of brick and concrete with steel window frames, and (generally) a steel external staircase and gallery. The new design was essentially fireproof, a useful feature with the relatively poor electrical insulation used in those days. The first was erected in 1915 when power signalling was provided at South Yarra. The war then intervened and construction did not resume until 1924. The last was brought into service at Caulfield in 1933. The design varied over time and the last boxes were brutally ugly.

The second theme of the post war era was the rise of the motor car and the spread of the suburban area. This greatly increased traffic at level crossings and a program was put in place to improve level crossing protection. The result was the erection of a large number of new signalboxes, often replacing signalbays.

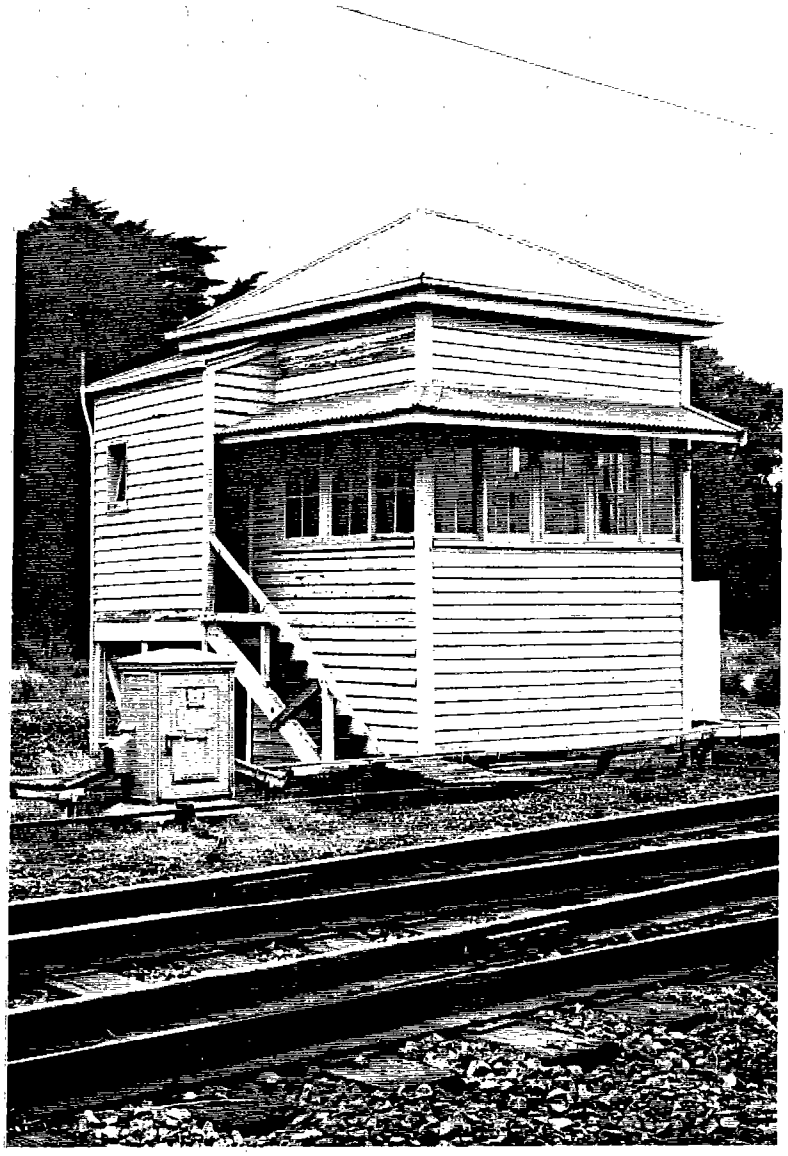
New wooden boxes during this period were of **Type E2**, a development of the **Type E1** in which an external staircase replaced the internal one. Galleries were usually not provided. The first known **Type E2** box was at North Geelong in 1921, and a fair number were erected in the twenties. A number of **Type C1** boxes were also provided to operate the new gates (almost certainly boxes made redundant by the new power signalling), and three **Type F** boxes. No signalboxes were erected during the thirties, and the last examples of the **Type E2** were Wodonga Coal Sidings (1942) and Seymour C (1949).

Generally, signalbays were not provided to work these new gates, probably because many of the metropolitan station buildings were relatively new. Some stations, however, were provided with new buildings in this period (particularly on the Frankston line) and these were generally provided with signalbays which worked the adjacent gates; the station building was consequently at the extreme end of the platform.

When signalbox construction recommenced after the Second World War, the **Type E3** was introduced. A further development of the **Type E** boxes, the hipped roof and external staircase was retained. However, the standard three pane windows were replaced by large square windows. Full glazing across the front wall of the box was not provided. By this time, the provision of large illuminated diagrams on the block shelf usually eliminated most of the view out of the front of the box making full glazing pointless. The cladding was also changed, and asbestos sheeting was often used above the windows instead of weatherboards.

Signalbays continued to be provided, and indeed continue to be provided today. Where the signalbay was provided as part of a new station building (e.g Carrum (1947), Macleod (1955), and Drouin (1958) the signalbay included the same architectural features as the station building.

Among the last new signalboxes built were Wodonga A and Seymour B as part of the standard gauge. The two boxes were not to a standard design, but showed elements of the **Type E3** being completely clad in asbestos sheeting with large rectangular windows. Unlike the **Type E3**, however, they had flat roofs. The last signalbox brought into service was Tottenham B in 1965 and was a **Type E3**.



St Kilda (left) was the last Type B signalbox in service. The box probably dates from 1884 when St Kilda was interlocked with a 12 lever Saxby and Farmer frame, but the box might have been second hand even at that date. The frame was replaced by a 16 lever McKenzie and Holland frame in 1890. After 1928 St Kilda worked automatically for terminating trains, but the box was retained to operate the sidings. The box lasted until the line closed for conversion to light rail in 1987, and might have even lasted slightly longer as broad gauge track machines stabled at St Kilda were used to recondition the track prior to conversion to light rail. The box has now been removed. ***Right.*** *North Ballarat Junction (also known as Ballarat 'C' and McArthur Street) is a* ***Type C0*** *box opened in 1886 when the physical junction between the Ararat and Maryborough lines was moved out to the point of divergence to give a double line to this point. The box was extended in 1927 at this end in conjunction with the provision of a Way and Works Siding. The former corner post can be seen in the front wall. At some stage, the original 6 pane windows have been replaced. The fancy scalloped barge boards can be clearly seen, but the small finial at the peak of the roof has been removed. The provision of a skillion roof porch was common in the* ***Type C0*** *boxes, but it is unknown if this was an original feature. The toilet behind the porch is unlikely to date from 1886. North Ballarat Junction was closed in 1992 when Ballarat was resignalled, but the box remains intact though boarded up.*

TYPE B

Brief Description: Wooden weatherboard construction with hipped roof covered in galvanised iron. Very shallow eaves. Standard 6 pane windows.
Examples: Punt Road (1884), St Kilda (1884), Newmarket (1880), Newport South Junction (1885).
Last in service: St Kilda; none now survive
History: The first standard design appears to have been introduced around 1880; the first known example is Newmarket (1880). This was only the 12th box in service in Victoria.

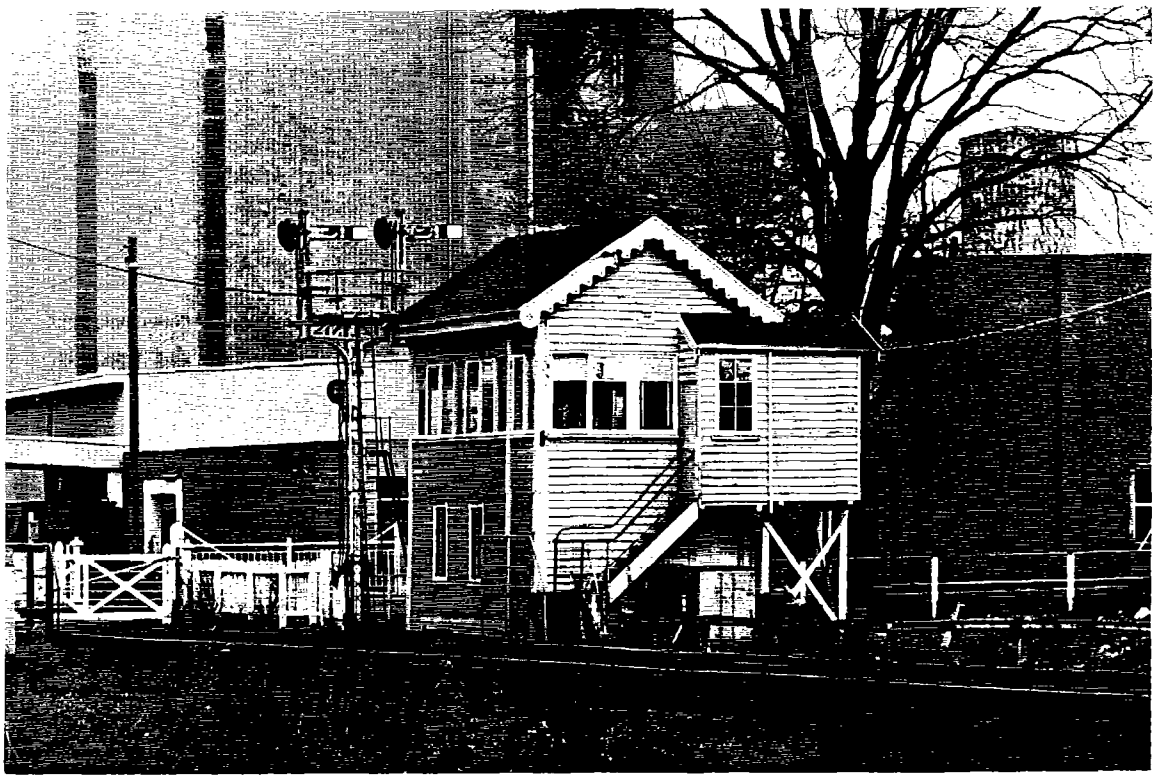
This type was apparently replaced for new work with the Type C0 around 1883, but most of the known Type B boxes were brought into use after this date. These boxes were probably either second hand, or erected before the change in style.

It is likely that very few boxes of this type were erected as there was a hiatus in the erection of boxes between 1880 and 1882.
Description: This type was a timber weatherboard box with a hipped roof. The eaves were almost non-existent. It introduced the standard 6 pane windows. These boxes were almost certainly erected by McKenzie and Holland (or by contractors for them). Very similar (identical?) to the British McKenzie and Holland Type 2 box which was used for a short period in the UK during 1875 [1].

TYPE C0

Brief Description: Wooden weatherboard construction with gabled roof covered in galvanised iron. The lower edge of the barge boards was scalloped in a fancy pattern. Standard 6 pane windows.
Examples in Service or Preserved: Ballarat East (1886 extended 1891), Geelong B (Middle) (1884), Ballarat B (1885), Ballarat C (1886 extended 1927), Showgrounds (1888), Flemington Racecourse (1885), Moreland (1892), Mangalore (1886 extended 1889), Traralgon (1885)
History: Flinders Street West (1883) is earliest known example. New construction probably ceased in late 1886, but a large number of boxes had been built and some were subsequently relocated (e.g. Moreland (1892)).

The Type C0 boxes were almost certainly erected by McKenzie and Holland.
Description: The Type C0 was a typical contemporary British design. It is very similar to the McKenzie and Holland Type 3 box which was erected between 1875 and 1921 (p91-93, The Signal Box, A Pictorial History and Guide to Designs, Signalling Study Group, OPC,



1986), but many there are many detail differences to the boxes illustrated in that book.

The most distinctive feature of the design was the fancy scalloped bargeboards which immediately identify a Type C0. However, some boxes have had their bargeboards replaced by plain wooden ones.

TYPE C1

Brief Description: Wooden weatherboard construction with gabled roof covered in galvanised iron. The gable ends were decorated with a tall wooden finial with cross bracing. Standard 6 pane windows.

Examples in Service or Preserved: Spencer Street No 1 (1887), Spotswood (1890), Geelong A (1917), Bacchus Marsh (1890), Ballan (1891), Ballarat A (1910), Ballarat D (1890), Beaufort (1888), Ararat A (1891), Kyneton (1891), Bendigo B (1890), Benalla A (1914), Benalla B (1914), Wangaratta (1908), Jewell (1892), Brunswick (1890), Clifton Hill A (1901), Clifton Hill B (1901), Kooyong (1915), Gardiner (1917), Riversdale A (1916), Sandringham (1915)

History: From late 1886, the Victorian Railways commenced erecting signalboxes for themselves. Construction was actually contracted out to builders, and all such contracts were listed in the Government Gazette. A list of these contracts is contained in Somersault Vol 17 No 4 pages 104-8.

It appears that the Type C0 box was adopted for the contract work with minor alterations to be described below.

The first type C1 appears to have been Bendigo D (1886). Construction by outside contractors continued until 1901; the last box was Victoria Park (1901). Construction of the type C1 continued, apparently using internal resources, until at least 1911. Among the final boxes erected to this design were Ballarat A (1910) and Mordialloc (1911). There were later boxes such as Benalla A (1914), Benalla B (1914), Geelong A (1917) and Geelong B (1917). It is likely that these later boxes reused components from earlier boxes or were redundant boxes relocated.

Description: The Type C1 appears to be a derivative of the Type C0.

The most distinctive change was the replacement of the scalloped bargeboards with a tall finial with cross-bracing below the eaves. A similar, though fancier, design was in contemporary use on station buildings (the 'Pyramid' style [2]).

The porch on a Type C1 had a gable roof (with the gable parallel to the tracks) with an end finial and a 6 pane window in the end wall. The stairs could be parallel or at right angles to the track.

Roof: Gable with corrugated iron roof. Tall wooden finials extending above and below ridge at each end of roof. Finials cross-braced at gable. Bargeboards plain except for circular end.

Most remaining boxes have lost the finials above the roof line. Many have also lost the cross bracing below the ridge. With these boxes look for the distinctive circle to the end of the barge boards. A number of boxes have had their barge boards replaced.

TYPE D

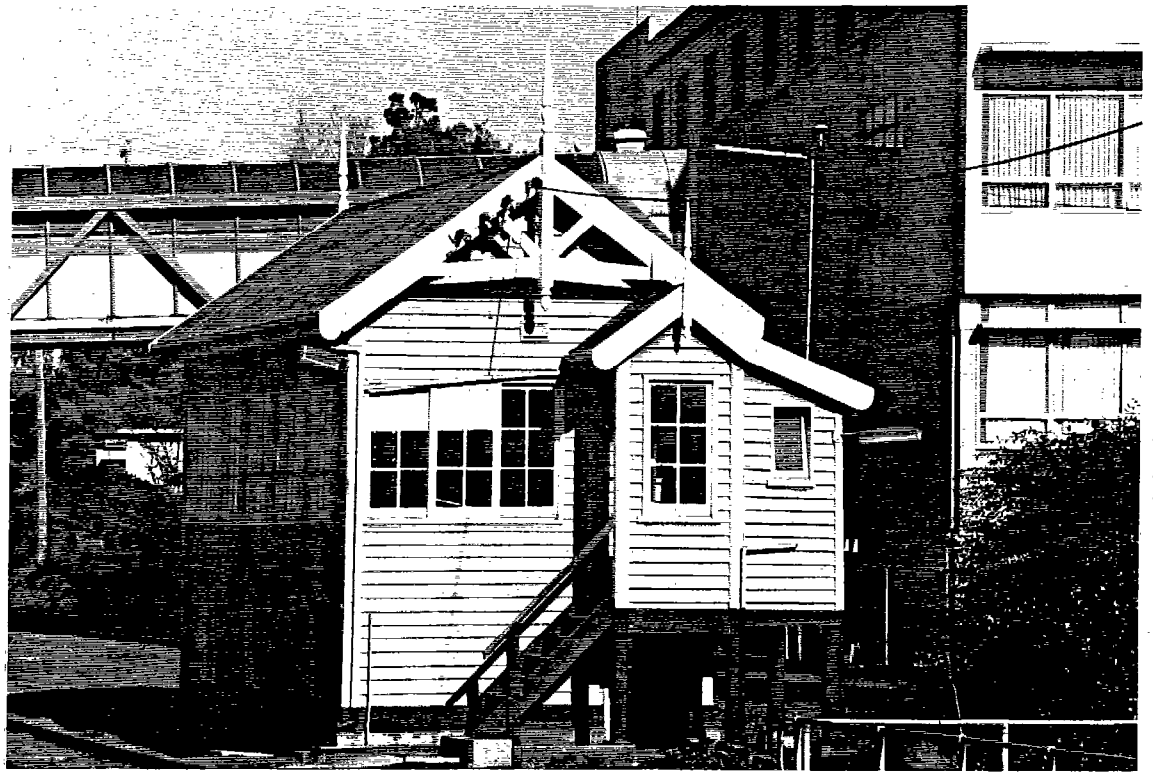
Brief Description: Brick to window box with slate hipped roof. Used only at Flinders Street.

Examples: Flinders Street A (1905), Flinders Street B (1901), Flinders Street C (1905), Flinders Street D (1910), and Flinders Street E (1901).

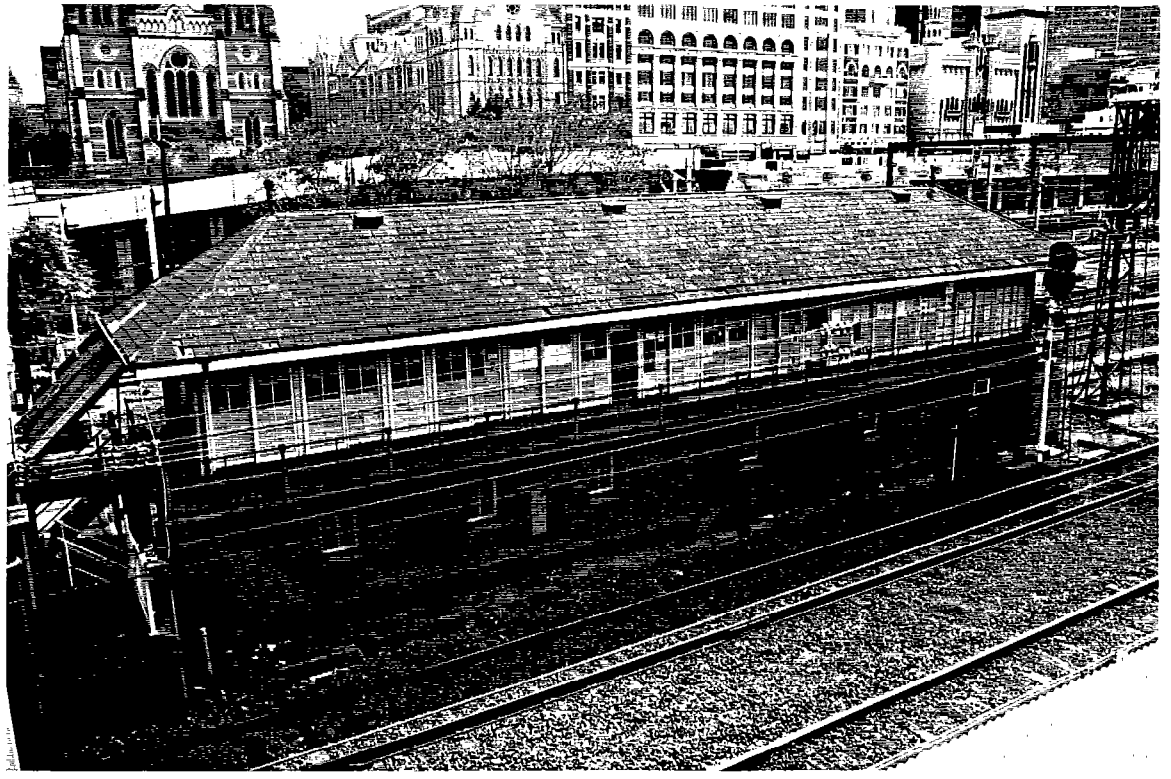
Last in service: Flinders Street B (still in situ)

History: When the new (current) Flinders Street station was built in the first decade of the 20th century, it was apparently thought appropriate to do something special for the signalboxes. The large brick Type D was the result. All were erected by private contractors.

Description: The box was constructed out of red brick in Flemish bond. The walls were topped with bluestone caps under the windows.



The hallmark tall finials and cross bracing of the **Type C1** *box show up well in this photograph of Geelong B (**above**). Although a number of* **Type C1** *boxes remain in service, almost all have had the finials cut off above the ridge of the roof, and most have had the cross bracing removed. The provision of a gable roofed porch with finial was standard in the* **Type C0** *boxes, and a toilet has been provided behind the porch. Although construction of new* **Type C0** *boxes appears to have ceased around 1911, Geelong B was not opened until 1917. It is has probably been relocated from elsewhere, or uses components from an earlier box. Geelong B was replaced in 1989 by a panel in Geelong A box, but the box (with finials) remains in situ. (**Below**) The construction of Federation Square will see the removal of the last intact specimen of the* **Type D** *signalbox, Flinders Street B shown here (Flinders Street A also remains, but in a derelict condition after a fire). The* **Type D** *was a considerable change in design, sporting a brick base, hipped roof covered in slates, and tall eight pane windows. B Box was the first* **Type D** *and was opened in 1901 with a 100 lever frame. It was probably extended in 1918 (at the end closest to the camera) to house a 149 lever frame. The mechanical frame was replaced by a panel in 1981, and a second panel was added in 1982 to replace 'C' Box. Control was subsequently taken by Metrol, but the panels remained for emergency use, and might still remain.*



Roof: Hipped slate roof with two cast iron finials
Operating floor windows: All except E Box were glazed all the way around. The windows were deeper than those used in other Victorian boxes and had 8 panes (2 across by 4 up). The windows were generally made up into 2 panel windows (one fixed and one sliding), but one panel windows existed.

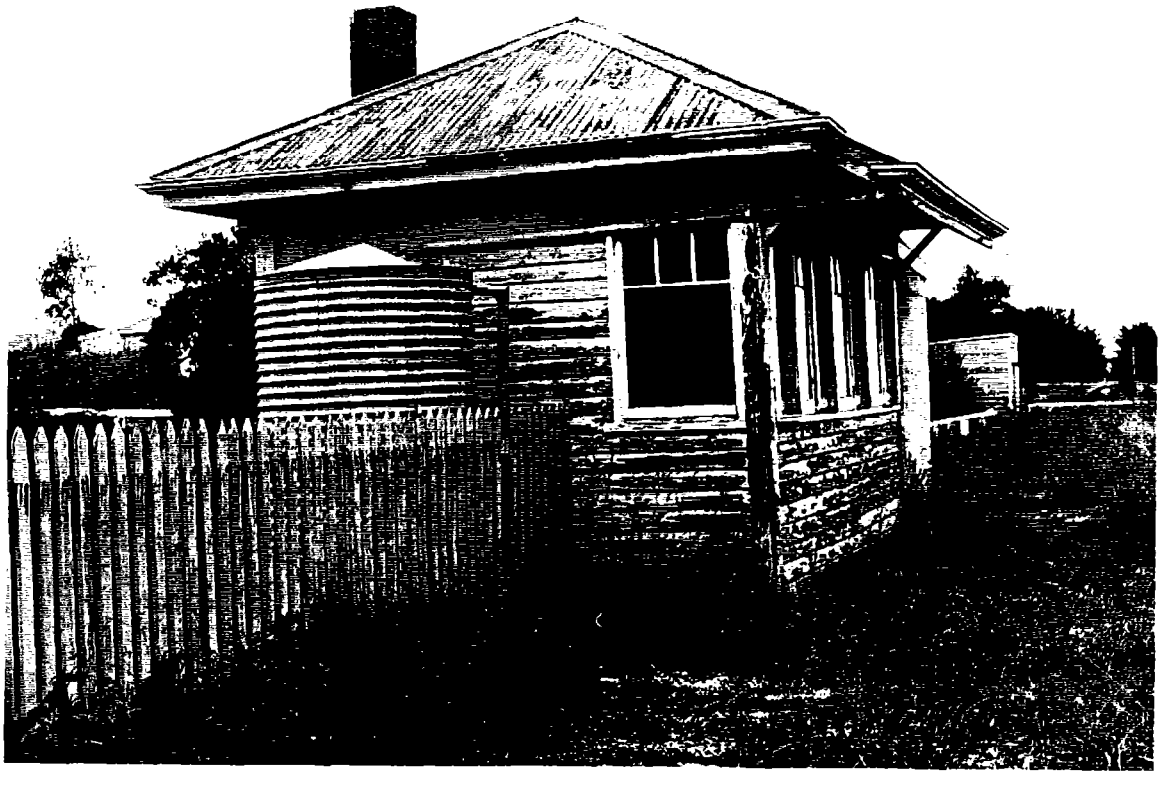
A stage completely encircled the box. The floor of the stage was timber (supported by short lengths of rail). The railings had cast iron supports with steel tubing.

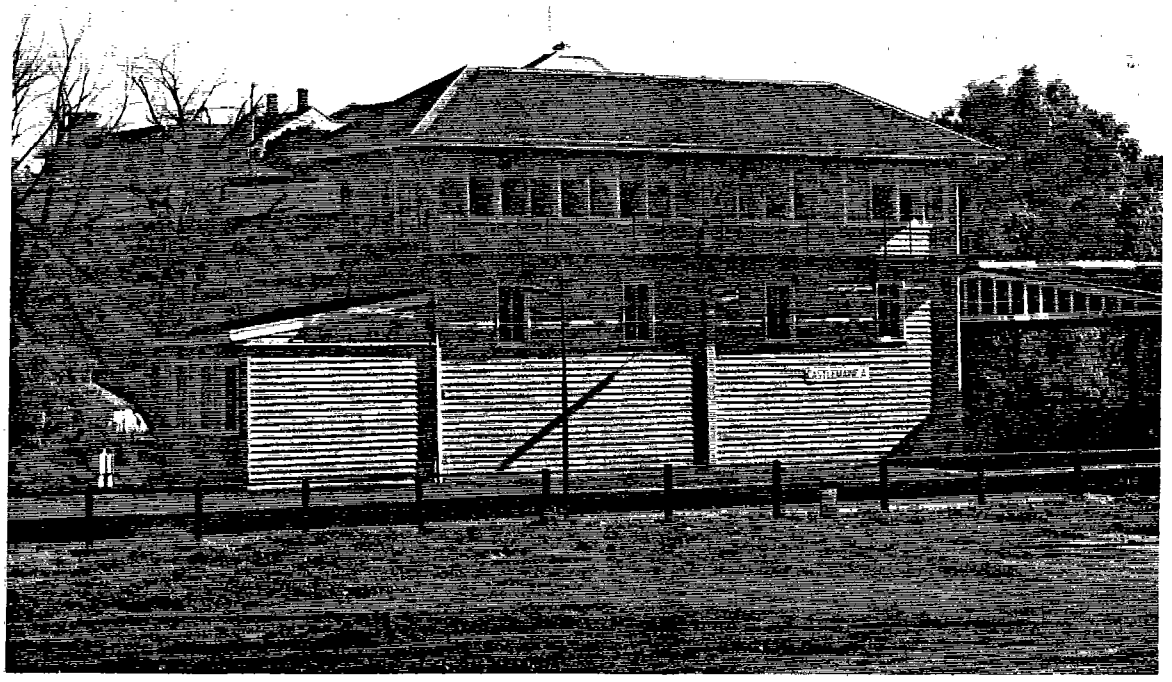
TYPE E0

Brief Description: Wooden weatherboard construction with hipped roof covered in galvanised iron. Eaves are provided on all four sides, with a very deep eave on the front side. Internal staircase. Standard 3 pane windows.
Examples: Creswick (1913), Anderson (1913), Murtoa (1913), Korumburra (1915)
Last in service: Creswick (1913)
History: Only a few Type E0 boxes were built, most in 1913, and the design must be considered experimental. The first known box was at Creswick (1913). A small platform level box was provided at Anderson (1913); this lacked the gallery, of course. Anderson could be viewed as experiments, no other platform level boxes of this design are known. The last Type E0 box was brought into service at Korrumburra in 1915
Description: The Type E0 box was almost a complete redesign over the Type C, although certain features were presaged by the Type D. The major point of similarity with the Type C was that the boxes continued to be constructed of timber weatherboard.
Roof: The first significant alteration was the provision of a hipped roof to replace the previous gable designs. The resulting eaves gave significant shade to the operating floor, but on the front of the box the eaves were made especially deep, presumably to give additional shade to the operating windows. The deep front eaves were aligned with the end walls of the box and the result gave the Type E0 a curious roof line, almost like a pillbox cap.
Operating floor windows: Glazed across front of box with 3 pane windows. These windows were the same size as the 6 pane windows on the Type C, but had the lower four panes replaced with a single sheet of glass. The windows were mounted in a standard two panel unit (one pane fixed, one sliding). The end walls were glazed with two 3 pane windows (made up into a standard panel) at the front of the box.

A gallery was provided on the tall signalboxes. This ran from an access doorway in the centre of each end wall around the front of the box. Like the Type D gallery, the floor was wood and the railings were cast iron with iron rails.
Access: The external stairs of the Types C and D were replaced by an internal stairway accessed through the locking room door.

*The smallest **Type E0** box constructed was this platform level box at Anderson, erected in 1913 to house a 30 lever frame. A platform level box, did not have the gallery or end doors, but Anderson did have the extended eaves at the front, clearly seen here. The characteristic 3 pane windows can't be seen in this view (the 4 pane end window was not typical). The signalbox at Anderson was closed in 1968 when the interlocking was removed, and the line itself closed in 1978. However, when this photograph was taken in 1985 the station was still intact and the signalbox was in use as an office for the local council.*





Castlemaine yard was expanded in 1914/5 and a new 88 lever signalbox to ***Type E1*** *was erected on the island platform and brought into use in 1915 (****above****). Most* ***Type E1*** *boxes were erected to control expanded yards and were often large boxes. Characteristic features of the* ***Type E1*** *are the hipped roof with deep eaves, the three pane windows, gallery across the front wall acessed by doors in each end wall. Access to the operating floor is by an internal staircase at the far end. The skillion roofed extension is almost certainly not original and was probably added in 1926 to house the electrical equipment associated with the remote control of Maldon Junction. The yard at Castlemaine was severely rationalised in 1989 and both boxes were replaced by a panel. Castlemaine A, however, was preserved by the Maldon Railway and remains in good condition. It is the last* ***Type E1*** *in its original position. (****Below****) Bendigo yard was extended southwards in 1921 and a new Bendigo A box, a* ***Type E2****, was erected to control the Up end of the expanded yard. The* ***Type E2*** *was very similar to the* ***Type E1****, the major difference being an external staircase to a door at the rear of the box. A porch was formed at the top of the stairs, the porch wall extending to the edge of the eaves. A gallery was provided on some (but not all)* ***Type E2*** *boxes and was usually accessed from the external stair, although at Bendigo A a door was provided in the end wall, just like in the* ***Type E1*** *boxes. Bendigo A, B, and C boxes were replaced by a panel in 1990 and Bendigo A box was subsequently demolished.*

TYPE E1

Brief Description: Wooden weatherboard construction with hipped roof covered in galvanised iron. Deep eaves are provided on all four sides. Internal staircase. Standard 3 pane windows.
Examples in Service or Preserved: Sunshine (1914), Castlemaine A (1915), Wallan (1916)
History: This type can be considered to be the production version of the experimental Type E0. The main design alteration was that the deep eaves were extended around all four sides. The first known type E1 was Hamilton A (1913). Other examples were Lilydale (1913), Fairfield (1913), Sunshine (1914), Castlemaine A (1915), Korong Vale A (1915), Korong Vale B (1915), Cressy (1916), Wallan (1916), Warragul A (1916). The type only had a short construction life, the last known box was Birregurra (1916) and Warragul B (1916).
Description: The only difference between the Type E1 box and the Type E0 was the provision of deep eaves on all four sides. Type E1 boxes were commonly mounted on platforms.

TYPE E2

Brief Description: Wooden weatherboard construction with hipped roof covered in galvanised iron. Deep eaves are provided on all four sides. External staircase. Standard 3 pane windows.
Examples in Service or Preserved: North Geelong B (1921), North Geelong C (1921), North Geelong A (1922), Frankston (1922), Epsom Road (1925), Ringwood (1925), Eaglehawk (1930), Wodonga Coal Sidings (1942)
History: After the first world war, the Type E1 box was simplified. The main alteration was a reversion to an external staircase.

The first known examples were at North Geelong B & North Geelong C (1921). Further examples were erected at Bendigo A (1921), North Geelong A (1922), Epsom Road (1925), Ringwood (1925), Thornbury (1926), Eaglehawk (1930), Wodonga Coal Sidings (1942). The last example was Seymour C (1949), curiously the first type E3 had appeared the previous year.
Description: The major difference between the Type E1 and Type E2 boxes was the provision of an external staircase and toilet. The stairway normally ran across the full width of the box (irrespective of height; low boxes consequently had an external stairway with a very shallow angle). Very tall boxes (e.g. Frankston) had a more complicated stairway with several flights. The access door was at the rear of the box and was sheltered by a porch. The end porch wall was at the edge of the eaves and contained a six pane window.

A common arrangement was to provide a toilet opening from the rear of the porch, partially behind the box and fitting underneath the eaves. Another place for the toilet was immediately beneath the stairway.

A gallery was provided on the front of some signalboxes. The gallery floor was wood and the railings were cast iron with iron rails. Access was usually either direct from the external stairway, or via a sliding door in the centre of the front wall (e.g. Frankston), but at least one box had a door in the end wall like the **Type E1** boxes.

TYPE E3

Brief Description: Wooden construction with hipped roof covered in galvanised iron. Front wall not continuously glazed. Often weatherboard to bottom of windows and asbestos sheeting above. Deep eaves are provided on all four sides. External staircase. Standard 3 pane windows.
Examples in Service or Preserved: Somerton (1949), Tottenham B (1964)
History: For the very few signalboxes built after World War II, the Type E2 was simplified to form the Type E3. The main difference to the Type E2 was that continuous glazing was not provided in the front wall of the box, and asbestos sheeting was used as well as (or instead of) weatherboards.

Examples were Hernes Oak (1948), Yallourn (1953), Somerton (1959) and Tottenham B (1965)
Description: The Type E3 boxes were less standardised than earlier boxes, but they shared three characteristics: the front of the box was not continuously glazed, large square windows, and asbestos sheeting cladding above the bottom of the windows. Glazing provided varied between boxes, with earlier boxes having more glazing than later boxes; Somerton (1959) had no windows in the front wall at all.

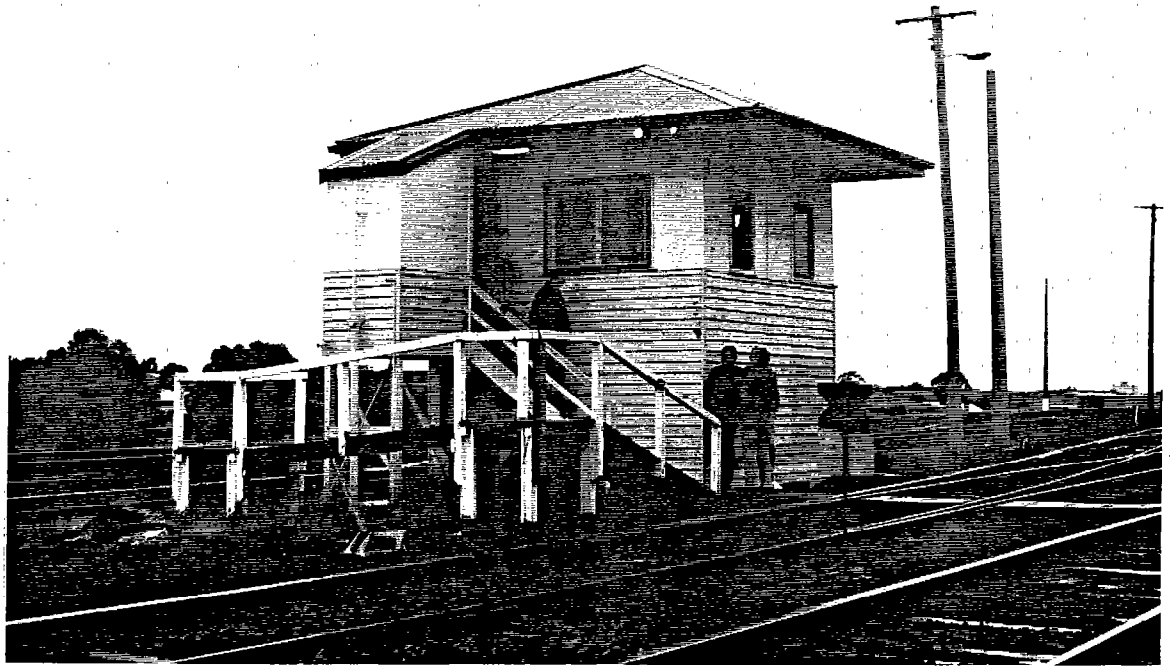
TYPE F

Brief Description: Brick construction with hipped roof covered in tiles. Steel framed windows. Usually steel gallery. External staircase.
In service: West Footscray (1922), Camberwell (1924), Brighton Beach (1926), Coburg (1928), and Caulfield (1933)
Out of use, but in situ: Franklin Street (1924), Yarraville B (1927), North Melbourne (1928), South Kensington (1928), Dandenong (1929) and South Yarra (1945)
History: The standard Victorian signalbox was a timber structure. Brick signalboxes were uncommon; usually at 'showplace' locations (e.g. Flinders Street) or where very tall signalboxes were required (e.g. Richmond and Footscray).

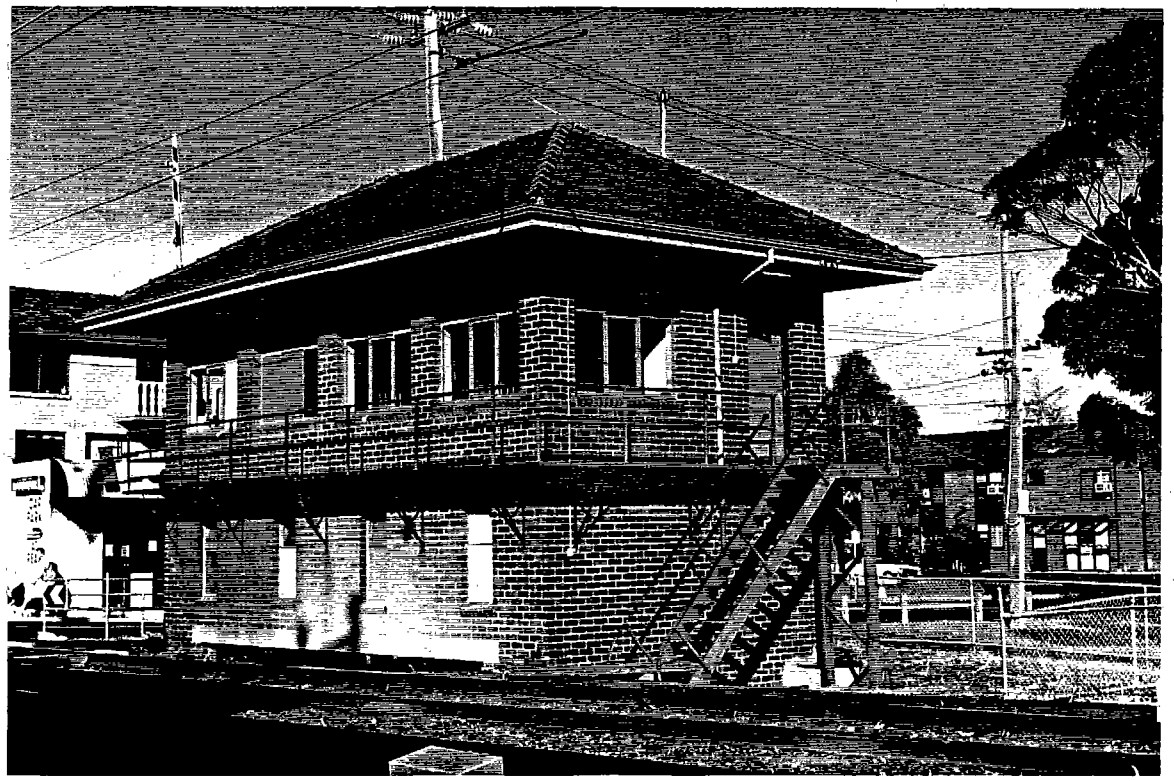
However, with the introduction of power signalling in the metropolitan area from 1915 a new all brick design was developed and used at 'power' interlockings. Normally, the upper level housed a power interlocking frame and the lower level housed the relay racks. It is likely that the reason for adopting a brick design was to reduce the risk of fire; particularly prior to WWII when electrical insulation was not well developed.

A number of purely mechanical boxes were also erected to this design.

The first box was at South Yarra (1915). The remaining boxes were mainly erected in the '20s: *West Footscray* (1922), Camberwell (1924), Franklin Street (1924), Viaduct Junction (1924), Hawthorn (1925), Brighton Beach (1926), *Windsor* (1926), *Glen Iris* (1926), *Yarraville B* (1927), North Melbourne (1928), *Coburg* (1928), South Kensington (1928), Dandenong (1929), Caulfield (1933). The last was South Yarra (1945), erected as part of the sextupling of the line from Richmond.



*There is no such thing as a 'typical' **Type E3** as the design varied from box to box. Tottenham B Box (**above**), however, displays the typical characteristics of the type. The galvanised hipped roof and external staircase were common to the **Type E2**, but the operating floor windows are non standard and the cladding above the bottom of the windows is asbestos sheeting. Tottenham B was the last new signalbox commissioned in Victoria (so far) and was opened in 1964 to work the connection to the new link to Brooklyn at the Down end of Tottenham Yard. It is still in service today. (**Below**) The best remaining example of the **Type F** box is at Coburg; ironically this box houses a mechanical frame. This box replaced a signalbay in 1928 when the adjacent gates were interlocked. The design theme is similar to the contemporary **Type E2**; with hipped roof, external staircase, and gallery. The details are, however, considerably different with tiled roof, brick walls, steel framed windows and steel gallery and stairs. The result was a box far more resistant to fire than the traditional wooden box, which explains its popularity for power boxes. Coburg is still in use, though work is under way to replace its mechanical frame with an SSI as part of the resignalling of the Coburg line. After this is complete, Coburg box will continue to control the local station and will remotely control the end of the double line at Gowrie. Eventually, it is expected that the new Metrol will take over control.*



Design: The fundamental design of the Type F was similar to the contemporary Type E3: deep overhanging eaves on all four sides, an external staircase, and (normally) a balcony around the front and sides of the box. The difference was in the materials used. The basic structure was of red brick with concrete lintels and floor. Other structural features were of steel.

Although there was a significant family likeness, Type F boxes did differ significantly. The later boxes (South Kensington, Dandenong, and Caulfield) shared a common, brutal, appearance.

Most boxes featured a steel gallery around across the front with access from the external staircase. On some boxes (e.g. Viaduct Junction) a gallery was provided on all four sides. A few boxes were not provided with a gallery.

References

[1] Reproduced in Steam Suburban, R. Hudson, Windsor Publications.
[2] The Signal Box, A Pictorial History and Guide to Designs, Signalling Study Group, OPC, 1986, p81
[3] The Signal Box, op cit, p 89-90
[4] The Signal Box, op cit, p 91-93
[5] Victoria's Railway Stations, An Architectural Survey, Volume 4, The Twentieth Century, A. Ward and A. Donnelly
[2] Victoria's Railway Stations; An Architectural Survey, Volume 3, The Great Railway Age 1880 - 1900, A. Ward, A. Donnelly, March 1982, pages 164 - 189

SIGNALLING ALTERATIONS

13.10.1997 **Union Switch End of Train Telemetry System**

From Monday, 13.10.97, NR trains will begin to use this system instead ETAS.

The Union Switch system indicates the brake pipe pressure at the end of the train and provides the ability to make an emergency application at the end of the train. It also indicates if the end of train is moving (and if so, in which direction).

When brake pipe pressure is constant, the End of Train Unit (Sense and Brake Unit or SBU) transmits the pressure every 55 to 65 seconds. Pressure measurements are sent more frequently when the brake pipe pressure is changing, the frequency depends on the rate of pressure change and the variation between the front and rear of the train. If no message is received for 341 seconds the 'R to F Failure' light illuminates and the pressure display shows '-'. The locomotive unit (Communication Display Unit or CDU) also sends a test message to the SBU every 10 minutes. If no reply is received, a messages are sent 15 seconds, 375 seconds, and 390 seconds later. If no reply is received the 'F to R Failure' light illuminates.

When the Emergency Brake Switch is pressed, the emergency valve of the SBU will open for 90 seconds. The application may be terminated before 90 seconds by pressing the Test Button. If the SBU fails to respond, the CDU will continue to send the message for 2 minutes and then the CDU will show 'Emergency Brake Failed'. (SW 364/97, WN 40/97)

(14.10.1997) **Spencer Street No 1 Box - Failure of signals at Moonee Ponds Creek Junction**

If a signal fails at Moonee Ponds Creek Junction, the Driver must immediately contact the Signaller No 1 Box via radio. If the points are correctly detected, the Driver must be instructed to inspect the points (including both ends of any crossover). If Home 206 has failed, the Signaller must check with West Tower to ensure that the signal has been released. The Signaller may then issue a Caution Order (2377) (in the case of a Home signal) or a verbal authority (in the case of a Dwarf). The Driver will not take down the details of the Caution Order. (SW 356/97, WN 39/97)

(14.10.1997) **Dennington**

A Rail Tractor has been provided and will be operated by Nestle employees.

Dennington yard consists of a loop siding (170 metres clear) with a 130 metre dead end discharge track leading from the loop. The head shunt is also 130 metres in length. There is a Derail situated on the Main Line at the Drummond Street level crossing. The Derail is normally locked on the rail with a V5PSW padlock, but also has provision for being locked on by a second padlock. A notice board is erected on the Up side of the crossing lettered 'Locomotives must not pass this point until the gate is opened and derail block is removed'. A second notice board is erected on the Down side of the crossing lettered 'Limit of Nestle Rail Tractor operation'.

Before operating the Rail Tractor, the Nestle operator must apply an independent padlock to the Derail. The padlock must be removed when shunting operations have been completed. (SW 355/97, WN 39/97)

20.10.1997 **Flinders Street**

From Monday, 20.10.97, the new connections between the Through Suburban lines and Nos 9A and 10 Tracks were provided.

Crossover 644 (Through Suburban Lines to Tracks 9A and 10) and Points 648 (to Track 10) were commissioned and then spiked normal until JZA equipment is commissioned. Homes 946 (Along Platform 10 towards Home 941) and 941 (From Platform 10 to Down Through Suburban Line) were commissioned. Dwarf 750 (Down Through Suburban Line to Tracks 7, 8, 9, or 9A) was removed.

Diagram 75/97 replaced 21/97. (SW 371/97, WN 41/97)

22.09.1997 **Somerton - Seymour**

Commencing Monday, 22.9.97, the block hours will be:

Somerton:
Mondays - Fridays.....0310 hours to 1910 hours
Saturdays and Sundays .....Switched Out

Donnybrook
Mondays - Fridays.....1600 hours to 2400 hours (or clearance of 9318)
Saturdays and Sundays .....Switched Out

Wallan
Mondays - Fridays.....0600 hours to 1045 hours (or clearance of 8314)
.....1200 hours to 1500 hours (or clearance of 9319)
Saturdays .....1615 hours to 1945 hours (or clearance of 8337)
Sundays.....Switched Out

Kilmore East
Mondays - Fridays.....0535 hours Monday until 2200 hours Friday (or clearance of 8333)
Saturdays ..... 0700 hours to clearance of 8314 (Broadmeadows at 1129)
.....1800 hours to 2010 hours (or clearance of 8337)
Saturdays and Sundays .....1650 hours to 2025 hours (or clearance of 8336)

Broadford
Mondays - Thursdays .....0535 hours to 2000 hours (or clearance of 8329)
Fridays .....0535 hours to 2230 hours (or clearance of 8333)
Saturdays and Sundays .....Switched Out

Seymour (will be attended by a Signaller)
Mondays - Saturdays ..... 0001 hours Monday to 2010 hours (or clearance of 8337) Saturday
Sundays.....0910 hours to clearance of 8339 (1041 hours)
.....1630 to clearance of 8336 (Kilmore East at 1953 hours)

(SW 344/97, WN 38/97)

22.09.1997 **Wodonga**

Commencing Monday, 22.9.97, the block hours will be:

Wodonga A (will be attended by a Signaller)
Mondays - Sundays.....1100 hours Sunday to 0800 hours the following Sunday

Wodonga Coal Sidings
As required for movements to or from sidings

(SW 344/97, WN 38/97)

(23.09.1997) **LSDU Fitted Locomotives**

NR97 has been fitted with a LSDU. (WN 36/97)

(23.09.1997) **West Tower - North Melbourne Carriage Washing Plant**

The Signaller, West Tower, must obtain permission before signalling a train into No 7 Track at the North Melbourne Wash Plant. Before granting permission, the Wash Plant Operator must check that the green indicator light for Points 209 is lit.

The Signaller West Tower must not operate Dwarf 160 until advised by the Wash Plant Operator that the train is ready to depart. (SW 326/97, WN 36/97)

(23.09.1997) **NR Class fitted with LSDUs**

Locomotive NR 97 has been fitted with LSDUs. (WN 36/07)

(23.09.1997) **Newmarket**

A fixed Train Stop has been installed on the Down Racecourse line ahead of Dwarf 44 to prevent a reversing train from entering the Down platform. (SW 324/97, WN 36/97)