The American and Bridal Veil Falls from Canada

THIRTY-EIGHTH ANNUAL CONVENTION

TO BE HELD AT

NIAGARA FALLS, ONTARIO

Headquarters, "The Clifton," Niagara Falls, Ontario

JUNE 26-30, 1922

THE DATE of the 38th Annual Convention of the Institute is rapidly drawing near and the Convention Committee urges you to lay your plans for attendance at Niagara this June. Plan a vacation now and remember the dates, June 26-30.

The Institute has had many conventions in many places but this year's meeting promises not only a rich reward in opportunity to watch and enjoy at your leisure one of the seven wonders of the World, Nature's tremendous display of energy in the form of water power, but it also holds a particular lure for the engineer in the chance to visit and inspect the numerous hydro-electric developments about the Falls, including the new Queenston Development of the Hydro-Electric Power Commission.

While a complete Convention schedule cannot be given at this time, the Committee wishes to announce that in addition to over thirty technical papers to be presented during several sessions the afternoons will be devoted to recreation and entertainment, including inspection trips, golf and tennis tournaments, and a baseball game. The Entertainment Committee has planned for the evenings, dancing, a piano recital and a lecture on "The History of Niagara Falls." For final details see the June Journal. (Eastern Standard Time in use at Niagara Falls, New York and Canada).

Ladies are especially invited and various events will be arranged for their entertainment

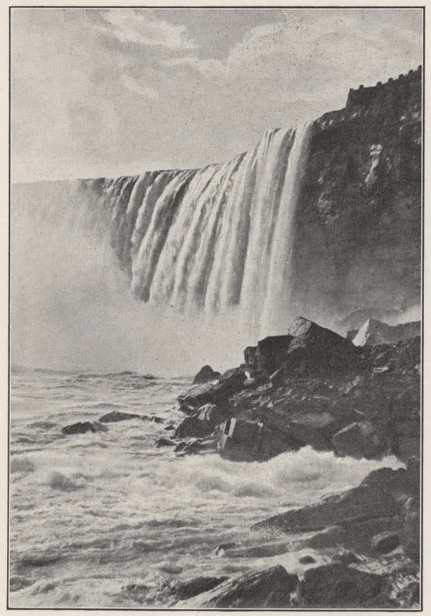
American Institute of Electrical Engineers
Thirty-three West Thirty-ninth Street, New York, N. Y.

Tentative Technical Program

THE technical program is made up of five main groups of papers and in addition several papers on a variety of subjects, ranging all the way from pure physics to practical mechanical engineering. There are 31 papers scheduled, to date.

The six groups, briefly stated, are: (a) The New Queenston Plant, (b) Standards of Rating of Generator Insulation, (c) The Baltimore Oil Circuit Breaker Tests, (d) Symposium on Engineering Education, (e) Papers on Miscellaneous Subjects, (f) Insulation and Rating of Electric Cables. The titles and authors of the papers in these groups follow:

(a) Four papers describing the Queenston Plant and its 45,000-kv-a. generators and transformers. These machines are of the largest capacity ever put into a single hydro-electric unit. A visit to the Queenston Plant is scheduled.



Queenston-Chippawa Development of the Hydro-electric Power Commission of Ontario, by F. A. Gaby, Chief Engineer, Hydro-electric Power Commission of Ontario.

Description of the 45,000-kv-a. Queenston Generators, by B. L. Barns, Engineer, Canadian General Electric Co.

Design of 45,000-kv-a. Generators, Queenston Plant, by R. A. McCarty, Engineering Department, Westinghouse Electric & Manufacturing Co., and H. U. Hart, General Manager, Canadian Westinghouse Company.

Features of Main Power House Transformers for Queenston Plant, by C. A. Price, Assistant Chief Engineer, Canadian Westinghouse, and M. E. Skinner, Assistant to General Manager, Duquesne Light Company.

(b) Three papers relating to the Standard of Rating of Class "B" Insulation, and Conventional Allowances for Generators.

Questions Relating to Standards of Rating, F. D. Newbury, Power Engineering Department, Westinghouse Electric & Manufacturing Co.

Probable Values of Conventional Allowance for A-C. Generator Stator Windings, by F. D. Newbury.

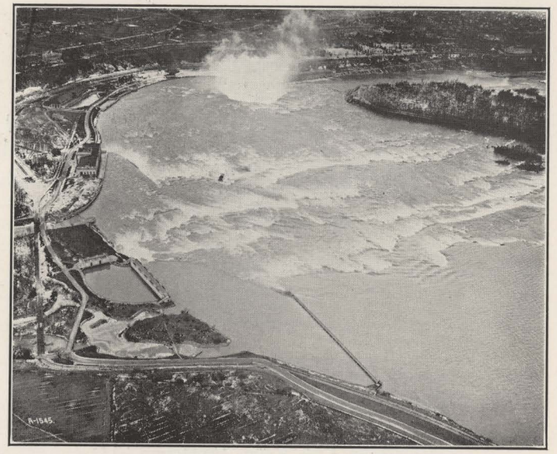
Temperature Limits in Large Machines, by P. Torchio, Chief Electrical Engineer, New York Edison Co.

(c) Three papers relating to the Baltimore tests of Oil Circuit Breakers. These are the highest power tests ever made. As a result of these tests the interrupting capacity of circuit breakers was extended to handle successfully the short-circuit currents of the largest power systems. At a risk to their apparatus the power companies of Baltimore supplied an unprecedented amount of power in co-operation with the manufacturers of circuit breakers.

Baltimore Oil Circuit Breaker Tests, by H. C. Louis, Chief of Tests, Consolidated Gas, Electric Light & Power Co., Baltimore, Md., and A. F. Bang, Testing Engineer, Pennsylvania Water & Power Co.

Tests on General Electric Oil Circuit Breakers at Baltimore, by J. D. Hilliard, Engineer, General Electric Co.

Tests on Westinghouse Oil Circuit Breakers at Baltimore, by J. B. MacNeill, Engineer, Westinghouse Electric & Manufacturing Co.



Rapids Above Horseshoe Falls Showing Power Developments on Canadian Side

(d) Six papers of the Symposium on Engineering Education. The viewpoint of these papers is that of the employer of college graduates. It is planned to obtain the co-ordination of the electrical engineering faculties, as a college group, in the determination of how many of the suggestions of the engineers are now in current use in colleges, or how far the suggestions can be utilized in the curriculums.

Some Suggestions Concerning the College Education of an Engineer, by Carl Hering, Consulting Electrical Engineer, Philadelphia, Pa.

Training for Character, by A. M. Dudley, Manager, Automotive Engineering Department, Westinghouse Electric & Manufacturing Co.

Some Suggestions for Possible Improvements in Methods of Engineering Education, by B. G. Lamme, Chief Engineer, Westinghouse Electric & Manufacturing Co.

Better Preparation of Students for Railway Work, by I. C. Forshee, Electrical Engineer, Pennsylvania Railroad.

Education, by S. E. Doane, Chief Engineer, National Lamp Works of General Electric Co.

Principles of Engineering Education, by P. Torchio, Chief Electrical Engineer, New York Edison Co.

(e) Papers on a variety of subjects, ranging from mechanical engineering to pure physics, follow.

Higher Steam Pressures or Pulverized Coal? by F. A. Scheffler, Manager, Power Department, Fuller Engineering Co.

With the continued high cost of coal and high cost of labor, discussions of the use of pulverized coal take on importance.

The Economies of Direct-Current Railway Distribution (with particular reference to the Automatic Substation), by L. P. Crecelius and V. B. Phillips, both of Crecelius & Phillips, Cleveland, Ohio.

Millions of dollars are being invested annually in automatic stations. Will one load dispatcher with the aid of automatic devices and wireless communication finally control an entire power system from one point?

Determination of Temperature of Electrical Apparatus and Cables in Service, by E. J. Rutan, Test Department, New York Edison Co.

A discussion of the methods generally used in the testing departments of lighting and power companies for determining the temperature of electrical machinery for both acceptance tests and for investigations of performance characteristics.

The Two-Stage Current Transformer, by H. B. Brooks, Physicist, Bureau of Standards, Washington, D. C., and F. C. Holtz, Chief Engineer, Sangamo Electric Co.

A two-stage current transformer is a device for improving the accuracy of metering by automatically correcting a part of the error due to the current transformer.

Two Thousand Tests on the Dielectric Strength of Liquid Insulation, by J. L. R. Hayden and W. N. Eddy, both of General Electric Co.

There are only a few engineers, and they are laboratory workers, who are familiar with the puzzling variations which occur in testing oils. Tests are here given which bring the detailed results in concentrated form to those who have information only in a generalized form.

Transmission Line Relay Protection—II., by E. A. Hester, R. N. Conwell, O. C. Traver and L. N. Crichton of Relay Subcommittee of Protective Devices Committee.

Incomplete methods of relay application constitute one of the few big unsolved problems relating to continuity of service. Continuity frequently means more water power and less steam auxiliaries. Although relays do not conconstitute a profitable business, two transmission engineers and two expert designers, from two competing factories have combined their efforts in an exhaustive report on relay practise.

A Method of Determining Resultant Imput from Individual Duty Cycles and of Determining Temperature Rating, by Bassett Jones, Consulting Engineer, New York.

An application of the theory of probability to the determination of the duty cycle of a group of machines.

Light Without Glare, by Ward Harrison, Engineer, National Lamp Works, Cleveland, Ohio.

(f) A group of seven papers relating to Cable Insulation.

Rating of Cables in Relation to Voltage—Summarized History, by the Subcommittee on Wires and Cables of the Standards Committee.

Dielectric Losses and Stresses in Relation to Cable Failures, by D. W. Roper, Superintendent of Street Department, Commonwealth Edison Co.

On the Minimum Stress Theory of Cable Breakdowns, by D. M. Simons, Westinghouse Electric & Manufacturing Co.

Effect of the Composite Structure of Impregnated Paper Insulation on Its Electric Properties, by W. A. Del Mar and C. F. Hanson, both of the Habirshaw Electric Cable Co.

Potential Gradient in Cables, by W. I. Middleton and E. W. Davis, of the Simplex Wire and Cable Company, and Chester L. Dawes, Assistant Professor Electrical Engineering of Harvard.

Corona in Air Spaces in a Dielectric, by J. E. Shrader, Research Physicist, Westinghouse Electric & Manufacturing Co.

Rating of Cables in Relation to Voltage—Bibliography on Dielectrics, by D. M. Simons, Westinghouse Electric & Manufacturing Co.

Power House of Toronto Power Company Containing Eleven 100,000 Kv-a. Generators

Entertainment

ATHLETIC EVENTS

GOLF—Arrangements have been made for a golf tournament in three flights at the Niagara Falls Country Club. The first flight will compete for the Mershon Cup. The Country Club has a high-grade eighteen-hole course and a very attractive Club house. Golf enthusiasts will be assured of a most delightful experience at their favorite pastime.

TENNIS—A tennis tournament will be conducted on the courts of the Niagara Falls Tennis Club, which is situated quite close to the Clifton Hotel. There will be competition to suit all tastes and under most pleasant conditions.

BASEBALL GAME—According to custom a baseball game will be staged at the latter end of the Convention. The scene of the encounter will be in Victoria Park, handy to Convention Headquarters and amid beautiful surroundings.

LADIES' ENTERTAINMENT

GORGE ROUTE TRIP—This trip will be held in the morning and will prove most pleasurable to all those who have not previously viewed the Cataract in this way, and scarcely less so to those who have.

AUTO TRIP—Another morning will be devoted to an auto trip through the surrounding country. The Niagara Peninsula is famous for its orchards and vineyards. Though blossom time will be past, this beautiful countryside will still present much to please the eye.

BRIDGE TOURNAMENT—A bridge tournament is being arranged for the ladies to occupy one of the spare periods.

AFTERNOON TEA AT COUNTRY CLUB—An afternoon tea will be given for the ladies at the Country Club on the last day, to fit in with the final athletic events and presentation of prizes.

DANCING—The usual informal dance will follow the President's Reception. Provision will also be made for dancing on one or more other evenings.

GOLF FOR LADIES—Arrangements will be made at the Country Club for those ladies who wish to play golf. If a sufficient number are interested a competition will be arranged for them.

MUSICAL RECITAL

Professor Karapetoff has kindly consented to treat the music lovers as he has on so many previous occasions. He proposes to introduce for the first time in public a new five-string cello, which he has developed himself. This is an event of unusual significance.

(c) Edwin Levick

Rapids Above the Falls

SPECIAL LECTURE

On an evening early in the Convention Mr. J. L. Harper, Chief Engineer of the Niagara Falls Power Company, will give a lecture covering historically the development of power at Niagara and its various power plants. It is expected that this lecture will greatly enhance the enjoyment to be derived from visits to the plant.

PLANT INSPECTIONS

An afternoon will be specially set aside for an inspection of the *Queenston Power Plant*. Arrangements will also be made whereby this plant can be seen on other days by those desiring more detailed information. Similar arrangements will also be made for visits by individuals or groups to any of the other power plants on any day of the Convention, within designated hours.

Detailed information will be available regarding all such visits at the registration booth.

TORONTO ENTERTAINMENT

The Toronto Section desires to have as many as possible of those attending the Convention visit Toronto on Saturday, July 1st. Entertainment will be provided. Full details of this invitation will be announced at the Convention.

POST-CONVENTION TRIPS

Many popular Canadian summer resorts, such as Muskoka Lakes, Georgian Bay, Thousand Islands, and the Saguenay, are within easy reach of Niagara Falls, via Toronto. Those desiring further relaxation after the Convention should consider the possibility of visiting some of these places. If full information cannot be obtained from local passenger agents, the Convention Committee will be pleased to assist in every way. Arrangements should be made in advance so that proper accommodation may be assured.

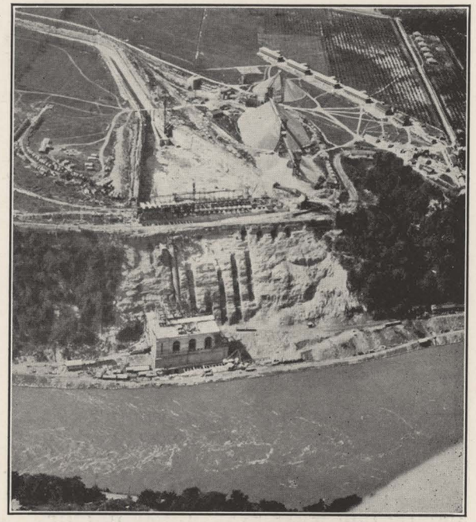
Customs Regulations for Automobilists

AMERICAN cars arriving at port of export stop at Customs Office at Niagara Falls (Customs Offices are at ends of International Bridges), and obtain export permit. Upon arriving at Canadian end of bridge stop at Canadian Customs Office and obtain import permit good for thirty days' touring in Canada. Holders of this import permit may leave Canada at any point within the thirty-day limit by surrendering the permit to the Canadian customs officer at the point of leaving Canada.

This thirty-day permit cannot be extended. No bond is required under the thirty-day permit. Persons desiring to drive their cars back and forth across the International Bridges during the Convention will merely surrender their Canadian permit at the American end of the bridge, or vice versa, at each crossing, taking it up again upon return trip. This procedure is thoroughly standardized and no difficulty whatever need be anticipated. *Be sure to bring your license card.* The Canadian customs authorities now absolutely refuse to admit American cars unless accompanied by a license card as evidence of ownership on account of the large number of stolen cars which have been taken into Canada.

Canadian cars desiring to enter the United States pursue exactly the same routine, obtaining export permit at Canadian Customs Office and import permit at the American Customs.

Baggage will be examined at the International boundary by customs officers of the country being entered.



Queenston Power House, Penstocks, Head Gates, Forebay and Canal in Construction

The transportation of intoxicating liquor across the International boundary in either direction is forbidden.

Transportation

The following schedule of trains via the New York Central Railroad has been drawn up as a guide to the membership in planning a trip to Niagara. Only the principal trains are given and many others are available. Regular one-way rates and round trip summer tourist rates in force at the time of the meeting are also given. In every case members are advised to consult their local ticket agents relative to trains, fares and most desirable routes.

Very frequent electric service is available from Niagara, N. Y., to Niagara, Ontario.

High speed suburban trains between Buffalo and Niagara Falls, N. Y., leave every 30 minutes. Running time 50 minutes.

TRAIN SCHEDULE								FARE ONE WAY	FARE ROUND TRIP
Lv. Boston	6:10 p.m.	7:35 p.m.	10:00 p.m.	E. S. T.				$18.71	$32.57
Lv. Worcester	7:25 p.m.	8:50 p.m.	11:20 p.m.					17.11	29.67
Lv. Springfield	8:50 p.m.	10:30 p.m.	1:10 a.m.					15.17	26.90
Ar. Buffalo	7:40 a.m.	9:50 p.m.	12:55 p.m.						
Lv. Buffalo	8:00 a.m.	10:30 a.m.	1:30 p.m.						
Ar. Niagara Falls, N. Y.	8:50 a.m.	11:20 a.m.	2:20 p.m.						
Lv. New York	8:30 a.m.	8:45 a.m.	10:10 a.m.	8:00 p.m.	9:30 p.m.	11:10 p.m.		16.61	28.24
Ar. Buffalo	5:30 p.m.	7:15 p.m.	8:45 p.m.	7:05 a.m.	8:25 a.m.	9:50 a.m.			
Lv. Buffalo	5:35 p.m.	7:30 p.m.	8:50 p.m.	8:00 a.m.	10:30 a.m.	10:30 a.m.			
Ar. Niagara Falls, N. Y.	6:25 p.m.	8:20 p.m.	9:40 p.m.	8:50 a.m.	11:20 a.m.	11:20 a.m.			
Lv. Chicago			5:00 p.m.	11:00 p.m.	C. T.			18.81	30.10
Lv. Toledo		9:57 a.m.	11:55 p.m.	5:25 a.m.	E. T.			10.62	17.00
Lv. Cleveland	8:30 a.m.	12:40 p.m.		9:30 a.m.				7.36	11.78
Ar. Buffalo	12:45 p.m.	5:15 p.m.	7:10 a.m.	3:50 p.m.					
Lv. Buffalo	1:30 p.m.	5:35 p.m.	8:00 a.m.	4:05 p.m.					
Ar. Niagara Falls, N. Y.	2:20 p.m.	6:25 p.m.	8:50 a.m.	4:50 p.m.					
Lv. Cincinnati	6:05 p.m.	C. T.						15.71	25.15
Lv. Columbus	9:45 p.m.	C. T.						12.33	19.73
Ar. Buffalo	6:50 a.m.	E. T.							
Lv. Buffalo	7:00 a.m.	E. T.							
Ar. Niagara Falls, N. Y.	7:50 a.m.	E. T.							

Hotel Reservations

The following hotels are available for members attending the Convention. Reservations should be made as soon as possible.

HOTELS—EUROPEAN PLAN

HOTEL		BATH DOUBLE	BATH SINGLE	RUNNING WATER DOUBLE	RUNNING WATER SINGLE
*Clifton	Ontario	$7.00	$4.00	$4.50	$2.50
Lafayette	Ontario	5.00	3.00	3.50	2.00
Prospect	New York	9.00	5.00	6.00	4.00
Imperial	New York	5.00	3.00	4.00	2.50
Watson House	New York	5.00 Up	2.50 Up	3.00	1.50
Temperance House	New York	5.00	3.50	4.00	2.50

*Convention Headquarters

To those who may wish accommodations in Buffalo the Iroquois, Lafayette and Statler Hotels are available. High speed suburban trains between Niagara Falls, N. Y., and Buffalo leave every thirty minutes. Running time fifty minutes.

F. L. HUTCHINSON,
Secretary

Convention Committee

F. R. EWART, *Chairman*

E. E. F. CREIGHTON,
Chairman, Meetings and Papers Committee

H. G. ACRES
W. P. DOBSON

A. W. BERRESFORD,
Chairman, Sections Committee

L. E. IMLAY
J. ALLEN JOHNSON

Baldwin Steel Plant in Toronto With Ten 6-Ton Electric Furnaces

FOR the advancement of the theory and practise of electrical engineering and of the allied arts and sciences, the maintenance of a high professional standing among its members, and the development of the individual engineer. A. I. E. E.

(c) Edwin Levick

PRESS OF JOSEPH D. McGUIRE NEW YORK