



## Prince of rails

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*E&T* climbs aboard the Australian tram that (almost) conquered the world.

The 1880s saw the invention of two very different forms of transport. While Karl Benz's exciting, noisy and dirty motor car has since spread exhaust fumes across the planet, Werner von Siemens's silent, efficient, communal electric tram is only now finding its way back into our cities.

But it wasn't always this way. A century ago, the electric tram was the hottest vehicle in the world and the global centre for urban electric transportation wasn't Berlin, London or even San Francisco, but an ambitious young city at the edge of the British Empire – Melbourne.

Like San Francisco, Melbourne, Australia had a gold rush to thank for its prosperity. The discovery of the precious metal in the state of Victoria in 1850 saw a river of gold flowing through the city, followed by immigration, construction and a rapidly expanding rail network. At the heart of the city, though, was a tram network that grew to become the largest in the world – albeit one that was not originally powered by electricity.

Trams with metal wheels running on steel rails have a much lower rolling resistance than wooden wheels on dirt roads, allowing greater loads to be hauled for the same effort. The first passenger tram, pulled by horses, ran on the Swansea and Mumbles Railway in Wales in 1807 and tram networks soon spread through many of the major cities of Europe, Asia and America.

### Cable cars

The economic cost of maintaining a large stable of horses, as well as a desire to use trams in hilly cities, led to the development of cable cars. These used central steam engines (later electric) to pull trams over a fixed network, using underground ropes or cables. London had the first cable car in 1840 but San Francisco's 1873 system, including innovations such as grips that could smoothly attach or detach from the moving cables, was to prove the most enduring.

Melbourne was at the vanguard of this new technology. It launched a cable car service in 1885 which grew over the next two decades to encompass 75km of track and around 1,200 cars – possibly the largest cable car network in the world at the time. But a new threat was silently approaching.

Four years earlier, Werner von Siemens – the German inventor of the electric lift and the moving-coil transducer for loudspeakers – had opened the world's first electric tramway, a metre-gauge line running through the Berlin suburbs. At first, the technology was slow to spread. In 1883, Magnus Volk built a small (60cm gauge) electric train along Brighton's seafront that still operates today, but it wasn't until 1888 that Melbourne trialled a prototype electric tram.

The cable car's head start was critical. By the time viable electric tram passenger services emerged in the early years of the 20th century, cable cars were firmly entrenched in Melbourne's city centre. The new electric trams were relegated to providing 'feeder' services from the suburbs and were run by competing companies using a bewildering variety of car designs and gauges, often based on American streetcars. Some tramways were set up by local councils while others were funded by electricity companies more interested in selling power to customers along their routes than transporting passengers.

By the end of the First World War, it was clear that some organisation was required. In 1920, the disparate tramways and cable cars were consolidated into the newly formed Melbourne and Metropolitan Tramways Board (MTTB). The Board decided that electric trams were cheaper and more practical than cable cars. It gradually dismantled the cable car system, with some of the cables subsequently being used in the construction of a suspension road bridge to nearby Philip Island.

### The golden age

Melbourne had entered its golden age of public transport, and needed a tram to call its own. After classifying its inherited menagerie

of trams into an astonishing 22 categories (A to V), the MTTB designed and built a 23rd – the thoroughly Melbournian W series. The first W1 tram entered service in 1923 but was modified after proving awkward for passengers and conductors alike. The W2 arrived in 1927 to immediate acclaim. Its long body could house more than 50 passengers in (some) comfort, with sun blinds, elegantly polished wood, shiny brass fittings and enclosed compartments at either end, to allow for inclement weather (and, originally, also a space for smokers).

Throughout the 1920s and 1930s, tram use expanded throughout the city. All W2s had a driver and a conductor, the latter reportedly earning more than a schoolteacher or a policeman. Public transport was big business: the MTTB had enough spare cash to plant 12,000 trees and build a nine-hole golf course inside its privately-owned (but with public access) 137-acre Wattle Park in the suburb of Burwood.

After the Second World War, it was the motor car's turn to dominate urban transportation. But, while cities worldwide ripped up rails to make room for highways, Melbourne decided to maintain and even expand its electric tram network. The 1956 Melbourne Olympics saw the introduction of 40 new W7 trams, complete with more powerful motors and pneumatic sliding doors, to help move spectators around the city. As it turned out, these were the last of the W-series to roll off the production line in Preston, a factory that had helped produce more than 762 trams over 33 years.

But the story of the W2 wasn't over yet. As car ownership rocketed throughout the 1960s and 1970s, gridlock-choked cities around the globe turned envious eyes towards Melbourne's extensive (if now somewhat neglected) tram network. The MTTB was busy developing a new generation of electric trams and was only too happy to off-load its 'old fashioned' W2 trams to foreign countries hungry for practical vintage glamour.

## The global route

Memphis, Tennessee purchased 11 W2 trams, seven of which still form the core of its vintage trolley car lines running through the city centre and alongside the Mississippi river.

The city of Seattle's six W2s had Melbourne's distinctive gongs (bells) replaced with deafening air-horns and ran on old waterfront train tracks between 1982 and 2005, when they were mothballed for the area's redevelopment.

Working W2s can also be found in San Francisco, San Jose, Dallas and New Orleans in the US, and Auckland and Christchurch in New Zealand. Tram number 965 has even found its way as far north as Copenhagen, where it now lives after being given as a present from the Victorian government to Denmark's Crown Prince Frederik and Crown Princess Mary.

The ultimate celebrity seal of approval, though, was the purchase of W2 number 520 by Elton John while on a trip to Australia in 1983. The tram is now installed as a (static) office on his Woodside estate near Windsor. Melbourne finally realised that it was in danger of exporting its transportation heritage, leading to Australia's National Trust banning foreign sales of W2 trams in 1990.

Melbourne once again has the largest tram network in the world, with 52 W-series trams among a fleet of over 500 vehicles running 22.5 million kilometres a year on 249km of track. The classic trams service a free city centre circle line and two heritage routes. You can even dine on the move in W2 number 442, which has been converted into the Pullman-style Colonial Tramcar Restaurant, offering silver service meals.

But without new W2s being made, the vintage tram's days are ultimately numbered. "Despite its inherently simple design, the availability of spare parts is beginning to become a problem," says Rod Beet of Yarra Trams. "But while it is increasingly difficult to justify the continued use of W2s in mainstream commuter service, there will always be a place in Melbourne for W-class tourist routes."

The W2's modern counterparts boast GPS tracking, regenerative braking, cashless payments and even a 'wind-powered' tram showcasing the network's use of electricity from renewable sources.

It is perhaps not too much of an exaggeration to say that the century-old rivalry between the inventions of Karl Benz and Werner von Siemens has come full circle, and that the electric tram is once more the coolest vehicle on the road.

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