(McSaveney, 2009a)

The 1855 Wairarapa earthqua

In 1855 a magnitude 8.2 earthquake – the most powerful ever recorded in New Zealand – rocked the southern part of the North Island. Caused by movement along a fault in Palliser Bay, it altered the landscape of the Wellington region and affected its subsequent urban development.

Intensity of the earthquake

The evening of 23 January 1855 was the end of a two-day holiday, the 15th anniversary of Wellington's founding. Shortly after 9 p.m. a violent earthquake began; in Wellington the main shock lasted for at least 50 seconds. People fled outdoors, where they remained for the night in tents and makeshift beds, as incessant aftershocks rocked the area – one person counted 250 in the first 11 hours. The aftershocks would continue for months. For the first day after the main quake, as far away as New Plymouth an almost continuous vibration could be felt by people sitting, or when leaning against walls.

Rebuilding

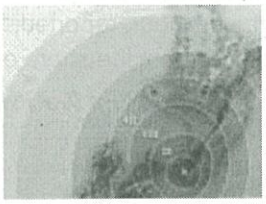
After the 1848 Marlborough earthquake, many Wellington buildings had been rebuilt in wood. Some new commercial premises, however, were constructed of brick because of fire risk. The 1855 earthquake damaged many of these, including the jail and the bank. The local council chambers and adjoining government offices, both two-storey wooden buildings, collapsed. However, single-storey wooden houses survived: although many were damaged by falling brick chimneys, or shifted on their foundations, few collapsed.

Fatalities

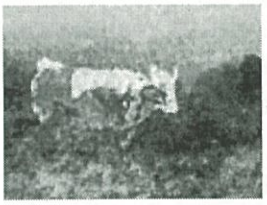
The number of fatalities caused by the earthquake is estimated at between five and nine. The sole casualty in Wellington was Baron von Alzdorf, who died when a brick chimney in his hotel collapsed. Two people died in a fissure in the Manawatū. In the Wairarapa, several Māori (their reported number varies from two to six), were killed when a whare collapsed. Surprisingly few people were injured.

Effects on land and sea

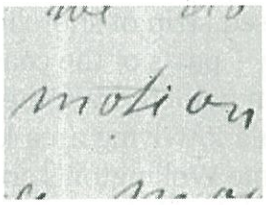
In the Hutt Valley, slips blocked roads and large fissures opened up in the ground. Numerous landslides scarred the slopes of the Rimutaka Range. The earthquake caused a tsunami in Cook Strait and Wellington Harbour; some buildings on Lambton Quay near the shoreline were flooded by tsunami waves.



Extent of shaking, Wairarapa earthquake, 23 January 1855

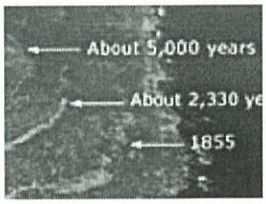


Remembering the 1855 quake



Eyewitness account of the 1855 earthquake

Coastal landslide (1st of 2)



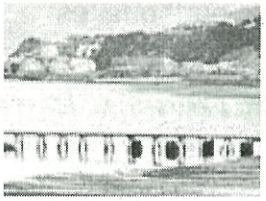
Uplifted storm

The day of the tsunami

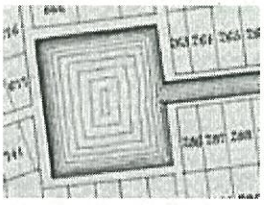
The tsunami caused by the 1855 earthquake had several sources. Water first spilled onto the land because the land west of the Wairarapa Fault shifted abruptly north-east. Next, because Wellington's harbour was raised more on the eastern than on the western side, the harbour waters moved toward the lower side, flooding Lambton Quay.

A tsunami with waves up to 10 metres high was generated in Cook Strait, probably by submarine uplift. These waves entered Wellington Harbour and washed back and forth. The commander of the *Pandora*, anchored in the harbour, reported: 'for eight hours ... the tide approached and receded from the shore every 20 minutes, rising from eight to ten feet and receding four feet lower than at spring tide.' [1]

beaches, Turakirae Head



Wellington shoreline after the 1855 earthquake



Plans for Wellington in 1841 (1st of 2)

The cause

The earthquake was caused by movement along at least 140 kilometres of the Wairarapa Fault, along the eastern edge of the Rimutaka Range. About 5,000 square kilometres of land west of the fault was lifted up and tilted. The southern end of the Rimutaka Range rose by over 6 metres, but the uplift decreased westward to near zero along the west coast of the Wellington peninsula. Across Cook Strait, the seaward end of the Wairau valley subsided over a metre. Land also shifted over 18 metres horizontally along the Wairarapa Fault.

Changes to the landscape

The uplift created a new fringe of beach and rock platforms along the Wellington coast. Many jetties in Wellington Harbour became unusable, but there were also beneficial effects. Blocks of the city's central business district now occupy land that was below sea level before 1855. The newly exposed strip of shoreline between Wellington and the Hutt Valley offered a safe road and railway route – parts of the coastal road had previously been impassable at high tide. The uplift of the region helped drain the swampy lower reaches of the Hutt Valley. Commerce lost but sports gained when a low-lying area known as the Basin Reserve, originally proposed as a shipping basin, instead became Wellington's cricket grounds.

Aftermath

While memories of the 1848 and 1855 earthquakes were fresh, most of the new buildings in Wellington were constructed of wood. The old Government Buildings, opened in 1876, is one of the most impressive wooden structures of this period, with a facade imitating a classical European stone building.

However, it took only 25–30 years for awareness of building safety to fade. Masonry construction gradually returned, encouraged by city council regulations for fire resistance. By the beginning of the 20th century the earthquake hazard was largely discounted, and between 1913 and 1926 the *New Zealand Official Yearbook* included the comment that 'earthquakes in New Zealand are rather a matter of scientific interest than a subject for alarm'.

Footnotes

1. Quoted in Rodney Grapes and Gaye Downes, 'The 1855 Wairarapa, New Zealand, earthquake – analysis of historical data.' *Bulletin of the New Zealand National Society for Earthquake Engineering*

30, no. 4 (1997): 339, 360. › Back

Biographies

Montague Ongley, 1888–1976

Harold William Wellman, 1909–1999

How to cite this page: Eileen McSaveney. 'Historic earthquakes - The 1855 Wairarapa earthquake', Te Ara - the Encyclopedia of New Zealand, updated 2-Mar-09
URL: http://www.TeAra.govt.nz/en/historic-earthquakes/3