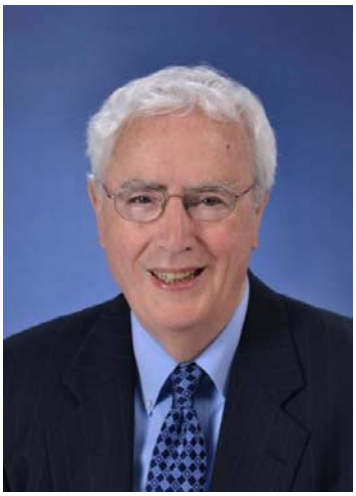
Reminiscence

Prof. W. D. Liam Finn



Professor W.D.L. Finn has been for many years Professor of Civil Engineering at the University of British Columbia, Canada, where he has also been Head of the Department of Civil Engineering and Dean of Applied Science. He has made significant contributions to the development of soil dynamics and to the mitigation of seismic and liquefaction disasters all over the world. This interview was made during the Seventh International Conference on Case Histories in Geotechnical Engineering in May, 2013, that was organized by Prof. Shamsher Prakash in Wheeling, Illinois, USA.

RECENT ACTIVITIES

Prof. Finn's most important activity in the recent times has been the seismic retrofitting of school buildings in British Columbia. This is a 15-year project with initial funding of $1.5 billion that attempts to ensure life safety in schools for students during an earthquake. Cost-effective retrofitting is a very significant issue and the program relies on seismic performance-based design to achieve its goals. The standard of satisfactory performance is that the probability of school collapse should be less than 2% in 50 years. School buildings were classified into 32 generic types with up to 3 floors. The performance of each generic type was assessed by nonlinear dynamic analysis for 30 different earthquake motions representing crustal, sub-crustal and subduction motions and for a variety of soil conditions. In all 9 million analyses were conducted. The results of the analyses were assembled into a data base that can be accessed by a web-based "seismic analyzer". The designer does not have to conduct any nonlinear analyses. He can get all significant retrofit data from the analyzer. This approach speeds up the retrofit process and achieves uniform level of seismic resilience for the buildings. Professor Finn has received 3 provincial and 2 national awards for his work on the schools project.

BEST MEMORY IN GEOTECHNICAL CAREER

In early 1990s Prof. Finn investigated the seismic damage of levees of the Kushiro River in Hokkaido, Japan. Being situated on peaty subsoil, the Kushiro River levee was heavily damaged by liquefaction during the 1993 Kushiro-oki earthquake and unexpectedly many months were spent on their remediation. Prof. Finn studied the prioritization of remediation. He was interested in the correlation between the levee height and the thickness of liquefiable subsoil as well as that of the unliquefiable surface crust, and a later study by Japanese engineers showed a wonderful agreement between his prediction and reality.

In 2000s, Prof. Finn was a professor of Kagawa University in Takamatsu, Japan, for 5 years and worked as the chairman of TC4 of ISSMGE on earthquake problems. He has very fond memories of this city and, in particular, loves the Ritsurin Park. Some information on this park is available in the appendix of this article.

Reminiscence (Continued)

ADVICES TO THE YOUNGER GENERATIONS

The behavior of soil is very complicated. Laboratory work is a very good opportunity to learn the real behavior of soils so that the oversimplification of soil behavior may be avoided in numerical analyses. The complication in soil behavior is exemplified by simple shear tests in the laboratory and vane shear tests in the field that gave substantially different shear strengths from each other. It is therefore very important to keep asking questions whether or not what you are doing is best.

Many people rely heavily on advanced numerical analyses. However, according to his experiences, on a number of occasions when the same dam was analyzed by two different codes totally different results were obtained. We should bear in mind, therefore, that there is no perfect computer code in the world and that we should always run more than one code when there is a major potential hazard to the public.

He has been always excited by geotechnical earthquake engineering because, being different from structural dynamics, this field of study does not have a "standard" code of practice. This frees the engineer to innovate and innovation drives the evolution of geotechnical engineering. Geotechnical statistics should be used with caution because the geotechnical universe is never uniform and each site needs to be considered on its merits.

In 1960s and 70s when geotechnical engineering made a significant development towards its modern shape, many important papers were published. Young people should read them to understand the evolution of geotechnical engineering and to put current practice into perspective.

APPENDIX Ritsurin Park in Takamatsu

As is well known, Prof. Finn has a deep interest in historical and cultural issues. In the City of Takamatsu (Fig. 1) he was enchanted by a beautiful Ritsurin Park. The local lords of the Takamatsu area spent nearly 100 years in the 17th Century on construction of this park. This park is intended to reproduce the ideal (and possibly imaginary) beauty of nature by constructing six lakes and 13 mountains. The Chief Editor of the Bulletin would like to mention the black-and-white landscape painting by Mu Xi (牧谿) of Sung Dynasty of China as one of the possible origins of this idea of beauty. The Editor visited the park on July 12th, 2013, to take photographs. Some of them are presented in what follows.

Fig. 1 Location of Takamatsu City

Photo 1 Southern Lake and Little Cuckoo Island (杜鵑嶼)

Reminiscence (Continued)

Photo 2 Scooping-the-Moon House (掬月亭)

Photo 3 Scooping-the-Moon House seen under Crescent Bridge (偃月橋)

Photo 4 Imperfection in bridges made by minor dislocation from straight configuration

Photo 5 Imperfection is one of the essences of Far Eastern idea of beauty (Raft-in-Harbor Bridge 津筏梁 crossing the Pond of Sleeping Dragon 睡竜潭)

Photo 6 Pavilion of fragrant wind (香風亭) under trees beyound a lotus pond

Photo 7 Colorful carp fishes under lotus leaves