
electric energy growth consumption grew 8.8% since last July. For the nation, the growth rate is about 12% for the last two years. So in spite of the present surpluses, we will need new generating capacity in the northwest and in the nation soon. In view of the time required for planning and construction of power plants, we should have a national policy and programs that will ensure that the people of this country will have this power from about 300 additional major power plants—as it is needed.

Third, and this may make some of you uncomfortable, we must plan to phase out the use of fossil fuels—including coal—for the production of electricity. If we are serious

about environmental protection and enhancement, we must face this fact. Burning any fossil fuel, and especially coal, to produce electricity is environmentally unacceptable. Let's have the courage to accept and tell this simple truth. This is why research and development in solar photovoltaics, fission breeder technology and nuclear fusion are so important. These are the sources of electricity for the future. We should be supporting rational, integrated, federal R&D programs to make energy from these sources available for commercial use as soon as possible. I think you share my commitment to accomplish this goal. I am convinced that, together, we too will overcome; and we will help build a healthier and cleaner and more secure world for everyone. Thank you.

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 tide-water 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 acquisition 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.

A 1984 Look at the Electric Power Future

William McCollam, President
Edison Electric Institute
at the
1984 IEEE/PES Transmission and
Distribution Conference, Kansas City
Missouri, April 30, 1984

A Summary

1984 is a year of great importance, one in which your conference most appropriately looks at new horizons. Not only is 1984 the year in which IEEE celebrates a century of electrical progress, it is, of course, crucial to the future of the U.S. as Americans make choices during the presidential election.

Beyond all that, 1984 has taken on a significance which is rare for years which do not end in "Five" or "Zero." And it's all because a political satirist named George Orwell reversed the final two digits of the year in which he was writing a devastating account of the future, and came up with "1984."

But a funny thing happened to "1984" on its way to the future. The horrors it described—atomic wars in the '50s, Big Brother, the general degradation of the human species—never took place. Orwell's book has, however, strongly captured the imagination of people all over the world—to the extent that a large number of them seem to think he accurately predicted 3½ decades ago what was to come. I think the best news is that he was so wrong.

Without getting into what Orwell really intended, there is, nevertheless, a warning for us in the widespread misconception about his book's accuracy on various points. It is one Orwell himself would have appreciated. The warning is: Truth itself is meaningless, if people do not **PERCEIVE** it as the truth. And, unfortunately, more and more, as we know too well, being sure that people can perceive what is truth is becoming increasingly complicated. The politics of the Presidential election year demonstrate the point.

If we extend our perspective backward to the years before 1970, we would be seeing a time when energy, in almost any form, was largely taken for granted in the U.S., was relatively inexpensive, and was applied in what some might now consider a carefree manner.

Then, 10 years ago, the Mid-East oil embargo changed the world of energy dramatically and decisively. Things have not been the same since, nor are they likely to bear any resemblance to those pre-1970 days ever again.

From the standpoint of the electric power industry, the tenth anniversary of the oil embargo coincided with the beginning of the second century of the electrification of America, which Edison started with his revolutionary electric lighting system in what was then the gas-lit era.

As essential as electricity has become since then, it will become even more so in the years ahead. EEI estimates that by the turn of the century, about 42 percent of all the primary energy used in the U.S. will be for the generation of electricity. This compares with about 35 percent in 1983.