

*Francis Shepley*

THE  
Canadian Society of Civil Engineers.

877 DORCHESTER STREET, MONTREAL.

(Established Feb. 24, 1887; Incorporated by Dominion Act, June 23, 1887)

(59 VIC. CAP. 124.)

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Report of Annual Meeting

1900.

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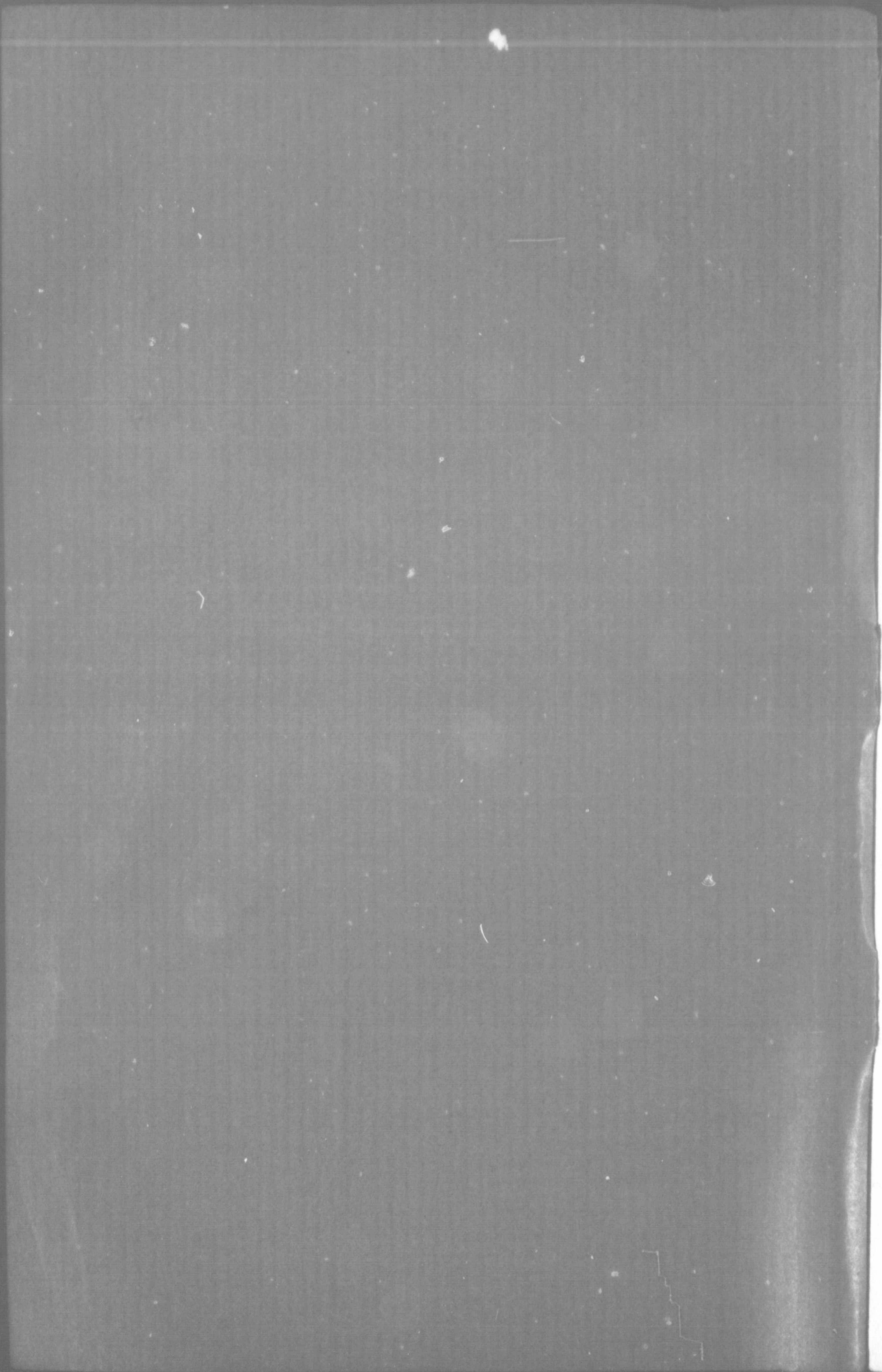
VOLUME XIV.

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Montreal:  
PRINTED FOR THE SOCIETY,  
BY JOHN LOVELL & SON.

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## REPORT OF PROCEEDINGS.

ANNUAL GENERAL MEETING.

January 31, 1900.

MR. W. T. JENNINGS, President, in the Chair.

The meeting was called to order at 10.45 a.m.

The Secretary read the notice convening the meeting.

The minutes of the Annual General Meeting, held on January 10th, 11th, 12th and 13th, 1899, were read and confirmed.

The following, on nomination of the President, were appointed scrutineers of the ballot for the election of Officers and Members of Council: Messrs. Stuart Howard, T. W. Lesage, J. W. Heckman, E. S. M. Lovelace, H. B. Stuart and J. S. Costigan.

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A general discussion then took place as to the validity of the ballots in cases where the name on the outside of the envelope was not the signature of the voter. This discussion was taken part in by Messrs. P. A. Peterson, P. W. St. George, L. Skaife, W. J. Sproule, L. S. Pariseau, C. E. W. Dodwell, E. P. Hannaford, C. S. Leech and W. McLea Walbank.

Moved by Mr. P. A. Peterson, seconded by Mr. T. Monro:

"That only ballots which have the outside signature of the voter be accepted."

Mr. C. E. W. Dodwell moved in amendment, seconded by Mr. W. McLea Walbank.

"That the Scrutineers be authorized to proceed at once to their duties, referring to the Secretary and Treasurer for information, they being *ex-officio* members of the Committee."

The amendment on being put was carried. The Chairman declared the ballot closed, and the scrutineers were ordered to proceed with their work.

Mr. P. A. Peterson gave notice that the matter of the legality of the ballots would be submitted for legal opinion, and requested that the ballots and envelopes should not be destroyed until the question was settled.

The Chairman instructed the Scrutineers to preserve all the documents, and to hand the same over to the Secretary for safe keeping, who was instructed to retain all the papers and other documents in connection with the voting.

The following, on nomination of the Chairman, were appointed Scrutineers of the ballot for the election of the elective members of the Nominating Committee for Officers and Members of Council for the year 1901:

Messrs. W. McLea Walbank, Edgar Berryman and James Ewing.

The Secretary then read the special circular in relation to the Boston Excursion, and the following programme in connection therewith, copies of which had been forwarded by the Boston Society of Civil Engineers:

"BOSTON SOCIETY OF CIVIL ENGINEERS.

Organized July 3, 1848.

Programme of Excursions for the Members of the Canadian Society  
of Civil Engineers Visiting Boston, Massachusetts,  
February 1-3, 1900.

Thursday, Feb. 1.

The visiting party will be met on their arrival at Boston by a committee of the Boston Society of Civil Engineers, and accompanied to their headquarters, Hotel Brunswick.

10 a.m. The visiting engineers will be welcomed by a delegation of the Boston Society of Civil Engineers at the Brunswick.

10.30 a.m. The party will adjourn, under the guidance of Professors Swain and Lanza, to the Massachusetts Institute of Technology, where the engineering laboratories and equipment of the Institute will be inspected.

2 p.m. The party will meet at the Back Bay Station of the New York, New Haven and Hartford Railroad, where a train will be taken at 2.15 p.m. for the South Terminal Station.

This station is located at the foot of Summer Street, and is the terminus of the Boston & Albany R. R. and the New York, New Haven & Hartford R. R.

The property comprises about 35 acres,—the station, which is the largest in the world, covering 13 acres. The head house has a maximum length of 850 feet and width of 725 feet. The train shed is 602 feet long and 570 feet wide, and covers 28 tracks on the main floor. Beneath this floor and below tide water is a 2-track loop-subway for suburban service. The switches and signals are operated by the electro-pneumatic system, which is the largest plant in the world. The mechanical and electrical equipment consists of a power-house on the easterly side of the property, in which there is a boiler plant of about 2,000 horse-power, generators for electric

"lighting and power air compressors for the switch and signal system, refrigerating and ice-making plant, air-compressors for air-brake testing, and a plant for heating and circulating hot water through the station for heating purposes.

All elevators and fans are electrically driven, as is the 6-track, 3-leaf Scherzer roller-lift bridge over Fort Point channel.

There is a plant for making and compressing gas for use in cars under the Pintsch system, having a capacity of 120,000 cubic feet in 24 hours.

The Terminal was built at a cost of about fifteen million dollars,—nine million for land and six million for construction. Work was begun in January, 1897, and the station opened for traffic January 1, 1899.

*Guides:* Mr. George B. Francis, Resident Engineer, and Mr. A. B. Corthell, Principal Assistant Engineer, during construction.

8.15 p.m. The members of the Canadian Society of Civil Engineers are invited to meet the members of the Boston Society of Civil Engineers at a special meeting to be held at the Society rooms, Chipman Hall, Tremont Temple, Boston. Mr. Frederic P. Stearns, Chief Engineer of the Metropolitan Water Works, will give a description of the Metropolitan Water System now under construction. The subject will be illustrated by stereopticon views. After the formal meeting there will be further opportunity for social intercourse of the members of the two societies.

Friday, Feb. 2.

9 a.m. The party will leave the Brunswick for the North Union Station, where a special train will be taken at 9.30 a.m. for the New England Gas and Coke Company's works at Everett.

These works are located in the town of Everett on the Mystic River, about three miles in a northerly direction from the State House. They are designed to make all the gas required for illuminating and heating purposes for Boston and its suburbs for many years.

The coal, which consists entirely of slack, is brought in steam vessels from the island of Cape Breton. The coal is hoisted from the vessels with clam-shell buckets and deposited in pockets on the wharf, from which it is loaded by gravity upon cable cars and conveyed to pockets over the ovens. Beneath the oven pockets, but on top of the row of ovens, is an electric tramway, on which a waggon or lorry, as it is called, conveys to each individual oven its charge of six tons of coal. There are now four hundred ovens in operation."

"The coal remains in the ovens for twenty-eight hours, and during the process of roasting, as in the ordinary process of gas making, evolves gas and leaves the residue of coke. The gas is conducted to the condensing house, where the tar and ammonia are removed, then to the purifying house, where the carbonic acid and sulphur compounds are extracted, after which it goes to the holders and the distribution mains.

By a system of double mains, the rich gas is separated from the poor, the former being used for illuminating purposes and the latter for heating the ovens.

An interesting feature of the works is the mechanical manipulation of materials and the extensive use of labor-saving devices, of which the removal of the coke from the ovens and the loading it into cars is an illustration.

The four-lift gas holder has a capacity of 5,000,000 cubic feet, and is 229 feet in height.

The works are now using daily about 1,500 tons of coal, from which is obtained:

|                 |                          |
|-----------------|--------------------------|
| About 4,000,000 | cubic feet of rich gas.  |
| " 1,500,000     | " " " poor gas.          |
| " 1,100         | tons of coke.            |
| " 75            | " " tar.                 |
| " 20            | " " sulphate of ammonia. |

*Guides:* Mr. Alexis H. French and Mr. W. Warren Cummings.

1 p.m. After lunch at the works, the party will return by rail to the North Union Station, at Boston, where electric cars will be taken, passing through Brookline to the Chestnut Hill Reservoir and Pumping Station, which latter will be inspected.

The Chestnut Hill reservoir was completed in 1870 by the Boston Water Works, and was taken on January 1, 1898, by the Metropolitan Water Board. It is now the principal distributing reservoir for the Metropolitan Water District. It is in two basins, having a total area of 123 acres, and a maximum capacity of 731,500,000 U. S. gallons. It is surrounded by a wide driveway two and one-half miles long, belonging to the park system of the city of Boston. Water is supplied to this reservoir through the Cochituate and Sudbury aqueducts, which have capacities of about 18,000,000 and 105,000,000 gallons per day, respectively. The extreme high water elevation is 135 feet above Boston city base (0'.64 below mean low tide). Two 48-inch pipes take water directly from this reservoir for the low service of the southern part of the district.

The older or high-service pumping station, built in 1887, contains four pumping engines, which lift the water about 117 feet above the reservoir. Two of the engines were constructed by the Holly Mfg."

"Co. in 1887, and have a daily capacity of 8,000,000 gallons each. The third was built in 1894 by the Quintard Iron Works from designs by E. D. Leavitt, and has a capacity of 20,000,000 gallons daily; and the fourth, built in 1898 by the E. P. Allis Co., has a capacity of 30,000,000 gallons daily. This fourth engine is installed in an extension of the pumping station, which was constructed in 1898 by the Metropolitan Water Board. Water is pumped to the high-service through three mains, respectively 30, 36 and 48 inches in diameter. Pending the completion of the low-service pumping engines, two of the pumps are lifting water only about 20 feet for the supply of the northern part of the Metropolitan District on the low service.

The low-service pumping station is situated a few hundred feet east of the high-service station, and was built in 1899 by the Metropolitan Water Board. It is to contain three 35,000,000-gallon vertical pumping engines, which are now under construction by the Holly Mfg. Co. Upon the completion of this station, the whole low-service supply will be pumped into two 48-inch mains, which connect with Spot Pond (the northern distributing reservoir) and the various parts of the district.

*Guides:* Mr. Charles W. Sherman and Mr. Will J. Sando.

4 p.m. The party will leave the pumping station by electric cars for the Brookline Natatorium, one of the best examples of municipal bath houses in the United States.

*Guides:* Mr. Fayette F. Forbes and Mr. Henry F. Bryant.

After inspecting the Natatorium the party will return to the city by rail in time for dinner.

Saturday, Feb. 3.

9 a.m. Through the courtesy of the Trustees of the Boston Public Library, an opportunity will be given to the members of the party to thoroughly inspect the new library.

Thereafter the following alternative excursions will be open to the members, who are requested, however, to individually notify their Secretary, Professor C. H. McLeod, not later than Thursday evening, Feb. 1, which of the excursions they will join:

Harvard College, Cambridge.

Boston Electric Light Company's New Central Power Station at South Boston.

Boston Elevated Railway Company's Power Station, at Albany Street, Boston.

Massachusetts State Board of Health Experiment station and City Water Filter Plant at Lawrence, Mass. (Members electing this excursion will leave Boston by rail at 8.30 a.m., returning in the afternoon.)

Mr. Leonard Metcalf, Secretary of the Excursion Committee of"

"the Boston Society of Civil Engineers, will have general supervision of the excursions."

The President, Mr. W. T. Jennings, expressed his regret that he was not able to join the Excursion, as he had to return to Toronto immediately.

The following reports of the Council, the Treasurer and the Library Committee were then read by the Secretary.

## REPORT OF COUNCIL FOR THE YEAR 1899.

ANNUAL MEETING, JANUARY 31ST, 1900.

The Council begs to present the following report on the work of the Society during the past year.

### ROLL OF THE SOCIETY.

The elections in the ordinary course comprised *one* honorary member, *eleven* members, *twenty-six* associate members, *four* associates, and *one hundred and eight* students, in all *one hundred and fifty*. *Four* associate members have been transferred to the class of member, and *thirteen* students to the class of associate member. *Two* members, removed from the roll for non-payment of dues, have been re-instated upon payment of their arrears. The elections under the Quebec Act, Vic. 62, Chap. 32, comprised *three* members, and *fifty* associate members. *One* associate was admitted to the class of member, and *thirteen* students were admitted to the class of associate member, under the Quebec Act. Resignations have been received from *two* associates, and *five* students. *Three* members, *four* associate members and *fifteen* students have been removed from the roll for non-payment of dues.

The deaths have been:—

*Honorary Member*:—Sir John William Dawson, C.M.G., LL.D., F.R.S.

*Member*:—Walter Shanly.

*Associate Member*:—Emery Lafontaine.

*Associate*:—Hugh Ryan.

*Students*:—F. X. Mill and M. A. Bucke.

At present the membership stands as follows:—

|                             | Non-Res. | Res. | Total. |
|-----------------------------|----------|------|--------|
| Honorary Members.. . . . .  | 6        | 1    | 7      |
| Members.. . . . .           | 247      | 61   | 308    |
| Associate Members.. . . . . | 198      | 91   | 289    |
| Associates.. . . . .        | 26       | 14   | 40     |
| Students.. . . . .          | 99       | 104  | 203    |
| Total .. . . . .            |          |      | 847    |



At the same date last year:—

|                             | Non-Res. | Res. | Total. |
|-----------------------------|----------|------|--------|
| Honorary Members.. . . . .  | 5        | 2    | 7      |
| Members.. . . . .           | 238      | 56   | 294    |
| Associate Members.. . . . . | 150      | 82   | 232    |
| Associates.. . . . .        | 28       | 13   | 41     |
| Students.. . . . .          | 98       | 44   | 142    |
| Total .. . . . .            |          |      | 716    |

At the time of the last Annual General Meeting there were eighty-seven new applications, and at the present time there are pending eleven applications for admission into the Society in the ordinary course.

ANNUAL MEETING.

The Thirteenth Annual Meeting was called to order at 10.30 a.m. on Tuesday, January 10th, 1899. In the absence of the President, Mr. W. G. Thompson, Mr. K. W. Blackwell, Vice-President, occupied the chair. The minutes of the previous Annual Meeting having been read and confirmed, the scrutineers elected, and announcements made as to future meetings and excursions, the meeting adjourned. In the afternoon, through the courtesy of the Grand Trunk Railway, the members visited the new Victoria Bridge. In the evening, a meeting, to which ladies were invited, was held to view a series of lantern projections illustrative of the bridge, and to hear an explanatory discourse thereon from Mr. W. McNab.

On Wednesday the members were the guests of the Canadian Pacific Railway and the Grande Mere Pulp Company, and visited the works of the latter by special train, returning to the city late in the evening.

On Thursday the meeting re-assembled at 10 a.m., Mr. G. H. Duggan, Member of Council, in the chair. At this meeting papers were read as follows:—"The Soulanges Canal," by Mr. Thomas Monro; "The Trent Canal," by Mr. R. B. Rogers; and "Montreal, Ottawa and Georgian Bay Canal Navigation," by Mr. H. K. Wicksteed. In the evening a Members' Dinner was held in the Ladies' Ordinary of the Windsor Hotel.

On Friday at 10 a.m. the meeting was again called to order by Mr. K. W. Blackwell, Vice-President, to listen to the Reports of the Council, the Treasurer, and the Library Committee, and to receive the reports of the scrutineers and transact the general business of the Society.

*Report of Annual Meeting of*

## ORDINARY MEETINGS.

Fourteen ordinary meetings were held during the year, at which the following papers were read:—"Sand Filtration of Public Water Supplies," by R. S. Lea, A.M.Can.Soc.C.E.; "Pavements in Vancouver, B.C.," by A. K. Stuart, A.M.Can.Soc.C.E.; "Compressive Strength of Concrete," by W. B. Anderson, Stud.Can.Soc.C.E.; "The Construction of the Main Intercepting Sewers of the City of London, Ont.," by W. T. Ashbridge, A.M.Can.Soc.C.E.; "Kilauea Plantation Railway," by G. R. Ewart, Stud.Can.Soc.C.E.; and "Transition Curves," by E. S. M. Lovelace, A.M.Can.Soc.C.E. The first two lectures of a series on "Transmission of Electrical Power" were also delivered by Prof. R. B. Owens, M.Can.Soc.C.E.

## SPECIAL GENERAL MEETING.

A special general meeting was held on Thursday, March 16th, 1899, in accordance with By-Law 44b, to take into consideration the authorization of the necessary expenditure in connection with the purchase of property. The following resolution, proposed by Mr. C. H. Rust, seconded by Mr. J. R. Barlow, was, after discussion, carried unanimously:—"That the Council be and is hereby instructed to purchase the property, No. 877 Dorchester Street, making use of the Building Fund, amounting to \$4,500, for this purpose, and also to raise \$6,500 by mortgage on the property, in order to complete the purchase price of \$8,000, with an additional sum of \$3,000 for repairs and improvements."

It was also resolved that the entrance fees, less the examination expenses, be credited to the Building Fund.

## BUILDING FUND.

Additional subscriptions were called for by circular letter dated May 16th, 1899, and again under date October 16th, 1899. Subscriptions received up to date are as follows:—

## Subscriptions prior to 1899—

Total amount collected, with interest \$4,656 73

## Subscriptions received during 1899 and 1900—

Collected.. . . . . \$2,984 44

Uncollected.. . . . . 618 00

Total .. . . . . \$3,602 44

The expenditure and obligations assumed in connection with the house, 877 Dorchester Street, are as follows:—

|  |             |
|--|-------------|
| Purchase price and expenses .. .. .    | \$8,011 30  |
| Total amount of contracts.. .. .       | 7,475 50    |
| Estimated cost of fittings, etc.. .. . | 755 00      |
| Architect's fee.. .. .                 | 616 25      |
|  | <hr/>       |
|  | \$16,858 05 |

PROFESSIONAL STATUS.

An Act was brought before the Ontario Legislature in the early part of last year, but, owing to opposition, arising chiefly from a misunderstanding of the Act, it was withdrawn after the second reading. It is hoped that the Act in a modified form may be brought before the Ontario House with better success during the approaching session.

The following are the Committees on Legislation:—

*Central Committee.*—Messrs. P. W. St. George, W. J. Sproule, H. Irwin and C. H. McLeod.

*Nova Scotia.*—Messrs. M. Murphy, C. E. W. Dodwell, W. G. Matheson and H. S. Poole.

*New Brunswick.*—Messrs. Hurd Peters, P. S. Archibald, and H. R. Lordly.

*Quebec.*—Messrs. St. Geo. Boswell, L. A. Vallee, E. Marceau, T. Breen and J. M. McCarthy.

*Ontario.*—Messrs. W. Chipman, A. L. Hertzberg, M. J. Butler, E. H. Keating and C. H. Rust.

*Manitoba.*—Messrs. H. N. Ruttan, G. H. Webster and J. Woodman.

*N. W. Territories.*—Messrs. W. D. Barclay, G. A. Stewart and W. T. Thompson.

*British Columbia.*—Messrs. H. J. Cambie, A. J. Hill, H. Abbott, F. C. Gamble and E. A. Wilmot.

The By-Laws under the Quebec Act were sanctioned by Order-in-Council on February 24th, 1899.

BOARD OF EXAMINERS.

The Board of Examiners, composed of Messrs. E. Marceau, S. Duval, T. Breen, C. H. McLeod, R. J. Durley and R. S. Lea, held its first meeting on Tuesday, November 7th, in accordance with the Quebec Act, and reported one candidate as having passed the examination for admission to practice.

The Treasurer's statement of receipts and expenditure for the year is appended hereto.

W. T. JENNINGS, *President.*

C. H. McLEOD, *Secretary.*

*Report of Annual Meeting of*  
REPORT OF LIBRARY COMMITTEE.

The Library Committee held seven meetings during the year. Donations of volumes from the undermentioned members and associate members have been received as follows:—

From Angus M. Stewart, A.M.Can.Soc. C.E.:—

The Materials of Construction, by J. B. Johnson.  
De Pontibus, by J. A. L. Waddell.  
The Designing of Draw Spans, by Chas. H. Wright.

From A. D. Watson, M.Can.Soc.C.E.:—

Marine Steam Engines.  
Engine Room Practice.  
The Generation and Utilization of High Pressure Steam.

From G. Barnett Smith, Stud.Can.Soc.C.E.:—

Canadian Canals.

From F. C. Coffin, M.Can.Soc.C.E.:—

Graphical Solution of Hydraulic Problems.

From A. Crumpton, A.M.Can.Soc.C.E.:—

Graphical Analysis of Roof Trusses.

From Gabriel Henry, A.M.Can.Soc.C.E.:—

Manuel d'Industrie Laitiere.  
La Chimie de la Ferme.  
Le Sol.

From W. McNab, M.Can.Soc.C.E.:—

The Forth Bridge (reprinted from "Engineering").  
The Construction of Trussed Roofs, by N. Clifford Ricker.

From George Brush, M.Can.Soc.C.E.:—

Volumes of the "Scientific American."

Two volumes have been acquired by purchase, viz., Railway Track and Trackwork, by E. E. Russell Tratman, and Railway Engineering, by C. B. Smith. Pamphlets and reports on various subjects have been received from A. V. Ramachandra Aiyar, A.Can.Soc.C.E.; C. Baillairge, M.Can.Soc.C.E.; C. E. Goad, M.Can.Soc.C.E.; G. Henry, A.M.Can.Soc.C.E.; T. C. Keefer, C.M.G., M.Can.Soc.C.E.; John Kennedy, M.Can.Soc.C.E.; R. Steckel, M.Can.Soc.C.E.; P. W. St. George, M.Can.Soc.C.E.; F. M. Baker, Wm. R. Hill, H. B. Seaman, W. Murdoch.

During the year exchanges have been effected with the following:

Machinery, *New York.*  
Marine Review, *Cleveland, Ohio.*  
Municipal and Railway Record, *New York.*  
Canadian Mining Institute, *Ottawa.*  
Railway & Shipping World, *Toronto.*  
Engineering Times, *London.*  
The Construction News, *Chicago.*

Some minor extra furnishings to the Social Rooms were added in the early part of the year, and they have afforded more convenience to the members generally; the cost of these furnishings was defrayed by a balance of \$50.00 remaining over from the sale of tickets for the last Annual Dinner.

The books of the Library, and the furniture and fittings generally of the present rooms have been appraised by the Committee at \$5,000.00, of which \$3,750.00 represent the books, and \$1,250.00 furniture and fittings.

The members of the Committee trust that when the Library is moved to the new quarters, the additional accommodation and convenience which will be afforded thereby will enable their successors in office to carry out many important improvements in Library matters, hitherto not possible on account of the limited space at disposal.

The undermentioned is a complete list of the periodicals, magazines, transactions, etc., regularly received and on file in the Library:—

American Society of Civil Engineers, Transactions, *New York.*  
American Society of Mechanical Engineers, Transactions, *New York.*  
American Institute of Electrical Engineers, Transactions, *New York.*  
American Institute of Mining Engineers, Transactions, *Philadelphia.*  
American Society of Irrigation Engineers, Transactions, *Denver.*  
American Architect and Building News, *Boston.*  
American Engineer and R. R. Journal, *New York.*  
"Antonio Alzate" Scientific Society, Transactions, *Mexico.*  
Association of Industrial Engineers, Transactions, *Barcelona.*  
Association of Engineering Societies, Transactions, *New York.*  
Austrian Engineers and Architects Society, Transactions, *Vienna.*  
Boston Public Library, Bulletin, *Boston.*  
Bureau of Mines, Reports, *Toronto.*  
Canadian Engineer, *Toronto.*  
Canadian Institute, Transactions, *Toronto.*  
Cassier Magazine, *New York.*

- Civil Engineers Club of Cleveland, *Cleveland, O.*  
Cleveland Institute of Engineers, Transactions, *Middlesborough.*  
Cornell University, Bulletin, *Ithaca, N. Y.*  
Engineers' Club of Philadelphia, Proceedings, *Philadelphia.*  
Engineering Association of New South Wales, Transactions, *Sydney.*  
Engineering Association of the South, Transactions, *Nashville, Tenn.*  
Engineers' Association of Western Pennsylvania, Transactions, *Alleghany, Pa.*  
Engineering News, *New York.*  
Engineering and Mining Journal, *New York.*  
Engineering, *London.*  
Engineer, *London.*  
Engineering Magazine, *New York.*  
Electrical Age, *New York.*  
Electrical Engineer, *London.*  
Electrical News, *Toronto.*  
Electrical Review, *New York.*  
Electrical Review, *London.*  
Electrical Engineering, *Chicago.*  
Engineer's Gazette, *Newcastle-on-Tyne.*  
Engineering Record, *New York.*  
Franklin Institute, Journal of, *Philadelphia.*  
Geological Survey of Canada, Reports of, *Ottawa.*  
Hanover Architects' and Engineers' Society, Transactions, *Hanover.*  
Hungarian Society of Civil Engineers, Transactions, *Buda-Pesth.*  
Illustrated London News, *New York.*  
Institution of Civil Engineers, Transactions, *London.*  
Institution of Mechanical Engineers, Transactions, *London.*  
Institution of Electrical Engineers, Transactions, *London.*  
Industries and Iron, *London.*  
Iron and Steel Institute, Transactions, *London.*  
Iron and Steel, *Chicago.*  
Ironmonger, *London.*  
Indian Engineering, *Calcutta.*  
Institution of Civil Engineers of Ireland, Transactions, *Dublin.*  
Institution of Engineers and Shipbuilders in Scotland, Transactions, *Glasgow.*  
Junior Engineering Society, Transactions, *London.*  
Journal of the U. S. Artillery, *Fort Monroe, Va.*  
*La Revue Technique, Paris.*  
Liverpool Engineering Society, Transactions, *Liverpool.*  
Locomotive Engineering, *New York.*

- Marseilles Scientific and Industrial Society, Transactions, *Marseilles*.
- Manchester Association of Engineers, Transactions, *Manchester*.
- McClure's Magazine, *New York*.
- Mechanical Engineer, *Manchester*.
- Mechanical World, *Manchester*.
- Midland Institute of Civil, Mechanical and Mining Engineers, Transactions, *Barnsley*.
- Mining Institute of Scotland, Transactions, *Hamilton*.
- Mining Society of Nova Scotia, Transactions, *Halifax*.
- Mining and Scientific Press, *San Francisco*.
- Minnesota University (Year Book), *Minneapolis*.
- Modern Machinery, *Chicago*.
- Monthly Weather Review, *Washington*.
- New England Water Works Association, *Boston*.
- North of France Industrial Society, Transactions, *Lille*.
- Nova Scotian Institute of Science, Transactions, *Halifax*.
- North East Coast Institution of Engineers and Shipbuilders, Transactions, *Newcastle*.
- New York State Library, Bulletin of.
- Patent Office Library, Reports of, *London*.
- Philosophical Society of Glasgow, Transactions, *Glasgow*.
- Railway and Engineering Review, *Chicago*.
- Railroad Gazette, *New York*.
- Railway Age, *Chicago*.
- Report of Chief of Engineers U. S. Army, *Washington*.
- Royal Artillery Institution, Transactions, *Woolwich*.
- Royal Society of Canada, Transactions, *Ottawa*.
- Royal Engineers Institute, Transactions, *Chatham*.
- Royal Institute of British Architects, Transactions, *London*.
- Royal United Service Institution, Transactions, *London*.
- Royal Dublin Society, Transactions, *Dublin*.
- Royal Society of Edinburgh, Transactions, *Edinburgh*.
- Royal Scottish Society of Arts, Transactions, *Edinburgh*.
- Royal Institute of Engineers, Transactions, *The Hague*.
- Royal Irish Academy, Transactions, *Dublin*.
- Sanitarian, *Brooklyn, N.Y.*
- School of Mines Quarterly, *New York*.
- Sanitary Plumber, *New York*.
- Society of Engineers, Transactions, *London*.
- Society of Arts, Transactions, *London*.
- South Wales Institute of Engineers, Transactions, *Merthyr Tydvil*.
- Society of Civil Engineers, Transactions, *Paris*.
- School of Practical Science, *Toronto*.
- Statistical Year Book of Canada.

Strand, *New York.*

Technical Society of the Pacific Coast, Transactions, *San Francisco.*

Technology Quarterly, *Boston.*

U. S. Naval Institute, Transactions, *Annapolis.*

U. S. Geological Survey, Reports, *Washington, D.C.*

Western Railway Club, Transactions, *Chicago.*

Western Society of Engineers, Transactions, *Chicago.*

Western Electrician, *Chicago.*

Wisconsin University, Bulletin of, *Madison, Wis.*

STUART HOWARD, *Chairman.*

W. McNAB, *Librarian.*



CANADIAN SOCIETY OF CIVIL ENGINEERS.

GENERAL FUND.

ABSTRACT OF RECEIPTS AND EXPENDITURES FOR THE YEAR ENDING 31st DECEMBER, 1899.

Balance from 31st December, 1898 .....\$ 5,893 22

GENERAL RECEIPTS.

|  |             |
|--|-------------|
| Subscriptions :—   |             |
| Arrears.....   | \$1,186 00  |
| Current.....   | 2,944 50    |
| Advance.....   | 381 65      |
| Entrance fees.....   | 480 00      |
|  | \$4,992 15  |
| Transactions sold .....  | 7 50        |
| Two dividends on Canada Permanent Loan<br>Company's Stock..... | 9 00        |
| Refund on printing .....                                       | 9 25        |
| Refund on engraving medal.....                                 | 0 75        |
| Bank interest on current account .....                         | 53 85       |
| Bank interest on deposit receipt .....                         | 69 03       |
|  | \$ 5,141 53 |

GENERAL EXPENDITURE.

|   |             |
|---|-------------|
| Part payment for house, No. 877 Dorchester<br>Street .....        | \$3,400 00  |
| Transactions printed and published. ....                          | 712 80      |
| Advance proofs.....   | 98 75       |
| Printing, stationery and binding.....                             | 376 52      |
| Charter, by-laws and list of Members .....                        | 124 00      |
| Postage and post cards .....                                      | 244 64      |
| Messengers and telegrams. ....                                    | 18 26       |
| Cabs, cartage, etc.....   | 8 75        |
| Secretary's salary for year.....                                  | 300 00      |
| Assistant Secretary's salary for year.....                        | 480 00      |
| Caretaker's wages for year .....                                  | 144 00      |
| Keeping rooms open at night and on Satur-<br>day afternoons ..... | 118 00      |
| Rent of rooms for year .....                                      | 700 00      |
| Telephone service for year .....                                  | 30 00       |
| Bank commissions on cheques. ....                                 | 8 00        |
| Water rates.....  | 26 68       |
| Electric lighting for year .....                                  | 72 12       |
| Books, magazines and library expenses .....                       | 51 30       |
| Expenses <i>re</i> legislation, Quebec Province...                | 263 40      |
| Expenses <i>re</i> legislation, Ontario Province                  | 225 75      |
| Expenses during annual meeting.....                               | 83 15       |
| Printing and engrossing diplomas.....                             | 52 35       |
| Gzowski medal and engraving.....                                  | 7 30        |
| Office furniture and repairs .....                                | 49 05       |
| Rent of drawer in bank vault for year.....                        | 5 00        |
| Gas for grate fire.....   | 3 10        |
| Part entrance fees transferred to Building<br>Fund.....           | 430 00      |
| Treasurer's expenses, car fares, etc.....                         | 15 00       |
| Petty cash in hands of Assistant Secretary.                       | 7 59        |
| Examiners' fees .....   | 50 00       |
| Ice for season .....  | 5 00        |
| Insurance on 877 Dorchester St. till Aug.<br>27th, 1902 .....     | 25 00       |
| Insurance on present rooms till 18th Sept.,<br>1902.....          | 14 40       |
| Builder's risk on 877 Dorchester Street for<br>three months.....  | 15 00       |
|   | \$8,164 91  |
| Balance on hand .....   | 2,869 84    |
|   | \$11,034 75 |

\$11,034 75

H. IRWIN,  
*Treasurer.*

Examined with books and vouchers, and found correct.

D. MACPHERSON, }  
E. MARCEAU, } *Auditors.*

**CANADIAN SOCIETY OF CIVIL ENGINEERS.**  
**ABSTRACT OF RECEIPTS AND EXPENDITURES FOR THE YEAR ENDING 31st DECEMBER, 1898.**

Balance from 31st December, 1897..... \$6,970 65

GENERAL RECEIPTS.

|  |            |
|--|------------|
| Subscriptions :—                                   |            |
| Arrears .....                                      | \$1,287 15 |
| Current.....                                       | 2,351 26   |
| Advance .....                                      | 749 66     |
|  | \$4,388 07 |
| Transactions sold.....                             | 17 50      |
| Dividend on Canada Permanent Loan Co.'s stock..... | 4 50       |
| Donations to Library.....                          | 26 16      |
| Donation towards expense of Annual Meeting         | 2 00       |
| Bank interest on current account.....              | 46 99      |
| Bank interest on deposit account.....              | 111 81     |
|  | \$4,597 03 |

BUILDING FUND.

|  |            |
|--|------------|
| Balance from 31st December, 1897.....              | \$4,026 03 |
| Ketchum bequest transferred from general fund..... | 500 00     |
| Interest to 31st December, 1898.....               | 130 70     |
|  | 4,656 73   |

\$16,224 41

H. IRWIN,  
Treasurer.

GENERAL EXPENDITURE.

|  |            |
|--|------------|
| Transactions printed and published.....          | \$ 897 10  |
| Advance proofs. ....                             | 63 54      |
| Printing, stationery and binding .....           | 267 95     |
| Charter, By-laws and List of Members .....       | 85 25      |
| Postage and post cards.....                      | 176 98     |
| Messengers and telegrams .....                   | 29 41      |
| Cabs, cartage, etc.....                          | 8 70       |
| Secretary's salary, including 7 months of 1897.. | 475 00     |
| Assistant secretary's salary for year.....       | 488 07     |
| Caretaker's wages for year.....                  | 140 00     |
| Caretaker for washing towels.....                | 6 00       |
| Cost of keeping rooms open at night.....         | 62 00      |
| Rent of rooms for year.....                      | 675 00     |
| Telephone service, including 6 months of 1897.   | 45 00      |
| Bank commissions on cheques.....                 | 13 22      |
| Water rates .....                                | 25 22      |
| Electric lighting for year .....                 | 76 69      |
| Books and magazines and Library expenses .       | 95 30      |
| Expenses re Close Corporation .....              | 863 83     |
| Expenses at meetings.....                        | 20 75      |
| Engrossing diplomas .....                        | 22 50      |
| Gzowski medal and engraving .....                | 11 48      |
| Office furniture and alterations .....           | 609 38     |
| Rent of drawer in bank vault for year.....       | 5 00       |
| Amount transferred to Building Fund .....        | 500 00     |
| Gas for grate fire.....                          | 2 00       |
| Treasurer's expenses, car fares, etc.....        | 4 34       |
| Petty cash in hands of Asst. Secretary .....     | 1 75       |
|  | \$5,674 46 |

BALANCES.

|                              |             |
|------------------------------|-------------|
| General Fund Treasurer.....  | \$5,893 22  |
| Building Fund Treasurer..... | 4,656 73    |
|                              | \$10,549 95 |
|                              | \$16,224 41 |

Examined with books and vouchers, and found correct.  
 K. W. BLACKWELL,  
 W. McLEA WALBANK, } Auditors.

**CANADIAN SOCIETY OF CIVIL ENGINEERS.**

**BUILDING FUND.**

**ABSTRACT OF RECEIPTS AND EXPENDITURES FOR THE YEAR ENDING 31st DECEMBER, 1899.**

|   |                          |
|---|--------------------------|
| Balance from 31st December, 1898 .....        | \$4,656 73               |
| <b>RECEIPTS.</b>                              |                          |
| Subscriptions paid up .....                   | \$2,984 44               |
| Interest on bank account .....                | 71 69                    |
| Entrance fees less examination expenses ..... | 430 00                   |
|   | <u>\$3,486 13</u>        |
|   | <u><u>\$8,142 86</u></u> |

H. IRWIN,  
*Treasurer.*

|   |                          |
|---|--------------------------|
| <b>EXPENDITURE.</b>                                     |                          |
| Part payment for house, No. 877 Dorchester street ..... | \$4,600 00               |
| Notary's fees <i>re</i> deed of purchase.....           | 11 30                    |
| Architect's fees on account .....                       | 200 00                   |
| Heggie & Stewart, on account, masonry..                 | 1,100 00                 |
| Dominion Bridge Company, on account, steel work .....   | 250 00                   |
| Rochon & Son, on account, brick work...                 | 300 00                   |
| W. MacDonald, on account, woodwork ...                  | 350 00                   |
| Bank commission on cheques .....                        | 70                       |
|   | <u>\$6,812 00</u>        |
| Balance on hand .....                                   | 1,330 86                 |
|   | <u><u>\$8,142 86</u></u> |

Examined with books and vouchers and found correct.  
D. MACPHERSON, } *Auditors.*  
E. MARCEAU, }

**STATEMENT OF APPROXIMATE ASSETS AND LIABILITIES, 31st DECEMBER, 1899.**

|  |                           |
|--|---------------------------|
| <b>LIABILITIES.</b>  |                           |
| Contracts let for works on new house, less \$2,000 already paid .....                            | \$5,475 50                |
| Estimated cost of hardware, library fittings, electric light fixtures, etc., for new house ..... | 755 00                    |
|  | <u>\$6,230 50</u>         |
| Surplus .....  | 16,020 08                 |
|  | <u><u>\$22,250 58</u></u> |

|  |                    |
|--|--------------------|
| <b>ASSETS.</b>   |                    |
| Balance in hand, general fund .....                    | \$2,869 84         |
| Arrears of fees, \$3,242.50 - 25 p.c. written off..... | 1,330 86           |
| Balance in hand, building fund ..                      | 2,431 88           |
| Unpaid subscriptions to building fund.....             | 618 00             |
| House, No. 877 Dorchester Street, paid in full .....   | 8,000 00           |
| Improvements and additions to house, already paid ...  | 2,000 00           |
| Books, per Library Committee's valuation.....          | 3,750 00           |
| Furniture, " " " .....                                 | 1,250 00           |
|  | <u>\$22,250 58</u> |

The Canadian Society of Civil Engineers.

On motion by Mr. C. H. Rust, seconded by Mr. H. Wallis, these reports were accepted.

The following report of the Committee on Legislation in the Province of Ontario was then read:

To the President and Members of the Canadian Society of Civil Engineers:—

Gentlemen:—The Committee upon Legislation appointed at the last Annual Meeting of the Society to promote the passage of an Act respecting Civil Engineers, a draft of which was laid before the Society at the last Annual Meeting, begs to report as follows:—

- 1st. Several meetings of the committee were held in January, February and March of 1899, and several conferences were held with the Minister of Education and our solicitors, the result being Bill No. 136.
- 2nd. The Bill was introduced into the House as a private measure and the fee of one hundred dollars (\$100) paid. The Bill was referred to the Private Bills Committee two or three days before the House prorogued, and was referred back by the committee. The Bill was opposed by Prof. Harris of Queen's, and by Mr. Bell, Secretary of the Canadian Mining Institute.
- 3rd. The Government refunded the committee the \$100 deposited when the application was made for introducing the Bill.
- 4th. The committee has held two meetings during this month, and has gone over carefully the Bill of last year, making some alterations that should remove the opposition from the members of the Mining Institute and mechanics.

A copy of Bill No. 136 and of the draft Bill as it now stands amended are herewith enclosed.

Very truly yours,

WILLIS CHIPMAN,

Chairman.

January 30th, 1900.

On motion by Mr. W. Chipman, seconded by Mr. C. H. Rust, this report was adopted.

**The Chairman.** The Chairman remarked that he had found, when working with the Committee, that there was a lamentable want of knowledge as to the objects of the Society. He had some remarks to make on the subject which would come before the members shortly, and which he thought covered the subject. Unless the members were united in their aims and objects and the expression of their opinions they would never make the desired progress.

Another matter which had to be observed, particularly in Ontario, was the influence of the labor organizations. It was necessary to instruct our own members regarding such matters, and also show the workmen that instead of opposing them the Society really wished to help them.

Mr. Chipman said that members must not assume from the short report that the Committee had been an idle one. We have had the same opposition in Ontario that existed in the Province of Quebec when the Bill was first introduced. It lies largely with the members of the Society in the Province to see that the matter is carried. Ottawa is a storm centre; Kingston is another; we hope that next time the Bill is introduced it will meet with success, though this year it is now rather late for the introduction. Letters had been sent to McGill University, Toronto University, the Royal Military College and other Colleges, requesting written approval of the proposed legislation. He had received a reply from the Royal Military College only. Unless such endorsement was obtained, individual opposition would be met with.

Mr. W. Chipman.

Mr. Kerry asked Mr. Chipman what steps had been taken to organize a canvass in the Legislature of Ontario. We could not expect any members of the Society to undertake such hard work. He wished to know whether there was any idea of getting some one to undertake the work on salary.

Mr. J.G. Kerry.

This matter might be discussed later.

Mr. W. J. Sproule, as Chairman of the special committee on titles of Engineers, etc., reported that nothing had been done. The Committee was continued.

The following report of the special committee *re* Major Gray's paper on "The Great Lakes, their Commerce and Physical Features," made to the Council and by the Council transmitted to the Annual Meeting, was then read:—

To the President, Council and Members  
of the Canadian Society of Civil Engineers.

Gentlemen,—The Committee appointed at the Annual Meeting held in January, 1899, to inquire into and report on the question raised at that meeting by Major H. A. Gray, Member of the Society, respecting the non-publication of his paper on "The Great Lakes, their Commerce and Physical Features," in the Society's Transactions, has the honour to report as follows:—

According to the Society's records the paper in question was transmitted to the Society, accompanying a letter from Major Gray, dated 28th November, 1894. The minutes state that at the ordinary meeting of 17th January, 1895, the paper in question was taken as

read and discussion thereon postponed until a future meeting of the Society. The minutes of 28th February, 1895, state that it was resolved "That the Secretary be requested to communicate with Mr. Gray, and ask him to indicate by quotation marks what are the quotations in his paper, and from what source they are taken, as a considerable part of the paper has been recognized as being taken from other writers." At the meeting of 14th March, 1895, "The Secretary reported that he had sent a copy of the paper on 'The Great Lakes' to Mr. Gray, as called for by the resolution of the last meeting, and that it had been returned with the quotation marks upon it." At the same meeting it was resolved, "That Mr. Gray's paper on 'The Great Lakes' be not published in the Transactions of the Society." The paper appeared in full in "The Canadian Engineer" for March, 1895, which was mailed in Montreal to subscribers on the 13th and 14th, being the date of the meeting just referred to, and the previous day.

On the original hand-written manuscript of Major Gray's paper, as received by the Committee, from the Secretary, there are no quotation marks. One paragraph, however, of eight printed lines, is clearly stated in the paper to be taken from Col. Poe's writings, and it is also stated that information is copied from Mr. Chas. Crossman's publications, but this statement is ambiguous as to how much is copied from this source, and in what way it is taken.

On a printed copy of the paper in question—received by the Committee from the Secretary, as the copy that had been transmitted to Major Gray, and on which he had noted the quotation marks, there are eight lines in printed quotation marks—the same eight lines as referred to above in the written manuscript clearly, as taken from Col. Poe's writing, but there are no other printed quotation marks on this copy. There are, however, quotation marks in ink and marginal notes, presumably placed there by Major Gray, giving an addition of 168 lines, or a total of 176 printed lines as quotations.

Your Committee finds an addition still of about 24 lines taken from published sources, making a total of say 200 printed lines. The total number of lines in the paper is 371. The quotations in the letter press, therefore, occupy 54 per cent. of the whole. The chart and longitudinal section of the Great Lakes in style and in information given thereon are almost identical with those accompanying Mr. Schermerhorn's article on the Northern and Northwestern Lakes, printed in Gilliman's American Journal, Third Series, Vol. XXXIII., and the water level and rainfall charts are almost identical, except in scale, with Crossman's.

In the paper as published in "The Canadian Engineer" of March, 1895, the eight lines before referred to are the only part put in quotation marks.

The authors from which quotations were taken, in addition to those already mentioned, are Major McFarlane, Report of Chief of Engineers, U. S. A., 1882, and C. C. Rogers, U. S. A.

Major Gray has been requested to attend all meetings of the Committee personally or by representative, or to send any representations he might wish, and has submitted his case to the Committee in the following statement in his letter of 9th December, 1899: "I contend, however, that the contention advanced for my paper not being published in the proceedings of the Society is covered by the statement made in the very first part of my paper, viz.: 'that it was prepared from notes and observations. . . and from information gathered . . . by the writer.'"

Your Committee cannot concur with Major Gray in the opinion that this statement in the opening paragraph of his paper intimates that the paper contains extensive quotations; in fact, the statement is quite ambiguous in this respect, and does not justify the use of unacknowledged quotations, especially such as:—"It is a theory of permanent motion that a change of *regimen* being made at any point of a river, its effect is extended up and down stream, decreasing as it goes until points are reached where it disappears entirely, and the river remains unaffected," taken *verbatim* from Major McFarlane's Report, and unacknowledged even when the paper was sent back to have all quotations indicated.

Your Committee is of opinion that where important extracts are taken directly from the writings of others, either *verbatim* or in substance, the fact should be made known not only by quotation marks, but by giving the name of the author quoted.

Since a very large and essential part of Major Gray's paper consists of matter taken directly from published articles of professional writers on the same subject, and not properly acknowledged, your Committee is of opinion that the Society was justified in resolving not to publish the paper in its present form in the Transactions. However, as the paper contains much useful information, not easily available to a large part of the Society's membership, the Committee suggests that, if Major Gray would re-cast the opening paragraph and indicate clearly all the matter and authors quoted, and preferably add such further matter as is now available to bring the subject up to date, the whole would be a valuable addition to the Society's Transactions.

W. J. SPROULE, Chairman.

You have heard the report of the Committee appointed to deal with this matter. The gist of the matter appears to be in the last clause of this report. Shall we request Major Gray to re-write his paper in the form recommended by the Committee, or shall the Society deal with the matter independently?

On motion by Mr. John Kennedy, seconded by Mr. P. A. Peterson, the report was received.

Mr. R. Hannaford. Mr. Hannaford agreed with the Committee that it was desirable to have this paper printed in the Transactions. It contained very valuable information regarding the Great Lakes.

On motion by Mr. Willis Chipman, seconded by Mr. H. J. Bowman, "That Messrs. C. H. Rust, John Galbraith and the mover be asked to wait upon Major Gray as to the publication of his paper."

The Chairman. After discussion, the Chairman stated that he thought the gentlemen appointed to act on behalf of the Society to see that nothing emanated from it without proper inspection had performed their duties very judiciously, and he would now put Mr. Peterson's amendment.

Moved in amendment by Mr. P. A. Peterson, seconded by Mr. Thos. Monro,

"That the report be accepted and the matter referred to the Council for any further action which may be considered necessary."

The amendment was carried.

#### AFTERNOON SESSION.

WEDNESDAY, January 3 st, 1900.

MR. W. T. JENNINGS, President, in the Chair.

The meeting re-assembled at 2.30 p.m.

Mr. J. G. Kerry, on behalf of the Committee, composed of Messrs. H. Irwin, Stuart Howard, C. H. McLeod and J. G. Kerry, appointed at the Special General Meeting held on March 16th, 1899, to determine whether there is any ground for the assertion that an undue proportion of the membership fees is being expended for the benefit of the Montreal members, reported as follows:

To the Council of The Canadian Society of Civil Engineers.

Gentlemen:—The Committee has gone over the Treasurer's statements from 1895 to 1899, and has selected from them all expenditures which are at all local in character. The items selected are:—Rent, janitor, night librarians, water, gas, telephone, electric light and meetings. It is not easy to say what portion of these expenditures would have to be made by the Society for the conduct of its business, if it had no local membership; but in such case the similar expenses for a head office and library would be fully five hundred dollars (\$500.00). Deducting this sum from the totals of the items above given, the following are the local expenditures and the income from the extra fees paid by resident members and associate members for the several years:—



Fees. Expenses.

|             |       |       |   |
|-------------|-------|-------|---|
| 1895.. .. . | \$162 | \$256 |   |
| 1896.. .. . | 166   | 267   |   |
| 1897.. .. . | 176   | 292   |   |
| 1898.. .. . | 276   | 552   | ) Increase mainly due to extension<br>of rooms and keeping same open<br>at night. |
| 1899.. .. . | 304   | 599   |   |

It would appear from these figures, that the excess local fees do not fully meet the local expenditures, as figured on the above basis; but that basis is itself only an estimate, and, on the other hand, no value can be placed upon the services rendered by the local membership to the Society, in conducting much of its business, and keeping alive its meetings and committees, duties which, in some cases, have become so arduous that the Society must shortly expect to place paid assistants at the disposal of the Treasurer and of the Librarian.

The letters, which caused the appointment of the Committee, seem to have been written under a fear that, with the opening of the new Society House, the local expenditures would greatly increase, but it does not appear to your Committee that any expenditures upon the furnishing and maintenance of the house, which may tend to advance the dignity and standing of the Society as a professional society, ought to be opposed by any member, whether resident or non-resident. On the other hand, your Committee feel that any expenditures, which are not proper to a Society constituted solely for professional purposes, but belonging rather to the province of an engineers' club, should not be chargeable to the general funds, and, if permitted by Council, would furnish valid grounds of complaint to all members not benefiting by such expenditures.

Your Committee would suggest that this report be made a subject of discussion at the annual meeting, as they do not feel that the Committee itself is sufficiently representative to make any recommendation based upon the facts as above presented.

(Signed)

- H. IRWIN.
- S. HOWARD.
- C. H. McLEOD.
- J. G. G. KERRY.

Mr. Kerry added that local members had to pay an extra fee of \$2 for the more frequent use they were supposed to have of the rooms. He said the policy of the Society was to become the general engineering society of Canada, and nothing could be more injurious than to spend money in a way to bring no benefit to members out-

side the city. The library was a necessity, and we should have the best equipment in this respect that it was possible to get, but the general society should not be taxed for the pleasures of a club for the advantage of local members.

The Chairman. The President remarked in connection with the Report that he was very greatly surprised to know that a card room existed within the quarters of the Society, and expressed the hope that this feature of the rooms would be done away with immediately.

Mr. P. A. Peterson. Mr. P. A. Peterson concurred in the statement of the President, and expressed the opinion that the maintenance of such a feature would result in the Society degenerating into a local club.

Mr. C. E. W. Dodwell. Mr. C. E. W. Dodwell, speaking as an outside member, thought the Society should not begrudge the cost of proper quarters. He had not been here for two years, and might not be here for another two years, but he was quite willing to pay his share of the cost of maintaining a proper home for the Society.

Mr. P. W. St. George. Mr. P. W. St. George said it was the intention in the new quarters to provide sleeping accommodation for two; this was for outside members, who might prefer to lodge at the Society's rooms instead of going to an expensive hotel.

After further discussion, taken part in by several members, it was unanimously resolved on motion by Mr. W. J. Sproule, seconded by Mr. J. G. Kerry,

"That no expenditures from the Society's funds shall be incurred either in purchases or maintenance, which are not necessarily involved in carrying on the business of the society as a whole, and in the direct interests of the general membership, and that all expenditures be under the direct control of the Council, and that this resolution be transmitted to the Council as the expression of the Annual Meeting."

The Committee on the Gzowski Medal having failed to report, the matter of the award for the year ending June 30th, 1899, was referred to the Council.

The President referred in feeling terms to the loss sustained by the Society in the deaths of Mr. Walter Shanly and Sir William Dawson.

Postal cards having, by resolution of the Special General Meeting held on March 16th, 1899, been sent out with a view of obtaining the opinion of members as to the desirability of making a change in the date of the Annual Meeting and of holding a summer convention, the following report was made on the answers received:

1. Are you in favour of continuing the present arrangement of holding the annual meeting in Montreal in January of each year?—Yes, 95; no, 103.

2. Shall the Society hold a summer convention at different places each year?—Yes, 177; no, 19.

3. If in favor of summer convention, in what month should it be held. Of the total answers 28 were in favor of June, 25 of July, 36 of August, and 32 of September.

4. If such convention is held, should the Annual Meeting be held at the same time and place?—Yes, 119; no, 70.

No action was taken.

On motion by Mr. F. L. Wanklyn, seconded by Mr. P. W. St. George, it was resolved,

“That in the event of more than one ballot being required, the color, size and printing on the envelopes enclosing the ballots shall in every case be the same.”

On motion by Mr. J. G. Kerry, seconded by Mr. C. H. Rust, it was resolved,

“That hereafter no lists of ballots cast shall be made before the closing of the ballot, and that no members other than the scrutineers shall be permitted to know what members have cast ballots.”

At the request of the meeting, the following report in connection with the ballot for the election of Officers and Members of Council at the last Annual Meeting of the Society, made to the Council was read:

The Committee, appointed by the Council of the Society to enquire into the irregularities which occurred in the scrutiny of the ballot for the election of Officers and Members of Council at the last Annual Meeting, begs to report as follows:—

The Committee has examined into the facts of the case and so far as it has been able to ascertain they are as follows:—

The Scrutineers of the ballot in question were Messrs. Lewis Skaife, F. W. Cowie and F. T. St. George. The Scrutineers completed their count of the balloting and made a report, dated Jan. 12th, 1899, a copy of which is annexed, from which it appeared that Mr. Louis Coste was elected as one of the Vice-Presidents, and Mr. H. J. Cambie as one of the Members of Council of the Society. This report was handed to the Secretary along with the ballots and was duly signed by the Scrutineers as a completed document.

The Secretary states that upon receipt of the report he found that the return for Vice-Presidents did not correspond with the votes recorded on the ballots. He therefore called the attention of the Scrutineers to this fact, and handed them back the ballot papers, upon which they made another count, and, on its completion, handed in a second report, dated January 13th, 1899, of which a copy is also attached. This second report differs from the first in stating that Mr. E. H. Keating had been elected a Vice-President (instead of Mr. Coste), and that Mr. E. A. Wilmot had been elected a Member of Council (instead of Mr. Cambie).

The Committee finds that the second report is that which was

handed to the Annual Meeting, and was adopted as the elected list.

The Committee considers it a fortunate circumstance that the errors of the first report were thus detected and set right before it was too late to do so, but regrets exceedingly that the Scrutineers should have made their first count in such way as to have rendered such correction necessary.

Yours respectfully,

JOHN KENNEDY, Chairman.

THOS. MONRO.

GEO. A. MOUNTAIN.

Montreal, January 9th, 1900.

Some discussion took place in regard to the report, but no action was taken.

At the request of the retiring President, Mr. John Kennedy took the chair, and the retiring President, Mr. W. T. Jennings, read his annual address as follows:

### PRESIDENT'S ADDRESS.

Toronto, 26th January, 1900.

To the Officers and Members of the Canadian Society of Civil Engineers.

GENTLEMEN,—

On retiring from office I take this opportunity of again thanking the Society for the high honour conferred in electing me to the Presidential Chair, and to express regret at my inability to have given the duties of the office the full attention they demanded.

However, if not frequently in attendance, I have had the Society and its objects fully in mind, and my constant desire has been to see the Society attain a position where from its standing and activity in the advancement of scientific education, coupled with wise regulations and a high standard of ethics, it will command the hearty support of engineers in all branches of the profession and also the respect of the public at large.

Referring to our inception, formation and advancement, I may briefly remind you that the Society was established by a Dominion Government charter early in 1887 "for the object and purpose of facilitating the acquirement and interchange of professional knowledge among its members, and more particularly to promote the acquisition of that species of knowledge which has special reference to the profession of civil engineering, and, further, to encourage investigation in connection with all branches and departments of knowledge connected with the profession."

The Society was also empowered "to acquire and hold all land and property necessary and requisite in order to carry out the objects and purpose for which incorporation was sought."

The numerical strength of the Society during the first year (1887) was as follows:—

188 Members,  
45 Associate Members,  
19 Associates,  
83 Students,  
In all a total of 335 Members.

During the same year the sum of \$2,480.77 was paid in to the Treasurer, principally on account of annual subscriptions.

From the Secretary's returns it appears that the membership for 1899 numbered as follows:—

7 Honorary Members,  
308 Members,  
289 Associate Members,  
40 Associates,  
203 Students.

In all a grand total of 847 members, and showing a total net increase since the year of the formation of the Society of 512 members of all grades, while the receipts from entrance and annual fees, etc., amounted to \$5,141.53. This sum, added to the amount of \$5,893.22, brought forward from general fund account, makes a total credit balance at the end of 1899 of \$11,034.75, which sum has, as you will notice in the Treasurer's statement, been largely drawn upon for building account.

Permanent withdrawals from membership have been few, and due in most instances to removal from the country.

Removals by death have cost us many worthy members, among whom we sincerely regret Honorary Member Sir John William Dawson, C.M.G., LL.D., and two Past-Presidents, namely, Mr. Samuel Keefer and Sir Casimir Gzowski. Mr. Walter Shanly may also be included in the number of Past-Presidents, as he was on several occasions offered the nomination, but invariably declined. As is well known, these gentlemen were of the highest professional and social standing, and heartily entered into the scheme for the formation of the Society, and did their part nobly to advance all its interests from the date of its formation up to the time of their decease.

Others have departed who, although perhaps not as prominent before the public and in our midst, acquitted themselves honourably in the profession and faithfully as members.

The Society having carried out the second provision in its charter, is now to be congratulated on the acquisition of its own

premises (as referred to in the Treasurer's report), at a total estimated cost for

|                           |                   |
|---------------------------|-------------------|
| Improvements, etc.. . . . | \$8,846.75        |
| Building and land.. . . . | \$8,011.30        |
|                           | ————— \$16,858.05 |

Of this amount there has been obtained by special subscriptions from members and friends the sum of \$8,259.17.

The balance of \$8,598.88 has been temporarily provided for by loan from the general funds of the Society.

It is confidently hoped that monetary aid sufficient to extinguish the whole building account item of \$16,858.05 will be secured, thereby enabling the Society to apply moneys now temporarily loaned from the general funds to other useful purposes, notably the enlargement of the Reference Library, which is now valued at \$3,750.00, or, with furniture and fittings at a total of, say, \$5,000.00, all of which can be inexpensively removed to our own premises, which it is hoped will be ready for occupation by the first of May next.

The benefit to be derived from having one's own professional home will doubtless strike every member as the beau ideal of seclusion and comfort. We now know that we have a headquarters, where we can meet and discuss topics of professional interest, or where we may individually rest by times when here.

It has been stated by some of our members that the establishment has involved too great an expenditure, and that only local members would profit by it. I would remind these gentlemen, that, as before stated, a large proportion of the cost was subscribed by members and friends for this particular purpose, and which the Society has had in contemplation from the outset.

I am satisfied we will do more individually and collectively in this way in the near future, and that we will doubtless soon have the pleasing duty of determining whether our surplus funds are to be devoted to the wider distribution of engineering information beyond that emanating from papers by our own members, or expend it in additions to our Reference Library, or, finally, stop the accumulation of funds by decreasing the annual subscription fee.

I cannot think that the latter course would meet with the general sanction of the members, because, as time wears on, coupled with the general growth of the country, an ever-increasing demand will make it imperative that our members be promptly informed of the latest engineering advances.

However, as we have not yet reached that stage, it is unnecessary to further enlarge on the subject, and I only mention the matter as food for thought and discussion later on.

As to the second part of the assertion, that only local members would really profit by the establishment of our home, I may say that such must necessarily be to some extent the case, and we who are not at headquarters can only hope that those who are so fortunately situated will take full advantage of the opportunities afforded. Members should look on this feature in a broad light, and recognize that, while distant from the home, yet the advantages of it are apparent, in that the Library is open to us should we at any time desire information as recorded in our reference volumes, by simply making application to the Secretary for the loan of the required work, which, if too voluminous to transmit, and the subject matter required not too extensive, there is no reason why arrangements should not be made for its transcription and transmission to the applicant.

In this and many other ways can the "home" be made a bond of usefulness to the members of the Society, while its firm establishment means that the Canadian Society of Engineers has become a permanent and fully recognized institution of the country.

The advancement of Economic Mining has had the effect of attracting experienced mining engineers to the country, and of inducing a large number of students to take up that branch of the profession, with the result that a separate Society, called the Canadian Mining Institute, has been successfully formed, and, as it is desirable that all branches of engineering should be embraced in the Canadian Society of Engineers, it is hoped that this valuable branch will be united with us in the near future.

Acknowledgment as a corporate body has been obtained from the Legislatures of the Provinces of Quebec and Manitoba. An effort has been made in the same direction in the Province of Ontario, but so far without success.

It is, however, hoped that substantial advancement will be made in this respect during the coming session of the Ontario Legislature, and it is not difficult to see that the carrying out of the provisions in our bill will not only benefit the profession and the operative, but also assist all intelligent and well-disposed persons by the elevation of the educational standard and general proficiency of the civil engineering profession of this country.

In connection with our desire for Provincial incorporation, it has been stated, by those opposed to the measure, that our common object is to thoroughly entrench ourselves behind the Act in order that we may the more successfully wage war on those now practicing who have not thought fit to ally themselves with the Society; also to legally enable us to exact enhanced fees for services, and generally to place a curb on free and untrammelled labour, be it professional or otherwise.

In reply to this and other like statements, I would briefly point out that the old days of casual study as a pupil principally carried out in the office, field or on works, and generally based on theoretical education of a more or less complete character, are almost past and gone, and while recognizing and upholding many good features in the old system, yet the near future will find only men in the profession who are graduates of schools of engineering or of this Society.

Therefore (while not wishing to interfere with any one now engaged), the Society seeks incorporation (in the Provinces) particularly for the purpose of placing the foot of the student firmly on the first rung of the ladder by insisting that he shall have the foundation work of his profession securely laid in the form of a good academical education, and that his further ascent may be made under the guidance of experienced engineers, whose duty it will be to encourage him, until time and experience in actual service enable him to become a full corporate member, and competent to stand alone and unaided.

In the matter of fees for professional services, the Society has not made special provision, and it is desirable that a plan be formulated whereby satisfaction and uniformity may be obtained in this respect, as is customary in other professions.

When one thinks of the duties and responsibilities vested in an Executive Engineer, in charge of extensive and costly works, and often acting in a judicial capacity as between Governments, Companies or Municipalities, as against each other or contractors, and compares the returns they receive with those obtained by our judges and leaders in mercantile pursuits, we certainly cannot be charged with placing a high estimate on ourselves.

As to interference with skilled or ordinary labour, I hold that the reverse is the case, as by the better and more systematic education of our engineers we create a competent force to guide and assist skilled artizans and mechanics, in advancing their interests, either as inventors, operators or overseers, of the labouring masses, who thereby cannot fail to obtain improved conditions.

As an index of this feature, it is only necessary to point to the valuable assistance rendered by schools of technology in Europe, and on this Continent, where the ordinary mechanic may, by evening study under engineers, chemists and other suitable professors, secure for a trifling sum such knowledge of a scientific character as will enable him the more clearly and effectively to study out and improve upon present machinery and methods of manufacture, and generally bring under the control of the hand of man the powers and material of the physical world.

The ethical principles which should be observed between members are not difficult to determine, and may be summed up in the tenets of the "Golden Rule," and are largely provided for in our by-laws.



It has, however, been suggested that members enjoying permanent positions, and whose compensation is in consideration of the occupation of their whole time, should discontinue outside professional practice in so far as the interests of the country or municipality will permit.

It is to be hoped that the "transactions" of the Society will be increased in volume by the addition of articles other than those emanating from members of our own Society.

I have thus briefly touched upon Society matters rather than those of a specifically engineering character, as has been the custom heretofore by retiring Presidents, feeling that at this time, when we are entering upon a new and more extended era, it would appear advisable that our members should be reminded of the objects of the Society, and of the duties and obligations of its members to the public, and to each other in order that we may the more fully understand our position.

In concluding, I can only express a hope that our efforts will continue to meet with success, and that each member will personally feel that the Society is of real value, and of benefit to our country.

On motion by Mr. P. A. Peterson, seconded by Mr. T. Monro, the thanks of the Society were tendered to the President, who, in his suggestive and instructive address, had taken an entirely new line of thought in presidential addresses.

The scrutineers of the ballot for the election of the elective members of the Nominating Committee for Officers and Members of Council for the year 1901 reported as follows:

Quebec—Messrs. L. G. Papineau and C. de B. Leprohon.

Ontario—Messrs. C. H. Rust, J. Galbraith and G. A. Mountain.

Manitoba and N.W.T.—Col. H. N. Ruttan.

Maritime Provinces—Dr. Martin Murphy.

Outside of Canada and Newfoundland—Mr. Lewis Skaife.

The scrutineers of the ballot for the election of Officers and Members of Council for the year 1900 presented an interim report of the result of the ballot as follows:

PRESIDENT.

HENRY T. BOVEY.

VICE-PRESIDENTS

G. H. DUGGAN, P. W. ST. GEORGE and E. H. KEATING.

SECRETARY.

C. H. McLEOD.

TREASURER.

H. IRWIN.

LIBRARIAN.

E. A. RHYS-ROBERTS.

Dr. Bovey then took the Chair, and in doing so expressed his high appreciation of the honor which had been conferred upon him.

On motion by Mr. H. Wallis, seconded by Mr. Stuart Howard, a hearty vote of thanks was tendered to Mr. Jennings for his services as President during the past year.

It was moved by Mr. W. J. Sproule, and seconded simultaneously by Messrs. L. S. Pariseau, D. MacPherson and T. Harry Jones, that \$200 of the Society's funds be devoted to the National Patriotic Fund. This was carried by a standing vote, the members singing "God Save the Queen."

The meeting was then adjourned to Tuesday, February 6th.

#### BOSTON EXCURSION.

At 9 p.m., January 31st, sixty of the members left by a special train, which had been placed at the disposal of the Society by the Grand Trunk, Central Vermont, and the Boston and Maine Railways, and the Pullman Palace Car Company, for Boston. Boston was reached at 8 a.m., February 1st, and the members were met by a deputation from the Boston Society of Civil Engineers, who escorted the visiting members of the Society to their headquarters in the Hotel Brunswick, where they were formally welcomed by the President of the Boston Society, Prof. C. Frank Allen. Prof. H. T. Bovey, on behalf of the Society, expressed the thanks of the members, to the Boston Society, for their very hospitable welcome.

The programme as outlined in the special circular of the Boston Society (page 2) was immediately entered upon and very successfully carried out under the superintendence of Mr. Leonard Metcalf and with the assistance of the President and Secretary and other members of the Boston Society.

On Friday evening, the Members' Dinner was held at the Hotel Brunswick, and on the occasion the Society had the honour of the company of a number of members of the Boston Society of Civil Engineers.

The members left Boston on their special train at 11 p.m., on Saturday, Feb. 3rd, and reached Montreal on Sunday morning, Feb. 4th.

#### ADJOURNED MEETING.

TUESDAY, February 6th, 1900.

DR. H. T. BOVEY, President, in the Chair.

The adjourned meeting was called to order at 8 p.m.

The scrutineers for the election of Officers and Members of Council completed their report, and the President declared the following members duly elected as Councillors:

JOHN KENNEDY.  
C. H. RUST.  
T. MONRO.  
G. A. MOUNTAIN.  
J. M. MCCARTHY.  
D. MACPHERSON.  
ST. G. BOSWELL.  
E. MARCEAU.

J. GALBRAITH.  
W. McNAB.  
T. H. TRACY.  
JAMES ROSS.  
H. WALLIS.  
R. HERING.  
C. E. W. DODWELL.

The elective members of the Nominating Committee were declared duly elected in accordance with the report of the scrutineers presented at the meeting on January 31st.

On motion by Mr. C. E. W. Dodwell, seconded by Mr. W. McNab, it was resolved,

"That the Secretary of the Society be instructed to transmit the thanks of the Society to the railway companies, the Boston Society of Civil Engineers, and other societies, companies and bodies, to whom the Society is indebted for the great pleasure and advantages enjoyed by the members of the Society on the occasion of their recent visit to Boston."

It was moved by Mr. H. Wallis, seconded by Mr. W. McLea Waibank, and carried,

"That a vote of thanks on the part of the Society be given to Mr. Irwin, Mr. McNab and Prof. McLeod for their services during the past year."

It was moved by Mr. L. Skaife, seconded by Mr. C. DeB. Leprohon, and carried,

"That a hearty vote of thanks be presented to each member of the Committee who are responsible for the great treat we had in Boston."

It was moved by Mr. H. Irwin, seconded by Mr. R. S. Lea, and carried,

"That a hearty vote of thanks be given to the Scrutineers for their arduous labors in connection with the scrutiny of the ballot."

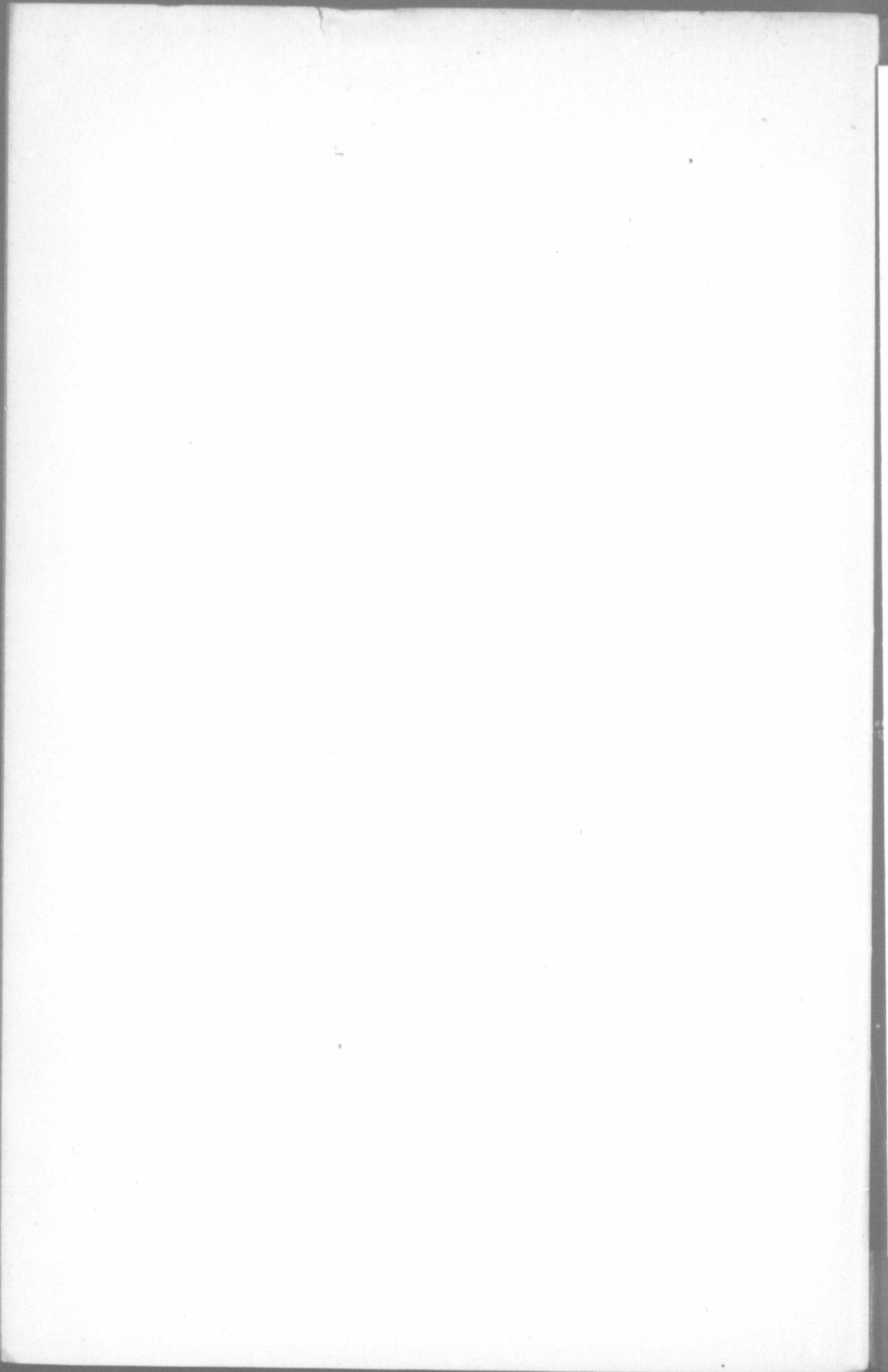
It was moved by Mr. G. H. Duggan, seconded by Mr. C. E. W. Dodwell, and carried,

"That a cordial vote of thanks be tendered to Mr. P. W. St. George for his services as Vice-President during the past year, and especially for his work in connection with the Society's new house."

It was moved by Mr. H. Irwin, seconded by Mr. G. H. Duggan, and carried.

"That the ballots in connection with the recent election be destroyed."

The meeting then adjourned.



... PROGRAMME ...

... FOR THE ...  
ENTERTAINMENT  
... OF THE ...

**Canadian Society of Civil Engineers**

IN OTTAWA

... FROM ...

SEPTEMBER 13th TO 16th

... 1900 ...



= Programme =



**THURSDAY, SEPTEMBER 13TH**

- 3.00 p.m.**—Reception of the visiting members and their families by His Worship the Mayor of Ottawa and City Council, in the Council Chamber, City Hall.
- 4.30 p.m.**—Excursion by the new Electric Railway to Britannia Bay, and the works of the Metropolitan Power Co., by the courtesy of the "Ottawa Electric Railway Co." and John Aylen, Esq., C.E.
- 8.00 p.m.**—Meeting of the Society in the Council Chamber, City Hall, kindly granted for the occasion by His Worship the Mayor.

**FRIDAY, SEPTEMBER 14TH**

- 9.00 a.m.**—Visit the various industries at Chaudiere, including the following works:—E. B. Eddy & Co., J. R. Booth's Lumber Mills, Benson & Co., Carbide Works, etc.
- 11.30 a.m.**—Inspect the construction of the Inter-Provincial Bridge over the Ottawa River.
- 3.00 p.m.**—By the invitation of Thos. C. Keefer, C.E., C.M.G., all members and their families are requested to attend a Garden Party at his residence "Rockcliffe" near Ottawa.
- 8.00 p.m.**—The Local Committee invite all members and their families to attend a *Conversazione*, at the Victoria Hotel, Aylmer, if weather permits; if weather unfavorable at the Russell House, Ottawa.

**SATURDAY, SEPTEMBER 15TH**

- 8.00 a.m.**—By courtesy of the Canada Atlantic Railway Company, a special train will leave the Central Station, to convey the members to Depot Harbour and Parry Sound, returning to Ottawa Sunday morning.

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NOTE.—The trips to Chaudiere, Inter-Provincial Bridge and Parry Sound being of strictly engineering interest, are for members only. Special rates for members and their families have been obtained at the Russell House.

A Local Executive Committee Room will be open during the Convention at the Russell House, Ottawa.

There will be a Local Ladies Committee for the entertainment of the visiting Ladies during their stay in Ottawa.

The Executive and Reception Committee will be composed of all the Members and Associate Members residing in Ottawa.

