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Membership of the Association is available to all who have been members of VicRoads or forerunner organisations or the spouse of deceased members and bestows on them all the rights of the Rules of Association. Cost of membership is a once only fee of \$50. Enquiries about membership or receipt of the Newsletter by e-mail should be directed to the Secretary, VicRoads Association, by phone or e-mail



A pothole on the Hume Highway recently caused five cars to suffer flat tyres in rapid succession.

Dear Members

Potholes are a perennial problem for Australia's roads. In Victoria, perhaps more than in other jurisdictions, the prevalence of potholes and associated vehicle damage has been a matter of enduring concern in recent years, particularly in regional areas.

One of our Members recently had his vehicle damaged by a pothole, and his experience, along with that of another Member, has also highlighted several generally overlooked issues associated with today's modern cars.

On Sunday 12 July, Clive Mottram was returning home from a Rotary event at Wangaratta when his vehicle hit a deep pothole on the Hume Freeway near Avenel. The tyre on the front wheel of his Kia EV3 (Electric vehicle) did not survive the impact and, like many modern cars, the Kia was not equipped with a spare wheel.

The late hour and being a Sunday meant that all tyre retailers were closed. The Kia service contractor towed Clive's car to nearby Euroa, where he spent the night in a B&B. On Monday morning, Clive called six tyre centres (because his tyres were so unusual) before locating a Shepparton dealer who said he could get one - but not until Tuesday, as it would have to come from Melbourne. The Kia service contractor then towed his car to Shepparton, where Clive stayed another night waiting to have the new tyre fitted.

Back home, when Clive was recharging his vehicle, its dashboard screen suggested that the car's range was now about 30% less than it had been before hitting the pothole.

After consulting Microsoft CoPilot AI, which suggested his car needed a High Voltage Diagnostic Test and an Underbody Inspection, Clive booked a service with Kia and we await his next instalment in this saga.



Clive's car on a flatbed tow truck in Euroa

The incident highlights several issues for vehicle owners that are quite separate to the obvious problems Victoria has in maintaining its road network:

1. Some electric vehicles (EVs) can be hundreds of kilograms heavier than their internal combustion (IC) equivalents, due to their large batteries. A Tesla 3 can weigh as much as 1.85 tonnes and some SUV's, such as a Volvo EX90 can weigh as much as 2.8 tonnes.

Hitting a pothole with this additional mass can not only destroy tyres but can also cause much greater damage to wheels, suspensions and other components than might be experienced with a traditional IC engined vehicle.

2. Spare wheels have already been phased out for many vehicle types, including cars powered by fossil fuels. The absence of spare wheels is particularly common with electric vehicles, where the challenge is finding room to accommodate them. Many new car manufacturers now only provide a basic reinflation kit that might provide a quick fix for a simple puncture but won't help an impact-damaged tyre.
3. New car owners sign many documents when collecting their vehicle but often only discover just how restrictive the terms of their vehicle warranties can be when they suffer a 'routine' roadside incident. In Clive's case, his roadside service contractors went out of their way to assist him, and his warranty conditions were not a problem.

However, in May 2026 Jim Webber was a passenger in his son's new Mercedes EQE 350 on a trip to Wangaratta when the vehicle sustained an unrepairable puncture near Euroa (not due to a pothole). There was no spare tyre, and when the RACV turned up to assist, they advised Jim's son that under the terms of his car's warranty, the tyre could only be replaced by Mercedes in one of their specialised dealerships. This necessitated the RACV taking the vehicle to Mercedes Epping on a flatbed truck. I understand that some other manufacturers, including Tesla, have similar conditions.

In short, damaging a tyre in years gone by might have resulted in a quick change using the vehicle's spare by the driver or a roadside service provider. In today's world, such an incident can result in a major trip disruption.

WHATS COMING UP?

In this edition

We invite Members and their friends to two great events in Geelong and Shepparton and describe our recent outing to Alstom's amazing train building plant in South Dandenong. I would like to thank our Secretary, Jill Earnshaw for her work in organising the Dandenong Pavilion luncheon and the subsequent Alstom tour. Her comprehensive notes were of great assistance in preparing the article about the tour in this Newsletter.

We also feature Peter Newitt's report of an ex-staff farewell to 120 Kay Street, Traralgon; take a retrospective look at Melbourne's vexed level crossings; present Peter Balfe's perspective of the tragic West Gate Bridge failure, and David Jellie's interesting article about Henry Hamilton and Frank Jackson, CRB employees who served in World War 2. Both survived imprisonment by the Japanese and returned to continue their careers with the CRB.

Our 2026 event calendar

Date	Event	Contact Person
Monday 3 August	12 noon for 12.30 pm Occasional Lunch, Doncaster Shoppingtown Hotel	Just turn up
Tuesday 18 August	Lunch at Geelong followed by a TAC presentation. (See below for details)	Jill Earnshaw jillmearnshaw@gmail.com
Monday 7 – Tuesday 8 September	Visit to the Shepparton Art Museum (SAM) to see the <i>Facing Modernity: Degas to Picasso</i> visiting exhibition and the Archibald Prize Exhibition. Starts 12 noon with lunch at the SAM Café and dinner in Shepparton. There will be further optional activities on Tuesday including a winery lunch.	Jim Webber jameswebber1717@gmail.com
Monday 5 October	12 noon for 12.30 pm Occasional Lunch, Doncaster Shoppingtown Hotel	Just turn up
Friday 30 October	Annual Golf Day at Green Acres Golf Club, Kew East	Jim Webber jameswebber1717@gmail.com
Monday 9 November	12 noon for 12.30 pm Occasional Lunch, Doncaster Shoppingtown Hotel	Just turn up
Monday 8 December	11.45 am for 12.30 pm Christmas lunch at a new venue, to be advised. (The Glen Waverley RSL is no longer available due to a major fire).	Ken Vickery kenvickery@tpg.com.au

Geelong Lunch and TAC presentation - Tuesday 18 August 2026

This visit follows on from a very pleasant and informative visit to Geelong and the Transport Accident Commission (TAC) in 2024.

Our visit will commence with lunch at 11.30 am at Sailor's Rest, 3 Moorabool St, Geelong. <https://www.sailorsrestgeelong.com.au/menu/>. It's then a short walk to the TAC building for our presentation.

The venue is TAC headquarters, 60 Brougham St, Geelong. Parking, for the time period required, is available in nearby commercial car parks. Further information on parking options will be sent to all participants before our visit. The Geelong railway station is about an 8 minute walk to the TAC building or 10 minutes to the restaurant.

The presentation will commence around 1.00 pm but we will need to get there a bit earlier to pass through the building security. We will receive an update on the latest road safety data & accident trends for Victoria; the Victorian Road Safety Strategy 2021-2030; the latest initiatives by TAC and any other agencies it is involved with; its current road safety program & interventions as well as challenges and opportunities.

We are sure the issue of potholes and road condition & maintenance in general will get a bit of a mention on the day as will current safer vehicle and safer road user initiatives.

Why not use this as an opportunity to catch up with former regional colleagues. All are welcome. Please register with: [Jill Earnshaw, jillmearnshaw@gmail.com](mailto:jillmearnshaw@gmail.com)

Shepparton Art Museum visit

Monday 7 September 2026 (& Tuesday 8 September if staying overnight for other activities)



The Shepparton Art Gallery

You could do it as a day trip but you may also be interested in planning a night or two away in Shepparton in September.

We are planning the following during our trip to Shepparton:

- Lunch at the Shepparton Art Museum (SAM)
- Talk at the SAM on the *Facing Modernity: Degas to Picasso* exhibition
- Dinner in Shepparton
- Guided tour of the Tatura Irrigation and Wartime Camps Museum
- Lunch at Fowles Wine Restaurant, Avenel
- Plus a visit to the Museum of Vehicle Evolution, Kialla, which you may want to visit in your own time if you are staying in the area

On 7 September the Association will be visiting the Shepparton Art Museum for the *Facing Modernity: Degas to Picasso* visiting exhibition as well as the Archibald Prize exhibition. If you intend to stay overnight in the Shepparton area, some attendees are staying at the Paradise Lakes Motel in Kialla, 7 km south of Shepparton but there is a wide range of accommodation options in and around Shepparton.

In late August, Jim Webber will be in contact with those who register their expression of interest with him (jameswebber1717@gmail.com). We currently have 30 attendees.

As the exhibition tickets (\$43.00) need to be pre-paid, we will require those wishing to attend to pay for the event in advance. Payment should be made by electronic transfer into the Association's NAB bank account, details as follows:

VICROADS ASSOCIATION BSB 083-323 ACC 170934017

Reference - Please ensure that you include your name and SAM in the "online" transaction details so that the payment can be attributed to you.

Please note that refunds may be able to be arranged if there is someone able to take your place(s) once the tickets have been purchased. If not, a refund cannot be provided as moneys will have already been provided to the venue.

Please advise Jim Webber jameswebber1717@gmail.com prior to the deadline noted below, if you wish to attend any, or all, of the various events listed in the table below.

Further details of the visit will be available in the August newsletter and sent to all who express an interest in the visit.

Date	Event	Deadline for Advising Attendance	Deadline for Payment
Monday 7 September	SAM Lunch	Monday 31 August	Monday 31 August
	SAM talk about 2-3 paintings	Monday 31 August	Monday 31 August
	Dinner in Shepparton	Monday 31 August	Pay on the night
Tuesday 8 September	Guided tour of Tatura Museum	Monday 31 August	Pay \$5 on the day
	Fowles Winery Lunch, Avenel	Monday 31 August	Pay on the day
	Museum of Vehicle Evolution, Kialla	Your own arrangements	

WHAT'S BEEN HAPPENING

Tour of the Alstom Dandenong site

by John Wright

During our successful tour of Ballarat's Alstom train-making plant in October last year we learned that much of the plant's activity centres about creating rail carriages from components fabricated at and transported from the Company's Dandenong Plant.

On 15 July, 25 Members and guests met in Dandenong for lunch at the Dandenong Pavilion Restaurant, prior to inspecting the Alstom site in Dandenong South.



Ready for lunch at the Dandenong Pavilion



Members and guests kitting up for the tour at the Alstom visitor centre in Dandenong South

At Alstom's visitor centre in Dandenong South, we were joined by a further eight members and guests, making a total of 33 attendees from the Association. Some attendees came from as far away as Ballarat and Benalla. After we had kitted up with Alstom's safety gear, Troy Donis (below), Alstom's Communication Advisor, gave a presentation about the Company's history and its current activities.



Troy told us that the Dandenong site's long train building history had commenced in 1954 when Commonwealth Engineering started building Melbourne's blue Harris trains. These were progressively replaced in the 1980s by its silver *Comeng* trains. In the 1970s and 80s Comeng also built Melbourne's Z, A and B Class trams, XPT trains for NSW Regional services, and trains for the Adelaide Metro.

In 1990, Comeng was sold to ABB¹ which was merged with Daimler-Benz Transportation in 1995 to become *Adtranz* before being sold to the Canadian firm *Bombardier* in 2001.

In 2021, Bombardier, which produced the VLocity trains used by VLine, sold its entire rail-building division to the French train manufacturer Alstom to focus exclusively on designing and manufacturing luxury business jets. Since then, Alstom has invested \$40 million to upgrade and improve the 50 acre site, which has its own test track.

Worldwide, Alstom now has 85,000 employees and is the world's leading train manufacturer. In Australia, Alstom is our only 'end-to-end' train manufacturer, with 2,500 employees. While some components are built in Germany and India, Alstom supports 3,000 indirect Australian jobs, apprenticeships and trainees through its 850 active Australian suppliers in an annual spend of \$600 million.

Alstom's annual Australian turnover is about \$2 billion. It brings in its overseas experts to train up its local workforce and it is the only Victorian manufacturer with an onsite welding school.

Alstom has two major Victorian clients – The Department of Transport and Planning, and the Suburban Rail Link (SRL), whose contracts specify an Australian content of at least 65%. Troy told us that Alstom is exceeding that requirement.

¹ ABB Train Manufacturing was formed out of the 1988 merger of Sweden's ASEA and Switzerland's Brown Boveri. It now acts as a vital electrical supplier for major original equipment manufacturers like Alstom.

Alstom is actively manufacturing two primary fleets for Melbourne's transport network:

The X'Trapolis 2.0:

The Alstom X'Trapolis 2.0 is progressively replacing the original X'Trapolis 100 fleet, which was built by Alstom in Europe² in the early 2000's to replace Melbourne's ageing fleet of Hitachi trains. The first X'Trapolis 2.0 was rolled out at Ballarat in 2025.



A fleet of 50 of these trains (the first of which recently entered passenger service on the Upfield, Craigieburn, and Frankston lines) features upgraded accessibility, real-time passenger information, and USB-C chargers.

After the Victorian Government nominated its requirements in 2021, the detailed designs were produced by Alstom India. The train components are fabricated at Alstom's Dandenong plant, using both manual and robotic spot welding processes.

Troy explained that placing the 10,000 spot welds on each train is the most time-consuming task. The robot welder does it quicker, but rather than reduce the need for jobs, its main benefit is that it allows more than one train to be worked on at a time.

The fabricated train components are then taken by road to Ballarat, where 120 people³ are involved in assembling and fitting them out.

G Class Trams:



Melbourne has the largest tram network in the world and the Alstom G Class tram, which is Melbourne's newest generation of low-floor trams, will ensure it is up there with the best.

Replacing the older high-floor Z and A Class models, these 25-meter-long vehicles can carry up to 150 passengers and features improved accessibility, more doors, onboard battery storage for energy efficiency, and better on-board signing for passengers.

The new trams are able to operate across the entire network. With improved energy efficiency, tram length and internal layout, they can run on existing lines without major changes to tracks or the tram power system. There are 280 G Class trams on order and Alstom aims to build one tram a week.

² The first 10 units of the X'Trapolis 100 were completely built in Alstom's French plant. Subsequent trains from Alstom's French and Italian plants were shipped here in parts and assembled in Ballarat.

³ Alstom gave the Victorian Government a commitment to at least 100 regional jobs.



Checking out a mock-up of a new tram

Preparing for Suburban Rail Loop (SRL) East

In December 2025 Alstom was awarded a \$1.8 billion share of a \$6.7 billion contract awarded to global consortium *TransitLinX*⁴ for the Suburban Rail Loop (SRL) East. Alstom's share of the contract will cover rolling stock, digital infrastructure, signalling and maintenance, as well as overall system integration.



Alstom is investing \$27 million to upgrade its Dandenong site in preparation for the commencement of manufacturing 13 new four-car SRL East trains in 2029 with all trains being delivered in 2032.

These Metropolis metro trains will be automated, running under a fully integrated signalling system. While automated trains are already running on Sydney's new Metro line, it will be the first time they have been built in Australia.

The trains will have platform screen doors and modern passenger information systems, with seating along the walls in the carriages to create more space for passengers in peak periods. There will be dedicated spaces for wheelchairs and passengers with special needs, as well as flexible use spaces for prams, assistance animals and other uses.

John Wright

⁴ TransitLinX – which will be known as the Linewide Alliance during construction – comprises Alstom, RATP Dev, John Holland, KBR and WSP.

MEMBER COMMENTS AND NEWS

From Graham Gilpin – CRB Balls at Kew H.O

Hi John,

I liked your newsletter article about 60 Denmark St, however, there is one part that I'm not sure is correct. You suggested 60 Denmark Street had been used for CRB Balls.

I have no recollection of that. In my memory the balls of the early 60's [and I attended them all] were held at Kew Town Hall and then we moved to Camberwell Town Hall because Kew was no longer big enough. After a period at Camberwell our attendance grew such that we also occupied the Town Hall stage 'cos we couldn't all fit on the main floor. Then after a decade or so balls became unfashionable and attendances dropped off considerably. The last one I attended [can't remember the year] was held at 9 Darling St South Yarra.

Editor: I think you might be correct, Graham. While I remember a dance session in the theatrette, it probably wasn't a formal Ball. I recall it was somewhat cramped and might have featured Graham Steel and his trumpet in the band on the small stage. Thinking back, there couldn't have been a Ball at Head Office in 1960, as we didn't move in until December. I'm fairly sure I attended a CRB Ball at Kew Town Hall in 1961, however.

I'd love to hear from other Members who might have attended a dance at Kew H.O. Can anybody remember this?

From Bruce Hartnett

Congratulations to all involved with the latest Newsletter.

The memories of constructing roads in Bairnsdale and surrounds 50 years ago brought back memories of working on road construction near Seymour as a Cadet in 1965 and living in the huts adjacent to the construction. I was advised by the receptionist in the CRB Office in Benalla to tell people I was a Presbyterian but if I went to Ballarat to say I was Catholic.

I also "enjoyed" reading the story of the collapse of the Westgate Bridge span, and I understand the author's difficulty in recounting the story. I was studying in London for 4 years from 1970-74 on leave from the CRB so missed the personal and professional impact of the Disaster at the time so it was useful to read this informative explanation.

A Farewell to 120 Kay Street, Traralgon – from Peter Newitt

Approx 40 CRB, RCA, VicRoads, Regional Roads and DTP employees past and present had a most enjoyable lunch and catchup at the Traralgon RSL on 25 June. Following lunch a few of us met on the steps at the front of the office at 120 Kay Street for one last "Staff" Photograph sending a fond farewell to the old Girl.

It was quite sad to see the office, car parks and out-buildings abandoned. In particular the bird cage which holds many fond memories - regular Friday Happy hours, Family Christmas Partys and of course annual Cricket Training session (you just had to be there to see the talent which was on display year after year).

Peter Newitt



Back Left to Right; Rick Both, Dave Gellion, Kingsley Sexton, Paul Taylor, Neil Jones, Allan Roach, Bill Degnan, Natalija Cvetkovic, Brett Jennings, Peter Newitt, Richard O'Brien.

Centre Left to Right; Ron Traynor, Rob Butler, Debbie McLees, Mike McKeon, Ben Kennedy, Jojo Abuan, Greg Stephens, Nick Francolino, Carolyn Deppeler.

Front Left to Right; Greg Fox, Paul Quinlan, John Kaljouw, Stuart Fenech, Michael Mattingley.
Photo taken By John Clinch.

Comment from Norm Butler:

The Traralgon Office was built in 1966 as headquarters for the Traralgon Division of the Country Roads Board. Alan Jacka was the Divisional Engineer at the time. The construction of the new building was supervised by Reg Patterson, the Assistant Divisional Engineer at that time.

The single storey building is located on a large section of ground in a residential area of Kay St Traralgon - probably located there when Kay St was a favoured route for a Princes Highway Bypass of Traralgon Shopping precinct. In the 1990s the building was extended to accommodate Planning and Transport staff.

As an interim measure prior to this extension a portable classroom was obtained, which later became a meeting room known as “The Birdcage” due to the security mesh over all windows. Internally the building saw many changes as staff grew with the creation of Eastern Region of VicRoads.

A feature which developed in the 1990s was the courtyard barbecue area where every opportunity seemed to be taken to have a staff BBQ to welcome visitors, have awards events and sometimes just for a staff BBQ.

On the visit for the “Staff photo”, it was quite sad to see the office car parks and outbuildings abandoned. In particular the Birdcage which holds many fond memories – regular Friday Happy Hours, Family Christmas Parties and of course the Annual Cricket training season (you just had to be there to see the talent on display year after year).



In a WhatsApp post, Di Campbell put it so well – “It is very sad to say goodbye to a place that has been such a big part of so many lives. The turnup of past and present employees is testament to the strong and enduring bond fostered by Kay St”

Many thanks to Peter Newitt, David Gellion, Mike McKeon, Harvey Dinelli and Greg Fox for organising the Farwell at the RSL and thanks to all who attended.

Norm Butler

Melbourne's Level Crossing saga – by John Wright

The earliest crossing closure?

The past is always full of surprises. Until I started looking into Victoria's level crossing history I had no idea that the Brighton railway line was originally built without any connection to the rest of Melbourne's rail network – and that an attempt to connect it in 1859 would lead to the City's first publicly instigated level crossing removal.



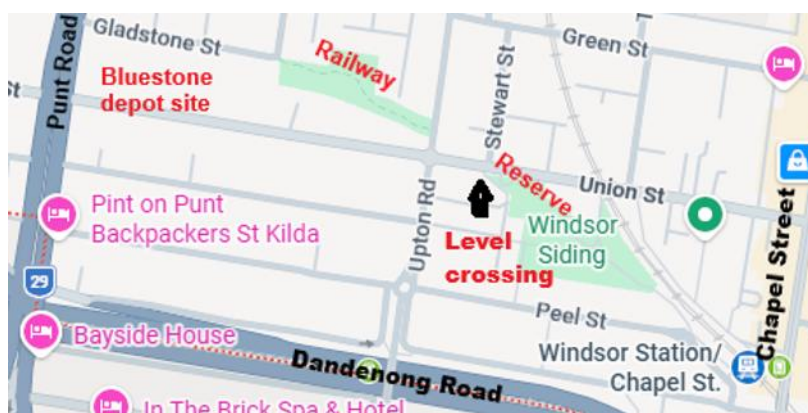
The line started in Windsor, then known as Chapel Street Station, and finished at Brighton. City-bound travellers had to make their way from Windsor to St Kilda Station – a 1.6 km walk. (The current direct rail route via Richmond didn't exist then, because rail builders had been unable to cross a deep swamp at Cremorne).

In 1859, mindful of their customers' needs, the St Kilda & Brighton Railway Co. constructed a short railway line

between Windsor and St Kilda to provide a continuous route to the City. The curving line, which skirted the southern end of Albert Park Lake, was elevated to avoid boggy ground and was carried over St Kilda Road on a timber viaduct. Building this line would bankrupt its owners.

Barely 12 months later, a competing railway company finally conquered the swampy ground at Cremorne by building an embankment over the sunken wagons of a work train that had been swallowed in an earlier attempt to fill the swamp. This new connection killed the nascent St Kilda to Windsor line's patronage, causing it to close.

The terms of the company's agreement with the Government obliged it to remove all trace of the single track between Windsor and St Kilda stations. However, the company *was* allowed it to leave a short length of track between Windsor Station and a busy bluestone retail business located on the Prahran side of Punt Road.



The point where the line to the bluestone business crossed Union Street in Windsor became a major issue with local horse and cart businesses because it was unmanned and was frequently blocked by trains for long periods.

Matters came to a head one morning in 1869 when Prahran local councillors,

along with a gang of men, a solicitor and some police, marched to the level crossing and began to rip up the tracks. The matter was brought to court in the same year and, although the railways won the right-of-way case, the siding was not reconstructed.

There is an amusing footnote to this episode. On the day of the formal opening of the route from Richmond, the new owners' train, packed with dignitaries, was forced to a halt at Windsor because its funnel was too tall to fit beneath the Chapel Street bridge.

Early level crossing removals

When the current rail network was being constructed, often by private companies, Melbourne's generally flat terrain didn't always favour grade separations, and rail builders understandably preferred level crossings. Thanks to the 1869 court decision, rail had a legal right-of-way over road, and in those days their builders probably weren't too concerned about the costs of level crossing

delays and accidents.



Bedford Road crossing, Ringwood circa 1925. Photo courtesy of *Old Time Photos Of Tram And Train Engines of Yesteryear* [public Facebook Group](#)

The Victorian Government took over all private metropolitan railways in 1889, and while it *did* subsequently remove many level crossings, nearly all of them were associated with rail upgrading works. Between 1909 and 1915, thirteen level crossings between South Yarra and Caulfield were grade separated as part of the regrading and quadruplication of the railway.

Between Hawthorn and Camberwell, nine level crossings were removed between 1915 and 1919 when that section of railway was regraded. Track amplification works between Footscray and West Footscray during the 1920s saw four more level crossings removed, including the Geelong Road crossing⁵.

The few exceptions might have been two instances in the late 1920's where rail and tramways intersected, possibly because the tramways people had much more clout in

⁵ I am indebted to Marcus Wong's historical [website](#) for much of the information I have used on Melbourne's level crossing removals between 1909 and 1929.

Spring Street than the fragmented carting industry. Two level crossings involving tramways at Queens Road Fitzroy and Epsom Road at Ascot Vale were removed.

In the twenty-year period that followed the commencement of the Great Depression, scarce funding meant there were no further rail upgrades and crossing removals. People lived frugally and many couldn't afford to own cars. Those that had jobs tended to walk to them, ride bikes or use public transport. It was an accepted reality that I saw as a child in early 1940's Bendigo. Hardly anyone in our street owned a car.

All of this began to change in the late 1940s when our troops came home and the redirected industrialisation of World War 2 ushered in the beginnings of a booming consumer society. In the early 1950s, Melbourne's population was supercharged by European immigration. New industries were created and ownership of private cars, now being made in Australia, exploded as consumer credit became available. Much greater numbers of working people began using Melbourne's roads, and many were unhappy with long delays at hundreds of level crossings.

1950s and 60s

In 1954 the Cain Government responded to community angst by establishing a committee to look at the removal of the City's most congested level crossings. The result was *The Country Roads and Level Crossings Act 1954*, which amended the *Country Roads Act* and the *Motor Car Act* to finance and accelerate the removal of dangerous, high-traffic level crossings. I believe it was the first, serious attempt by any Victorian Government to remove level crossings solely as a benefit to the community.

The Act established the *Level Crossings Fund*, dedicating a portion of additional vehicle registration fees specifically to build new grade separations across Melbourne's rail networks. Following on from the 1952 construction of the Swan Street Bridge, it heralded the beginning of many major metropolitan projects undertaken by the CRB, including the King Street Bridge and its approaches.



The Clifton Hill overpass as shown in the 1959-1960 CRB Annual Report

The railway crossing of Heidelberg Road at Clifton Hill was an early and most notable application of the new Act. This crossing had been causing enormous delays in peak hours and restricted the operation of the adjacent intersection of Hoddle Street, which had a high volume of turning movements.

The CRB's solution was to take Heidelberg Road over both the railway and Hoddle Street. Completed in 1957, its use of precast prestressed concrete slabs and its innovative elevated ramp connections to Hoddle Street generated considerable prestige for the CRB.

The program continued after the Bolte Government was elected in 1955, with the CRB removing further level crossings at Glenhuntly Road in Elsternwick; Napier Street in Footscray; the Nepean Highway at Moorabbin;

Melbourne Road at Newport, and Hampshire Road at Sunshine.

Not long after I joined the CRB in 1958, I spent a day counting traffic in Oakleigh as part of the investigation for the removal of the Warragul Road level crossing carried out by

the Traffic and Location Division, then headed by Neil Guerin. The Warrigal Road overpass was finally built in July 1968, replacing the notorious, manually operated level crossing gates just west of the train station.

As a draftsman at the Exhibition Building Annexe in 1960, I prepared drawings for the late engineer Jim Symons who had written a report discussing options to grade separate the Springvale Road crossing at Springvale. I recall that lowering the Gippsland railway tracks was one of them. It was eventually built in 2014 – fifty-four years later.

The 1970s to the early 2000s

The momentum of the Cain Government's 1954 initiative petered out in the 1960's – possibly because the sheer scale of the task was too daunting, but more likely because other funding needs became more politically attractive. Nevertheless, during the 1970's several isolated but contentious metropolitan level crossings were eliminated.



One of these was at Huntingdale, where North Road was carried over the railway, necessitating a circuitous diversion of Huntingdale Road, which was truncated by the works. Motorists on North Road were happy. Those using Huntingdale Road – not so much.

In the 1980s and the early 2000s a new approach to level crossing removals began, in which crossing removal works focussed on upgrading particular rail corridors, such as the Ringwood and Ferntree Gully lines. Crossing removals at Box Hill, Laburnum, Nunawading and Mitcham also resulted in the creation of new stations at those locations. All of these removals involved the lowering of the railway.

One of the more dramatic improvements occurred in 1998 at Boronia where the intersection of Dorset and Boronia Roads was bisected by a level crossing of the Ferntree Gully line. The railway was lowered; a new station was built and the previous dogleg in Dorset Road was straightened out. The works greatly improved not only the traffic flows on both roads but completely transformed the Boronia business area.

The advent of Skyrail

A major change in the pace of Melbourne's level crossing removals came about at the 2014 State election when the incoming Andrews Government promised to remove 50 level crossings and rebuild 51 stations on the metropolitan and regional rail transport

network. Immediately after the election, the Government established the *Level Crossing Removal Project* (LXRP) to deliver the improvements, committing a budget of \$2.4 billion to fund it.

At that time there were 176 level crossings remaining on metropolitan Melbourne's rail network. Successive Government announcements brought the number of crossing removals under this program to a total of 110 by 2032. Thirty of these would be funded by the sale of the lease of the Port of Melbourne in 2016.



Clayton Road Activity Node. Photo courtesy of Aspect Studios. Photographer: Peter Clarke

Construction challenges

Some of the early LXRP removals used open cut because the topography and other factors suited it. In 2016 the Frankston line crossings at Ormond, McKinnon and Bentleigh were undergrounded, as were four crossings on the Belgrave/Lilydale line at Blackburn, Heatherdale, and Bayswater (Scoresby Road and Mountain Highway). Crossings at Dublin and Bedford Roads in East Ringwood were undergrounded in 2024.

The widespread use of elevated rail as a level crossing removal solution really began when the LXRP decided against using open cuts for all nine of the crossings on the Cranbourne/Pakenham line beyond Caulfield, in favour of elevating the railway onto separate, long viaducts. The LXRP determined an open cut in this corridor would have:

- required around 230 days of rail line closures during two years of construction
- necessitated the relocation of major utilities, including a water main, a 66kV power cable and a major gas transmission main. This would have interrupted the gas supply to a large part of Melbourne and taken many years to complete
- effectively cut off or redirected natural overland flood paths, impacting the viability of existing vegetation and risking flooding of the trench and rail line
- caused changes to ground water conditions due to a high water table in this section of the rail corridor. Contaminated groundwater would have had to be pumped out and treated during construction

As well as taking around one third of the time to build compared to the trench option, the overhead option also had the benefit of opening up around 22.5 hectares of space beneath the railway to provide new urban parks and community spaces.

Given the huge scale of all the likely overhead works in the metropolitan area and the often cramped urban conditions in which they were to be constructed, the LXRA and its alliance partners adopted a beam launching technology that was regularly being used in Asia for building viaducts, often with a straddle carrier being used to add each new span to the structure.

To minimise road and rail closure times and greatly reduce overall build time, large, single, bored monopiles (often between 2.1 m and 2.5 m in diameter) were used for pier foundations instead of multiple driven piles. After the supporting columns were cast, trucked-in precast headstocks were attached.

Similarly, concrete bridge beam segments were made in specialised offsite factories in short, transportable lengths. They were trucked in, assembled onsite (between 8 and 14 lengths at a time) and post tensioned before being lifted onto the crossheads by straddle cranes. The process is illustrated in more detail below.

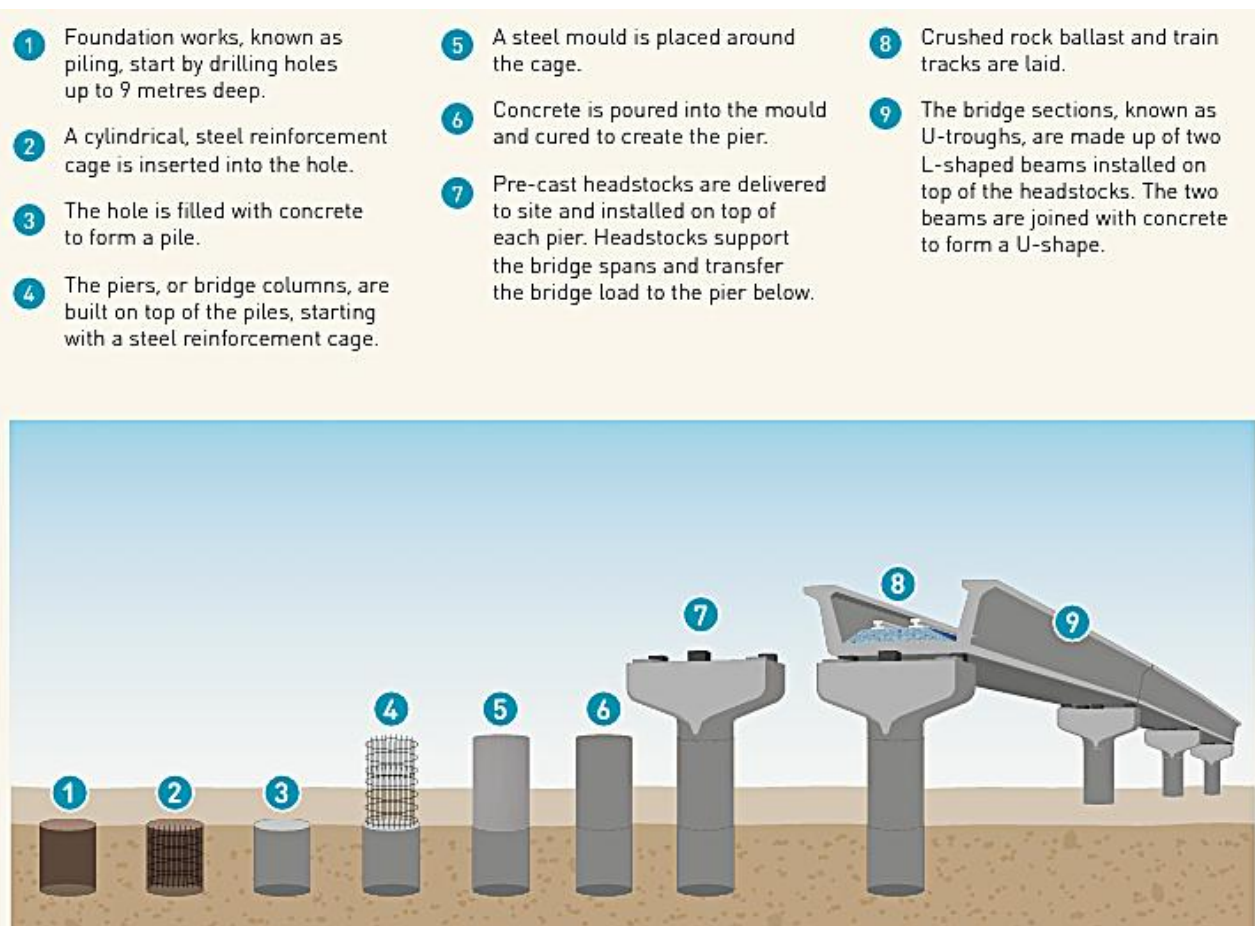


Diagram courtesy of the Level Crossing Removal Project

The idea to use a straddle carrier and beam launching system – the first ever Australian use of a straddle carrier and gantry crane configuration in a live rail corridor⁶ – was devised during the bid phase, when LXRA was talking to two potential alliance partners.

⁶ Source. The New Civil Engineer [website](#).

It was initially used at Murrumbeena Station. In all, 174 spans were assembled and installed using this method since February 2017, to create the 4km long twin track viaducts between Caulfield and Hughesdale. Since then, removals have substantially progressed on all of Melbourne's major commuter lines, although at the time of writing only the Cranbourne and Pakenham lines are completely crossing free. A comprehensive list of completed and proposed crossings can be found on this [Wikipedia Website](#).

On the Upfield line, dangerous boom gates in Coburg and Moreland have been replaced by a 2.5 km elevated rail bridge. An additional eight crossings between Albion Street, Brunswick, and Park Street, Parkville, are slated for removal by 2030, which will clear the entire corridor of boom gates.



A 60m wheeled straddle carrier in action at Murrumbeena, installing its first piece of elevated rail.

Community reaction

The comprehensive Wikipedia web page covering the LXR and referenced above, summarised community opinion as follows:

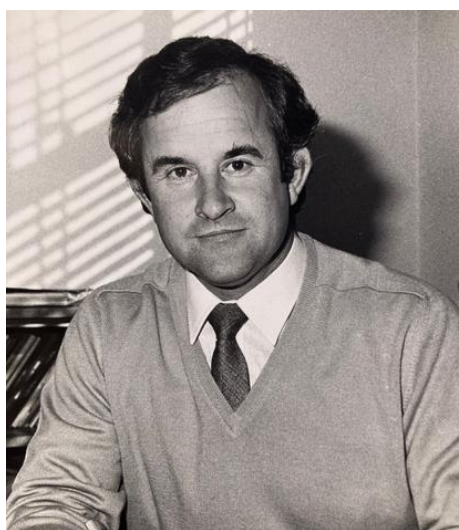
'While the LXR has been broadly popular, local opposition has attracted significant media attention. Elevated rail has been controversial among some local residents and businesses, with protests over the removal of crossings on the Upfield line calling for a rail trench to be used instead. At the same time, polling has found a majority of Victorians supported the use of elevated rail to remove level crossings. In other examples, such as the Caulfield to Dandenong elevated rail project, local media reported that many residents were supportive of the project's outcomes.'

One Facebook user made the following observation with respect to the Caulfield to Dandenong elevated rail works:

'One of the busiest rail corridors has no room now for expansion that could have seen an additional 2 tracks, to fully separate freight and VLine services from Metro. Not to mention allow back up should an issue occur on one set of lines.'

John Wright

West Gate Freeway, Part 3 – by Peter Balfe



1985 - Regional Manager Bairnsdale

[Editor's note: Peter emailed me to say:

'David's recent articles about the West Gate Bridge have stimulated me to put together an account of my time on the redesign and reconstruction of the bridge after the collapse. I spent nearly 4 years altogether on secondment from VicRoads to the Lower Yarra Crossing Authority, reporting back about once a year to Keith Moody who was then the CRB Chief Engineer.

Very few people probably realise that the CRB had an engineer involved. '

Peter started with the CRB in 1964 as an engineering cadet. After university and post graduate studies he spent two years in the army on national service and then around 14 years in bridge design and construction including secondments for redesign and reconstruction of the West Gate bridge and a regional posting, managing bridgeworks on the Hume Freeway bypasses of Seymour and Avenel.

He returned to Melbourne as Leader of the Geotechnical Group in MRD and then moved back to a Class 4 Engineer position in Bridge Design before branching out into broader management roles including Program and Budgets Engineer, Regional Manager East Gippsland, and Manager Corporate Planning.

After amalgamation of the RCA and RTA he moved into General Management roles including Manager Policy and Programs, General Manager Road System Management, and Director Major Projects before spending his last 7 years as Deputy Chief Executive.

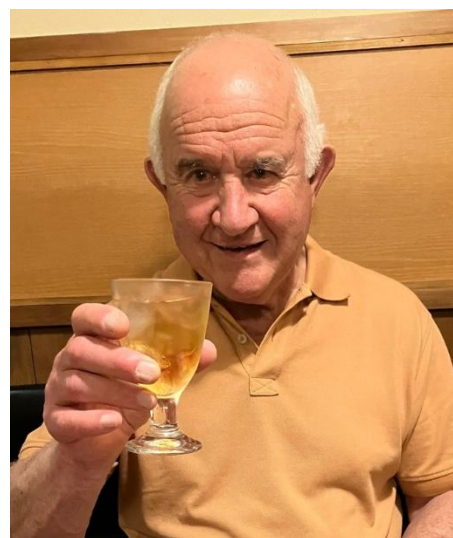
During his later years with VicRoads he played a major role with Austroads, firstly managing its Road Use Management Program and developing recommended national heavy vehicle standards for the newly established National Road Transport Commission.

He later managed its Technology Program, initiating and overseeing development of the initial suite of Austroads Project Delivery Guides which established national standards for road design and construction.

In 2003 he was awarded the John Shaw medal for his contribution to road management.

Peter left VicRoads in 2004 after 40 years' service and spent the next 10 years as a consultant, initially with SKM as the Independent Reviewer for the Eastlink Project, and then in partnership with AECOM as the Independent Reviewer for Peninsula Link.

Peter's account of his time on the West gate Bridge Project follows.]



Peter in 2026

Where were you in October 1970 when the West Gate bridge collapsed? – by Peter Balfe

I was in Sydney, nine months into my military National Service. I still have vivid memories of the front page photo of the collapsed span in the Sydney Morning Herald and desperately hoping that it was not caused by brittle fracture of the LY50 steel (having been involved in the CRB testing of beams fabricated from the LY50 (Lower Yarra 50 ksi) steel with Jim Webber and Roy Gilmour to verify that it was not prone to brittle fracture).

That was not the case of course – the reasons for the collapse were more fundamental. The Royal Commission established to investigate the collapse found that the original Designers, Freeman Fox and Partners had *‘failed altogether to give a proper and careful regard to the process of structural design’* and that *‘the margins of safety for the bridge were inadequate during erection; they would also have been inadequate in the service condition had the bridge been completed.’*

In August 1971 following the Royal Commission, the Lower Yarra Crossing Authority formed its Directorate of Engineering to review the design of the bridge and supervise the reconstruction. I was discharged from the army four months later and volunteered for a secondment to the Directorate as the CRB representative, right at the start of the redesign process.

It was an amazing opportunity for a young engineer. There were only 6 engineers in the initial review team headed up by Professor Ray Toakley from the University of New South Wales. The team included several internationally recognised experts in design of major bridges and stiffened steel plate analysis. We had access to leading edge computer analysis techniques including the relatively new finite analysis programs that we used extensively. It was a very stimulating work environment.

Over the next two years we established how extensive the design inadequacies were. Full details of the design analysis undertaken and the strengthening required can be found in a summary of the redesign written by former Directorate team members⁷. In summary, an additional 1800 tonnes of steel was required for strengthening existing steelwork and an additional 925 tonnes for replacement of the collapsed span:

- The original design’s composite steel and concrete deck was replaced with a much stronger and lighter orthotropic steel deck.
- The deck cross beams and cantilever beams were stiffened and realigned to provide continuity across the deck. In the original design the crossbeams in the inner cell of the bridge were displaced 1.6 m from the outer cell cross beams which could only be described as a fundamental error.
- In some areas the girder webs had to be replaced or substantially stiffened.
- Additional stiffening and plate thickening was required over a significant portion of the bottom flange of the girder to prevent buckling of the plate and the bulb flat stiffeners. This included stiffening of all the transverse bottom flange splices to eliminate the joint details that played a critical role in the collapse.
- Substantial stiffening was also required on the transverse diaphragms within the box girder and the cable anchorage diaphragms.

⁷ Redesign of West Gate Bridge, P.J.Balfe et al, edited by AR Toakley, published by the Road Construction Authority Jan 1986

- The tower saddle supporting the bridge cables was completely replaced to provide a cable curvature complying with the codes and to reduce eccentric loading of the tower. Friction plates were added to the tower saddle to prevent cable slippage that would have occurred with the original design. Additional steel plating was also added down the full length of the tower shaft and across the faces of the tower base
- New girder anchorage plates were required to resist significant uplift forces at two of the piers
- An epoxy asphalt wearing course was required on the new steel deck. Bruce Phillips (RCA) had a significant role in testing and design of the new surfacing

I returned to the CRB Bridge Division when the redesign was complete in 1974 but was recalled to West Gate Bridge in 1977 as Resident Engineer supervising construction on the east side of the river. I stayed until the final girder section was erected in mid-1978. This was also a very memorable period, technically and personally.

The 16m long box girder sections were assembled on the ground and then split in two by unbolting the central longitudinal splice. Each half box section, weighing up to 60 tonnes, was floated on a barge to where it could be lifted by the 135 tonne derrick crane mounted on the end of the assembled girder. The half boxes were fitted and secured to the assembled girder along the bottom flange bolted splices and finally the top flange transverse joint was butt welded and the web bolted splices completed.

Quality control of the transverse deck weld was critical. The CRB's metallurgist, Andrew Walker, was involved in quality assurance procedures.

Most engineers will remember seeing a film of the collapse of the Tacoma Narrows suspension bridge in the USA caused by a phenomenon known as aeroelastic flutter where winds force resonant oscillation of the bridge girders.

Extensive model testing performed at Monash University and subsequent instrumentation of the final structure indicated that this would not be a problem for the West Gate box girder. However, I remember an alarming incident in April 1978 prior to joining of the main span when the pair of outer main cables on the east side began oscillating like skipping ropes – in the same rotational direction but out of phase such that one was down when the other was up.

The amplitude was estimated to be around 1.5m and the bridge deck was observed to be oscillating at the same frequency with an amplitude of about 100 mm. The motion was damped very quickly and completely contained when ropes were slung across the cables and tensioned to the deck a little below the centre of the cables, each side of the tower.

Subsequent analysis indicated that similar incidents were very unlikely in the finished configuration of the bridge but as a precaution a damping system was installed comprising a yoke connecting the two outer cables to a wire rope which was run down the centre of a light mast and connected to a hydraulic damper inside the box girder.

No account of the West Gate reconstruction would be complete without a comment on industrial relations. The BLF union was at the peak of its powers and was behaving like its successor the CFMEU is today. Under a negotiated demarcation agreement, the BLF had coverage of labourers on the West side of the river and the AWU had the East, but there were often bitter battles and a lot of thuggery. There were many hours lost due to inclement (and not so inclement) weather and demarcation walk offs. I recall many idle hours gazing at the lower Yarra scenery from the end of the bridge.

I have many memories of my time on the redesign and reconstruction of West Gate bridge, the many unforgettable experiences, and the great people that I worked with. I had a wonderful career with VicRoads and its predecessors, but the West Gate period was one of the highlights.

Peter Balfe. July 2026



Figure 1- The final box being erected in May 1978

FUNNIES

Good News and Bad News [Thanks to Graham Gilpin for this gem]

*A lawyer, representing a very wealthy art collector called him and said,
“John, I have some good news and I have some bad news.”*

The Art Collector replied, “I’ve had an awful day - let’s hear the good news first.”

The lawyer said, “Well, I met with your wife today and she informed me that she has invested \$1,500 in two pictures that she thinks will bring in a minimum of \$15 – 20 million, and I think she could be right.”

John replied enthusiastically, “Well done! My wife is a brilliant businesswoman! You’ve just made my day. Now, I know I can handle the bad news. What is it.”

The lawyer replied, “The pictures are of you and your Secretary.”

Lest we forget – by David Jellie

Private Henry Hamilton, VX48120



Henry Hamilton's pay book photograph in 1940.

Henry was a Patrolman in Bendigo Division of the CRB. He was born in Huntly (north of Bendigo) on 26 December 1910 and enlisted in the Army on 6 August 1940 at the age of 29 years and seven months. He gave his occupation as 'Truck driver'.

Henry started his career as a truck driver with the CRB in 1936 and resumed after the war and, in 1950, he became a patrolman in Bendigo Division.

His initial training reads similarly to others who enlisted at this time – in Albury and Seymour in various units before he was posted to the 8th Division Petrol Company. As the name implies, this company supplied the petrol to the Army in all its endeavours and was part of the Australian Army Service Corps (AASC).

He was then taken on strength with of the 27th Brigade of AASC and embarked for Malaya from Fremantle on 7 August 1941, arriving in Singapore eight days late. His archive closes abruptly thereafter. He went missing on 16 February 1942 and in September 1943 he was declared a Prisoner of War. It also shows that he was later interned in Osaka in Japan from where he was released in late 1945.

Douglas Brumley was also incarcerated in Osaka and a brief description of conditions there is provided in Newsletter 280. Henry was discharged on 17 December 1945. He collapsed and died while working on the Northern Highway on 16 November 1966.

Lance Corporal Frank Wolfe Jackson, VX 29148



Frank Jackson's enlistment photo

Frank was born in Bairnsdale. He was 21 when he enlisted at Sale in June 1940. His occupation was a draftsman. In *Reminiscences of Life in the Country Roads Board*, Frank described his early experience seeking work at the height of the Depression.

"I left school at the end of 1935 and jobs were hard to come by. Alec Archibald was the Divisional Engineer in Bairnsdale and he was looking for a junior draftsman. He came round to my home and asked if I would like a job and that was how I started.

One of my earliest memories was being an escort on a pay round with Les Starling. We used to draw the money from the bank on the afternoon of the day before so we could get an early start. We always covered a lot of ground and we

had to be back at the office for work the next day. Sometimes we didn't get home until 2.30 am.

This particular day we drew the money out. It would have been a couple of thousand pounds. I decided it was time for me to learn how to use the automatic pistols we took on the rounds. There were three of them locked in the office safe. We had ten rounds for the whole lot and they were very carefully counted up every 30 June for the sake of the Government Auditor.

One gun was a Browning and the other two were Colts - so the mechanics of the two types were different. I didn't know anything about guns and Les decided to show me. He took the magazine out of both guns and said, "Now when you take the magazine out of this one, the safety lock comes on and nothing happens". He demonstrated. "The other one is different. When you take the magazine out the safety lock doesn't come on, just like that." And he thought there would be just a faint click. There was an unholy BANG as the thing went off and drilled a hole in the floor within an inch of my right toe. I jumped out the back window."

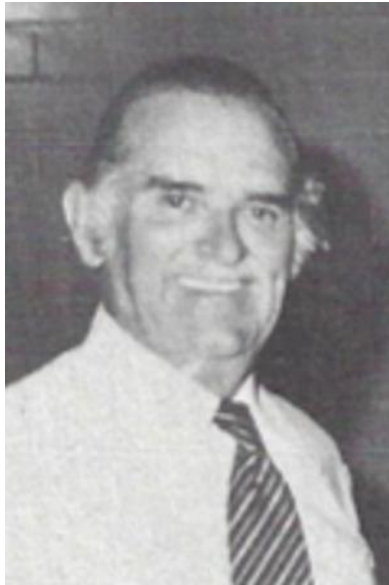
After his enlistment in June 1940, he trained in Albury and Seymour and was promoted to Lance Corporal. He disembarked for Singapore in February 1941 and moved directly to Malaya. He was reported missing in March 1942 and on 9 June 1942 his record was stamped PRISONER OF WAR. Below this, in barely visible type, it said, 'Rec. from Jap at Changi P.W. Camp 5/9/43 Singapore' and below that, 'Disembarked Sydney 10/10/45'. We can only wonder what the intervening period was like for Frank.

Frank was discharged from the Army on 4 December 1945.

There is nothing in the archives about the period of time spent as a POW but I suspect that Frank remained in Changi for the duration of the war. Because he was a draftsman, Frank was asked to draw a map of the camp. At War's end, Frank brought the plan home with him. Sometime in the 1960s he thought he would visit Singapore and Changi. He was curious to see what it was like and to see if his hut was still standing. However, the prison governor would not allow Frank to enter the grounds but he did allow him to view the camp from an elevated position in a nearby tower.

When Frank reached the viewing area he unrolled his plan. The governor was curious to see what it was and Frank explained the background to it. The governor demanded it from Frank, but Frank refused to hand it over saying that if he was not allowed to enter the camp, the governor could not have it. The governor changed his mind and let Frank into the grounds. Frank had intended to donate it to them at any rate.

Frank was Bill Dolamore's batman in Changi. A batman or an orderly - a soldier (or airman) - assigned to a commissioned officer as a personal servant. They acted as runners to convey orders from the officers, as drivers, as valets, maintaining the officer's uniform and had various other roles. I imagine the long-standing friendship between Frank and Bill would have influenced Bill in selecting Frank for this task. Frank used to tell how he sharpened Bill's razor on a stone.



Frank Jackson at his retirement
in 1979.

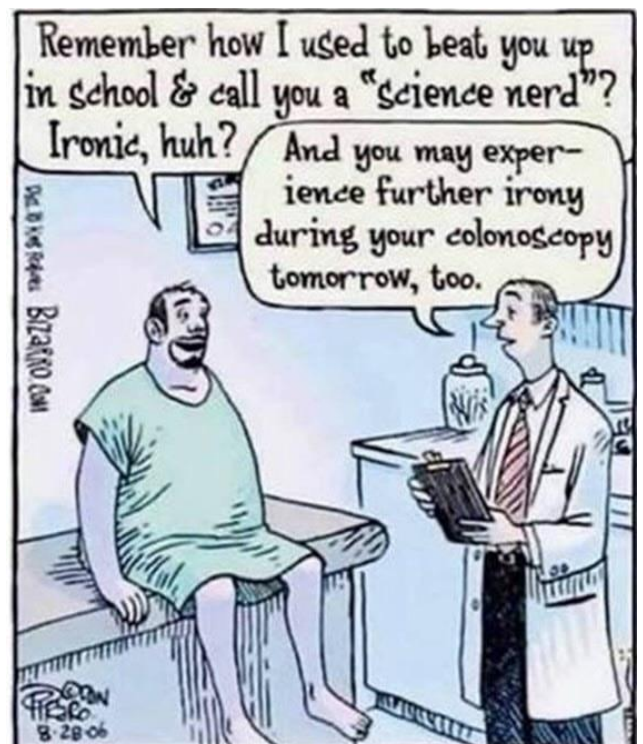
Frank had one shoulder lower than the other. This was a result of an unprovoked beating he received from a Japanese officer.

In October 1946, Frank became engaged to Shirley Weaver of Brighton and they married in October 1947 at Melbourne Grammar School Chapel.

Frank returned to Bairnsdale after the war where he was a draftsman and general rouse-about. In 1950, he moved to Melbourne as deputy to Roy V. Quick in the Pipe Testing Section of Bridge Sub-branch.

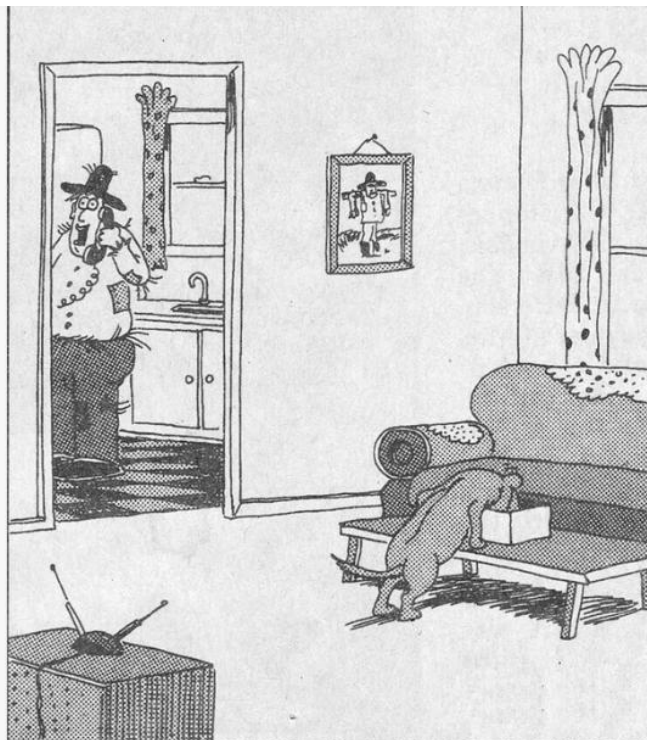
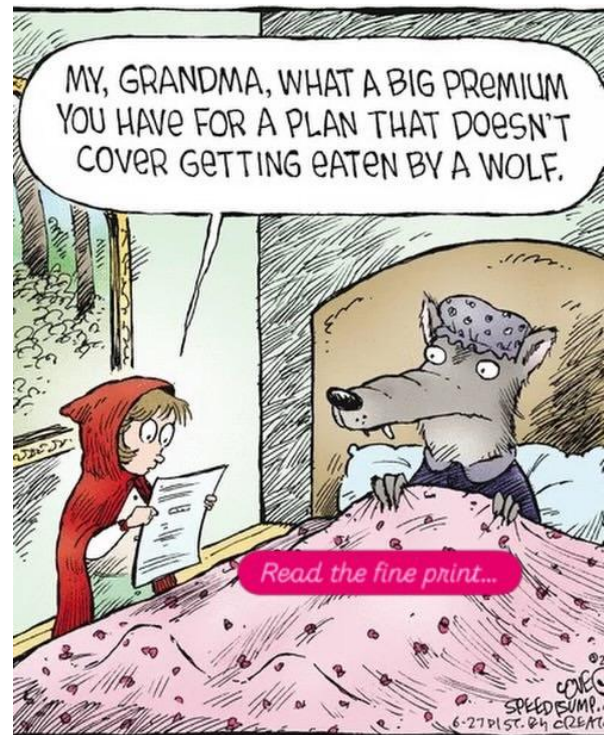
Frank retired in 1979 having given the Board 42 years of service. He died in Beaumaris in December 1995. I recall Frank as a tall, handsome man with impeccable handwriting.

David Jellie

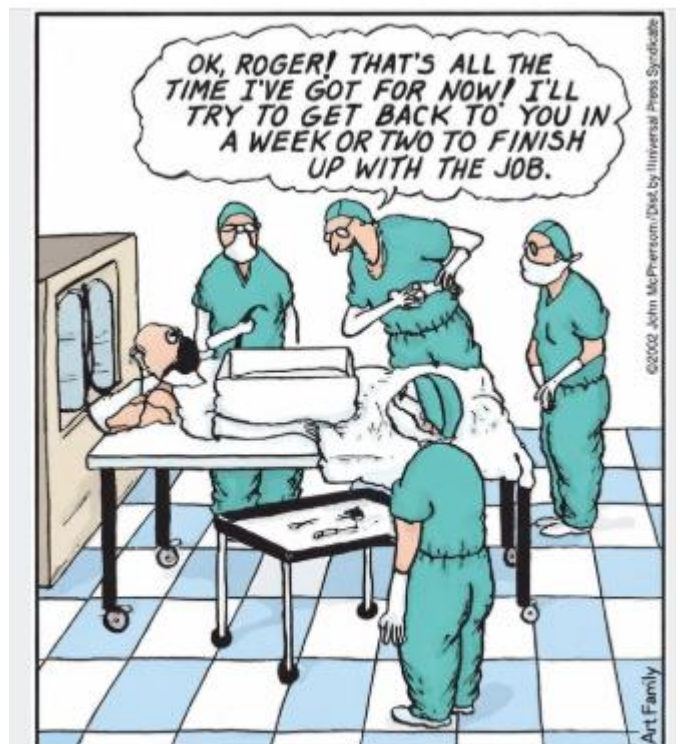




On one hand it was a 40 million dollar plane,
on the other hand the spider was
inside the cockpit.



"Yeah, I just got back! And the wizard I mentioned?
He gave me a new brain! ... It's on the coffee
table as we speak!"



In a tremendous stroke of luck, Dr. Remley has
the opportunity to perform surgery on the
contractor who renovated his kitchen.