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# NINETEENTH ANNUAL REPORT

OF THE

COMMISSIONERS FOR THE

## Queen Victoria Niagara Falls Park.

1904.

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PRINTED BY ORDER OF  
THE LEGISLATIVE ASSEMBLY OF ONTARIO.

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WARWICK BROS & RUTTER, LIMITED, PRINTERS.  
TORONTO.

1st March, 1905.

THE HON. W. J. HANNA, K.C., M.P.P.,  
*Provincial Secretary Province of Ontario,*  
*Parliament Buildings, Toronto.*

SIR,—I have the honor to transmit herewith, for presentation to the Legislature of Ontario, the Nineteenth Annual Report of the Commissioners for the Queen Victoria Niagara Falls Park, (being for the year ended 31st December, 1904) together with the appendices thereunto attached.

I have the honor to be,  
Sir,  
Your obedient servant,

JOHN W. LANGMUIR,  
Chairman.

# BOARD OF PARK COMMISSIONERS.

---

JOHN W. LANGMUIR, Chairman.

GEORGE H. WILKES.

JAMES BAMPFIELD.

ARCHIBALD W. CAMPBELL.

ROBERT JAFFRAY.

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SUPERINTENDENT,

JAMES WILSON,

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CHIEF GARDENER,

RODERIC CAMERON.

NINETEENTH ANNUAL REPORT  
OF THE  
Commissioners for the Queen Victoria  
Niagara Falls Park.

*To the Honorable W. MORTIMER CLARK, K.C., Lieutenant-Governor of the Province of Ontario :*

MAY IT PLEASE YOUR HONOR :

The Commissioners for the Queen Victoria Niagara Falls Park beg to submit their Nineteenth Annual Report, being for the year 1904, to which is appended the usual statement of Receipts and Expenditures, the Report of the Park Superintendent, and the text of the Agreements, which have been entered into during the year.

As the Queen Victoria Niagara Falls Park Commission has completed twenty years of active service and now enters upon the third decade of its history it may not be out of place to give a brief historical review of the work which has been accomplished by the Board since its organization in 1885, and in doing this the Commissioners make no apology for repeating matters which may have appeared in one or more of its previous Annual Reports.

INITIAL STEPS.

It is now twenty-six years since the late Lord Dufferin brought his great influence to bear upon the authorities in both Canada and the United States to secure and hold for the benefit of the public all the lands about the Falls of Niagara, in order that the people of all nations might enjoy this great natural wonder for all time, freed from the vexatious annoyances to which they were then exposed.

Influenced by this appeal Sir Oliver Mowat, then Premier of Ontario, had an Act passed by the Legislature in 1880 conferring upon the Minister of Public Works for Canada all the authority which the Provincial Government could give, in order that the project might be carried out as an International undertaking, but no action having been taken by the Dominion authorities in that direction, the Ontario Government took the matter in hand and in 1885 passed an additional Act, the preamble of which reads as follows :—

“Whereas, the Government of the Dominion of Canada has not availed itself of the provisions of the Act passed in the forty-third year of Her Majesty’s reign, entitled An Act Respecting Niagara Falls and the Adjacent Territory, and it is desirable that other means should be taken to restore to some extent the scenery around the Falls of Niagara to its natural condition, and to preserve the same from further deterioration, as well as to afford to travellers and others facilities for observing the points of interest in the vicinity;

Therefore, Her Majesty, by and with the advice and consent of the Legislative Assembly of the Province of Ontario, enacts as follows : ”

This Act provided for the appointment of three Commissioners with authority to "Select such lands in the vicinity of the Falls of Niagara within the Province of Ontario, as are in their opinion proper to be set apart for the purposes set out in the Preamble of this Act" and also "to report as to the plan, which in their opinion ought to be adopted for securing the permanent appropriation of the lands for the object hereinbefore mentioned, and for the improvement and preservation of the property, and as to the mode in which the same should be managed in order to secure the enjoyment of the same as a public Park."

The Commissioners appointed were Colonel Sir Casimer Gzowski, John W. Langmuir and J. Grant McDonald, and immediately upon their assuming office steps were taken to carry out the important trust committed to them. Surveys were made, lands were selected and negotiations entered into with the owners for the acquirement of the private property contained within the limits of the area selected for the Park. As arbitration proceedings became necessary in order to determine the price to be paid for the several properties, Arbitrators were appointed and the values arrived at, but as in several cases Appeals from the decision of the Arbitrators were entered, an Enabling Act was passed by the Legislature at the Session of 1886, by which the appeals were facilitated. Early in 1887 the final awards were made and an Act was passed by the Legislative Assembly of that year, entitled "An Act Respecting the Niagara Falls Park." Under the provision of this Act the title of the Park was defined as "The Queen Victoria Niagara Falls Park." The Commissioners previously appointed were incorporated their duties and authority defined, the lands selected for the Park vested in them, and authority granted for the issue of Debentures to the amount of \$525,000, for the payment of the lands acquired and for preliminary works of restoration, and the Lieutenant-Governor-in-Council was also authorized to vest in the Commisisoners any unpatented lands, the property of the Crown, lying along the Niagara River.

PARK TERRITORY.

The area originally defined for the Park embraced all the lands between the River and the top of the high bluff, with an average depth of about two hundred and fifty yards to the west and extending along the River from the Clifton House one mile north of the Horse Shoe Falls to a point above the Dufferin Islands a total length along the water's edge of nearly two and one-half miles and embracing about one hundred and eighteen acres of private property. To this area, however, was added the lands of the Crown, which were also vested in the Commissioners by the Province making an aggregate of one hundred and fifty-four acres embraced within the limits of the original Reservation. This area has recently been increased by the extension of the shore line into the River at various points which makes the present area of the Park proper at Niagara Falls..... 196 Acres.

Recognizing, however the desirability of making the Park system as complete as possible the Commissioners applied to the Government for all the unpatented lands along the Niagara River from Lake Erie to Lake Ontario which could be used for Park purposes. By this means there has been added from time to time:—By Patent from the Crown—

1. The Chain Reserve along the Niagara River, from the Park to Niagara-on-the-Lake, a distance of 13 miles, together with all the ungranted lands lying between the Reserve and the water's edge..... 260 Ac.

2. The Chain Reserve along the Niagara River from Chippawa to Fort Erie, a distance of 16 miles 100 Ac.

Making together an area of..... 360 Acres.

The Commissioners have also acquired the following lands by purchase :

3. Right of way for Electric Railway..... 20 Ac.

4. Lands at Niagara Glen... .. 60 Ac.

5. Lands at Queenston Heights..... 44 Ac.

6. To widen the highway on the Chain Reserve, south of the Park..... 21 Ac.

Making a total purchased area of..... 145 Acres.

In addition to which the Commissioners have under Lease from the Dominion Government :

7. Queenston Heights Military Reserve... .. 69 Ac.

8. The old Fort grounds at Fort Erie..... 17 Ac. 86 Acres.

Making an aggregate of..... 787 Acres

#### IMPROVEMENTS.

Immediately on receiving possession of the property at Niagara Falls the Commissioners organized a Staff and commenced reclaiming and improving the grounds, removing all unnecessary structures, changing and providing suitable roadways and paths, opening up the property and providing conveyances for the public. To obviate the inconvenience of the Winding Stairway at Table Rock by which visitors were taken down to the base of the cliffs to go under the Falls, a new hydraulic Elevator was constructed, but as the Falls had greatly receded a tunnel was cut, through "Termination Rock" and a passage provided to enable visitors to go under the "Sheet of Water." Shelters were also constructed at many of the best points from which to view the Falls and River. This work was sufficiently advanced to permit of the Park being opened to the public in 1888. Since that time constant progress has been made in developing the property; additional roadways and paths have been constructed, wet portions of the grounds drained and levelled, Picnic and Recreation Grounds have been provided and a large portion of the property has been planted out with the best kind of Trees, Shrubs and herbaceous plants and a Greenhouse has been built to furnish bedding and other plants for decorative purposes and cold storage for wintering Tub Plants in safety.

Owing to the construction of the important works undertaken for the development of power in the Park a great many changes were necessitated in the general plan of the Park improvement, and advantage was in every case taken of these changes to ensure the best possible results. One of these important works provided a new means of access to go under the Horse Shoe Falls, by the construction of a new shaft and tunnel from Table Rock House to the heavy sheet of water. The tunnel is over several hundred feet in length and an Electric Elevator is provided in the Shaft by means of which visitors may be taken directly from the Dressing Rooms in that building.

The old historic building known as the "Museum" was for a time retained as a Restaurant and Shelter Building, but as it shut off all the views of the Falls and upper River from the Picnic Grounds and was a very serious obstruction to the prospect from both sides of the River, the Commissioners finally decided to remove it and a new and appropriate Refectory and Shelter Building has recently been erected in a suitable location providing all needed facilities for the public while at the same time the design harmonizes with the surroundings.

It was the intention of the Commissioners at the same time to remove the Table Rock House, as it is even more objectionable, from a scenic point of view than the Museum, being at the most congested portion of the Park, owing to the heavy expense, however, this improvement has been deferred.

The Toll Road, north of the Park, which extended along the front of the town of Niagara Falls, was acquired and the Toll Gate was abolished and a new and thoroughly macadamized road constructed. Under an Agreement entered into with the town the expense of maintaining this two and one-half mile stretch of roadway along the edge of the cliffs is to be borne jointly by the City and the Commissioners.

At Whirlpool Point the rock formation has been covered with soil and planted, a gravelled path has been provided and a Rustic Shelter erected.

At Niagara Glen much clearing up has been done, stairways and walks have been built, shelters erected, and the natural beauties of this interesting spot made thoroughly accessible.

At Queenston Heights additional lands have been acquired and a good roadway constructed upon the level to afford an easy approach to the Monument from the west; Ball and Picnic Grounds have been made; facilities for hot and cold water provided, shelters have been built, the Monument repaired and the historical grounds on the Heights opened up and put in order. As the monolith, which stands at the base of Queenston Heights, marking the spot where General Brock fell, was found to be on private ground, the site was acquired together with an additional area, which had been fenced, planted and maintained in good order.

The Chain Reserve along the edge of the upper River, between Chip-pawa and Fort Erie, was found to be seriously eroded at several points by the action of the River during storms. At the worst points stone protection has been placed in the water to guard against further erosion, and lands have been acquired to widen the highway at such points.

At old Fort Erie the grounds, which were an open common prior to being vested in the Commissioners, have been fenced and cleaned up and the old fortifications repaired. A substantial and appropriate Granite Monument has also been erected to commemorate the valient deeds done at this point in the War of 1812-14.

These and many other works for the development and improvement of the very extensive and important property now under the jurisdiction of the Commissioners have been carried out from time to time, and throughout the whole period of seventeen years during which the Park has been open to the public, all the property has been improved and kept in an efficient state of preservation. Good order has also been maintained at all times, and any breaches of the peace have been promptly dealt with by the proper authorities.

#### FINANCIAL REQUIREMENTS.

When the Park scheme was first taken into consideration by the Government of Ontario it was made a cardinal principle that the Park property should be made self-sustaining and that it should not become a permanent financial burden on the Province:

As the Reservation on the American side was established a short time before the Canadian Park, a comparison of the manner of financing the two systems may be interesting.

On the American side the State of New York acquired the lands for the Reservation, embracing about one hundred and four acres, at a cost of \$1,462,929.50, and handed them over practically as a gift to the Board of Commissioners. At the same time providing an Annual Grant of \$20,000 for the maintenance of the property, which was afterwards increased to \$25,000, and in addition special grants have been made from year to year for permanent improvements.

The total appropriation for the maintenance of the property to September 30th, 1903, having been.....	\$410,000
And for special improvements.....	\$366,500
	<u>\$776,500</u>

From which must be deducted the receipts from the Reservation.....	\$193,200
Net Expenditure since 1885.....	\$583,300

Making the total cost of the Reservation to the State of New York, which has now an area of 112 acres, considerably over \$2,000,000.

Differing from this the Queen Victoria Niagara Falls Park lands were acquired by the sale of Debentures issued by the Commissioners under the authority of the Legislature and guaranteed by the Province. The first issue of Debentures in accordance with the Act was for \$525,000, bearing interest at the rate of four per cent., payable half-yearly, and terminating in forty years from the date of issue (1887). A portion of the proceeds of the Debenture issue was used in the initial works of restoration and improvement. In 1894 Legislative authority was granted for an additional issue of Debentures to the extent of \$75,000, bearing the same rate of interest and maturing at the same time. The total Debenture debt resting upon Park properties is therefore \$600,000.

The total amount spent in acquiring the original Park at Niagara Falls and the several additional properties purchased later has been.....	\$463,871.60	
And the outlay for permanent improvements on Capital Account upon the whole of the property vested in the Commission to December 31st, 1904.....	\$179,885.52	\$643,757.12
There has been paid for interest on Debentures.....	\$401,507.28	
And for general maintenance.....	\$305,875.10	\$707,382.38

Making the total expenditures to date.....	\$1,351,139.50
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The Act establishing the Park and incorporating the Commission made no provision for meeting these large capital and maintenance expenditures other than the imposition of reasonable tolls for admission to the Park and for the use of such special appliances as might be found desirable for the convenience of visitors. As the Commissioners of the Reservation on the American side made the admission to their Park entirely free, it was considered impracticable to impose a charge for entering the Canadian Park, and the Commissioners were therefore obliged to relinquish this anticipated source of revenue and as the modest scale of tolls imposed for the use of special appliances provided in the Park yielded only a small sum the burden was thrown upon the Commissioners to devise some means of obtaining income in

order to provide for the outlay not only for works of improvement and general maintenance but for the payment of interest on the debenture debt.

After much consideration and not a little solicitude it became evident to the Commissioners that the requisite revenue could only be raised by granting privileges in connection with the Park which while being revenue producing would do the least possible violence to the aims of the original projectors of the Park.

The several methods by which this has been accomplished, and a permanent income assured which will not only meet the annual requirements for maintenance and current expenses, but also the liabilities incurred in connection with the acquirement and development of the Park and all its outlying properties, and will ultimately provide a permanent and substantial addition to the revenues of the Province, may be now briefly referred to.

#### FRANCHISES.

1. The necessity for providing tourists with a convenient and economical means of reaching the Park, and of viewing all points of interest along the Niagara River between the navigable waters at Chippawa and steamer connections at Queenston, a distance of twelve miles, every portion of which is full of historic interest and scenic grandeur, led to the granting of a franchise for an Electric Railway through the Park and extending in either direction to the points named. The Commissioners providing the right of way over this property as well as the use of sufficient water from the river to furnish power for the railway. For this franchise the Commissioners receive \$10,000 per annum.

2. The privilege of taking visitors behind the falling waters of the Horse Shoe Falls and of selling refreshments and photographs in the Park was next granted, and from this source the sum of \$9,000 a year is obtained.

3. Early in 1890 application on behalf of English Capitalists and Electricians was made to the Commissioners for an option covering the right to develop the water power of the Falls for generating electricity for commercial purposes. This application received very careful consideration, not only on account of the opportunity thus afforded for obtaining revenue, but for the possibilities which would be presented whereby the enormous power of the Falls, which had been for centuries unused could be utilized without in any material way defacing the scenery of the Park or marring the surroundings of the Falls. As the applicants failed to complete their Agreement the option lapsed and it was not until 1892 that a franchise was granted, under the terms of which a Company was authorized to utilize the water for power purposes upon the payment of certain rentals. This franchise also lapsed by reason of default in the construction of the works called for in the Agreement, and a new franchise was subsequently granted to the same Company under amended restrictions. This Company, *The Canadian Niagara Power Company*, has actively prosecuted its works in the Park and has completed all the water ways for the full capacity of its plant and has now actually ready for use and transmission 20,000 electrical horse power. The rights granted cover the output from ten Electric Machines of 10,000 horse power capacity each, with one spare machine, or a total working capacity of 100,000 Electric horse power, and the rentals to be paid are : For ground rent including the first 10,000 electrical horse power developed and sold \$15,000; for every additional horse power between 10,000 and 20,000 at the rate of \$1.00 per horse power; for every additional horse power above 20,000 up to 30,000, 75 cents per horse power and for every horse power above 30,000, 50 cents. Under this tariff, should the Company develop the full capacity of the plant, \$67,500 per annum would be received.

4. *The Ontario Power Company of Niagara Falls* also made application for a franchise to develop water power, its first design being to tap the Welland River near Chippawa, leading the water through the Park, and to this end an Agreement was entered into with the Company and work was begun in 1902. Further examination of the physical characteristics of the region however led to a change of plans, and an application for the privilege of taking water from the Niagara River at Dufferin Islands, in addition to the original grant, was made. The Commissioners decided that the rights asked for should be looked upon as a separate and distinct franchise and therefore should be paid for accordingly and an Agreement was entered into in 1902 on that basis whereby the Company was empowered to develop water from the two sources.

The Niagara River rights granted this Company provide for laying three main feeder pipes under the surface of the Park, each of which will be eighteen feet in diameter and have capacity for developing electricity in the Power House variously estimated at from 50,000 to 60,000 horse power. What quantity may be developed from the original or Welland River project has not yet been determined. For ground rent, including the first 20,000 electrical horse power sold, the Company will pay annually \$30,000; for each horse power above 20,000 up to 30,000 \$1.00; for every additional horse power above 30,000 up to 40,000, 75 cents; all above 40,000 horse power to be paid for at the rate of 50 cents per horse power. Should the Company dispose of say 100,000 horse power the rental from this source will be \$77,500 and should the output from both the Niagara and Welland River projects reach 200,000 horse power, the total rental would be \$127,500.

5. *The Electrical Development Company of Ontario*, an exclusively Canadian Corporation applied for rights to develop water power at Tempest Point, midway between the works of the Canadian Niagara and Ontario Power Companies; after protracted investigation a franchise was granted the Company early in 1903 to develop 125,000 horse power on the same financial terms as those granted to the Canadian Niagara Power Company. As the works of this Company are situated in the Niagara River at the most turbulent part of the upper rapids it was of course impossible to foretell what hydraulic conditions might be found within the area defined for the works of the Company. When the temporary Coffey Dams were constructed and the river bed unwatered it was discovered that a much greater volume of water would be available for use than was required for developing the volume of power agreed upon. The Company therefore sought permission to utilize this extra water, and an agreement was ultimately arrived at by which subject to ratification by the Legislature, the Company are given an option, exercisable at any time within a period of ten years from the time the works first authorized are in operation, to generate additional power up to, but not exceeding, 125,000 horse power. The terms and conditions of this franchise are identical with the one originally granted, and until either exercised or cancelled by default, certain rentals are to be paid.

For these five franchises there has already been paid in to the Commissioners the sum of \$620,777 as follows :

Electric Railway Company.....	\$132,500.00
Photograph and other privileges .....	103,700.00
Canadian Niagara Power Company .....	224,577.78
Ontario Power Company.....	110,000.00
Electrical Development Company.....	30,000.00

Or a total of..... \$620,777.78

It will thus be seen that nearly one-half of the total expenditures incurred in connection with the establishment of the Park and its development and care since 1887, have been derived from the franchises above recited. The balance having been obtained from tolls and by the sale of the debentures. A condensed summary of the entire receipts and expenditures is as follows :

Total amount expended to date.....		\$1,351,139.50
Received from franchises... ..	\$620,777.78	
Received from sale of debentures.....	611,953.07	
Received from tolls and sundry sources... ..	95,948.15	1,328,679.00

Thus showing an excess of expenditures over

Receipts for the eighteen years of..... \$ 22,460.50

The annual revenues now assured to the Park from the various franchises enumerated will after this year be \$84,200 while the revenue will increase from year to year with the growing demand for electrical energy, and in all probability will amount within the next five years to over \$200,000 per annum.

Having thus given a general summary of the many important matters which have engaged the attention of the Commissioners since the incorporation of the Board in 1885, the various questions which have engrossed their attention during the past season may now be referred to.

#### WORK DONE IN 1904.

It is perhaps unfortunate that great engineering works of any kind cannot be carried on without defacement of the surroundings, as even the erection of a small dwelling house necessitates the scattering of building and other material about the locality for the time being. To how much greater extent therefore must of necessity be the defacement of the Park surface and general surroundings when the operations now being carried on are upon such a gigantic scale, involving the bringing on the ground and storing of vast quantities of machinery and construction materials of every kind and of the most massive proportions. The Commissioners are, however, pleased to know that in respect to the works of one of three companies operating the worst defacement is over and another season will see the surfacing and finishing of the area disturbed by this company's works, well advanced towards completion.

Throughout the year all the works for the development of the water power plants have been prosecuted with a great measure of success, and a very brief history of the progress made in each case may be of interest.

#### THE CANADIAN NIAGARA POWER COMPANY.

In their last Annual Report the Commissioners referred to the excellent progress which had been made by this pioneer company in working out its initial development. Since that time the works have been carried on with such marked energy that at the close of the year one-half of the Power House had been built and all the machinery and appliances required for two of the 10,000 electrical horse power generators were fully completed and made ready for service. The ceremony of formally starting these immense electrical machines was conducted by the chief officials of the company, in presence of the Commissioners and a few invited guests, on the second day of January, 1905. The various works, required to complete the installation of the hydraulic machinery for three additional units of 12,500 horse power each, and electrical machines for 30,000 additional horse power, were all well advanced at the close of the year.

During the season this company also commenced the work of surfacing and restoring the portions of the Park, which had been disturbed by the operations of the company.

The Transformer House of the company, from which electrical current is to be stepped up to high pressure for transmission purposes and which is located a short distance outside the Park limits, has been finished, and the under-ground conduits for carrying the electricity through the Park to the Transformer House and to the international boundary at the Upper Steel Arch Bridge, have also been completed.

The Commisisoners have reason to be greatly gratified that this first instalment of electric power on a large scale from the waters of the Niagara River on the Canadian side, has been so successfully accomplished, and that the power was available for consumers within the time limit provided for in the agreement.

#### ONTARIO POWER COMPANY.

The very extensive operations required for the development of the Niagara River power by the Ontario Power Company have all been carried on with skill and energy during the past year, and everything points to the completion of the first instalment of electrical energy by mid-summer of 1905.

The Forebay works at the Dufferin Islands, with the exception of the Intake Piers and Ice Diverter, are practically ready for letting in the water, and only the Gate and Screen House superstructures and a few other minor works remain unfinished. One of the eighteen feet steel pipes, which is to carry the water supply from the Forebay to the power house, below the Falls, is in place and the concrete covering, to protect the steel pipe is nearing completion. Work on the penstocks by which the water will be conveyed from the pipe to the water wheels, is well advanced and a considerable portion of the power house, which is located on the talus shore of the river below the Falls, has been erected, and the interior is now being prepared to receive the machinery.

Very careful consideration has been given by the Commissioners to the designs submitted by the company for their power house, under the Falls, and their gate and screen houses at Dufferin Islands. The plans for these buildings have been designed by a well known Buffalo Architect, with special reference to their location in the Park.

The power house, which is of concrete, is designed somewhat after the Egyptian model, with a flat roof and comparatively low elevation. This building will be very little in evidence from the surface of the Park proper, as the roof will be fully one hundred feet below the level of the roadway at Table Rock and advantage can be taken of the flat roof surface, for the display of Tub Plants, Shrubs and other forms of natural treatment, which will afford pleasing effects and greatly relieve the rigid lines of the structure. The accompanying plate will illustrate the general appearance of the building when it is completed to its full length. This however will not likely be done for many years to come, as the portion now under construction only provides for the machinery and appliances dependent on the water supplied by the first pipe line, or about one-third of the finished building as shown in the illustration attached.

The gate house which will contain the massive gates needed to regulate the admission of water to the pipe lines will be of high class Roman stone construction, the design is pleasing without being ornate, an illustration of this building is also given. The screen house, which covers the steel rack, by

which floating logs or other foreign matter carried by the water, will be prevented from entering the Inner Forebay will also be built of Roman stone, of artistic design, and the roof will form a broad promenade with wide stairways leading up at either end, from which visitors may enjoy views of the cascades and upper River.

#### THE ELECTRICAL DEVELOPMENT COMPANY OF ONTARIO.

This enterprising company has prosecuted its various works in an exceptionally able and vigorous manner throughout the season. The construction of the Coffey Dam in the Rapids, referred to in last year's report, permitted the excavation and constructions in the bed of the river to be proceeded with, all of which work including the excavation of the Wheelpit and its subsidiary tunnels, the construction of the water and land walls, the arched sheer ice boom, the cleaning up of the Forebay and the driving of the main discharge tunnel, from the wheelpit to the edge of the Falls, have been practically completed, and large quantities of construction material are on hand for the rapid carrying on of the remaining works.

On the completion of the Coffey dam when the area embraced in the Forebay was unwatered it was found owing to a natural depression in the bed of the River, the depth of water at the point of Intake was very much greater than had been expected by the company's engineers, and as the works of this company are located on the cascades, and the strike of the current leads directly into the mouth of the Forebay it became apparent that when the Coffey dam was removed the volume of water intercepted by the works would be greatly in excess of the company's requirements, under their existing agreement.

In order to take advantage of this favorable hydraulic condition an application was made by the company to the Commissioners for the grant of an additional privilege, exercisable within a limited number of years, for generating electrical power in excess of the quantity authorized to be developed under the terms of the Agreement of January 29th, 1903.

The company represented to the Commissioners that if it was to be granted the right to utilize at some future time this surplus water, it would be necessary to make provision whereby this could be done before the Coffey dam now enclosing the Forebay is removed, otherwise a very great additional expense would be imposed upon the company.

After giving full consideration to all the important issues involved, the Chairman prepared a memorandum for the Government, setting forth the various matters which in his opinion should be determined before further negotiations could be entered upon, which memorandum received the approval of the Board and is as follows:

"Before deciding whether the application of the Electrical Development Company of Ontario to be allowed to develop an additional 100,000 horse power should be granted, there are certain features of this matter which should be carefully considered:—

I. Seeing that three franchises have already been granted for the withdrawal of water from the Niagara River for the development of approximately 375,000 electrical horse power, and a further franchise for 100,000 horse power, to be drawn from the Chippawa River, making an aggregate development already authorized of possibly 475,000 horse power, it rests with the Government to decide whether as a matter of public policy any further concessions shall be granted at the present time. The points to be considered are:

(a). The franchises already granted to three separate corporations for such a large aggregate development should for the present be sufficient to induce effective competition in the supply of electrical energy, and until the extent of the demand there will be for its use in Ontario is definitely known.

(b). If such demand in the near future appears to require further development, additional concessions can be granted in good time to meet it.

(c). If the methods, adopted by the various power companies, for disposing of electrical power at Niagara and throughout the Province by transmission are satisfactory both in respect to efficiency of service and price, the Government will then be in a position to decide whether the public interests will be better served by granting further corporate franchises, or in otherwise dealing with the development and sale.

(d). If a greatly increased demand arises in the future for electrical power, doubtless the value of franchises for the use of Niagara River water will be largely increased and better terms will be secured for any additional concessions that may be hereafter granted.

(e). If franchises are granted, which are likely to be, on the American side of the River, involving the withdrawal of a large volume of water from the river, thus seriously affecting the existing levels, it may become necessary in the protection of Ontario interests to have equal or greater withdrawals of water on the Canadian side of the river, or that an International Agreement should be arrived at for a defined limitation of such withdrawals.

2. It should also be borne in mind that the granting of new power franchises in the Park or the enlargement of the existing licenses, as now asked for by the Electrical Development Company, will necessitate the construction of buildings on the shore of the river; which constructions may cause an undue defacement of the Park and water views, which if possible should be avoided.

Subject to the foregoing general principles being settled the Commissioners are favourable to granting the Electrical Development Company of Ontario the concession asked for, for the following reasons:—

A. In the construction of the Cofferdams and permanent works covered by the existing franchise of the Development Company it has been disclosed that owing to the great depth of water discovered as the work proceeded, the Intake approved of, without any additional permanent extensions, is capable of furnishing the necessary supply of water for developing an additional 100,000 horse power.

B. When the first franchise was granted it was accepted by the Development Company subject to the site and permanent works of the Ontario Power Company as exhibited in plans, it being understood that the flow over the weirs of the latter Company was to inure to the benefit of the former Company thereby precluding the location of any power plant between these two companies even if the space for another power company permitted.

In settling the terms upon which such additional concessions should be granted it should be borne in mind that although it is claimed that the present Intake will not require to be enlarged, upwards of 500 feet of the river front will be taken up in the extension of the wheel-pit and power house in the development of the additional power. It is therefore but reasonable that the concession asked for, and which may not be developed or become revenue producing for many years, should be

looked upon as an entirely new franchise for which the usual \$15,000 annual ground rent should be paid in addition to the charge per horse power provided for in all the franchises, viz.:—\$1, 75 and 50 cents respectively for all electrical power manufactured and sold.

Although the Commissioners are convinced that the withdrawal of additional water from the river will not seriously reduce the levels at the Intakes of the Canadian Niagara Power Company and the Electric Railway, still it would be safer not to grant the additional concession until the temporary constructions in the way of Coffey dams, both of the Ontario Power Company and the Electrical Development Company are removed and the normal flow of water in the river restored. Inasmuch however, as any new agreement that may be entered into with the Development Company will require to be submitted for the approval of the Legislature before it becomes operative, the companies that would likely be affected by the granting of the concession asked for, would no doubt have to be heard.

November 11th, 1904.”

With reference to the last clause of the Chairman's memorandum and to the objection which might be raised to taking the surplus water referred to from the river for fear that its withdrawal would reduce the levels at the Intakes of the Companies operating lower down the stream: The Commissioners desire to point out that this subject was thoroughly investigated two years ago when the original franchise was granted to the Electrical Development Company. Eminent hydraulic engineering opinion obtained at that time established the fact that the withdrawal of the quantity of water required for the output authorized by the agreement of January, 1903, would change the levels at the Intakes of the Canadian Niagara Power Company and the International Railway Company so little that the lowering would hardly be appreciable. In order, however, to provide against any material reduction in levels, and notwithstanding that provision is made in such an event to deepen the Intake affected, the Commissioners granted the franchise to the Electrical Development Company upon the company depositing with the Commissioners \$25,000 to be held by them for the purpose of constructing Wing dams at these Intakes, if it was found that the water withdrawals of the Development Company when in operation materially affect the water levels. This fund is now on deposit to the credit of the Commissioners, and is available for use at any time should the Commissioners find that Wing dams are called for, a contingency which according to the advise of the eminent hydraulic Engineers is not likely to arise, and certainly not for many years to come.

After protracted negotiations, the Commissioners received authority from the Government to enter into an Agreement provided that at least one-half of the additional power thus generated was to be reserved for the use of municipalities, subject to the terms of delivery and price of the power being determined by order of the Lieutenant-Governor-in-Council. The work of development to commence within ten years from the first output of power under the company's first agreement. The text of the agreement will be found in the Appendix, the terms of which are briefly as follows:—

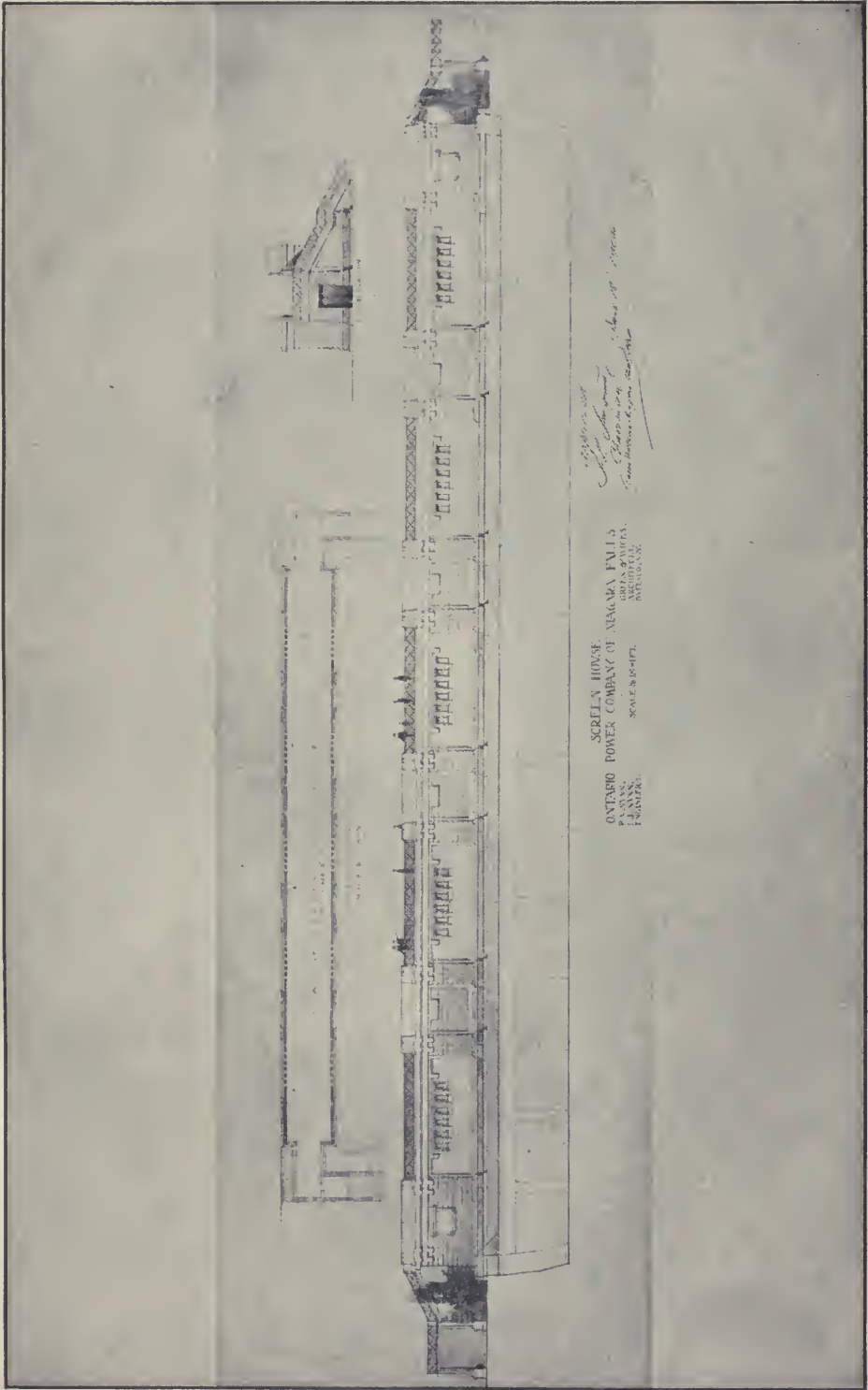
A. A yearly rental of \$5,000 is to be paid for option until such time as the Company generates one-half of the output authorized by first agreement, and thereafter \$10,000 per annum until power under this agreement is developed.

B. The surplus water in question may be utilized for the generating of power up to but not exceeding 125,000 horse power.



The Power House of the Ontario Power Company.





The Screen House of the Ontario Power Company.



C. One-half of the quantity which may be generated under this agreement is specifically reserved for the use of municipalities in Ontario, at rates to be fixed by the Lieutenant-Governor-in-Council.

D. The rentals to be paid and the conditions imposed are in all respects similar to the stipulations contained in the agreement of January, 1903, under which the company are now constructing works in the Park.

E. The new agreement is to be subject to the ratification and approval of the Legislative Assembly.

#### FORT ERIE PARK.

The report of last year made reference to the request of the Commissioners that a sum of money be granted by the Parliament of Canada, for the erection of a suitable Memorial in the Park at Fort Erie to commemorate the heroic siege of that fortress in the War of 1812-14. The application having been granted the Commissioners determined that the Monument should consist of an ornamental shaft of Canadian Granite, with a full inscription of the Regiments engaged and of the Officers who fell in the memorable struggle. The Honourable the Minister of Militia and Defence approved of the plans and estimates submitted by the Commissioners, when a site was chosen on the ramparts, and contracts entered into for the work. With the exception of the two large inscription Tablets in bronze the Monument has been completed, and when these are furnished the Commissioners hope to have the Monument unveiled by the Honourable the Minister of Militia and Defence, with appropriate ceremonies.

#### NIAGARA RIVER PARKWAY.

A good beginning has been made in the widening of the roadway and in protecting the shore line along the bank of the Niagara River between Chippawa and Fort Erie. The Commissioners have kept well in view the desirability of making a Parkway along this beautiful reach of the river, and restoring the sixty-six feet which in many places has been cut into and the clay soil much eroded by the river, particularly during storms. At several places where the erosion has been greatest, width sufficient for a proper boulevard has been purchased from the adjoining proprietors and at points where the aggressive action of the river was most severe stone protection has been placed in such a position as to form a barrier to the destructive wave action. It is most important that this work should be continued until the whole of the river front from the Park to the old Fort grounds at Fort Erie has been thoroughly protected from the action of the river, and a well built boulevard properly ornamented with shade trees constructed and maintained over the whole distance.

At present the Reserve lands placed under the Commissioners terminates at the Welland River, Chippawa, from which point to the Park, a distance of a little over a mile, the frontage along the Niagara River is in private hands. It is very desirable that the Commissioners should receive authority to negotiate with the owners of the lands along this short reach of the river so that there might be a continuous road on Government property, from Fort Erie to the Park, and that the Government should vest in the Commissioners the foreshore and water lots lying between the Park and the mouth of the Welland River in order that protection may be afforded to the important Electrical Power Works holding franchises from the Commissioners within the Park.

#### WIDENING APPROACH TO PARK.

The original roadway of one chain in width along the edge of the cliff between the Clifton Steel Arch Bridge and the Park grounds had owing to the  
2 N.F.P.

encroachment of the old Clifton House buildings and probably the falling of rock from the overhanging wall of the river gorge, made this the principal entrance to the Park very narrow and congested, so that during the summer season the space reserved for the driveway has been wholly inadequate. When the Clifton House was destroyed by fire some years ago the Commissioners, with the sanction of the Government, commenced negotiations for the acquirement of a strip of land for the purpose of widening the approach to the Park. It was not, however, until the property was acquired by the Clifton Hotel Company that arrangements were completed under which all the land lying east of the present front line of the LaFayette Hotel produced southerly to Ferry Street is to be deeded to the Commissioners. The acquisition of this strip of land will afford a means of remedying the congestion in travel at this point and at the same time will enable the construction of an appropriate entrance to the Park. In addition to the widening of the road the Clifton Hotel Company have consented to keep the easterly line of their building, which is now under construction, back from the street line, and to bevel the angle near Ferry Street thus affording not only an enlarged open space but greatly improving the line of vision to the Park. When the building is sufficiently advanced to make the exact location clear it is proposed to remove the Mowat Gate and make the principal entrance to the Park more in line with the approach from the Bridge, and also to erect an entrance which will be worthy of the Park and of the Province.

#### NEW SHELTER BUILDING AND REFECTORY.

In their last report the Commissioners referred at length to the removal of the old Museum Building which had for several years been used in part as a Restaurant and in part as a shelter for picnic parties in stormy weather, and to the building of a suitable structure for this combined use on a location which would not obstruct the views of the Falls from the picnic and play grounds. The new building was sufficiently far advanced by mid-summer to permit of occupation, and the structural character of the building, the magnificent outlook from its broad verandah and towers and the many conveniences which have been provided for all classes of visitors, have met with very general approval. The grounds about the new building have also been tastefully laid out with shrubbery, with suitable walks for access to the building from all directions.

#### GENERAL MAINTENANCE.

The ordinary works for the maintenance and care of the Park property have been carried on throughout the season, and not only the original Reservation at Niagara Falls but also the Queenston Heights Park and the Niagara Glen, have been maintained, improved, and additional facilities for the enjoyment of visitors provided. A full reference to these works will be found in the report of the Superintendent of the Park, appended hereto.

The statements of the receipts and expenditures for the year will be found attached hereto.

All of which is respectfully submitted.

J. W. LANGMUIR.

*Chairman.*

GEORGE H. WILKES.

JAS. BAMPFIELD.

A. W. CAMPBELL.

ROBERT JAFFRAY.

## RECEIPTS, 1904.

Balance on hand in Imperial Bank, January 1st, 1904 .....	\$ 23,908 48
Ontario Power Company—Rental .....	\$30,000 00
Canadian Niagara Power Company—Rental .....	15,000 00
International Railway Company .....	10,000 00
Zybach & Brundage—Rental .....	6,750 00
Tolls and Sundries .....	3,733 00
Wharf privileges .....	411 00
Bank Interest on Balances .....	256 76
	66,150 76
OVERDRAFT AT IMPERIAL BANK, DECEMBER 31ST, 1904 .....	22,460 50
	\$112,519 74

NOTE.—A special deposit of \$25,000.00 stands at the credit of the Commissioners in the Imperial Bank, to meet cost of Wing Dams at Intake of Canadian Niagara Power Company, and at joint Intake of International Railway Company and City of Niagara Falls.

## EXPENDITURES, 1904.

### CAPITAL ACCOUNT.

Paid Wages, permanent works .....	\$ 3,290 00
“ Material .....	4,304 25
“ account, new Monument at Fort Erie (total cost to be reimbursed by Dominion Government) .....	2,465 10
“ acquiring lands and protecting shore, Chippawa to Fort Erie .....	4,507 62
“ account, legal services .....	17 39
“ Rectory Building .....	47,919 65
“ Miscellaneous .....	120 00
	\$ 62,624 01

### MAINTENANCE ACCOUNT.

Paid Salaries, office and clerical staff .....	\$ 3,615 11
“ constables and gardener .....	5,560 00
“ Wages, laborers and teams .....	11,225 88
“ for materials .....	3,700 81
“ Office expenses .....	236 40
“ Commissioners' expenses .....	659 01
“ Miscellaneous .....	400 97
	25,398 18
PAID INTEREST ON BONDS, INCLUDING BANK CHARGES .....	24 497 55
	\$112,519 74

## APPENDIX “A.”

### REPORT OF THE SUPERINTENDENT OF THE PARK.

*To the Commissioners of the Queen Victoria Niagara Falls Park:*

GENTLEMEN,—The past season has been in several respects an abnormal one in the history of the Park—the temperature at the beginning of the year ranged many degrees below the normal, and the snow fall was considerably more than the average. These climatic conditions were not favorable for work of any kind being carried on in the open, and were particularly trying

to the less hardy varieties of plant life which have been introduced in the Park. It was not surprising, therefore, that upon the opening up of Spring some of the choice shrubs and herbaceous plants were found to have been injured; on the other hand, however, it was discovered that several varieties of Magnolia and other delicate trees and shrubs of southern habitat, not to be found elsewhere in Ontario, and which we fully expected to lose, withstood the severity of the weather without protection, or with but a slight covering of leaves about the roots.

The year was also remarkable for the activity displayed by the corporations engaged in the development of Niagara water power, and to the great number of workmen employed in prosecuting these several works—no fewer than twenty-five hundred being engaged steadily throughout the summer and fall. Notwithstanding this great influx of workmen of many nationalities, some of them from the most disorderly districts of Europe, we have been able at all times to maintain good order in the Park, and only on a very few occasions has it been necessary to arrest evildoers, in all such cases, however, justice was promptly administered by the Courts and the unruly element speedily learned to respect our Canadian laws.

Never before since the establishment of the Park at Niagara Falls has there been so many large excursions to this side of the river. It would appear that greater facilities are afforded in the Queen Victoria Niagara Falls Park than anywhere else for the comfort and convenience of all classes of picnic parties, and the consequence is that every year adds to the number of Sunday School and other excursions billed to visit the Park, and to the strength of the various contingents. It is again a pleasure to be able to chronicle that notwithstanding the great crowding of the ground at such times no accident occurred nor did anything worse happen to mar the pleasure of the visitors than a sudden and heavy thunderstorm on one occasion.

Before detailing the various works accomplished in the improvement and maintenance of the Park during the year a reference may be permitted to the various works each of vast importance now under construction by the three Companies having franchises to utilize the waters of the Niagara River within the Park limits. In chronological order the first of these is :-

#### THE CANADIAN NIAGARA POWER COMPANY.

This company had made such progress with its undertaking at the beginning of the year that the highway and Electric Railway bridge, spanning the Intake, had been constructed, the walls of the Forebay had been partially built and the lining of the Wheelpit and Discharge Tunnel were being carried on. In 1904 these works were prosecuted vigorously and by the end of the year the Intake Piers and Rack, the Forebay Walls, the walls of the Ice Run, with its bridge and outlet into the river had all been finished; the excavation of the large area occupied by the Forebay was carried down to the required level, and the outer and inner masonry walls of the Screen House had been completed for the full ultimate capacity of the plant; and a considerable portion of the Cofferdam, by means of which all these works were made possible, had been taken away and the waters of the river finally admitted to the wide channel or forebay from which the supply will be drawn to operate the works.

The northerly one-half of the Wheelpit, which was receiving its brick lining at the beginning of the year, was early completed and the installation of the massive machinery required to operate the works was immediately put in hand, and such progress has been made that the complete outfit for two of the

great electrical machines, each of 10,000 horse power capacity have been made ready, and a portion of the material is on the ground for an additional three units, making 50,000 horse power in all. The southerly one-half of the Wheelpit is now being excavated, but it will require another year to complete this work ready for the hydraulic and electric machinery.

The great Tunnel by which the water discharged from the turbines is delivered to the river below the Falls, has been entirely finished and the shaft walled up and closed.

Much of the work needed to level up the grounds disturbed by the Company has been done, and protection of the new filling, where in contact with the current of the river, is well in hand.

The northerly one-half of the Power House, which has a capacity for five generator units has been built. It is an imposing structure faced with rock faced Queenston limestone and lined with ornamental brickwork. The main roof is of green glazed tiles resting upon steel work. The eastern or main front of the building has been extended out so as to cover over the screen chamber or Inner Forebay. The walls of extension of the Power House have not been carried as high as the main building and the roof is flat with a low stone ballustrade along the water side. This will provide a very extensive and convenient promenade to which it is proposed to admit visitors who may desire to see the Power House in operation.

The electrical generators are note-worthy as being the largest electrical machines which have so far been constructed, each having an output of 10,000 electrical horse power without overloading. They are 11,000 volt machines of the internal revolving field type with vertical shafts driven by the turbines at the bottom of the Wheelpit chamber. The elaborate regulating and controlling devices for the electric generators are all contained in a raised switch board, which stands in the centre of the building, and upon the deck of which the measuring instruments are placed. The building is constructed wholly of fire proof materials and its design and character are both eminently suited to the circumstances of use and location.

In accordance with the terms of the agreement under which the company operates, all the electric power generated must be taken without the Park, to this end a 32-duct conduit with manholes every three or four hundred feet was constructed from the power house to the Upper Steel Arch bridge, and also to the Transformer Station, which is located a short distance south of the Park limits. As this conduit will carry high voltage current it was essential that the ducts be laid in concrete, and the whole of the line including the manholes thoroughly drained. Owing to the excavation having to be made chiefly in rock, with take-off drains to the edge of the cliff from each manhole, the work proved to be a very tedious one, which occupied the greater part of the year. The northern portion, through the front of the Park, was completed in time to restore the surface before the excursion travel began consequently the execution of the work did not materially interfere with the comfort of visitors. Several of the heavy armored copper conductors have already been connected up ready for business.

#### ONTARIO POWER COMPANY.

The works of this Company may for convenience be divided into three parts, viz.: (a). The Forebay works at the Dufferin Islands. (b). The Power House on the bank of the River below the Falls. (c). The Pipe Line conveying the water through the Park to the Power House.

All of these works are on a scale of great magnitude and may be briefly described. The Intake, which has not yet been constructed will consist of a continuous upright Curtain Wall of armored concrete, twelve feet high, the bottom of which will be about six feet above the bed of the river and seven feet below normal water level. This will be supported by narrow concrete piers anchored to the bed rock. This Intake will be placed at an obtuse angle with the stream, and reach from the shore to the nose of the water wall, some six hundred feet, the object being to divert any floating ice or logs from entering the Forebay, and also by means of Gates to close off the water altogether should occasion require. From the outer end of the Intake the Water Wall, a monolith concrete construction of massive proportions extends directly down stream for 600 feet when it curves in to join the Screen House. The object of the wall being to form a "Forebay" or still water pond of ample dimensions for the supply of water for the full capacity for which the works are designed, and in addition sufficient to carry off any ice which may enter or form within the pond, and also to raise the level of the water to the elevation of the River at the point of Intake. This water wall will not be visible as there will be from one to two feet of water flowing over its crest at all times. At the lower end of the Forebay and at a right angle with the course of the river stands the Screen House where the water will pass through a fine steel rack to remove foreign matter.

The Screen House will contain the machinery to raise and lower the racks, and will be an imposing structure finished in Roman Stone. As this building will cut off some of the views of the river from the Dufferin Islands it has been designed to afford a broad and safe promenade for its entire length. Handsome stone stairways leading up from the finished Park level at either end. Passing the screen house the water will enter the curved inner forebay, where the channel is rapidly contracted in width and deepened until at the mouth of the pipes in the Gate House it attains a total depth of about 30 feet. This curved Inner Forebay has very substantial land walls of concrete surmounted by an ornamental stone and iron railing, similar to the railing along the edge of the cliff overlooking the Company's Power House.

The Gate House will be a Roman Stone structure of handsome design, in which will be placed the mechanism required for raising and lowering the massive gates by which the admission of water to the Pipe Lines may be regulated. This building will rest upon the "Head Block" which is an immense mass of concrete designed to resist the pressure of the high head of water at this point and provide suitable mouth pieces for the eighteen feet diameter pipes which carry the water to the Power House.

In the execution of all this work great quantities of materials had to be brought on the ground, and excavations extending over about ten acres of the river bed were needed. Advantage has been taken of the surplus material from the excavation to enlarge the Dufferin Islands and to form a driveway around the great sweep of the southern channel of the river at this point.

All of the works pertaining to the Forebay with the exception of the Intake, the super-structures of the Gate and Screen Houses and the surfacing of the made ground have practically been completed, and but little remains to be done in the spring in order that the water may be admitted to the Forebay.

**POWER HOUSE.** With the opening of spring work was begun upon the foundations of the Power House building, a site for which was selected below the cliff a short distance north of Table Rock. The Ontario Power Company will work under a higher head than either of the other electrical development companies, and the machinery will all have a lower velocity. As the water wheels are designed for 11,400 horse power capacity each, and the generators

10,000 electric horse power, connected up on a horizontal shaft and revolving 187 times a minute it will be apparent that all the machinery must be exceptionally massive, and as the building is located upon the talus slope of the river bank it was absolutely necessary to have the foundation of the most substantial character. This has been accomplished by excavating far down into the sloping bank and constructing what is practically a monolith of concrete over the whole area of the building, the water supply and waste and all necessary contrivances required below the floor level being embedded in the mass.

As the season progressed it was found that owing to the many difficulties encountered it would be impossible to have the whole work carried on simultaneously, so it was determined to push the construction of a portion of the building in the hope of getting the roof on before winter set in. The weather proving favourable this was accomplished and the preparation of the foundations from five units of the heavy machinery, much of which is now upon the ground, is making rapid progress. The work being carried on under cover, in a building heated by natural gas and lighted by electricity.

The walls of the building are of concrete, the Inner wall, towards the cliff, being very massive, and designed to withstand any pressure which may be caused by stones falling from the face of the cliff. The front wall is also of heavy construction in order to resist the possibility of pressure from ice gorging in the river and raising the water abnormally. The floor of the building will be 25 feet above ordinary summer level of the river, and the roof 65 feet. The roof is flat, of armoured concrete upon heavy steel trusses and finished in bricks laid in asphalt. The color effects of the building are to be subject to the approval of the Park Superintendent, the intention being to have the walls conform as much as possible to the cliffs immediately behind.

These buildings have all been designed by Messrs. Green and Wicks, architects, a modified style of classical architecture having been adopted.

In order to bring the heavy machinery to the Power House, a track was laid upon the Maid of the Mist Hill and along the roadway leading therefrom to the Power House site.

**PIPE LINE.** Between the Intake from the River and the Power House the supply of water to operate the works is to be conveyed in three mammoth steel tubes laid beneath the surface of the ground each of these to be eighteen feet in internal diameter and over six thousand feet in length. The construction of the first pipe proved to be a difficult and laborious work owing to the depth of the excavation necessary and the character of the material cut through varying from quick sand to solid rock. After the steel pipe was in place and partially covered it was decided to further insure its permanence and stability by enclosing it in concrete. This has been completed and the filling in about the pipe has only been hindered by the severe weather.

At the terminus of the Pipe north of Table Rock three large shafts were sunk down in the rock to below the level of the Power House floor and tunnels driven to these shafts from the face of the cliff. Each of these shafts and tunnels will contain two steel penstocks nine feet in diameter, being the supply for each unit of power in the Power House, and each penstock will have a valve set in an excavation in the rock immediately beneath the junction of the penstock with the eighteen feet diameter feeder pipe. These penstock tunnels and shafts will be protected by concrete about the pipes.

In addition to the extensive works needed for the penstocks, an inclined tunnel has been excavated for the conduit in which the electric cables will carry the current generated in the Power House to the Transformer House, which is constructed on the high bluff bordering the Park on the west, and just outside the Park limits. This Transformer House is a very imposing.

building and being on an elevation of nearly one hundred and twenty feet above the surface of the Park roadways, it makes a very prominent feature of the landscape. Under an arrangement with the Commissioners the permanent setting out of the grounds about this building is to be made to conform to the general park design, an eminent Landscape Architect having been engaged for this purpose.

#### ELECTRICAL DEVELOPMENT COMPANY.

The building of the Coffey Dam around the area to be included in the Forebay of this company, which was well advanced at the beginning of the year, was completed early in the spring and the bed of the river was thereby unwatered sufficiently to allow of the permanent works being taken in hand. The outstanding features of these various permanent works as they have been designed by the Engineers of the Company are :—(a). A Water Wall to enclose the area required for the Forebay and maintain the water levels at the desired elevation. (b). A water tight land wall on the inner side of the Forebay. (c). The deepening of the enclosed area so as to impound a sufficient quantity of water to operate the works and provide for overflow requirements without unduly increasing the velocity. (d) Two lines of Masonry Sheer Ice Booms with submerged arched openings for the admission of water to the Power House. (e). A Wheelpit for the hydraulic mechanism required to operate the electrical generators. (f). A Power House in which all the machinery for creating and controlling the electrical output of the works may be placed. (g). Means for carrying away the waste water from the water wheels to the lower river.

The first of these important works undertaken was the sinking of the *Wheelpit*. This is similar in its general features to the wheelpit of the Canadian Niagara Power Company, to which reference has been made in former reports, viz. :—A deep open excavation in the rock formation, which after being lined with massive brick walls and made water tight will contain the penstocks, water wheels, draft tubes and all machinery required to transmit the power created by the water wheels up to the electric generators on the floor of the Power House immediately above. The excavation of this Wheelpit was completed in record time, and by the end of the year considerable progress had also been made in driving the draft tube-tunnels and subsidiary discharge tunnels as well, and in preparing the bottom of the pit to receive the brick lining. The size of the wheelpit proper is 416 feet long, 27 feet wide, by 150 feet in depth.

The *Water Wall* or gathering overfall dam is of concrete with a coping of granite, in cross section the wall is verticle on the inside and S shaped on the river side, the thickness is abnormally heavy and the bottom is set in a check cut out of the rock bed of the stream. No portion of this wall will be visible when the works are in operation, as a heavy stream of water will constantly flow over the crest from the Forebay back into the river. The lower fifty feet of the length of the wall will act as a sluiceway to carry away ice and foreign matter. All this work has been completed.

The building of the Land Wall and the deepening of the Forebay to its finished level are well advanced towards completion, and a considerable part of the Outer Sheer Ice Boom is built.

THE MAIN DISCHARGE TUNNEL, which will carry the spent water from the water wheels to the lower river, extends from the upper works to the face of the Horse Shoe Falls seven hundred feet out from the shore, the whole of this work is under the bed of the river, but deep down in the rock formation, it is said

to be the largest tunnel in the world, being 26 feet high and 23 feet wide inside of the brick lining. The length of the Main Tunnel is 1,900 feet and the branch side tunnels, which run on either side of the Wheelpit and unite to form the Main Discharge, are together 1,260 feet long. Record time has been made upon this work also. The heading of the Main Tunnel having been driven throughout and timbered and about one-half of the benching out to the full height has been completed and made ready for the concrete and brick lining.

#### REFECTORY AND SHELTER BUILDING.

The unusually severe winter of 1903-4 delayed the construction of the new Refectory building very much and it was well on into June before any portion of the building was ready for occupation, and nearly the end of the season when the contractor was ready to hand over the premises in a completed condition. Part of the delay was occasioned by the difficulty in obtaining boulder stone, of which the walls and piers are built in sufficient quantity and of the assorted sizes desired by the Architects. All the appointments of the building have been very much admired by visitors. The spacious verandahs, the General and Ladies Waiting Rooms and the Lavatory conveniences being principally commended, while the shelter space available in case of storm and the Refectory facilities are greatly in advance of the conditions hitherto obtaining.

The exterior of the building has a broken and picturesque appearance and a perspective which harmonizes well with the setting when viewed from any direction, while the colors selected for the woodwork, and the artistic pointing of the masonry all combine to produce an effect at once dignified and harmonious. The chief characteristic of this Refectory and Shelter, however, must ever be the magnificent outlook which may be had from any part of the building, particularly from the broad verandahs which are such a feature of the structure, or from the prospect galleries in the tower, the views from which are at all times unique and charming, combining the wildest prospect of the river and Falls, the Park and the Reservation on the American side, the deep gorge and the wooded hillside. Many fine views may be had with more or less fullness from other vantage points within the Park, but from no other place can an equal combination of the beauties of Niagara Falls be enjoyed.

The permanent improvement of the grounds in front of and adjacent to the Refectory was early taken in hand, and under the skilful direction of Mr. Cameron, the Chief Gardener, speedily assumed a finished character, which ere the end of the season was generally commended by landscape Architects as being both artistic and in harmony with the best traditions of the profession. Broad approaches were made to the building from every direction, and all trees not actually required for shade or effect were removed.

The circular pond which was a marked feature of the Museum garden in the old days was cleaned out and made water tight and the chief parts of the famous fountain, erected in the lower end of the Park half a century ago by Mr. Zimmerman, but which with the lapse of years had fallen into disrepair, was put into shape and set up in the center.

#### GENERAL MAINTENANCE.

The work of maintaining the portion of the Park not disturbed by the works of the Power Companies was diligently attended to throughout the year, and where disturbance was made by the construction of the Canadian Niagara Power Company's conduit every effort was made to restore the defacement with the least possible delay.

Owing to the removal of the pavilion in which hot water for picnic parties was provided it became necessary to fit up temporary quarters pending the completion of the Refectory and the erection of permanent quarters nearer the center of the grounds. This was done and abundance of both hot and cold water was available for public use. It will be necessary to make provision before the coming season for a suitable and convenient building for the water heating apparatus, and as the dancing and shelter pavilion which has been in use for many years requires rebuilding, it is proposed to locate the hot water supply in the basement of that structure and extending the shelter accommodation so as to provide more space in case of a storm arising when a large picnic excursion is in the Park.

The erection of the Refectory building on its new site necessitated the re-arranging of the drainage system to carry off the spring water in that locality; this was done, and some additional drains were put in at wet spots in the Park.

A new path was constructed leading from the main driveway near the Superintendent's Office to the north west angle of the Park in order to facilitate access to the grounds from the Ferry Hill.

Owing to the obstruction which the heavy cartage of materials caused to the carriage travel upon the park roadways it was found desirable to widen out the driveway so as to permit of three teams passing with ease at any point. This was effected by taking one of the side paths bordering the driveway, resurfacing the full width with macadam and making up the side slopes where necessary and resodding them.

#### OUTLYING TERRITORY.

The Park at Queenston Heights was maintained throughout the season in good order and condition, an additional area of the wooded spaces about the old earthworks was cleared up and made accessible, a new rustic arbor was erected overlooking the site of the Battery famous in the war of 1812, and the picnic grounds were levelled up and enlarged. This interesting spot proved to be very attractive to many excursionists, and a constant stream of passing visitors was attracted from the Electric Railway.

At Fort Erie, a Caretaker was appointed and the grounds were cleaned up and cared for throughout the season.

The erection of a Monument on the grounds to commemorate the gallant siege of the Fort in the War of 1812-14, and which was referred to in last years report, was undertaken. The Commisisoners having decided that a granite shaft with full inscription in bronze would be more lasting and better worthy of the historic character of the place, estimates were called for, and the approval of the Government having been obtained to the increased expenditure the contract was let and the work carried out, with the exception of the two bronze Tablets, which have not yet been supplied. The Monument is of Canadian Grey Granite, circular in outline, about thirty feet in height. It is eight feet in diameter at the surface of the ground and tapers up to four feet at the bottom of the shaft. The base is in three courses, rock faced with a chiseled draft at the joints, and a bevelled plinth also chiseled. Above the base the courses are of single stones, rock faced, and without marginal drafts, the lower three courses having recesses on two sides for the bronze Tablets, the one in front towards the river, bearing the inscription:—

“In memory of the Officers and Seamen of the Royal Navy and the Officers, non-commissioned Officers and privates of the Royal Artillery, Royal Engineers, Royal Marines, 19th Light Dragoons, 1st Royal Scots, 6th, 8th (Kings), 41st, 82nd, 89th, 104th and De Watteville's Regiments, the Glen-

“garry Light Infantry and the Incorporated Militia, who fell during the “seige of Fort Erie in August and September 1814.” and the one in rear the list of Officers who fell, as follows:—

“Officers killed during seige of Fort Erie.”

“Colonel Hercules Scott, 103rd Regt., Lieut.-Col. William Drummond, “104th Regt., Lieut.-Col. John Gordon, Royal Scots, Captain R. D. Patteson, “6th Regt., Capt. Torrens, 8th Regt., Capt. J. M. Wright, 82nd Regt., Capt. “Edward Walker, Incorporated Militia, Lieut. Coples Radcliffe, R.N., Lieut. “Noel, Royal Scots, Lieut. J. Rutledge, Royal Scots, Lieut. Barstow, 8th. “Regt., Lieut. Pellichody, De Watteville’s Regt., Ensign C. Langford, 82nd “Regt.”

Immediately above the Tablets there is a dressed Label Course on which is inscribed in raised letters five inches deep, cut in the granite:—“*DULCE ET DECORUM EST PRO PATRIA MORI.*” The upper portion of the Shaft is rock faced without marginal drafts, the whole being surmounted with a massive dressed and carved capital and finished with a granite ball having the Greek cross in relief on two sides.

This Monument forms a striking feature of the landscape, and although the design is simple and lacking in sculptured ornament, yet the material is lasting and the work will ever remain a memorial to future generations of the heroic deeds performed by the brave men who defended our country against invasion in 1812-14.

The planting of the grounds with suitable trees and shrubs will be undertaken in the spring.

#### NIAGARA RIVER BOULEVARD.

The very severe winter of 1903-4 caused great quantities of ice to be formed in Lake Erie and along the shore of the river, and on the opening up of spring this was brought down the river in large floes which coupled with high water and prevailing easterly winds scored deeply into the clay banks forming the western shore at all points where the course of the current permitted. The erosion thus caused was so great that the roadway along the shore was in places in danger of being entirely cut away and its continuity destroyed, the protection of the bank therefore became an urgent matter and steps had perforce to be taken to secure a form of protection which would be effective and of moderate cost. Contracts were therefore entered into for the supply of a quantity of stone riprap sufficient to form a barrier to the wave action or floating ice, to be placed at the points where erosion was found to be greatest, and by the end of the season nearly one-half of the worst spots had been secured. This work will have to be continued until all danger from this source is overcome.

As this wasting of the shore has been going on for many years, the roadway requires widening for the greater part of its length, and as a boulevard is proposed to be formed along the whole distance from the Park to Fort Erie, the width to be acquired must be ample not only for the driveway and paths, but for the finishing of the slope of the bank as well—and in addition space for an Electric Railway should be allowed for. As it was necessary in order to make the existing travelled way along the shore safe at the dangerously eroded points above referred to, strips of land have been purchased from the adjoining proprietors where absolutely required, and the pieces acquired this past year have been of a width sufficient for all the purposes mentioned. At the present time over one-fifth of the total length required to be widened has been obtained and the fences put back to the new line.

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 MISCELLANEOUS WORKS.

Owing to the space which had been cultivated as a Park Nursery having been occupied by the works of one of the Power Companies, it was necessary to secure lands for this purpose elsewhere, and a few acres were leased in Stamford Township where the Nursery Stock which was procured in anticipation of the restoration of the Park surface, was set out and kept cultivated, ready for planting in the spring should the grounds be ready. It is much more economical and in every way better to purchase only young stock of trees and shrubs and keep in nursery rows where the necessary transplanting and care may be given before the plants are ready to set out; a comparatively large order was therefore given in the early spring, and a very choice collection of plants which could not be obtained in Ontario was secured. These with what trees and shrubs required which are indigenous to the country, and which can be obtained readily from the local Nurseries, will enable us to make a good showing in 1905, should the grounds be ready in time for spring planting. Otherwise the stock will all be in better shape for the following year. All of which is respectfully submitted.

JAMES WILSON.  
*Superintendent.*

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 APPENDIX "B".
 

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THIS AGREEMENT made the Ninth day of January A. D., 1905, between THE COMMISSIONERS OF THE QUEEN VICTORIA NIAGARA FALLS PARK, acting herein on their own behalf and with the approval of the Government of the Province of Ontario hereinafter called the "Commissioners" Of the First Part, AND THE ELECTRICAL DEVELOPMENT COMPANY OF ONTARIO, LIMITED, hereinafter called the "Company", of the Second Part.

WHEREAS, for convenience and to prevent ambiguity it is agreed and understood by and between the said parties hereto and is hereby declared as follows, that is to say:

(a). The expression the "The Park" wherever it occurs herein shall be understood to mean the Park proper, namely the Queen Victoria Niagara Falls Park, south of its original boundary in front of the property formerly known as the Clifton House and running easterly to the Niagara River.

(b). The expression "The Commissioners" wherever it occurs herein, shall be understood to mean not only the Commissioners of the Queen Victoria Niagara Falls Park—as representing the Government of the Province of Ontario in the premises— named as parties hereto of the First Part, but also their successors and assigns and those who for the time being may be Commissioners of the Queen Victoria Niagara Falls Park or other representatives of the Government in Ontario.

(c). The expression the "Company" wherever it occurs herein shall be understood to mean The Electrical Development Company of Ontario, Limited, its successors and assigns, duly incorporated by letters patent dated 18th February, 1903, issued under the Great Seal of the Province of Ontario in accordance with the Ontario Companies Act.

(d). The expression "The First Agreement" wherever it occurs herein shall be understood to mean the agreement bearing date the 29th day of January A. D. 1903 and made between the said Commissioners of the First Part

and William Mackenzie of the City of Toronto, Capitalist, Henry Mill Pellatt of the same place, Capitalist, and Frederick Nicholls of the same place, Capitalist therein called "The Syndicate" of the Second Part, whereby the said Commisisoners did grant unto "The Syndicate" a license irrevocable to take from the waters of the Niagara River within the Park a sufficient quantity of water to develop 125,000 electrical or pneumatic or other horse power for commercial use and did also grant to The Syndicate the right to construct, build and do and perform and operate the specific works therein designated and located in pink lines upon the map or plan marked "N" annexed to the said Agreement upon the terms and subject to the conditions in the said agreement specified.

AND WHEREAS the First Agreement was duly approved by the Lieutenant-Governor-in-Council by Order-in-Council dated the 30th day of January A.D., 1903;

AND WHEREAS it was expressly provided in and by the First Agreement that the Syndicate should within two years from the date thereof sell, assign, convey and transfer to a Company or Corporation formed under proper authority having power to construct and operate the said works all the rights and franchises by the First Agreement given and conferred to and upon the Syndicate and in accordance with such provision and pursuant thereto the said Syndicate by an Indenture of Assignment bearing date the 21st day of March, 1903, did sell, assign, convey and transfer to the Electrical Development Company of Ontario, Limited, being the Company hereto of the Second Part, its successors and assigns, the said agreement of 29th January, 1903, meaning the First Agreement together with all the rights and franchises given and conferred thereby and all benefits and advantages to be derived therefrom.

AND WHEREAS the locations of the several works authorized under the First Agreement which have been constructed or which are in process of construction are shewn in black lines upon the accompanying map marked "O".

AND WHEREAS, the Company represent that the quantity of water intercepted by the works authorized by their first Agreement is sufficient to enable power to be developed in excess of the amount already authorized by such first agreement, which if not secured and made sure of while construction of works under First Agreement is proceeding, would be to lose the utilization of such excess of water forever.

AND WHEREAS, the location of the new works which the Company now desire to construct are shewn in red lines and figures upon the accompanying map or plan marked "O" and which may be described as follows:—

(a) To remove the Masonry Revetment Wall 1, 5, 6, constructed by the Company.

(b). To build an outer line of Arched Masonry Sheer Ice Booms from or near the point 1, to or near the point 2, and an inner line from or near the point 3 to or near the point 4.

(c). To construct a second Power House with Rack, Screen, Gate House Wheelpit, Penstocks and machinery within the area marked 3, 4, 7, 8, the design and construction of which shall be of the same general character as has been authorized and approved of by the Commissioners for the Power House provided for under the terms of the First Agreement.

(d). To terrace the front of the building in a manner to be approved of by the Commissioners.

(e). To carry the electricity generated in the second Power House to points beyond the Park by means of underground conduits, carried under the surface of the Park and under the Pipe Lines of the Ontario Power Company in a manner to be approved of by the Commisisoners.

(f). To construct a Masonry lined tail race tunnel with branch tunnels on either side of the wheelpit to carry the discharge water from the wheels of the second Power House to the River below the Falls.

NOW THEREFORE THIS AGREEMENT WITNESSETH as follows, that is to say :

1. For the purpose of generating electricity and pneumatic power or other power for commercial use to be transmitted and capable of being transmitted to places beyond the Park, The Commissioners hereby grant to the Company subject to the consent and approval of the proper authority and save as hereafter limited, a license irrevocable to take and use any excess of water which may be found within the Forebay and works of the Company constructed in accordance with the terms of the First Agreement over and above the amount required to generate the 125, 000 electrical horse power heretofore granted for the purpose of developing such additional electrical pneumatic or other power as the capacity of the Forebay and works may or can supply. Provided, however, that the Company shall not develop more than 125,000 electrical horse power under this Agreement. Provided also that these presents are not construed as expressing or implying any covenants by the Commissioners in respect of the rights hereby created or for title or quiet possession.

2. For the purposes aforesaid the Commissioners further grant to the Company the right to construct and build and do and perform and operate the works as hereinbefore and again hereinafter described and located in Red lines and figures upon the map or plan marked "O" hereto annexed and entitled "Plan attached to agreement dated Ninth of January 1905, made by the Commissioners of the Queen Victoria Niagara Falls Park with the Electrical Development Company of Ontario, Limited, for power privileges within the Park", and which map or plan is identified by the seals and signatures of the parties hereto.

3. The several works which the Company are by these presents granted the right and authorized to perform, execute and construct are such as are laid down and described on the said Map or Plan in red lines; and more particularly specified as hereinbefore recited in sections A. B. C. D. E. and F. of this agreement.

Such grant by this and the two preceding paragraphs for the purpose of such additional output or for any purpose in this agreement contained, shall not be used or be capable of being used in derogation or diminution of right of use of the waters of the Niagara River already granted by the Commissioners to other grantees so that such grantees cannot obtain the necessary supply of water as in their respective agreements provided.

4. The license by these presents granted and more particularly defined and specified in paragraphs numbered one and two hereof, shall commence on the date of these presents and shall extend subject to the fulfilment by the Company of all conditions, provisions and stipulations herein contained to and until the first day of February, 1953, nevertheless it is expressly understood and agreed that the Company shall not be bound to forthwith exercise its rights hereunder but may do so at its option at any time within ten years from the date of the first output of power under the First Agreement, and the Company shall give to the Commissioners six months notice in writing of the time when it will commence operations hereunder and from and after the time mentioned in the said notice all the provisions of this agreement shall immediately come into full force and operation, and it is further agreed that in the meantime and until the time fixed in the said notice the Company shall pay to the Commissioners for such rights of option the sum of \$5,000 per annum payable half-

yearly in advance on the first days of April, and October in each year (and proportionate payment on the first day of April, 1905, commencing from the execution of this agreement until such time as the Company shall have developed and sold for commercial use one-half of the 125,000 horse power authorized to be developed by the Company under the First Agreement then from and after such time the Company will pay to the Commissioners the sum of \$10,000 per annum payable half-yearly on the first days of April and October in each year until the time when the Company shall develop for sale power under the terms of this agreement; whereupon the Company in addition to the sums payable to the Commissioners under paragraph 14 of the First Agreement will pay to the Commissioners the sum of \$15,000 per annum in half-yearly payments in advance on the first days of April and October in each year, and also such sums for each horse power developed hereunder and sold as provided by paragraph 14 of the First Agreement in respect of the rentals for such sales of the electrical or other horse power, payable by the Company to the Commissioners under the First Agreement.

Provided that in case of the failure by the Company to give the said notice within the said period of ten years, from the date of the first output of power under their First Agreements, or in case of default in the payment of any of the said half yearly payments of Two thousand five hundred dollars or Five thousand dollars, or as the rentals may be increased by the generation of additional power, as the case may be, the Lieutenant-Governor-in-Council may declare this agreement, the liberties, licenses, powers and authorities so granted and of every of them to be forfeited and void and thenceforth after such declaration the same shall cease and determine and be utterly void and of no effect whatever.

It is further provided that if the Company determine not to exercise its rights hereunder it shall be entitled to give notice in writing to that effect to the Commissioners at any time within three months before the expiration of the period of ten years from the date of the first output of power under the said First Agreement and in such case all further payments by the Company to the Commissioners hereunder shall cease.

5. It is hereby expressly provided that one-half of the power to be generated hereunder shall from time to time be available for the use of any Municipality or Municipalities within the Province of Ontario for the purpose of operating a municipal system of lighting, heating or other public utilities, then owned or which may hereafter be owned by such municipality or municipalities to be delivered at and taken from any of the Company's Transformer Houses at the works of the Company at Niagara Falls and whenever the additional electrical, pneumatic or other horse power or any part thereof to be generated under this agreement shall be available for use, then the Company shall supply to such municipalities as shall make application therefor one-half of the said power. The price to be paid by such municipalities for the said power may be fixed by the Lieutenant-Governor-in-Council who may also fix the price every fifteen years thereafter during the continuance of this agreement or any renewal thereof; and in determining the said price the Lieutenant-Governor-in-Council may inquire as to the price paid for power by other consumers receiving electrical energy from the said Company in Ontario, the price paid by private consumers in the case of electrical energy produced by steam power or water power in Ontario and the various conditions which in the opinion of the said Lieutenant-Governor-in-Council might be necessary to determine the matter in issue.

AND IT IS FURTHER PROVIDED that the quantities to be supplied to each applicant municipality, the priority of use to be enjoyed by such municipal-

ity, the periods of using the same, and the fixing of a reasonable period where such municipality having temporarily waived or declined to use power its rights may be revived to be in accordance with any general legislation by the Legislature of Ontario, or if no such general legislation then as the Lieutenant-Governor-in-Council may determine:

6. This agreement shall be taken to supplement the First Agreement and all the terms conditions and provisions of the First agreement shall, so far as applicable, apply to the works authorized by these presents and the execution and carrying out thereof.

7. And for greater certainty, but not so as to restrict the generality of the foregoing, it is hereby further declared and agreed that if on the first day of February 1953 the terms of the said license as limited by paragraph 14 of the First agreement shall have terminated (and not otherwise terminated by the terms and conditions or provisions of the said First agreement or of this agreement or of either of them) renewal of the terms or re-adjustment of the rentals or both, as provided by the First Agreement and this agreement, shall be made in accordance with the provisions of paragraph 15 of the said First agreement.

8. AND FURTHER, for greater certainty but not so as to restrict the generality of paragraph six of this agreement it is hereby declared and agreed that the following paragraphs of the first agreement where applicable shall apply and be taken to be inserted herein and thereby to form part of this agreement namely, 8, 9, 10, 11, 12, 13, 15, 16, 17, 18; 20, 21, 22, 24, 25, 26, 28.

9. This agreement shall have no force or effect until approved by the Lieutenant-Governor-in-Council nor operative unless and until ratified and confirmed by the Legislative Assembly of Ontario; but the rights and privileges hereby granted shall, after the ratification and confirmation of the Legislative Assembly, have force and effect from the date of this agreement; provided that this agreement shall not restrain or affect the power of the Commissioners to control the construction of works or direct the manner in which works may be done and performed, within or over the area authorized by the First agreement, although the area and location thereof may also be within the area and limits the subject of the License described in this agreement.

IN WITNESS WHEREOF the Corporate Seal of the Commissioners hath been hereunto affixed by their Chairman who has also signed these presents in certification of due execution hereof by the Commissioners and the corporate seal of the Company has been hereunto affixed by the President who has also signed these presents in certification of the due execution hereof by the Company on the day and year first aforesaid.

THE COMMISSIONERS OF THE QUEEN VICTORIA NIAGARA FALLS PARK.  
(SEAL).

Witness.—

(SGD.) JAMES WILSON.

(Sgd.) J. W. LANGMUIR,  
*Chairman.*

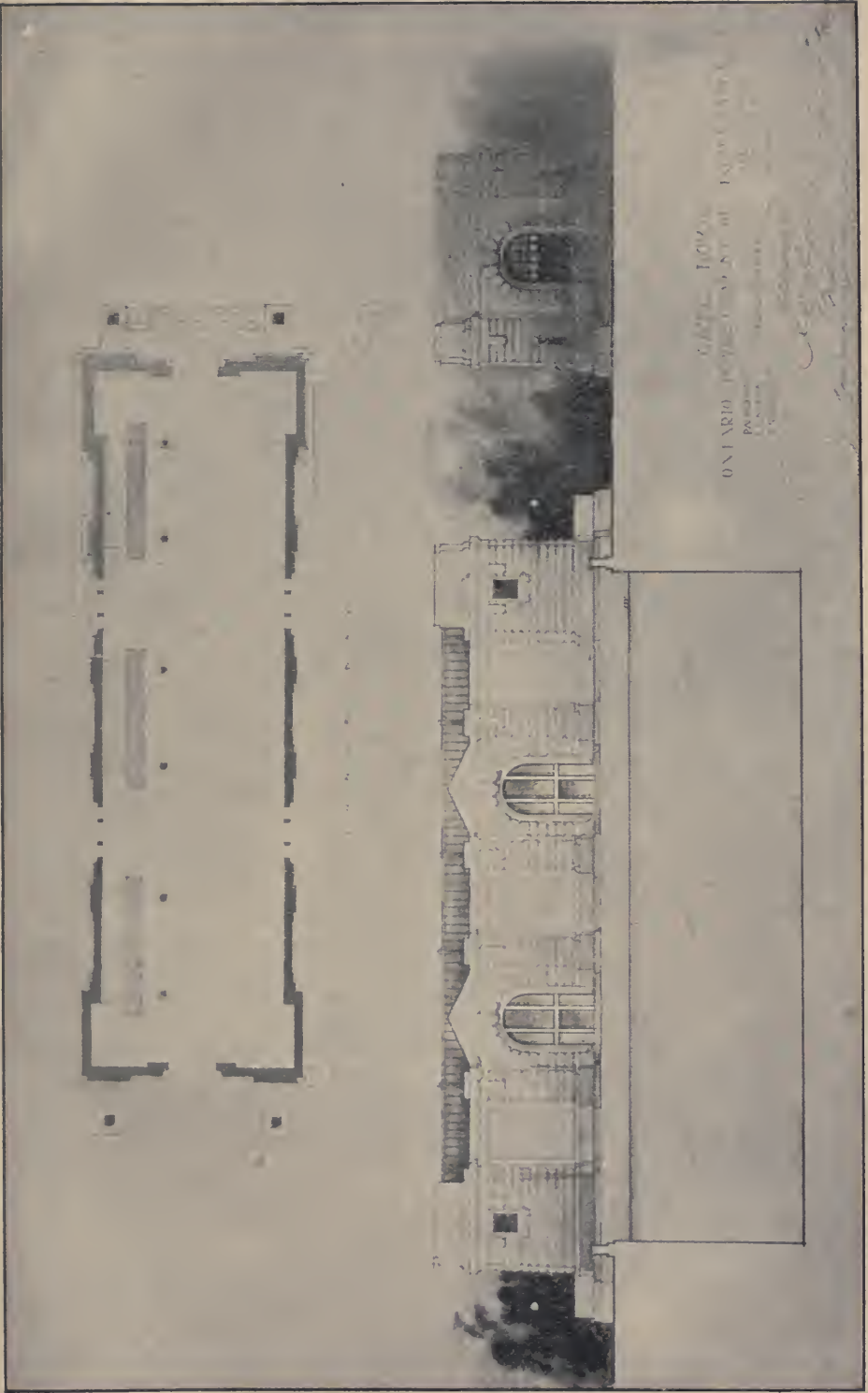
THE ELECTRICAL DEVELOPMENT COMPANY OF ONTARIO, LIMITED.  
(SEAL).

(Sgd.) HENRY M. PELLATT,  
*President.*

(Sgd.) H. G. NICHOLLS.  
*Secretary.*

Witness.—

(Sgd.) H. H. MACRAE.



The Gate House of the Ontario Power Company.















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