Institution of Mechanical Engineers
Central Canada Branch

I MECH E

CHAIRMAN'S ANNUAL REPORT FOR 2005.

Purpose This Annual Report is to record the affairs of the Central Canada Branch of the Institution of Mechanical Engineers for the period from 1st January to 31st December 2005.

Branch Committee – as from the Annual Meeting March 2005

Position	Name	Membership Grade
Chairman	S.C Armstrong	Fellow
Programme Chair	VC Mathur	Fellow
Hon. Sec.	T. Ponniah	Asst. Member
Hon. Treasurer	D. Pigott	Fellow
Recruitment. & Retention	I Mansell	Fellow
Historian & Archives	R. Parsons	Fellow
Web Master	S.R. Hitner	Asst. Member
Advisory	D Lawson	Fellow
Past Chairman	P Apperly	Fellow
USA Northern Rep.	Vacant	-
Manitoba Panel Chair	F.E. Stock	Fellow

Branch Events

We continued our successful Nanotechnology programme started in Sept 2004. The programme was a change from our traditional approach to branch events. This marked the first time we had developed a programme that had a common theme for all lectures. We continued this approach to programme development in the 2005/2006 season. The theme for this is: - Engineering Project management – Lessons learned.

January On 18 January Dr Daehyun Jeong of Integran Technologies talked about Tribology/Lubrication for Machines.

Dr Daehyun illustrated how surface energy is an important parameter that determines the frictional performance of a metal. Nanostructured metals and alloys possess a large fraction of grain boundary atoms that confer special properties to their tribological performance, including coefficients of friction.

February On 15 February Prof Uwe Erb, University of Toronto, talked about Nanotechnology as applied to Materials Technology

This field of nanotechnology deals with nanostructured materials produced by electrodeposition. Many applications have grown in recent years from laboratory investigations to being economically viable technologies.

March On 18 March Dr Eric Marcotte, a lecturer at McMaster University talked about Medical Applications and the Engineering Connection. The advent of Nanotechnology has created many research opportunities in the field of medicine and health care. While true clinical applications of Nanotechnology do not exist today, many promising medical projects are at the advanced experimental stage. The goal of the Canadian Institute of Health Research is to integrate knowledge from diverse backgrounds – physics, chemistry, biology, engineering, and ethics.

April On 19 April, Dr. Shesha Jayaram, University of Waterloo, spoke to the Branch on environment applications for Nanotechnology (Soil, Pollution Control etc.).The development of high field pulsed power techniques for the sterilization of microbial cells was discussed. This technology has wide application in pollution control and enhancement of the environment, while the use of pulsed power also conserves energy, again benefiting the environment.

May On 17th May Dr Paco Gonzales talked about The Way Forward – A Road Map for the Future of Nanotechnology. The presentation recalled relevant aspects of Nanotechnology that are already in place or very near implementation. Based on these, and on present research and technology trends, future developments and concepts were presented. These ranged from the single electron transistor to fully effective solar screens. The impact of present nanotechnology funding trends on future developments was discussed, as well as the potential effect on industrial production and general economic climate.

July On 24th July, at Erindale Park, a disappointingly small number of IMechE members attended the reinstated IEE/ IMechE joint picnic. Those who did attend were rewarded with beautiful weather, lots of fun and camaraderie, and excellent catering.

----Summer Break---

2005-2006 Engineering Project Management – Lessons learned Programme

In an unprecedented collaboration, IMechE CCB orchestrated a collaboration with three other U.K. professional engineering institutions active in Canada to sponsor a series of ten lectures on the broad theme of *Engineering Project Management – Lessons Learned.* The programme runs over the period September 2005 to May 2006. The aim is to introduce Engineering Project Management to engineers, technologists and managers working in all disciplines, with an emphasis on Lessons Learned through major real-life projects. These include project management from the following fields: **Information Technology, Subways and Tunnels, Nuclear Power Plants, Giant Offshore Platforms, Manufacturing Plants and Aircraft Landing Gear.**

September On 20th September, Desmond Alvares of the British Computer Society and Chris Walker P Eng gave an introductory talk on the recent developments in project management. We were introduced to the current body of knowledge relating to Project Management. The methodologies available incorporate lessons learned from the success and failure of projects at the focus of endeavour since the early stages of human development.

October On 18th October James Burke, CIO of the Greater Toronto Airport Authority gave us a talk on the GTAA "CAMPUS" Area Networking at the airport's Terminal 1. James was formerly an executive at Heathrow in London, and provided very lively insights into the development of an airport. When the new Toronto Pearson Airport terminal was being designed, it was realized that the old way of installing networks for each type of service, and having each airline install their own unique technologies, would not work with the vision of a flexible and expandable airport. The presentation discussed how everything is knitted together to work seamlessly, from cell phones to airline counters.

November On 26th November, Prof. Robert Dony of the University of Guelph gave a talk on Imaging Technology. This lecture was a divergence from our main theme. It was also the joint Xmas lecture with the IEE. About 60 people turned out for a very festive event.

We were introduced to the intricacies involved in underwater exploration of the wreck of the USS *Arizona*, sunk in the WWII attack on Pearl Harbor. Prof. Dony worked on the imaging technologies relating to this difficult environment. Studies were undertaken to determine the condition of the wreck, and it was found that there were large amounts of fuel oil still submerged. One of the succesful composite images was published in the National Geographic magazine.

December On 12 December Dr K. J. Petrunik, Sr. Vice President and COO of Atomic Energy of Canada Ltd. Nuclear, gave a talk on nuclear power station construction projects involving a wide array of technical disciplines and multiple interfaces and logistics, This included how projects are influenced by a broad and changing spectrum of regulatory and financial issues as well as world politics. They are sometimes also impacted by unpredictable cataclysmic events such as war and revolution. Issues of local culture and human perception play an important role. The presentation discussed project management aspects and lessons learned at various international CANDU power plant construction sites throughout the world.

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Meeting attendance

Attendance at the above meetings varied from around 20 up to 60. The collaborative effort is a first and so far so good.

Relations with the Institution of Electrical Engineers, British Computer Society and Institution of Civil Engineers

Our joint programme on project management is a major step in fostering good relations with other UK professional institutions. In addition to holding joint lectures we also hold an annual Xmas dinner with IEE. Relations couldn't be better.

Relations with PEO / CCPE

No formal meetings were held during the year. PEO members did attend our nanotechnology series. We believe our initiatives spurred PEO to dedicate an entire edition of the Engineering Dimensions magazine to Nanotechnology.

I Mech E Headquarters Support

The Branch has, as usual, been well supported by headquarters staff during the past year. The outgoing Branch Chair Phil Apperly attended the Council of Regional Chairmen held in conjunction with the UK Annual General Meeting at the end of May.

Professional Reviews

Four professional review Interviews were initiated during 2005, for members wishing to upgrade their level of membership. We estimate completion of these in early 2006.

Web Activities

The CCB has continued to update the web site at www.imeche-ccb.org. The web site and the Internet are used where possible as the preferred method to communicate with members. In line with recent improvements on the UK website, your committee started planning improvements and updates to our own site which will bring it more in-line with the UK model, and at the same time some of the time-variant data (e.g. state of industry and latest trade data) are planned to be updated during 2006.

Survey of members

In November long-serving Committee member Ivor Mansell conducted a survey of the members posing the following questions:

- What changes would you make to meetings and the programme?
- What unique activities would cater to senior members?
- Should we have"*news about members"* coverage?
- What is the role of the benevolent fund to you?
- What other actions can CCB make to contribute to you?

We received about 10 responses. The core issue emerging was the fact that travelling across the greater Toronto area has become a nightmare, often taking 3 – 4 hours to get from the eastern suburbs of Ajax / Whitby to the western suburbs of Oakville. All IMechE activities tend to be held in the west end around the airport. This means many members feel cut off. In addition members complained about aggressive driving on the 401. The average age of CCB is 63 therefore we have many members in their 70's and 80's and 90's. It is increasingly difficult to travel safely in this fast-paced city. This is food for thought and will require some innovative

ideas to keep members involved and provide value to them. Some ideas were provided to enhance the involvement of those feeling cut off.

Financial situation

The Branch Treasurer's Report summarises the current position. Increased nanotechnology programme meeting expenses contributed to an overall increase in expenditure. Also because our lectures have attracted members of other societies this year, not all of whom have cost-sharing agreements with us, we have been somewhat victims of our own success. Our budget, as always is vetted and approved by London, but we are always at the mercy of the fluctuating value of the Canadian Dollar. The Canadian $ is rising against the UK pound and this will have an impact down the road as the disbursements from London will be undermined. To help balance our budget, we designed a 2005/2006 programme that shares costs with other UK professional institutions.

Acknowledgements

My thanks go out, as usual, to all members of the Branch Committee for their time and talents. I would like to highlight the extra special contributions of the following:-

- VC Mathur, Programme Chair for developing our engineering project management programme. VC has worked well, integrating the needs of the IMechE and the other institutions.
- Des Pigott for staying on top of our finances and providing us with timely and accurate reporting
- Tim Ponniah for his work as Hon. Secretary. Tim has been a source of support throughout the year taking a proactive attitude toward the job
- Don Lawson for developing and packaging the Nanotechnology programme book and CD. This is a tremendous effort. And for this effort Don was awarded the **Member of the Year** by London. This award recognizes outstanding contribution to IMechE world wide, and only one award is made annually. Congratulations to Don.
- Phil Apperly, past chair for relentless support to me as chair. Without him I would have floundered. He has stood in for me on several occasions when my work commitments have not allowed me to participate in an IMechE event.
- Steve Hitner for enhancing our web site. We expect this to be loaded in early 2006
- Ivor Mansell for support in the area of membership retention and general counsel.
- Ron Parsons for maintaining our archives. He is transferring selected material to electronic format. This will protect the history of the branch for future generations.
- The Institution's staff in UK for keeping us up-to-date and informed. We have received more direct communications from the likes of Maria Taylor (International Affairs) and Joanna Fox, Manager, Regional & International Operations (awards and recognition) of late.

Strategic issues

- We seek to continue to provide a broad and interesting programme of talks and visits to meet the objectives of I Mech E. and members CPD goals.
- Recruit volunteers to serve on the Branch Executive and ensure sufficient experienced Committee members to form a cadre from which to select Branch Officers. *(This is of particular significance with two veteran members having retired during the year).*
- Be cost effective and operate within the agreed Business Plan.
- Assist members moving to the area and arrange Professional Interviews when requested to do so by the UK.
- Work with HQ on the evolution of the Institution. Provide insight on overseas perception of changes, and constructive criticism of proposed changes to Governance and operations as appropriate.
- Work with PEO, OSPE, IEE, ICE, BCS and others to further the aims of the Institution and its members.
- Continue to develop communication means such as Counter-torque, e-mail and the web site to assist in keeping members well informed.
- Develop a strategy to attract younger (under 55) members to the committee.

Stephen C Armstrong, CEng FIMechE, PEng, FCGI, CMC
Chairman, Central Canada Branch.
Feb 2006