SOCIETY of MANUFACTURING ENGINEERS
TORONTO CHAPTER 26
MARCH 2001

http://www.sme-toronto-26.org

The Potential of Mechatronics:

CONTROL SYSTEMS & COMMUNICATION

Wednesday March 7, 2001

TALK LOCATION: Room T216, 87 Gerrard St. East, Eric Palin Hall
Ryerson Polytechnic University
Light supper at 6:00 pm, talk at 7:00 pm

Dave Simpson, P.Eng., is a supply chain specialist in IBM Canada's e-business solutions unit. His career prior to joining IBM in 1994 included 16 years in manufacturing as a controls engineer, including eight years running his own company, now part of a large motion control company. Clients included companies in automotive, food, metals, petrochemical, pharceutical and electronics industries. Solutions Dave has worked on have ranged from simple PLCs to sophisticated robot controlled work cells. He is a regular public speaker on the topic of the impact of technology in manufacturing.

Dave can be reached at 905-316-6050 or via e-mail at davesimp@ca.ibm.com

Abstract of presentation

"Convergence, the alignment of computers and communications is having a significant effect on business today, and will have an increasing effect in the future. This presentation provides an overview of:

- the evolution of the inter-networking revolution
- the impact of convergence on manufacturing
- how this affects plant systems in particular
- current trends in the controls industry.

The presentation will end with a look into the future, 10 years from now, to see how computers, networking, and control systems are likely to evolve."

CHAPTER BULLETINS ON LINE

This Bulletin and other Bulletins since last September, are available in .pdf format on the chapter web site at: **http://www.sme-toronto-26.org/smeto26/pages/Bulletins.htm** In order to reduce mailing costs, the chapter is looking into the possibility of moving main distribution of the Bulletin to this or a similar format. There will be more information on this in due course.

In order to view .pdf files, you must have installed on your computer the free software, Adobe Acrobat Reader. This is available for free download at:http://www.adobe.com/products/acrobat/readstep2.html

The Chapter 26 web site, www.sme-toronto-26.org/, and monthly Bulletins from the Chapter will give details of the talks and tours in this Mechatronics series. LOCATION: see above for this month's talk.

How to Attend: See page 4.

To Apply:

To apply, print and fill out the Application Form on our web site at **http://www.sme-toronto-26.org/smeto26/pages/Mapplic.htm**, and mail with your cheque to: Pierre Perron, 42 Glenlare Ave., Toronto, Ont., M6P 1C4.

Location and Times

The course will be held at Rm T216, 87 Gerrard East, Eric Palin Hall, Ryerson University in downtown Toronto. A light supper will be offered at 6:00 pm and the session will start at 7:00 pm. We will usually finish by 10:00 pm.

The fee for non-subscribers for each Mechatronics evening is $65.

PLEASE CHECK OUR WEB SITE FOR LAST MINUTE CHANGES! An email will be sent to all those who have already signed up. **www.sme-toronto-26.org/**

If you need more information about this series, please call Pierre Perron at 416-763-4689 or email to pierre_perron@yahoo.com. Please do not phone after 10 pm EDT.

For information on books and links related to Mechatronics please see our Web site http://www.sme-toronto-26.org/

Program for Next Year, Sept start:

We have started to think about the program for next year. We need your ideas. The members of the program committee are Bruce Keeling, Robert Hope, and Loris Giuricich. Please send any of us your ideas. Also please tell us if these ideas are of interest to you. So far the ideas suggested are:

- Patents - what are they and how you register one - the latest changes to make it easier for the little guy
- Lots of plant tours
- Export - packaging, standards, marketing, insurance, risks, financing etc.
- Advances in metal cutting
- Finding another job
- Manufacturing software

Let us know what you want e-mail, fax, or voice - but let us know. *George Heintzma*

Hamilton SME Chapter 42

Allan Spence, Chair of Hamilton Chapter 42, sent the following note: "I put a link on our SME Chapter 42 - Hamilton District homepage to Toronto 26 in case some of our members want to attend Toronto events. Your members are welcome to ours too. We list them online. See http://chapters.sme.org/042/homepage.htm." For more information, schedules, etc., please check this web site.

Mechatronics Topics & Schedule

7. Wednesday, March 7. Control Systems Control Systems - Controllers, Computers and Networking. At Ryerson
8. Wednesday, April 4. Implementation Team Work, Project Management, Goal Setting. Pierre Perron, Team building and project planning implementation Consultant.
9. Wednesday, May 9. TBA
10. Wednesday, June 6. Summary - Panel Discussion: The Future.

Material from previous sessions is on the Chapter website at http://www.sme-toronto-26.org

Executive Meetings

NEXT MEETING 2001: at **6:30 pm**
March 1 - Thursday
At: **AFV Multimedia**
233 Evans Avenue
Phone: 416-239-2811

Interested parties are welcome and encouraged to join executive members at these meetings. For additional information on next meeting phone 416-467-8298 or e-mail: heintzg@attglobal.net or Ken-Dante@msn.com.

Upcoming Schedule 2001:
PLEASE NOTE: All Executive meetings are **Thursdays** at **6:30 pm**
April 5
May 3

NOTE: Bulletin copy deadline:
April Issue : March 8, 2001
May Issue: April 8, 2001
June Issue: May 8, 2001

Obituary: Ed Holden

heintzg@attglobal.net

With deep regrets we read of Ed Holden's obituary in the Toronto Star February 14, 2001.

Ed was our SME Toronto Chapter 26 Chair in 1961, and a long standing member and supporter of SME since October 1947.

"He was 90 years old, and his wife Grace Virginia was his soulmate for 62 years" He was the retired visionary and President of Wainbee Limited, having directed the transformation of a small tool supply company into the proud and successful enterprise that the company is today.

EXECUTIVE LIST

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Our continuing thanks to Professor Mark Fox, U of T, for hosting the Chapter's web site on his server at http://www.novator.cm

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Sign Up Now!

Mechatronics Series Content: Check our Web site for material from past seminars. We will be adding more through out the year. But we will probably remove it next year. So if it's of interest take a copy now. Even though the machine tool industry in North America is on the decline you might check out some of the ideas that came out of the first session in terms of making a modern lathe. Links to Mechatronic program content is at http://www.sme-toronto-26.org/pages/MechatronicsTOC.htm (case-sensitive - watch your typing!)

SME Student Chapter at U of T

The SME Student Chapter at the University of Toronto has not only put together an impressive web site at **http://www.ecf.utoronto.ca/~utsme**, but has an impressive list of activities lined up. Do check out their Research Page. Great idea!

February 15, 2001. Celestica Plant Tour: " Celestica is a leading provider of electronic manufacturing services. Based in Toronto, it is the supplier to many hi-tech companies such as IBM, Sun Microsystems and Nortel Networks. Revenue-wise, it is the 3rd largest company in Canada, trailing only Nortel Networks and BCE."

Week of February 19, 2001. Smoker: Pop and Pizza

Week of March 12, 2001. Honeywell Plant Tour

The Chair is Charlene Tung who can be contacted by email at utsme@ecf.toronto.edu. The Faculty Advisor is Ron Venter, venter@mie.utoronto.ca

Congratulations to this active and imaginative group of people!

Ryerson & U of T Student Chapters Now Online!

Ryerson's SME Student Chapter s165 is now on the web. Check them out at

http://www.geocities.com/smeryeng/main.html

The contents of this page are still under construction but most of the important information is there. In a few weeks this page will be up loaded to the ryerson server, so watch for the new address.

Apart from senior chapter activities in which the students participate, there will be a tour of the Steam Whistle Brewery on February 22 during reading week. Check out the web site for details.

For more information please contact the student liaison, John N. Camarda, email: camarda@ureach.com, or the Faculty Advisor, Farouk Sharifi, P.Eng., fsharifi@acs.ryerson.ca.

Congratulations for the initiative and leadership shown by all involved.

ABB (Jan 17) and OMRON (Feb 7) PLANT TOURS REVIEWS

ABB: This division of ABB is called ABB Body-in-White or ABB BiW. They build two kinds of lines for the automotive industry around the world: Stamping lines and unpainted body assembly lines. They have a global mandate for BiW. Other divisions specialize in assembly, paint, power train assembly, final assembly, robots, and controls. Their customers are automotive and they're tier one suppliers. We were given presentations and a tour of the factory where they are assembling two kinds of lines - press lines and Body-in-White lines.

The press line consists of de-staking of the sheet metal blanks, alignment tables, material handling between stations. The main robot used is a two dimension robot. The most critical part of this line is to make sure you only pick up one blank and feed it into the press. To do this they use magnets, compressed air, and sensors that detect that the robot has only picked up one piece. If it has two, it puts it down and tries again.

The Body-in-White line uses robots to handle and place all of the hundreds of stamped sheet metal parts and then to weld them together. It takes many robots all working together and many sensors of various types to ensure that it all works.

Question period:

How do you train your people?" It takes about a year of initial training to train an ABB person. We have formal training and on the job training."

How do you ensure that people work as a team?" We stress team work as a cultural value. Teams are the ABB way. Teams are essential to produce the complex lines which are our speciality. We have formal team work training for our people performed by outside trainers and some people with special training in our training department."

How do you ensure that a new person is productive quickly and gets the appropriate training?" A key part of our approach is mentoring. All new employees have a mentor. The mentor answers all the questions and is responsible for ensuring the growth of the individual as a valued team player."

Your industry is changing quickly how do you keep up to date?" Continuing education is a key corporate value. Everybody is expected to attend formal training every year. This includes training on our own new products, formal training on equipment we source from others, including PLC's, Systems training, leadership and management training."

How do you keep your people?" Pay them well and give them outstanding opportunities for personal growth. We ensure they feel part of the team while at the same time respecting their personal time."

To what do you attribute your success?" Meet customer expectations on time. This requires constant communication with the customer. First to find out what he wants. Then we have to establish reasonable expectations. Finally we have to work with him to incorporate all his changes and get his agreement that we have met his expectation."

W*hat would have to happen to cut your lead time in half?*" Eliminate or at least cut the customer change notices in half and convince the customer to pay a bit more so we could use flexible, off the shelf systems rather than build custom hard tooling."

OMRON: Another outstanding tour. They showed us a wide variety of motion devices ranging from micro horse power stepper motors through fractional hp closed loop servo motors and frequency controlled AC motors up to 500 hp. We saw a wide variety of sensors from micro switches, proximity, vision and heat. We saw them dynamically write "SME Toronto Chapter" on identification chips passing a writer and then read them and display them 2 feet later. They were all tied together with Omron PLC's, the fastest of which has a scan rate of .4 microseconds.

But the most impressive thing for me was the fusion. Mechatronics is the fusion of new devices for motion, sensors, control, and design. The whole system is laid out and programmed graphically. Bit maps can be used to clarify the process being controlled by the display. This definition of the system becomes the operators console. Very clear and very maintainable. Great tour.

George Heintzman
heintzg@attglobal.net

REGISTRATION FORM - MECHATRONICS SERIES 2000-2001

Please go to the web page: http://www.sme-toronto-26.org/smeto26/pages/Mapplic.htm, print a copy of the registration form and mail with your cheque to the address below. Please keep a copy for your records. Fees are pro-rated for late sign-ups. Please photocopy for additional registrations.

Send application form with cheque or money order made out to SME Toronto Chapter 26 Mechatronics, to:
Pierre Perron, 42 Glenlare Avenue, Toronto, Ontario, M6P 1C4

*** Membership enquiries please phone 416-402-3146.*