The TISP Canada Courier #5

January 28, 2013

Québec Science Teachers Meet at Ste. Hyacinthe

TISP Champion and *Courier* co-editor Dave Hepburn recounts TISP's first foray into the field of francophonie as being both enjoyable and educational. More on the AESTQ meeting here.

Some time in early October last year, I was asked to help the IEEE's Montréal Section with their first presence at the annual congress of the *Association des professeurs de science de Québec*, or APSQ for short. For the uninitiated, the word *professeur* in French can equally mean a teacher in a high school, or a professor at a university. Further, the Association is the Québec counterpart of the

Science Teacher Association of Ontario, STAO. (See, it's all easy when you know how!) The literature noted that this year's event was the 64th convention. Note though that the directors of the Association have just changed the name from *Association des professeurs de science de Québec*, to *L'Association pour l'enseignement de la science et de la technologie au Québec*, or AESTQ.

I counted 50 individual booths in the main hall, which compares to about 120 at STAO in Toronto. So, the population of Québec being somewhat smaller than Ontario, it may be supposed that APSQ, now AESTQ, has rather fewer members than STAO. But jeepers, what a lively bunch, and such Gallic charm!

Anyway, this being the Montreal TISP section's first *entrée* into the francophone teaching community, it was obvious that we should make the best possible impression. The location of the *congrès* was in fact not Montréal itself, but in Ste. Hyacinthe, about an hour's drive East of the city. The hotel itself was not so

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TISP Reports from the Regions

TISP-Canada relies on active participation from all regions of the country. These columns report on recent work and upcoming events as well as trials and accomplishments of TISP volunteers across the country.

Nova Scotia

Preparations are underway to ensure a TIPS presence at the upcoming *National Engineering Month 2013* event at the MicMac Mall in Dartmouth, NS. Our TISP volunteers are active participants of the Steering Committee hosted by Engineers Nova Scotia. In cooperation with Dalhousie University engineering faculty members we are organizing a High School Engineering Design Competition, now in its second year.

For further information contact local TISP Champion Dirk Werle at *dwerle@ca.inter.net.*

Edmonton and Northern Canada

Last November has been a very busy month when we conducted a very successful *Working with Wind Energy* workshop for 22 K-6 teachers and support staff at

Annunciation Elementary School of the Edmonton Catholic School Board. The two local TISP Champions, Rossitza and Mooney, and two volunteers, Aleh and Koosha, were busy organizing and holding the event. We also conducted six workshops for the Edmonton Catholic School Board's *Boys Engineering, Science and Technology Conference* (*BEST Conference*) that was attended by 240 Grade 2 to Grade 6 students. We had approximately 80 students in the six workshops. The science consultants approached us with a request to conduct a workshop for their district teachers.

For information contact TISP Champions Rozzitza Marinova at *rossitza.marinova@ concordia.ab.ca* or Mooney Sherman at *mooneysherman@ shaw.ca*.

TISP Week 2012 in India going strong!

Taking a global view, as reported by John Platt in his October 12, 2012 article of IEEE's *The Institute*, TISP volunteers in India have held the largest TISP event to date. Dubbed *TISP Week 2012*, the six-day event ran from 23 to 28 July and included eight workshops across the state of Kerala. Volunteers demonstrated lesson plans on engineering-oriented subjects to 172 teachers from 104 schools. Those teachers then are expected to take the lessons back to their classrooms, where it is expected they will eventually reach up to 10 000 high school students!

For more information see *http:// theinstitute.ieee.org/career-and-education/preuniversity-education/ieee-trains-preuniversity-teachers-in-india*

Photo credit: IEEE

(*continued from page 1*)   very large, but the two main assembly halls were huge. One had about 500 seats, while the other, in addition to the 50 booths (*kiosques* en français), accommodated a large sit-down eating area.

This being the first time TISP Montréal had ventured into AESTQ terrain, there was obviously a lot to learn – and fast. The good news was that the *kiosques* are substantially larger than those at STAO in Toronto. But the bad news was that the regulations were emphatic that nothing was to be hung on the back wall, which is only a flimsy cloth draped over a light aluminum tube. So engineers being what they are, we concocted two pre-fabricated support frames made from cheap plastic water pipe cut into uniform 24" lengths and connected by plastic "T" couplings or straight "Unions" - (99 cents each.) The result was considered very satisfactory. No glue was used, so they were easily disassembled after the event.

This conference also saw the first public use of the "*Build a transformer in 30 Minutes*" demonstration. It seems to have proved its point. There were about 16 teachers in attendance, and by dividing them into teams of four people meant that four kits were used. We took five just in case. Surprisingly, the 30 minute heading was easily cut to about 20 minutes, plus time for testing. And this didn't allow for the fact that, with 16 people, they found at least 17 wrong ways of building it. But that was OK. Firstly you learn more from your mistakes. It also resulted in a good deal of hilarity and *bonhomie* all around. And the time at the end enabled some discussion about real transformers. I made the point that a large transformer has an efficiency of in excess of 99.9 %. This statistic knocked the socks off some of those present. On balance, therefore, the demonstration seems to have proved its point. It can be made by
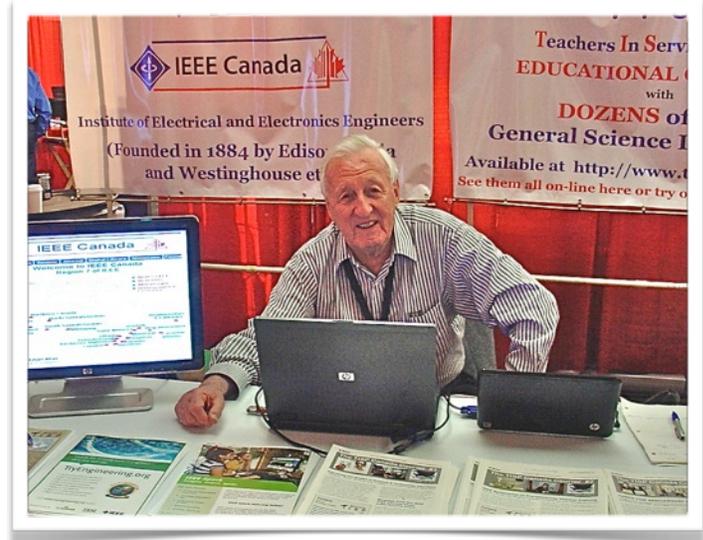
Photo credit: Samir Kherraf

TISP-Canada veteran Dave Hepburn, seen here at the Science Teacher Association of Ontario meeting in Toronto in 2012.

people with no previous skills in that line, gives repeatable results and is rugged enough to be bumped around VIA Rail cars.

For a first attempt, the TISP effort at the AESTQ meeting seems to have been quite successful. The most significant feature was the rate at which the list of *tryengineering.org* lesson plans in French available on the web were in demand. There are now 50 in all in the French language, and we printed out full sets of the summary pages. Not knowing what we were getting into, we started with 25 copies. But twice we had to go to the hotel print shop to make extra copies. So we estimate that our *kiosque* had about 50 "hits" in all. The conference ran from 4 PM to 9 PM on November 1 and from 8 AM to 3 PM on November 02. The total number of attendees at the conference was just over 900.

So a good time was had by all.

Vive la Francophonie! 🎓

For further information on either AESTQ / STAO conferences or support frame assembly please contact Dave Hepburn at *dehepburn@sympatico.ca*.

New Teacher Resources at trycomputing.org ..

Taking note of new and exciting *trycomputing.org* lesson plans added on-line for teachers.

Don't let the fast pace of new technology pass you and your students by! IEEE has teamed with partners to create a new *trycomputing.org* website with teacher and student resources. Going beyond the traditional focus of science and engineering (and the wonderful resources on *tryengineering.org*), the focus is on computer and software engineering. Repeat visits are encouraged, as new material is being added frequently to support and encourage students in computing. In addition to features like "*Find a University*" for computing and "*Career Profiles*", there are a number of well-documented lesson plans available to give students valuable computing

skills and experiences. Here are just a few examples:

"*Fun with Sorting*" introduces pre-university students to sorting, one of the most basic and fundamental problems in Computer Science.

 "*Search Engines*" explores the technology that makes a search engine possible, and takes a look at its variations.

"*Solving a Maze*" involves the design of an algorithm for a simple 4x4 maze.

.. And while you're at it, trynano.org as well!

Think small, really small! *TryNano.org* offers teachers and students a new world to explore.

IEEE has also created a new Web site that serves as a resource for anyone interested in learning about nanoscience and nanotechnology. *TryNano.org* lets visitors discover the exciting world of nanotechnology. Intended for pre-university students, parents, teachers, school counselors, and the general public, *TryNano.org* explores nanotechnology foundations, careers in nanotechnology and nanotechnology news. The website offers, among other resources, several lesson plans to help students gain first hand experience, for example:

Exploring at the Nanoscale focuses on how nanotechnology has impacted our society and how engineers have learned to explore the world at the nanoscale.

What is a Nanometer? explains how to measure in nanometers and provides students with an understanding of how small a nano really is.

Be a Scanning Probe Microscope (SPM) lets students use a pencil to explore the shape of objects, just as the SPM does at the nano level.

Third TISP-Canada Workshop in Vancouver, BC

Preparations are in full swing by the IEEE Vancouver Section, the TISP-Canada Committee and IEEE Headquarters to make this event in May 2013 a lasting success for teachers "Out West."

Photo credit: Tourism Vancouver

Vancouver, British Columbia, will be the location of the upcoming Third TISP-Canada Workshop. A promotional flyer for volunteers can be downloaded at *www.ieee.ca/tisp.*

The IEEE Vancouver Section and the national IEEE TISP Canada Committee are organizing in close cooperation with IEEE Headquarters the *Third TISP Workshop* in Vancouver in May 2013. During this workshop teachers and participating IEEE members will learn more about the program, meet with local IEEE members, and work in teams toward implementing some of the lesson plans.

TISP brings together IEEE members with their engineering expertise from industry and academia with local elementary and secondary school teachers. The main goal is to provide teachers with additional science and technology background knowledge and support. TISP helps teachers to implement and enhance stimulating classroom activities and lesson plans as part of their regular curriculum.

The IEEE Vancouver Section invites its members to join the IEEE Vancouver Teachers In-Service Program committee and be part of the efforts to enhance the level of technical literacy of teachers and students in our local pre-university education system. As part of our local activities and events our IEEE volunteers will work through some of these lesson plans with the teachers. We are excited to have teachers and IEEE members from Greater Vancouver area, from Alberta, and from the Seattle area in the United States involved in this initiative. 🎓

If you are interested in participating in the TISP activities and the planned 2013 TISP Workshop, please contact Steven McClain of the IEEE Vancouver Section at *stevenmcclain@ieee.org*.
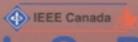
Education Award Honours Science Teacher

Dr. Nancy Lowery of Sacred Heart High School in Halifax, Nova Scotia, is the first recipient of the IEEE Canadian Atlantic Section's newly created Outstanding Engineering Education Award.

Motivated by TISP and the exemplary work accomplished by many educators, the IEEE's Canadian Atlantic Section has created an *Outstanding Engineering Education Award* in 2012. It is awarded to an individual who has "*shared his or her professional and educational abilities, and, in doing so, has made an outstanding contribution to engineering education within the territory of the Canadian Atlantic Section.*" Honour where honour is due!

At the Annual General Meeting of the Section in November the award winner was announced. Dr. Nancy Lowery, recently retired science teacher at the Sacred Heart High School in Halifax, was the first recipient of the Award.

The principal of the school described Dr. Lowery as an outstanding educator who built up an excellent rapport with her students. She built a strong robotics club, and at the recent RobotsEast contest the all-girls schoool team distinguished itself by building the best engineered robot. Dr. Lowery's enthusiasm and work ethic stood out, and her students recognized this in her. She gave quality guidance to her students and they would often talk to her about university programmes to get her input and advice. At least 10 students have gone on to take engineering and have done very well. A most deserving recipient for the Outstanding Engineering Education Award!

Congratulations, Dr. Lowery! 🔝

This piece was contributed by Dirk Werle, TISP Chair, IEEE Canadian Atlantic Section.

Photo credit: Bruce MacDougall

The CAS TISP chair and Dr. Nancy Lowery share a light moment during the recent award ceremony in Nova Scotia.

The Teachers' Corner

The TISP community relies on feedback from educators. Tell your colleagues and our mentors what helps you teach science/technology better. Share your triumphs and trials, we welcome them both.

Some guidelines for contributors

Articles and news items are welcome and should be sent via email to the Editors.

The *TISP Canada Courier* accepts feature articles up to a length of 1000 words with suitable illustration material. Smaller news items should not exceed 500 words in length. Notices for upcoming events should be submitted in a timely fashion keeping in mind the quarterly publication schedule of the Newsletter.

Although the editors will usually consult with contributors regarding any significant change to material submitted, the *TISP Canada Courier* reserves the right to publish such material with any change(s) necessary to meet space requirements, or as otherwise deemed necessary.

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The editorial content of this newsletter does not represent official positions of the IEEE or its organizational units.

IEEE and TISP

The Teacher In-Service Program provides a forum for IEEE volunteers to demonstrate engineering, science and mathematics concepts by sharing their real-world experiences with local pre-university educators. IEEE offers workshops for its volunteers on how to provide in-service programs.

Part of the IEEE mandate is to address declining interest of students in engineering. IEEE needs to help raise everybody's awareness of technology. The "TryEngineering" initiative involves IEEE, IBM and the New York Hall of Science. To-date, *TryEngineering.org* lesson plans have been downloaded more than 3 million times. The site has various great features, including a search for accredited university and college programs in many countries, including Canada. New portals on *TryComputing.org* and *TryNano.org* have also been launched.

More information is available at *www.ieee.org/education_careers/education/preuniversity/tispt*