

are the maintenance at all times of a working head of 28 feet, and the delivery to the shafts of the electrical generators of not less than 20,000 horse power. There were eight units or sets of wheels, each of a capacity of 2,650 horse power. Each of these units or sets of wheels are connected directly, without intervention of any gearing or appliances to cause loss of energy, to the shaft of one electrical generator; in fact, the shaft of each set of water-wheels, and of each generator, is practically one continuous shaft, thereby reducing to a minimum the loss of energy and the occasion for the expense of repair.

Besides these eight sets of wheels and generators, there are two sets of water wheels, each operating an exciting generator of capacity sufficient to supply the excitation current required by all generators.

The dam gives a head of water 28 feet in height, and utilizes the entire power of the Richelieu river. The reservoir or head race thus created extends up the river from the dam to a point where the level of the water at the head race of the dam merges with the natural level of the river, such point being more than a mile and a half above, thereby securing a very long deep mill pond, which, with the high working head of 28 feet, effectually remove all possibility of that bugbear of water powers in cold climates, frazil.

The location of the dam has been selected at a point where the highest known rise of water in the Chambly Basin below the dam will not affect the level of the tail race, consequently all possibility of interruption due either to frazil or back water is removed, this being further provided for by a further drop of 7 feet at the end of the tail race.

The character of the construction of dam, power house, wheels, dynamos, switchboard, is all of the highest order. There are no gears to wear or break, there are no wire-wound armatures liable to destruction, there are no commutators, brushes or wearing parts in the dynamos, the only wearing parts in the water wheels and electrical machinery being the shaft and its bearings, consequently every source of danger has been anticipated and guarded against.

The current is conveyed from the power house at Chambly to the city of Montreal by two separate lines of poles and wires. Should an accident happen to any part of either line of poles or wires necessitating repairs, the current from such line will be cut off, and all the power required will be transmitted by the other line during the time such repairs are being made. This will prevent interruption to the service or danger to the employees, as there will be no current passing over the line being repaired, the other line carrying all that is required.

The wires for the crossing of the St. Lawrence will be carried on the new Victoria Bridge and they will be so placed that a duplicate system corresponding to the duplicate pole line will be provided. The same duplicate system will be employed within the city from the bridge terminus to the distributing station. No danger of interruption from injuries to pole lines can, therefore, reasonably be apprehended.

After a thorough inspection of the above works had been made, which elicited expressions of approval from all sides, luncheon was served in the switchboard chamber. Brief speeches were made by Mr. Willet, mayor of Chambly, Mr. W. McLea Walbank, Mr. W. H.

Browne, manager of the Royal Electric Company, and others. Mr. Browne told how past success of the company had been due to the ardent work of the board of directors, while to a layman one of the grandest pieces of engineering in the world might pass without comment. It was a magnificent specimen of human ingenuity and science, the like of which had never been seen before, and then it was only a forerunner of greater things which were to be accomplished.

Before returning to Montreal a photograph of the group was taken.

#### THE BANQUET.

In the evening the annual dinner was held at the Windsor Hotel. It was very largely attended and proved a great success. Mr. C. E. W. Dodwell, of Halifax, acted as toast master, with a genial originality which contributed greatly to the enjoyment of all present.

On the right and left of the chairman sat the officers of the society. The toast list was limited to the usual patriotic sentiments, the officers of the society, and its welfare, and the responses were brief and of a practical character. During the course of the evening an excellent string orchestra discoursed some delightful morceaux.

#### SECOND DAY.

The adjourned meeting was held on Wednesday morning in the society's rooms, to which new apartments, in the shape of a smoking room, writing room and store room, have recently been added. Mr. G. H. Duggan, Vice-President, occupied the chair. The Secretary read the annual report of Council, including the report of the Library Committee and Treasurer's statement. The adoption of the report was moved by Mr. Peters, seconded by Mr. St. George, and carried.

The report of the Council stated that the membership now included the names of 628 civil engineers as against 591 for the preceding year. Of these former number eight were honorary members, 284 were members in full standing, 161 were associate members, 41 were associates, and 134 were students.

The receipts of the year were given as \$14,657.34, and the expenditure \$3,660.66, leaving a balance on hand of \$10,996.68.

A short discussion followed concerning the disposition of certain funds recently bequeathed to the Society, and on motion by Mr. Wallis, it was decided to place the bequest in the building fund.

Mr. Wallis reported, on behalf of the Committee on Incorporation, that the bill had just been passed in the Province of Quebec Legislature. Mr. Wallis pointed out that this measure was one of great importance.

The report of the Gzowski Medal Committee, signed by J. Galbraith, Chairman, was then read.

The medal was awarded to Prof. S. L. Fortier, B.A.Sc., of Logan, Utah, for his paper on "The Storage of Water in Earthen Reservoirs."

Mr. W. J. Sproule then proposed the following motion, which was

seconded by Mr. F. F. Miller, and lost on division, but ordered to be recorded in the minutes of the Society:

"That it is in the interests of the engineering profession that the method of doing professional work or giving advice for remuneration, estimated by a percentage of the cost of the works to be constructed, is not in the best interests of the profession nor of the clients of engineers, that its tendency is immoral, that this method should be discountenanced and discontinued as soon as possible, and that the attention of all members of the profession is directed in a special measure to this resolution."

The reports were then received from the scrutineers, and the following were declared elected as officers and members of Council for 1898:

#### COUNCIL.

President—W. G. M. Thompson.  
Vice-Presidents—K. W. Blackwell, P. W. St. George.  
Treasurer—H. Irwin.  
Secretary—Clement H. Mcleod.  
Members—St. George Boswell, J. M. Shanly, C. B. Smith, Charles E. W. Dodwell, George Herick Duggan, W. McLea Walbank, Edward Henry Keating, F. C. Gamble, David Herbert Keeley, Dnnan MacPherson, J. Galbraith, Ernest Marcceau, J. L. Coste, Hurd Peters, Henry Librarian—William McNab.  
Norlande Ruttan.

The past-presidents of the Society are as follows, of whom the last three are honorary members of the Council.

Past-Presidents—Col. Sir Casimir S. Gzowski, A.D.C. K.C.M.G., John Kennedy, Edmund P. Hannaford, P. Alex Peterson, Thomas Munro, Herbert Wallis, T. C. Keefer, C.M.G.

Regret was expressed on all sides at the indisposition of the President, and in his absence Mr. C. E. W. Dodwell read his very interesting address on "The Progress of Engineering Works in Canada during the last Ten Years, and of Water Works in Particular."

At the conclusion of the paper Mr. John Kennedy spoke as follows:

"I have much pleasure in proposing a vote of thanks to our President, Mr. Keefer, whose absence we all regret very much. We owe him a great deal. The Society honored itself as well as Mr. Keefer in electing him as President for the second time, and much of the success of the Society to-day is due to his kind interest in it during the past ten years. Mr. Keefer has been honored by our Queen as well as by his profession, and I am sure I am speaking for every individual member, not only of the Society but of the profession at large, when I say that all the honor and more is due to him. I say again therefore that it gives me great pleasure to propose a vote of thanks to Mr. Keefer for his very interesting address just read, and for his services as our President."

The motion was seconded by Mr. Peters and carried unanimously by a standing vote.

Adjournment was then announced.

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