

Conference explores Nature's Impact on Engineering and Heritage

The challenges nature is throwing at engineering and heritage are becoming increasingly apparent in light of recent events in New Zealand's history. In late 2014, engineers, heritage professionals, council representatives and others interested in exploring nature's impact on engineering and heritage gathered in Canterbury for the 4th Australasian Engineering Heritage Conference.

The first Australasian Engineering Heritage Conference, in 1994, was held in Christchurch. Holding the 2014 conference at Lincoln University, Canterbury, was timely given the region was three years into its post-earthquake recovery. The conference also had special significance as it was one of the culminating events of IPENZ's centenary year.

Keynote speaker John Trowsdale presented an excellent opening paper on the rebuilding and strengthening of the Christchurch Arts Centre. John's paper perfectly summed up the conference's theme, "Engineering, Heritage and Nature: Finding the Right Balance". He demonstrated the scale and ongoing process of weighing up practical engineering solutions, cost and heritage issues. As he described, this is a day-to-day challenge for his team at Holmes Consulting Group, who are rebuilding a landmark Christchurch heritage site in what's currently one of the world's largest heritage restoration and strengthening programmes. A post-conference tour gave delegates the chance to see the Arts Centre work first-hand.



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It was great to hear from Dr Glen Koorey and two groups of students from the University of Canterbury's School of Engineering. They spoke about a new course which prompts the next generation of engineers to critically review and assess historic engineering failures, and to consider more than just technical aspects by investigating issues like environmental, procedural and regulatory shortcomings.

Guest speaker Paul Mahoney from the Department of Conservation provided an overview of New Zealand's engineering and industrial heritage preservation as it unfolded in the early 20th century. He also presented research he and Colin Zeff, a mechanical engineering consultant, carried out into the processing of native timber, one of our main natural resources. Their research on sawmill engineering won the best paper award.

Other papers looked at historical and potential future natural hazards and engineering responses, earthquake strengthening and restoration of heritage structures. Also discussed were local government and Heritage New Zealand approaches to natural risks and the engineering implications, protecting engineering heritage from environmental degradation and how engineers have overcome the challenges of the Australian and New Zealand landscapes.

The lead-up to the conference saw a group of delegates and their partners, mostly from Australia, spend an enjoyable four days touring the middle and upper South Island, taking in sites of engineering and industrial heritage such as the Midland Railway, Otira Viaduct, Brunner Mine, Denniston Incline and Mine and the Pelorus Bridge.

The post-conference tour, in contrast, was geographically restricted to central Christchurch. Aside from the Arts Centre, delegates also had the choice of seeing the Avon River Bridge rehabilitation projects discussed in the paper by Mark Hedley and Dean Bennett of Downer New Zealand Ltd, and other earthquake recovery projects such as Christ's College and the Isaac Theatre Royal.



The conference attracted an inter-disciplinary group who enjoyed the collegiality and networking opportunities it offered. In one session, two participants discovered they had both been examining the same heritage building on Banks Peninsula from different perspectives. Neither had known about the fabric investigation and engineering solutions work of the other and both were keen to get together after the session and share their knowledge. Chance happenings such as these are a sign of a successful, interesting and useful conference.

The conference papers will be publically available through IPENZ's Engineering Heritage website in early 2015.