

# newsletter

## The Unique *Hikitia*

Taranaki Street Wharf is home to one of the grand old ladies of Wellington Harbour. Like many 84-year-olds the aging process and years of hard work have taken their toll on the *Hikitia*. However, work over the last few decades by some faithful admirers has ensured the old girl is well preserved, and will (they hope) continue to have adventures and acquire accolades for some time yet.

The story of this unique, self-propelled, steam-powered, floating crane started in the shipyard of Fleming and Ferguson of Paisley, Scotland. When the *Hikitia*'s construction was complete, the 49-metre-long ship was almost immediately thrust into her first adventure. Given the distance travelled over the three months it took to journey from Scotland to New Zealand, it is not surprising that on many occasions the *Hikitia* and crew endured hazardous conditions. Combined with cramped conditions aboard, this no doubt made the many stops at various ports to stock-up on provisions of coal and other goods, a welcome respite.

The precariousness of the ship during the delivery voyage was not helped by the fact that her 310 tonne crane, constructed by Sir William Arrol and Co. of Glasgow, was mounted prior to the trip. This was an unusual move because most similar vessels, including the *Hikitia*'s Lyttelton-bound twin sister *Rapaki*, deliberately travelled with their cranes stored flat on the deck in order to keep the centre of gravity as low as possible.

Being a utilitarian machine, when the *Hikitia* eventually arrived in Wellington in late 1926 there was none of the fanfare associated with luxury liners. Instead she quickly got down to business, beginning her 60-year career for the Wellington Harbour Board. At the time most of central city Wellington's waterfront was given over to port activities and it was a major regional and national economic portal. The place bustled with machinery, and people; some working, some arriving in or departing from the city, and some just enjoying a spot of sight-seeing.



Rob Wilkinson Dist FIPENZ at the *Hikitia* unveiling.

The *Hikitia* immediately became a common sight amidst the organised commotion of the waterfront. In Māori, *Hikitia* means to lift and steer, perfectly describing the ship's primary function. Because the *Hikitia* could lift 80 tonnes and manoeuvre where wharf-based cranes could not, she immediately became a valuable asset around Wellington Harbour. The ship's main duties involved cargo handling, including items as large as locomotives, but the *Hikitia* was also important when it came to wharf and harbour facility construction and maintenance, and other heavy lifting activities.

On one occasion the *Hikitia* was an unheralded saviour of the Wellington waterfront. With the intensive comings and goings of troops and military equipment during World War Two, the *Hikitia* was immensely busy. The presence of munitions aboard supply ships like the United States of

America Marine Corps vessel, *John Davenport*, heightened the danger level of wharf-work. When the *John Davenport* had an on-board fire, the *Hikitia* was involved in the delicate operation of removing its cargo before it had a chance to explode, potentially destroying a significant portion of Wellington's waterfront. This was all part of a day's work for the *Hikitia*.

By the 1960s shipping and cargo handling was changing. Technological innovations and the shift to using container vessels in the mid-to-late-twentieth Century meant there was a gradual move away from the use of floating cranes. At that time, although Wellington now handled nearly four million tonnes of cargo and was the second busiest port in New Zealand, the *Hikitia* was now only required on a part-time basis. This was better than nothing though, at a time when many of her counterparts had become redundant.

It was during this period that the *Hikitia* was employed on one of the most sombre jobs of her career. She played a key role in the *Wahine* salvage operation, after the interisland ferry tragically foundered and sank as a result of damage sustained entering Wellington Harbour on 10 April 1968, resulting in the deaths of over 50 people.

The *Hikitia* could easily have followed the wreckage of the *Wahine* to the scrap yard. However, a critical aspect of her longevity is that when her time with the Harbour Board came to an end in the mid-1980s she was purchased by people who were determined to make sure she continued to function and work. In this respect it is noteworthy that while heritage objects and places continue to



*The Hikitia unveiling, December 2010.*

be useful they have a greater likelihood of survival. This seems to have been recognised by Bob and Mary Box, and John and Joy Ackrill, who took over ownership of the *Hikitia* in 1990. Avid enthusiasts, they set to work on maintaining and preserving the ship. Their efforts meant the *Hikitia* was able to continue to function, thus funding her on-going costs.

Current owners, the Maritime Heritage Trust of Wellington, continue the Box and Ackrill philosophy. A committed team of volunteers is commonly seen clambering around the vessel on most Saturdays, and in 2009 several of them had an adventure when the *Hikitia* left Wellington Harbour for the first time in 83 years. This trip to the Lyttelton dry-dock was to give the *Hikitia* a facelift and overhaul. This, as well as general on-going maintenance, is a way of further prolonging the *Hikitia*'s twilight years. She is now the oldest remaining self-propelled, still operable, floating crane in the world.

The special place the *Hikitia* holds in Wellington is evident through the generous funding of the 2009 Lyttelton project from various local, commercial, community, and charitable organisations, to the tune of over three-quarters of a million dollars. It was also in 2009 that IPENZ acknowledged the ship's outstanding engineering heritage significance by entering it into the Engineering Heritage Register. A plaque acknowledging this has subsequently been erected and placed on board for all to see.

A remnant of the a by-gone era, the *Hikitia* is far from obsolete due to the efforts of dedicated people who have successfully worked to preserve it by keeping it working.

**By Karen Astwood, Heritage Advisor, IPENZ**

## Historic Places in Christchurch

The New Zealand Historic Places Trust is working with the Christchurch City Councils to provide advice about damage to historic buildings and structures and character homes. Many buildings that appear to have sustained considerable damage can, in fact, be repaired. Building owners should seek appropriate professional advice. There should be no unnecessary clearing or removal of heritage buildings or structures. Read more on the NZHPT website.

[www.historic.org.nz/en/ProtectingOurHeritage/FAQs-Earthquake.aspx](http://www.historic.org.nz/en/ProtectingOurHeritage/FAQs-Earthquake.aspx)

## Mechanical engineering history

The Institution of Mechanical Engineers in the United Kingdom has a fascinating website where you can learn about Mechanical Engineers who have made their mark on history. You can also see a timeline noting key mechanical engineering advances starting with the first boats in 6000 BCE

[www.heritage.imeche.org/peoplevents](http://www.heritage.imeche.org/peoplevents)

## engineering heritage books

The Book Depository is an online store with a wide range of hard to find engineering heritage books available at a reasonable price. The website is based in the United Kingdom but delivery to New Zealand is free and swift.

Featured books include *Victorian Engineering* by LTC Rolt, Alexander Nimmo, *Master Engineer* by Noel P Wilkins and *Impossible Engineering: Technology and Territoriality on the Canal Du Midi* by Chandra Mukerji.

[www.bookdepository.co.uk](http://www.bookdepository.co.uk)

## Econometric computer

New Zealand economist Bill Phillips invented the MONIAC econometric computer in the late 1940s as a way of demonstrating macro economy to his students at the London School of Economics. He built the prototype for around £400, including parts scavenged from a Lancaster bomber. It's on display at the Reserve Bank Museum in Wellington – learn more about it on the Reserve Bank website

[www.rbnzmuseum.govt.nz/activities/moniac/introduction.aspx](http://www.rbnzmuseum.govt.nz/activities/moniac/introduction.aspx)

## Ashburton Mill Fire

News of a fire at an historic Ashburton mill

[www.stuff.co.nz/national/4667920/Blaze-hits-historic-Ashburton-mill](http://www.stuff.co.nz/national/4667920/Blaze-hits-historic-Ashburton-mill)

## Hayes Engineering Open Day

**When:** 24 April, 9am–5pm

**Where:** Hayes Road (off Ida Valley-Omakau Road), Oturehua

**Cost:** \$12 per person for fully guided demonstrations and tours through the Works and the house.

Come and experience Hayes Engineering Works in fully operational mode at the open day. The machinery at the Works will be demonstrated periodically throughout the day.

Walk through the factory to learn more about the entrepreneurial Ernest Hayes and his wife, Hannah. Appreciate the ingenuity that went into many of the inventions that are so familiar in agriculture today – from wire strainers to windmills. Then tour through the renovated homestead with its own fascinating stories. Refreshments are available in our cafe, or bring your own picnic to enjoy in the grounds. Perhaps pick up a souvenir. Plenty of parking for cars and cyclists!



## Mokopeka Hydro-Electric Station

The earliest hydropower scheme in the North Island is being brought back into working condition.

Recently I visited Mason Chambers who lives not far from Havelock North and he showed me the hydropower scheme his grandfather built in about 1890. The scheme was overhauled and upgraded around 1920 and was shut down about 10 years ago. Mason wants to get it going again and is looking for funds.

Honoured with an IPENZ plaque in 1990, the scheme consists of a small weir and intake followed by about 300 metres of canal. At the power station there is a screen and a bypass. The turbine is an open flume Francis turbine driving a generator rated at 20 kilowatts. It is a direct current generator generating at 120 volts (V). I inspected the whole scheme and decided it would not be particularly difficult to get it going again. The power could be used in local housing at 120V for heating (it is already wired up for this) or it could be converted to single-phase or three-phase alternating current power using a solid-state converter.

There is also a radiant heater that was made using an enamelled dish and resistance wire, and a motor that originally drove what was probably the first electric shearing machine in New Zealand. All these were invented and made by Mason's grandfather. There are also some very ingenious protective devices using magnets, pieces of wood and a domestic switch. All the equipment appears to be in good condition and has been reasonably well looked after. Apart from some rot, the power station is still quite good condition.

Mason is currently looking for funds to bring it back into service. I was able to reassure him that it would not cost as much and some people estimated.

**Bryan Leyland FIPENZ**

*Below: The Mokupeka weir and intake canal.*





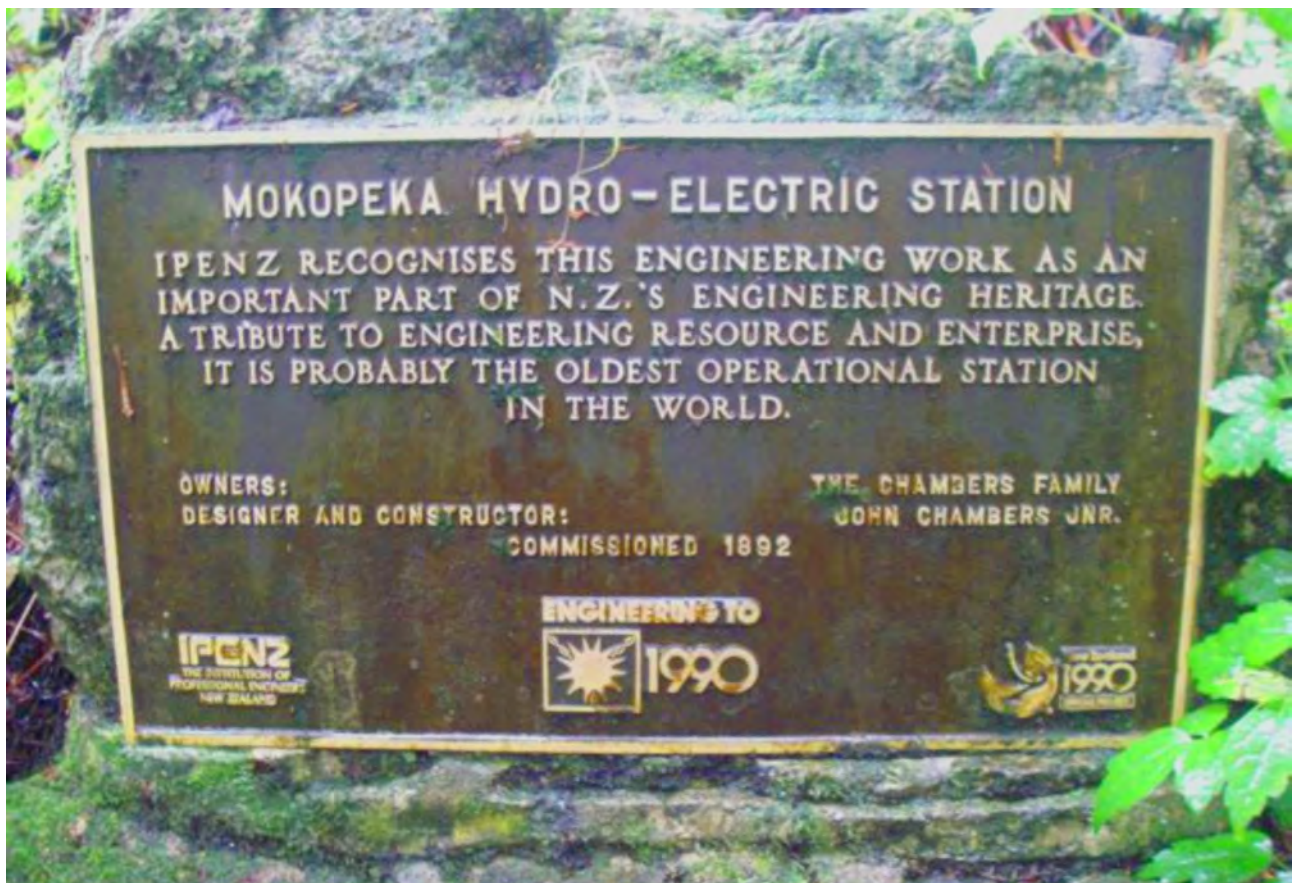


Above left: The generator is driven by a turbine which is hidden under the floor. Above right: The inlet race for the power-house.

Below: The switchboard with three indicating lamps, two undervoltage coils and a series of wooden levers that shut the plant down – all handmade.







*IPENZ plaque commemorating the Mokoepka Hydro-Electric Station.*

### Extract from the Historic Places Trust newsletter

## Partial collapse of a Dunedin building

The partial collapse of one of Dunedin's early commercial buildings on 12 January 2011 has created debate about owner responsibility and the Council's role in assessing potentially unsafe buildings.

The side parapet of the Banks Barron building (pictured) on Rattray Street fell into the roof, causing the front parapet to become unstable. Later that day during deconstruction some of this fell onto the street level verandah which broke off from its supports, causing further damage.



The building's upper floors have been unoccupied for some time but the ground level houses the Dragon Café, which has been there for nearly 50 years. It was closed at the time and fortunately no one was injured.

Engineering contractors CPG New Zealand have been carefully removing pieces of building fabric and storing them nearby in the hope that the building can be reconstructed once stabilised. The New Zealand Historic Places Trust (NZHPT) staff is involved in giving advice to the owner, council and contractors.

The Banks Barron building was nominated for inclusion on the NZHPT Register in May 2009 by local historian David Murray.



## Rob Wilkinson visits Machu Picchu in Peru

In October 2010 Rob Wilkinson Dist FIPENZ visited Machu Picchu in Peru and photographed a plaque that had been presented by the American Society of Civil Engineers in recognition of the superb engineering involved in its construction.



The precision of the Inca and pre-Inca stonework is legendary as the photo below shows. Evidence of the construction process is less easily seen. Stones the height of a man were shaped in the quarry and transported across valleys such as this to the construction site. They were dragged up inclined planes to their final positions. Evidence of this can be seen in the Sacred Valley near Ollytaytambo.





