

Ghosts of Bridges Past

Imagine going into the bush without a mobile phone, chainsaw, concrete pump, nail gun or electricity and then building a major structure, with cutting edge technology, based on a rudimentary drawing? This is what my grandfather did and some of his bridges are still standing after almost 100 years. Today all you need is a mobile phone and a bank account to build a bridge. Not so in the 1920's.

Harold Irwin died in 1962 at the age of 80 leaving behind a legacy of work of little interest to others. Most people take civil works for granted, few think about the construction of a bridge as they rush across it. Amongst my grandfather's endowments were two small photo albums and one modest framed display of his work. These gathered dust from 1962 until they landed on my desk in 2016.



Our starting point: The Photo

Within the decaying bindings was a treasure trove of bridge construction images recording a world almost unimaginable to us. A world of

draught horses, working men in jackets and waistcoats, of traction engines and ingenious improvisation. The album led us a merry chase. Take the image below for instance, the only clue was "Waverley Road, Malvern". Where did Malvern end then?



Harold Beresford Irwin, 1882 to 1962

What was the crossing? When was it built? What happened to the bridge? Where is the photo facing. Slowly we put together all the pieces. We unearthed original drawings and contract records and visited every viable site. Mention must be made of the invaluable assistance of the VicRoads archive section. Gradually we filled in the gaps for every location. A book has evolved with a chapter dedicated to each major project. The fun part was the discovery process, starting with a few vague images and gradually unravelling appreciating and understanding the life of each project.



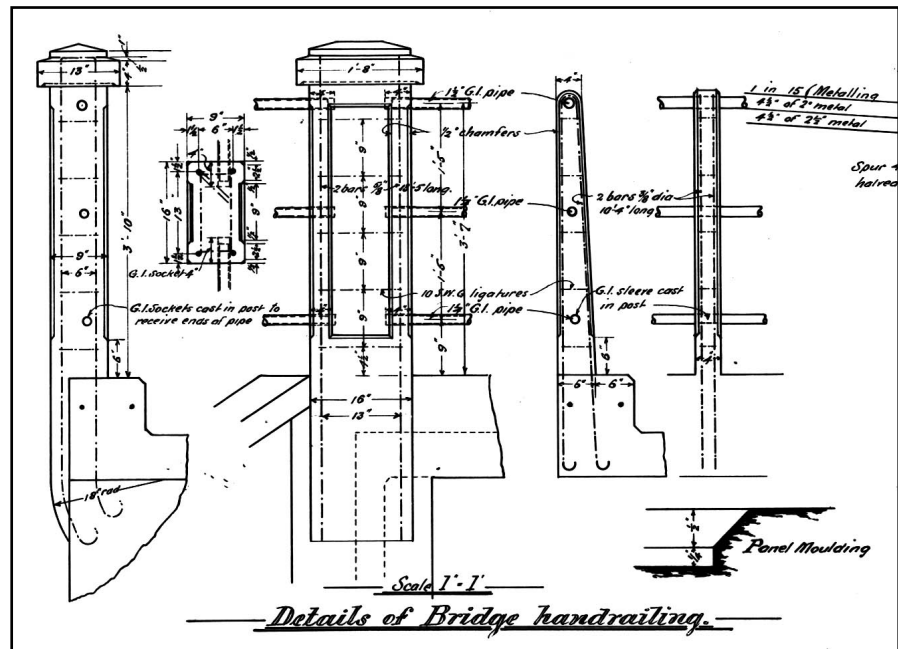
"Waverley Road, Malvern" but what, where and when?

Original drawings were beautiful examples of drafting, often well detailed but sometimes lacking in key technical information such as joint placement. In the 1920's you had to be concise, documentation was expensive to produce and replicate. A major bridge would be built from three or four drawings.

My Grandfather grew up in Ballarat in the immediate aftermath of the gold rush and trained, somewhat over optimistically as it turned out, as a mine manager. He missed the gold rush but was in the right place at the right time for the bridge boom. In the 1920s early timber bridges were giving way

to the latest technology reinforced concrete structures to serve the new-fangled and equally exciting motor vehicles. Victoria's first reinforced concrete bridge was the Morell, (originally Anderson Street), bridge, at the north end of Anderson Street in South Yarra. The engineers were Monash and Anderson, construction was by Carter and Gummow. Work was completed in 1899. After that, the rush was on.

The first major reinforced concrete bridge built by Harold Irwin was the Mordialloc creek crossing of the Nepean Highway. Opened in 1919 it replacing a shaky old timber bridge. It was demolished in 2008. I inspected the bridge in 2007, the piles had suffered but most of the original concrete work was in surprisingly good condition. This was a difficult construction with deep piles and pile caps on the stream bed. Below we see the finished job, photographed by Harold from the balcony of the pub, which still stands.



Original Drawings, nice drafting but minimal engineering content



1919 Mordialloc Bridge

Technical difficulties meant money was lost at Mordialloc. Harold was pushed to a creditors meeting where agreement was reached to trade on and trade out. Trade on he did, throwing up bridges all over the countryside. Unbeknown to Harold at the time, he developed a knack of choosing bridges later obliterated by road works. The Hume Highway crossing at Violet Town in 1921, destroyed in 1976 when the freeway went through. The Reynards Road, Coburg crossing of the Merri Creek, built in 1922, destroyed in the 1960's when the Tullamarine Freeway went in. In 1923 he built the Midland Highway bridge at Clarendon, just south of Buninyong. This was replaced by a culvert in the 1980s. 1924 saw the construction of the Waverley Road crossing of Scotchman's Creek in Malvern; buried when the Monash freeway crossing was built in the 1980's.

In 1925 he finally picked a stayer, the Pyrenees Highway bridge over the Tullaroop Creek (or Deep Creek if you're a local) at Carisbrook some 7km east of Maryborough in Western Victoria. Below we see the bridge as he left it and today. Although widened, all of Harold's original work survives except the railings.



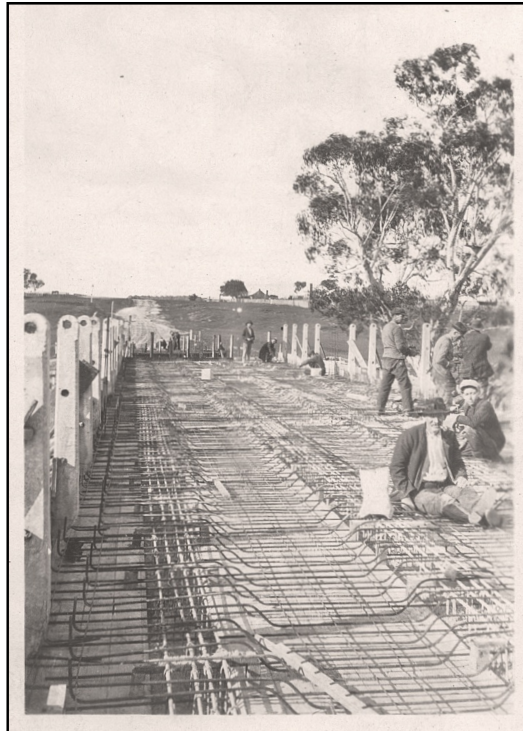
Carisbrook Bridge 1925 and 2016

Images of works in progress capture the difficulties of construction in stream, below, and the horrendous labour intensity of concrete works before mechanisation. There were at least ten timber barrows of concrete to handle for every cubic metre placed. Pours were slow and plagued by cold joints

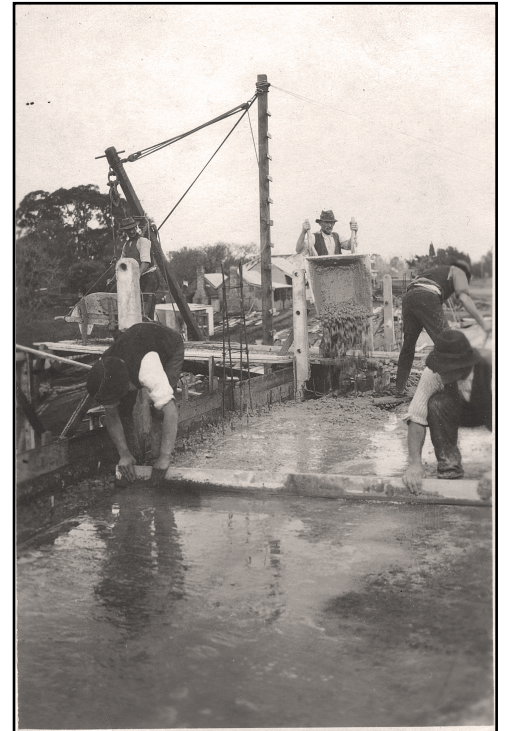
There was no chance of an OH&S problem as there was no OH&S. Despite this, as far as we know there were no significant accidents on Harold's sites.



In Stream Pile Head Works, pre OH&S



Steel Fixers' Picnic



Concrete handling the hard way

Today at Carisbrook, the original work is easy to see. The quality of the concrete has stood the test of time. Locally won materials, marginal rock crushing, and minimal mechanical vibration did not make ideal beginnings for longevity. Surprisingly, little maintenance and restoration has been required. Clearly Harold and his men had a strong ethic of good workmanship.



Carisbrook 2016

Also in 1925 Harold completed the James Patterson Bridge in Charlton, a five-span reinforced concrete bridge on the Calder Highway over the Avoca River 110km north west of Bendigo. This bridge also stands today and has withstood many major floods. Below we see concrete batching for that project.



Concrete mixing 20s Style

My grandfather was a pioneer, of construction, and of concrete technology. He had a keen sense of opening up the country and of its possibilities and a genuine love of the Australian countryside, its flora and fauna. How he and his men endured the site conditions and how on earth he ran the projects without even a viable office can only be wondered at. A great deal must have been simply done on trust. It's just as well that pioneering only has to be done once, I'm not sure we'd be up for it again.



James Patterson Bridge, Charlton, 2010. Original work below balustrade

Harold Irwin's projects didn't stop at the bridges recorded in his albums, we have unearthed at least another six bridges, at least one dam, major channels for irrigation in the Wimmera and a major water race in the Rubicon Hydro electric scheme, also in the roaring 20's. Certainly he was a busy man.

Our book "Apart from the Bridges and the Aqueducts" will be available from mid 2017. It promises to be one of the smallest selling and least read books of the year but has been great fun to put together.

Patrick Irwin & Andrew Boak