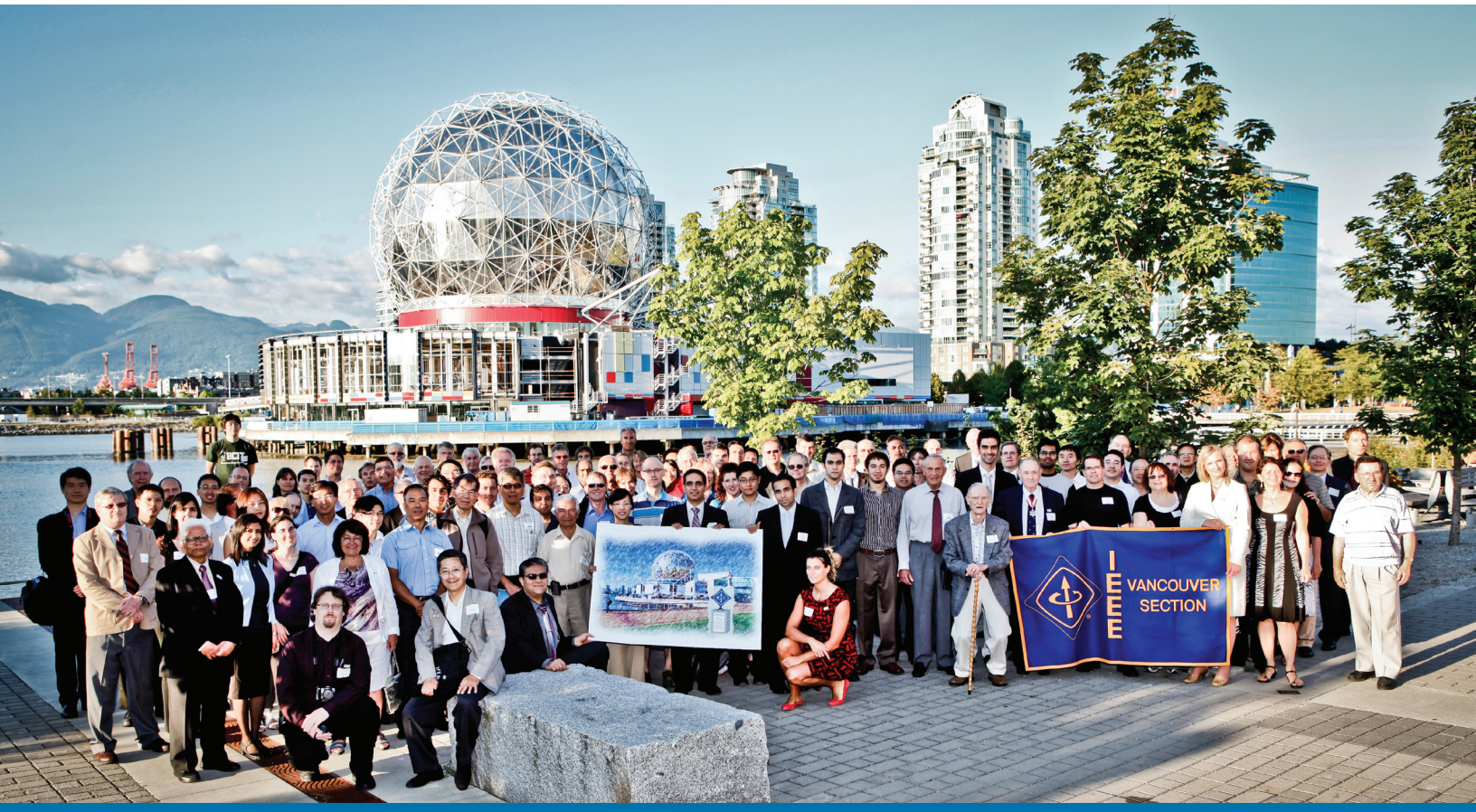
1911–2011

IEEE VANCOUVER SECTION

Centennial Booklet

100 Years of Technological Excellence



IEEE

Centennial Committee Members and Contributors

Leading Volunteers

- Mazana Armstrong—centennial committee chair
- Gruja Blagojevic—sponsorship, centennial monument, technical symposium
- Pieter Botman—logo and slogan competitions, centennial publicity
- Kouros Goodarzi—major events (AGM, centennial history event on June 27), centennial promotion and posters
- Chris Scholefield—history search, centennial booklet
- BCIT student branch (chair Koji Otomo)—history search and centennial events support

Events and Initiatives

Logo and Slogan Competitions

- Chair: Pieter Botman
  Members: Ljiljana Trajkovic (SFU), Fiorenza Albert-Howard, Patrick Sándi, Mazana Armstrong, Alon Newton

Centennial Sponsorship

- Gruja Blagojevic, Nina Selak, Mazana Armstrong

Centennial Monument

- Mazana Armstrong, Gruja Blagojevic, Steven McClain, Alon Newton

2011 Centennial Gala and AGM

- Kouros Goodarzi, Mazana Armstrong, Koji Otomo (BCIT), Coco Sun (BCIT), Jodie Vigar (BCIT), William Tigor (BCIT), and Christopher Morrissey (BCIT)

100th Birthday Celebration Event

- Gruja Blagojevic , Mazana Armstrong, Kouros Goodarzi, Zahra Ahmadian (UBC), Nasim Arinpoo (UBC), Dana Hoffman (UBC), Alain Bergeron, Neda Eskandari (UBC), Mark Bradwell (special guest)

Centennial Awards

- Chair: Charles Henville
  Members: José Martí (UBC), Hermann Dommel (UBC); Support: Meliha Selak, Valentina Dabic, Shahrzad Rostamirad, Mazana Armstrong

Event Recording and Photography

- Steven McClain

Centennial Booklet

- Chair: Chris Scholefield
  Members: Kouros Goodarzi, Mazana Armstrong, Pieter Botman

Plaques and Pins

- Sharhrzad Rostamirad, Valentina Dabic

History Search

- Chris Scholefield, Koji Otomo (BCIT), Jodie Vigar (BCIT), William Tigor (BCIT), Christopher Morrissey, Coco Sun (BCIT), Mazana Armstrong, Steven McClain, Aryan Navabi, Frankie Angai (UBC), Chris Siggers

Centennial Receptions at BCIT, SFU and UBC; UBC Student Branch project fair; BCIT project presentations and paper competition; SFU poster event

- BCIT student branch: Koji Otomo (chair), Christan Beharrell, William Tigor, Jodie Vigar, et al.
- SFU student branch: Mohammad Akhlaghi (chair), Duncan Chan (past chair), et al.
- UBC student branch: Harshul Srivastava (chair), Frankie Angai (past chair–2010), Aryan Navabi (past chair–2009), et al.
- Student Branch Councillors: Glenn Pellegrin (BCIT), Glen Chapman, Bonnie Grey, Ljiljana Trajkovic (SFU), Joséph Yan (UBC)
- Student Branch Coordinator: Meliha Selak
- University support: Craig Cowan (BCIT Associate Dean), Bob Gill (BCIT Program Head), Nimal Rajapakse (SFU Dean of Applied Sciences), Andre Ivanov (UBC ECE Dept. Head)

Centennial Technical Symposium:

- Chair: Gruja Blagojevic
  Members: Mazana Armstrong, Zahra Ahmadian (UBC), Nasim Arinpoo (UBC), Dana Hoffman (UBC), Kouros Goodarzi, Ljiljana Trajkovic (SFU)

Centennial Website:

- Victor Tsang, Pieter Botman

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- Nick Keenan, Nina Selak

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	Bob Gill, Faculty/Program Head, Telecomm and Networks
APEG BC	Derek Doyle, CEO
	Megan Archibald, Associate Director
	Jeff Holm, VP
	Mike Waberski, Councillor
MDA	Cam Pearce, Manager, Engineering Department
GE Energy	Kevin Parlin
IEEE Canadian Foundation	
IEEE Vancouver Section	

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Preface

December 2011

Dear IEEE Members and Friends,

This publication is a compilation of historical facts and articles reflecting on the past century of electrical technology advances that helped shape the Province of British Columbia. The stories are told by our members based on their first-hand experiences and historical records preserved by our Section. The booklet also includes coverage of 2011 Vancouver Section events which celebrated the Section's Centennial. I hope you will enjoy reading it and that you will preserve it as a keepsake for years to come.

Mazana Armstrong

Mazana Armstrong, Ph.D., P.Eng.
IEEE Vancouver Section Chair
Centennial Committee Chair

Cover photos courtesy of:
Top row: BC Hydro Power Pioneers (left to right, photos 1-4, 6-7), *Electrical News and Engineering* (photo 5).
Second row: Paolina Amadio (left to right, photos 1, 3-5, 7), Doddy Wijanta (photos 2, 6).
Bottom photo: Doddy Wijanta.

A Look Back at IEEE Vancouver Section History

Chris Scholefield, PhD BSc MIET MIEEE

It was my pleasure to join with the IEEE Vancouver Section in celebrating their centennial in 2011. During the year we participated in many events to celebrate this important milestone.

A number of working groups were formed to search through the Section historical records that have been stored over the years. This was an opportunity to clean house, but many important historical documents and facts were uncovered and important records have been scanned for archiving. These records include important historical correspondence on the formation of the Section and Chapters as well as newsletters and minutes of meetings.

We see one of these groups in action (Fig. 1) after a day of going through a very old filing cabinet. I must say that following several days of work by many volunteers we have made a relatively small impact on the collection.

Figure 1—Centennial Committee volunteers at work on the collection of Vancouver Section archives.

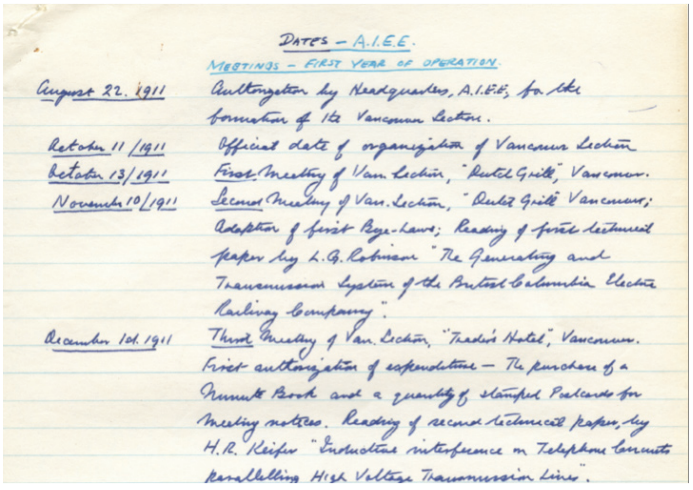
It is a very challenging task to describe 100 years of the section history within a few pages of this article. What I hope to do is illustrate a few of the nuggets of facts that have been found and will be of interest. Fortunately, there are a couple of articles describing some of the early history and copies have been reprinted in this publication [1, 2]. I will try not to repeat the earlier history, other than to put into context some of the facts we have found. Consequently, this article will focus on being an update on the recent history over the last 50 years.

The Vancouver Section was formed in 1911 from interest in power systems. In that same year, the Stave Lake power plant with two 10,500 kW units came into operation with its 60 kV transmission line to Vancouver.

Figure 2—A BC Electric streetcar at 50th Avenue and Main Street in 1923. Photo courtesy of BC Hydro Power Pioneers.

Only 8 years earlier, the very first hydroelectric plant in the lower mainland came online at Buntzen Lake, generating 1,500 kW for the newly formed British Columbia Electric Railway company, which amalgamated many lower mainland lighting and tram companies. The Buntzen plant was the primary power source to operate a Vancouver streetcar service starting in 1906 (Fig 2). The streetcars were originally designed to be horse drawn, but in a late design change they were modernized to incorporate electric motors. Much of the history of the BC Electric and the eventual formation of BC Hydro have been recorded by BC Hydro Power Pioneers [3].

It is with this background that a group of electrical engineers having a common interest in power generation and distribution partitioned the American Institute of Electrical Engineers (AIEE, pronounced AI double E) to form a new section in Vancouver and the AIEE authorized that formation in a letter dated August 22, 1911. The official date of formation according to the recorded meeting minutes (Fig. 3) was October 11, 1911 with the first meeting held two days later at the Dutch Grill. The meeting roster from the very first meeting shows 19 people in attendance representing several power companies (Fig. 4).


DATES – A.I.E.E.

MEETINGS – FIRST YEAR OF OPERATION.

August 22. 1911 — Authorization by Headquarters, A.I.E.E. for the formation of the Vancouver Section.

October 11/1911 — Official date of organization of Vancouver Section

October 13/1911 — First Meeting of Van. Section, "Dutch Grill", Vancouver.

November 10/1911 — Second Meeting of Van. Section, "Dutch Grill" Vancouver; Adoption of first By-Laws; Reading of first technical paper by L.G. Robinson "The Generating and Transmission System of the British Columbia Electric Railway Company".

December 10th 1911 — Third Meeting of Van. Section, "Trader's Hotel", Vancouver. First authorization of expenditure – The purchase of a Minute Book and a quantity of stamped Postcards for meeting notices. Reading of second technical paper, by H.R. Keiper "Inductive Interference on Telephone Circuits paralleling High Voltage Transmission Lines".

Figure 3—Record of the first year of operation of the Vancouver Section of the AIEE.

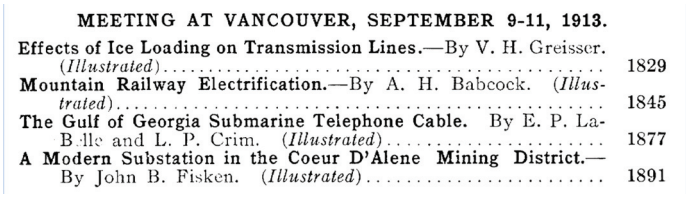
Communication across Canada in 1911 was very limited. This was still a decade prior to the formation of

the BC Telephone Company, so there was no long distance voice communication. Holding a meeting with members of the AIEE in Toronto would necessitate taking a train with several days journey each way. Consequently, greater alignment was achieved with the Pacific North West Sections of the AIEE.


Vancouver.—Anderson, W., 413 GranvilleSt
Beebe, C. N., Box 175.
Boesch, J. E., B. C. Elec. Ry. Co.,Ltd.
Breed, E. M., 814 Dominion Trust Blg.
Chappell, W. C., Clifton Mansions.
Ehrenborg, G. B., 518 Winch Blg.
Gain, L. A., 198 Hastings St.
Hayward, R. F., Western Can. Pr. Co.Ltd.
Hoffmeister, Frederic, 1121 Georgia St.
Lister, J. Geo., 1031 Harwood St.
McCrossan J. A., Box 1882.
Montgomery, J., Western Canada Pr. Co.
Nims, F. D., Western Can. Pr. Co., Ltd.
Philpot, L. B., 1656 Georgia St.
Read, John R., 439 Pender St.
Routh, Alex. C., Box 249.
Sperling, R. H., B. C. Elec. Ry. Co., Ltd.
Walkem, G. A.
Young, Russell, 1217 Robson St.

Figure 4—Meeting roster from the first Vancouver Section meeting on October 13, 1911.

Membership in the Vancouver section grew quickly from the original 19, to 28 in the following year and 42 in 1913. It was a significant achievement that in 1913 this small group in the Vancouver Section hosted the AIEE Pacific Coast Regional Convention. This brought together electrical engineers from neighbouring Seattle and Portland (Fig. 5). These conventions would be held in Vancouver about every decade in 1913, 1922, 1932, 1942 and 1953.


MEETING AT VANCOUVER, SEPTEMBER 9-11, 1913.

Effects of Ice Loading on Transmission Lines.—By V. H. Greisser. (*Illustrated*) 1829

Mountain Railway Electrification.—By A. H. Babcock. (*Illustrated*) 1845

The Gulf of Georgia Submarine Telephone Cable. By E. P. LaBelle and L. P. Crim. (*Illustrated*) 1877

A Modern Substation in the Coeur D'Alene Mining District.—By John B. Fisken. (*Illustrated*) 1891

Figure 5—Transactions of the AIEE Pacific Coast Regional Convention held in Vancouver.

An interesting side note from the meeting organizer's records demonstrates the culture of the time. At one of the meetings a novel concept was the introduction of a non-smoking table at the dinner. This was "well appreciated by the members who made use of the table", even though I am sure the room was never-the-less filled with smoke. It was also assumed that all attendees, about 400 electrical engineers, were male and activities were arranged for the entertainment of accompanying wives.

Following the second world war (1939-45), there were tremendous advances and interest in radio and electronics. This led to the formation of a Vancouver Section of the Institute of Radio Engineers (IRE) on September 19, 1950. Many of the members of this new IRE were also members of the AIEE and would also attend both meetings.

Mark Bradwell was Student President of AIEE in 1949, Section Chairman of the AIEE in 1958/9, an employee of BC Electric and the Section's longest serving member. I recently met with Mark to reminisce about old times.

"We had two meeting groups. These were not two technical groups. One was called the dinner meeting group and the other was the Section meeting group. We met and had dinner at the Devonshire Hotel with a half hour presentation with discussion after.

Then we would walk over to the medical/dental building in the next block to a meeting room where we had our formal Vancouver Section meeting. There we had a more formal presentation on a technical topic.

This was a means of increasing attendance. People would come to the dinner, whereas they wouldn't come to the other meeting."

The commonality between these Sections was experienced throughout other sections of the AIEE and IRE and eventually led to the two organizations amalgamating into the one Institute of Electrical and Electronic Engineers on January 1, 1963.

Mark Bradwell was involved in a working group from both organizations to create a temporary set of bylaws for the joint society. The two organizations had a very different view. IRE was much less formal than the AIEE. Following the merger there were two groups. The distinction used to be "large currents" representing the power field and "small currents" representing the electronic field.

Various interest groups became societies within the parent organization of the IEEE. There were three main interest groups in the Vancouver Sections at the time: Power, Electronics and Industrial. The power chapter was formed on December 17, 1964 followed by the Electronics and Industrial Chapters in February 1966.

Following the formation of the IEEE in 1963 the Vancouver Section began publication of the "Contact" as a newsletter to members. Current members of the Section will be familiar with Contact as a monthly publication delivered by mail and today frequently read online. Back when it was first introduced, Contact was a much larger annual publication. It is interesting to read articles from these early publications of Contact which coincided with the opening of BCIT (Fig. 6) and report of a field trip (Fig. 7)

Figure 6—First publication of Contact containing an article on the opening of BCIT.

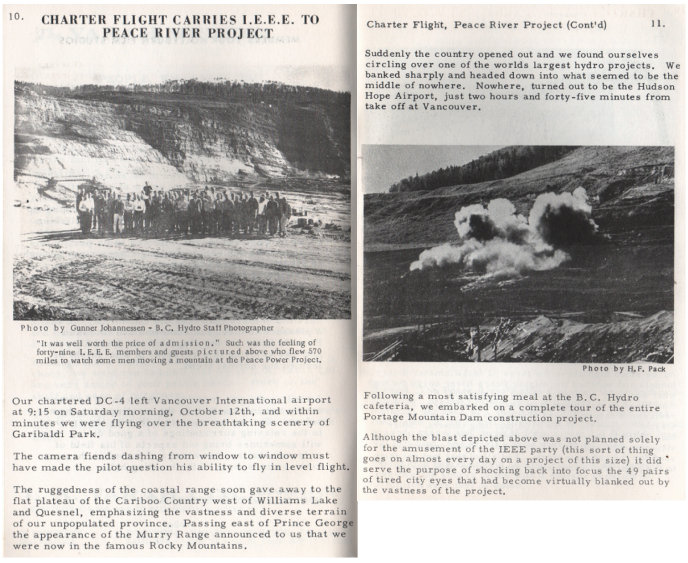


Figure 7—Report of a field trip from the first Contact published in 1964.

Today's interest groups have expanded significantly from the original three to fifteen: Aerospace and Electromagnetics, Applied Physics, Circuits and Systems, Communications, Computing, Controls and Automation, Electron Devices, Engineering in Medicine and Biology, Industrial Applications and Electronics, Management, Oceans Geoscience and Remote Sensing (in process of formation at the time of writing this article), Power and Energy, Power Electronics, Signal Processing and finally Solid State Circuits and Technologies. Nearly all members' interests through membership of IEEE societies are now represented by chapters within the Vancouver Section.

There are also three affinity groups: Graduates of the Last Decade, Women in Engineering and Life Members. Student branches exist at UBC, SFU, BCIT,

Figure 8—Centennial plaque presented to UBC Student Branch in recognition of the first student branch Canada founded in 1930.

UBC-Okanagan and UNBC and the Vancouver Section awards scholarships to student members at these educational institutions.

Recently, the Vancouver Section has sponsored the formation of two sub-sections: Northern BC in Prince George associated with University of Northern British Columbia and Okanagan associated with UBC Okanagan.

One major accomplishment was to host the very first Canadian Conference on Electrical and Computer Engineering (CCECE) in Vancouver in 1988, sponsored at that time by the Canadian Society of Electrical and Computer Engineering (CSECE). The CCECE was established by Dr. Vijay Bhargava of the University of Victoria at the time and has been held annually since then. In 1995 CSECE merged with IEEE Region 7 to form IEEE Canada.

The IEEE recognizes individual contributions through a number of awards. The most significant award in Canada is the Mc Naughton Medal and the Vancouver Section has five members who have received this award: Thomas Ingledow in 1971, Hector J. McLeod in 1973, Gordon

Figure 9—CBC Senior Staff at the time of the Mt. Seymour broadcasting site's opening in December 1953. From Left to Right: E. F. McGrath, Supervising Operator, CBU Transmitter. R. L. Whiteside, Technical Director, TV. A. Geluch, Chief Operator, Vancouver area. D. Horne, Supervisor Technical Operations, Vancouver Studios. F. B. C. Hilton, B.C. Regional Engineer. E. Rose, Assistant Technical Director, TV. M. S. Bishop, Senior Transmitter Operator, CBUT. Photo courtesy of CBC.

F. MacFarlane in 1982, Harry M. Ellis in 1990 and Vijay Bhargava in 1995 (as a member of the Victoria Section at the time). There are many other awards which are detailed on pages 9–10.

The IEEE not only recognizes individual contributions, but also important milestones in history [4]. The Vancouver Section has been recognized in three milestones: television broadcasting, radio astronomy and particle physics. The following plaque citations are displayed at each of these sites.

First Television Broadcast in Western Canada, 1953
North Vancouver, British Columbia
Dedicated 6 November 2010

On 16 December 1953, the first television broadcast in Western Canada was transmitted from this site by the Canadian Broadcasting Corporation's CBUT Channel 2. The engineering experience gained here was instrumental in the subsequent establishment of the more than one thousand public and private television broadcasting sites that serve Western Canada today.

First Radio Astronomical Observations
Using VLBI, 1967
Kaleden, British Columbia
Dedicated 25 September 2010

On the morning of 17 April 1967, radio astronomers used this radiotelescope at DRAO and a second one at the Algonquin Radio Observatory located 3074 km away to make the first successful radio astronomical observations using Very Long Baseline Interferometry. Today, VLBI networks span the globe, extend into space and continue to make significant contributions to both radio astronomy and geodesy.

Figure 10—Radio telescope at The Dominion Radio Astrophysical Observatory (DRAO), located near Penticton, BC.

Figure 11—January 1972: TRIUMF staff gathers on the lower six sectors of the cyclotron magnet. Photo courtesy of Triumf.

First 500 MeV Proton Beam from
the TRIUMF Cyclotron, 1974
Vancouver, British Columbia
Dedicated 16 December 2010

At 3:30 pm on 15 December 1974, the first 500 MeV proton beam was extracted from the TRIUMF cyclotron. Since then, TRIUMF has used proton beams from its cyclotron (and secondary beams of pions, muons, neutrons and radioactive ions produced in its experimental halls) to conduct pioneering studies that have advanced nuclear physics, particle physics, molecular and materials science, and nuclear medicine.

The history of the Vancouver Section would not be complete without discussing some of the work of its members and the technology advances in the Vancouver community over this period. The BC Tech Map [5] provides a fascinating genealogy of hundreds of companies in Vancouver and other parts of BC. It identifies important relationships between the companies that most of our members worked at during their careers. When I talked to the author of the map, I found that it was the person stories of the people working in those industries that give life to the map.

Mark Bradwell joined BC Electric as an Engineer in Training, which was a four-year training program for graduate engineers. "Over this time I worked in eight departments, such as design of a substation or relay protection on a drawing board, supervising contractor building substations, line installation, underground cable analysis and system planning work using a network planning board."

At the end of his training BC Electric decided to buy their own network calculator based on an analogue computer. "This was a 400 Hz generator with appropriately designed units which would represent the system and a plug board to interconnect them." Mark was put in charge of running this board.

Not long after this came the merger of the BC Electric (operating in the lower mainland) with Power Commission (operating on Vancouver Island and other parts of BC).

"When this happened many lead engineers left to form the International Power Engineering Consultants and BC Hydro became a different type of organization. When the merger occurred, each organization had similar department heads. In large part the BC Electric managers prevailed and Power Commission managers became assistants."

Dr. Hermann Dommel was one of the recipients of this anniversary year's Vancouver Section Centennial Award. He came to Vancouver from Bonneville Power Administration in Portland Oregon in 1973 to join UBC. He is regarded as a world expert on computer modeling of electromagnetic transients in power systems and has performed research and consulting for BC Hydro and other power companies. Until the mid 1960's the transmission line would be modeled as a Pi circuit using analogue computers as a transient network analyzer.

Dr. Dommel held a research chair until the year 2000 financed by BC Hydro and the Natural Sciences and Engineering Research Council of Canada. His work and the use of his Electromagnetic Transients Program (EMTP) by BC Hydro has led to an understanding of transient overvoltage due to switching, which is applied to the design of insulation, surge arrestors, matching surge resistors and controlled timing closing of switches.

A number of companies have created commercial modeling programs based on the same equations used by Dr. Dommel and Canada has become a leader in commercial package development.

Dr. José Martí continued Dr. Dommel's work at UBC and expanded the capabilities and the areas of application of the EMTP software. He developed the reference model for multi-conductor transmission lines that is used in all major commercial EMTP packages. He also modified the EMTP algorithms to eliminate numerical oscillations and allow the efficient representation of power electronic components.

Dr. Martí, also regarded as a world leader in real-time EMTP modeling, has built a platform to model the interdependencies that exist among the multiple systems affected during large disaster situations (e.g. power grid, water system, transportation network, hospitals network and first responders). This tool is the first of its kind and allows the real-time simulation of the dynamic behaviour of the disaster before critical decisions are taken.

Turning away from power systems and looking over the genealogy of technology in the BC Tech Map, we see that a few of these companies have played key roles by spinning off many other related companies. I have had the good fortune to work or be associated with several of these companies, particularly those associated with computers and communications.

One of these pioneers is Dr. John Macdonald [6] who founded Macdonald Dettwiler and Associates in 1969, together with Vern Dettwiler. John Macdonald has been well recognized with many awards for his work, including one of this year's Vancouver Section Centennial Awards.

In 1968 John Macdonald was working as a professor at UBC when he was approached by Lenkurt Electric (later to become Microtel Pacific Research). They needed to develop a computerized supervisory control system to replace the discrete systems traditionally used for the new Northern Interprovincial Microwave Communication System. In order to build the solution Dr. Macdonald joined with Vern Dettwiler, Ken Moran, Ron Spilsbury and others to form Macdonald Dettwiler and Associates.

The supervisor was designed using a real-time system running on DEC PDP-8i with 4k of memory and 32k disk storage. There were four computers connected over the microwave backhaul. They wrote a language called "system builder", which allowed the system to be reconfigured. The system ran flawlessly for 15 years until the system became overloaded due to scaling of the microwave system.

The move to space systems came from an idea of David Sloan who was very interested in space in 1971 when he became the 8th employee. As a result, MDA bid on contracts for the Earth Resource Technology Satellite (later called Landsat) and won a contract to build the demultiplexer, beating out Hughes Aircraft. David Sloan also came up with an idea to add a simple imaging device called the Quicklook system using a Polaroid camera as a maintenance tool.

MDA later made an unsolicited proposal to build a low cost ground station in a 40' trailer. The $2M ground station was about 1/5th the cost of a tradition system and this prototype became the Shoe Cove station in Newfoundland. The low cost ground station was extremely successful and became the core business through the 1970's

It is remarkable that MDA produced a number of highly successful spin-off companies, including Mobile Data International (MDI, later Motorola Mobile Data Division) and Creo (later Kodak Vancouver).

The formation of MDI originated when MDA was given a government communications contract to develop radio data communications for the RCMP. Conventional wisdom of the day believed that private mobile radio channels could carry no more than 30 bps of digital data. Dan Gelbart, who was seconded from MDA, designed a modem operating at 4800 bps with forward error correction and automatic repeat request. This revolutionized the technology to allow emergency services and taxis to use their regular low cost VHF radio to carry reliable high speed data.

MDA sold off the business to Ventures West and Mobile Data International was formed by Tom Purdy and Bill Thompson with Ventures West represented by Victor Jones [7]. The major success of MDI was supplying

equipment to Fedex, allowing the mobile tracking of packages, and supplying mobile data systems to emergency services and for taxi dispatch. MDI was eventually acquired by Motorola for $105M.

One successful spin off from MDI was Sierra Wireless. Dr. Norman Toms joined MDI in 1987 and a few years later left to join MPR followed by six colleagues. In the early 1990's the Cellular Digital Packet Data (CDPD) announcement was made by the US cellular carriers. One of the ex-MDI engineers, Pete McConnell, had met with several of the US carriers and influenced the CDPD specification to become more IP based. Norman Toms then met with executives of Sierra Semiconductors, the parent company of PMC Sierra in 1992, who provided funding for the formation of Sierra Wireless.

Dan Gelbart while at MDA had also developed an accurate image film recorder and the modem for MDI. He was leading the team working on developing an optical storage device when John Macdonald encouraged Dan to start his own company, Creo, building high precision imaging equipment. Creo was also very successful and was eventually acquired by Kodak for $980M.

There may be some of you who think I have omitted a significant sector of BC Technology in this short account of the Vancouver Section history and some of the key technology developments. I would invite anyone who wants to record their place in history to go to the IEEE Global History Network [8], where a set of wiki pages have been created to allow further contributions to be made. Alternatively, if you have an interesting story to tell, please contact me and we will set up a recording session. Perhaps your own experiences will be found in the next update to the Vancouver Section history.

As we look back at the past we realize the very significant advances in technology achieved since the era descrived in these first history articles. In the space of 50 years, we have experienced the power of Moore's law in operation. The advances have not only given us commoditized technology that simplifies our work and helps us to communicate globally. The advent of computers and digital communication has created a global information revolution. This is changing society on a scale comparable with the invention of Gutenberg's printing press around 1439 which gave rise to the industrial revolution. I cannot imagine what technology advance and society change will occur in the next 50 years, but it will make interesting reading as we have history in the making.

Dr. Chris Scholefield is currently working on developing a special history of the high technology leaders and firms in British Columbia. He also serves as the History Chair of the IEEE Vancouver Section. He can be contacted at: chris.scholefield@ieee.org.

References

[1] Early Recollections of the Power Industry in BC, A. T. Goward, Electrical News and Engineering, June 1941.

[2] A Narrative History of the Vancouver Section, Lorne R. Kersey, Power Engineering Review, PER-4, Issue 11, pp 6-9, 1984.

[3] Historical collection of the BC Hydro Power Pioneers available at http://www.powerpioneers.com and published in "Gaslights to Gigawatts" and "Voices from Two Rivers", available from BC Hydro Power Pioneers.

[4] List of Milestones recorded at the IEEE Global History Network http://www.ieeeghn.org/wiki/index.php/Milestones:List_of_IEEE_Milestones

[5] BCTechMap,publishedbyPricewaterhouseCoopers International Limited, See http://www.pwc.com/ca/en/technology-industry/bc-techmap.jhtml

[6] Audio recordings of BC technology pioneers, some of which are available at http://inceptionsoft.com/wiki/index.php/Podcasts.

[7] Personal account of MDI history recorded by Derek Spratt at http://www.derekspratt.com/html/business/other/motorola%20overview.html

[8] The history pages of the Vancouver Section on the IEEE Global History Network at http://www.ieeeghn.org/wiki/index.php/IEEE_Vancouver_Section_History

Award Recipients

Vancouver Section Centennial Awards—2011

- Rabab Ward
- Arkady (Ark) Tsisserev
- James McFarlane
- José Martí
- John MacDonald
- Victor Leung
- Harry Ellis (in memoriam)
- Hermann Dommel
- Thurb Cushing (in memoriam)

IEEE Centennial Medal Winners—1984

- Harry M. Ellis
- Hugh J. Goldie
- Lorne R. Kersey
- John S. MacDonald
- William H. Thompson

Centennial Awards and Recognitions

Industry & University Recognitions:

- BC Hydro
- UBC
- BCIT

Women Leaders:

- Fiorenza Albert-Howard (photo A8)
- Meliha Selak

Outstanding Sustained Contributions:
- Nick Keenan
- Pieter Botman
- Merrill Wittman

Contributions to Section & Profession:
- José R. Martí
- Charlie Henville
- Hermann Dommel

IEEE Third Millennium Medal Winners
- Fiorenza Albert-Howard
- Clarence de Silva
- Harry Ellis
- Charles Henville
- Brent Hughes
- Nick Keenan
- Brian Lee
- Roger Nelson
- Bruce Prior
- Chris Siggers
- Merrill Wittman

McNaughton Medal Winners
- Vijay Bhargava, 1995
- Harry M. Ellis, 1990
- Gordon F. MacFarlane, 1982
- Hector J. McLeod, 1973
- Thomas Ingledow, 1971

Service Awards
- Meliha Selak, 2010
  Western Canada Merit Award
- Dave Michelson, 2009
  Western Canada Merit Award
- Vijay Bhargava, 1999
  IEEE Haraden Pratt Meritorious Service Award
- Brian Lee, 1997
  Western Canada Merit Award

Achievement Awards
- William Gruver, 2011
  Computer Medal
- Vijay Bhargava, 2010
  Outstanding Engineering Educator Award
- Frank Plumptre, 2010
  Vancouver PES Outstanding Engineer Award
- Wenyuan Li, 2009
  IEEE Canada Outstanding Engineer Award
- Briant Avent, 2008
  Vancouver PES Outstanding Engineer Award
- Vijay Bhargava, 2007
  Fessenden (Telecommunications) Medal
- Herman W. Dommel, 2007
  Power Medal
- Abdul M. Mousa, 2007
  Vancouver PES Outstanding Engineer Award
- Charlie Henville, 2003
  IEEE Canada Outstanding Engineer Award
- Vijay Bhargava, 2002
  IEEE Graduate Teaching Award
- Clarence W. De Silva, 2000
  Outstanding Engineering Educator Award
- K.D. Srivastava, 1998
  Outstanding Engineering Educator Award
- Hermann Dommel, 1989
  IEEE Outstanding Educator Award

EIC Awards
- Andre Ivanov, 2011
  EIC Fellow
- Jin Jiang, 2011
  EIC Fellow
- Wenyuan Li, 2010
  EIC Fellow
- Victor C M Leung, 2009
  EIC Fellow
- Ljiljana Trajkovic, 2007
  Canadian Pacific Railway Engineering Medal
- Michael S. Davies, 2006
  EIC Fellow
- Robert W. Donaldson, 2004
  EIC Fellow

IEEE Canadian Foundation Scholarships
- Emily Landry, UBC–O, 2011
- Verona Wong, IEEE Canada Women In Engineering Prize, 2007
- Yang Wen Liang, IEEE Canada Vehicular Technologies Award, 2006
- Nina Selak, UBC, 2006
- P. Sin, UBC, 2001
- P. Leung, UBC, 2000
- V. Wong, UBC, 1999
- T. Le, UBC, 1992
- D. Wong, UBC, 1991
- T. Chia, UBC, 1990

Fellows
- Lei Wang, 2011
- Robert Schober, 2010
- Ian G. Cumming, 2009
- Rodney Vaughan, 2007
- W. Kenneth Dawson, 2006
- Andre Ivanov, 2006
- Resve A. Saleh, 2006
- Vikram Krishnamurthy, 2005
- Tim E. Salcudean, 2005
- Ljiljana Trajkovic, 2005
- Charles F. Henville, 2004
- Jan Conradi, 2003
- Victor C. Leung, 2003
- James K. Cavers, 2002
- Wenyuan Li, 2002
- José R. Martí, 2002
- Andrew Ng, 2002
- Brian H. Marcus, 2000
- David L. Pulfrey, 2000
- Ebrahim Vaahedi, 2000
- Guy A. Dumont, 1999
- Rabab K. Ward, 1999
- Clarence W. De Silva, 1998
- William A. Gruver, 1996
- Abdul M. Mousa, 1995
- Vijay K. Bhargava, 1992
- John S. Macdonald, 1992
- Ian F. Blake, 1991
- W. Kenneth Dawson, 1991
- Maria A. Stuchly, 1991
- E. V. Jull, 1989
- K. D. Srivastava, 1985
- Hermann W. Dommel, 1979

Past Fellows
- F.J. Bartholomew (AIEE)
- Thomas Ingledow (AIEE)
- Hector J. MacLeod (AIEE)
- John H. Steede (AIEE)
- Frank Noakes (AIEE)
- Frank O. Wollaston (AIEE)
- Henry W. Smith (AIEE)
- Cyrus H. McLean (IRE)
- B.R. Tupper (IRE)
- Yao-Nan Yu (IEEE, 1978)
- Harry M. Ellis (IEEE, 1970)
- Keith H. Kidd (IEEE, 1966)


IEEE
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SECTION
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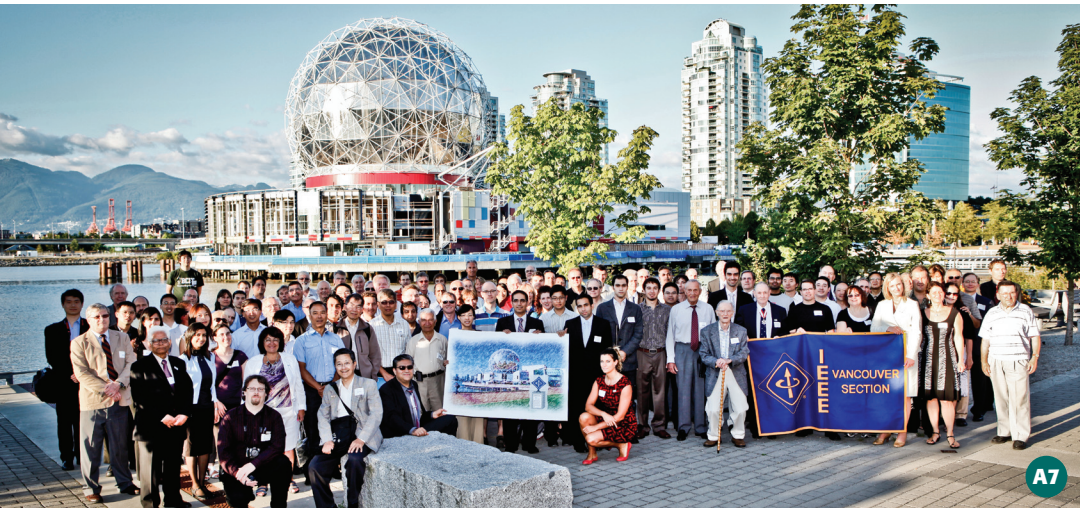
100 YEARS
SERVICE TO THE PROFESSION


A5


A1


IEEE
VANCOUVER
SECTION
A7


A4


IEEE
VANCOUVER
SECTION
A3


IEEE Vancouver - 100 Years of Technological Excellence
IEEE
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Engineering a Brighter Future
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Inspiring future generations
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A8


IEEE Vancouver Section
Celebrating 100 Years of Technological Excellence
1911–2011
IEEE VANCOUVER SECTION
A6


A2

B1

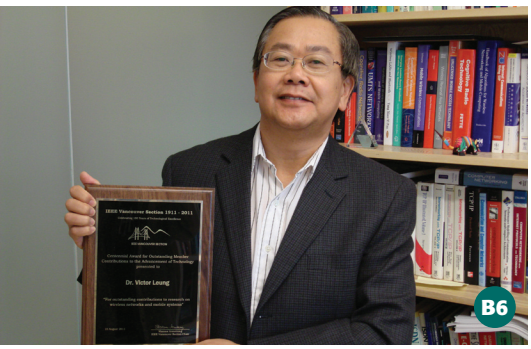
B7

B4

B3

B8

B2


B6

B5

B9

Vancouver Section Celebrates and Begins Its Second Century

Pieter Botman, P.Eng., SMIEEE

100th Birthday Celebration and Dedication Ceremony

Creekside Community Centre, Vancouver

On Tuesday August 23rd, over 150 members, friends and guests of the IEEE Vancouver Section gathered to celebrate the 100th anniversary of its founding, and to propel the Section forward into its second century. After presentation of an inspirational IEEE video about "The Solutionists", the evening was opened with a welcome and salutation from City of Vancouver Councilor Geoff Meggs. Vancouver Section Chair Mazana Armstrong recognized and called on each of the centennial Sponsors in order to thank them for their support. (photo A1—Councilor Geoff Meggs and Section Chair Mazana Armstrong.)

The results of the Section logo competition were then announced by Pieter Botman, Communications Officer of the Section. The most popular logo in the competition was that submitted by Peter Kezhou Guan (photo A2). The Vancouver Section executives decided that the final design would incorporate some elements of Peter Guan's logo design. The centennial committee members worked with a graphic designer, Paolina Amadio, to combine the elements into a unique style. Peter Guan was given an award in recognition of his winning design in the logo competition and for his design contribution to the final section logo design.

The new official logo of the Vancouver Section was then displayed, to the approval of all in attendance. The centennial version of the Section logo was also displayed (photo A3—section vice-chair Kouros Goodarzi and Councilor Meggs with the centennial plaque). This variant contains the text "1911-2011" as a reminder of the key Vancouver Section milestone dates. Attendees (photo A4) received a pin which was fashioned with the design of the centennial version of the Vancouver Section logo.

Permanent Monument Announced and Centennial Plaque Dedicated

The attendees exited the community centre, and after a short walk, arrived at an open green space on the shore of False Creek, immediately south of Science World.

Here Gruja Blagojevic, the Publicity Chair of the Vancouver Section, explained the concept for a permanent monument at that location. Gruja used an artist's rendering to show the planned monument base and the installation of a permanent plaque, which is intended to commemorate the expertise and valuable contributions made by members of the IEEE Vancouver Section over the course of the Section's first century (photo A5).

Section Life Member Mark Bradwell (a former Section Chair, and currently the longest tenured Member of the Section) spoke about the early days of the section, and proceeded with a great flourish to unveil the plaque which is to be installed in the monument. To great cheers and applause, the plaque was dedicated on that spot by all Section Members present (photo A6—dedication plaque).

IEEE VANCOUVER SECTION

New Vancouver Section Logo Unveiled

Pieter Botman, P.Eng., SMIEEE

The new IEEE Vancouver Section logo was officially unveiled on August 23rd at the Section's 100th Birthday celebration. The new logo contains two design elements which will be familiar and pleasing to Vancouver Section members: a stylized representation of the Lion's Gate Bridge, and a graphic element representing the local mountains. A centennial version of this new logo was also produced, which contains the text "1911-2011" in recognition of the important milestone dates of the Vancouver Section.

The Vancouver Section executive has approved the new design, and would like to recognize all those who contributed to its development:

- Members submitting (17!!) designs to the competition
- Panel to select logo finalists
  - Fiorenza Albert–Howard
  - Alon Newton
  - Patrick Sandi
- Final logo design elements contributed by:
  - Peter Kezhou Guan
- Logo sub-committee:
  - Mazana Armstrong
  - Ljiljana Trajkovic
  - Pieter Botman
- Graphic Designer:
  Paolina Amadio
  www.paolinaamadio.com

New IEEE Vancouver Section Historic Plaque Dedicated

Pieter Botman, P.Eng., SMIEEE

As part of the Vancouver Section centennial celebration activities, the Section has commissioned the design and constructed a special historic plaque, which will be installed in a permanent public monument. The plaque was formally unveiled and dedicated before the members of the Vancouver Section on August 23rd, 2011.

The plaque and the monument are intended to honour the Vancouver Section and its members, in recognition of their contributions to the development of Vancouver and British Columbia during the Section's first century.

It is anticipated that the site will be on the shore of False Creek, immediately south of Science World.

The artist's conception of the permanent monument, in its proposed location appears below:

After the completion of the dedication ceremony, attendees strolled along the seawall to return to the community center, pausing long enough to take a historic group photograph just outside, on the picturesque shore of False Creek (photo A7). Surely this group photo will be one of great interest to all section members at the Section's bi-centennial anniversary celebration, scheduled for August 2111!

After returning to the community centre, several Section members were honored with centennial awards in recognition of their outstanding achievements.

Vancouver Section Centennial Awards Recepients

Dr. Rabab Ward "For outstanding contributions in the areas of signal detection, image processing, and applications of those technologies" (photo B1).

Dr. Arkady (Ark) Tsisserev "For outstanding contributions to Codes and Standards Development & Electrical Engineering" (photo B2).

Dr. James McFarlane "For a lifetime of contributions to underwater vehicles and robotics and the Canadian advanced technology sector" (photo B3).

Dr. José Martí "For outstanding contributions to education and research in simulating multiple infrastructures including electric power systems" (photo B4).

Dr. John MacDonald "For a lifetime of contributions to digital systems, remote sensing, space technology renewable energy and the Canadian advanced technology sector" (photo B5).

Dr. Victor Leung "For outstanding contributions to research on wireless networks and mobile systems" (photo B6).

Dr. Harry Ellis (in memoriam) "For lifetime contributions to the understanding of the transient and dynamic electromechanical stability of electrical power systems" (photo B7—award accepted by daughter Wendy Beauchamp).

Dr. Hermann Dommel "For outstanding contributions to the field of Electromagnetic Transients Simulation" (photo B8).

Thurb Cushing (in memoriam) "For leadership in development of the telecommunications industry in British Columbia" (photo B9—award accepted by daughters Susan Wingate and Moira Rowan).

With the awards bestowed and recognitions completed, it was time for the real birthday celebration to begin. Members feasted on cold cuts, hors d'oeuvres, and salads. To top off the evening, a special 100th birthday cake was unveiled and members joined in singing Happy Birthday to the Section! Life Member Mark Bradwell did the honours of blowing out the (not quite 100) candles (photo C1). Members attending enjoyed the cake, but also enjoyed reminiscing and meeting their colleagues on this happy occasion.

Section Chair Mazana Armstrong concluded the evening by thanking the volunteers who worked hard in assembling the many components of the celebration (photo C10—section volunteers with remaining guests after the event ended).

For additional pictures of the August 23rd birthday celebration event, please visit our Section centennial site at:

http://vancouver.ieee.ca/centennial.


C2


C9

C6


C5

C7

C1


C3

C4

C10


C8

Office of the Mayor

CITY OF VANCOUVER

BRITISH COLUMBIA

Proclamation

"ELECTRICAL AND ELECTRONICS ENGINEERING AWARENESS WEEK"

WHEREAS	Electrical, electronic and computing fields of engineering and related areas of science and technology are the foundation of modern civilization;
AND WHEREAS	Institute of Electrical and Electronics Engineers (IEEE) is the world's largest professional association for the advancement of technology;
AND WHEREAS	IEEE has 400,000 members worldwide;
AND WHEREAS	IEEE and its members inspire a global community through IEEE's highly cited publications, conferences, technology standards, and professional and educational activities;
AND WHEREAS	IEEE's core purpose is to foster technological innovation and excellence for the benefit of humanity;
AND WHEREAS	The members of the IEEE Vancouver Section have been instrumental in the development of the province of British Columbia;
AND WHEREAS	The Vancouver Section has grown to over 2,000 members since 1911;
AND WHEREAS	IEEE is celebrating 100 years in Vancouver and British Columbia:
NOW, THEREFORE,	I, Gregor Robertson, Mayor of the City of Vancouver, DO HEREBY PROCLAIM the week of October 21st to 28th, 2011 as

"ELECTRICAL AND ELECTRONICS ENGINEERING AWARENESS WEEK"

in the City of Vancouver.

Gregor Robertson
MAYOR

CITY OF VANCOUVER BRITISH COLUMBIA

IEEE Vancouver Section

Celebrating 100 Years of Technological Excellence

1911–2011

IEEE VANCOUVER SECTION

Institute of Electrical and Electronics Engineers (IEEE) is the world's largest professional association for the advancement of technology.

Our members have contributed to all aspects of the electrical, electronic and computing fields and related areas of science and technology that are the foundation of modern civilization.

IEEE is proud to celebrate 100 years of its presence in Vancouver and British Columbia.

The Vancouver Section of the American Institute of Electrical Engineers (AIEE), a predecessor of IEEE, was organized on 11 October 1911, upon authority given by the Board of Directors of AIEE at its meeting in New York on 22 August 1911.

IEEE

Dedicated on 23 August 2011

Reprint of an article first published in "Electrical News and Engineering"—June 15, 1941.

Early Recollections of the Power Industry in B.C.

By A.T. Goward

The author of this article is vice-president of the British Columbia Electric Railway Company Limited, at Victoria, B.C. Earlier this year he celebrated his fiftieth anniversary with that company, having worked under four general managers and presidents. He knew the west when Victoria had a population of only 17,000. The picture above was taken on the occasion of a presentation made to him on Dec. 19 last.

In an endeavour to trace something of the beginnings and early history of electricity on the West Coast, I have thought it best to confine myself to those undertakings immediately preceding and ultimately developing into the British Columbia Electric Railway Company, Limited.

For the sake of clarity I have, to a considerable extent, dealt separately with Vancouver Island and the Mainland of British Columbia. As practically the whole of my active life has been intimately associated with the electric utility industry on Vancouver Island, I have sketched this history from the earliest beginnings to the present date.

In the case of the Mainland, I have purposely refrained from going beyond the merely historical, because there are many others far better qualified than I am to deal with the more recent developments that have taken place on the Mainland of British Columbia.

I wish, at this time, to express my obligations to the "B.C. Historical Quarterly", to which publication frequent reference was made in the preparation of this article.

First Electric Lighting

The story of electricity as a public utility on the west cost of British Columbia covers the surprisingly long period of 58 years, beginning in June, 1883, when the mayor and council of the City of Victoria, Vancouver Island, signed an agreement with Robert Burns McMicking, under the terms of which he undertook to erect and support and maintain at three several points in the said City and Electric light with an illuminating power equal in the aggregate to fifty-thousand candles".

McMicking, who is best now remembered locally as one of the over-landers of'62, probably had more experience with electricity than anyone else in British Columbia.

This installation called for the erection of three 150-foot masts, each carrying four or five double are lamps and were expected to light the whole of the more thickly populated part of the city. The agreement was confirmed by by-law in July, 1883, and the installation was ready for service in the following December.

Photo of Early Victoria showing one of the 150 foot lighting masts referred to in this article. Photo courtesy of B.C. Electric Railway Company.

The system, according to the annual report of Mayor Redfern, in 1884, and which had been in use about three weeks, was working very satisfactorily. Power was supplied by a 25 hp steam engine driving two Brush dynamos.

However, things do not seem to have been quite so satisfactory a year later. It was necessary to spend $22,000 on rebuilding and additions. When this work was completed, lighting masts were located at 29 points as against the original three.

In 1887, Mayor Fell admitted (apparently in his annual report) that the best the city could do about the lighting was "to make the best of a bad bargain". He also seems to have expressed the opinion that while electricity undoubtedly was the light of tomorrow, it was still too much of an experiment for small communities. Some further changes were made about this time and the system carried on until 1891 when the citizens defeated a by-law calling for an expenditure of $50,000 for improvements.

McMicking, however, was not daunted by this partial failure and took a prominent part in organizing the Victoria

Electric Illuminating Company. This company had the distinction of being the first public incandescent lighting system in Canada. Electric current was generated by an Edison dynamo driven by a 50 hp steam engine. The plant was rated as having a capacity of 400 16-candle power lamps.

With this additional plant in operation, Victoria's electric lighting facilities were fairly complete – lights for streets, business establishments and homes being available.

First Electric Street Cars

In November, 1888, an agreement was signed between the City of Victoria and certain Victoria citizens, among whom were James Douglas Warren, Thomas Shotbolt, David W. Higgins, Andrew Gray and Joséph Hunter, which authorized the latter to construct a street railway within the city limits, as well as to supply electric power for lighting purposes. This agreement was confirmed by by-law, October, 1889, and the promoters next proceeded to organize the National Electric Tramway and Lighting Company, Limited, with an initial authorized capital of $250,000. The original power plant consisted of two Thomson and Houston generators driven by a steam engine of 110 hp.

Here I would ask the reader's indulgence for a purely personal digression. It is just over fifty years ago that the writer, then a lad recently out from England, entered the service of the National Electric Tramway and Light Company, a predecessor of the B.C. Electric Company, his first assignment being to polish up the brass work on the steam engine in this early power plant.

The formal opening of the system took place on February 22nd, 1890, with four small cars and six miles of track. It may be mentioned, in passing, that it originally was planned to have horse-drawn cars, but a last-minute change in the plans was decided upon and the actual horse cars were equipped with electric motors.

New lines and additional equipment were added from time to time, and by 1891 the system had expended to about 12 miles of track and 11 street cars. It is interesting to note that Victoria was the third city in Canada to have an electric street railway system, being preceded only by Windsor and St. Catharines, Ontario.

It is impossible, with the space available, to go into the details of the difficulties and vicissitudes that beset this early company, or of those of its immediate successors, the Victoria Electric Railway and Lighting Company, Limited (1894), and the Consolidated Railway Company (1896). It was in 1896 that the business and undertakings of the Consolidated Railway Company were taken over by the British Columbia Electric Railway Company, Limited.

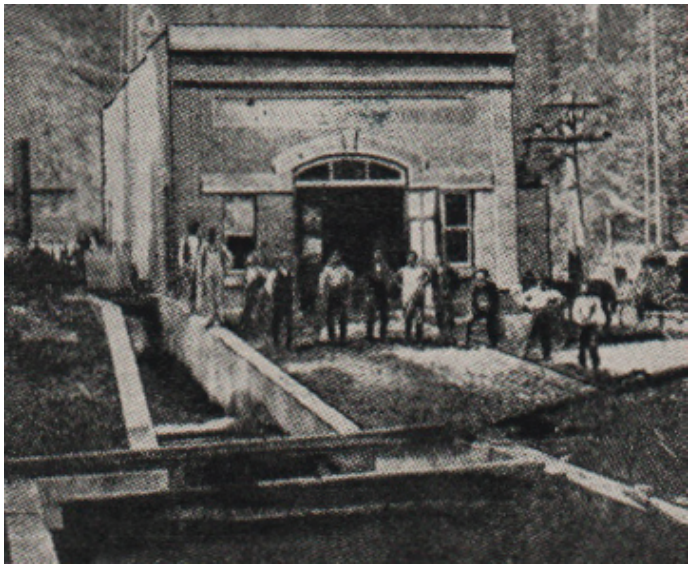
First Hydro-Electric Plant

The first hydro-electric plan on Vancouver Island, and, in fact, one of the first to be built anywhere on the Pacific coast, was that built by the B.C. Electric Railway Company on the Goldstream River, Vancouver Island, in 1898, at a point some twelve miles from Victoria.

The original installation consisted of two Pelton water wheels of 600 hp each, directly connected to two General Electric stationary field generators. This plant was enlarged at various times and now consists of one 900 hp water wheel and one 2,000 hp water wheel. Up to the time of the building of this plant, all electric power was generated by a small steam plant in Victoria.

The greatest period of expansion on Vancouver Island may be said to date from 1902. There were, at that time, some 2,000 light and power customers and an industrial power load of about 500 hp.

The street railway also was expanding rapidly in response to constant demands for lines to be built out into districts as yet sparsely settled. Population followed the routes of the street car lines and in this way the adjacent municipalities of Oak Bay and Esquimalt were built up and linked with Victoria.



The Goldstream hydro-electric power plant of the B.C. Electric Railway as it appeared while under construction in 1898. Photo courtesy of B.C. Electric Railway Company.

The increasing demands for electric power made it necessary for the company, in 1908, to consider further power development. A number of possible power sites adjacent to Victoria were considered and the Jordan River, some 40 miles from Victoria, was finally selected.

Preliminary work was begun on this project in 1909. The first unit of 6,000 hp was completed in 1912, and in the same year electric power was first delivered from this source in Victoria.

The capacity of this plant has since been increased to approximately 37,000 hp. The development is entirely on the storage system, there being a wide variation in the seasonal flow of the river.

An auxiliary steam plant was built at Brentwood Bay, near Victoria, in 1912, with an initial installed capacity of 6,000 hp. Plans are now in hand to increase the capacity of this plant by 10,700 hp, the limit of economic development on the Jordan River watershed having been reached.

As in most cities of medium size, the street railway business has declined during recent years, while the sale of electric power for commercial and domestic purposes has shown a considerable increase. Today, the company's transmission and distribution lines cover not only Greater Victoria, but reach out into the more remote country districts up to a radius of 40 odd miles from Victoria.

At the present time the company is supplying 21,000 domestic consumers and has a connected industrial power load of 43,500 hp. It is also supplying power in bulk to the Nanaimo-Duncan Utilities Company.

While these figures may seem small by comparison with those of other places in British Columbia, it must be remembered that they apply only to a small portion of the southern end of Vancouver Island, and are, at least, an indication of the growth and general development that has taken place during the last fifty years. As I have had the privilege of watching this development almost from the very beginning, and have been intimately associated with it practically all my life, the reader will, I am sure, understand and appreciate the motives that impelled me to dwell somewhat at length on this particular aspect of the growth of electricity as a public utility.

The Mainland System

In order to trace the growth of the electric utility business on the Mainland of British Columbia, it will be necessary to go back to 1884, at which time it was decided that the Canadian Pacific Railway should be extended from Port Moody to a new terminus, now Vancouver City. H.H. Abbott was the superintendent of this division; and it was he, together with Keefer and William H. Bullen, who applied for a charter to authorize the incorporation of the Vancouver Electric Company. The charter was granted by the Legislature by an Act which received the Royal assent in 1886. It was, however, not put to immediate use. In the same year the then City of Vancouver was practically wiped out by a disastrous fire. Rebuilding of the city immediately was taken in hand and brought with it thoughts of street lighting. A number of business men accordingly formed the Vancouver Electric Light Company, Limited. A by-law was passed by the City Council in 1887, empowering the Company to enter upon the activities for which it had been formed.

Construction was started in the spring of 1888. The equipment consisted of two Edison-type dynamos driven by an 80 hp steam engine.

The following item is taken from the "News Advertiser" of about that date: "The electric light gives a much better light than formerly" (apparently the light had not been very satisfactory in the first place) "and it is a great comfort to the traveller after nightfall. Vancouver is the best-lighted city of its size (population about 5,000) in the world". This modest claim does not seem to have been disputed.

A little later we get from the same source: "Commencing with our issue of yesterday, the "News Advertiser" is now printed by electricity… this is the first paper in the Dominion to be printed in this manner". This statement does not appear to have been disputed, either, so we must take them as being correct.

Late in 1888, steps were taken to form a street railway company in Vancouver. In April 1889, the Vancouver Street railways was incorporated. The company was entitled to "carry passengers by force of animals, or such other motive power as it might deem expedient".

As in Victoria, it was originally intended to use horses, and the animals had even been purchased and stables built, but here again a last-minute change in plans resulted in the disposal of the horses and the equipping of the street cars with electric motors. Each car was equipped with two motors of 10 hp each and had a carrying capacity of 35 passengers. Regular service was inaugurated June, 1890. Vancouver was thus the fourth city in the Dominion to have electric street car service.

A few weeks after the first street cars went into operation the Vancouver Electric Railway and Light Company came into existence as a result of the Vancouver Electric Illumination Company and the Vancouver Street Railways having joined forces.

In the City of New Westminster, adjacent to Vancouver, the establishment of a municipal lighting plant was being discussed at this time. A power house was built that same year, the equipment consisting of two dynamos and a steam engine of 180 hp.

The Westminster Street Railway Company was incorporated by Act of Legislature 1890. A second Act of the same date incorporated the Westminster and Vancouver Tramway Company. These two companies were formally united the following year under the name of the Westminster and Vancouver Tramway Company.

Work also was started at this time on an interurban line between Vancouver and New Westminster, the first line of its kind in Canada. It was completed in September 1891 and service was commended during the time of the Annual Exhibition being held in New Westminster. As may be expected, this line encountered a number of technical operating difficulties of one kind or another.

In 1893 the rolling-stock included six Brill cars and three smaller St. Catherines cars. The Brill cars were described as "wide and roomy and nicely upholstered". During the heavy traffic of the Annual Fair week, the Brill cars were said to have carried as many as 110 passengers apiece.

The depression of the early 90's took its toll of these pioneer companies and it was not long before both of them were in serious financial difficulties. The Vancouver Electric Railway and Light Company apparently tried to get out from under by endeavouring to sell out to the city, but the ratepayers would have none of it, and the company defaulted in 1892.

The Westminster and Vancouver Tramway Company was still struggling along when unlooked for disaster, in the shape of a bolt of lightning, struck the power house and burned out the dynamos. The cost of the extensive repairs appears to have been the last straw and this company defaulted in 1893.

Space will not permit going into detail beyond stating that both these companies were sold by the Sheriff in April, 1895, the purchaser, in both cases, being Frank (later Sir Frank) Barnard, acting on behalf of the Consolidated Railway Company.

Mr. Barnard succeeded in interesting English capital through R.M. Horne-Payne. The result of conferences between these two gentlemen was that Mr. Horne-Payne recommended to his principals in England the purchase of the power and tramway services on the coast.

In November 1895 an English syndicate, headed by Horne-Payne, purchased all the assets of the Consolidated Railway and Light Company which gave control of the New Westminster and Vancouver local tramways, the interurban line between Vancouver and New Westminster and the lighting system in Vancouver, and shortened its name to the Consolidated Railway Company. It was this Company which finally linked the Mainland and Island systems under one control.

It was in 1896 that the business and undertakings of the Consolidated Railway Company were taken over by the British Columbia Electric Railway Company, Limited, with frank Barnard as managing director and Mr. Horne-Payne as chairman of the English Board of directors.

As stated at the beginning, I have purposely refrained from going beyond what may be termed the "historical: period with regard to the Mainland.

Not only does space prohibit even the merest outline of the tremendous development on the Mainland since the formation of the B.C. Electric Railway Company and other power companies in the province, but other pens, more capable than my own, can better tell the story of these later and equally interesting years.

Then...

...and Now...

Two pictures of the Inner Harbour and downtown section of Victoria. Top photo was taken in the early 90's. Note the bridge and mud flats to the right of the bridge. Below is the same section today. A substantial causeway has taken the place of the bridge, and the stately Empress Hotel now stands on what were once unsightly mud flats. Photos courtesy of B.C. Electric Railway Company.

Photo courtesy of BC Hydro Power Pioneers.

Reprint of an article first published in "IEEE Power Engineering Review"—November 1984.

A History of the Vancouver Section

Lorne R. Kersey, AIEE Life Member

The Vancouver, British Columbia Section of the AIEE was organized on October 11, 1911 and a narrative history of the Vancouver Section follows:

When the Vancouver Section of the American Institute of Electrical Engineers (AIEE) was formed in 1911, British Columbia's population, according to a Canadian Government census, was 392,480. Of this total, the population of the Lower Mainland was 223,261. In the same year, 1911, the population of Vancouver itself stood at 100,401.

Industry consisted at that time of logging and lumber, fishing, ship-building and marine-towing; Vancouver was also becoming a service-center for a growing mining industry. It was already a Pacific seaport of importance; and was a terminus for two railways, the Canadian Pacific from Eastern Canada, and the Great Northern from the Northwestern United States. There was, at that time, very little manufacturing and secondary industry.

Electric-lighting, however, had been introduced in Vancouver in 1887 by the Vancouver Electric Illuminating Company. Some industrial electrical energy had also been supplied by the Company, and the Vancouver "News-Advertiser" in February 1888 boasted in print that it was now being printed "by electricity." Energy was supplied from a steam-engine-driven plant with Edison-type generators, at the corner of Pender and Abbott Streets.

Electric street-cars had been on the streets of Vancouver since 1890, the Vancouver Street Railway Company having in that year received a Charter permitting it "to carry passengers by the force of animals," that is to say, a horse-tram system. The Charter, however, hedged its bets by the addition of a phrase—"or such motive power as it may deem expedient." In the event, horses had already been purchased, and stabling for fifty head had partly been completed when it was "deemed expedient" to change the corporate mind, and drive the trams by the wonderful new, clean, manure-less force of electricity. The horses and stabling were disposed of, reputedly—and undoubtedly—at a loss.

Load-growth was met, initially, by the addition of a succession of small, engine-driven, generating plants, some on the private premises of industrial concerns, and others supplying the systems of the Electric Light Company and the Street Railway Company. The need for a centralized supply, provided by a single fully-enfranchised authority, was not long in making itself felt, and in April 1897, the British Columbia Electric Railway Company, chartered to provide electric light, power, and transportation, came into being. One of the first actions of the new Company was the building of a sizeable hydroelectric generating station at tidewater on the Indian Arm of Burrard Inlet, to use water brought by tunnel from Coquitlam Lake. This plant, initially designed for 12,000 HP, was immediately followed by a second plant on an adjacent site, bringing the total output to some 76,000 HP. The plants were named Buntzen No. 1, and Buntzen No. 2, honoring Johannes Buntzen, the able and popular Superintendent of the Company.

As with the electric-power and lighting facilities, so with the communications facilities at and about the end of the Nineteenth Century. The first actual telephone installation on the Mainland had been, surprisingly, at the remote Indian Village of Metlakalla, near present-day Prince Rupert, where an enterprising and forward-looking Anglican missionary had installed a telephone line from the village store to the local sawmill, as part of his plan to bring his flock gently into the Twentieth Century. For many years, the familiar phenomenon of a multitude of small local telephone installations, with a switchboard in a store or someone's back-kitchen, was the general rule in British Columbia. The last decade of the nineteenth century and the first two decades of the twentieth witnessed a steady merging into larger and larger groups, by physical interconnection and acquisiton of assets, of these widespread local telephone systems. But it was not until 1923 that there existed a fully-coordinated province-wide telephone system under a single authority in B.C. In that year, the British Columbia Telephone Company was formed.

THE VANCOUVER SECTION OF THE AIEE

It was inevitable that, as the electrical power and communications facilities expanded in the Vancouver area, there should gather a growing number of technical personnel to operate, maintain, plan, and engineer the expansion of the power, light, and electrical transportation systems, the telephone network, and the equally-expanding telegraph and railway-signalling systems. Concurrently, there was also a rapidly expanding group of technical representatives for firms specializing in the provision of the necessary electrical hardware which was increasingly required.

The need for a forum for the discussion of mutual engineering problems, the exchange of views, and equally important, contact with engineers engaged in related work in other parts of the country, the continent, and the world, was very soon felt. Consequently, authority was sought to form a Vancouver Section of the American Institute of Elec-

trical Engineers (AIEE). The Board of Directors of the AIEE granted this authority on August 22, 1911. On October 11 of that year, the Section was formally organized as the second AIEE Section in Canada. Two days later, October 13, the first Section Meeting was held and officers for the first year were elected. The first Section Chairman was F. D. Nims, the first Section Secretary E. M. Breed, with Executive Members At Large, J. R. Read, L. G. Robinson, and A. C. Routh.

The first by-laws of the Section were submitted to the meeting of November 11, 1911, and were duly approved. Nine Section Meetings were held during the first year of operation. They were held in the upper rooms of local restaurants and took the transaction of Institute business, followed by the reading of a Technical Paper, and discussion.

The geographic peculiarities of Canada produced administrative problems for the newly-formed Vancouver Section from the very first. With the whole of Canada designated by AIEE Headquarters as District 10, and with District Headquarters located in Toronto, the only other active Section in this District, communications were slow, by modern standards, and difficult. Air travel was thirty or more years away in the future, and mail travelled by train. A return-journey from Vancouver to Toronto, with a day or two in between for business-contacts, occupied at least two weeks, and business and professional men did not lightly undertake such journeys.

A more natural alignment for the Vancouver Section was with the Sections in the much closer Northwest American centers of Seattle, Washington, and Portland, Oregon. This led to the transfer of the Vancouver Section from District 10 to District 9, which embraced these Northwest American centers. It had already become the practice to hold an Annual Pacific Coast Convention during the summer months, under the sponsorship of Sections on the West Coast. The Executive of the new Vancouver Section showed considerable courage in applying, almost immediately following the establishment of the Section, for authorization from AIEE Headquarters to hold the 1913 Pacific Coast Convention in Vancouver. This authorization was granted, and a successful Convention was held at the old Hotel Vancouver on September 9th, 10th, and 11th, 1913, less than two years after the formation of the Section. The Vancouver Section sponsored Pacific Coast Conventions again in 1922, 1932, 1942, and 1953.

The detailed technical interests of the Electrical Engineering community in Vancouver, as elsewhere, have always been diverse, and considerable care and wisdom has always been required to arrange Section activities, especially papers, lectures, field trips, etc., in such a manner as to satisfy the technical needs of the various members. This was not always easy. Very early in the history of the AIEE Section, it became obvious that there were three principal interest groups. One group consisted of engineers whose activities lay in the field of communications — or, later, Electronics; another whose work was related to the application of electrical energy in industry and manufacturing; and still another group of people employed in the sphere of electrical power production, transmission and distribution. Similar groupings took place, naturally, in other Sections of the whole AIEE area, gathered momentum, and became entities in themselves.

During the years of the Second World War, 1939-1945, the development of the science of Electronics, with radar, and many applications of ultra-high frequency communication systems, and the introduction of a whole new family of hardware (and software) to meet its demands, was nothing short of phenomenal. In the years immediately following the conflict, the whole concept of "communications," and with it, the areas of interest for electrical engineers was vastly broadened. During the war, and in the following years, a number of Companies became established in the Vancouver area to design, develop, manufacture and sell electronic equipment for the communications industry. Other Companies were established to develop and provide electronic equipment for applications in the wood, pulp and paper, mining, and fishing industries.

A Discussion Group was formed by the Vancouver Section, in 1946, to provide a forum for the presentation of technical papers in Electronics. The first meeting of this Group was held on October 26, 1946, under the chairmanship of E. J. Bartholomew. The Electronic Group, as it came to be known, held meetings through to 1950, when it became evident that a Section of the Institute of Radio Engineers (IRE) would soon be established in Vancouver. It was then agreed that the Discussion Group should be maintained, but with a new purpose — to provide a forum for the presentation of papers of general interest from the fields of science, engineering and other professions.

A series of Discussion Group Meetings were scheduled into the 1950–51 program. These were held as dinner meetings on the same nights as the regular Section Meetings. The Discussion Meetings were held in a downtown dining room, starting at 5:30 P.M.; and were followed by the Section Meeting at 8:00 in a lecture room at another location.

The Discussion Meetings proved to be very popular, were well attended, and continued through to the Amalgamation Year. Each year the Section elected a member to serve as "Discussion Group Chairman." The Chairman and his committee arranged for the dinners and for the after-dinner speakers.

THE VANCOUVER SECTION OF THE IRE

In the previous section of this history, the rapid increase in the applications of electronics following the Second World War was discussed. It was shown that, in order to keep the members of the Vancouver Section of the AIEE better informed, an Electronic Group was formed.

By 1949, there were a number of IRE members in the Vancouver area. They, with the backing of those AIEE members with similar interests, petitioned for the formation of an IRE Section in this area. This was approved by IRE Headquarters early in 1950. The new Vancouver Section of IRE held its first meeting on Sept. 19, 1950, under the chairmanship of B. R. Tupper.

The Vancouver Section of the IRE held meetings on the third Monday in each month, alternating with the meetings of the AIEE section which were held on the first Mondays. The scheduled meetings of one Institute were well-publicized in the Meeting Notices of the other, and Joint Meetings were often arranged.

Initially, the Vancouver Section of IRE included all members in the four Western Provinces, the Yukon and the Northwest Territories. Due to the rapid growth in IRE membership in Western Canada, new Sections were formed; the Winnipeg Section in 1953, and the Northern Alberta Section in 1955. Closer to home, the Victoria Subsection was approved in 1961.

Following the establishment of the Vancouver Section of IRE, the Student Branch at the University of B.C. was reorganized as an AIEE-IRE Joint Student Branch, and this was assisted by the Vancouver Section of each Institute.

VANCOUVER SECTION IEEE

With the rapid advances in Electronics and its applications in all fields of Electrical engineering it became evident, during the late 1950's, that amalgamation of the AIEE and IRE would be beneficial for a number of reasons. Joint meetings at Headquarters level were held early in 1961 to consider merger proposals. This led to the formation of Joint Committees, at Section level, to consider these proposals. In the Autumn of 1961, such a committee was formed with 5 members from the Vancouver Section of AIEE and 4 members from the Vancouver Section of IRE.

The Joint Committee recommended that the Section Members of each Institute should be given the opportunity to discuss the proposed merger at a Joint Meeting. This meeting was held on Feb. 19, 1962, with Mr. Miles Green as Moderator. The Panel consisted of four members of the Joint Committee, Mr. B. R. Tupper — IRE Director Region 8, and Mr. M. Carlberg — AIEE Vice President District 9.

The Voting Members of both Institutes overwhelmingly approved the proposed merger, and the IEEE was formed, effective Jan. 1, 1963.

To meet the needs of the members with respect to their technical interests, three Technical Groups were organized during 1963–64, the first full year of operation as an IEEE Section. These were the Electronics, Industrial and the Power Technical Groups. Three Chairmen were chosen, one for each Group; and they were responsible for the organizing and conducting of meetings relating to their particular Group. The Section Chairman presided over meetings of general interest to all members.

During the first year of operation, a total of 27 meetings were held. Of these, 9 were "Section Meetings" in which papers of interest to all electrical engineers were presented. The remainder were meetings sponsored by one or other of the Technical Groups, and were presided over by the Chairman of that Group. In that particular year, six of these were under the auspices of the Power Technical Group, six by the Electronics Technical Group, and the remaining six by the Industrial Technical Group. This procedure has been continued over the years and has proven successful.

Over the years the status of some Technical Groups has been changed. For example, "Power Technical Groups" have been organized and elevated to the dignity of an Institute-wide "Power Engineering Society," with the Groups in the several sections becoming "Chapters" of this society within a Society. The Vancouver Section Chapter of the Power Engineering Society was officially approved in 1964.

In 1982, approval was granted to the Vancouver Section to form a Chapter of the Electrical Insulation Society, bringing our total of active Chapters to five.

STUDENT BRANCHES

The desirability of capturing the interest of the Electrical Engineering students at the University of British Columbia, and more recently those at the British Columbia Institute of Technology, in the activities of the IEEE and of its earlier parent bodies, has always been fully recognized by the Executives of these bodies, and these students, after graduation, have always constituted an important source of new and valuable members.

Upon his election as President of the American Institute of Electrical Engineers in 1902, Charles F. Scott inquired among some of the leading members as to what activities should have special emphasis. Subsequently, in September 1902, he presented to the Board of Directors a report including, among other recommended developments of the Institute, comprehensive proposals concerning the organization of local groups of members in the larger cities (Sections) and groups of engineering students in the universities and technical schools (Student Branches), in order to distribute as widely as possible the benefits of affiliation with the work of the Institute. The Board of Directors promptly approved the organization of such Sections and Student Branches. The number of Sections was two in 1902, and it increased to eleven in 1903. The first seven Student branches were established in 1903.

It was not until 1930 that the first AIEE Student Branch was established in Canada — and this, at the University of British Columbia. Dr. Herbert Vickers, Head of the Department of Mechanical and Electrical Engineering at UBC was a prime-mover in the organization of this Branch. When Dr. Vickers became chairman of the Vancouver Section of the AIEE in 1930, the establishment of the branch had been approved by Headquarters.

A meeting of Electrical Engineering students was held on Oct. 4, 1930 to organize the Branch and to elect its first slate of officers. Those elected were: M. A. Thomas as Chairman, D. Smith as Vice-Chairman, E. Kershaw as Secretary Treasurer, and H. Van Allen as Junior Member. Prof. E. G. Cullwick was elected as Student Branch Counselor.

The first regular meeting of the UBC Branch was held on Oct. 21, 1930. At this meeting a constitution for the Branch was adopted, and two Student Papers were presented. The second meeting was held on Oct. 28, 1930, as a Joint Meeting with the Vancouver Section, in room 100 in the Applied Science Building on the Campus. The speaker at that meeting was Mr. C. E. Sisson, Vice-President of AIEE for District 10 (Canada).

When AIEE Student Branches were first established, one of the foremost objectives was to encourage Student Members to present technical papers at Branch Meetings. By the time of the formation of the UBC Branch the presentation of Student Papers was a well-established part of Branch Activities, and encouragement was given to hold Prize Paper Competitions. During the first year of operation of the UBC Branch a number of students presented such papers. In March 1931, the Vancouver Section sponsored its first Student Prize Paper Competition, at which the papers judged to be the best previously given at Branch Meetings were presented to a larger audience.

Following its establishment in 1930, the UBC Student Branch has operated continuously for more than fifty years. During this period two major organizational changes have occurred, and each of these increased the benefits afforded to the Student Members. The first was the reorganization of the Branch as a Joint AIEE-IRE Student Branch in January 1951. This followed from the formation of the Vancouver Section of the Institute of Radio Engineers (IRE) in September 1950. Membership in the Joint Student Branch gave the students a choice between the publications of each Institute, according to their major interests. Those whose major interests were in Electronic Engineering became IRE Student Members; while those whose major interests were in Power Engineering, or whose interests were more general became AIEE Student Members. As a Joint Branch, the Branch received financial assistance from both Institutes. It also received aid from the local Sections of each Institute in arranging Branch Meetings and Field Trips. Each year, the Vancouver Sections of the AIEE and the IRE sponsored separate Student Prize Paper Competitions.

With the rapid advances in Electronics and its applications in all fields of Electrical Engineering it became evident, during the late 1950's, that amalgamation of the two Institutes would be beneficial. It was pointed out that such an amalgamation would result in a number of organizational economies, would eliminate the increasing overlapping of interests covered by the separate Institutes, and would make available to its members a wider choice of Institute Publications at all levels from general to highly technical. In 1962, after several years of discussion at the Branch, Section, Regional or District, and Headquarters levels a motion to amalgamate was put to all Voting Members of both Institutes to decide if the Institutes should amalgamate. The vote was overwhelmingly in favor of amalgamation. Thus the Institute of Electrical and Electronics Engineers (IEEE) was born, effective Jan. 1, 1963. On Jan. 1, 1963 the UBC Student Branch went through its second reorganization to become an IEEE Student Branch.

Following the Second World War there has been a growing demand in Canada for Engineering Technologists having a high degree of technical skill and training. A number of Technical Institutes have been established to provide such training in the various engineering disciplines. The British Columbia Institute of Technology, which opened its doors in 1964 may justly be regarded as one of the finest of these establishments, and its graduates have been in considerable demand in B.C. industry. Accordingly, a student Branch was instituted at BCIT in 1965, the first Student Counselor being Mr. R. E. Ridsdale.

The Vancouver Section provides guidance and assistance to the Student Branches at BCIT and UBC through a Chairman of Student Activities who is appointed annually by the Section Executive. One of his duties is to make arrangements for the Annual Students Night, in which Student Members from both Branches participate. Other duties include the provision of speakers to address meetings of the Branches, and to help with the arrangements for field trips.

INSTITUTE HONORS AND AWARDS

A member highly regarded by his IEEE Section may be recommended by the Section for elevation to the Fellowship, and the proposal must contain adequate reasons and be supported by at least five other Fellows of the Institute. The citation accompanying the proposal is closely scrutinized by a special Headquarters Committee, for the rank of Fellow is not conferred lightly.

No fewer than thirteen of the Section's more distinguished members have been made Fellows of the Institute and its predecessors. Seven of these became Fellows of AIEE; two Fellows of IRE; and four, Fellows of IEEE.

A medal has been specially struck for the purpose of honoring Members of the Canadian Region, Region 7 of the IEEE. This is the McNaughton Award, and is awarded for outstanding contribution, either singular or sustained, to electrical engineering, deemed by the Region 7 (Canadian) Committee to deserve this meritorious distinction.

This award has been conferred upon three distinguished Vancouver Section Members:
in 1971 to Thomas Ingledow,
in 1973 to Dr. Hector J. MacLeod,
in 1982 to Gordon J. MacFarlane.

Section Chairs

AIEE	1911	F.D. Nims	1924	C.N Beebe	1937	C. Arnott	1950	F. O. Wollaston
	1912	F.D. Nims	1925	A.Vilstrup	1938	H. J. McLeod	1951	D. S. Smith
	1913	E.M. Breed	1926	R. L. Hall	1939	G. K. Haspel	1952	F. Noakes
	1914	F.D. Nims	1927	A. C. Yuill	1940	J. H. Steede	1953	C. E. Woolgar
	1915	R. F. Hayward	1928	C. W. Colvin	1941	J. A. Tames	1954	H. O. Blumer
	1916	R. F. Hayward	1929	J. Teasdale	1942	T. Ingledow	1955	J. T. Turner
	1917	R. F. Hayward	1930	H. Vickers	1943	T. Ingledow	1956	R. B. Carter
	1918	No Record	1931	G. R. Wright	1944	L.B. Stacey	1957	G. J. Henrikcen
	1919	No Record	1932	G. R. Wright	1945	J. P. Fraser	1958	Mark G. Bradwell
	1920	F. Lawford	1933	L.B. Stacey	1946	F. J. Bartholemew	1959	R. C. Stewart
	1921	J. R. Read	1934	F. J. Bartholemew	1947	H. W. Smith	1960	M. E. Green
	1922	T. H. Crosby	1935	W. D. Robertson	1948	J. H. Steede	1961	E. A. Harvey
	1923	F.W. McNeill	1936	D. M. Johnstone	1949	W. J. Lind	1962	D. R. West
IRE	1950	B. R. Tupper	1954	M. E. Green	1958	L. R. Kersey	1962	H. J. Kay
	1951	G. C. Chandler	1955	J. E. Breeze	1959	T. G. Lynch		
	1952	A. H. Gregory	1956	J. R. Gray	1960	W. H. Thompson		
	1953	D. D. Carpenter	1957	R. A. Marsh	1961	H. A. Hoyles		
IEEE	1963	H. J. Kaye	1975	George Flavell	1987	Bruce Prior	1999	Paul Toom
	1964	E. Madsen	1976	Don G. McFarlane	1988	Barry Ward	2000	Min Fan Ricky Lee
	1965	D. T. Black	1977	Steve W. Hagemoen	1989	Chris Siggers	2001	Charles Henville
	1966	Harry M. Ellis	1978	John B. Howell	1990	Mike Boudreau	2002	Gruja Blagojevic
	1967	W. M. Gray	1979	Nigel Smith Gander	1991	Fiorenza Albert-Howard	2003	Stephen Cheung
	1968	N. S. Kent	1980	Dave Carter	1992	Brian Lee	2004	José Martí
	1969	G. G. English	1981	Wally E. Gilbertson	1993	Malcom Cameron	2005	Dejan Lenasi
	1970	R. L. Weeks	1982	Sam Thomson	1994	Roger Nelson	2006	Rasvan Mihai
	1971	J. H. Lyder	1983	Hermann W. Dommel	1995	Merrill Wittman	2007	Paul Bowler
	1972	H. J. Goldie	1984	Vern Detwiller	1996	Mervat Mansour	2008	Eugene Trandafir
	1973	E. J. Frazer	1985	Shail Mahanti	1997	Tim Chia	2009	David Michelson
	1974	Bob. H. Hill	1986	Al Robinson	1998	Henry Ng	2011	Mazana Armstrong

* Prior to 2011, the Section's operational year was from May to May. Starting in 2011, the operational year is aligned with the calendar year. Years shown indicate the beginning year of service.

Achieving Excellence Through Section/Chapter Collaboration

Kouros Goodarzi, Vice-Chair, IEEE Vancouver Section
Mazana Armstrong, Chair, IEEE Vancouver Section

Abstract

This article presents the experience of the IEEE Vancouver Section in section/chapter collaboration. Successful section and chapter leadership system established over years has led to the recent achievement of two major section awards and numerous chapter awards and recognitions. Vancouver Section was awarded the IEEE Canada Exemplary Section Award and the IEEE MGA Outstanding Section Award, both for performance in 2009. These awards are the result of out-standing contributions from all the volunteers within the section, including students, and continuous mutual support through training, mentorship and ongoing communication.

The section started a number of novel initiatives to enhance services to members by establishing new chapters and strengthening ties with the local industry. This is achieved by producing high quality technical meetings involving industrial partners and local experts; attractive social and networking events; and industry recognitions.

Introduction

Vancouver Section

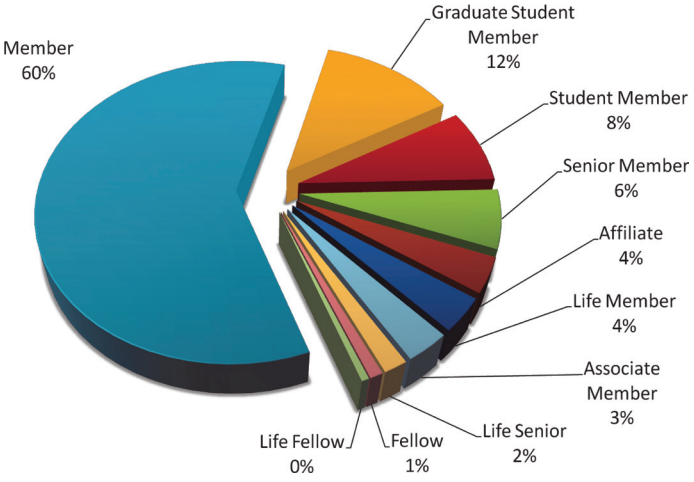
The Vancouver Section of the IEEE promotes the exchange of technical information and awareness within the local engineering community by:

- Hosting evening, half-day, or full-day technical presentations and seminars on topics of cur-rent interest;
- Organizing tours of local companies, research labs, and industrial sites;
- Arranging for local support and participation in engineering conferences and symposia held in Vancouver.

The territory of the Vancouver Section, as approved by MGA, includes the Province of British Columbia excluding Vancouver Island. The section is the second oldest in Canada and is celebrating its centennial throughout 2011.

Membership

IEEE Vancouver Section provides service to more than 2000 IEEE active members. There is a healthy representation of student members in the section totalling 20%, including more than 250 graduate student members. Almost 10% of the membership is comprised of senior members and fellows. Both of these percentages are in line with the averages for Region 7 (Canada) and IEEE global.



Chapters

IEEE Vancouver Section, is among the few sections that has representation of almost every IEEE technical society. As of 2011, the 14 chapters in the section represent 37 IEEE societies and a council. The section also has a very active Women in Engineering affinity group as well as a GOLD and Life Member affinity groups. The current roster of chapters includes:

Joint Societies Chapter of • Aerospace and Electronic Systems • Antennas and Propagation • Geoscience & Remote Sensing • Electromagnetic Compatibility • Microwave Theory & Techniques • Product Safety Engineering • Reliability

Joint Societies Chapter of • Instrumentation and Measurement • Magnetics • Nuclear and Plasma Sciences • Ultrasonics, Ferroelectrics and Frequency Control

Joint Vancouver/Victoria Chapter of Circuits and Systems Society

Joint Societies Chapter of • Broadcast Technologies • Communications • Information Theory • Intelligent Transportation • Photonics • Vehicular Technology

Joint Societies Chapter of • Computer • Computational Intelligence

Joint Societies Chapter of • Control System • Robotics and Automation • Systems, Man, and Cybernetics

Chapter of Electron Devices Society

Chapter of Engineering in Medicine and Biology Society

Joint Societies Chapter of • Industry Applications • Industrial Electronics

Joint Societies Chapter of • Technology Management Council • Education • Professional Communication • Society on Social Implications of Technology

Chapter of Oceanic Engineering Society (in formation)

Joint Societies Chapter of • Power and Energy • Dielectric and Insulation

Chapter of Power Electronics Society

Chapter of Signal Processing Society

Joint Societies Chapter of • Solid-State Circuits • Components, Packaging and Manufacturing Technology • Consumer Electronics

Chapters and Affinity Groups are geographical units that deliver the most important benefits of IEEE membership. The Chapters are supported by both their respective society and their parent section.

Chapter's Perspective

Probably, the most important engagement of members happens through technical activities. To accomplish its goals, IEEE and its societies are dependent on the involvement of its members through local chapters. A local chapter in turn ensures its success through motivating volunteers to help set up events such as meetings, seminars and community work.

Activities of Large Chapters

Historically, IEEE and its predecessor AIEE, have had three major technical groups or societies; namely, Electronics, Industrial Applications, and Power. These societies still enjoy majority membership in the Section today. The advent of computer and information technology has resulted in the emergence of the Computer Society as a fourth technical group that attracts large numbers of members. Today, the three largest chapters have each expanded to become joint chapters, and collectively encompass more than 60% of the total society membership within the section. These are Joint Communications, Joint Computing, and Joint Power and Energy chapters.

Throughout the years, the Power and Energy chapter has won numerous awards of excellence from the Power and Energy Society. These include being honoured as an outstanding large PES chapter in 2006, and for high performance by the Society's High performance chapter program for 2007, 2008, 2009 and 2010. PES organizes distinguished lecturer visits and engages local technical speakers on the topic of interest to the members. PES also holds an annual banquet that gathers industry sponsors and 100+ members for a special speaker presentation and dinner.

The Joint Communication chapter has also been recognized multiple times by its parent technical societies as "the best in the world". The chapter organizes annual workshops, technical seminars and monthly meetings and is among the most active chapters of IEEE Vancouver.

The Joint Computing chapter organizes lectures, tutorials, workshops, industrial tours and social events. It hosts several talks a year covering technical and non-technical topics of relevance to Computer Scientists and Engineers.

Large chapters within the section are encouraged to hold joint events with chapters whose members have related interests. Chapters also hold joint events with the Section's affinity groups, specifically the Women in Engineering and GOLD chapters.

Support for Small Chapters

The section provides support to 11 smaller size chapters. Having joint chapters allow access to a moderate size audience and the opportunity to hold events that would be of interest to members from multiple related societies.

The support from the section includes but is not limited to:

- Covering event catering costs
- IEEE annual financial reporting and general accounting
- Reporting of officers and IEEE tools access
- Advertising of events through Section newsletter *Contact*
- Maintenance of online presence through Section/ Chapter web pages
- Referral of speakers
- Leadership training for chapter volunteers
- Involving chapters as hosts in joint events

The result of such support is evident in the number and attendance in the small chapters' activities. During the past 12 months, almost two thirds of the events reported within the section have been organized by the small chapters. Small Chapter champions are recognized by section awards separately from large chapters.

Section's Perspective

The Vancouver Section is guided by the active strategic frame-work described by IEEE Member and Geographic Activities Operations Manual. The section had further

developed an addendum to address the specific governing needs of the section. The Section Executive Committee comprised of the elected officers (Chair, Vice-Chair, Treasurer, Secretary), the Chapter Chairs, and the Standing Committee Chairs meets monthly and oversees all aspects of the section's operation as well longer term planning and relation with subunits and student branches.

Executives

The officers of the Section are elected annually and take office beginning of calendar year for a full year. The officers positions include, the Section Chair, responsible for all activities within the section; Section Vice-Chair, responsible for general section events and membership; Section Treasurer, responsible for all financial activities and the budget; and the Section Secretary, responsible for all communications.

The section executives provide their suggested list of candidates each year which usually includes a rotation from Secretary to Treasurer to Vice-Chair to Chair and a previous chapter chair as the incoming Secretary. This ensures that all officers are familiar with the workings of the executive committee as well the section operations; therefore, the continuity of programs is preserved.

New Officer Training

Every year in late winter, the newly elected officers (as well as the supporting executives such as chapter vice-chairs, treasurers, etc.) are invited to attend a one day workshop covering all aspects of volunteer work within the section. The new volunteers are trained on tools specifically used by IEEE and the section such as SAMIEEE, V-Tools Meeting Management, and IEEE mailing lists, and also general skills to hold successful meetings. The section's support for keeping chapters successful is usually a main theme in most presentations during the day.

Experienced section volunteers and past chairs and officers are present to provide practical tips and tricks and establish mentor relationships with the incoming volunteers.

Chapter Leaders

Each chapter is also encouraged to maintain a complete set of officers to ensure succession and continuity in programs. Although it proves difficult for some smaller chapters to have a Chair, a Vice-Chair, Treasurer, and Secretary, it is required of chapters to at least have one or more vice-chairs. This is very important for joint chapters as each vice-chair will be specialized in the society they represent within that chapter. This model has been followed for several years and we have seen a drop in the number of inactive chapters due to volunteer attrition.

The chapter leadership is supported by the section through funding from the Section's budget for holding technical events, while being encouraged to organize paid event, attract sponsorship, and receive support from their respective IEEE Technical Societies.

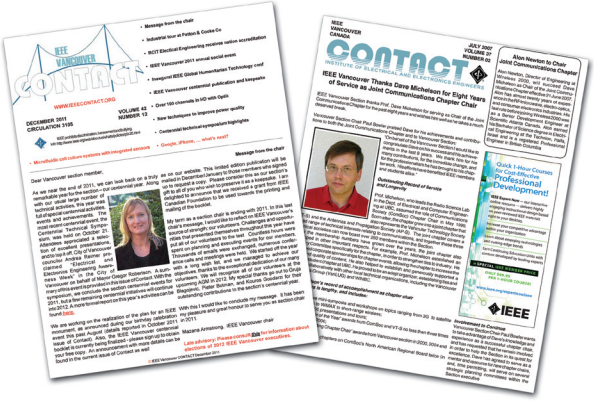
Committees

The section by-laws also provide for a number of committees to help the executives deliver services to the local membership. The Section is very fortunate in having a strong team of volunteers who serve on various committees. These include Advertising and Publicity, Awards and Recognition, Communications, Conference Support, Educational Activities, Membership Development, Professional Activities, and Student Activities.

Advertising and Publicity—Newsletter Contact

The Vancouver Section has published a local newsletter for its members since 1964. This publication, named *Contact,* has been the main means of communicating the local events and activities of the Section to members. Since the early 2000s, the electronic version of the newsletter replaced the paper version.

Currently, *Contact* is published monthly and the current issue is accessed at www.ieeecontact.org or from the link on the Section web page. The archive currently includes all the issues dating back to 2007.



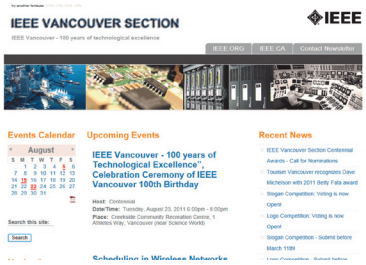
Awards & Recognition

Each year, outstanding volunteers and local members making contributions to IEEE and/or the profession in general are recognized through Section events at the AGM or special events held for that purpose. Scholarships are awarded annually through the Section Scholarship fund recently transferred to be managed by the IEEE Canadian Foundation.

These Section local awards are usually complemented by national and international awards recognizing the contribution of these extraordinary individuals in the form of Fellowships, IEEE medals, as well as Service and Achievement Awards. More than 20 Vancouver Section volunteers have been recipients of major national and international IEEE awards throughout the years.

Communications (Web and Social Media)

Web communication has become an integral part of everyday life in the 21st century. IEEE Vancouver Section has been a pioneer in using online tools for communicating with members for more than a decade. Volunteers in the Section also utilize online communities to discuss issues in forums and share information. Up until recently when the online communities were moved to the new platform, Section volunteers extensively used the Virtual Communities platform provided by IEEE as a means of communicating and archiving Section information of value.



Web presence through social media networks such as Face book, LinkedIn, and Twitter has also been successfully used to advertise events and send notices to members. The section also has a comprehensive web site that provides services to the local chapters with free web-space and maintenance if required. Many smaller chapters benefit from the automatic announcement of their events on the web-site with minimum or no overhead.

Student Activities

Currently, the Section provides support to five local student branches, two of which have formed in the past few years. The establishment of student branches goes hand in hand with the subsections formed in each area just recently. This is believed to encourage growth within each area and allow sustained activity and long term success. The following branches have been active in holding events locally and cooperate in order to provide value to student membership:

- University of British Columbia Student Branch (UBC, 1930 oldest in Canada)
- British Columbia Institute of Technology Student Branch (BCIT, 1965)
- Simon Fraser University Student Branch (SFU, 1983)
- University of British Columbia – Okanagan Student Branch (UBC-O, 2009)
- University of Northern British Columbia Student Branch (UNBC 2011)

The past few years a joint effort between the three mainland student branches, Think Engineering, has been very successful in bringing together student and representatives from the industry to provide an evening of networking to familiarize graduating students with what to expect from the industry they will be entering soon. The project fairs annually held at each university is also supported by IEEE Vancouver Section allowing students to compete while gaining experience and being able to present their work to engineers working in the local industry.

Each year, students from local universities arrange a field trip to areas known for leading-edge technology and industrial advancement. In the past few years trips to Silicon Valley and Japan, and this year to Germany, have provided the opportunity for students to tour the hot-beds of technology. The Section has been a proud sponsor of this student activity.

Besides sponsoring student activities, the Section encourages chapters to hold joint events with students and to engage students in organizing events and helping out with local conferences and section activities. The student branch executives regularly attend the Section executive meetings and actively participate in the decision making process.

Section Achievements

The Section and its volunteers have been recognized for their achievements both nationally by IEEE Canada

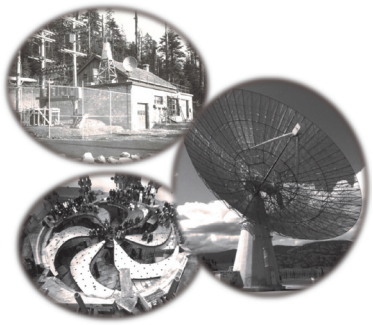
and internationally by IEEE MGA (and its precursor IEEE RAB). The Section has been the recipient of the outstanding Section Award in 1994, 1995, 1996, 1998, 2000, and 2009.

The Section has been able to achieve such distinction by motivating volunteers, students and members of the local industry to work together to foster technological innovation and excellence for the benefit of local community and the members. Sponsorship has also been a major pillar in sustaining the ongoing success of the Section by keeping local industries engaged. The quality and nature of the Section events; their advertisement through the many communication channels used by the Section; and proper recognition of local industry supporters have all been key in retaining the Section's strong relationship with industry. There are major local companies that have been sponsors of IEEE Vancouver Section activities for half a century or more.

IEEE Milestones

In 2009, the Section set out to recognize the contributions of local engineers and engineering enterprises through applying for three IEEE Milestones. IEEE began the Milestones program in 1983 to honour technological in-novation and excellence in electrical, electronic, and computer engineering. So far the following three have been awarded Mile-stone status as a result:

- First television broadcast in Western Canada, 1953
- First Radio Astronomical Observations Using VLBI, 1967
- First 500 MeV Proton Beam from the TRIUMF Cyclotron, 1974



CBC, DRAO, and TRIUMF were awarded plaques mounted in historical sites representing the achievements of each milestone.

Section Events

To complement the activities organized and carried out by chapters, affinity groups, and student branches, the Section itself holds regular general meetings each year. These include the AGM which is usually attended by more than 150 members and guests; the social gathering which has been evolving into a cultural event; and tours of local industries.

In the last few years the Section was able to organize these events with record high attendance by choosing attractive event locations, famous local speakers and interesting presentations, and low fees subsidized through external event sponsorship. Last year the social event was used to celebrate IEEE's 125 anniversary.

2011 Centennial Events

IEEE Vancouver celebrates its Centennial anniversary in 2011. A series of events has been planned to commemorate the section's rich history and the many contributions made by its members. A centennial committee was established earlier on and its members have commenced assembling historical records and artefacts and constructing a display to illustrate IEEE Vancouver's history with the goal to publish a permanent record of its first century. Special events and activities have been occurring throughout the year, both in conjunction with IEEE Vancouver meetings and in the form of special events.

Conclusion

IEEE Vancouver Section has enjoyed many successes in the past. It has been recognized as a best in class organization by IEEE numerous times. This is mainly due to the collaborative work done by the Section executives with Chapter and Affinity group Chairs and other volunteers.

By providing the opportunity to network; learn and mentor; and collaborate; the Section provides an environment conducive to innovation, creativity and high efficiency. The success is sustainable as new volunteers get involved and add their creativity to the mix.

The Section will continue with celebrations of the centennial for the balance of 2011. Engaging members even more; assisting members eligible for elevation; and establishing representation for all societies within the Section are next on the list of tasks to do in near future. Also being worked on are the measurement of the success of technical events through metrics; expanded support for student activities; and assisting in raising donations for the Scholarships funds; and enhanced publicity to attract more national and international events as well as sponsorships to the Section.

Chapter and Committee Chairs

Start Date	Vice-Chair	Secretary	Treasurer	Joint Societies Chapter of • Aerospace and Electronic Systems • Antennas and Propagation • Geoscience & Remote Sensing • Electromagnetic Compatibility • Microwave Theory & Techniques • Product Safety Engineering • Reliability	Joint Societies Chapter of • Instrumentation and Measurement • Magnetics • Nuclear and Plasma Sciences • Ultrasonics, Ferroelectrics and Frequency Control
1979		W. E. Gilbertson			
1980	W. E. Gilbertson		Hermann W. Dommel		
1981		Hermann W. Dommel	Werner. Dettwiler		
1982	Hermann W. Dommel	Werner Dettwiler	S. Mahanti		
1983	Werner Dettwiler	S. Mahanti	Allan H. Robinson		
1984	S. Mahanti	Allan H. Robinson	Bruce G. Prior		
1985	Allan H. Robinson	Bruce G. Prior	Barry E. Ward		
1986	Bruce G. Prior	Barry E. Ward	Chris Siggers		
1987	Barry E. Ward	Chris Siggers	Michael H. Boudreau		
1988	Chris Siggers	Michael H. Boudreau	Fiorenza Albert-Howard		
1989	Michael H. Boudreau	Fiorenza Albert-Howard	Brent Hughes		
1990	Fiorenza Albert-Howard	Brian L.C. Lee	Malcolm M. Cameron		
1991	Brian L.C. Lee	Malcolm M. Cameron	Roger K. Nelson		
1992	Malcolm M. Cameron	Roger K. Nelson	George A. Ludgate		
1993	Roger K. Nelson	Winnie C. Lai			
1994	Merrill D. Wittman	Gordon K. Morison	Mervat H. Mansour		
1995	Mervat H. Mansour				
1996					
1997		C.W. DeSilva	Paul O. Toom		
1998	Paul O. Toom	Charles F. Henville	Min-Fan R. Lee		
1999		Gruja Blagojevic	Charles F. Henville		
2000	Charles F. Henville				
2001	Gruja Blagojevic	José R. Martí	Stephen S. Cheung	Jerry Lim	
2002	Stephen S. Cheung	Dejan Lenasi	José R. Martí	Jerry Lim	
2003	José R. Martí	Rasvan C. Mihai	Dejan Lenasi	Jerry Lim	
2004	Dejan Lenasi	Paul R. Bowler	Rasvan C. Mihai	Robert Leitch	
2005	Rasvan C. Mihai	Eugen A. Trandafir	Paul R. Bowler	Robert Leitch/Steve McClain	
2006	Paul R. Bowler	Robert Michael Leitch	Eugen A. Trandafir	Robert Leitch/Steve McClain	
2007	Eugen A. Trandafir	Mazana Armstrong	Robert Michael Leitch	Robert Leitch/Steve McClain	
2008	Robert Michael Leitch	Kouros Goodarzi	Mazana Armstrong	Robert Leitch/Steve McClain	
2009	David G. Michelson			David G Michelson/Steve McClain	
2010	Mazana Armstrong	Alon N. Newton	Kouros Goodarzi	David G Michelson/Steve McClain	Ewart W. Blackmore
2011	Kouros Goodarzi	Steven A. McClain	Alon N. Newton	David G Michelson/Steve McClain	Michael K. Hughes

Start Date	Joint Societies Chapter of • Control System • Robotics and Automation • Systems, Man, and Cybernetics	Chapter of Electron Devices Society	Joint Societies Chapter of • Technology Management Council • Education • Professional Communication • Society on Social Implications of Technology	Chapter of Engineering in Medicine and Biology Society	Joint Societies Chapter of • Industry Applications • Industrial Electronics	Chapter of Power Electronics Society
1979					Oliver Hung	
1980					Mac Brodie	
1981						
1982					Shail Mahanti	
1983					Doug Green	
1984					M. Cameron	
1985					Jim Muir	
1986					Gurdiv Katkar	
1987						
1988					Gino Bittante	
1989					Tom Vesik	
1990			Martín Friesen		Mervat Mansour	
1991					Gordon Lui	
1992			Adam Creery		Darke Dimitrijevic	
1993	Clarence de Silva		Adam Creery		Henry Ng	
1994	Fakhri Karray		Adam Creery		Henry Ng	
1995	Mehrdad Saif		Michael Roman		Don Brown	Hua Jin
1996	George Wang		Michael Roman		Clarence de Silva	Hua Jin
1997	Mehrdad Saif		Michael Roman		Stephen Cheung	Hua Jin
1998	Clarence de Silva		Trish Shtokalko		Stephen Cheung	Djordie Garabandic
1999	Mihai Huzmezan		Adam Creery		Bill Gough	Djordie Garabandic
2000	Mihai Huzmezan		Adam Creery		Dale Raskob	Djordie Garabandic
2001	Mihai Huzmezan		Dejan Lenasi		Dale Raskob	Djordie Garabandic
2002	Hossein Saboksayr		Tony Gardiner		Dale Raskob	Rasvan Mihai
2003	Hossein Saboksayr		Paul Bowler		Roya Rahbari	Rasvan Mihai
2004	Hossein Saboksayr	Karim Karim	Roya Rahbari	Tony Ottaviani	Atousa HajShirMohammadi	Eugene Trandafir
2005	Bryan Bell	Karim Karim	Kouros Goodarzi	Amirhossein Goldan	Mazana Armstrong	Constantin Ionascu
2006	Manny Sidhu/Shaohong Wu	Karim Karim	Kouros Goodarzi	Amir Goldan	Mazana Armstrong	Constantin Ionascu
2007	Bryan Bell/Dorian Sabaz	Bonnie L. Gray	Kouros Goodarzi	Amir Goldan	Aaron Ellis	Rasvan C. Mihai
2008	Ryozo Nagamune	Bonnie L. Gray	Kouros Goodarzi	Ezra Kwok	Jahangir Khan	Rasvan C. Mihai
2009	Ryozo Nagamune	Bonnie L. Gray	Kouros Goodarzi	Ezra Kwok	Jahangir Khan	Rasvan C. Mihai
2010	Ryozo Nagamune	Bonnie L. Gray	Kouros Goodarzi	Robert N. Rohling	Jahangir Khan	Rasvan C. Mihai
2011	Ryozo Nagamune	Bonnie L. Gray	Kouros Goodarzi	Robert N. Rohling	Jahangir Khan	Rasvan C. Mihai

Note: The collection, review and verification of the Section's archival records is continuing. The Section History committee provides the following data records and summaries as available at the time of publication. Inaccuracies, corrections, and addendums to this set of historical data will be published on an ongoing basis on the Vancouver Section's history web site, located in the IEEE Global History Network (http://www.ieeeghn.org/wiki/index.php/IEEE_Vancouver_Section_History). The reader should refer to this web site for the most complete and accurate Vancouver Section historical data.

Joint Vancouver/Victoria Chapter of Circuits and Systems Society	Joint Societies Chapter of • Broadcast Technologies • Communications • Information Theory • Intelligent Transportation • Photonics • Vehicular Technology	Joint Societies Chapter of • Computer • Computational Intelligence
		Fiorenza Albert-Howard
		E.A. Koskinen-Dodgson
		Fiorenza Albert-Howard
		Fiorenza Albert-Howard
		Chris Scholefield
		Pieter Botman
		Brian Empey
		George Ludgate
	Alan Jacques	Tony Ho
	Alan Jacques	Tony Ho
	Alan Jacques	
	Mark Wlodyka	Bob Gill
	Samir Kallel	Rob Flanders
	Samir Kallel	Paul Gorton
	Ed Casas	Paul Gorton
	David Michelson	Vicky Ressl
	David Michelson	Bob Gill
Ljiljana Trajkovic	David Michelson	Bob Gill
Ljiljana Trajkovic	David Michelson	Bob Gill
Ljiljana Trajkovic	David Michelson	Bob Gill
Ljiljana Trajkovic	David Michelson	Philippe Kruchten
Ljiljana Trajkovic	David Michelson	Philippe Kruchten
Ljiljana Trajkovic	David Michelson	Philippe Kruchten
Ljiljana Trajkovic	Alon N. Newton	Philippe Kruchten
Ljiljana Trajkovic	Alon N. Newton	Philippe Kruchten
Ljiljana Trajkovic	Alon N. Newton	Sathish Gopalakrishnan
Ljiljana Trajkovic	Alon N. Newton	Sathish Gopalakrishnan
Ljiljana Trajkovic	Alon N. Newton	Sathish Gopalakrishnan

Joint Societies Chapter of • Power and Energy • Dielectric and Insulation	Chapter of Signal Processing Society	Joint Societies Chapter of • Solid-State Circuits • Components, Packaging and Manufacturing Technology • Consumer Electronics
Pelle Westlind		Alex Howatson
Maurice Lefrancois		Paul Toom
Nick Cuk		C. Constanescu
Bruce Prior		Mark Wlodyka
		Merrill Wittman
R. Zbarsky/B. Ward		I. A. Stewart
Chris Siggers		Mike Boudreau
Yakout Mansour/K. D. Srivastava		
Gerry Garnett		Eric Coll
Brian Lee/Walter Geist-O'Hara		Henry Lai
Roger Nelson		Alan Jacques
Nick Chopra		Alan Jacques
Martín Huang		Alan Jacques
Brett Garrett		Rob Flanders
Vern Bucholz		Rob Flanders
Ebrahim Vaahedi		Rob Flanders
Wilsun Xu		Neil Jensen
Charles Henville		Dave Apps
Gruja Blagojevic		Dave Apps
Gruja Blagojevic		Chris Francis
José R. Martí		Bill Gough
José R. Martí		Andre Ivanov
Mukesh Nagpal		Andre Ivanov
Mukesh Nagpal		
Raju Vinnakota		
Raju Vinnakota		
Meliha Selak		Resve Saleh
Meliha Selak		Resve Saleh
Meliha Selak	Z. Jane Wang	Resve Saleh
Glen M. Tang	Z. Jane Wang	Resve Saleh
Glen M. Tang	Z. Jane Wang	Resve Saleh
Glen M. Tang	Z. Jane Wang	Shahriar Mirabbasi
Glen M. Tang	Mehrdad Fatourechi	Shahriar Mirabbasi

Volunteers

	Start Date	
Awards & Recognition Committee Chair	1984	Jack A. Mills
	1989	N.C.A. Smith-Gander
	1991	Chris Siggers
	1997	Charles F. Henville
	1999	Donald T. Brown
	2000	Merrill D. Wittman
	2001	Meliha B. Selak
	2004	Erin K. Lim
	2005	Mandana Amiri
	2007	Mahta Boozari
	2008	Valentina Dabic
	2009	Mahta Boozari
	2010	Valentina Dabic
Educational Activities	1984	Maurice J. Lefrancois
	1991	Charles F. Henville
	1996	Ebrahim Vaahedi
	2004	Meliha B. Selak
	2005	José R. Martí
	2010	Nikola Kirilov Stanchev
Membership Development	1981	Henry W. Lai
	1986	M. Brent Hughes
	1991	N.K. Chopra
	1993	Martín Huang
	1994	Balbir Gill
	1995	John P. Marusenko
	2000	Merrill D. Wittman
	2002	Charles F. Henville
	2004	Kim Lam
	2005	Jesse L. Malm
	2008	Derek T. Collins
	2008	Michael N. Manarovici
	2009	Jesse L. Malm
Newsletter Editor	1981	Chris Siggers
	1985	Barry E. Ward
	1986	James H. Gurney
	1987	Donald A. Calder
	1989	M. Brent Hughes
	1989	Nick Keenan
Contact Distribution	1996	Robert M. Flanders
Nominations and Appointments Chair	2004	Gruja Blagojevic
	2006	Dejan Lenasi
	2007	José R. Martí
	2008	Paul R. Bowler
	2008	Dejan Lenasi
	2008	Rasvan C. Mihai
Professional Activities	1991	Bruce G. Prior
	1997	Fiorenza Albert-Howard
	2004	Paul R. Bowler
	2010	Sergio Paulo Bertani Hernandez
Student Activities	1974	James M. Smith
	1976	Robert S. Hardy
	1979	F.P.P. Turner
	1981	Patrick G. Harrington
	1985	P.A. Goud
	1985	E.A. Koskinen-Dodgson
	1985	Brian J. Lutes
	1986	Michael H. Boudreau
	1987	P.A. Goud
	1987	Herbert Yang
	1989	Winnie C. Lai
	1993	Balbir Gill
	1993	William G. Dunford
	1995	Elaine L. Hong
	2000	Shui Hay Shirley Ma
	2004	Fang Liu
	2007	Meliha B. Selak
Communications	1991	Pieter Botman
Publicity	2005	Gruja Blagojevic
Advertising	2009	Gruja Blagojevic
Conferences	2009	Eugen Trandafir
Historian	2010	David G. Michelson
Archivist	2000	George Davis
	2009	Fiorenza Albert-Howard
ICF Liaison	2011	David G Michelson
Industry Relations Coordinator	2010	David G. Michelson
Teacher in Service Program Coordinator	2011	Nina Selak
Graduates of the Last Decade Affinity Group	2001	Shui Hay Shirley Ma
	2001	Verona Wong
	2003	Andrew H. Balser
	2004	Jin Foong Ng
	2007	Glen M. Tang
	2010	Chun Cheng Tsai
Women in Engineering Affinity Group	2009	Zahra Ahmadian
Life Member Affinity Group	2004	N.G. Davies
	2005	Hermann W. Dommel
	2009	Shail Mahanti
Webmaster	2004	Jesse L. Malm
	2010	Victor Tsang
Northern BC (subsection chair)	2010	Liang Chen
	2011	Jernej Polajnar
Okanagan (subsection chair)	2010	Julian Cheng
	2011	Andrew Labun

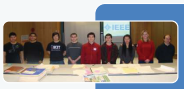
IEEE Vancouver Section Centennial

2011 Events & Activities

1911–2011
IEEE VANCOUVER SECTION

- 2011 Annual General Meeting and Centennial Gala (Mar-12-2011)
  2011 IEEE Vancouver Student Paper Contest at BCIT (Mar-16-2011)
- 2011 UBC Student Project Fair and Centennial Reception (Apr-6-2011)
  IEEE Vancouver Centennial Slogan and New Logo Design Contest (Apr-2011)
- 2011 BCIT Student Project Presentations & Centennial Reception (May-18-2011)
- 2011 SFU Student Poster Contest and Centennial Reception (Jun-8-2011)
  Life Members Centennial Event: "From Softwood to Software" (Jun-27-2011)
- Centennial Celebration: Dedication Ceremony and Birthday (Aug-23-2011)
- Centennial Technical Symposium (Oct-21-2011)
- Centennial Booklet (Dec-2011)

Centennial Committee Kickoff Meeting
- January 22, 2011
- BCIT



First Centennial History Record Search
- February 12, 2011
- BCIT

Second Centennial History Record Search
- June 4, 2011
- UBC

2011 Annual General Meeting and Centennial Gala (Mar-12)

APEGBC E-Fest (Mar-19)

2011 BCIT Student Project Presentations and Centennial Reception (May-18)

Centennial Booklet (Dec 2011)

Jan Feb Mar Apr May Jun Jul Aug Sep Oct Nov Dec
2011 2012

Mar-12 Mar-16 Mar-19 Apr-6 April May-18 Jun-8 Jun-27 Aug-23 Oct-21 Dec

BCIT Student Paper Contest (Mar-16)

2011 UBC Student Project Fair and Centennial Reception (Apr-6)

Centennial Celebration: Dedication Ceremony and Birthday (Aug-23)

Centennial Technical Symposium (Oct-21)

2011 Life Member History Event "From Softwood to Software" (Jun-27)

2011 Centennial Slogan and New Logo Design Contest (April)

IEEE Vancouver Section
100 Years of Technological Excellence

1911–2011
IEEE VANCOUVER SECTION

IEEE Vancouver Section

IEEE VANCOUVER 100 YRS

IEEE

2011 SFU Student Poster Contest and Centennial Reception (Jun-8)

IEEE Vancouver Section Centennial Website
http://vancouver.ieee.ca/centennial