ENGINEERS AUSTRALIA

CEREMONY REPORT

Melbourne to Bendigo & Echuca Railway

One of the Goldfields Railways

Heritage Recognition Ceremony

Malmsbury Botanical Gardens, Malmsbury, Victoria

Saturday 20 October 2012

The 150th anniversary of the opening of the railway

Cover Photograph:

A V/Line passenger train crosses the Malmsbury Viaduct on the 150th anniversary of the opening of the line in 1862

Image: Owen Peake

CONTENTS

1 Introduction:

The ceremony for the marking of the **Melbourne to Bendigo & Echuca Railway** with an **ENGINEERING HERITAGE NATIONAL LANDMARK** were conducted at on 20 October 2012 at the Malmsbury Botanical Gardens at 10:00 am.

Attendance: 77 plus 3 dogs

2 Invitations:

There were two forms of invitation:

2.1 Written invitation (see Attachment 1) sent by mail to 185 people listed by Engineering Heritage Victoria. This list consisted primarily of local dignitaries, council representatives, politicians, heritage industry figures and other stakeholders.

2.2 Email invitations (see copy of flyer at Attachment 2) sent to the following address lists:

- Engineering Heritage Victoria list (approx 400 on list)
- Victoria Division Board of Engineering members (approx 40 on list)
- Bendigo Regional Group (number not known - say 200)
- Ballarat Regional Group (number not known - say 200)
- Engineering Heritage Australia Member and Corresponding Members (45 on list)

Hence the total number of invitations issues was about 885. With at total attendance of 77 at the ceremony the response rate is approximately 8.7%.

3. Distinguished Guests and Apologies:

Listed on the Running Sheet. See Attachment 3.

4 Program & Running Sheet:

The Running Sheet (Attachment 3) shows:

- Those who spoke at the event and timing
- Suggested speech topics for various VIPs.
- Distinguished Guests who were acknowledged
- Apologies received who were acknowledged

The Master of Ceremonies was Mr Murray Purkiss, Chair of the Bendigo Regional Group of Engineers Australia.

5 Speech Notes:

Speech Notes are attached as follows:

- Mr John McIntosh, President, Victoria Division, Engineers Australia (see Attachment 4)
- Councillor Henry McLaughlin, Mayor of Macedon Ranges Shire Council (see Attachment 5)
- Ms Sue Walter, Research Co0rdinator, Malmsbury Historical Society (see Attachment 6)

6 Ceremony Handout:

A 16 page A5 ceremony handout was prepared and handed out to all those who attended the ceremony. A copy is at Attachment 7. The handout was based largely on the material from the Interpretation Panels. 100 copies were printed.

7 Media Release:

On this occasion there was no Media Release. Engineers Australia has changed its policy and the National Office media person no longer puts out Media Releases for events which they do not regard as 'national' events. There is apparently no capacity to issue a Press Release from Victoria Division office.

8 Media Articles:

8.1 ARTICLE FOR ENGINEERING HERITAGE AUSTRALIA NEWSLETTER

Article written by Owen Peake is at Attachment 8.

8.2 ARTICLE FOR ENGINEERS AUSTRALIA MAGAZINE

Article written by Owen Peake is at Attachment 9.

8.3 ARTICLE FOR EV NEWSLETTER

Article written by Owen Peake is at Attachment 10.

9 Letters of Thanks:

Letters on EA Victoria Division letterhead were sent out over Glenda Graham's signature to the following:

- **Ms Madeleine McManus**
  BEng BEc FIEAust FCILT

Councillor
Engineers Australia

- **Councillor Henry McLaughlin**
  Mayor
  Macedon Ranges Shire Council

- **Mr Murray Purkiss**
  Chairman
  Engineers Australia Bendigo Group

- **Ms Sue Walter**
  Research Coordinator
  Malmsbury Historical Society Inc

- **Mr John McIntosh**
  Division President
  Engineers Australia

- **Mr Peter Johnston**
  Chief Executive Officer
  Macedon Ranges Shire Council

- **Ms Nea Gyorffy**
  Secretary
  Friends of the Malmsbury Gardens & Environs Inc

A typical draft letter for the above is at Attachment 11.

10 Costing

Costs of the project were incurred as per the following table:

Item No.	Description	Funding Source	Amount
1	Interpretation Panel Manufacture - Advanced Group	Macedon Ranges Shire Council	$445.50
2	Graphic Design of Interpretation Panel - Richard Venus	EHA Budget (through National Office)	$415.00
3	Hire of Malmsbury Town Hall for 20 October 2012. Account paid by Owen Peake. Hire included use of chairs at the ceremony site.	50% Macedon Ranges Shire Council 50% EHV Budget	$143.00
4	Manufacture of Mounting Frame for Interpretation Panel - Alpha Wrought Iron Products, Fitzroy	Owen Peake	$1457.00
5	Car travel costs to Owen Peake for 3 trips as per attached claim document to EA	EHV Budget	$367.50
6	Trailer hire costs refund to Owen Peake for 2 trips as per attached claim document to EA	EHV Budget	$124.00
7	Printing of 4 copies of nomination document refund to Owen Peake as per attached claim document to EA	EHV Budget	$100.00
8	Hire of PA system by EA Victoria Office	EHV Budget	$114.40
9	Printing of Handout documents (100 off) by EA Victoria Office	EHV Budget	$550.44
10	Provision of morning tea supplies including slices from Bakery	Macedon Ranges Shire Council	$250 (estimate)
11	Installation of Interpretation Panel Mounting Frame at Malmsbury Botanical Gardens by Council contractor	Macedon Ranges Shire Council	$400 (estimate)
12	Provision of 300mm diameter EHA marker from EA National Office	EHA Budget (through National Office)	$200 (estimate)
		TOTAL	**$4566.84**

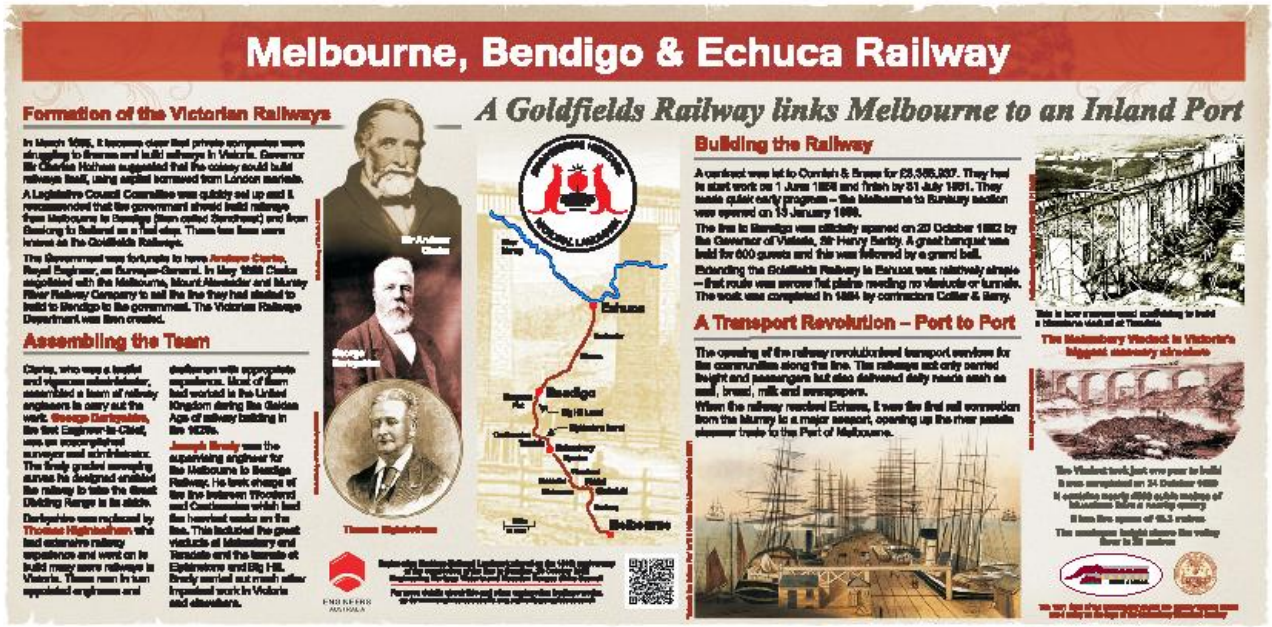
11 Allocation of Tasks

A schedule showing the Allocation of Tasks between the various stakeholders was used. This document ensured that all details of organisation were attended to and served as a check list in the run-up to the event.

The tasks of planning of the ceremony were primarily shared between Jessica Bradley in the Victoria Division EA office and Owen Peake, EHV volunteer.

12 Interpretation Panel:

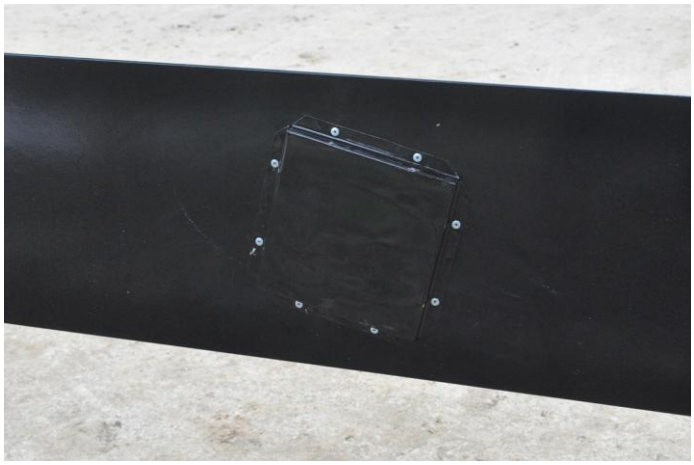
The interpretation panel has been erected on a steel support frame on the bank of the Coliban River within the Malmsbury Botanical Gardens facing the Malmsbury Viaduct. The panel is 1200 mm wide and 600 mm high and digitally printed on an aluminium substrate. The Engineering Heritage National Landmark marker is mounted on the cross bar below the interpretation panel. This marker is the standard 300 mm diameter vitreous enamel on steel marker used by EHA.



This interpretation panel mounting frame contains a new innovation. One of the vulnerabilities of this design has been that the nuts on the back of the marker are able to be undone by vandals. Previously lumps of epoxy putty have been used to protect the nuts however this was not considered to be an adequate solution.

In this case a sheet metal box has been pop riveted over the back of the marker to hide and protect the nuts. The 8 pop rivets are so located that they are within the rear space of the marker and hence not visible from the front. In this case the Nut Guard is at an angle as the manufacture of the markers has not previously required the mounting studs to be indexed to the horizontal line of the marker. The studs are mounted in a square formation but at random with respect to the horizontal line of the text on the marker.

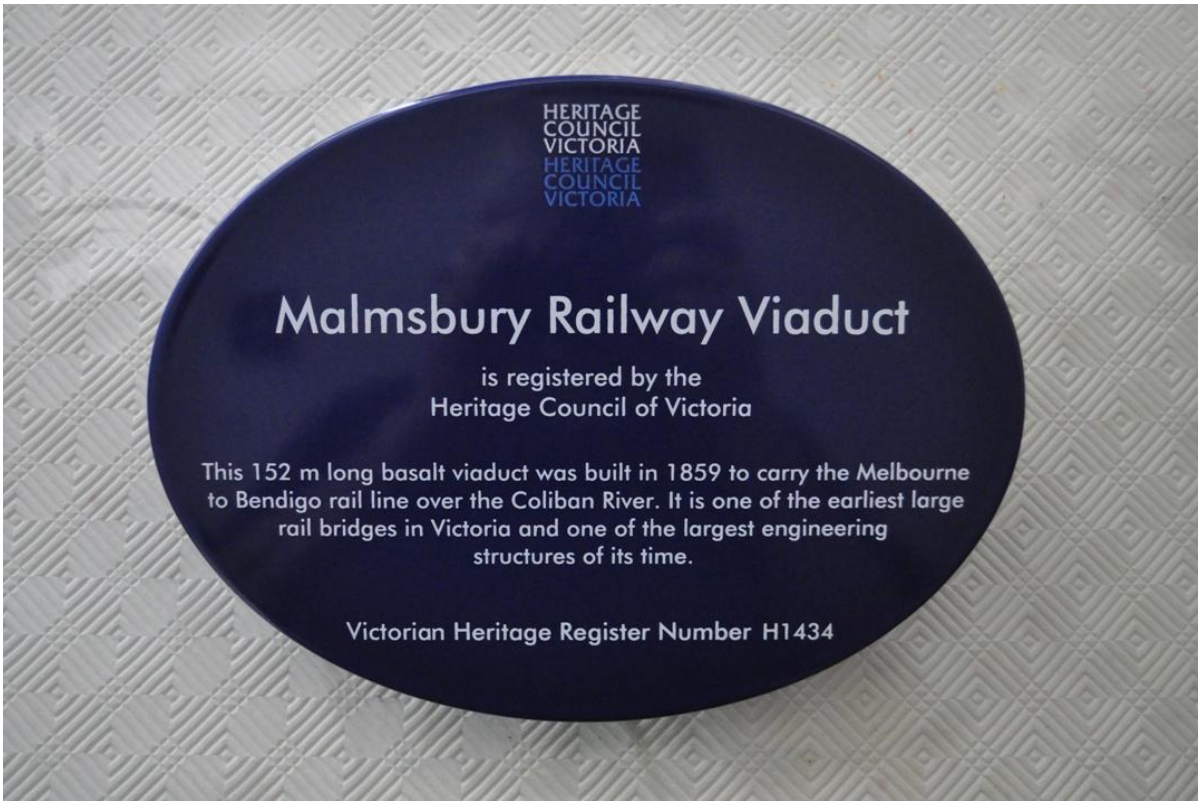
The arrangement is shown in the image below from the rear of the panel mounting frame.



Nut Guard on rear of marker

Copies of the standard oval blue markers used by the Heritage Council of Victoria markers have been obtained from Heritage Victoria showing that the Malmsbury Botanical Gardens and the Malmsbury Viaduct are listed by the Heritage Council of Victoria.

These markers were not received at the time of the ceremony but will be mounted on either side of the EHA marker on the cross bar below the interpretation panel in due course. Images of the two markers are reproduced below.


HERITAGE COUNCIL VICTORIA
HERITAGE COUNCIL VICTORIA
Malmsbury Railway Viaduct
is registered by the
Heritage Council of Victoria
This 152 m long basalt viaduct was built in 1859 to carry the Melbourne to Bendigo rail line over the Coliban River. It is one of the earliest large rail bridges in Victoria and one of the largest engineering structures of its time.
Victorian Heritage Register Number H1434


HERITAGE COUNCIL VICTORIA
HERITAGE COUNCIL VICTORIA
Malmsbury Botanic Gardens and Town Hall
is registered by the
Heritage Council of Victoria
First planted in 1863, this is one of Victoria's earliest botanic gardens. It is notable for its vistas, especially to the 1859 viaduct, its water features and its collection of plants. The town hall, a local landmark, was built in 1868.
Victorian Heritage Register Number H1993

13 Photographs:

Murray Purkiss, Master of Ceremonies

John McIntosh speaks at the ceremony

Henry McLaughlin speaks at the ceremony

Sue Walter speaks at the ceremony

Part of the crowd during the ceremony

John McIntosh and Henry McLaughlin
after they had unveiled the interpretation panel and marker

Attachment 1 - Invitation Letter

date

«Title» «First_Name» «Surname» «Post_Noms»
«Position»
«Company»
«Address_1»
«Address_2»
«Suburb» «State» «Postcode»

Dear «Title» «Surname»,«Next Record»

Celebrating the 150th anniversary of the Melbourne to Bendigo & Echuca Railway

Engineers Australia Victoria Division, in conjunction with Macedon Ranges Shire Council and Malmsbury Historical Society cordially invite you to attend:

The Melbourne to Bendigo & Echuca Railway
Engineering Heritage National Landmark
Dedication Ceremony

Saturday 20th October 2012, 10:00 AM

On the bank of the Coliban River in the Malmsbury Botanical Gardens, Mollison Street, Malmsbury
VicRoads Country Street Directory, Map 631, Reference O11

The National Heritage Recognition Program conducted by Engineers Australia through Engineering Heritage Australia will unveil an interpretation panel and Engineering Heritage National Landmark Marker near the Malmsbury railway viaduct. Speakers at the ceremonies will outline the significance of the Melbourne to Bendigo & Echuca Railway.

The Melbourne to Bendigo & Echuca Railway was built between 1858 and 1862 to service the Gold mining cities of Castlemaine and Bendigo. At the same time a railway was built from Geelong to Ballarat, also a centre of great gold mining activity. These towns produced a large proportion of the great wealth with which Victoria was blessed during the second half of the nineteenth century. Building of the Melbourne to Bendigo & Echuca Railway included bridging the Coliban River at Malmsbury and Back Creek at Taradale a few kilometres further up the line. These two viaducts are considered major engineering feats and remains in railway service today.

For more information or to register, please visit:
www.engineersaustralia.org.au/
or contact the Engineers Australia Victoria Division on (03) 9321 1709.
This event is free

I hope to meet you there.

Yours sincerely,

Glenda Graham
Executive Director
Victoria Division

Attachment 2 - Advertising Flyer

Fyansford Monier Arch Bridge
Engineering Heritage Marker Dedication Ceremony

Engineering Heritage Victoria - Heritage Recognition Program

The Story:
The Fyansford Bridge was built by Melbourne consulting engineers, Monash & Anderson who started their practice in 1894. Negotiations with the Shire Councils of Corio and Bannockburn, which shared responsibility for the bridge across the Moorabool River at Fyansford, commenced in 1897. Construction began in 1899 and proceeded quickly despite some difficulties in finding good foundations for the piers and abutments.

The reinforced concrete arches on the downstream side were cast in August 1899 and the upstream side in October 1899. The bridge was approaching completion in December 1899 and traffic started to use it; however, it was not tested until February 1900.

The bridge carried the Hamilton Highway over the Moorabool River from 1899 until 1970. A new bridge was then built to carry an increased traffic flow; made of reinforced concrete but used precast girders rather than arches.

The Fyansford Bridge is still in use, carrying pedestrian and bicycle traffic.

The use of reinforced concrete for bridge construction was in its infancy at the time of construction of the Fyansford Bridge. It was one of the first Monier reinforced concrete bridges built in Victoria and therefore represents a significant change in the materials and methods used for building road bridges.

Engineering Heritage Marking Ceremony:
The Fyansford Bridge Marking Ceremony will include the unveiling of an interpretation panel and an Engineering Heritage Marker.

This is the latest addition to the Engineering Heritage Program by Engineers Australia and Engineering Heritage Australia.

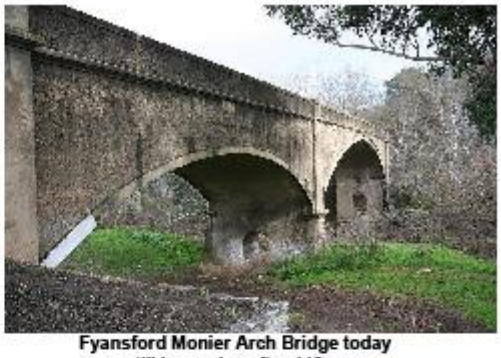
This is a free event for members of Engineers Australia and interested community members.

This ceremony will be held in conjunction with the Engineers Australia's **Regional Engineering on Show 2012** in Geelong from 12-14 October:
http://www.engineersaustralia.org.au/victoria-division/regional-engineering-show

Friday 12 October 2012
3:00pm – 4:00pm

Fyansford Monier Arch Bridge Site,
Hamilton Highway (B140),
Fyansford
(Melways reference - Map 450, K2)
4 km west of Geelong Railway Station

Register
http://www.engineersaustralia.org.au/events/fyansford-monier-arch-bridge-engineering-heritage-marker-dedication-ceremony



Fyansford Monier Arch Bridge today
- still in service after 112 years

Contact:
Jessica Bradley
Membership Coordinator
Engineers Australia, Victoria Division
03 9329 8188
jbradley@engineersaustralia.org.au

ENGINEERS AUSTRALIA

Attachment 3 - Running Sheet

ENGINEERS AUSTRALIA VICTORIA DIVISION
ENGINEERING HERITAGE VICTORIA

ENGINEERING HERITAGE RECOGNITION PROGRAM

MWLBOURNE TO BENDIGO & ECHUCA RAILWAY

MALMSBURY 20 OCTOBER 2012

RUNNING SHEET

Ceremony to be held on the bank of the Coliban River, Malmsbury Botanical Gardens

Unveiling of Engineering Heritage National Landmark and Interpretation Panel

PROGRAM - COMMENCING 10:00 AM

- Welcome by Master of Ceremonies (MC), Murray Purkiss from EA Bendigo Group
    - 'Acknowledgment of Country' as follows: I would like to acknowledge the traditional custodians of the land on which we are meeting as being part of the Kulin Nation.
    - Acknowledgment of Distinguished Guests and Apologies.
    - Because the Council is in the 'Caretaker Period' before the coming election it is asked that photographs of the Mayor not be taken during this ceremony.
    - If the weather looks like rain we might retire to the Town Hall for the bulk of the ceremony.

  5 minutes

- Representative of the National President of Engineers Australia, Professor David Hood, Councillor Madeleine McManus

  5 minutes

- President, Victoria Division, Engineers Australia, Mr John McIntosh — 5 minutes

- Mayor of Macedon Ranges Shire Council, Councillor Henry McLaughlin — 5 minutes

- Research Coordinator, Malmsbury Historical Society,

Ms Sue Walter 5 minutes

- MC invites John McIntosh and Cr. Henry McLaughlin to unveil the marker and interpretation panel 5 minutes

- Closing Remarks (MC)
  - To include thanks to the following:
    - Macedon Ranges Shire Council (particularly for the funding of the interpretation panel).
    - The Malmsbury Historical Society
    - The staff of Engineers Australia, Victoria Division
    - Mr Richard Venus who carried out the graphic art work on the interpretation panel.
    - All of the researchers who assisted with the development of the nomination document for this site.
    - All of the speakers at this ceremony.
  - After the ceremony we will retire to the Town Hall across the other side of the gardens for morning tea.

5 minutes

- John McIntosh to present speaker gifts to Cr. Henry McLaughlin, Sue Walter & Murray Purkiss

5 minutes

TOTAL 40 minutes

End of ceremony scheduled for 10:40 AM

LIST OF PROSPECTIVE SPEECH TOPICS

Councillor Madeleine McManus, member of the Council of Engineers Australia

- Apologies on behalf of David Hood
- Marker Dedication Ceremony

Mr John McIntosh, President, Victoria Division, Engineers Australia

- The role of Engineers Australia in the community
- The national Heritage Recognition Program

Cr Henry McLaughlin, Mayor of Macedon Ranges Shire Council

- Social impacts of the Melbourne to Bendigo & Echuca Railway.

Sue Walter, Research Coordinator, Malmsbury Historical Society

- The history of the Melbourne to Bendigo & Echuca Railway.
- The impact of the railway on Malmsbury.

LIST OF DISTINGUISHED GUESTS PRESENT

- Cr. Henry McLaughlin, Mayor of Macedon Ranges Shire Council
- Councillor Madeleine McManus, member of National Council, Engineers Australia
- Mr John McIntosh, President, Victoria Division, Engineers Australia.
- Ms Glenda Graham, Executive Director, Victoria Division, Engineers Australia.
- Mr Ian Thomas, President, Malmsbury Historical Society
- Ms Sue Walter, Research Coordinator, Malmsbury Historical Society
- Mr Miles Pierce, Chair, Engineering Heritage Victoria.
- Ladies and Gentlemen

LIST OF APOLOGIES RECEIVED

- Adjunct Professor David Hood, National President of Engineers Australia
- Ms Marlene Kanga, National Deputy President, Engineers Australia
- Mr Stephen Durkin, Chief Executive, Engineers Australia.
- Mr John Heathers, Chair, National Board, Engineering Heritage Australia.
- Mr Jim Gard'ner, Executive Director, Heritage Victoria
- Senators for Victoria:
  - Senator Kim Carr
  - Senator Mitch Fifield
  - Senator Helen Kroger
  - Senator Michael Ronaldson
  - Senator Scott Ryan
  - Senator Bridget McKenzie
- Members of the Legislative Council of Victoria:
  - Ms Candy Broad (Member for Northern Victoria)
  - Ms Jaala Pulford (Member for Western Victoria)
  - Ms Gayle Tierney (Member for Western Victoria)
  - Mr David O'Brien (Member for Western Victoria)
- Mr Geoff Howard MLA, Member for Ballarat East
- Cr Kevin Simpson, Mayor, Shire of Campaspe

- Cr Marion Riley, Shire of Campaspe
- Ms Carolyn Wallace, Director of Economic & Social Development, Shire of Mount Alexander
- Ms Helen Wilson, Secretary, Australia ICOMOS
- Mr Ken McLeod, Heritage Council of Victoria
- Ms Sue Wood, Heritage Victoria

Attachment 4 - Speech Notes - Mr John McIntosh, President, Victoria Division, Engineers Australia

- **Ladies and Gentlemen, Distinguished Guests, Members of Engineers Australia,**

- **Engineers Australia is a large and complex body representing as it does all aspects of the engineering profession throughout Australia. As an organisation of over 100,000 members we are involved in every discipline of engineering from the civil engineers who design and build our roads to those involved in the specialised areas at the very cutting edge of new and developing technologies in space sciences, medical sciences computing, robotics and more.**

- **We hold the need for Community Engagement as a key element of our strategic positioning in the community. In fact Community Engagement is the first of six domains in our 2010-2015 Strategic Plan.**

- **Our commitment is that Engineers Australia "will provide a forum for members of the profession to engage more directly in partnership with our communities on issues of concern to them".**

- **We strive to "promote improved levels of mutual understanding between the profession and our communities" and to "create partnerships for community engagement nationally and internationally".**

- **That brings me to the Heritage Recognition Program which aims to join with local communities to recognise and celebrate the great engineering achievements of the past.**

- **Ceremonies such as this one form the central plank of the Engineering Heritage Recognition Program.**

- **The program has been in place since 1984 and every year about 8 sites around the country are recognised at ceremonies such as this one.**

- **The sites and works recognised represent all aspects of engineering with the works coming from many differing time periods.**

- **Early Colonial works are recognised such as the Great North Road which was built from Sydney north to the Hunter Valley and the convict-built bridges in Tasmania.**

- **Works from the late 19th century and very early 20th century, when so much impressive infrastructure was built all around the country, such as this railway completed in 1862.**

- **Another great work of that era was the Melbourne sewerage scheme with its treatment farm at Werribee and the great pumping station at Spotswood on the Yarra River. When completed around the turn of the 20th century it was one of the greatest sewerage systems in the world.**

- **Great nation-building works of the 20th century such as the Sydney Harbour Bridge and the Snowy Mountains Scheme have also been recognised.**

- **During the course of this program 159* sites or works have already been recognised and in the last year 9 new sites were recognised, 4 of which were in Victoria.**

- **This railway is the 160th work to be recognised under the program.**
- **Each one of these sites is painstakingly researched by the volunteers of Engineering Heritage Australia, the Special Interest Group which carries out this work within Engineers Australia.**

- **Ceremonies are then arranged in collaboration with local organisations and, in most cases, as today, an interpretation panel is unveiled together with a marker to formally recognise the significance of the work.**
- **The program celebrates the achievements of local communities which had a hand in building the works, and have used them ever since.**
- **So in closing I ask you to remember that this railway is not just the result of the work of the engineers of the early Victorian Railways, 150 years ago, but that our celebration of its life and usefulness demonstrates the ongoing determination of Engineers Australia to continue our objective of Community Engagement.**

- **Thank you.**

Attachment 5 - Speech Notes - Councillor Henry McLaughlin, Mayor of Macedon Ranges Shire Council

- During the early days of the Gold Rush in this part of Victoria in the early 1850s there were major transport difficulties. The roads from Melbourne to Castlemaine and Bendigo were rudimentary tracks at best and as the Gold Rush developed the heavy loads carried over these roads increased, causing further deterioration of the roads.
- Whilst the government of the Colony of Victoria realised that the condition of the road was a major concern for the communities it served very little action was taken until the decision was made in 1856 to take over the assets of the partly completed Melbourne, Mount Alexander and Murray River Railway Company from Melbourne to Bendigo (then called Sandhurst).
- **This decision marked the beginnings of the Victorian Railways.**
- However it took 6 years to design and build the railway.
- **The railway was completed in stages and services commenced progressively serving the towns at the end of the completed work. Finally the railway was completed to Bendigo and the railway between Melbourne and Bendigo was opened on 20 October 1862 - exactly 150 years ago today.**
- Services commenced immediately after the opening.
- Work continued to extend the railway to Echuca, connecting the Port of Echuca with its river paddle steamer services to the Port of Melbourne and securing considerable river trade for Victoria.
- **The opening of the railways revolutionised transport services for the communities through which the railway passed.**
- **It also ushered in a Golden Age of railway transport in Victoria as the Victorian Railways rapidly extended their network, building new lines to all parts of the state** and across the Murray into the Riverina as well.
- **This expansion of the railway network continued, almost unabated, until the 1920s.**
- Whilst the Great Depression of the 1920s and 1930s slowed the railway development expansion continued until the outbreak of World War II when the railways became a strategic asset and expanded services to provide both support for the military and for the war-related industries which boomed during the war.
- **It was only after World War II and the advent of the 1950s culture of dedication to cars and road transport that the railways fell into decline.**
- **During this long period of ascendancy of the Victorian Railways provided a huge range of services**.
- **They would carry almost any conceivable type of freight.** For local communities around here perhaps the most important railway freight services were those for the moving of agricultural products and materials. The railways carried grain, vegetables, fruit, milk, meat, livestock of all kinds, farm machinery and everything else that was required by the farmer.
- The railways also provided key community services for urban communities and farmers along the routes of the railways. **Most importantly they carried the mail and the newspapers, providing much of the communication the communities**

needed in times when the only high speed communication available was the telegraph - a digital service capable of moving messages quickly around the globe much as the Internet does today.

- But we should not forget that the final piece of the jigsaw of services provided by the railways - the carriage of passengers. **People travelled by train because it was faster, safer, cheaper and more comfortable than the stage coach or the horse.**
- **Almost every town and village had a railway station, manned by dedicated railway staff and connected to the world by the rails and telegraph lines of the railway system.**
- **It was a very comprehensive set of services which changed the expectations of communities for ever.** People expected that trains would run on time, in all weather, day and night. For most of the next 120 years after this railway opened they were not often disappointed. **The Victorian Railways provided a "premium" service to the community and the community respected the railways.**
- However things changed after the 1950s and there was little investment in the railways as governments preferred to put money into the road network. The motor car became ubiquitous in our community and the truck had developed enormously as a result of technological changes during the Second World War. The diesel engine revolutionised heavy road transport and trucks grew progressively larger and more economic to operate.
- **Soon everyone expected goods to be delivered, not to their local railway station, but to their door.** The day of the "white van" had arrived.
- **Railway operators reduced freight services, then reduced passenger services, then closed lines leaving the rail network only a shadow of its former self.**
- **In 1983 the Victorian Government abolished the Victorian Railways** and embraced "Economic Rationalist" concepts under which the idea of "service" was swept away and replaced by the necessity for "profit at all cost". The Victorian Railways network which had not already been decimated by line closures was carved up into a mishmash of complex entities with vague responsibilities.
- This decline of the railways was popular at the time but it took a long time for governments to realise that the railways were not doomed and would experience a revival.
- The part of the new railway structure which continued to provide a useful service on this line was V/Line.
- V/Lines fleet of clapped out diesel locomotives and ancient wooden carriages were gradually replaced by modestly fast unit trains leading up to the present VLocity trains which now operate on this line. People started to move back to train travel and services increased gradually.
- **V/Line has in recent times, experienced spectacular growth in passenger numbers** but still faces an ongoing battle with a government which struggles with the need to provide public transport services adequate for the 21st century.
- But there are some things on the side of the customers. **The railway lines built in the 19th century in Victoria were predominantly built to high engineering standards and have passed the test of time.** The bridge behind me (the iconic Malmsbury Viaduct) is still in service without any significant modifications 150 years after it was built. Throughout Victoria 19th century railway assets remain able to meet the more exacting demands of a 21st century transport system.

- **For that we can only thank those great railway engineers from the past who saw far enough into the future to build infrastructure that would serve for one and a half centuries and still be ready to serve into the future.**
- **So what of the future? We will likely see more trains on this line - both passenger and freight trains. They will run faster and closer together thanks to modern signalling systems.** We should see electric traction throughout Victoria as Australia catches up with its slow start to dealing with Climate Change.
- Will we see the daily papers taken off a train at Malmsbury station in 10 years time? Probably not because there may no longer be papers to carry. Will we see people getting on and off trains at Malmsbury station? Probably yes as faster trains will be able to take passengers to Melbourne in less than half an hour.
- Whilst it is hard to see the future we can be fairly sure of one thing - **there will be trains in the future and some of them will run on this line and across this magnificent old viaduct.**

Attachment 6 - Speech Notes - Ms Sue Walter, Research Coordinator, Malmsbury Historical Society

Firstly I would like to extend a welcome from Malmsbury Historical Society to all of you who are attending today, especially those of you who arrived by train.

We have heard of the impact the Bendigo railway line had on the development of Victoria but if you will forgive me I will take this opportunity to be very parochial and outline what the railway meant to Malmsbury.

We began as a community that offered a stopping point to travellers on the road to the goldfields. Our population soared while this stretch of the railway was being built, and during the construction of the viaduct. We then waited another 2 years before the line was completed.

Lobbying from the Borough of Malmsbury, the Shire of Glenlyon and the Daylesford Municipality helped to force the location of the station to be on the west side of the river, their argument being that it was “the site most advantageous to a very large and flourishing agricultural district.” The ongoing debate delayed the actual construction of the station buildings to the extent that the contract to build the station was only grated a month before the line opened. The same organisations successfully argued that the as yet unfinished Daylesford Malmsbury Road should be declare a main road in 1863, meaning the State government was responsible for its development and maintenance, including the bridge over the Loddon River. The completion of the local railway station now meant the road was a major route for domestic, agricultural and postal traffic between the two towns. The construction of at least 4 hotels in the vicinity of the station is testament to the changes the railway brought with it.

It is possible that some were not prepared for the real impact of the railway line being opened. There was no longer any need for goldfields passenger traffic to stop in the town along the trip and conduct business. Some of the savvy local businessmen who had been feeding the construction workforce got out early, other businesses went broke, others adapted to the change in traffic and thrived. But there was still plenty of traffic in and out of the town.

In 1864 over **400,000 passengers travelled on the line. Malmsbury station received 8093 inwards passengers and 11,559 outwards passengers, plus 4245 tonnes of inwards goods traffic and 4695 tonnes of outwards goods. By 1870 a** total of 241,651 passengers travelled on the line. Malmsbury station handled 6,999 inwards and 10,322 outwards passengers. Goods traffic amounted to 3,360 tonnes of inwards goods and 10,667 tonnes of outwards goods.

The total numbers don’t say a lot, but the local newspapers reveal that over the years the passenger and good traffic consisted of:

Local Councillors attending deputations to Melbourne to lobby the State Government for funding for town development. Given many of these Councillors were also local business men, the railway reduced the time taken and the expense to the councillors concerned.

Local Volunteer militia travelling to parades in Castlemaine & Bendigo by train

Local football and cricket teams participating in friendly inter-town rivalry

Horses, owners and jockeys arriving by train to race at the local racecourse

Guest speakers at organisations such as the Mechanics Institute arriving by train.

Governor Bowen even arrived by train to Malmsbury on his way to the Daylesford Hospital fete in 1877.

Children attending schools once they were too old to attend the local State School

Mail into and out of the station, keeping Malmsbury informed of how the wider world was progressing

Bluestone from local quarries sent out by train.

Machinery and plant for local mines and quarries.

Wool and livestock transported by train.

The railway did not always bring positive outcomes to the town. A few men died during its construction, and others, who were killed crossing the tracks or during accidents while loading trains with freight such as bluestone, have become permanent residents in our cemetery.

At the turn of the 20th century the railway was no doubt a factor in the town's youthful population leaving the district. This was not only to take up jobs in Melbourne and in mines in Tasmania and Western Australia as the local mines diminished in prosperity, but also in taking away young men to serve in WWI. Soon after cars and trucks further diminished the patronage of the railways.

Another century later, the railway and viaduct bring visitors to our town to enjoy the local environment and events, including our local bluestone built heritage. It carries a proportion of its work force to other places to earn a living, returning by night to the relative peace and quiet of a rural town. The mail and freight is carried by road although freight trains still rumble through the town, and we now treat the occasional steam train on the tracks with the same sense of awe as the pioneers of this town would have done in 1862. Maybe we will come full circle and see a return of the second track our forebears had the foresight to install and with it a new lease of life to our station buildings and those that use them. Although hopefully we won't need to renew arguments about whether ladies wearing skirts with hoops should pay for one seat or two.

Attachment 7 - Ceremony Handout Document

ENGINEERS AUSTRALIA
ENGINEERING HERITAGE VICTORIA,
MACEDON RANGES SHIRE COUNCIL,
MALMSBURY HISTORICAL SOCIETY

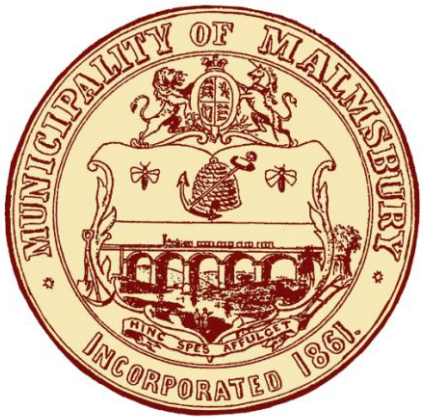
Melbourne to Bendigo & Echuca Railway

Heritage Recognition Ceremony

Saturday 20 October 2012

The Story of a Goldfields Railway

ENGINEERS
AUSTRALIA



The logo of the Malmsbury Historical Society

The History of the Melbourne to Bendigo & Echuca Railway

Early Work and Government Involvement

Early railways in the Melbourne metropolitan area had been built by private companies and were quite successful. The first non-metropolitan railway was the Melbourne to Geelong Railway which traversed quite easy country from a railway construction perspective. Nevertheless the company set up to build it, by Act of Parliament in 1853, failed before the line was completed and it was taken over by the government in 1855.

Another private venture, the Melbourne, Mount Alexander and Murray River Railway Company aimed to build a link between Spencer Street Station in Melbourne and Williamstown then build from Melbourne to Sandhurst (later Bendigo) and then on to Echuca. This enterprise started badly with investors reluctant to put capital into the venture. By the time the government took over the project in 1856 the company had only carried out some extensive earthworks on the Melbourne to Williamstown line.

In March 1855 Governor Hotham suggested that the colony could build railways itself using borrowed capital from London markets. A Legislative Council Committee was quickly set up to examine the proposal. It recommended that the government should build railways in Victoria and that funding should be obtained from the London Bond Market. The

priorities should be firstly to complete the link between Spencer Street and Williamstown followed by the simultaneous construction of lines from Melbourne to Mount Alexander and from Geelong to Ballarat.[1]

The Government was fortunate at this time to have Andrew Clarke, Royal Engineer at its disposal as Surveyor-General and nominated member of the Victorian Legislative Council. Clarke negotiated with the Melbourne, Mount Alexander and Murray River Railway (MMA&MRR) Company to sell the line to the government for £68,100. The Victorian Legislative Council approved this purchase and simultaneously created the Victorian Railways Department in the Crown Land Office on 19 March 1856. The sale occurred on 23 May 1856. The Victorian Railways Department became the Victorian Railways under a Board of Commissioners in 1883.

George Christian Darbyshire, the District Surveyor of Williamstown and Alexander Galt, an accountant, were appointed to audit the books and works of MMA&MRR.[2]

Clarke set his surveyors to work without delay and they quickly established a base survey, establishing locations by large-scale triangulation and levels by the building of permanent bench marks. Clarke's people immediately went to the next step and established likely routes for railways through areas thought to be desirable for the future of the colony.

George Christian Darbyshire was appointed Engineer-in-Chief and Robert Watson was appointed as his deputy on 1 April 1856.[3] Their first task was to carry out the design and construction of the line to Bendigo. From this small office came the beginnings of the Victorian Railways, still a year in the future, and the concepts that led to the finely graded sweeping curves of the railway line we see today, apparently taking the Great Dividing Range in its stride.[4]

Whilst work was getting under way to build the line to Bendigo there was also work to be done closer to Melbourne. The MMA&MRR had only carried out earthworks for the railway between Melbourne (Spencer Street) and Williamstown at the time that the company was purchased by the Government. This link line was essential to the proper working of the first two main country railways being contemplated by the Victorian Railways - to Ballarat and Bendigo. The line included a substantial bridge over the Saltwater River (now called the Maribyrnong River) between South Kensington and Footscray. The bridge was a single span, but at 220 feet it remained the longest span railway bridge in Australia for 75 years.

The Bendigo Line

Following the discovery of gold in Sandhurst (Bendigo), there was strong support for the construction of a railway to link the region to Melbourne. In July 1855, a resolution was sent to the Governor of Victoria on the desirability of a rail link.[5]

History smiled on this railway and it was never going to be just another "development railway" as happened all too often elsewhere in Australia and in the other colonies. It was built to British standards of the day through country as soft to the eye as any in Australia. It was also built to the superior Irish Broad Gauge of 5 feet 3 inches for double track working.

Coming out of the northern suburbs of Melbourne the first obstacle was the Great Dividing Range which is at 570 metres at the point where the track crosses it near Mount Macedon. This was achieved with gradients never steeper than1 in 50 and often 1 in 90. Track radius was also kept large so that it could accommodate high speed trains.

[1] Robert Lee, The Railways of Victoria 1854-2004, 2007, page 25.
[2] Robert Lee, The Railways of Victoria 1854-2004, 2007,page 26-27. A date for this appointment has not been found however it seems likely that it would have been after March 1856 and before the acquiring of the shares of MMA&MRR by the government in May 1856.
[3] Ibid page 27.
[4] Brian Harper, The true history of the design of the Melbourne, Mount Alexander and Murray River Railway, presented at the 12th National Conference on Engineering Heritage, Toowoomba, 2003, pages 83-84
[5] Royal Historical Society of Victoria, The Sandhurst Line, website last updated 15 December 2010.

The track today below Mount Macedon near the point where it crosses the Great Dividing Range.

Image: Owen Peake

Beyond the Great Divide there are several significant structures. The Malmsbury Viaduct remains impressive with its 5 stone arch spans and a height of 25 metres at the centre. The spans are 18.3 metres.[6] This is followed by the Taradale Viaduct, 5 spans of 37.6 metres (abutment spans) or 39.6 metres (centre spans) with the highest point being 35 metres above the valley floor. There are two tunnels: the Elphinstone Tunnel and the Big Hill Tunnel. All these structures are impressive.

Darbyshire's Assistants

At the time that the work in Victoria was starting there was a slump in railway construction in United Kingdom and many engineers with railway experience were unemployed. Some of these emigrated to the Colonies in order to find work in their areas of experience. Darbyshire employed a number of these engineers who possessed the skills to design and supervise the construction of the Melbourne to Bendigo Railway. The quality of their work is there for us to see 150 years later, still in railway service, still demonstrating the zenith of railway design and construction in Australia.[7]

Construction of the Lines

Tenders were called for construction of a number of railways totalling 206 miles of track in December 1857. Tenders closed on 24 March 1858 with no less than 133 being received. The professional board took exactly a month to assess the tenders.

A contract was let to Cornish and Bruce for the Footscray to Sandhurst (now Bendigo) line for £3,356,937.2s.2d ($6.714 million) to commence work on 1 June 1858 and complete the work by 31 July 1861. The current day (2010) value of this contract would have been $302 million.[8]

Malmsbury Viaduct
Image: Owen Peake

Taradale Viaduct
Image: Public Records Office Victoria

[6] Robert Lee, The Railways of Victoria 1854-2004, 2007, page84.
[7] Robert Lee, The Railways of Victoria 1854-2004, 2007, pages 87-88.
[8] Phillips Brett, *The Australian Phillips Curve in the Long Run,* July 2007.

Cornish and Bruce made quick early progress with the Melbourne to Sunbury section which was officially opened on 13 January 1859.

There were however many problems. George Darbyshire fell victim to dirty politics when he was targeted by the Argus newspaper which performed a successful character assassination of him. The accusations were malicious and exaggerated if not downright false, but he was replaced by Thomas Higinbotham who had more direct railway experience.[9]

William Cornish died in March 1859 not long after the completion of the Sunbury section. However the partnership survived and John Bruce carried on alone, moving to Castlemaine to be closer to the contract work.

Bruce attempted to drive down labour costs and amongst other follies brought 500 masons from Germany to undercut local wages. This ploy failed as the German masons cooperated with the men that they were supposed to supplant.

Further staged completions of the line were:

- Woodend (11 July 1861 for passengers and 14 October 1861 for goods)
- Kyneton (April 1862)
- Castlemaine (15 October 1862)
- Bendigo (Sandhurst) (20 October 1862)

Elphinstone Tunnel today
Image: Owen Peake

Kyneton Railway Station in 1870

Following the official opening of the Bendigo line on 20 October 1862 by the Governor of Victoria Sir Henry Barkly, a banquet was held for 800 guests, followed by a grand ball, with dancing until dawn. The evening was well organised and a huge success until the visitors made their way to the station to catch the 5.30am train back to Melbourne. Confusion reigned as there was insufficient water for the engines and exhausted visitors were obliged to stream back to town in search of accommodation, but the shortage was such that many were obliged to bed down on pews in local churches. The train eventually left about midday and to add to the confusion, sparks from the engine ignited a grand gum tree arch erected at the station and it burned to the ground![10]

The work was contracted under schedule of rates type of contracts. Due to careful management of quantities by the Victorian Railways the work was completed considerably below budget with a saving of £324,000 ($648,000) or nearly 10%. The current day (2010) dollar value of this saving would have been $29.16 million.[11]

Bendigo to Echuca

The extension of the line from Bendigo to Echuca was a relatively simple matter as that part of the line was across plain country without any significant engineering challenges. This section was laid as single track although the earthworks and bridges were built for a second track which was never laid. Tenders were called for the work in 1863 and the work was completed on 19 September 1864.[12] The contractor for the work was Collier and Barry[13]

[9] Robert Lee, The Railways of Victoria 1854-2004, 2007, pages 43-44
[10] Royal Historical Society of Victoria, The Sandhurst Line, website last updated 15 December 2010.
[11] Phillips Brett, *The Australian Phillips Curve in the Long Run,* July 2007.
[12] Robert Lee, The Railways of Victoria 1854-2004, 2007, page 43-52.
[13] The Argus, Melbourne, Wednesday 20 January, 1864, page 7.

Echuca Railway Station built in 1864

Echuca Locomotive Shed built in 1864

The completion of the line to Echuca connected the Port of Echuca, which grew to be the most important port on the Murray-Darling River System and opened up trade between the inland waterways and Melbourne with its important maritime connections to the rest of the world. The link between Melbourne and Echuca was of national significance.

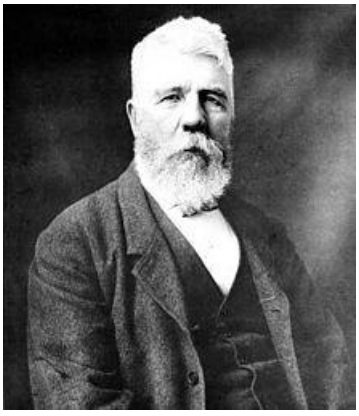
Later Changes

The line has since been electrified from Melbourne to Sydenham and has eleven stations which are part of the Melbourne suburban network.[14] The line was modified between Kyneton and Bendigo under the Regional Fast Rail Project in 2005. The reduction of the line from 2 tracks to single track was a part of this project.[15]

A number of branch lines were built from the main line between Melbourne and Bendigo and beyond Bendigo.

The Engineers who built the railway

George Christian Darbyshire[16]



George Christian Darbyshire (1820-1898) was an English and Australian civil engineer. He was the second son of George Darbyshire, also a surveyor and railway engineer.

Darbyshire was born at sea in 1820 and spent his early life in Derby, England. His father, George was a Civil Engineer who worked for George Stephenson. His mother was Elizabeth Darbyshire, née Smith. Later Darbyshire worked under Robert Stephenson and was involved on the various lines in the north engineered by Robert Stephenson. He married Maria Wragg in 1846 when he was aged 21. Maria was the daughter of Samuel Wragg, an engineer who also worked for George Stephenson, and the widow of a man called Stafford who was killed in an accident.

[14] Wikipedia, Bendigo Railway Line,
[15] Wikipedia, Bendigo Railway Line,
[16] Biography adapted from Wikipedia.

Darbyshire, in evidence to the Select Committee on the Chewton Railway Station given on 12 June 1863 related that his whole railway experience in Britain had been on the Midland Railway. Robert Stephenson was engineer for the Midland Railway on which construction began in February 1837. The Midland Railway became an extensive system through construction and acquisitions. George Darbyshire's brother, John Darbyshire who also came out to Victoria, became Mining Surveyor and later Inspector of Mines with the Victorian government Mines Department.

However, George Darbyshire may also have trained as a surveyor in England, being initially employed by his father in the firm of George Darbyshire and Sons, then with his brother in the partnership John and George C Darbyshire. They were responsible for a number of surveys for Tithe Maps in around 1839-41.

George Darbyshire travelled to Australia with his wife Maria on the *Pemambuco* arriving in Melbourne on 7 July 1853 and became Engineer of Construction and District Surveyor under the Victorian Government at Williamstown in 1854. He was also appointed Deputy Surveyor-General of Victoria on 9 April 1857, to the Board of Science on 4 June 1858, and Territorial Magistrate for Wyndham on 7 April 1865.

George Darbyshire's migration to Victoria coincides with the end in Britain of what is now termed the 'railway mania'. The drop off in competing proposals and line construction saw many men who had entered the new profession of civil engineer become unemployed. The obituaries of a number of these early members of the profession published by the ICE refer to the member being forced to retreat to the family property to be supported through the downturn, or for those from less well established families to find employment overseas.

George Darbyshire took up a post as Engineer for the Melbourne and Mount Alexander Railway in 1855. He was then appointed Engineer-in-Chief of the Victorian Railways from 1 April 1856 until 17 May 1860 when he was replaced by Thomas Higinbotham.

The Victorian Government Railway Department was established as part of the Board of Land and Works in 1856. Among Darbyshire's first responsibilities was supervising the design and construction of the Melbourne to Bendigo and Echuca line.

Darbyshire saw himself as an engineer, and was recruited to the Survey Department by the Surveyor-General Andrew Clarke, as an engineer. In response to a question when appearing before the Select Committee upon the Railways on 4 May 1860 to describe an engineer he stated – *A man who has actually been employed for some years, having actual experience in the working and construction is a civil engineer, as compared with the man who has no experience in works of construction.*

In the 1860s and 1870s, Darbyshire was a licensed surveyor undertaking township and rural surveys for government and private practice. He may also have won a tender for surveying part of the Victoria/South Australia Border, and was responsible for the Town Plan of Lorne in 1871.

Darbyshire had risen to District Surveyor at Williamstown, the most senior position in the Department under the Deputy Surveyor-General, when Clarke directed him to carry out surveys for country rail lines.

Darbyshire was also Surveyor-General in 1857 and reported extensively on railway and bridge engineering to a number of Select Committees and is credited with the design of a number of early and important railway structures such as the Saltwater River Bridge on the Maribyrnong River. He was responsible for the design of the Geelong to Ballarat railway as well as that to Bendigo and Echuca. As Engineer-in-Chief, he was responsible for supervising the design of five major iron bridges, including the Warren truss Moorabool Viaduct, the plate girder bridge at Jackson's Creek, and in particular, the five span continuous box girder viaduct at Taradale. In Britain at the time they were tentatively doing two span continuous girders.

Darbyshire remained in the Survey Department and became Surveyor-General. He was one of the 137 officials removed from office on "Black Wednesday" on 8 January 1878 when the Government was denied supply. He, like a number of other senior officers, was not reappointed.

Darbyshire returned to the railway department in 1881 as Engineer for Construction and Surveys, laying out many new lines. On the unexpected death of Robert Watson in 1891 he again became Engineer-in-Chief, a position he held until shortly before his death.

Darbyshire had offices in Temple Court on Collins Street but resided at a substantial property at The Grange in Wyndham, Werribee where he contributed to the local community as Magistrate. In his last years he moved to Power Street, Hawthorn, where he lived out his life as a Pensioner of the Victorian Government (Railways) and where he died on 5 March 1898 aged 78 years. He was buried at Werribee Cemetery.

Thomas Higinbotham[17]

Thomas Higinbotham (1819-1880), engineer and civil servant, was born in Dublin, the third son of Henry Higinbotham, merchant, and his wife Sarah, née Wilson. Educated in Dublin at Castle Dawson School and the Royal Dublin Society House, Higinbotham moved to London about 1839. At first he worked for a firm that promoted railway companies, and often appeared before parliamentary committees on railways. He then worked for several years as an engineer on British railroads and won high repute in his profession. He was elected a member of the Institution of Civil Engineers on 7 February 1854.

In 1857 Higinbotham followed his younger brother George to Melbourne. He joined his brother's household first at Emerald Hill and, after 1860, near the beach at Brighton in a villa which Thomas was chiefly responsible for designing. He never married and lived with his brother, sister-in-law, nephews and nieces in a relationship characterized by remarkable tolerance, friendship and respect despite strong differences in political opinion.

After a short time in private practice in Melbourne, Higinbotham was appointed Inspector-General of Roads and Bridges. In 1860 he became Engineer-in-Chief of the Victorian Railways. He supervised the surveying and construction of all new Victorian lines and also guided the settlement of such railway questions as city stations and facilities and the lighting of trains. He fearlessly contested proposals that he considered unsound, such as cheap narrow-gauge lines, and showed great vision in advocating a railway renewals fund, construction of Melbourne's outer-circle railway and adaptations to permit unbroken rail traffic between Sydney and Melbourne. At the government's request in 1874-75 he investigated and reported on the latest developments in railway construction and management in Europe, America and India. With other senior public officials he was removed from office in January 1878 by the Berry government. In the next two years he was invited by the South Australian, Tasmanian and New Zealand governments to report on their railway systems. In March 1880 the Service government reappointed him Engineer-in-Chief of the Victorian Railways, but the ministry soon fell and he was unhappy under its successor. He had decided to resign but died in his sleep on 5 September.

Higinbotham was one of that select band of English railway engineers who exercised a profound influence on the development of Australian communications in the second half of the nineteenth century. They provided practically the only mark of distinction in the Australian colonies' railway departments of the day. But their efforts were not enough to provide firm foundations for sound management as political pressures developed. Though Higinbotham did not live to see the change, his own Victorian service became the first candidate for management by public corporation when the system of political control was formally discredited in 1883.

Higinbotham was an Anglican and for many years a member of the Royal Society of Victoria. His loss was greatly lamented by a society in which public officials of such widely-acknowledged integrity were all too rare.

[17] This biography is reproduced from the Australian Dictionary of Biography, online version.

Joseph Brady (1824-1908)[18] [19]

Joseph Brady was the engineer supervising construction for Cornish and Bruce, especially the Malmsbury Viaduct, Taradale Viaduct, Big Hill Tunnel, and Elphinstone Tunnel[20]. This section of the railway was regarded as the most challenging.

Joseph Brady (1828-1908), civil engineer, was born on 18 August 1828 near Enniskillen, County Fermanagh, Ireland. Under his father in 1842-44 he served on the Title Commutation Survey in England and became proficient in field surveying and draftsmanship. He was then employed as an assistant engineer with Charles B. Vignoles, a past president of the Institution of Civil Engineers, on railway surveys in Kent and Lincolnshire and on the construction of the Skipton, Sedbergh and Lancaster Railway. Soon after this was opened in 1850 Bradley migrated in the *Argyle* to Sydney, where he became a draftsman with the newly-established Sydney Railway Company.

In January 1851 Brady resigned to carry out surveys and prepare drawings for the Yan Yean water scheme for Melbourne under James Blackburn, the city surveyor. When the work was finished he applied successfully for appointment as assistant engineer with the Sydney Railway Company on 24 July 1851. He carried out surveys and construction works on the company's railway between Sydney and Parramatta, and had special charge of the surveys and later the construction of the railway from Sydney to the iron-mines at Mittagong Range, near Goulburn. For some time he also acted as chief engineer to the company while carrying out his other duties. Soon after a new chief was appointed, he resigned in 1857 and returned to Victoria.

In 1858-63 he was engineer to the Sandhurst (Bendigo) waterworks, where he designed and constructed the original town reservoir and reticulation. He then became engineer to Cornish & Bruce, contractors for the Melbourne to Sandhurst railway, and took charge of the section between Woodend and Castlemaine, the heaviest works on the line. While employed there Brady won the Victorian government's premium of £500 for the best scheme for a water supply to the Bendigo and Mount Alexander goldfields, and he was appointed to survey and design this system now known as the Coliban River water supply.

Brady next visited Queensland, intending to contract for railway construction; instead he contracted to improve navigation on the Brisbane and Bremer Rivers between Brisbane and Ipswich, a task involving much submarine blasting. When this contract was partly completed he was appointed as engineer to the Brisbane Board of Water Works. Although the Queensland *Government Gazette* records only his appointment as engineer of harbours and rivers on 21 January 1865, other sources indicate that he served as engineer to the Board of Water Works, successfully undertaking the Enoggera Water Works, and the design and supervision of construction of the reservoir, gravitational works and reticulation for the city of Brisbane in 1865-67. At the same time he reported on the Bremer River railway bridge and the unsatisfactory progress of the contractor for the Brisbane-Dalby railway. Clearly the Queensland government used this versatile engineer in many capacities.

On 3 August 1867 Brady accepted a government offer to manage the Brisbane-Dalby railway construction, under the direction of the chief engineer, at a salary of £600 with a monthly bonus of £25 if the work cost no more than the original contract. Brady not only earned the bonus but was also given a testimonial and handsome presents by the mayor and citizens of Dalby. An inscribed silver claret jug was, a century later, in the possession of a grandson in Adelaide.

He returned to Victoria in 1869 and took charge for O'Grady, Legatt & Noonan, contractors to the Victorian Railways, for building the first section of the new north-eastern line from Melbourne to Seymour, including the heavy bridge over the

[18] Kerr, C. F., 'Brady, Joseph (1828–1908)', Australian Dictionary of Biography, National Centre of Biography, Australian National University, http://adb.anu.edu.au/biography/brady-joseph-3042/text4449, accessed 20 May 2012. This article was first published in hardcopy in *Australian Dictionary of Biography*, Volume 3, (MUP), 1969.

[19] 'Obituary: Joseph Brady', *Minutes of Proceedings of the Institution of Civil Engineers* (London), vol 174, 1908, pp 374-76

[20] Ken McInnes, email 14 May 2012.

Goulburn River. In 1871 Brady was again engineer to the Bendigo waterworks, where he constructed an additional reservoir, large settling ponds and extensions to the town reticulation. Soon after these works were completed in 1873 a government department took over country water supplies and Brady was appointed engineer for the Bendigo district of the Goulburn River Water Supply, under the department's chief engineer, George Gordon.

In 1877 Brady applied successfully for appointment as engineer to the new Melbourne Harbor Trust. He had already left his mark on many civil engineering works of importance, and in this office he gave outstanding service to the commissioners and the colony of Victoria.

When he resigned in 1891 the Harbor Trust Commission gave him £1500 for valuable service. He engaged in private practice as a consultant and arbitrator until 1894 when he retired from professional pursuits.

Brady had been elected an associate member of the Institution of Civil Engineers, London, on 7 December 1875 and became a full member on 3 December 1878. His papers on 'Geelong and Sandhurst Water Supplies' (1878-79) and 'Early railway construction in New South Wales' (1904-05) were published in the institution's *Proceedings*. He died on 8 July 1908 at his home, Allowah, Staniland Grove, Elsternwick.

At St Mary's Cathedral, Sydney, on 14 February 1854 Brady married Adelaide Sarah, a daughter of Henry Keck governor of Darlinghurst gaol. Of their seven surviving children, the eldest son, Lyndon Francis, was a pioneer in the Western Australia timber business and an early manager of Millar Karri and Jarrah Company; the only daughter to marry was Georgina whose husband, Edward Wardell, was master of the Melbourne Mint.

This document has been prepared as a handout for the ceremony to recognise the Melbourne to Bendigo & Echuca Railway under the Engineering Heritage Australia, Heritage Recognition Program.

Prepared by Engineering Heritage Victoria.

The ceremony was arranged by Engineering Heritage Victoria in association with the Macedon Ranges Shire Council and the Malmsbury Historical Society.

October 2012.

Attachment 8 - EA Magazine Article

ARTICLE FOR ENGINEERS AUSTRALIA MAGAZINE
HERITAGE RECOGNITION PROGRAM
MELBOURNE TO BENDIGO & ECHUCA RAILWAY

Goldfields Railway Celebration at Malmsbury

On the 150th anniversary of the opening of the Melbourne to Bendigo Railway a large group of locals and a few visitors from further afield gathered to recognise the railway in the grounds of the Malmsbury Botanical Gardens and under the shadow of the mighty bluestone Malmsbury railway viaduct.

The line from Melbourne to Bendigo was one of two initial projects undertaken by the newly formed Victorian Railways in 1856. The other line was the Geelong to Ballarat Railway. Both railways were constructed to high British standard of the day and exhibited little of the light duty “colonial development railway” characteristics so often encountered around the Empire. The construction of the railways was initiated because of the gold rushes at Ballarat, Castlemaine and Bendigo. The railway to Bendigo was almost immediately extended to Echuca, opening up access from the Port of Echuca to the Port of Melbourne. The railway captured the majority of the Murray River trade for Victoria as it was the first railway connection to the river.

Engineering Heritage Victoria selected the site at Malmsbury to recognise the whole railway due to the high significance of the Malmsbury Viaduct which remains in service, unmodified after 150 years in railway service. It also has to be said that the site is visually very impressive with the juxtaposition of the great viaduct and the well maintained Botanical Gardens, built at the same time as the viaduct.

The Mayor of Macedon Ranges Shire Council, Councillor Henry McLaughlin, spoke about the impact of the railway on the communities along it over the 150 years since it opened. The community dependence on the railway has ebbed and flowed during one and as half centuries of use. In recent times, although the community is no longer so dependent on the railway for a whole range of services, the rapid growth in passenger traffic on the line has been the dominant feature of the railway’s modern role.

Other speakers at the ceremony included Councillor Madeleine McManus, representing the National President of Engineers Australia, John McIntosh, President of Victoria Division of Engineers Australia and Sue Walter from the Malmsbury Historical Society who expanded on the impact of the railway on the local Malmsbury community.

Owen Peake
Engineering Heritage Victoria

IMAGE CAPTIONS

1) Victoria Division President John McIntosh and Macedon Ranges Mayor Henry McLaughlin after unveiling the interpretation panel and marker.

Photo ID: Malmsbury Ceremony.Unveiling.059

2) The Malmsbury Viaduct with a V/Line passenger train crossing during the ceremony.

Photo ID: Malmsbury Viaduct.20 Oct 2012.039

Attachment 9 - EV Magazine Article

ARTICLE FOR EV MAGAZINE
HERITAGE RECOGNITION PROGRAM
FYANSFORD AND MALMSBURY

Heritage Recognition Ceremonies - Fyansford and Malmsbury

Victoria Division conducted two heritage recognition ceremonies in October. The first was coordinated with the Regional Engineering on Show weekend at Geelong from 12 to 14 October to recognise the early reinforced concrete bridge at Fyansford, 4km west of Geelong. The second, the following weekend, recognised the Melbourne to Bendigo and Echuca Railway on the 150th anniversary of its opening.

Around the turn of the 20th century the Monier patent for reinforced concrete started to be used for the construction of bridges, including in Australia. In Victoria the firm of Monash and Anderson obtained rights for the use of the patent and built many bridges using the method. The Fyansford Bridge was the first Monier arch bridge in Victoria to go into service, in late 1899.

The construction of Monier bridges marked the change for most road bridges from construction with wood or masonry to reinforced concrete. Whilst the Monier arch was soon replaced by more modern designs was in the vanguard of the use of reinforced concrete for road bridges.

The old bridge has been maintained over the years by VicRoads and is still in service as a pedestrian and bicycle bridge alongside a newer reinforced concrete bridge which now carries the Hamilton Highway.

The heritage recognition ceremony was jointly sponsored by Engineers Australia, VicRoads, and the City of Greater Geelong.

On the 150th anniversary of the opening of the Melbourne to Bendigo Railway a large group of locals and a few visitors from further afield gathered to recognise the railway in the grounds of the Malmsbury Botanical Gardens, under the shadow of the mighty bluestone Malmsbury railway viaduct.

The line from Melbourne to Bendigo was one of two initial projects undertaken by the newly formed Victorian Railways in 1856. The other line was the Geelong to Ballarat Railway. Both railways were constructed to high British standard of the day. The construction of the railways was initiated because of the gold rushes at Ballarat, Castlemaine and Bendigo. The railway to Bendigo was almost immediately extended to Echuca, opening up access from the Port of Echuca to the Port of Melbourne. The railway captured the majority of the Murray River trade for Victoria as it was the first railway connection to the river.

The heritage recognition ceremony was a jointly sponsored by Engineers Australia, Macedon Ranges Shire Council and the Malmsbury Historical Society.

Owen Peake
Engineering Heritage Victoria

IMAGE CAPTIONS

1) Unveiling the interpretation panel and marker at Fyansford. From left: Mario Fantin, Madeleine McManus and Mayor John Mitchell.

Image ID: Fyansford Unveiling.033

2) Crowd in the Malmsbury Botanical Gardens during the ceremony.

Image ID: Malmsbury Ceremony.044

Attachment 10 - EHA Newsletter Article

ARTICLE FOR EHA NEWSLETTER
HERITAGE RECOGNITION PROGRAM
MELBOURNE TO BENDIGO & ECHUCA RAILWAY

Goldfields Railway Celebration at Malmsbury

The Melbourne to Bendigo Railway was opened for service to Bendigo on 20 October 1862. On the 150th anniversary of the opening a large group of locals and a few visitors from further afield gathered to recognise the railway. The ceremony was held in the grounds of the Malmsbury Botanical Gardens below the great bluestone Malmsbury railway viaduct.

The line from Melbourne to Bendigo was one of two initial projects undertaken by the newly formed Victorian Railways in 1856. The other line was the Geelong to Ballarat Railway. Both railways were constructed to high British standard of the day and exhibited little of the light duty “colonial development railway” characteristics so often encountered around the Empire. The construction of the railways was initiated because of the gold rushes at Ballarat, Castlemaine and Bendigo.

The railway to Bendigo was almost immediately extended to Echuca, opening up access from the Port of Echuca to the Port of Melbourne. The railway captured the majority of the Murray River trade for Victoria as it was the first railway connection between the river and a major port.

Engineering Heritage Victoria selected the site at Malmsbury to recognise the whole railway due to the high significance of the Malmsbury Viaduct which remains in service, unmodified after 150 years in railway service.

George Christian Darbyshire was appointed as Engineer-in-Chief. He came to the task with considerable railway experience and had worked with George Stephenson before coming to Australia. At this time there was a slump in railway work in the United Kingdom and many engineers with railway experience were unemployed. Some of these emigrated to the colonies in order to find work in their areas of experience. Darbyshire employed a number of these engineers who possessed the skills to design and supervise the construction of complex railway works.

A contract was let to Cornish and Bruce for the Footscray to Sandhurst (now Bendigo) section with the work to commence on 1 June 1858 and be completed by 31 July 1861. Work proceeded quickly at first with the line being opened to Sunbury in January 1859. However further up the line there were major challenges. There were two very large viaducts to be built at Malmsbury and Taradale. Further north there were two tunnels at Elphinstone and Big Hill. Both tunnels were through very hard rock and it was these which delayed the completion of the line. The line was opened to Woodend in July 1861, Kyneton in April 1862, and Bendigo in October 1862.

The extension of the line from Bendigo to Echuca was a relatively simple matter as that part of the line was across plain country without significant engineering challenges. Tenders were called for the work in 1863 and the work was completed on 19 September 1864. The contractor for the work was Collier and Barry.

An interpretation panel and Engineering Heritage National Landmark were unveiled at the conclusion of the ceremony. This site is the 160th site recognised under Engineering Heritage Australia's Heritage Recognition Program.

Owen Peake
Engineering Heritage Victoria

IMAGE CAPTIONS

1) The track today below Mount Macedon near where it crosses the Great Dividing Range. The crossing was higher than any railway in the United Kingdom at the time of its construction.

Photo ID: M79 Crossing.Macedon.July 2011

2) The Taradale Viaduct today. Its original wrought iron continuous tubular beams have been augmented by intermediate piers built in 1933-34.

Photo ID: Melb-Bendigo Railway.Taradale.099

Attachment 11 - Body of typical thank you letter

On behalf of Engineers Australia, Victoria Division and Engineering Heritage Victoria, I would like to take this opportunity of thanking you for your support of the Melbourne to Bendigo & Echuca Railway Heritage Recognition Ceremony on 20 October 2012 at Malmsbury.

The event was very successful and the marking of the site is an important step to inform present and future generations of Australians of the significant heritage values of Victorian engineering.

Your speech was most impressive and your participation is much appreciated.

Yours sincerely

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