STOP PRESS: Call For Abstracts – The 17th Engineering Heritage Conference is to be held in Canberra from 17-20 November 2013, in the National Portrait Gallery, ACT. It is hosted by Canberra Division of Engineers Australia & Engineering Heritage Australia. The conference is being held in Canberra as part of the Centenary celebrations of the city. The theme, "Canberra 100: Building the Capital, Building the Nation", highlights the contribution all states and territories of the Commonwealth have played in creating and sustaining the nation and its capital.

1. Guest Speakers & Other Functions – 2013

FUTURE FUNCTIONS — (2013)

Thursday 18th April 2013 – The Engineering of Budj Bim & the evolution of a societal structure in Aboriginal Australia

Host: Engineering Heritage Victoria
Location: Engineers Australia John Connell Auditorium, 21 Bedford Street, North Melbourne.
Time: 5:30 pm refreshments, 6:00 pm – 7:30 pm presentation

The Subject: In the minds of most present day Australians, both indigenous and non-indigenous, “engineering” came to the continent with the first Europeans. However, if one looks at the broadest definition of engineering as stated by the founders of the Institution of Civil Engineers, “…the profession of a civil engineer, being the art of directing the great sources of power in Nature for the use and convenience of man.”, there were excellent examples present in this country which may pre-date many European civilisations. The Gunditjmara engineers at Lake Condah developed and managed the hydraulics required to farm and harvest kooyang (short-finned eel) and other fish. Present archaeological estimates suggest that their first structures date from 6,700 years ago and were in use until the 19th century. Two of the Budj Bim sites are on the Australian National Heritage List, and the works were recognised as an Engineering Heritage National Landmark by the Institution of Engineers Australia in October 2011. The paper will survey the works involved with a particular emphasis on the aquaculture structures at Lake Condah and nearby localities in western Victoria.

The Speaker: Bill Jordan is a consulting structural and conservation engineer, specialising in heritage buildings and structures. He has been a board member of Engineering Heritage Australia since 1991, chairing it in 1997-98. He is the author or co-author of a number of papers on conservation and restoration. In recent years Bill’s principal duties as an EHA board member have included a five year term chairing the plaquing program committee, and again taking over as chair of the renamed heritage recognition program in 2010, editorship of the EHA Newsletter and responsibility for developing the EHA policy for registration of conservation engineers and preparation of EHA’s heritage and conservation guidelines…

He has had a long term interest in the Budj Bim works and was the driving force behind their recognition as an Engineering Heritage National Landmark. At the November 2011 Hobart Engineering Heritage Conference, Bill presented the paper The Engineering of Budj Bim & the evolution of a societal structure in Aboriginal Australia. Bill was last here in 2009 to present a story about the “Craven Bros’ Rope Drive Crane at Honeysuckle in Newcastle. He will be back in Melbourne in April to present his Budj Bim paper to a Victorian audience.
**Saturday 15th June 2013** — Heritage Recognition Ceremony, **Wheeler’s Bridge**, a Monier arch bridge at Lawrence, near Creswick, Victoria.

Engineering Heritage Victoria (EHV) has a sub-program within its Heritage Recognition work to recognise structures built by General Sir John Monash, the firm Monash and Anderson or later iterations of companies with which Monash was associated, as a contribution towards the celebration of the centenary of the ANZAC Campaign in 2015. Heritage recognition ceremonies already accomplished in this regard are:

1. The dome of the Reading Room of the State Library of Victoria in Melbourne
2. Janevale Bridge at Laanecoorie in Central Victoria
3. Yallourn Power Station in the Latrobe Valley
4. Fyansford Monier Arch Bridge near Geelong

Wheeler’s Bridge is significant as it was one of the earliest bridges built by Monash & Anderson to the Monier Patents in Victoria. The Anderson Street (Morell) Bridge in Melbourne and the Fyansford Bridge in Geelong were slightly earlier.

Further details on this ceremony will be available closer to the 15th of June.

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**Thursday 20th June 2013** — Martin Mahood to speak on **Electricity Transmission in Victoria**.

**Host:** Engineering Heritage Victoria  
**Location:** Engineers Australia John Connell Auditorium, 21 Bedford St., North Melbourne  
**Time:** 5:30 pm refreshments, 6:00 pm – 7:30 pm presentation.

Further details on the speaker and his subject will be available closer to the 20th of June.

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**FUNCTIONS PAST — (2013):**

**Wednesday February 13th – Heritage and Sustainability: A Tour of the Docklands Goods Shed**  
*From William Gielewski and Michael Li*

On Wednesday February 13, Young Engineers Australia – Victoria Division along with Engineering Heritage Victoria, jointly organised a morning at the historic Docklands railway Goods Shed. The purpose of the event was to learn about the significance of the Goods Shed to Victoria’s railway system as well as to the overall economy of Victoria and then see how it was transformed into a state of the art office building accommodating Places Victoria.

The morning started with a presentation from Matthew Churchward, Senior Curator, Engineering and Transport at Museum Victoria. He gave an insightful presentation on the building itself, some of the significant engineering aspects of its construction, and the context of the building within the overall Docklands precinct. The presentation covered some key aspects including the reasons for the need for the building, the design and construction of the building, how the railway system developed around it, its impact on land use around Melbourne and finally its eventual decommissioning as a goods shed. Once the historical aspect of the presentation was finished, the guests were given a guided tour of the refurbished Goods Shed.

*The Goods Shed North, viewed from the south east on the day of the inspection.*  
*Photo - Owen Peake*
The tour discussed some of the technical challenges that were faced in converting a 19th century railway building into a 21st century office. Places Victoria, the current tenants, also desired that the building would become a Green Star certified building. In the end they were able to obtain a 5 Star Green Star Office rating and they are in the process of gaining a 6 Star Green Star rating for the fitout. Key features built into the building that helped them to gain their Green Star rating included an under-floor air distribution system, cyclist facilities and a greywater treatment plant. A key lesson learnt from aiming for Green Start accreditation was to specify early that all contractors are to follow through with their suppliers on where they are sourcing their products from, and having the suitable verification to meet the key requirements.

Some of the challenges that the project team faced included the load limitations of the existing structure, remaining sensitive to the heritage of the building through collaboration with Heritage Victoria, and how to set up the building to get maximum efficiency and productivity out of all staff. It was a very interesting guided tour that went through the issues and challenges that they faced and the innovative solutions that they found to overcome these.

The tour showcased the innovation involved in converting an historical building into a state of the art office complex. All participants were able to take something out of the tour as well as gain an appreciation for the historical significance of the building.

[The authors, Will Gielewski and Michael Li, are both members of Young Engineers Australia and Will is a member of the EHV Committee.

The No.2 Goods Shed was built in 1889-90 and originally stretched 385 metres north from its front facing the Flinders Street extension. Some central bays were demolished some years ago, to allow for the extension of Collins Street west into the Docklands development. The subject of this site visit was the surviving North end of the Shed, now facing onto the new Collins Street. Both north and south ends of the Shed are included in the Victorian Register as No. HO933 – Ed.]
On Thursday 21st February, John Wolff spoke about Calculating Machines and other Mechanical Antiquities.

About the Subject and the Speaker — from Owen Peake.

On 21 February Engineering Heritage Victoria made its first 2013 presentation in the Guest Speaker series. Our guest was electrical engineer John Wolff who, about 40 years ago, started becoming interested in mechanical calculators. John’s interest grew over time to include collecting many of these very interesting machines, taking them apart and putting them back together again to understand exactly how they work and developing a vast body of knowledge about the history of the mechanical calculator industry and the machinery it produced.

Along the way John also investigated the early electronic calculators which evolved rapidly in the 1970’s as discreet circuit components gave way to integrated circuits of ever-increasing complexity and decreasing size. These early electronic calculators are now distant memories for most people.

John said in his introduction “Everything that has ever been built, from the pyramids to the Mars Explorer, has involved engineering calculations. These days computers make calculating easy, but it wasn’t always so. This session will explore some of the “incredible machines” that were used to ease the burden of calculation in the days before modern electronics. The focus will be on the technical development and social history of the machines, from the days of brass and cast iron to fully-automatic desk calculators with mechanical memories”.

Brunsviga Model A, S/N 3278
Digits: 9 rotor, 10 counter, 18 accumulator
Dimensions: Body 200W x 140D x 120H, overall 470W x 200D x 160H
Weight: 11 kg
Manufactured: Germany, 1895-1920

John’s lecture provided a fascinating history of the mechanical calculator along with insights into the mechanisms and some of the fascinating characters who were at the heart of the business. John had brought several of his calculators to the lecture and two other enthusiasts who also owned mechanical calculators also brought one example each. After the talk there was ample time for the guests to inspect and operate the machines on display. This opportunity proved very popular and there were still people around the machines an hour after the talk had ended.

Right: MonroMatic Model 88N, 1950s

John also has a web site at www.vicnet.net.au/~wolff which tells the story of sixteen manufacturers who dominated the industry, hundreds of models of machines and many other pages about John’s restorations and explorations into the workings of the machines. This is a fascinating site well worth a visit and while you are there you might like to look at John’s parallel interest in mechanical music making machines.

John Wolff graduated in Electrical Engineering from Monash University in 1969. He started his career with General Motors as an engineering cadet in the tool room at Frigidaire, then spent 10 years designing specialised electronic instrumentation and computer systems in the Experimental Engineering laboratories at GM-Holden. He has since worked for the Northern Territory Electricity Commission, the SECV, RMIT, and the CSIRO. Within the IEAust, he was a member of the Control Branch committee in the 1970s, and a member of the inaugural NT Division Committee in the early 1980s. He has a long history of taking things apart to see how they work.

The insides of a register.
2. **Dr Ronald Fitch — EA honours longest serving member of 80 years**

From the EA Newsletter, 4th October 2012

Dr Ronald Fitch will be honoured by Engineers Australia’s Chief Executive Officer, Stephen Durkin, as the organisation’s longest serving member of 80 years at a presentation held in South Australia today.

Born in Melbourne in 1910, Dr Fitch has enjoyed a distinguished career of more than 80 years in the engineering profession since entering the University of Western Australia in 1927 on a cadetship from Western Australian Government Railways.

Dr Fitch joined Engineers Australia in 1932 when he first became a practising engineer. One of his many roles was to supervise civil works undertaken under the unemployment relief scheme during the Depression.

At age 92 Dr Fitch completed his PhD with the University of New South Wales and was recognised by Guinness World Records as the oldest person to be awarded a doctorate.

“Dr Fitch’s story is truly inspirational; he lives by the strong belief that lifelong learning is crucial and has witnessed first-hand the advances of the engineering profession spanning 80 years,” said Stephen Durkin, Chief Executive Officer of Engineers Australia. “Since receiving his doctorate at age 92, Dr Fitch has upheld his lifelong commitment to furthering the engineering profession. Dr Fitch continues to show enormous dedication to our profession and he frequently volunteers his time to share his experience and insight with a range of engineering groups. Dr Fitch is an outstanding advocate for engineering. His commitment is truly exemplary, and on behalf of Engineers Australia I extend my appreciation and thanks for a lifetime of commitment to Engineers Australia and the engineering profession,” Mr Durkin said.

[Sorry I missed getting this item in the last newsletter. It seems to me Dr Fitch is an item of engineering heritage in his own right — and truly national, apparently having experienced life in at least four states. He is an obvious candidate for someone’s oral history programme — let’s hope this is happening. — Ed.]

3. **Visiting the Eldorado Dredge, near Wangaratta, Victoria.** — from Owen Peake.

**Gold Fever and the Eldorado Mechanical Monster**

For nearly twenty years, from 1936 to 1954, the Cocks Eldorado Dredge lumbered along the line of Reedy Creek near the township of Eldorado, 15 km east of Wangaratta, winning gold and tin from the deep alluvial gravel of the creek bed. The dredge built its own pond to float on - gobbling gravel with a giant bucket chain at the front; extracting the alluvial gold and tin; and spitting the gravel out at the back as it progressed slowly down the creek covering about 4.7 km in its working life. It extracted 70,000 ounces of gold, worth $112 million in today’s dollars. A great deal of tin was also produced.

By good luck the 2113 tonnes machine has survived and it is now in the care of Parks Victoria. Time and vandalism have not been kind but most of the machinery remains intact. The dredge is now sitting on the bottom of the shallow pond, all its hull compartments having flooded many years ago. This has placed it in a bow-down position with the forward deck awash.

The mechanical engineering is impressive. The huge bucket chain contains 118 buckets, each with a capacity of 0.34 cubic metres, and the machine could excavate material from 27 m below the dredge. After excavation the gravel was screened in a large rotary screen to collect the finer material and discard the larger rocks. Mechanical vibrating jigs then separated the heavier tin and gold bearing material (mostly fine specks and flakes) from the lighter waste gravel in several stages. This concentrate was then removed from the dredge for processing ashore. The waste rock and gravel was washed out the back on a series of chutes, to refill the holes left behind the dredge.
Clockwise from left:

The ‘business end’ of the Eldorado Dredge – the massive gantry supported the bucket ladder. The white walkway at left was built so visitors can get onto the Dredge;

The buckets each had a capacity of 0.34 cubic metres;

Carl Doring (right) & Muhammad Noor near the drive to the rotary screen;

The rear of the dredge showing the discharge chutes for tailings;

The control room of the dredge from which the positioning winches and other drive motors were controlled.

Photos – Owen Peake

The dredge was built by Thompsons of Castlemaine, brought to the site in pieces and erected on site. All the considerable motive power was from electric drives with power being supplied by the State Electricity Commission of Victoria grid and delivered to the dredge at 6.6 kV by a floating trailing cable. The dredge was self-propelled using a series of large electric winches to pull itself in any direction via heavy steel cables tied around trees and other anchors on the shore.

I visited the site on 30 January 2013 with past National President Peter Godfrey, mechanical engineer Carl Doring from Whitlands and mechanical engineering student Muhammad Noor who is working on the dredge as part of the Engineering Heritage Victoria annual vacation employment project with Victoria University.

[In 1994 Carl Doring and myself prepared a Conservation Management Plan for the Dredge, and about 10 years ago Carl supervised a project to replace rotten timbers supporting cables which in turn support the tailings chutes. It’s good to know that Parks Victoria is doing its best to prevent the Dredge deteriorating any further. The Eldorado Dredge has been on the State Heritage Register since 1975 as Number H-386. It is now a candidate for recognition under the EHV Heritage Recognition Program. – Ed.]
4. Breamlea Wind Turbine still running after 25 years from Nicholas Wardrop & Owen Peake

Many engineers probably see engineering heritage as being more appropriate to engineering works built in the nineteenth century but in fact the engineering heritage community puts a lot of effort into trying to save more recent technologies, from the 20th century, and in some cases from just a few years ago.

The Breamlea wind turbine, on the wind-swept southern coast of Victoria, almost due south of Geelong, is a case in point. It has been there making electricity for 25 years this November just past, yet it is the oldest grid-connected wind turbine in Australia, still in operation.

It is sobering to think how fast wind turbine technology has come in just a quarter of a century. At 60 kW this was a big wind turbine when it was commissioned by the Victorian Solar Energy Council (VSEC) and the State Electricity Commission of Victoria (SECV) as a demonstration project in 1987. Today thousands of wind turbines have been commissioned around the world including 1880 MW in Australia and growing at up to 30% per annum in recent years. Machines up to 7.5MW have been built overseas whilst the largest machine now operating in Australia is 3MW.

The machine at Breamlea was manufactured by Westwind in Perth, Western Australia where it was one of a batch of seven. Six were installed at Australia’s first wind farm on the Esperance diesel grid in Western Australia, now dismantled. These were Australian designed and manufactured by Geoff Hill of Westwind, and of extremely sound design as time has attested. Geoff, who worked as an automotive engineer in Geelong, set up the firm Venco to produce potting wheels and clay “pug” milling machinery, and being of environmental leanings, looked to other outlets for his creativity. The Westwind range of wind turbines was the result. Westwind is better known for their 5, 10 and 20kW wind turbines, which were easily lowerable on their guyed towers.

Much of the credit for the Breamlea plant must go to Professor Bill Charters who set up VSEC and who felt that wind power had come of age. Bill was recently honoured as one of the inaugural inductees in the Australian Solar Hall of Fame by the Australian Solar Council, for his pioneering work in Renewable Energy. The SECV were very doubtful as to the viability of wind energy, as there had been a catastrophic failure of the first large wind turbine in Victoria which had been installed at the Mars factory in Ballarat. There had also been long delays waiting for a Victorian company to produce a successful wind turbine with funding assistance from the Victorian and Federal governments. This did not eventuate so another solution was sought, hence the seventh wind turbine in the 60kW production run.

The Breamlea demonstration site was chosen primarily for its proximity to Melbourne, and not so much for its wind potential (there were better sites, however they were much farther away). Given that monitoring of this turbine was to give VSEC and SECV engineers and management some experience of this then new technology, it was deemed that accessibility was very important. In the early years, dynamic stress studies were made of the wind turbine tower, as well as studies of power and energy output versus wind speed. The wind turbine is now owned by local water utility Barwon Water and delivers about 80,000 kW to the grid each year (a Capacity Factor of 15%), with an availability of 90-95%. After the success of the Breamlea demonstration in the late 80s, planning for a larger wind farm was well underway, however a change of state government saw this put on hold for 5 or 6 years.

If you travel west from this turbine you will find, along the coastal strip, a large proportion of the wind turbines in Australia. This is no accident, as VSEC and SECV had monitored the wind potential at 10 sites along the Victorian coast in the mid 1980s, prior to the Breamlea demonstration wind turbine being commissioned. This was undertaken after having noted that meteorological records did not show good wind potential, however meteorology stations are often in cities or at airports, not noted for their wind exposure. The wind potential is considerable all the way to Cape Leeuwin in Western Australia as this coast faces the Southern Ocean, renowned for its powerful winds. Engineering Heritage Victoria urges that the Breamlea wind turbine be preserved, preferably in service, as a reminder of the early days of grid-connected wind power in Australia, and the considered, step wise development process over the years by people with vision, that led to the industry as we see it today.

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1. 1880MW is from 2010. Recent wind turbines in Australia are in the range 1.5-3MW. See Wikipedia Wind Farms in Australia.
2. Enercon model E-126, made in Germany has a nameplate rating up to 7.5 MW. Refer Wikipedia Wind Farms in Australia.
4. Nicholas Wardrop, submission to Engineers Australia, 25th June 2012.
5. The University of Melbourne, Melbourne School of Engineering, Mechanical Engineering.
6. Wikipediea entry, Breamlea.
5. Events & Publications of Possible Interest

Celebrating the Life of Our City's Famous Ship – An Exhibition put on by the Royal Historical Society of Victoria

Melburnians are invited to set sail exploring the history of Australia’s first light cruiser and one named after our own city, as the Royal Historical Society of Victoria and Military History and Heritage Victoria present the fascinating new exhibition:

“Fear God and Honour the King: HMAS Melbourne 1913 – 1928”. UNTIL 1ST MAY 2013

HMAS Melbourne, a 5,600 ton warship with eight 6-inch guns, served the Royal Australian Navy from her commissioning in England in 1913 until her decommissioning in England in 1928. The ship took the name of the City of Melbourne, its seal as her crest, as well as the City’s credo, ‘Gathers Strength as She Goes’.

The exhibition, timed to commemorate the centenary of the ship’s arrival into Port Phillip Bay on 26 March 1913, features:

- The original seal of the City of Melbourne presented to the ship in 1913, courtesy of the Australian War Memorial;
- A 12 bolt diving helmet and medals from the ship’s diver, also a Boer War veteran, from private collections;
- The original Anzac Day banner under which crew members marched in Melbourne post-WWI courtesy of the Museum of HMAS Cerberus;
- More than 50 unique images from private collections, never before seen;
- A fascinating chronology of life below decks and on board in peace and war, with items from the Australian National Maritime Museum, the State Libraries of Victoria and South Australia, Museum Victoria, the Australian War Memorial, Museum of HMAS Cerberus and a range of memorabilia from private collections.

“HMAS Melbourne was a work horse of the RAN, steaming more than 250,000 miles during its lifetime,” explained Marcus Fielding, president of Military History and Heritage Victoria. “She saw war service in the operations against the German colonies in the SW Pacific in 1914, escorted the 1st AIF fleet from Albany, saw service with the West Indies Squadron in 1915-1916 from Brazil to Canada and then served with the North Sea Fleet from 1916-1918. In 1922, Melbourne was involved in a dramatic rescue of the crew of an American schooner in the Tasman Sea, at the height of a hurricane. The exhibition, which takes its name from the scroll donated to the ship by the City of Melbourne in 1913, takes visitors on a journey back on board this ‘greyhound of the sea’, examining the ship’s war service and the lives of many of the crew who served in her.”

The exhibition will be held weekdays from 10am–4pm until the 1 May. Sponsors of the exhibition include the Port of Melbourne Corporation, Navy Health, the Melbourne Naval Centre and curator Cooee History and Heritage. A souvenir exhibition catalogue will be available for $12. Pre-orders can also be made for the forthcoming history ‘HMAS Melbourne 1913-1928: The Forgotten Cruiser’, which will be launched at the Exhibition in March.

The Exhibition will be open 10am – 4pm. Monday to Friday, until 1st May 2013
The Venue: Royal Historical Society of Victoria, 239 A’Beckett Street, Melbourne
Cost: A Gold Coin Donation

Enquiries: (03)9326 9288 or office@historyvictoria.org.au or go to the website www.historyvictoria.org.au

The upcoming National Trust Heritage Festival has a number of events which might interest our members.

Here is just a sample:

**Melbourne’s Heritage Water Infrastructure Tour** – Monday 29th April.
Scienceworks Museum & Western Treatment Plant. Follow the path of Melbourne’s Victorian sewerage system from the Spotswood Pumping Station, past the brick aqueducts, through the Western Treatment Plant and into Port Phillip Bay at the RAMSAR wetlands, South Werribee.

**Lower Stony Creek – Walk to Australia’s first mass concrete dam wall** – Sunday 28th April.
Stony Creek Picnic Ground, north of Anakie. Designed by George Gordon and built by Edward Dobson, the dam forming the Lower Stony Creek Reservoir, completed in 1874, is recognised as Australia’s first mass concrete gravity dam. See pipeline and other water system components whilst the reservoir wall provides great views of the huge concrete structure.

**South Gippsland Railway Heritage** – Sunday 28th April & Sunday 12th May.
Korumburra Railway Station. Take a ride on a very special train from Korumburra to Leongatha. At Korumburra you can have a lemonade in the Refreshment Room and at Leongatha go on a walking tour with the Leongatha Historical Society.

[Of course if you are a member of the National Trust (Victoria), you’ll already know about all these, but if you want to know more, or how to book, download a 47 page booklet from the National Trust website, detailing events all over the State at: http://www.nationaltrust.org.au/Assets/9748/1/2013NationalTrustHeritageFestival-Victoria.pdf  Happy hunting! – Ed.]
The 24th International Congress for the History of Science, Technology and Medicine – 22nd to 28th July 2013.

To be held in Manchester, UK. The theme is Knowledge at Work. The International Congress of History of Science, Technology and Medicine is the largest event in the field, and takes place every four years. Recent meetings have been held in Mexico City (2001), Beijing (2005) and Budapest (2009).

In 2013, the Congress will take place in Manchester, the chief city of Northwest England, and the original "shock city" of the Industrial Revolution. Congress facilities will be provided by The University of Manchester, with tours and displays on local scientific, technological and medical heritage co-ordinated by members of the University's Centre for the History of Science, Technology and Medicine. Suggestions of things to see and do in and around Manchester are available on the website (http://ichstm2013.com/) along with all the information you could want.

Australia by Rail – an App by Sutor Media (sutromedia.com) for iPhone, Android, iTunes Store, Google Play – $2.99

This was reviewed in the Age Green Guide as “a comprehensive guide to Australia’s rail network, with about 100 reviews of rail experiences, including the Ghan, Daylesford Spa Country Railway and Queensland’s Kuranda Scenic Railway. …………………… There are interesting facts sprinkled throughout. Did you know Melbourne has the largest tram network in the world? Or that across Australia, discarded railway lines have been turned into “rail trail” walking and cycling routes? Australia by Rail is well thought out and easy to navigate.”

From the cornucopia of Publications of Interest and IA on the Web found in the SIA Fall 2012 Newsletter


This important collection of essays offers a comprehensive new guide to international best practices in safeguarding and appreciating industrial heritage. More than 30 of the world’s foremost experts present the latest approaches, theoretical and practical, with a rich variety of case studies and colour photographs of outstanding projects from around the world. Among the topics examined are reuse and repurposing, World Heritage sites, listing and designation, sustainable development, documentation and recording, industrial tourism, urban planning, historic photographs and archives, and industrial ruins. Includes articles by Patrick M. Martin, Bode Morin, Mark Watson, and Stuart B. Smith (all SIA).

Golden Age of Canals (http://thevideochannel.net/videos/?search=Golden+Age+of+Canals)

This 1-hr video documents the end of commercial shipping on England’s canals, how they fell into disrepair, and how individual citizens united to save them. Footage is largely drawn from the home movies of enthusiasts who formed the Inland Waterways Assn. and undertook the campaigns to bring the canals back to life.

How a Bicycle Was Made in 1945 (http://devour.video/how-a-bicycle-was-made-in-1945/)

A British Council Film documents the design and manufacture of Raleigh bicycles.

Industrial Images of the 1840s – 1870s (www.flickr.com/photos/marceldouwedekker/) From the Netherlands, Marcel Douwe Dekker has made available more than 1600 images from Scientific American, mostly woodcuts showing industrial processes and landscapes.

Still-Alive Industrial Landscape Photography (www.st-al/about.html) Photographer Marcello Modica’s website features engaging landscape portfolios and commentaries. Sites are mostly located in Italy, with some in Belgium, France, and Germany.

Photographs of the Tower Bridge Being Constructed are Found in a Skip (http://www.telegraph.co.uk/property/propertypicturegalleries/8923147/Photographs-of-Tower-Bridge-being-constructed-are-found-in-a-skip.html?image=1)

An album of fifty marvellous sepia photographs, fortuitously recovered from a [rubbish skip] by an office caretaker, document the construction of the Tower Bridge, 1886-1894. Sixteen photos are on the website, showing cranes, falsework, steam engines, and Thames River scenes. [The story of how these images were found and then rejected by the Tower Bridge Museum is depressingly familiar to the Dorings. The opening paragraph on The Telegraph (UK) website tells us:

'The discarded pictures, which were retrieved by a caretaker who was looking after a building being turned into flats in 2006, have spent the last five years in a carrier bag underneath his bed. The 59-year-old, who wishes to remain anonymous, said that after the occupants of the Westminster office building moved out, the album and a number of documents were thrown into a skip outside. He said: “I took the ledgers to the Tower Bridge Museum because I thought they might have some historical value. I told the man at the museum that I had also found some photos but he told me they already had plenty of those. I didn’t know what to do with them so I wrapped them in some brown paper and put them in a bag under the bed.”

Carl Dorig’s first industrial archaeology job in the early eighties was to record Toohery’s Brewery Malthouse near Central Station in Sydney before the whole site was razed. Photographic evidence of the early days of the Brewery was virtually non-existent, and then a demolition worker found 11 large prints of the Maltings in an abandoned cupoard, and fortunately he recognised their significance. These were taken by “Crown Studios” when the Malthouse first opened in 1902. They were very useful for the recording work, and they were accepted and kept by Toohery’s management. But all too often we have started research on a place, only to find that 99% of its documentary records have been tossed out for the tip, or burned. – Ed.]


6. Places to Visit and Things to See — in the Regions and the City

The New Benjeroop Irrigation Museum — adapted from a report in the Weekly Times, 11th December 2012

An unique piece of irrigation history has been restored to working order in north Victoria. An enormous Hornsby Suction Gas Engine with a 10-tonne flywheel, cylinder gas producers and Robison 20-inch centrifugal pump is the latest addition to the items on display at the new Benjeroop Irrigation Museum, southeast of Swan Hill. Contributions [to develop the Museum] came from the State government, Gannawarra Shire Council, the Benjeroop community and included volunteer labour.

The pump’s restoration and relocation has been a six-year community project, costing almost $390,000. It was originally installed on the NSW side of the Murray River after it was bought in December 1912 by Cobramunga Station owner Captain FE Keats. Disused after it broke down in 1951, it sat idle on the river bank until the owner, Grant McDonald, of Murrabit, offered it to Barham restorer and inventor Hume Colville.

Fellow irrigation enthusiast Lindsay Schultz helped raise money for the restoration, with the aim of exhibiting the restored irrigation system as a museum piece at the Benjeroop Hall. “The pump is so big that when it was running, it could almost suck the river dry,” he said. It is thought be the only pump of its type in working order in the southern hemisphere, and the only one anywhere to run on gas produced from redgum coal [sic – could be charcoal? – Ed.]

[No indication of the exact whereabouts of Benjeroop in this report, and no indication of a dedicated website, but Google Benjeroop Irrigation Museum and you’ll find plenty of info. Maybe one of you can write me an interesting report on the collection and its history, with some photos? A picture of the huge flywheel on the Hornby engine took me back to my childhood at Tarrawarra. We had an even bigger one on a locally built Ronaldson-Tippet stationary engine of about the same age, which pumped water from the Yarra for the farm and houses. Its flywheel must have been about 8 feet in diameter, with ½ of it running in a pit. It took two men to swing it to start. – Ed.]


I discovered the breadth of this museum’s collection through a report in the Weekly Times (another one!) of 19th December 2012 and it seemed well worth a visit. The museum was started in 1946 by the Army School of the Australian Armoured Corps to collect tanks and related vehicles as they went out of service or were offered to it. “The museum’s mission is to preserve, exhibit and interpret armoured vehicles, artefacts, icons and memorabilia in order to promote and commemorate Australia’s Light Horse and armoured heritage.” It also acts as “An excellent training facility for the Australian Army and the RAAC.” The museum has more than 90 different types of tanks, armoured personnel carriers, scout cars, and “the first machine gun carrier built at the Victorian Railway Workshops at Newport from 1940.” There are captured vehicles from Germany, Japan and Vietnam, and various collections of ancillary gear, small arms and Australian Light Horse memorabilia and memorials.

[We had hoped to visit the museum before this newsletter’s deadline, but no luck. Why would I want to see such a place? Well many years ago Carl worked on the modification of armoured personnel carriers for Vietnam, and I wondered if we would get to see one of the Bushmasters for Afghanistan that we watched being built in Bendigo. But my deepest reason is to revisit Puckapunyal, which I last saw in October 1940, just before my Dad and his Regiment sailed for the Middle East – a nostalgia trip! I have been assured that the stones that lined the paths around the barracks are no longer painted white! – Ed.]

The Carnival of Science at Scienceworks, Museum of Victoria — until 13th October 2013


“Explore the science behind the carnival. Ever wondered what the trick is to winning the giant teddy at your favourite sideshow alley game? It might surprise you, but the answer lies in science. Carnival of Science goes behind the scenes to explore the physics, biology and psychology of the sideshow without losing the magic of the carnival! Try your luck navigating the maze of mirrors or try the strength tester. Like a human cannonball, launch yourself head first into the weird and often wacky world of the carnival!”

This exhibition is aimed at children, but I understand it was set up in 2012 as part of the celebrations of the 100th anniversary of the opening of Luna Park in St Kilda, a place with some iconic engineering heritage, and the exhibition got an excellent review in The Age when it opened last December.

At Luna Park in St Kilda (http://www.lunapark.com.au/rides/) the famous Carousel has been restored to working order and the Great Scenic Railway is apparently back in action after many years of disuse and threats of demolition.

However, while you’re still at Science works, why not visit that marvellous piece of engineering heritage, the


and after that, on going back to the Sciencesworks building, don’t forget to take a look at the

West Gate Bridge — (http://museumvictoria.com.au/scienceworks/whatson/current-exhibitions/west-gate-bridge-exhibit/)

In the West Gate Bridge Exhibit. “Marvel at the engineering feat of the iconic West Gate Bridge. Imagine yourself walking through the West Gate Bridge. Try on some of the equipment that construction workers on the bridge must wear, take a look at the bolts used, and get a glimpse of the tunnels inside this iconic Melbourne structure.”

[This exhibit appears more oriented to the work of the recent West Gate Strengthening Project than to an historical survey of the Bridge and the tragedy of nearly 43 years ago. It would be complemented by a short paper presented to the 2012 Australian Construction Achievement Awards – see: http://aaca.net.au/pdf/2012_TP_PP/WEST-GATE-BRIDGE-STRENGTHENING.pdf — Ed.]
7. **Nostalgia Trips On the North-East Line**  —  from Margret Doring

Ever since I acquired committee positions with EA in Melbourne, I have been complaining bitterly and frequently, to anyone who would listen (and some who wouldn’t), about the sorry condition of the railway lines, and service, between Albury and Melbourne. On the principle of *put up or shut up* I think, Owen Peake asked me to write this story! I have my own ideas about what went wrong with this line, but building or re-building railways is not my field of expertise, so I won’t write about that. However, I reserve a sense of wonderment (and irritation) that no-one has yet managed to solve this railway’s problems, despite the long time that has elapsed since the current problems started (was it soon after 2008? when “upgrading” work began?).

Early 2009 was when I started travelling regularly to Melbourne for meetings. I looked forward eagerly to the prospect of a peaceful 2-hour train ride from Wangaratta to Melbourne, seated in a comfortable armchair, at a folding table, writing away on my new laptop while the familiar countryside rippled past the big windows, then catching a similar train home after the meeting in the evening. Well, no! That’s not how it turned out! I guess I was fooled by my memories of similar trips 50 years earlier, when I was a car-less working girl, travelling home to Benalla for weekends.

Nowadays, there are no comfortable armchairs, no tables, the jolting ride makes it impossible to use that laptop on your lap, and the trip can take anything from three to four hours – if you are lucky, and if you don’t have to wait interminably on the station for a train that comes half-an-hour late, or not at all. More often than not these days, the train will be replaced by a bus – more often than not with no warning. And there are no return trains (or buses) in the late evening. If I lived in Bendigo, I could go to a concert in Melbourne, have time for a coffee afterwards and still catch the last train home at 11.49pm. The last train to Wangaratta is the “fast” XPT to Sydney which theoretically leaves Melbourne at 7.55pm – no time even for a decent dinner beforehand, let alone the theatre or a concert.

I started a collection of newspaper cuttings on the subject, from the local papers and the Weekly Times mostly, dating from about 2009. Many of the earlier ones have disappeared into some black hole on my desk, but one from May 2010 incited total exasperation up here. That one started: “The Geelong, Ballarat and Bendigo rail services into Melbourne will be improved with a new $4.3 billion rail link. What about us? We cry, That was at a time when we had no trains at all on the North-east line for a considerable period of time: “Since late 2008 no V/Line trains have run between Seymour and Albury”, “Trains will return sometime in year” is a headline on May 28th 2010. In July 2010 we are told: “New $500m train line ‘unsafe’”. “Large sections of the newly upgraded Melbourne-Albury rail line have been found to be unsafe, forcing trains to slow down and prompting claims that the $500 million project has been bungled”. The speed restrictions varied from 80km/hr down to 25km/hr in some places.

In November 2010 we hear “Trains still long way off – Minister says early next year, but could be April/May”. Oh Joy! On June 3rd 2011 – at last: “V/Line passenger service to return from June 26th”. Well we would believe that when it actually happened – it was certainly only a partial service, and still with drastic speed restrictions which have continued off and on until now, and interspersed with headlines such as; “Train passengers ‘lucky to be alive’” (2nd August 2011); “Trains stopped in their tracks – Carriage dislodges, forcing Sydney bound XPT passengers onto buses…. ” (12th August 2011); and lots more like that until, on 14th February 2013, “Two more days without trains – A freight train derailment has thrown Border passenger services into chaos. The latest insult – a V/Line advertisement on 15th March 2013 telling us, “Seymour line train replacement….. Due to track works, buses will replace all trains between Melbourne and Seymour, Shepparton and Albury during the Easter break. Please allow an extra 60 minutes for your journey”.

You will wonder what all this has to do with engineering heritage? Well the Victorian Railways North-East line is a great repository of engineering and social history and heritage. It was the very model of a safe, high speed, and highly efficient passenger and goods rail service linking Melbourne and Albury for at least 100 years. Of course the break of gauge at Albury reduced its efficiency as a Melbourne-Sydney link until the standard gauge track was extended to Melbourne in 1962, but it was still one of the most important railways in Australia. The North-East line is not as old as the Goldfields railways – it reached Wodonga in 1873, and crossed the Murray River to link up with the NSW Government Railways at Albury 10 years later. Its railway stations were not the grand architectural confections of those on the Goldfields Railways, but the working infrastructure was state of the art for most of its life, including the top class rolling stock which moved an enormous amount of freight and many thousands of passengers.

(To Be Continued)