



The Challenge

THE NEWSLETTER OF THE WESTERN CANADA GROUP OF CHARTERED ENGINEERS

Message from the Chairman



As I am writing this message I can see out my window that the snow that started falling over Vancouver last night is still falling. This is unusual as it is still November but is a reminder that 2005 is coming

to a close along with the WCGCE year which runs January to December.

This early snow is in keeping, however, with what seemed to be an unusual and notable year for natural disasters around the world and locally, including the Tsunami disaster, the local North Vancouver mudslide and Hurricane Katrina.

The monthly technical presentations organized by the WCGCE are a significant portion of the WCGCE activities. As usual, Michael Thornley, the Group's technical program coordinator, was able to obtain a number of excellent speakers this year. With natural disasters being on people's mind this year, Michael was able to arrange for David Smith, PEng, of Thurber Engineering Ltd. to speak on local mudslide and landslide risks, and for Duncan Wyllie, PEng, a specialist in rock slope engineering and rock mechanics, to speak on his many assignments around the world. In particular he spoke on highway tunneling and rock fall sheds engineering method currently being employed in California and Japan.

In addition to hearing about the engineering aspects of natural hazards, November's

speaker was Tim Armstrong, Task Force Leader of the Vancouver Search & rescue Team. Forty six members of this highly specialized team arrived in Louisiana days after Hurricane Katrina struck, providing some of the first relief to the area. The first hand account of the speaker brought to life the devastation in the area.

Moving along, Bob Martin, Honorary Secretary, was invited earlier this year to attend a meeting of the IMechE California Branch in San Jose to discuss the formation of a joint Institution Group similar to the WCGCE. The meeting coincided with a visit from the President, Andrew Ives, and CEO, Sir Michael Moore, of the IMechE. Bob Martin presented an outline of the operation of the WCGCE to those attending. A board of governors was elected and Bob Martin will act as an advisor to the new group.

During August, the President, Mike Fordyce, and CEO, Dr. Keith Eaton, of the Institution of Structural Engineers visited Vancouver as part of a tour of North America. Business in-

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cluded discussing arrangements with engineering organizations and regulatory boards. While in Vancouver the delegation met with local members of the IStructE and the WCGCE. Vice-Chairman David Harvey put much effort into making arrangements and entertaining the visitors while here in Vancouver.

During October, committee and IEE member Ian Price attended an IEE North American Forum held in Ottawa, Ontario. One topic of discussion was provisions for adequate and reasonably priced insurance for IEE groups operating in North America.

As a reminder, the AGM and Dinner Dance will take place late January in Vancouver. If you wish to join the committee, either contact Ian Price, or attend the AGM for nomination from the floor. Details of the AGM and Dinner Dance can be found in this newsletter.

Best Wishes for the New Year,

James Canova, (MIMechE, CEng, PEng)

WCGCE Chairman, 2005

Message from the Editor

I would like to thank everyone who has contributed reports on our technical meetings and other activities.

If you wish to contribute a report on a technical event, an article or an announcement, please contact me; my contact details are listed below.

Chris Richardson, C.Eng., MIEE.

email: backwater@telus.net tel: (604) 879-9980

Technical Program Notes

Grow Ops

June, 2005

The Program was a visit by Captain Martin Ernst of the West Vancouver Fire Department, who supervises the fire inspectors who investigate grow-ops. He spoke on the ongoing problem of Marijuana grow-ops and Crystal Methamphetamine Labs, both from a health and safety point of view. He illustrated his talk with a power point presentation showing pictures of grow-ops and the

resulting damage to the structures from the fungus growth caused by the high humidity to grow the plants. The very hot high intensity lighting that is used to force the plants to early maturity also results in frequent fires. Very often the building has to be torn down and rebuilt after a grow-op has moved on. The ongoing battle is not assisted by the very soft penalties given by the Justice Department to those found to be involved. Yet there is great danger to the investigators whether police or firemen as often the building is booby trapped to prevent break-ins by those wanting to grab the crop and sell it for themselves without doing any of the work. Loaded crossbows and bombs are some of the surprises the investigators have to look out for. The owners of the buildings are often unaware that there is a grow op in the building they have rented, as often the renters will pay up to a years rent in advance to reduce the need for the owner to visit the building. Owners are strongly advised to write into their rental agreement a stipulation that the owner can visit the building on a monthly basis and view any part of the building. As a crop needs 9 months to mature this often puts off the growers and they move elsewhere.

In the case of the Methamphetamine Lab, there is great danger from the chemicals used to render down the base ingredients that are used to make the product. In this case the operation can be concealed in a very small space and frequently a van is converted to a lab. The great danger to the public from this type of operation is the disposal of the waste products which are usually just dumped down the drains. In the case of the mobile units they often just pour it out of the moving vehicle which then pollutes any vehicle following them. The investigators have to be fitted out with full hazard suits and be sprayed down with clean water after removing the illegal equipment.

Some of the indicators that people should watch out for is a building with very few people coming and going and large time gaps between visits, which are often at night. If anyone suspects an illegal operation they should call 911 and ask for the fire department, as the fire inspectors can make a safety inspection which does not require a search warrant that would be required by the police.

Often the electrical service meter is bypassed so that the meter reader will not notice a very large consumption being used to operate the grow lights, and of course the growers don't pay for the power. There is a need for Hydro to become more active in finding these illegal operators.

Captain Ernst was asked many questions and the audience, of about 20 members and guests, were impressed and dismayed by the information in his presentation.

Andrzej Nawrocki thanked the speaker and presented him with one of our coveted umbrellas.

Report by Bob Martin

Inspection of the Phonebox—July 2005



The "phonebox" inspection took place on Saturday 23rd July 2005 on a beautiful sunny day.

It was duly inspected by the various professions and found to be in good order.

Some excellent handmade beverages were evaluated.

After the BBQ deserts were offered with whipped cream, spiced by some of the best Scotland has to offer. Production Control was excellent – we never ran short and none were left over.

A vote of thanks and appreciation for our host and hostess Ian and Jane Price for their hospitality, their dedicated efforts to preserve England's heritage edifice, their generosity in keeping it available to WCGCE so we can periodically reunite with our souls, and their gracious introducing of Sassenachs to the best Scotland has to offer.

Report by Chris Richardson

VICTORIA VISIT — September, 2005

On Saturday September 10th members of WCGCE and their guests from both the lower mainland and Vancouver Island met in the parking lot of the British Columbia Aviation Museum at Sidney Airport for a trip back



BCAM Society Volunteer Bill Caldere (second from right) with committee members

in time in the world of aviation.

We were met by an eclectic group of volunteers who escorted us through their museum.

What a trip it was. They had bush planes, fighters and bombers from both world wars and an Orenda gas turbine engine from the Avro Arrow.

Memorabilia of the RCAF including log books and radio sets as used by the air traffic control in the forties.

The work of these volunteers is ongoing with several aircraft restoration projects in progress.

After the visit everyone repaired to Dunsmuir Lodge for lunch, and a chance for mainland and Island members to reconnect.

The official portion of the visit concluded, many Vancouver members visited the Crow and Gate for supper en route to the Naniamo ferry home.

Report by Chris Richardson

HIGHWAY TUNNELS

October, 2005



The technical presentation was by Duncan Wyllie, P. Eng titled Highway Tunnel Design in Seismic Terrain.

Mr. Wyllie outlined with many illustrations the various criteria required to be evaluated in the design of 2 tunnels in California near San Francisco. He outlined the required space requirement to provide clearance for the vehicles and also the additional clearance on either side to allow vehicles to pull over if there were problems with them continuing through the tunnel.

The excavation of the tunnel could be done by various means such as drilling and blasting to using a boring machine to cut through the



South Portal of Devil's Slide San Francisco

material of the tunnel.

Finishing the tunnel required research into the best way to handle ground water and to provide stability in the event of an earthquake occurring in the area.

Most tunnels have a membrane to leach the ground water to drains and this in turn is covered by a smooth finish of Shot-Crete. Other items that have to be carefully designed are the cross passages between the two tunnels where each tunnel is designated for one direction of traffic. These passages have to be adequate to handle the people in vehicles involved in any accident or fire in the tunnel and allow easy egress from the danger area. He also discussed rock sheds to shelter highways in steep unreliable terrain where rock and mud slides are frequent. He showed illustrations of some of the practices in Japan where many of these structures have been built. The presentation was well received and a number of questions were answered and design criteria discussed.

James Canova thanked the speaker and gave him one of our coveted umbrellas which shows the WCGCE Logo and Name.

Report by Bob Martin

HURRICANE KATRINA AFTERMATH

November, 2005

The technical presentation was by Tim Armstrong, Task Force Leader of the Canada Task Force One. This is a 46 member Vancouver Search and Rescue Team which flew to New Orleans, Louisiana, after hurricane



Katrina struck the Gulf Coast.

They were the first rescue team to reach St. Bernard's Parish and they managed to rescue some 119 people in the 6 days they were there. The Team is United Nations certified and is the only Canadian team to be so certified.

The initial arrangements were started as soon

as they heard of the disaster, but it was several days before the red tape of US customs, the availability of a plane and having to get someone in the States to request their assistance, as they could not go without being invited. The Plane was supplied by Westjet, but they had a limited window of availability.

When they initially planned on going they found that the only available airstrip was not open after midnight. After some phone calls the station manager arranged to open the airport, turn on the landing lights and direct the landing himself. When they landed they could not travel to the site because of sniper fire from buildings and initially could only travel by water. They tried using swamp air boats but they threw up so much of the sewer laden water into the boats that they had to abandon their use and switch to boats with outboards.

They had to provide their own power and were living in tents at the site as there were no buildings that could be used.

There was difficulty in communication as the cell phone towers were gone and the land lines were out of service. When they tried to use the satellite phone the TV crews had locked them up, so they were not accessible.

The team includes firemen, medical doctors and engineers, but none of them were armed and had to rely on the peace officers provided by the Louisiana state police.

Tim used a Power Point program to illustrate his presentation and in it he had a number of photos of the destruction caused by the flooding as a result of the failure of the levies. The citizens of the area were very appreciative of the help provided and very surprised that it was a Canadian Search and Rescue group who were the first to come to their assistance.

Tim explained that their skills and lessons learned are passed on to individuals from other municipalities and Federal organizations.

They have recently hosted and trained an international team from Taiwan.

The Committee Chair James Canova thanked the speaker and presented him with our coveted umbrella.

Report by Bob Martin (with extracts from www.can-ft1.org added by the editor)

Current Activities

IStructE President and Chief Executive visit Vancouver



President Mike Fordyce and his wife, Joan, relax in the Vancouver sunshine.

The Institution of Structural Engineers President, Mike Fordyce, and Chief Executive, Dr. Keith Eaton, were in Vancouver recently as part of a tour of North America. The visitors were meeting with local members and discussing

business arrangements with engineering organizations and regulatory boards. Mike Fordyce hails from Brisbane, Australia, while Keith Eaton and his staff of over 40 run the Institution's headquarters in London, England.

While in Vancouver they met with local members of IStructE, the Division of Structural Engineers, and the Western Canada Group of Chartered Engineers. The DSE organized a meeting at the Blue Horizon Hotel's Garibaldi room, which has stunning views of English Bay and the North Shore mountains. Keith Eaton talked about the international role of the Institution and the value of membership, which Mike Fordyce followed with some spectacular images of a selection of structures which had received Institution Awards in recent years.

The President was able to personally congratulate local structural engineers who passed the 2005 Chartered Membership exam and present new Membership certificates. WCGCE member Peter Buckland was presented with his Fellowship certificate - a rare event as there only a handful of IStructE Fellows in British Columbia. It was an excellent event with 45 attendees and very encouraging to see many local members, as well as some from the Interior, and some from Vancouver Island, turn out to meet the President and learn about the DSE's sponsoring organization.

The following day Mike Fordyce and Keith Eaton met with the President and Executive Director of the Association of Professional Engineers and Geoscientists of British Columbia and senior APEGBC staff. The two organizations signed new working agreements which address mutual recognition of qualifications and use of the Institution's examination for qualifying structural engineers in BC.

Structural engineers love to see construction work, and so the Institution's local representative, David Harvey, took Mike Fordyce and Keith Eaton to the Ministry of Transportation's Sea to Sky Highway project, where the site superintendent showed the visitors over the Test Section, completed in 2004, which recently won the Lieutenant Governor's Award from the Consulting Engineers of British Columbia. They were also able to view ongoing construction work on the adjacent contract for upgrading the highway.

Earlier in the day Mike Fordyce and Keith Eaton met with Buckland and Taylor Ltd to learn about the innovative bridge projects they are carrying out all over the world, and to congratulate Peter Buckland on being awarded his Institution Fellowship. Later the visitors and their wives met with Associated Engineering personnel to discuss David Harvey's role in Institution business as the newly-elected Senior Vice President for the 2005/6 session.

On the weekend Mike Fordyce and Keith Eaton hosted the Western Canada Group of Chartered Engineers Committee to a dinner meeting at the Royal Vancouver Yacht Club, where they provided the latest news from London on the engineering institutions and repeated their earlier presentations. The visitors heard how the WCGCE runs its excellent technical program for the benefit of the local engineering community.

After some local sightseeing with David Harvey, and a splendid farewell dinner, the IStructE party departed for Seattle, the last stop on their tour of North America. They reported that excellent progress had been made, and they had much enjoyed their visit to Vancouver. The contribution made to their visit by the WCGCE Committee was greatly appreciated. The Institution President's next official visit will be in April 2008, the IStructE Centennial Year, to attend the ASCE/SEI Structures Congress in Vancouver

Report by: David Harvey CEng FIPStructE PEng

Upcoming Events

AGM & DINNER DANCE

Will take place on Saturday 28th January 2005. The AGM at 5:30pm, followed by the Dinner Dance at 7pm. **P.T.O.**

AGM & DINNER DANCE (CONTINUED)

See Separate notice mailed with this issue of Challenge.

Contact Alan Kay for tickets at (604) 922-6150 or alankay@shaw.ca

Other Business**IEE NORTH AMERICAN FORUM, OTTAWA, OCTOBER 2005**

After a 5 year hiatus, representatives of the Institution of Electrical Engineers - IEE North American Branches and Joint Groups met in Ottawa to share experience and advise London on desired levels of support for the future wellbeing of the Institution's North American member base.

Agnes Segal, the IEE's Membership/Registration Manager, came from London to brief the Forum on the IEE/IIE (The Institution of Incorporated Engineers) merger, the IEE's upcoming name change to the "Institution of Engineering and Technology" (IET), and changes to the management structure attributable to the Institution's status as a tax-free Charity.

In recognition that the Branches will soon die unless infused with younger members (who are not emigrating in the numbers they used to), the Toronto Branch presented a plan to attract membership from local student bodies.

Another area in which the IEE's profile can be raised locally is closer cooperation with similar organizations in our area, for example the IEEE. Joint meetings etc should be proposed.

The exchange of information was very useful and time will determine how much fruit it will bear. We did also identify the need to compare notes regularly, at least every two years.

WCGCE thanks our hosts in Ottawa for a job well done, in setting up and managing the meeting in very conducive surroundings in Central Ottawa.

By Ian Price, WCGCE delegate.

NEW UK PROFESSIONAL REGISTRATION CONCEPT NOW FULLY OPERATIONAL

Most members of the Group's sponsoring Institutions will now be aware of the change in con-

cept and procedure surrounding the MEMBERSHIP and REGISTRATION of UK Electrical (and I assume other disciplines) Engineers that has been taking place. Briefly, until recently, once you had convinced your Institution you were good enough to be a corporate member, they would automatically register you with the Engineering Council as a C.Eng. This link has now been severed, so that the Institutions can broaden their membership base as learned societies without compromising the quality of talent required of an Engineer of any discipline in the UK.

My personal take on this change is that it is a move towards the North American Professional Registration model, even though there is still no general requirement in the UK for professional registration at this time. The UK engineering profession is now better positioned to implement compulsory registration in the future, however.

The Institutions are now 'franchised' by the Engineering Council to recommend candidates for registration, after a procedure differing in detail rather than concept from that known as SARTOR (Strategies And Routes TO Registration). The requirements are now known as UK-SPEC and in a nutshell have restored the necessary academic standard in the face of (arguably) devalued graduation benchmarks, but made the old training + responsible-experience requirements non-sequential and redefined the combined activity as "Initial Professional Development" or IPD.

The Engineering Council has also introduced two other classes of registration, "Incorporated Engineer" (I.Eng.), and "Engineering Technician" (Eng.Tech.), which are I believe intended to correspond roughly to the ASTTBC's 'A.Sc.T' and 'C.Tech.' registration levels respectively. The registration procedures are intended to be handled through the Institutions' existing infrastructure for processing C.Eng. applications.

The procedures for documenting and evaluating applications for all classes of registration have been made more quantitative through the use of ISO9000-like techniques.

Report by Ian Price, IEE Professional Registration Advisor for Western Canada.

Andy Pratt, C.Eng. MIEE P.Eng.

1913-2005 - A Tribute



The committee was saddened to read in the announcements section of the Vancouver Sun, (9 November), of the October 31st death of Andy Pratt, one of the senior members of the Group.

We last saw Andy at the Vancouver Club in July 2003 when he attended the IEE President's Lecture. Most recently he called me at the end of August this year to discuss the IEE/IEE merger and name change and obtain guidance on voting (he was against it!). I was of course flattered to be consulted on the matter, and knowing Andy to be quite elderly and unlikely to be affected by the outcome of the vote, asked him his age.

But the main purpose of this tribute is to document the helping hand he gave a young immigrant engineer suffering from the chronic Catch-22 that at one time or another has frustrated all of our members.

In 1981, Andy, having retired from many years as New Westminster's City Electrical Engineer, was running a small consulting practice out of a suite of offices in Burnaby, employing a draftsman and a secretary. It was not at that time the busiest engineering office I have ever worked in, but it enabled Andy to stay in touch with his clients and colleagues of many years' standing, and keep his hand in, doing the work he loved.

I had met him at one or two 'annual' meetings of the local IEE group, which eventually formed one of the pillars of WCGCE. However I was having a singular lack of success at obtaining engineering-specific work in spite of my C.Eng., and as a youngster had not the resources to go back to school long enough to meet APEBC's requirements for P.Eng. Etc., etc., ... but this is about Andy.

Whether or not it was a genuine business plan I still do not know, but at age 68 Andy invited me to work for him on a guaranteed-salary basis to market his services to the industrial and commercial markets, with a view to growing his business. Not only that, he allowed me 3 half-days a week to audit a control systems course at UBC, required by

the Association to support my P.Eng. application.

Over the next three months, I proved to be such a lousy salesman that I was barely able to bring any new business into the practice and had to recommend to Andy that he lay off his sales force! By this time however, an engineering opportunity had arisen at H.A.Simons Ltd., keeping the wolf from my door until I finally achieved P.Eng., registration in 1982. And the rest, as they say, is history!

Nevertheless I have always suspected that Andy created that opportunity in order to kick-start the local career of a fellow IEE member mired in the (now politically hot) issue of international qualifications and mutual recognition thereof. I never got around to confronting him on it though, since I sincerely believe it to have been an unselfish act and one not without expense to him.

I recount this story to urge current WCGCE members who are financially secure, to consider following this example of a practical but indirect act of kindness by a Gentleman engineer of the old school, towards a younger colleague.

Thanks, Andy!

Ian Price C.Eng., MIEE. P.Eng.

The Commander S M Terry Award

Congratulations are due to **Daniel Mercier of Coquitlam**, B.C. The recipient of the Commander S M Terry Award for 2005. Daniel is a student in the Department of Mechanical Engineering Technology at the British Columbia Institute of Technology.

The Book Prize (Marks Handbook for Mechanical Engineers) is presented by the Institution of Mechanical Engineers annually to the top Student in Mechanical Engineering Design on the recommendation of the faculty at BCIT.

WCGCE Award

The following third year UBC students are recipients of the WCGCE awards for 2005:

Mr. First Radic, (Electrical)

Mr. Adam Harmat, (Mechanical)

Mr. Jeremy Bruce, (Civil)