



The Challenge

THE NEWSLETTER OF THE WESTERN CANADA GROUP OF CHARTERED ENGINEERS

Message from the Chairman



The summer-to-fall semester followed a stable if somewhat calmer pace – it was a relative quiet scene, lacking of high profile local conferences, and your Committee could focus on the strategic objectives adopted in January. The two immediate objectives are to attract new members, particularly potentially new chartered engineers among students and young professionals. A sub-committee, under guidance of **Alan Kay**, has planned meetings with young individuals to engage young leaders in reach-out events where the chartered status could be promoted effectively.

The other immediate objective is to improve communication with members, through webcasting of events and distribution of information (for example this publication) through internet based media like **Twitter** and **YouTube**. Good progress was made and the committee looks forward to arrange a further test run of a web-based technical presentation in February 2012 under guidance of **David Harvey**.

Looking back on the program of technical meetings I am pleased by the high quality and good range of topics that were presented by first class speakers. The evening meeting in October by **Diana Klein** on sustainable building design generated lots of discussion and engaged the audience in a quite lively manner! It is characteristic of our

meetings, that new ideas and the thinking behind them are appreciated and sometimes challenged by our audiences! We also saw a few soft topics, for example interesting travelogues by **Bob Martin** which were well received. The objective is to broaden the range to include non-technical and semi-technical material.

Our members are invited to suggest topics and speakers for consideration. Please contact the Chairman through our website.

Following last year's successful July-social event (barbeque), our group was again invited by the **Sea-To-Sky Branch of APEGBC** to join them in a convivial garden barbeque one sunny afternoon attended by 24 of our members and their guests. Everyone enjoyed the catering and socializing between the two groups.

The traditional September field trip on Vancouver Island was reviewed and in light of the low attendance of Vancouver Island members over at the last couple of years, with the higher travel expenses for mainland members to attend, it was decided not to arrange a trip this year. The com-

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mittee will reconsider staging this event next year.

Read more about the technical meetings inside, and look out for notices by email or land mail (as preferred) or on the website.

The Finances of the Group are in good order, depending on grants from the sponsoring Institutions out of their London headquarters. Our budget included three prizes that were recently awarded for academic excellence to engineering students at UBC.

The current budget is running to plan, thanks to the diligence of our event organizers and the **Honorary Treasurer Andrzej Nawrocki (MIEE)**

I trust that members and friends of our Group find the improved Website (www.wcgce.org) useful and convenient to use for browsing the group's activities and publications, and for connecting to their Institutions. **Tim Ma (IET)** manages the site very well and recently increased the web space to 500 Mb.

On a personal note, it continues to be a privilege and pleasure for me to chair the acting Committee - an outstanding bunch of people who serve the intent of this Group unselfishly.

I am pleased to wish our members, on behalf of the Committee, a good festive season and look forward to exciting WCGCE events and opportunities in 2012.

Sincerely,

George De Ridder FIStructE

Message from the Editor

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

Members should know to refer to our web site www.wcgce.org managed by **Tim Ma** for current activities and to see back issues of the Challenge.

If you wish to contribute a report on a technical

event, an article or an announcement, my contact details are listed below.

Challenge is available by email in pdf format.

Just email the editor to receive it this way in the future, and save on the printing and postage

Chris Richardson , C.Eng., MIET.

email: editor@wcgce.org tel:(604) 879-9980

Technical Program Notes

Rave Tug Application

June 15th, 2011

The evening meeting was a presentation by **Dr. Oscar Lisagor, Vice President, Naval Architecture, Robert Allan Ltd.** On the "Rave Tug- Application, Hydrodynamic Characteristics and Maneuverability".

Dr. Lisagor presented his talk using a Power Point presentation. He covered the general design and application of tugs and the types of duty they are expected to provide from assisting ships in and out of harbour, to firefighting, towing and off-shore rescue of vessels in distress. One major duty today is to escort large bulk carriers when they are sailing through congested or sensitive waterways.

He outlined the evolution of the **RAVE** tug design and described the variations that were initially designed using computer aided software such as



Computational Fluid Dynamics (CFD) to evaluate the forces acting on the hull under various towing conditions and sea states. They also used the testing of models of the vessels in Wave Tanks to see if their

initial concept was sound. He showed some video of the changes in stability of the models under wave conditions when the VOITH propulsion system was modified to act as a stabilizer with changes to its basic design.

The VOITH system uses multiple blades oriented

in a vertical direction and fastened to a circular plate which rotates and varies the pitch of the blades to provide thrust to move the ship in any direction through 360 degrees. The VOITH propulsion system has been used in tugs and other vessels requiring maximum maneuverability since the early 1950's. In their latest tug design the VOITH units are arranged longitudinally rather than transversely, as applied in either stern or forward location. In the forward location the tug is called a tractor tug. The longitudinal location of the units provides a more uniform power availability no matter which direction the tug is pulling the load.

The speaker went into great detail on explaining the manner in which the vessel design with its sponsons around the upper hull and the use of a special skeg with rotating leading edge enabled the tug to exert much greater towing and guiding forces for the large ship under its control than a typical tug.

Dr. Lisagor answered numerous questions from the small audience of 15, due to the Stanley Cup Playoffs occurring in Vancouver at the same time as the talk.

David Harvey thanked the speaker on behalf of the Group and presented him with a small honorarium

Bob Martin

An Engineer's Travelogue

September 21st 2011

The presentation was by **Bob Martin, P.Eng**, Hon Secretary for the Group, who gave an audio visual presentation on a trip he and his wife made in the spring of 2011. He outlined the trip they took to Perth, Western Australia and then after flying to Singapore and visiting the city, they boarded the **MS Volendam** for a cruise to Thailand, Cambodia, Vietnam, Hong Kong, Shanghai, Nagasaki, and Kobe in Japan, then on to Busan in South Korea, Vladivostok and Petropavlovsk in Russia, Kodiak and Sitka in Alaska and home to Vancouver. As the edited video Bob took of the trip was over 2

hours long he only showed the trip from Perth to Shanghai.

He showed scenes of the Perth skyline and Kings Park, being toured around by Bob's relatives. Then on to Singapore to walk around the city, visit Raffles Hotel and the Zoo. He noted that you had to make sure you were back in your hotel by 4 pm as the thundershowers started every day at that time. The sky would darken, the rain started falling and the thunder and lightning rumbled across the city.

After the short visit they boarded the ship for their cruise, stopping first at Ko Samui in Thailand where they visited the local area and saw how coconuts are harvested using monkeys to climb the trees and push the nuts off the branches. Then how the thick outer shell is stripped from the nut and then split to get at the inside. After a visit to some of the parks they returned to the ship. The next stop was Lam Shabang, the port serving Bangkok, where some of the passengers went off to visit Angkor Wat. Others went for an Elephant ride and visit to the local archeological ruins of the Wats in the area. They also visited the royal palace which has a memorial building to the king Rama V, who was shown as the prince in the movie, *The King & I*. After which they went for lunch while sailing down the river on a rice barge. The next day was a visit to the Tiger Zoo where they saw shows on crocodiles and tigers in a circus setting. Bob's wife Irene sat down with an adult tiger and got pictures to prove it. The weather was very hot and humid.

Back on the ship and they sailed to Sihanoukville



Sleeping Buddha - Cambodia

in Cambodia. Which was essentially a fishing village, where the local transportation are small 125cc motor cycles which carried everything; and often,

more than 2 people. Next, onto a Buddhist temple where they toured the grounds and the interior of the temple. The next port was Nha Trang in Viet Nam where more ancient buildings were viewed

and they watched young women working on small looms making very colourful cloth. Again the small motor cycles were everywhere. Before returning to the ship they visited the Long Sang Pagoda which has a giant white Buddha on top of the hill and you climbed up about a 100 steps to reach it.

After a few days at sea the ship reached Hong Kong, after taking a bus through the tunnel under the water between Kowloon and Hong Kong, where the weather was showery and overcast so the view from Victoria Peak was very limited. At Aberdeen Harbour the group was taken on a sampan cruise of the harbour. That evening they watched the light show of the buildings around the harbour. The next day the weather was sunny and clear and they went shopping, but found most of the prices were no better than Vancouver.

That evening the ship sailed for Shanghai which was reached 2 days later where they took a trip to Suzhou also known as the Garden city. There they had a cruise on a canal and then went to walk around the gardens. There was also a visit to the Silk Institute.

That evening they saw the very large amount of shipping on the river, with an almost continuous stream of barges. The second day Bob & Irene went off on their own to take a ride on the Metro and have a ride on the Maglev train which travels from Pudong to the Airport at speeds up to 430



Hong Kong Pudong

km/h. After lunch they took the Metro to the old French Concession part of Shanghai where Irene grew up and visited the area. The area has changed greatly but the

small park and the Russian church are still there. That evening there was another light show with many of the small tourist boats lit up and sailing up and down the river.

After dinner their ship left Shanghai for Japan, Korea, Russia and Alaska, but unfortunately due to time constraints and the disappointment of

the audience, Bob's presentation ended in Shanghai. Bob then fielded questions from the audience.

WCGCE Chairman George De Ridder thanked the speaker on behalf of the Group, for a well prepared and very interesting presentation.

Bob Martin

Building Blocks of Learning for Future Generations

October 19th 2010 at 7:00pm.



Diana Klein with WCGCE Chair George de Ridder

The speaker for this evening was **Diana Klein, P.Eng** who made an audio visual presentation on "Building Blocks of Learning for Future Generations" where she explored how buildings become learning environments, from the perspective of eco-sensitive principles.

She quoted from the **APEGBC Code of Ethics**, "*The role as engineers, (& geoscientists) is to hold paramount the Safety, Health and Welfare of the public, the protection of the Environment and promote Health and Safety within the workplace.*" She developed this theme with appropriate pictures of older buildings which still stand and function centuries after their construction and pictures of some modern structures which embody energy sustainable and environmental friendly characteristics. An example of the former was the Leeds Castle in the UK and the CK Choi building, the Life Science Centre at UBC; the Dockside Lands and Medical Building in Victoria, the Medical building in Abbotsford, which were all LEED projects.

Diana founded her own sustainable design practice in 2006 and was involved in the Olympic Village project at False Creek in Vancouver. She developed this theme and outlined the various aspects of the people friendly and cyclist friendly design of the project. The speaker also discussed the reutilization of grey water to flush toilets and also, by using a heat exchanger, to recover some of the heat to

temper the incoming cold water. Shading of the buildings by designing the structure so that most of the windows were on the south face to utilize the sun's heat in winter and allow easier shading using overhangs during summer. The recovery of rain water to use for flushing and to return some of the water back to the water table.

Diane entertained comments and penetrating questions from the outset managing a good humoured two way dialog with the audience who participated enthusiastically.

David Harvey thanked the speaker on behalf of the Group, and noted that the presentation was stimulating, well prepared, and very interesting. He finished by presenting the speaker with a small honorarium in appreciation of her talk.

Bob Martin

Current Activities

The WCGCE Annual BBQ

The group met with other engineers and guests who were part of the Sea to Sky Branch of **The Association of Professional Engineers and Geoscientists of British Columbia (APEGBC)** at the residence of APEGBC member Bill Vaughn.

The group included two Past Presidents of APEGBC and two local members of the provincial legislature.

The visit finished about 8:00 pm after a 50/50 prize draw won by a WCGCE member.

The WCGCE Chairman George de Ridder thanked hosts **Bill and Vivian Vaughn** and **APEGBC President Horst Junger** for their generous hospitality.

Chris Richardson

Upcoming Events

AGM AND DINNER EVENT

The Annual General Meeting will take place at

the **Royal Vancouver Yacht Club**.

Date: Saturday 21st January 2012

Time: 5:45pm **Dinner** will follow at 7pm.

Guest and spouses of members attending the AGM may join an informal reception prior to another enjoyable evening of excellent food, interest, entertainment and fun .

Contact **Alan Kay** for tickets at 604-922-6150 or alan.akay@shaw.ca

-SEE ENCLOSED FLYER

Other Business

The Commander S M Terry Award



Congratulations are due to **Denis Dobrazdravich**, a graduate of **BCIT Mechanical Engineering Program**, seen here (right), being pre-

sented the **Commander S M Terry Award for 2011** by **IMechE Rep. and WCGCE Hon. Sec. Bob Martin**.

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

WCGCE Awards

Congratulations are due to the following third and fourth year **UBC** students who are recipients of the **WCGCE awards for 2011**:

Ms. Rosey Rasoda: Vancouver, BC
(**Electrical Engineering**)

Michael Fairhurst: Williams Lake, BC
(**Civil Engineering**)

Neal O'Grady: Vancouver, BC
(**Mechanical Engineering**)

Jing Hang Kwok: Vancouver, BC
(**Chemical Engineering**)