25 1988-2013 Anniversary

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Volunteers - the foundation of IEEE Canada

From the section member who judges a local high school robotics contest to the President, IEEE Canada is run by a large group of dedicated volunteers. These men and women give their time to support and promote the engineering profession in Canada. IEEE Canada is the only IEEE Region which is also a country, giving it a unique national identity. There are currently 20 local sections and over 50 student branches. Notable firsts include: first regional office, first regional Web site, first regional magazine, first regional standards committee, and the first regional foundation. Nationally, IEEE Canada is the largest of the dozen member societies which comprise the Engineering Institute of Canada.

IN 2009 THE EIC COMPLETED a multi-year archiving project. As a result, more than 100 years of engineering history in Canada are now catalogued for ease of use by researchers.

"IEEE Canada is known for being a leader in organizational innovation, having been first in many accomplishments"
(A 25 year history of IEEE Canada)
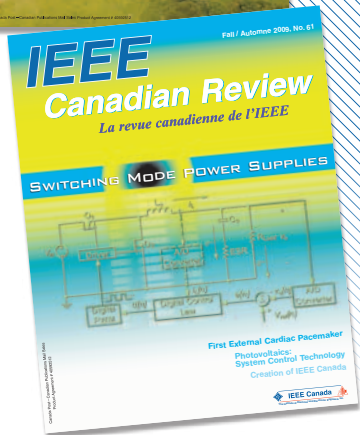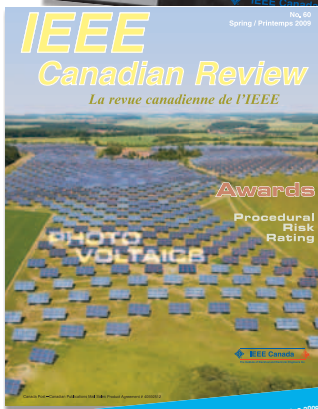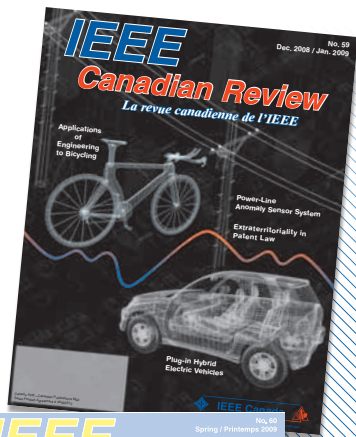
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Community News / *Nouvelles de la communauté*

41 Boxes, 100 years of Engineering History

41 bankers-size boxes are sitting in the basement of Andrew Wilson, past president of the Engineering Institute of Canada (EIC) and long-time Chair of the EIC History & Archives Committee. They contain the surviving archival material belonging to the Institute and are in need of safe, permanent storage that would also be accessible to those researching the history of engineering in Canada. Much of our profession's history is recorded in there.

EIC began life in 1887 as the Canadian Society of Civil Engineers (CSCE) by means of an Act of the Dominion Parliament. Its membership was based on individual engineers. Although its title used the word 'civil,' the intent was that it should include all disciplines of engineering and, while civil was dominant, the other main ones at the time were mechanical and mining, with electrical and chemical in their emergent stages. CSCE continued to be the name of the organization until 1918 when, in order to broaden its appeal to the growing number of 'non-civil' engineers, the Act was amended and it became the Engineering Institute of Canada. Much later, in the early 1970s, a second significant change came about when EIC formed several semi-autonomous, discipline-based 'constituent' societies which eventually became its "members". Nowadays, it assembles a dozen member societies including its largest by far in individual membership, IEEE Canada.

Over the years, some archival material belonging to the original CSCE and to EIC has been held in the National Archives of Canada (now Library and Archives Canada—LAC), EIC headquarters, constituent societies and a few other places. LAC archives did not fully represent the activities or the publications of the Institute, and recently it has restricted the kinds of material it will accept. The individual member societies, by the way, are responsible for the disposition of their own archival material; CSEE/CSECE/IEEE Canada material is currently being held at Queen's University.

During the course of its history, EIC volunteers kept copies of organizational records and publication—the latter being composed mainly of *Transactions of CSCE, Transactions* of EIC, and the *Engineering Journal* which was published until the mid-1980s. A collection effort which involved EIC Headquarters and various units had concentrated on the period since the end of World War II. Some photographs and memorabilia have also been included. The material in the collection, therefore, provided archival coverage of CSCE/EIC from around 1887 until around the end of the 20th century, but its effective use for historical research was made difficult by a lack of systematic organization and the dispersal of various collections.

This 1891 photo depicting early construction of an electrical machinery manufacturing plant in Peterborough Ontario was taken only four years after the founding of the CSCE. Like the EIC that grew out of the CSCE, it represents the inconnections between the disciplines' histories. Photo courtesy of Canadian General Electric Company Limited.

So, a methodical archival project led by Andrew Wilson began in the early 1990s. The rationale behind it was spelled out by Dr. Norman Ball in 1979 when he was engineering archivist at the National Archives of Canada: *it is up to the profession itself to preserve the raw material of Canadian engineering achievements and make it available for public use.*

Here we are now after a multi-year project involving the collection, sorting, filing and cataloguing of the material. Coverage is sometimes incomplete, but it is possible to do both longitudinal and vertical studies, the latter since some of the preserved material was collected by individuals for specific periods of time. Incidentally, the collected files that cover successful nominations for awards and fellowships provide a significant catalogue of achievements by Canadian engineers. All engineers in Canada should be grateful to Andrew for the immense amount of time he donated to preserve the memory of the profession.

Next steps: The (now much better organized) archives of the Engineering Institute of Canada need a home. The institution accepting this mandate will carry the prestige of being the guardian for a significant portion of Canadian Engineering memory. Discussions are taking place; we will let you know.

Then there will be the question of digitization and web-accessibility. Is there an engineer in the room?

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The material for this article was provided by Mr. Andrew H. (Drew) Wilson. Andrew is a graduate in mechanical engineering and the liberal arts. He is a past president of CSME and EIC and a past chair of CSME and EIC History Committees.

Montreal and Boston Adopt Each Other

Maybe it's the cold weather; IEEE Sections in Canada are really going after the warm feeling of having a larger family. After Toronto signing an agreement with Pittsburgh Section for 'sibling' status and Ottawa with Twin Cities (Minnesota), Montreal has now signed up with Boston. Yes, hockey archrival Boston. This is only the 7th sibling sections set in the whole IEEE !

This concept of Sister/Sibling Sections has existed for some time as IEEE leaders promoted closer cooperation between Sections, sharing tricks and techniques for unit management, exchanging distinguished lecturers, promoting each other's conferences. Although formalities are minimal for establishing this link, ongoing implementation had been sluggish due to communications costs and haphazard contact as volunteers come and go.

Now it's back with a vengeance, spurred on by Canadians. The latest such initiative started when Montreal Section chair Anader Benyamin-Seeyar was presented the concept at the IEEE Canada Board Meeting last Fall in Quebec City, just before Sections Congress. Dr. Bob Hanna, Past President of IEEE Canada, suggested Boston Section would be a good match with Montreal due to proximity, relative size and technological dynamism.

Anader didn't wait for formal introduction. The next day at Sections Congress he was roaming the hall looking for a Bostonian and found one in John Conrad, at the time Section Vice-Chair and now Chair. John mentioned that Boston had a Sister Section in Japan until 2008, and was more than ready to retry with a closer sibling. He obtained enthusiastic support from Region 1 director Howard Michel and advice from IEEE Past President Art Winston. IEEE Canada President Ferial El-Hawary was certainly upbeat about the prospect (no one who knows her would be surprised…)

Anader wanted this agreement drafted on the spot in Quebec City, but the Boston Section Chair was not present. Oh well, this is not the Big Dig; a simple plan was set up and followed: Agreement drafted, voted on, sent, and signed – as of January 8th, 2009. Welcome to the family!

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Material for the article provided by Anader Benyamin-Seeyar, IEEE Montreal Section Chair 2007-2008. Warm thanks extended to all volunteers involved, who unanimously supported this effort. Members' suggestions about Boston-Montreal cooperation are welcome.

Great Volunteers

I n issue 61, we introduced readers to the IEEE publication *A 25-Year History of IEEE Canada: Advancing Engineering Across Borders*. In this issue we reprint the pages highlighting some of the significant personal volunteer contributions.

Three Canadian members have been elected to the prestigious and demanding position of IEEE President. Three other volunteers were profiled for their contributions in the areas of IEEE membership database management, membership online self-renewal, and the establishment of the IEEE GOLD program. In future issues, we will bring you more news of members' contributions to the IEEE organization.

Canadians and the IEEE Presidency

No history of IEEE Canada would be complete without mention of the members who have been elected to the prestigious position of IEEE President. At this writing, three Canadians have led IEEE in this capacity.

Robert H. Tanner (1915-2002)

Robert Tanner joined the Institute of Radio Engineers (IRE) in England in 1938 after graduating from Imperial College (University of London) with a B.Sc. in Electrical Engineering, later receiving a M.Sc. in Acoustics. He became a Senior Member in 1948 and a Fellow in 1958. Mr. Tanner became Ottawa Section Chairman of Region 7 in 1965 and was Secretary Treasurer from 1963 to 1967. He was elected Regional Director in 1968, appointed Institute Secretary in 1970, elected Vice President in 1971 and President in 1972.

During his year of office, he set up the U.S. Activities Committee (now USAB) and steered the constitutional amendment on professional activities through the Board of Directors. Mr. Tanner was active on several Institute committees, including the chairmanship of a special three-year Long Range Planning Committee and service on the Foundation Board. Mr. Tanner has received two honors from Region 7: the A.G.L. McNaughton Gold Medal in 1974, IEEE Canada's highest award, and the IEEE Haradan Pratt Award in 1981 "for contributions toward professionalism and dedicated service to the Canadian Region, to IEEE and to the profession over many years."

Wallace S. Read

Dr. Wallace Read of St. John's, Newfoundland, Canada, brought a worldview to the IEEE Standards process that forever changed the way the organization serves its constituents. As Vice President of IEEE Standards Activities from 1993 to 1994, he strengthened relations with the International Electrotechnical Commission (IEC), the International Telecommunications Union (ITU) and the International Organization for Standardization (ISO), thereby positioning the IEEE for a greater leadership role in international standards development. During this same period, Dr. Read played a key role in refining the IEEE Standards Activities' structure to better serve industry through the formation of the IEEE Standards Association (SA) and the IEEE Industry Standards and Technology Organization (IEEE-ISTO).

An IEEE Life Fellow, Dr. Read served as IEEE President in 1996 and was on the IEEE Board of Directors for a decade. His many honors include the IEEE Standards Association

Notable Canadian IEEE Members

IEEE is made up of thousands of dedicated, hardworking members who are committed to supporting engineering and the engineering profession in Canada. A special thank you goes out to a few Canadian IEEE members who have been instrumental to changing IEEE in a significant and positive way.

Brent Hughes

As the Publicity Chairman for the Vancouver Section, Mr. Hughes was instrumental in creating the first IEEE membership database (SAMIEEE). The database greatly improved how IEEE accessed member information, allowing us to reach out to members in a more productive and targeted manner. For his efforts, Mr. Hughes received the Distinguished Service Award for 1989-1990 from the Vancouver Section, a Special Recognition Award from the IEEE Regional Activities Board (presented at Sections Congress 1990 in Toronto, Canada) and a Third Millennium Medal in 2000.

Gerald Karam

While serving as the IEEE RAB SAC Chair, Gerald Karam developed the first online registration system. Initially created for students, the early system evolved to make online application more efficient for all IEEE members. Dr. Karam has served as the IEEE-Canada Regional Student Representative, 1985-1986; Chair of the IEEE-Canada Student Activities Committee, 1988-1990; Chair of the Student Professional Awareness Activities (SPAA) Subcommittee of the Regional Activities Board's Student Activities Committee (RAB/SAC), 1992-1994; Vice Chair of RAB/SAC, 1995; and Chair of RAB SAC, 1996-1997. Dr. Karam is an IEEE Senior Member and received the IEEE Third Millennium Medal in 2000, as well as the 1998 Regional Activities Board Innovation Award.

Dave Kemp

Dedicated to helping recent graduates find their way in the engineering profession, Dave Kemp served as the first IEEE GOLD Committee Chair. For this work, he was recognized with the 1997 Regional Activities Board (RAB) Leadership Award. Mr. Kemp served as President of IEEE Canada and Director, IEEE Region 7, 1998-1999 and as IEEE Secretary, 2000. He is a Senior Member of IEEE and a Fellow of the Engineering Institute of Canada. Mr. Kemp has also served on the boards of two Societies and is a member of the ICF.

Canadians and the IEEE Presidency

International Award and the IEEE Power Engineering Society's Power Life Award. Dr. Read has also been a Member of the Order of Canada since 2003 and was the first recipient of the W.S. Read Service Medal in 2000.

Raymond D. Findlay

Dr. Raymond Findlay earned his B.A.Sc., M.A.Sc. and Ph.D. degrees from the University of Toronto and began his teaching career at the University of New Brunswick (1967-1981) before joining McMaster University in 1981, where he is currently Emeritus Professor in the Department of Electrical and Computer Engineering. He holds four patents in electromagnetic fields and losses in electrical power devices.

Dr. Findlay has served on the IEEE Board of Directors, 1994-1997, 2001-2003; as President of IEEE Canada, 1995; IEEE Vice President, Regional Activities, 1996-1997; and as IEEE President in 2002. In addition to various regional positions, he has been active in several IEEE Societies and serves on the IEEE Canadian Foundation and the Council of the Engineering Institute of Canada, where he is currently the Chair of the History Committee.

A Fellow of IEEE and the Engineering Institute of Canada, Dr. Findlay's many awards include the IEEE Canada Merit Award, the IEEE Millennium Medal and the W.S. Read Service Award. He was also awarded the 2007 IEEE Canada A.G.L. McNaughton Medal in recognition of "outstanding contributions to the analysis and design of electrical machines, particularly to the theory and measurement of shaft currents in induction motors, and for leadership in the profession."

Lancement du site du Réseau global d'histoire de l'IEEE

En 2008 le Réseau global d'histoire (RGH) de l'IEEE a été lancé: http://ieeeghn.org/wiki . Il s'agit d'un nouveau portail à contenu libre développé par le Centre d'histoire du IEEE. Avec des contributions attendues de milliers, possiblement de dizaines de milliers de volontaires, l'IEEE s'attend à ce que le RGH devienne la principale archive publique pour la préservation et l'interprétation de l'histoire de l'innovation technologique.

Pour contribuer au RGH, les membres du IEEE peuvent accéder au site avec leur identification et mot de passe de compte web IEEE. D'autres contributeurs potentiels qui ne sont pas membres IEEE peuvent demander un accès via un lien distinct. Les contributeurs pourront créer de nouvelles fiches et ajouter aux fiches existantes avec des narrations écrites, photos, dessins, schémas, documents, et enregistrements vidéo ou audio.

IEEE Milestone:
The First External Cardiac Pacemaker

"His invention saves millions of lives…"

By Visda Vokhshoori, IEEE Toronto Section

The Banting and Best Institute is located half a block east of Toronto General Hospital on the north side of College Street, across from the MaRS building. Its humble looking facade does not reveal to its observer the numerous inventions that were spawned in its halls.

When I arrived for the plaque unveiling ceremony, a little before 2 PM on September 26, I could not help but imagine what would have been like to go back in time and be in the company of the great man, Dr. John Hopps. In his own words, "There was no intent to sit down and develop a pacemaker. As so often happens, one piece of research spins off into something else." [Hopps' interview with CBC Front Page Challenge, 1984] These were humble remarks for a man whose invention has saved and improved lives of millions of people.

Half a century later, the IEEE History Committee and Board of Directors recognize Hopps' Extra Cardiac Pacemaker as a significant achievement and award this invention the IEEE Milestone status. Pelle Westlind, IEEE Toronto Life Member Chair, Patrick Finnigan, IEEE Toronto Section Life Member Vice-Chair, Ferial El-Hawary, IEEE Canada President, and Donald Hopps, son of late Jack Hopps, animated the ceremony. And now the front wall of Best and Banting is adorned with the bronze plaque honoring this far-reaching engineering developement. Congratulations to the inventors, and to the volunteers who steered forward this recognition.

L to R: Ferial El-Hawary, Pelle Westlind, Donald Hopps, Patrick Finnigan

Bob Alden, a recipient of a History Committee Recognition, was honoured November 17, 2009 at the IEEE Foundation Board meeting in Piscataway, New Jersey. This new Recognition Program was approved a few days earlier by the IEEE History Committee. At left the Committee's 2009 Chair, Richard Gowan, makes the presentation.

The citation reads:

"The IEEE History Committee recognizes the contributions to the history activities of IEEE made by Robert Alden, whose efforts have increased the recognition by the general public of technical achievements in IEEE's fields, and enhanced the appreciation of those achievements and their contributions to humanity.

Richard Gowan
Chair, 2009 History Committee"