



## THE FATAL ACCIDENT IN OTIRA TUNNEL. .

### **Stephen WOOD, killed during construction of the Otira Tunnel**

Before 1864 Maori travelled through the Bealey and Otira valleys on their journeys to Westland in search of greenstone though they chose a less steep route, often through the Harper Pass, for the return journey. Arthur's Pass is 920 metres above sea level, and there is a steep descent to Otira in the west.

Arthur's Pass is named after Arthur Dudley Dobson, an explorer/surveyor who discovered the pass in 1864. In 1865 a tent camp was set up for surveyors to prepare for the construction of the road to the West Coast where gold had been discovered in 1864.

In 1866 the road was opened for coach traffic, and Cobb and Co coaches began to take passengers and mail over this hazardous road. The coaches set out from Christchurch, crossing the unbridged Waimakariri River, following the Bealey River up to the Arthur's Pass Village, climbing to the top of the Pass, descending through the Otira Gorge to the village of Otira, and then continuing to Hokitika. The journey took thirty six hours with an overnight stop at Bealey.

In 1901 the Arthur's Pass National Park was established on the suggestion of Dr Leonard Cockayne. 72,000 hectares around the headwaters of the Waimakariri, Arthur's Pass and Otira were reserved for national park purposes under the provisions of the Land Act 1892. It was New Zealand's third National Park and now encompasses an area of 114.000 hectares.

In 1883 a Royal Commission had decided that the Arthur's Pass route was the best for the railway to link the east and west coasts. The New Zealand Midland Railway Company was formed to build the railway from Springfield in the east to Brunner in the west. The engineering difficulties were so great that the company could not complete its contract and the Government took over the construction of the railway. The railway from Christchurch finally reached Arthur's Pass in 1915.

In 1900 a committee of engineers recommended that the best way to link Arthur's Pass to Otira was by a tunnel with the eastern terminal in the valley of the Bealey River (2,435 feet above sea level) and the western terminal in the valley of the Rolleston River (1585 feet above sea level). This meant a fall of 850 feet from east to west - a grade of 1 in 33. Planning continued until 1907 and the accuracy of those plans was demonstrated by the final results.

Work began at the Otira end in 1908, but the private firm of contractors like the Midland Railway Company found that they could not finish the work at the tender price of nearly £600,000 and once again the Government took over the contract. The Public Works Department took over the work and despite the delays caused by shortages of skilled workers and materials during World War I the workers from east and west were finally able to shake hands on 20 July, 1918. It was then found that the difference between the actual tunnel length of five and a quarter miles, and what had been calculated was only 36 inches, the difference in level was only 1.125 inches, and the difference in direction was only 0.75 inches. The planners and tunnel gangs had done their job with impressive skill.

Engineers had to overcome a range of problems during the construction of the tunnel. The rock was so hard that it was difficult to harden the drill bits enough for them to be used without breaking. Timbering was needed to prevent rock falls during the use of explosives. The explosives produced fine stone dust so a constant stream of water had to be used to wash the drilling sites clear of dust so that the workers did not breathe it in. Ventilation in the tunnel was ensured by suction of impure air from the work site through a sixteen inch steel pipe.

Water had to be pumped out on the eastern side of the tunnel, which slowed progress from that side. A power supply for the pumps was obtained by the construction of a powerhouse harnessing the water from the Devil's Punchbowl waterfall - 131 metres high. As the water supply is not constant because of freezing temperatures in the winter and low stream levels in the summer the engineers decided to use coal and build steel turbines to produce the electricity at Otira for the engines that were used to haul trains through the tunnel.

The tunnel opened on 4 August 1923.

There was only one fatality during the whole of the construction period.

GREYMOUTH, July 17, 1911

The District Coroner to-day investigated the circumstances surrounding the death of Stephen Wood, an electrical engineer who died as the result of injuries sustained in the Bealey end of the Otira tunnel on June 22<sup>nd</sup>, 1911.

He recorded the following verdict:—"The deceased died at the Grey River Hospital on 10th July, 1911, the cause of death being nervous exhaustion resulting from combined anaemia, shock, and grief at the contemplated loss of his left arm, which on the 22nd of June had been seriously injured by being caught in some wheels in the machinery of an electric motor pump in the Otira tunnel.

I am of the opinion from the evidence before me that one of the contributing causes of the accident was that the said cog wheels were not guarded, and were dangerous to the workmen at the pumps and working in the tunnel, and that if the said cogs had been properly guarded the accident could not have happened."

In Dunedin's Northern Cemetery stands a headstone which is inscribed "Erected by John McLean and sons, Contractors, and the tunnel workers of the Otira Tunnel in memory of Stephen Wood electrical engineer.....aged 23"

From the rest of the inscription it is fair to assume that he was a single man with no relatives living in New Zealand.

Prepared for the Historic Cemeteries Conservation Trust of New Zealand ([www.cemeteries.org.nz](http://www.cemeteries.org.nz))  
from Paperspast website *Christchurch Press, Volume LXVII, Issue 14098, 18 July 1911, Page 8*