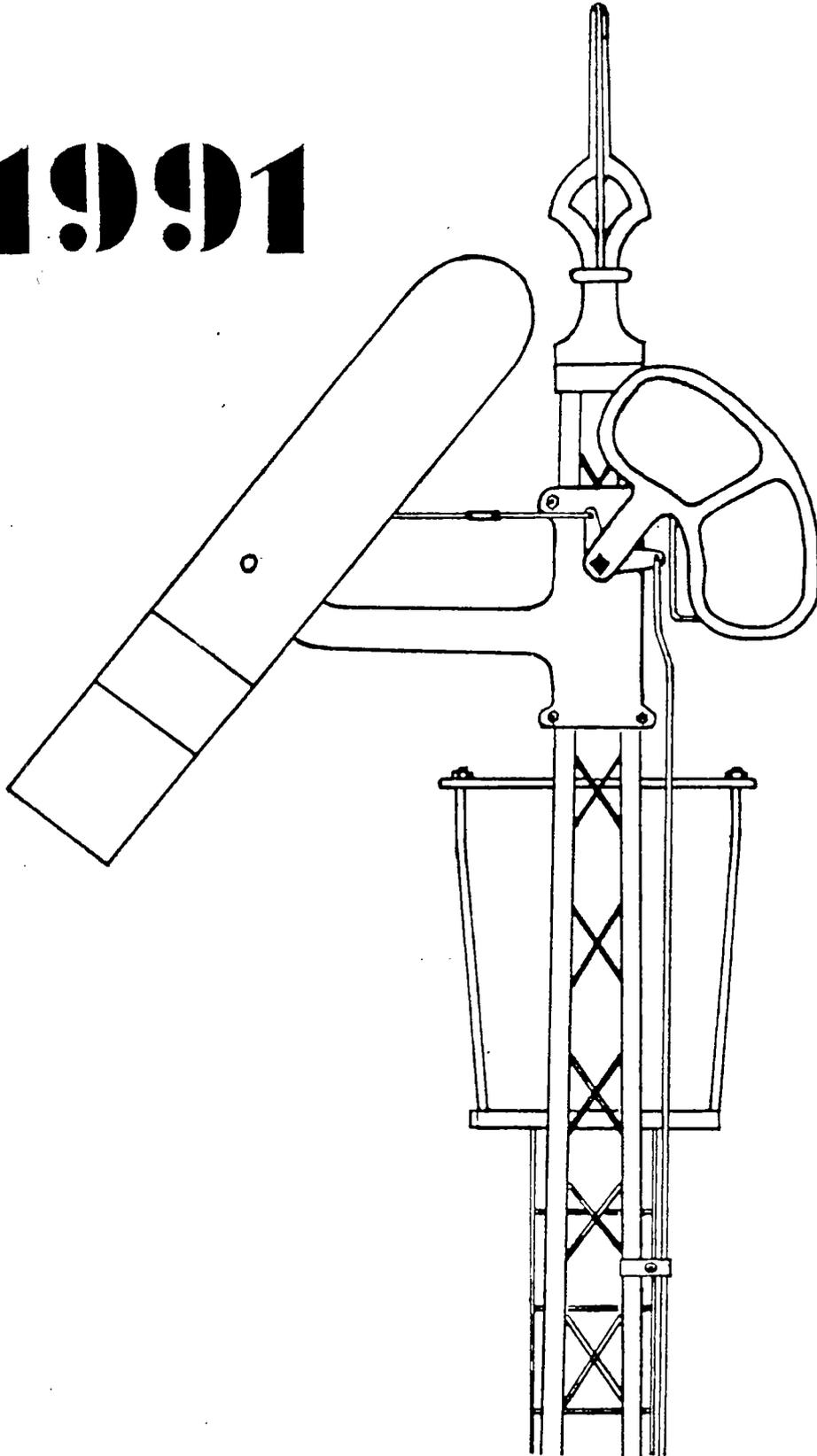


SOMERSAULT

1991



SRSV

SIGNALLING RECORD SOCIETY (VICTORIA)

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Deadline for March 1991 issue is 10 February 1991.
NEXT MEETING: Friday, 15 February 1991.
VENUE: Uniting Church Hall, Hotham Street,
Mont Albert, commencing at 20.00 hours.

MINUTES OF 16 NOVEMBER 1990 MEETING.

- HELD AT:** Fellowship Room, Uniting Church Hall, Hotham Street, Mont Albert. Meeting commenced at 2010 hours.
- PRESENT:** Jack McLean, Wilfrid Brook, Glenn Cumming, Graeme Inglis, Roger Jeffries, Alan Jungwirth, Keith Lambert, David Langley, Andrew McLean, Rod Smith.
- APOLOGY:** Peter Brook.
- MINUTES OF PREVIOUS MEETING:** accepted as read (Cumming/Langley)
- BUSINESS ARISING:** Nil.
- CORRESPONDENCE:**
1. The SRSV received a letter from the Uniting Church stating that the SRSV is not covered against public liability when meeting at the Church Hall.
Moved Alan Jungwirth and seconded David Langley that a sub-committee be formed of Rod Smith and Glenn Cumming to incorporate the SRSV.
 2. Alan Jungwirth received a letter from Hon. Ralph Montague suggesting that he ride the rails of Scotland.
- GENERAL BUSINESS:**
1. Alan Jungwirth is to obtain the SRSV membership list from Colin Rutledge so that labels can be printed for the mailing of *Somersault*. (Lambert/Langley)
 2. Alan Jungwirth asked why there was an item in *Somersault* which stated Y113 was at Seymour. David Langley replied that it was on the Weekly Notice file with the safeworking information and had not been deleted. Alan Jungwirth then

respectfully requested that no such items appear in Somersault.

3. Glenn Cumming reported that the Show Day tour was successful.

NEWS ITEMS:

1. Jack McLean reported that the special trains for the Great Victorian Bike Hike were cancelled because the railway fares were too high.
2. Alan Jungwirth reported that the previous evening's news stated that AN will stop running passenger trains.
3. Rod Smith reported that he and Glenn Cumming had inspected the Flemington Racecourse line on Cup Day.
4. Reference was made to an article on the Grampians line in a 1948 ARHS Bulletin in which mention was made of the opening of Grain Siding. It was unclear from the article if a siding was actually there but Jack thought there was.
5. On Friday, 23 November 1990, there will be an XPT promotion at Albury commencing at 0930 hours. It will incorporate a signing ceremony to announce the ordering of the new XPT's.
6. Graeme Inglis reported that on 27 September 1990 the frame was removed from Menzies Creek and replaced with by signal quadrants.
7. Alan Jungwirth reported that the Upfield line will be closed beyond Gowrie for the building of the western by-pass road.

SYLLABUS ITEM:

Rod Smith showed a selection of Stephen's slides featuring various locations in Victoria during the 1970's.

NEXT MEETING:

Friday, 15 February 1991 at the Uniting Church Hall, Hotham Street, Mont Albert, commencing at 2000 hours. All welcome.

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SIGNALLING ALTERATIONS

- 18.10.1990 BENDIGO-BRIDGewater. Healthy state lights were provided at the following flashing light locations:
 * Bendigo - Holdsworth Street 167.478km,
 * Marong - Calder Highway 179.937km,
 * Marong - Ravenswood-Marong Road 180.930km,
 * Derby - Calder Highway 195.797km, and
 * Bridgewater - Lyndhurst Street 203.451km. (O 807/90)
- 23.10.1990 BENDIGO-BAGSHOT. Healthy state lights were provided at the following flashing light locations:-
 * Bendigo - Heinz Street 167.336km,
 * Bendigo - Roper Street 168.905km,
 * Bendigo - Howard Street 169.811km, and
 * Bagshot - Midland Highway 179.874km. (O 812/90)
- WN3/1990 NORTH GEELONG A BOX. Advice has been received that the following alterations have taken place:-
 1. Grain Siding Y was removed from service.
 2. No 43 points were abolished and the track straight railed for

- 18.10.1990 KYABRAM. The signalling circuits were altered to enable signals A, E, F, G and H to be cleared for through movements whilst the station is unattended. Track section approach indicator boards were provided at both ends of the platform and the approach sections for Allen, Albion and Church Streets were modified. (O 808/90)
- 24.10.1990 RINGWOOD. Security gates will be provided on the stabling sidings. The train gates (Nos 1 and 2) are worked by lever 68 in the signal box and are interlocked with the signals. Gates 3 and 4 are road access gates and gate 5 is a pedestrian gate. These three are indicated by a red light when in the closed position. Gates 1 and 2 are motor operated and can be manually operated in the event of a failure of the remote operation. (O 2775/90)
- 29.10.1990 ELMORE-ROCHESTER. Healthy state lights were provided at the following flashing light locations:-
* Elmore - Raywood Road 206.876km,
* Rochester - Northern Highway 223.657km, and
* Rochester - Elizabeth Street 223.969km.
- 30.10.1990 GLENALBYN-WYCHEPROOF. Healthy state lights were provided at the following flashing light locations:-
* Glenalbyn - Calder Highway 224.958km,
* Charlton - Calder Highway 280.050km,
* Teddywaddy - Calder Highway 288.006km, and
* Wycheproof - Birchip Road 207.911km. (O 831/90)
- 30.11.1990 BOORT. Healthy state lights were provided at Godfrey Street level crossing. (O 831/90)
- 31.10.1990 CARRUM. The following alterations were brought into service:-
1. Siding B was numbered 4 whilst Siding C was numbered 3.
2. Two additional sidings, Nos 5 & 6, were brought into service.
3. A new set of points with derail No 13 were provided leading from Sidings 5 & 6.
4. New dwarf No 10 provided leading from Sidings 5 & 6.
5. The points leading to No 6 siding are hand operated and secured for No 5 by a hand locking bar.
6. Security gates were provided for Sidings 1 & 2 (Sidings 4, 5 & 6), and 3 & 4 for Siding 3. All gates are hand operated and are indicated in the closed position on the control panel by a red light and in the open position by a yellow light.
Amend diagram No 15'89 accordingly. (O 2791/90)
- 1.11.1990 MITTYACK. Flashing lights were provided at Calder Highway level crossing at 428.982km. An approach section indicator board is provided for up movements due to the proximity of Mittyack siding. A key operated switch is provided for manual operation of the flashing lights and a 30km/h speed limit in both directions will apply. (O 848/90)
- 1.11.1990 DANDENONG. Indications for the hand operated security gates were provided in the signal box. (O 2793/90)
- 7.11.1990 BENDIGO-EAGLEHAWK. Healthy state lights were provided at NELSON STREET flashing lights at 168.399km. (O 867/90)
- 11.11.1990 RESERVOIR. A set of pedestrian gates were provided on the upside of High Street level crossing replacing the existing pedestrian booms. The express and stopping selection circuits were modified to allow for expresses between Bell and Clifton Hill. (O 2809/90)

- 14.11.1990 TOOLAMBA-ECHUCA. Healthy state lights were provided at the following flashing light equipped level crossings:-
MURRAY VALLEY HIGHWAY 248.934km.
PAKENHAM STREET 233.574km.
CORNELIA CREEK ROAD 230.793km. (O 872/90)
- 14.11.1990 BARNES. Healthy state lights were provided at the COBB HIGHWAY flashing lights at 245.602km. (O 882/90)
- 26.11.1990 SEYMOUR. A new crossover secured by an E pattern lock has been brought into use at the down end of the platform between Nos 2 and 3 roads. The key for this lock is kept in a duplicate lock at the down end of the platform and is electrically released by reversing lever 35 on the panel. When reverse, all conflicting moves are prevented but low speed moves may be signalled from signals 46, 48 and 52 into the yard. Hand signals are required for moves from No 3 road. (O 892/90)
- WN7/1990 SOUTH DYNON. Commencing forthwith the broad gauge connections from Moonee Ponds Creek Junction to the new South Dyon broad gauge sidings, as shown on diagram No 40'90, is available for traffic. The alterations are as follows:-
1. Points 215 rodded to catch points leading to the broad gauge sidings were provided.
2. New dwarf signal U214 provided leading from broad gauge sidings towards dual gauge road.
3. Two notice boards lettered "NO BROAD GAUGE MOVEMENTS BEYOND THIS POINT UNTIL AUTHORISED BY YARD SUPERVISOR" were erected on both broad gauge roads clear of the standard gauge diamond. Trains must not proceed towards dwarf U214 without permission and the Yard Supervisor must first communicate with the signaller at Spencer Street No 1 box and notify him of the intended move. (O 2833/90)
- 29.11.1990 ST ALBANS. The train stabling security gates were commissioned. The following indications will appear on the signalbox diagram:-
TRAIN GATES - red lights for closed & yellow lights for open.
ROAD GATES - red lights for closed & no lights for open.
(O 2850/90)
- 2.12.1990 NORTH MELBOURNE. The train stabling security gates were commissioned. The train gates the entrance to the stabling sidings are worked from lever 669 at North Melbourne and are interlocked with the associated signals. The road gates are only indicated by a red light when closed. For emergency operation of the train gates, a control box is provided in the telephone cabin attached to the gate control box at the compound. A key to the box is kept in the signal box and at the North Melbourne Maintenance Depot. (O 2852/90)
- WN 8/1990 ALTERNATIVE SAFEWORKING PROJECT. Field and prototype testing of the system will take place on the Geelong-Mildura and branch lines commencing forthwith. An MDC1200 display unit has been fitted to N474, G512, X34 and X51 and will be used on scheduled services on these lines. Under no circumstances are test transmissions to be used to facilitate train operations. (O 901/90)
- 30.11.1990 SANDRINGHAM. A pedestrian security gate was provided in the stabling sidings security fence. A red light on the signal box diagram will indicate the gates in the closed position. (O 2851/90)

- 4.12.1990 UPFIELD. Post 72 down home arrival signal was abolished. The Annett Lock for points B and the quadrant lever on the platform for post 72 were removed. Down home signal No 73 will now only be worked from the platform. Amend diagram No 19'85. (O 2870/90)
- 6.12.1990 HORSHAM. The following alterations took effect:-
1. The crossover between No 2 and 3 roads, previously worked from Ground Frame D) was reinstated and is now worked from Ground Frame B.
 2. Ground Frame B is electrically released from Control and when given, the VSP key switch adjacent to Frame B is to be operated. A train control telephone is provided at the Ground Frame.
 3. When the local panel is switched in, the release is given by reversing lever No 11. The normal and reverse indications for points B will operate in conjunction with the crosslock. (O 912/90)
- 5.12.1990 DARLING The post telephones at posts 2 and 18 are now switched through to Gardiner signal box when Darling signal box is switched out. Post 31 telephone remains connected to Darling signal box only. When Darling signal box is switched out, the signaller at Gardiner may, in the event of a train being stopped at signals 2 or 18 in the stop position, authorise the driver to pass the signal provided the points are correctly set. (O 2789/90)
- 11.12.1990 WALLAN. The crossover at the down end was disconnected from the interlocking frame. Disc 28 on post 14 & discs 33 & 34 on post 15 were abolished. Levers 28, 31, 33 and 34 were sleeved normal. Amend diagram No 32'89 accordingly. (O 927/90)

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SAFE WORKING IN VICTORIA - 1854-1954
 by C.D.Gavan Duffy
 (Originally printed in Bulletin No. 206)

When railways first came to Victoria, the pioneer company possessed only one engine, consequently there was little or no danger of a collision, and although an early picture shows a semaphore at the Melbourne station, it is doubtful if it existed. As a matter of fact, right up to the time that the Government took over the united company in 1880, there were very few signals on the private lines. At the inquiry into the Burnley collision in 1882, Mr Philpott gave in evidence that, apart from a semaphore at one or two of the terminals, the company had no signals at all; though, in fairness, it should be mentioned that towards the end they did interlock the junction at Swan Street, Richmond.

There was a case in 1870, when a defective engine on a Port Melbourne train was replaced by a still more decrepit one, which had much difficulty in starting its train at North Sandridge, and it was run into by the first engine which was following, running light. There was some adverse comment on the fact that there was no semaphore and no tail light on the train.

When the Government was proposing to take over the Geelong line from the company, the assessors remarked that the only signals on the whole line consisted of a couple of discs on gate posts at certain level crossings, which turned with the gates and so were merely suggestions to drivers not to run through the gates!

When the Government lines started in 1859, it appears that some thought was given to signalling and there is in existence an old picture of the semaphore at Spencer Street, whilst the first Rule Book gives directions for working the "semaphore", depicted with back-to-back arms and a single lamp. This, of course, merely created an interval of time between trains, the idea being to put the semaphore to "stop" when a train arrived at a station, keep it so for five minutes after its departure and then display a "caution" signal by lowering the arm 45 degs. for another five minutes, after which it was lowered right down

for "all clear".

This was all very well, but was no help at all if a train stopped after leaving a station, or lost time, in the section. In such a case, the guard was supposed to go back and protect his train from any following train.

Needless to say, this system brought about some extremely regrettable incidents and, in 1870, we find the then Traffic Manager complaining to the Minister that "the appliances for the protection of traffic at many stations are very inadequate and as the only accidents which have happened to passenger trains have arisen from the want of distant semaphores, I bring this matter under notice with a view to their being provided where necessary."

Then follows a list of all the stations between Melbourne and Williamstown and Ballarat, except West Geelong which appears to have been omitted in error; and to summarise; Footscray was shown as having a junction signal and Up and Down distants, while another list gave only a junction signal. Williamstown had no signals at all, but all the other stations had station signals except Macedon, which had two distants only. Sunbury, Woodend, Sandhurst and Werribee each had an Up distant only, besides the station signal. Kyneton, Malmsbury, Taradale, Ephinstone, Castlemaine and Ravenswood had Up and Down distants, and so had Geelong, which is hard to explain as it was then a terminus. Perhaps the explanation lies in the omission of West Geelong, which certainly had junction signals, as a picture of them exists, and it may have had distants also. As a matter of interest, these distants all had square-ended arms, as the fish tail had apparently not been thought of in those days. When station semaphores were finally abolished, many of these distants were converted into home signals and this may be one of the reasons why Victoria, alone amongst the States, very rarely provides any distant signals at noninterlocked stations. This is a subject on which a good deal could be said and it

is perhaps unfortunate that it is impossible to print the views I have heard expounded by drivers of fast trains who, in thick weather, have found themselves right on top of a red light at a home signal with no previous warning.

There is in existence a requisition dated 17 July 1877 by Robert Watson, the Engineer, for "distance" signals (as he called them) on the then recently opened line from Geelong to Colac, at Mount Moriac, Winchelsea, Birregurra, Ondit and Colac and he got them too! He expresses his preference for "iron semaphores", which he had heard "work so well at Wandong".

Meanwhile, as traffic grew heavier, further safety measures became imperative and on 11 July 1876, the first interlocking frame on the Victorian Railways, and probably in the whole of Australia, was opened at Essendon Junction Box, which had 15 levers, five being spare. This box was situated on the banks of Moonee Ponds Creek, a salubrious locality abounding in mosquitoes to such an extent that it is related that on one occasion a main line goods train was stopped by a red light, which turned out to be a handlamp being carried away by an outsize in mosquitoes! This story, however, may be exaggerated.

Then, on 27 October 1876, three boxes were opened in the Melbourne Yard, to wit, Dudley Street, Inner Junction and North Melbourne and after that, interlocking spread rapidly, more up-to-date signals being brought into use at the same time. There is no record of when the now universal somersault signal was adopted on the Victorian Railways, but it appears to have been about 1891.

While all this was going on, the Government took over the Melbourne and Suburban Railway Company's railways and inherited an almost entire lack of signals, and there was much adverse comment at the Burnley collision inquiry on the Department's dilatoriness in attending to this matter, particular attention being directed to the fact that trains were crossing at Burnley with no signals at all. The fact that a semaphore, which might have avoided, or at least minimised, the smash, had stood for weeks uncompleted was bitterly

condemned. The Signal Engineer's explanation of this was characterized as "absurd". This signal must have been brought into use almost overnight, as towards the end of the inquiry, the members visited the scene of the accident and their attention was directed to the promptness and accuracy with which the signal was being operated. Of course, I don't suppose the S.M. at Burnley knew that all these V.I.P.'s were out there! Or did he?

By 1900, almost every station and siding had at least two home signals but from then on, with the spread of the Electric Staff, most intermediate stations or sidings were deprived of their signals as being unnecessary.

In 1918, automatic signals were introduced, these being of the upper quadrant type. This was between Richmond and Hawksburn and Prahran and they have spread and are still spreading in the suburbs in place of Block Working, and are also to be found, but to the lesser degree, in the country. A more recent type of automatic signal is the colour-light signal, which is quite effective and does away with any moving parts as its indications are given by lights, both by day and by night, the light being intensified in the former case. These signals are of the American speed signalling type and work to three positions - green for clear; amber for next signal at stop and red, stop.

As time went on, it became clear that, in spite of the view of the die-hards and economy-mongers, the system of working trains on a time interval had had its day. For instance, in 1883, the double line between Jolimont Transfer Box and Swan Street, Richmond, carried 14 Down trains and 7 on the Up between 7am and 8am, while between 5pm and 6pm, the relative figures were 15 Down and 14 Up. Considering that at that time there were only two suburban trains equipped with automatic brakes, this was quick work and must have required guards of some agility, ready to leap out and protect their trains.

The various inner suburban boxes had been connected by electric bell on 5 October 1877 but this, of course, merely described the approaching trains and did nothing to keep them

apart. In the 1880 Commissioner's Report it is mentioned that the Telegraph Engineer had recommended the use of Craik and Winter's Block and in the aforementioned report on the Burnley accident, it is reported that 120 of them were in order. Actually, the Block instruments "were brought into use and enforced" on 3 October 1883 between Flinders Street and Princes Bridge and Balaclava; the Block Posts being Fishmarket Signal Cabin; at Flinders Street, Princes Bridge; Jolimont, Punt Road; at Richmond, Swan Street; at Richmond, Balmain Street; New Junction at South Yarra; South Yarra station; Prahran station; Windsor station and Balaclava Station. The system spread over the double lines, but it was more than five years before it was said to be complete and even then it was longer still before the sections Graham Street-Port Melbourne and Newport-Newport South were equipped with Block instruments.

Previous to this, in 1878, Telegraph Block with ordinary morse instruments was opened on the North-east line, between Essendon and Avenel. However, it was not continuous, covering the sections Essendon-Broadmeadows in both directions and Craigieburn-Broadmeadows on the Up, North of the Divide. This system was in force both Up and Down between Wallan and Seymour, the Block stations being Wallan, Kilmore, Broadford, Tallarook and Seymour and, on the Up journey, Avenel-Mangalore as well. According to C453/83, "under certain circumstances, Wandong can be made a Block station both on Up and Down journeys".

This system was also in use at Yendon, Warrenheip and Ballarat and something of the sort was in force on Beaufort Bank as drivers were instructed to look to the semaphore on the bank at Stewart's Gate for Line Clear from Beaufort, but if they didn't get it in 10 minutes, they could go without it!

On the main line, Sunbury, Lancefield Junction, Riddells Creek, Macedon and Woodend were Block stations on the Up journey, while Elphinstone was a Block station with reference to Castlemaine on the Down journey.

This idea, of course, intended to

make the operation of trains safer but as every message had to be written out, it was slow and would not do for fast traffic. It is not clear, therefore, how they worked the sections Armadale-Toorak-Hawkesburn-South Yarra, which were in existence before Block instruments were brought into use.

Winter's Block was a great advance in safe-working but, like all two-position instruments, it suffered, and still suffers, from the drawback that unless the Train Register Book is attended to properly there is always a doubt whether Line Clear has been received for an approaching train or the previous train is still in the section. This was exemplified in the Windsor accident in 1887, when the lad at Prahran was found to be five trains behind in his booking!

In consequence of this drawback, which had also been felt in England, Syke's Lock and Block was imported into Victoria and installed over the viaduct between Viaduct Junction and Flinders Street A, on 7 December 1898. In this system, the starting signal is locked and can only be released by the signalman at the box in advance and, after being lowered following such release to allow a train to enter the section, is reversed by the passage of the first wheels of such train and again locked at Stop. There were, however, two serious drawbacks, one being that provision had to be made to permit the cancellation of Line Clear, if a train did not proceed on its journey in due course and this could be, and was, a source of great abuse. Secondly, there was no protection against a train breaking away and the first portion going on and clearing the rail treadle, which released the instrument at the end of each section, which would allow a fresh release to be given. In this case, if the signalman was not watchful, he could give Line Clear while part of the previous train was still in the section. It may be added that in Victoria, at any rate, it is alleged that part of the illegal equipment of boxes fitted with these instruments was a piece of softwood and a hammer, by judicious use of which the lock could be made to drop!

It was proposed to install Lock and Block over a great deal of the

suburban area but in actual fact Balaclava, Hawkesburn, East Richmond and Clifton Hill A were the farthest it ever got. The reason for this was that in 1910 it had become evident that track circuiting, whereby the presence of a train on a section of line could be made to hold signals at Stop, was a better proposition as this supplied the missing link in two-position Block, and later on, about 1918, was used by itself over long sections. This was called TRACK BLOCK. Amongst the first instances of this working was Hawksburn to Caulfield A, which was brought into force when the line was quadrupled. It was found also between Ballarat and Ballarat East in 1913.

In 1898, on the goods lines through the Melbourne Yard, Permissive Block Working was introduced, Winter's instruments being used, modified by having two counters affixed to each instrument to show up to 6, and trains - suitably cautioned - were allowed to follow one another into occupied sections. These counters, however, were manually worked by the signalman which sometimes led to disagreements as to just how many trains were in a section, and this rather detracted from the safety of the system.

At one period, a pair of Tyer's 3-position Block instruments were obtained from New South Wales and installed on trial at Graham Street, Port Melbourne but they were not adopted; partly, I think, from the Victorian idea that nothing good could come from North of the Murray, and partly because the track circuits were already proving their worth.

It should be mentioned that from the earliest days, the semaphore arms appear to have been painted in conventional colours, that is, red with white bar in front and white with black bar in rear, although there was a very short period about the first World War when the front of all signals was painted yellow with a black bar. For very many years, all signals showed red for DANGER, even the distants, so that, if you didn't know the road, a distant signal could not be distinguished at night. This was recognised as a drawback and various experiments were tried to get over the difficulty, for instance, the South Eastern and Chatham Railway

(U.K.) system of an illuminated fish-tail alongside the lamp, the Aga flashing light, a spectacle divided into red and green sectors for the CAUTION position and the New South Wales system of a fixed green top light. However, in 1926, the problem was solved by the adoption of the present arrangement of an amber light, with a yellow arm and black bar, for CAUTION.

An interlocking development was the use of double wires in place of bars for the working of points. The first of this type of frame was at Glen Iris and there are now seven or eight of these frames at work in Victoria.

There are now several power frames in use in Victoria, some of them using ordinary levers; some ordinary levers for the points and lock bars and miniature levers for the signals, while some use power and miniature levers for all operations. The most recent development of this sort is the thumb switch interlocking installed at Nar Nar Goon. In this installation, the levers, or switches, are not interlocked and can be operated at any time but do not function unless the set-up is right for the intended movement.

When the Main and Geelong-Ballararat lines were opened, they were double, although it is true that for a short time at the start, sections of both lines were worked as single lines pending completion. The Rule Book of 1858, however, makes no provision at all for the safe working of single lines.

With the opening of the Bendigo-Echuca line - the first single line - something had to be done, so the Rule Book of 1864 devoted two whole paragraphs to the subject, which amounted to this; if you have the telegraph, you must get permission to despatch a train from the station in advance, if not, presumably it was just too bad! Secondly, no special train was to be started until every station en route had acknowledged the notice thereof, and the driver and guard had been advised of every train they would meet. What this all meant, no doubt, was that all crossings were laid down in the timetables and that had to be adhered to; there is nothing said about altering the crossing

places.

As time went on and the railway system spread, this method of working became nearly impossible and an alternative had to be found. The Staff and Ticket system had come into use in England and it was decided to adopt this in Victoria and on 17 July 1873, it was brought into use on the then newly opened North Eastern line from Newmarket to Wodonga, a different coloured staff being provided for each section. The result of this was that after Chiltern was reached the originator of the idea ran out of colours, even having used purple, so the Chiltern-Wodonga staff was coloured black and white. It had not apparently occurred to him that the same colours could be used more than once, if necessary.

The principle of this system is well known; there is a staff, the driver's authority to enter each section, but if you have more than one train going the same way before one comes back, all but the last carry a ticket intimating that the staff will follow but the driver of each train on ticket must see the staff before starting. Nowadays, the tickets are secured in a box, the key of which is the staff itself so that, in theory at any rate, if the staff is away, the tickets cannot be removed. In the early days, this was not so, as the S.M. was required to have all his staff tickets for the day prepared ready for signature, Up and Down tickets to be cut in different sizes. There is in existence an Order which states that the practice of using truck cards as staff tickets must cease!

This system spread until it operated all over the Victorian Railway single lines, but the Melbourne suburban private companies never used it but trusted to the timetable to the end. This continued even after the Government had taken these lines over, and when the Chief Traffic Manager was asked about this at the Burnley Collision Inquiry, he said that the men weren't used to the Staff System and anyway, it was too slow for suburban traffic! However, after what the Board of Inquiry said, he changed his mind very very quickly.

By the time the Railway Commissioners were appointed in 1884, a good

deal of laxity had crept in and any telegraph station could suspend staff working without reference to Headquarters; not only that, but the habit had grown up of leaving the staff and tickets on the platform for the night train and on the North East line it is said the last Down train before the morning passenger train would collect all the staff tickets for the night at each station and distribute them! Even in the 1883 Working Time Table, we find a crossing scheduled, "independent of the staff regulations", at Rosstown, which was not a staff station. There was also a light engine on Sundays to Shepparton from Numurkah and return, which did not carry the staff, while the Up and Down mixed trains at night between Ballarat and Ararat used to cross at Beaufort and, if nothing else was running, proceed thence without any staff. The Little River collision stopped all that, as Mr Speight would not tolerate it and the staff working regulations were tightened up almost overnight. Nowadays, there is provision for the issue of "line clear" reports to overcome the difficulty and delay caused by the staff by some mischance being at the wrong end of a section, when required to despatch a train, but this method of working is governed by rigid rules.

After Winter's Block was introduced in Victoria, it wasn't long before it came into use to supplement staff and ticket working as an aid to keeping following trains apart, which was a weakness in that system. There is no record that I have found that disclosed just where the first single line Block sections were, but there is reason to believe that they were the Beaufort-Bank Box sections, at No. 30 gate, Bank Box and Middle Creek. Be that as it may, the system spread quite rapidly and many miles of single line were so equipped. The introduction of table and electric staff superseded these Block instruments and for many years only one section remained in active use in Victoria - Everton-Beechworth. Last year, 1953, electric staff instruments took their place, so now the system is extinct in this State; the instruments, however, still function in my room at Camperdown!

Somewhere about 1891 or 1892,

this system came to Victoria, Tyer's No. 1 train Tablet instruments being brought into use between Golburn Junction box and Seymour C box. This was a great improvement on staff and ticket working, as it didn't matter which way a train was coming, there was always, in theory, at least a tablet for it. In practice, however, it was not always so, as these No. 1 instruments suffered from the drawback that once a tablet had been released, it could not be replaced but must go to the other box. This wasn't so bad at Seymour, as the section was a bare two miles long, but it could be pretty trying, nevertheless, if a train for which a tablet had been obtained, decided not to go just yet. As a boy, I have been told in words of one syllable by the Night Officer at Goulburn NSW what it was like with the section 15 miles long and the tablet out at the wrong end! There was also a good deal of pomp and ceremony attending applications for tablets with No. 1 instruments, which made the working rather cumbersome and perhaps for both these reasons, no further No. 1 instruments came into use in Victoria.

Nothing further was done for some years, when No 5 Tablet instruments were installed on the section Moorabool-Gheringhap, over the viaduct, on 18 November 1895. This type of instrument is much simpler than the No 1 and has the advantage that the tablet can be re-inserted in the instrument from which it has been taken. It spread fairly rapidly in Victoria but has not given place almost entirely to the Electric Staff; I do not know why, though some say that one reason was because was because in crossing trains, the tablet brought in by the incoming train was the one taken out by that outgoing, which led to slack working - the token in such circumstances often not being put through the instrument at all.

The electric staff now almost universal in this state is first mentioned on 21 April 1897, when it replaced the tablet on the Moorabool-Gheringhap section. These instruments are basically the same throughout Australia and consist of a "pillar" containing a number of staves, all lettered with the name of the section and all individually numbered. The

head of the pillar has a ringing key on it, a commutator and, on older types, a second commutator with two positions - "For bell" and "For staff". The last mentioned gadget was sometimes the cause of woe and lamentation, if inadvertently turned to "For staff" and left so, as this runs the battery down and causes a failure. These staves were replaceable. In some cases, magnetos were used to save batteries.

In 1912 (WN.36), Miniature Electric Staff replaced the large type on the sections Buangor-Dobie-Ararat. These were similar to the other style but, as the name implies, were smaller, the staves thus being much more readily handled and rendering exchange at speed a possibility. My own recollection is that there were miniature instruments on the Glen Iris line early in 1912, but they were not brought into use until later on.

Certain modifications have been introduced in electric staff working the first of which is the Divided Staff, used for the purpose of opening an inter-mediate station as a crossing place. The first of these appears to have been on the Queenscliff Junction-Mount Moriac section, when it was necessary to open Connewarre (now Marshall) on race days at Geelong reecourse and the trains ran on the branch line. Put briefly, a staff so constructed that it, after being released in the usual manner, could be divided into two parts was placed in the Junction instrument, thus making two ordinary staves for staff and ticket working while Connewarre was open.

In Victoria, much use is made of the composite staff. One or more staves are provided on certain sections which, on release from the instrument, can be unscrewed, making three portions, labelled respectively STAFF, TICKET A and TICKET B, enabling two or three trains to be despatched at appropriate intervals thus avoiding the delay waiting for a lengthy section to be cleared. Usually there is an intermediate Block Post, worked by an officer or by the guard, which serves to keep trains apart but sometimes this is not so, for instance, between Inverleigh and Maroona. In these cases, "Notice of Train Ahead" is handed to the drivers of the second

and third trains, and it is then up to them to look out for the lad in front - smoke signals, one might say, particularly if, as has happened, the last train is a bit speedier than the one ahead! Of course, much trouble can, and does, arise if through a miscalculation, or a late train, the staff portion is at the wrong end of the section, when required for an opposing train. The first use of the composite staff appears to have been in 1907, on the section Croydon - Lilydale, Mooroolbark being the Block Post.

Another device in use is the Staff Exchanger Box, the idea behind this being to avoid overtime. It consists of a box into which the signalman, before leaving duty, locks a staff for the section in advance. When the train arrives, the guard obtains the incoming staff from his driver and inserts it in an aperture in the box, where it becomes locked, at the same time releasing the staff for the advance section. If trains run in proper order, alternately Down and Up, there is no limit to the number of trains which can be worked that way but let just one train get out of step and a deadlock ensues, with delay, until the officer-in-charge at the intermediate station can be contacted, or a messenger is sent out to break into the office - an expensive joke!

Automatic Exchangers for the exchange of tablet or staff were in use in New South Wales prior to 1900 but apart from one very short lived experiment, Victorian conservatism rejected them until 1926 (WN.32). Now, of course, they are widespread.

On 11 April 1922, the first Intermediate Staff instruments in Victoria were installed at the Chiltern Valley siding, thus enabling a train to be put into the siding and worked there at leisure, leaving the main line free. This was accomplished by placing the staff for the section in the instrument at the siding, thus putting the main line instruments in phase. When the work was completed, this staff could be released by the co-operation of the signalman at both ends of the section, provided that the section is clear and no staff out, the guard then being able to get the staff out, unlock the staff lock and bring the train out of the siding. This

system has a weakness in that it is possible for the staff to be inserted in the intermediate instrument before the train is in the siding and the line clear.

Some use has been made of automatic signals for controlling single lines, the first of such coming into use on the narrow gauge Geambrook line, between Upper Ferntree Gully and Belgrave, on 22 December 1921. This was removed as traffic fell off. Automatic signals were also in use between Goulburn Junction box and Seymour, before that section was duplicated. This was in 1925, when the first named box was abolished and the junction controlled from Seymour A box. In the following year, a similar working was introduced between Castlemaine A box and Maldon Junction box but this has now been replaced by an Intermediate Staff instrument.

A more ambitious scheme was inaugurated between Newport South box and North Geelong "A", the electric staff being taken out and colour light automatic signals installed, with two intermediate remotely controlled crossing loops in addition to all the former boxes. This was brought into use on 15 March 1928. It appears to work quite satisfactorily, though when it fails it does so in wholesale fashion and chaos may ensue. Some people have been heard to say that the money would have been better spent in duplicating at least part of the line.

On some of the single lines, worked by electric trains, it was found, or at any rate considered, that staff working was too slow, so a system called "Lever Locking" was devised. Ordinary lower quadrant signals are used but at each station or crossing place, the "Departure Home" is controlled by the signalman in advance and is also provided with a "trip" which, as with automatic signals, applies the brakes on any electric train which goes against the signal. This was first introduced between Camberwell and Riversdale, on the Outer Circle line, and is also in use on the Glen Iris line, between Heyington and East Malvern.

One other system of single line working has been tried in Victoria. This is what is known as "Section Orders", was brought from South Australia and appears to be founded on

American practice. No staff is used, each train proceeding either by timetable or by orders issued by a Central Controller or Despatcher. This system is not now in use in Victoria, perhaps because there were a couple of near misses. I wouldn't know, of course, but I have heard of a couple of incidents which, it is alleged, the Department hasn't heard about!

Difficulty had been experienced in instituting pilotman working on long sections to cover electric staff failures so, on 20 October 1926, "Proceed Orders" were instituted. By the use of these, the Train Controller can authorise one or more trains to travel without the staff pending the appointment of a pilotman. This has been very useful in expediting traffic in such cases but the idea is to use it for only one or two trains. The issue of a "Proceed Order" is regulated by stringent rules, the only authority for same being the local District Superintendent or Chief Train Controller. It is ordained that only one shall be issued at a time, though I have heard of three being out, waiting for use at the same moment.

In the early days, uninterlocked facing points on single lines were held in position by a hand locking bar and padlock. This idea remained in use for years, though there was always the risk that someone might forget to them. The first improvement, apart, of

course, from proper interlocking, was the Annett Lock. This was a patent lock, controlled by a key, which could be either separate or attached to the staff for the section. In either case, safety was assured by the fact that such key could not be removed from the lock unless the points were set for the main line. In the following year, Tablet Locks were introduced. To operate these, the tablet itself is inserted in a slide which, when pushed in, releases the points. As in the case of the Annett Lock, the tablet cannot be released until the points are right. In 1879, Staff Locks came in and in this case, the staff itself, either ordinary or electric, is the key, there being three or four standard locks.

In 1909, Plunger Locks were brought into use at Croydon, Yarra Glen and Bayswater and these are now universal at non-interlocked crossing places. It consists of a plunger, which is worked by hand; the relative home signal being so protected that when the plunger is "out", to enable a train to be turned into the loop or siding, the signal cannot be pulled from the platform but only from a lever adjacent to the points and vice versa.

Mr. J.D.McLean provided much material for this article.

A GET WELL MESSAGE TO LES COURT
ASSISTANT STATION MASTER, DEER PARK
FROM AN APPARENTLY WELCOME GUEST

We spend quite a bit of time out at Deer Park for three reasons:-

1. Lots of different types of trains go through - some at high speeds.
2. It is the closest station to Box Hill where we live at which we can get this country atmosphere of plains and distance.
3. For a number of years we have been pleased to know Les Court, the friendly ASM.

For some time now, Les has been "Off Crook" and Jack McLean thought it wouldn't be a bad idea to write a Get Well Card to let him know how much we appreciated his hospitality. It was apparently received enthusiastically.

For the readers who do not know the geography or the railway technicalities or the slang terms, we have included this explanation.

Deer Park is the first crossing station on the single line from Melbourne to Adelaide. The line branches off the double tracked Bendigo line at Sunshine and heads west. There is one curve between Sunshine and Deer Park and another one between Deer Park and Rockbank, and these long pieces of straight tend to heighten the feeling of being way out back and not 10 miles from the city as it is.

In the first verse, the scene shows the staff station is closed, all signals pulled off, but as the sun rises behind the Catholic church at Ardeer, with its Russian dome, the Nylex factory starts the day too with their first call on a powerful Public Adress system. The second verse tells of the opening of the office and the place is switched in as a staff station.

The Jet is an overnight express goods train which leaves Mile End Adelaide at 5 the night before and with 1400 tons relentlessly pursues its way across South Australia's southeast. At Serviceton, two Victorian diesels usually two S class take over the lead. It is due through Deer Park at 6.54 (or was) in its journey to Melbourne's Dynon Yard for a morning delivery. It is allowed to haul 40 bogie vehicles and these may be from the Commonwealth, South

Australia, Victorian or New South Wales railways owing to bogie exchanges.

At the down end of the crossing loop at Deer Park is a siding branch to Ravenhall, where munitions are loaded. On the occasions mentioned the Jet was stopped at Deer Park to attend to a hot box. In order to free the main line for other trains, the Jet (much too long for the crossing loop), was set back onto the Ravenhall siding where it must have surprised the local residents considerably.

The Bacchus Marsh rail motor is one purchased by the V.R. about 1930 and has a particularly American flavour. Details seem to show its Australian use. The electric staff system (the pegs) and the three bells show the English background of our operating procedures.

The Overland is the interstate express passenger train, leaving Adelaide at 7 the night before. Tantini is one of the sleeping cars all of which have names. All of the later (post-war) cars have Australian aboriginal names.

Les, himself, is an old Ararat man and so if the guard is too he stands a chance of knowing Les.

Many's the time we have seen Roy get out his quadricycle and trundle up to the office to find out what is running. He then goes out to the 16 1/2 mile post inspecting on the way. Later he makes a similar inspection of the track towards Sunshine.

15 is the Bacchus Marsh local goods and occasionally runs quite late. If it has to cross at Deer Park, it will have to be turned into the loop at the up end and the ASM will have to take out the Annett key and walk to the lever near the Station Road level crossing. This is the short end of the loop, as far as walking with the key is concerned. When it has to be let out of the down end which is the long end, the ASM may ride out on the engine but he still will have to walk back, and it seems that with ironic frequency, it starts to rain at this stage.

22 is the passenger stopping train from Ballarat and is one of the

few trains which stop at Deer Park. It is usually in an indecent hurry as if this stop is rather undignified.

The Australian Paper Mills have an open cut coal mine at Bacchus Marsh, and usually two trains of brown coal are despatched from here every day. Owing to the steep grade from Bacchus Marsh, half the load is taken up to Parwan and then the engine goes back for the second half, both halves being remarshalled as one train there for the continuation of the journey. Owing to its rather low priority, the Coalie seems to wait for almost everything else, and may well spend time in every crossing loop. Generally, too, its use of a crossing loop prevents the crossing loop being used by another train waiting to

cross, and some very interesting working times follows.

It's a long walk out to the down end points and I feel sure the bloke is hoping Control will decide to get the Coalie in to Sunshine. None of the daily news has any significance except the Sunshine railway bike. The afternoon shift ASM at Deer Park is supposed to go by train to Sunshine and there get the railway bike on which he is expected to ride the 4 miles to Deer Park. No one ever does. They all seem to have their own cars. I believe one bloke did try it, but he wasn't fit enough.

Everyone has been missing Les but the reasons vary. We miss him too but we must say that the relieving blokes have been a pretty friendly lot.

--o00o--

WHERE THE HELL IS LES?

The main line trains may come and go and do so as they please,
The office shows no vestige of a light.
The signals, six, are showing green and flick'ring in the breeze,
And so the Deer Park station spends the night.
But early birds are stirring and are singing to the skies,
And gradually to usher in the day,
Behind the Queen of Heaven's dome, the morning sun will rise
As Nylex call a bloke on their P.A.

(But, opposite the station, all his railway cares forgot,
Les Court, no early bird today, is snoring in his cot.)

A car arrives down Station Road, a key turns in a lock,
A light goes on and all at once we see
The phones, the two staff instruments, the Register, the clock,
The frame, the levers and the Annett key.
From Sunshine and from Rockbank, the bells ring 2.2.4,
The levers crash, the signals go red.
For Sunshine's worked with Rockbank since 9 the night before,
They're working local sections now instead.

(About this time the ASM will sign on in the book.
He's just relieving here. I s'pose you've heard that Les is crook.)

He gets five bells from Rockbank soon and so we know the Jet
Has been belled on from Melton just before.
He pulls off homes and distant and the staff exchanger's set,
The Worker shows it's due 6.54.
And moving smartly with its load from S.A. and the Trans
The S class diesels thunder noisily
Ahead of forty louvres, box cars, flats and Flexi-vans.
It's fourteen hundred with the JCP.

(If Les were here, he'd tell you how the Jet once paid a call,
A louvre had a hot box, so they backed up Ravenhall.)

18, the Bacchus Marsh D.E. grinds slowly to a halt,
The second man drops off to stretch his legs.
The time is 7.51, with which we can't find fault.
The ASM and motorman change pegs.
The engines roar crescendo as the diesel motor leaves,
A passenger from Deer Park finds a seat.
And soon in Rockbank signal bay, the signalman receives
Three bells to tell him "Train Arrived Complete".

(The motorman may tell his mate as they approach Ardeer,
"I notice Les is crook again, I s'pose he's off the beer.")

We look inside the Working Book for column number 10
And note the time the Overland is due.
And right on 8.11, it approaches fast and then
It whistles like a Banshee racing through.
The lady in Tantini is considering her frock
From where we stand, we reckon she looks fine.
The guard and the conductor are considering the clock
They're due in Town at 25 to 9.

(The guard's an Ararat man, so he turns around and says,
"I see they've got a new bloke here, Now where the hell is Les")

As early as it's possible - that's when the trains are slack,
The ganger rides the section once a day.
Sixteen and a half miles on his trolley and then back.
He's making sure his length is still OK.
And as the ganger and the trains all use the single track
He listens as the ASM explains
That 22 is right on time and 15's been held back
And details of the running of the trains.

(But Roy is heard to mumble that he hates relieving blokes,
"I wish Les was back again so I could bot some smokes".)

As 22 is right on time and 15's well back,
The Train Controller said to cross them here.
The ASM accepts the cross as if he doesn't mind,
But not exactly with a hearty cheer.
As 15's turned into the loop, it's pleasant in the sun,
And down the straight comes frantic 22.
It starts to rain as 15 leaves. The bettings 10 to 1
That walking back, the bloke will get wet through.

("I knew it wasn't Les", the guard said, watching from the train,
"He never works these down end points if there's a sign of rain.")

Between these trains, the Coalie is a-moving slowly east.
Remember Parwan hill's a double haul.
Then stuck in every crossing loop for half an hour at least,
When every place becomes a social call.
They play a game at Parwan and at Melton make some tea.
At Rockbank, while they wait, another brew.
But Deer Park is unsociable account that lousy key,
And hopes Control will send the Coalie through.

("While Les is on his sicky, there's none to sing his song,
That putting trains through Deer Park loop will take too bloody long.")

And so you note the daily news is humdrum in the main.
A passenger has arrived on 25.
The Jet just missed a quarry bloke on Robinson's again,
He doesn't know he's lucky he's alive.
The bloke who is relieving moved the table near the fire.
He even put new Workers in the dike.
It seems that someone called the bloke on Train Control a lair,
And someone's oiled the Sunshine station bike.

(But why the hell should we suppose this interests A.L.C.
He's gone off down to Parwan to his daughter's joint for tea.)

And so at last I come to state the reason for this rhyme,
Who cares if it is fine or if it rains?
Who cares if everything is late or if they'er all on time?
As long as Les is here to run the trains.
For on one subject, he should be no longer in the dark,
We all appear to share a single thought.
The funny little station which the V.R. calls Deer Park
Is never quite the same without Les Court.

(I hope he's back on duty soon, because it seems to me
A Get Well Card as good as this is worth a cup of tea.)

Jack McLean
1 August 1967.

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VICTORIAN RAILWAYS.

TRAFFIC MANAGER'S OFFICE.

SPENCER STREET STATION, MELBOURNE.

27th January, 1888.

Memo. for**CLASSIFICATION OF SIGNALMEN.**

Circular 714/85 is now amended, and the following general classification will come into force on and after 1st inst. The boxes will be divided into Four classes, the maximum pay of each to be as follows, viz.:—

| | | |
|--------------------|-------------------------------------|---------------|
| FIRST-CLASS BOXES, | 9s. 6d. per day, and after 3 years, | 10s. per day. |
| SECOND " " | 9s. od. " | " " |
| THIRD " " | 8s. 6d. " | " " |
| FOURTH " " | 8s. od. " | " " |

FIRST-CLASS BOXES are situated at Coburg Junction, Spencer Street No. 1, Inner and Outer Junctions, Flinders Street West, Prince's Bridge, Richmond, and Flemington Racecourse, **SECOND-CLASS BOXES.**—South End Cabin, Flinders Street East, South Yarra, Newport, and Jolimont.

THIRD-CLASS BOXES.—Footscray Junction, Brown's Hill, St. Kilda Junction, Ballarat Yard.

FOURTH-CLASS BOXES.—Dudley Street, Elsternwick, Hawthorn, Balaclava, Windsor, Goulburn Junction, Beechworth Junction, North Geelong Junction, and Queenscliff Junction. Kensington, Macauley Road, Braybrook Junction, Williamstown, Newmarket, Essendon, Maldon Junction, Inglewood Junction, Royal Park Junction, Lower Level Siding, Armadale, Caulfield "B," St. Kilda, Graham Street (Port Melbourne), Tallarook Junction, Seymour "A," Seymour "B," Cattle siding, Sandhurst, Geelong "B," Lydiard Street (Ballarat), Brighton Beach, Scarsdale Junction, and Kew Junction, St. George's Road, Montague, South Melbourne, North Brighton, and Franklin Street (Malvern), North Williamstown, Camberwell, Caulfield "A," Geelong "A," Geelong "C," Ballarat East, and McArthur Street (Ballarat), Sandhurst North, Sandhurst South, Beaufort, Footscray Suburban, Williamstown Pier, Newport South, Falls Bridge, Glenferrie, Warrenheip Junction, and Cattle Siding Junction (Ballarat), Prahran, Nicholson Street, Rae Street, Scotchmere Street, Heidelberg Road, Middle Brighton, and Middle Park.

Where a house is provided rent will be charged as follows:—

| | |
|--|--------------------------|
| Men receiving 9s. and 9s. 6d. per day, | 15s. per calendar month. |
| " " 8s. and 8s. 6d. " | 12s. 6d. " " |
| " " 7s. 6d. per day and under, | 10s. " " |

If a man is in a fourth-class box, whose record is good, and provided he has passed the necessary examination, his present pay will depend on his length of service—*i.e.*, if he is in receipt of 6s. 6d. per day, and entitled by length of service to 7s. 6d., he will receive that amount, and get another annual increment of 6d., after which he will have to wait until a vacancy occurs in a higher box. Other things being equal, junior men employed in the more important boxes must give place to senior men, whom circumstances may have placed in a lower box. No man's present pay will, however, be injuriously affected by the change.

District Traffic Superintendents to arrange transfers so as to cause no confusion in the work; and they will be held responsible for seeing that juniors and others sent to learn the duties of signalmen are only placed in boxes where the traffic is light.

R. H. FRANCIS,*Traffic Manager.*

ELECTRIC TRAIN STAFFS(Webb and Thompson's Patent)

Manufactured by

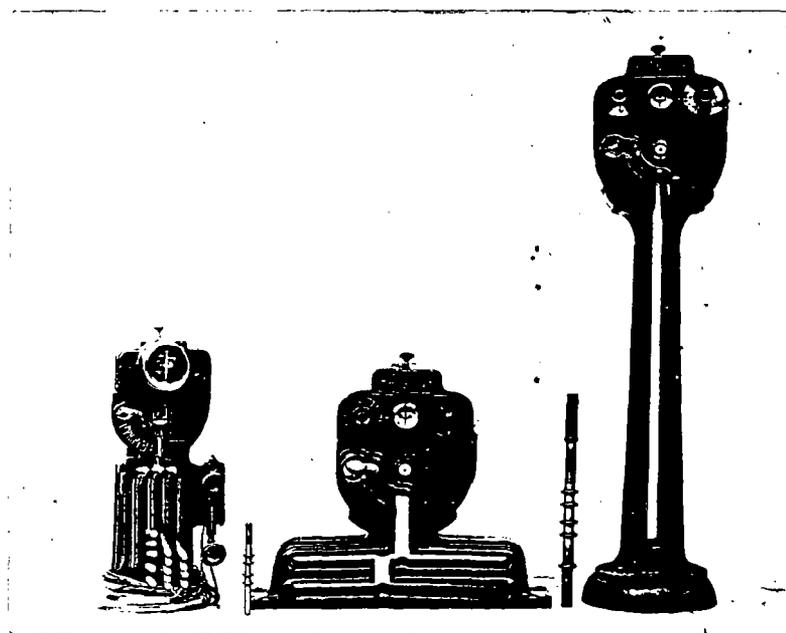
The Railway Signal Company Limited,

Farakerley, Liverpool, England.

Agents in Australasia and New Zealand

Messrs. MCKENZIE & HOLLAND Ltd., Engineers,

Newport, Victoria.



Photograph showing relative sizes of -

- (1) Old Pattern Large Train Staff Instrument & Staff.
- (2) South American Squat Type of Large Train Staff Instrument.
- (3) The Modern Miniature Train Staff Instrument & Staff.