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Twenty-first Annual Report

OF THE

Commissioners for the
Queen Victoria Niagara Falls Park
1906.

PRINTED BY ORDER OF
THE LEGISLATIVE ASSEMBLY OF ONTARIO



TORONTO :

Printed and Published by L. K. CAMERON, Printer to the King's Most Excellent Majesty
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COMMISSIONERS OF THE
QUEEN VICTORIA NIAGARA FALLS PARK.

J. W. LANGMUIR, *Chairman.*

GEORGE H. WILKES.

ROBERT JAFFRAY.

P. W. ELLIS.

L. CLARKE RAYMOND.

Superintendent : JAMES WILSON.

Assistant Superintendent : J. HARRISON PEW.

Chief Gardener : RODERIC CAMERON.

PARLIAMENT BUILDINGS,

TORONTO, FEBRUARY 18TH, 1907.

*To the Honorable WM. MORTIMER CLARK, etc., etc., etc., Lieutenant-Governor of
the Province of Ontario.*

MAY IT PLEASE YOUR HONOR:

I beg to submit herewith the Twenty-first Annual Report of the Commissioners for the Queen Victoria Niagara Falls Park, being for the year ended 31st December, 1906.

I have the honor to be,

Your Honor's most obedient servant,

W. J. HANNA,

Provincial Secretary.

TORONTO, FEBRUARY 18TH, 1907.

*Honorable W. J. Hanna, K. C., M. P. P.,
Provincial Secretary, Province of Ontario,
Parliament Buildings, Toronto.*

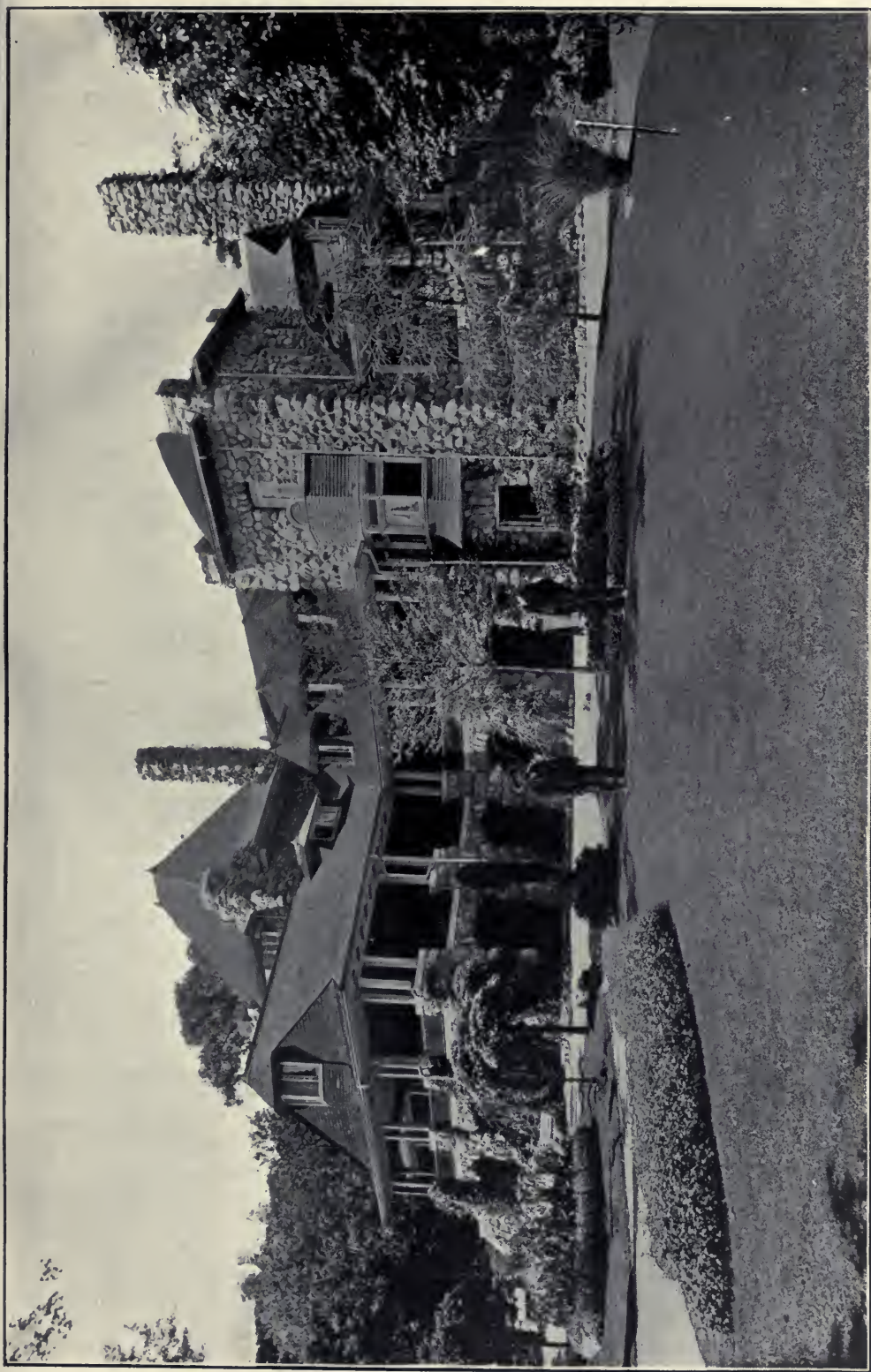
SIR,—I have the honor to transmit herewith for presentation to the Legislature of Ontario the Twenty-first Annual Report of the Commissioners for the Queen Victoria Niagara Falls Park (being for the year ended 31st December, 1906), together with the appendices thereunto attached.

I have the honor, to be, Sir,

Your obedient servant,

J. W. LANGMUIR,

Chairman.



The Shelter and Refectory Building.



TWENTY-FIRST ANNUAL REPORT OF THE COMMISSIONERS FOR THE QUEEN VICTORIA NIAGARA FALLS PARK.

To the Honourable W. Mortimer Clark, K.C.,

Lieutenant-Governor of the Province of Ontario :

MAY IT PLEASE YOUR HONOUR :

The Commissioners for the Queen Victoria Niagara Falls Park beg to submit their twenty-first annual report (being for the year 1906), together with the usual statement of receipts and expenditures; the report of the Superintendent on the works of restoration, maintenance and improvement, which have been conducted in the various portions of the park system, and a general reference to the progress made during the year by the several companies engaged in the development of the water power of Niagara Falls for electrical power purposes.

In their last annual report the Commissioners referred at length to the arguments which had been advanced by certain magazine writers, and others in the United States with a view to influencing public sentiment against the use of Niagara River water for the generation of electrical power. The immediate cause of the protest was an application made by a Power Company, on the American side to take from the river, above the located works of the existing power producing companies an exceptionally large quantity of water, estimated by the state officials as equal to about one-sixth of the whole outflow of the river from Lake Erie at mean stages of water level, and practically one-fourth of the flow at periods of low water during storms. This astounding demand had actually received the assent of the State Legislature of New York, and its failure to become law was only due to the exercise of the veto power by the Lieutenant-Governor; which action also served to arouse public interest in the subject, and particularly in directing attention to the fact that in addition to the several corporations now engaged in the production of power, or in the construction of works for that purpose, many charters had been granted on both sides of the boundary line for unlimited rights as to the quantity of water which might be taken from the river above the Falls for the generation of electric or other power.

In view of all these circumstances, which were clearly set out in the report for 1905, the Commissioners recommended that the Governments territorially interested in the river and Falls should without delay cause a full investigation to be made of all the conditions attending the present and prospective utilization of the water power of the Falls for commercial purposes, in order that such action might be taken as would prevent irreparable damage being done to the grandeur and beauty of the twin cataracts.

Up to the present time no active steps have been taken by the companies which obtained charters from the Dominion Government, but which have so far not exercised the rights granted by actual works of construction.

On the American side, however, the subject received very prompt attention. The State Legislature of New York at its Session last spring cancelled no fewer than four of the eight charters which it had granted at various times, in every case for non-fulfilment of charter conditions. By the cancellation of these unused charters there remained four companies under

Legislative authority to take water from the Niagara River on the American side. Two of these being actively engaged in the manufacture and sale of the electricity upon a large scale, and two whose charters had been kept alive by the technical performance of statutory works only. One of them being the company whose extraordinary demands for water has already been alluded to.

As public sentiment on the American side was strongly in favor of still further restricting the taking of water from the Niagara River for power purposes very strong appeals were made to the federal Governments to intervene on the ground that as the Niagara was an international boundary stream, and navigable, it was therefore under the jurisdiction of the central Government.

Largely through the initiative of President Roosevelt an Act was introduced in Congress, and passed by both Houses of Representatives and the Senate in June last, providing for the control and regulation of the waters of the Niagara River, and the preservation of Niagara Falls as well as other purposes. This Act is known as the "Burton Bill" having been promulgated by the Chairman of the Rivers and Harbors Committee of the House of Representatives, and passed under Constitutional authority for the protection of the navigability of streams as well as for natural defence.

That the scope of this important measure may be clearly comprehended the Act is herein incorporated, as follows:

AN ACT

For the Control and Regulation of the Waters of Niagara River, for the Preservation of Niagara Falls, and for other purposes.

Be it enacted by the Senate and House of Representatives of the United States of America in Congress Assembled: That the diversion of water from the Niagara River or its tributaries, in the State of New York, is hereby prohibited, except with the consent of the Secretary of War, as hereinafter authorized in section two of this Act: Provided, That this prohibition shall not be interpreted as forbidding the diversion of the waters of the great lakes or of the Niagara River for sanitary or domestic purposes, or for navigation, the amount of which may be fixed from time to time by the Congress of the United States, or by the Secretary of War of the United States under its direction.

Sec. 2. That the Secretary of War is hereby authorized to grant permits for the diversion of water in the United States from said Niagara River or its tributaries for the creation of power to individuals, companies, or corporations which are now actually producing power from the waters of said river or its tributaries, in the State of New York, or from the Erie Canal; also permits for the transmission of power from the Dominion of Canada into the United States, to companies legally authorized therefor, both for diversion and transmission, as hereinafter stated, but permits for diversion shall be issued only to the individuals, companies or corporations as afore-said, and only to the amount now actually in use:

Provided, That the Secretary, subject to the provisions of section five of this Act, is hereby authorized to grant revocable permits, from time to time, to such individuals, companies, or corporations, or their assigns, for the diversion of additional amounts of water from the said river or its tributaries to such amount, if any, as in connection with the amount diverted on the Canadian side, shall not injure or interfere with the navigable capacity of said river or its integrity, and proper volume as a boundary stream.

or the scenic grandeur of Niagara Falls; and that the quantity of electrical power which may by permits be allowed to be transmitted from the Dominion of Canada into the United States, shall be one hundred and sixty thousand horsepower: Provided further, That the Secretary, subject to the provisions of section five of this Act may issue revocable permits for the transmission of additional electrical power so generated in Canada, but in no event shall the amount included in such permits, together with the said one hundred and sixty thousand horsepower, and the amount generated and used in Canada, exceed three hundred and fifty thousand horsepower: Provided always, That the provisions herein permitting diversions and fixing the aggregate horsepower herein permitted to be transmitted to the United States, as aforesaid, are intended as a limitation on the authority of the Secretary of War, and shall in no wise be construed as a direction to said Secretary to issue permits, and the Secretary of War shall make regulations preventing or limiting the diversion of water, and the admission of electrical power as herein stated; and the permits for the transmission of electrical power issued by the Secretary of War may specify the persons, companies or corporations by whom the same shall be transmitted, and the persons, companies, or corporations to whom the same shall be delivered.

Sec. 3. That any person, company, or corporation diverting water from the said Niagara River or its tributaries, or transmitting electrical power into the United States from Canada, except as herein stated, or violating any of the provisions of this Act, shall be deemed guilty of a misdemeanor, and on conviction thereof shall be punished by a fine not exceeding two thousand five hundred dollars, nor less than five hundred dollars, or by imprisonment, (or in case of a natural person) not exceeding one year, or by both such punishments, in the discretion of the court. And, further, the removal of any structures or parts of structures erected in violation of this Act, or any construction incidental to or used for such diversion of water or transmission of power as is herein prohibited, as well as any diversion of water or transmission of power in violation hereof, may be enforced or enjoined at the suit of the United States by which any circuit court having jurisdiction in any district in which the same may be located, and proper proceedings to this end may be instituted under the direction of the Attorney-General of the United States.

Sec. 4. That the President of the United States is respectfully requested to open negotiations with the Government of Great Britain for the purpose of effectually providing, by suitable treaty with said Government, for such regulation and control of the waters of Niagara River and its tributaries as will preserve the scenic grandeur of Niagara Falls, and of the rapids in said river.

Sec. 5. That the provisions of this Act shall remain in force for three years from and after date of its passage, at the expiration of which time all permits granted hereunder by the Secretary of War shall terminate unless sooner revoked, and the Secretary of War is hereby authorized to revoke any or all permits granted by him by authority of this Act, and nothing herein contained shall be held to confirm, establish, or confer any rights heretofore claimed or exercised in the diversion of water or the transmission of power.

Sec. 6. That for accomplishing the purposes detailed in this Act the sum of fifty thousand dollars, or so much thereof as may be necessary is hereby appropriated from any moneys in the Treasury not otherwise appropriated.

Sec. 7. That the right to alter, amend, or repeal this Act is hereby expressly reserved."

Under the authority conferred by this Act the Secretary of War for the United States made a personal examination of the works on both sides of the river, and gave a public hearing at Niagara Falls, on the 12th July last to the representatives of the various Power Companies, and others interested in the question. As a result of this examination and hearing, the Secretary of War granted temporary permits authorizing the large Power Companies in active operation on the American side to take water required for operating their works actually constructed. The Secretary of War also granted temporary permits under the terms of the statute recited to the Ontario Power Company, and the Canadian Niagara Power Company, located on the Canadian side of the river, authorizing each to transmit 25,000 electrical horsepower to the American side for the present uses of their United States customers.

On receiving full reports from the engineers designated to examine into all the hydraulic and other conditions involved, the Secretary of War gave a further public hearing at Washington, on the 26th November last, at which the several Ontario Power Companies under license in the Park were represented.

At both hearings before the Secretary of War, the representatives of the American Civic Association took very strong ground against the admission of electric power from the works on the Canadian side. They also made urgent appeals to the members of the Association, and to the American public generally to memorialize the Secretary of War in that behalf; the avowed object of the Association being to compel the Canadian Companies to restrict their output to the requirements of the Canadian market, which was stated in the circular issued to be only 50,000 horsepower. In their efforts to arouse public sentiment respecting the use of Niagara River water for power purposes, the Officers of the American Civic Association in the presentation of their argument greatly overstepped the bounds of reasonable argument, more particularly respecting the effect, the abstraction of water by the development companies on the Canadian side would have on natural conditions.

One of the statements made was that *the Ontario Commissioners had already cut off 550 feet of the Horseshoe Fall to accommodate a Power Company*. The exact fact being that the continued recession of the Falls, particularly at the center or apex of the Horseshoe Fall had lowered the water at the extremity near Table Rock, thus exposing large masses of unsightly rock, to remedy which the Commissioners took advantage of the surplus excavations from the tunnels of the power works to cover the unsightly exposure. The total length of the crest line of the Falls thus reclaimed is 400 feet, which not only adds considerably to the Park area at a congested point, but also affords views of the Falls hitherto unobtainable. Another statement made by the Association was that *the water proposed to be abstracted on the Canadian side alone would make a rapidly flowing river 1,685 feet wide and 18 feet deep, and again, "a rapidly running river nearly half a mile wide and 18 feet deep*. It is surprising that such incorrect statements should be circulated by a society of intelligent men such as the American Civic Association.

From a perusal of the Act of Congress before recited it will be observed that the Legislation is of a tentative character, and that under its provisions and the decision of the Secretary of War, authority to transmit electrical power to the United States is only granted for a period of three years,



Resting after Lunch.

having in view the negotiation of a treaty which would for all time settle the question of the use of Niagara River water for power purposes both by the United States and Canada.

The Secretary of War subsequently determined that the quantities of electrical power which may be imported into the United States by the three companies developing power in the Park should be as follows, viz. :—

The Ontario Power Co	60,000 H. P.
The Canadian Niagara Power Co	52,500 H. P.
The Electrical Development Co	46,000 H. P.

and permits are to be issued for these amounts which will remain in force for three years.

Having thus dealt at length with the constitutional and international questions which have arisen during the past year, a brief review will now be given of the progress made by the several companies that have been engaged for some years in carrying out the important works of development authorized under their agreements with the Commissioners.

THE CANADIAN NIAGARA POWER COMPANY.

As the Canadian Niagara Power Company was the first on the Canadian side of Niagara River to receive a franchise, so has it been the pioneer Company in furnishing electric power for commercial uses. Works of construction were begun by this Company in May, 1901, and have been actively carried on ever since. The first generator having a capacity of 10,000 horsepower was completed and placed in operation on the 1st January, 1905, and at the beginning of 1906, three additional generators of an equal capacity were placed in commission. During that year two more machines were installed, and the Company is now prepared to furnish customers with 50,000 horsepower being the product of five 10,000 electrical horsepower generators. As this Company has completed all its surface and underground hydraulic works for a plant of 100,000 electrical horsepower capacity, the furnishing of additional machinery and extending the Power House (now completed for one-half the ultimate output), to its full length. These works, however, will not interfere with the Park surface beyond the temporary storage of materials and machinery required during the period of construction.

In order to supply customers in the City of Buffalo with electrical power, the company has constructed a transmission line on the Canadian side from the Park to Fort Erie, where it is carried across the Niagara River by overhead cables stretched from lofty steel towers on either bank of the river. These cables are sufficiently high to admit of free navigation underneath. This transmission line has recently been put into service, and power is now being delivered in Buffalo from the Company's works in the Park.

Of the electricity generated by this company, but a small amount has been furnished to home consumers, the great bulk being sold to customers either at Niagara Falls, N.Y., or in the City of Buffalo.

As the output of power generated by the Canadian Niagara Power Company for the half year ended 30th June last, exceeded the ten thousand horsepower which, under the terms of the agreements with the various Power Companies is included in the annual fixed charge of fifteen thousand dollars, it devolved on the Commissioners to examine into and

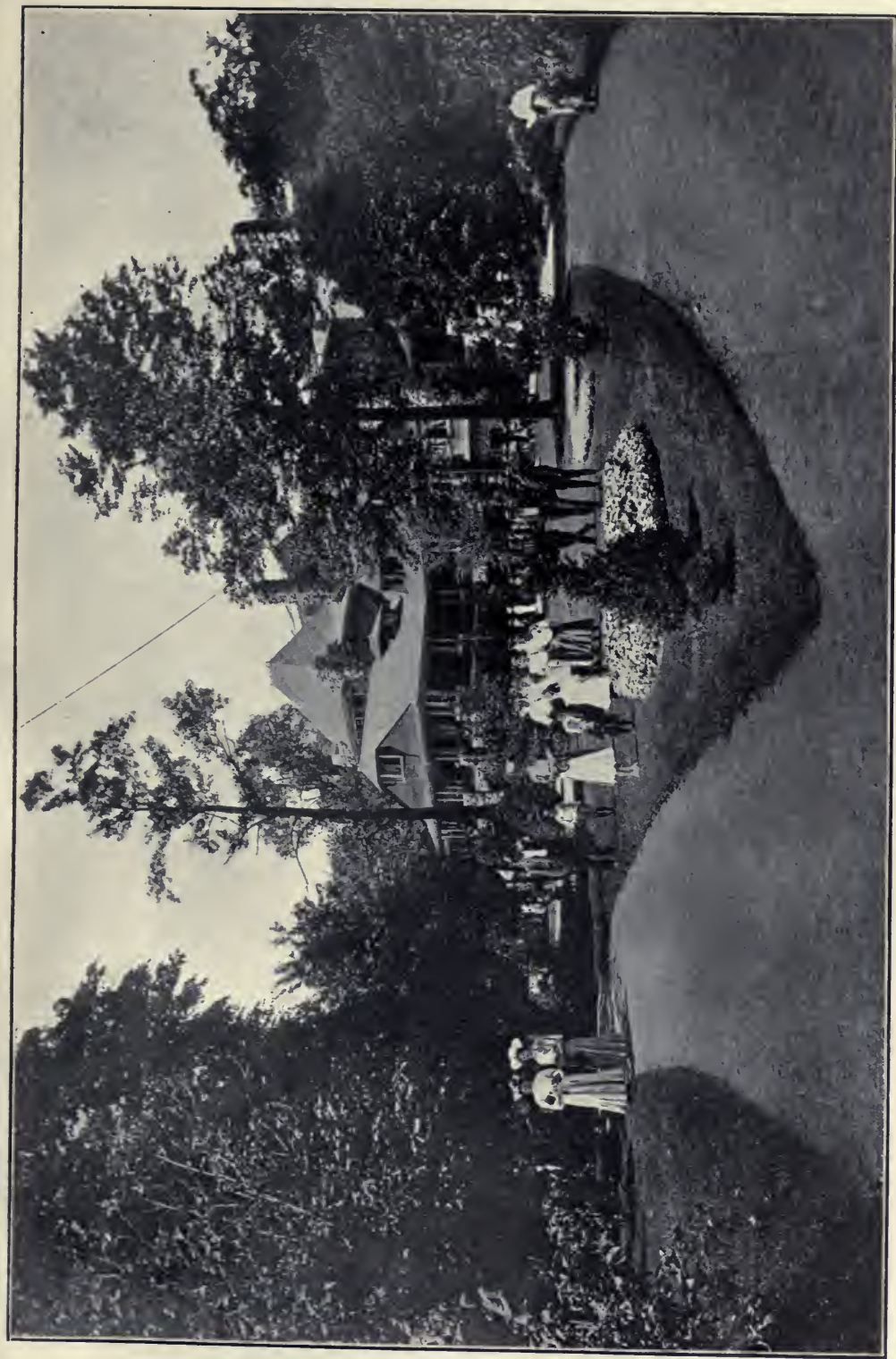
determine the basis on which the rentals for all power in excess of such 10,000 horsepower should be made, and accounts therefor rendered the company. The agreement in this connection provided as follows:

"The said agreement of 7th April, 1892, in respect of the amount of rentals and period for which the same is payable is hereby amended by providing that from and after the first day of May, 1899, the rental payable under the said agreement in lieu of that specified in paragraph 4 thereof shall be up to the first day of May, 1949, the sum of fifteen thousand dollars per annum, payable half-yearly on the same days and times as specified in said paragraph 4 of said agreement, and in addition thereto payment at the rate of the sum of one dollar per annum for each electrical horsepower generated, and used and sold or disposed of over ten thousand and electrical horsepower up to twenty thousand electrical horsepower, and the further payment of the sum of seventy-five cents for each electrical horsepower generated and used, and sold or disposed of over twenty thousand electrical horsepower up to thirty thousand electrical horsepower, and the further payment of the sum of fifty cents for each electrical horsepower generated and used, and sold or disposed of over thirty thousand electrical horsepower; that is to say, by way of example, that on generation and use, and sale, or disposal of thirty thousand electrical horsepower the gross rental shall be \$32,500 per annum, payable half-yearly, and so on in case of further development as above provided, and that such rates shall apply to power supplied or used either in Canada or the United States. Such additional rentals as shall be payable for and from such generation and sale, or other disposition as aforesaid to the Commissioners shall be payable half-yearly at the rate above specified on the first days of November and May in each year for all power sold in the said several half-yearly periods from the day of sale; and within ten days after said first days of November and May in each year, on which such additional rentals shall be payable respectively, the treasurer or if no treasurer, the head office of the company shall deliver to the Commissioners a verified statement of the electrical horsepower generated and used, and sold or disposed of during the preceding half-year, and the books of the company shall be open to inspection and examination by the Commissioners or their agent for the purpose of verifying or testing the correctness of such statement, and if any question or dispute arises in respect of such return, or if any statement delivered at any time by the company to the Commissioners of the quantity or amount of the electrical horsepower generated and used, and sold, or disposed of or of the amount payable for such additional rentals, the High Court of Justice of Ontario shall have jurisdiction to hear and determine the same, and to enforce the giving of the information required."

As it was considered possible that some difference of opinion might arise respecting the proper method of computing the rentals for this excess power, the Commissioners decided expert opinion on the subject should be obtained, the question was therefore referred to Dr. Galbraith of Toronto, Principal of the School of Practical Science, for a report.

After a critical examination of all the facts bearing on the question Dr. Galbraith prepared and submitted, a report in which he outlines several methods by which the excess rentals may be determined. These he defined as follows:—

1. "*Increasing rental*" "*Peak power*" system. Or basing the rental upon the maximum peak load developed, and remaining so fixed until a higher peak load is reached.



The Shelter Building, from principal driveway.

2. "*Increasing rental*", "*Average power*" system. Taking the maximum *average daily* load instead of the peak load.

3. "*Fluctuating rental*", "*Peak power*" system. Increasing or decreasing, but based on the daily peak load.

4. "*Fluctuating rental*", "*Average power*" system. Increasing or decreasing based on the *daily average* load.

Dr. Galbraith therefore did not definitely determine the precise method of measurement to be adopted by the Commissioners, but suggested that one of the four systems outlined by him be adopted by the Board. Upon consideration of Dr. Galbraith's report the Commissioners submitted it to Sir Æmilius Irving, the Solicitor for the Park, who advised that the "*Increasing rental—peak power*" system was the proper system upon which to base the charges under the agreement, and that the accounts for the excess rentals be rendered accordingly.

As the agreements which have been entered into with the Ontario Power Company, the Electrical Development Company, and the Canadian Niagara Power Company are all identical in respect to the principle of charging for power generated and sold above a certain clearly defined amount, and as the works of each of these Companies are being carried out upon a gigantic scale, which in the future will yield a very large revenue, the finite settlement of the proper method of accounting became of the utmost importance, the Commissioners therefore decided that before rendering a bill to the first company, which has come under the provisions of the excess rental clauses of the agreements, that the whole question should be submitted to the Lieutenant-Governor-in-Council in order that the Government should direct the course to be pursued by the Board, and this has accordingly been done.

In the meantime, and until a decision has been given by the Government upon the question, the Company has not been called upon for payment of the additional rentals due.

THE ONTARIO POWER COMPANY.

In their report for the year 1905, the Commissioners referred to the difficulty which had been met with in the proper architectural treatment of the Spillway building for the Ontario Power Company, and also the portal building, by which access is had to the elevators to the Power House of the Company on the lower bank of the river, and to the Transformer House and offices situated on the high bank immediately overlooking the Park.

Early in the year, however, after a great deal of consideration, the company presented plans, prepared by Messrs Greene and Wicks of Buffalo, which upon examination were found to be satisfactory to the Commissioners, and were therefore approved of, and the buildings are now nearly finished. When quite completed the structure will be most artistic in design and finish. It is provided with a broad promenade around the exterior at a high level which will afford the public new and very comprehensive views of the Falls, the river and the Park. Apart from these very important works, the Company have not carried on any new construction works affecting the surface of the Park, and all the cleaning up work to be done by this company, and which remained unfinished at the close of 1905 has with the exception of the Spillway been brought to a satisfactory completion.

A fourth generator has been recently completed in the Power House of this company of larger capacity than the three machines previously installed, viz., 12,000 electrical horsepower unit, instead of 10,000. The larger machine has proved so successful that it has been decided to install the next two generators of the same capacity.

Notwithstanding the plant of the company was capable of producing 30,000 electrical horsepower at the beginning of 1906, the Commissioners have not yet received any payments on account of rentals for power generated in excess of the 20,000 H.P., for which a fixed rental is payable.

In order to transmit power to customers in the United States, the company have constructed transmission lines extending from their Transformer House, overlooking the Park to a crossing of the Niagara River, one mile south of Queenston Heights. These Transmission lines are composed of heavy aluminum cables strung upon steel towers, and are carried over a private right of way.

It is interesting to note that part of the electrical output of this company is being transmitted as far as Rochester and Syracuse, the latter point being about one hundred and sixty miles from the generating station. This it is claimed is the longest transmission line in successful operation east of the Rocky Mountains.

ELECTRICAL DEVELOPMENT COMPANY.

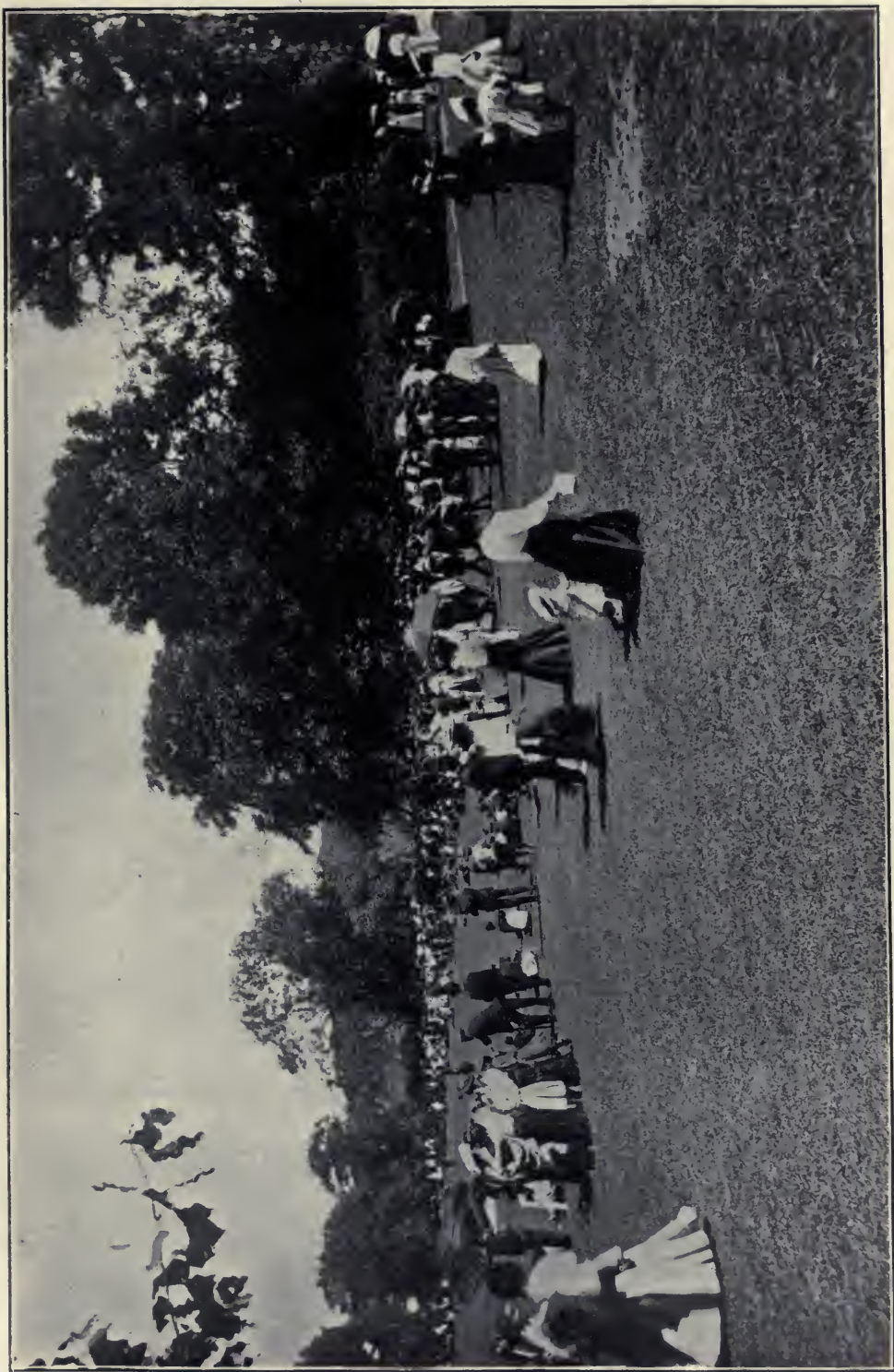
Excellent progress has been made by this company in the preparation of its extensive works for the delivery of electric power. The walls of the Power House, extending to about two-thirds of the final length of the building, have been built up and the structures roofed in. This building is of classic design, constructed of Indiana limestone, and specially designed for the position it occupies in the Queen Victoria Park. Two electric generators each of 12,500 horsepower are ready for work, and the City of Toronto has been receiving electric current from the Power House of the Company in the Park since the third week in November.

The completion of the Forebay, and the removal of the greater part of the enclosing Coffor Dam from the river bed has done away with the last great obstruction to the free flow of the river within the Park, and the Forebay has now practically assumed the normal appearance, it will present for all time to come. Notwithstanding the great energy with which all the works of this company have been prosecuted during the year, the magnitude of the undertaking has prevented any attempt being made to clean up or restore the grounds about the Power House. By the end of next season, however, the Commissioners expect that this greatly desired work will be accomplished, and the full effect of the changes which have been made in the Park by the works for the development of the water power for commercial purposes will be clearly seen.

The three corporations which have obtained franchises to develop the water power of the Niagara River within the limits of the Park have in the aggregate already expended nearly seventeen millions of dollars in carrying out their plants for the generation of electric power, and it is estimated that a further sum of ten millions will be required in order to complete the works to the full capacity authorized by the agreements entered into with the Commissioners, and confirmed by the Legislature. These important works have all been undertaken in reliance upon the natural free and unobstructed flow of the waters of the river to the works,



At Spring Water Fountain, from Shelter Building.



Watching the Sports.

and it is clearly of the utmost importance that no act which would in any manner jeopardize or affect the flow of the waters should be committed. The Commissioners therefore are of the opinion, and strongly recommend that the bed and foreshores of the Niagara River lying above the present park limits, and extending as far as the mouth of the Welland river should be set apart and appropriated to preserve for all time the natural and unobstructed flow of the waters of the Niagara River.

GENERAL WORKS OF IMPROVEMENT.

The Commissioners have effected several marked improvements in the Park in the course of the year. The iron pipe railing which protected the edge of the cliff opposite Table Rock has been removed and a substantial permanent revetment wall with ornamental panelled railing, and curved recesses at points of great interest where the visitor may rest and enjoy the unexcelled views of the Horseshoe Fall at his leisure, has been constructed along the whole extent of the cliff to the edge of Fall. It is proposed to construct a concrete walk along this revetment in the spring.

As the wire and post fence along the Ferry Street boundary was out of harmony with the surroundings, the construction of the new Clifton House near the north end of the Park proper made it desirable to have a suitable fence at this important point; it was also considered advisable to change the location of the Mowat Gate, the principal entrance to the Park, to a point nearer the river bank, and more in line with the driveway along the front of the new hotel from the Upper Steel Arch Bridge.

A new entrance was therefore laid out with a driveway connecting with the main Park drive at the Superintendent's Office, and a handsome granite gateway is now in course of construction at the entrance, with a granite and ornamental iron panelled fence extending along the whole of the north boundary of the Park and Ferry Street. This important work will be completed before the spring.

Owing to the great increase in the number of picnic parties and visitors frequenting the Park, it was found necessary to add a new shelter and conveniences which have been very greatly appreciated during the summer.

Notwithstanding the fears of some that the foliage which has formed such an attractive feature of the Dufferin Islands would be destroyed by temporary diversion of the water from the channels in the Islands, in order to permit of the construction of the Ontario Company's head works, it is satisfactory to know that very little damage has been done to either trees or shrubs. The new driveway around the main shore, which was completed this season, has added greatly to the convenience of the public for viewing and enjoying the varying scenery of the Islands. The numerous artificial cascades which have been formed, the greatly increased number, and enlarged area of the group of Islands, and the comprehensive outlook from the elevated promenade over the Screen house, over the whole course of the upper rapids from the brink of the Falls to smooth water above Chippawa, all combine to make this one of the most charming and interesting corners of the Park.

Some small roadway and footway bridges over the streams dividing the Islands are still required, and will be constructed in the spring.

NIAGARA BOULEVARD.

Some progress has been made in the important work of providing a broad and well graded Boulevard along the bank of the Niagara River, between the Park and Fort Erie, to which reference has been made in previous reports. When the Government granted to the Commissioners, the reserve of one chain in width along the water's edge, it was found that in many places this had been so narrowed in by the erosive action of the river on the clay banks that very little of the original sixty-six feet remained, and the driveway was in consequence much too narrow for safety. As every period of high water did further damage the Commissioners, with the approval of the Government, began works of protection which they have carried on from year to year until at the present time five miles of the shore line have been made secure, and only about two miles remain where danger from erosion is apprehended.

In addition to protecting the shore, the Commissioners have, in order to widen out the highway to a suitable width for a Boulevard, acquired additional land from the adjoining properties at many of the narrowest places. Unfortunately however, the funds at the disposal of the Board have always been very limited, and the Park at Niagara Falls has very naturally demanded the first consideration so that but a small sum annually could be expended upon the development of the numerous properties which have from time to time been placed under the jurisdiction of the Commissioners. During the past year, therefore, no additional purchases of property have been made, but about three-fourths of a mile of new roadway has been formed upon lands previously acquired, and the travelled highway diverted for this distance from dangerous proximity to the steep bank of the river.

In order to make a continuous boulevard from Fort Erie to the Park, it will be necessary to bridge the mouth of the Welland River at Chippawa, and construct a new connecting link along the margin of the Niagara River to the southerly Park limit, a distance of a little over a mile.

Originally there was a reserve at this point, but it was disposed of by the Crown many years ago, and therefore was not included in the patent granting the Chain Reserve to the Park Commissioners.

As there will probably be a large surplus of materials suitable for filling available when the power development works are fully completed, the Commissioners desire to take advantage of these excavations to construct an esplanade along this reach of the river front which will form a charming driveway and entrance to the Park from Chippawa and the south.

OUTLYING PARKS.

The usual works of maintenance and improvement have been carried on at Fort Erie, Niagara Glen and Queenston Heights. At the latter point a new rustic arbor has been built at a sheltered spot on the crest of the heights near Brock's Monument, from which a comprehensive outlook over the Niagara River and valley may be quietly enjoyed.

As there has been a very marked increase in the number of visitors to Queenston Heights in recent years, attracted doubtless by the magnificent views which have been provided for the comfort and recreation of picnic parties; the Commissioners decided to reduce the toll charged for ascending to the top of the Monument from twenty-five cents to fifteen cents, and



Watching the Ball Game.



A Corner of the Picnic Grounds.

this was accordingly done at the commencement of the season. That the reduction was justified has been abundantly proved by the fact that the revenue has not only been maintained, but actually shows an increase over the year 1905.

Were it not for the narrowness of the interior of the shaft, and the very limited space at the top available as a view point, the Commissioners would be disposed to construct a lift in order that the magnificent views from the high altitude might be availed of by larger numbers.

In order to provide for the increased number of picnic parties frequenting these grounds, the Commissioners have in view the construction of an additional shelter, a little to the west of Brock's Monument.

Notwithstanding the physical effort required to reach it Niagara Glen continues to attract visitors in increasing numbers; its wonderful and rare geological and botanical treasures proving a never failing source of interest to citizen and stranger alike. Some additional paths have been constructed and resting places provided to facilitate the comfort and convenience of visitors.

At Fort Erie Park some planting was done in the spring, and a large part of the ground at the rear of the old fortifications which was very uneven was plowed and harrowed into shape, and will be sown with good lawn grass in the spring.

A shelter for visitors in time of storm is urgently required at this point, which is also becoming more attractive year by year.

A full reference to the various works of maintenance and improvement which have been carried on during the year will be found in the report of Park Superintendent, appended hereto.

The statement of receipts and expenditures for the year will also be found herewith.

All which is respectfully submitted,

J. W. LANGMUIR,
Chairman.

GEORGE W. WILKES.

ROBERT JAFFRAY.

P. W. ELLIS.

L. CLARKE RAYMOND.

QUEEN VICTORIA NIAGARA FALLS PARK.

FINANCIAL REPORT.

Receipts, 1906.

Ontario Power Company, rental	\$30,000 00	
Canadian Niagara Power Company, rental	15,000 00	
Electrical Development Company, rental	15,000 00	
International Railway Company, rental	10,000 00	
Zybach & Company, rental	9,000 00	
“ “ balance from 1904 rental	850 00	
Brock's Monument tolls	936 15	
Wharf privileges	463 00	
Sundries	426 45	
		\$81,675 60
Overdraft in Imperial Bank, December 31, 1906		26,883 23
		<u>\$108,558 83</u>

NOTE.—The special deposit to credit of Commissioners made in 1903, for maintaining water levels at intakes of Canadian Niagara Power Company and International Railway Company now amounts to \$25,862.46.

Expenditure.

Paid Imperial Bank overdraft, January 1st, 1906		\$26,734 21
Capital Account:		
Paid wages, permanent works	\$5,183 42	
“ materials, permanent works	4,218 51	
“ contracts	11,003 00	
“ land purchases	48 07	
“ legal expenses	1,235 00	
“ miscellaneous	5,308 47	
		\$26,996 47
Maintenance Account:		
Paid salaries, office and clerical staff	\$4,875 00	
“ salaries, constable and gardener	8,075 52	
“ wages, laborers and teamsters	9,390 82	
“ for materials	5,539 06	
“ office expenses	358 81	
“ Commissioners' expenses	580 73	
“ miscellaneous	893 74	
		29,713 68
Paid interest on bonds, including bank charges		25,114 47
		<u>\$108,558 83</u>



The Picnic Grounds—A Busy Day.

APPENDIX A.

REPORT OF THE PARK SUPERINTENDENT.

To the Commissioners of the Queen Victoria Niagara Falls Park:

GENTLEMEN,—I beg to make the following report upon the works which have been carried on during the year 1906 in the original Park reservation at Niagara Falls, and also in the extensive outlying territory which is now included in the Queen Victoria Niagara Falls Park system.

Owing to the continually increasing works of restoration and improvement being carried on in the extensive system of Park areas now under the control of the Queen Victoria Niagara Falls Park, and to the consequent necessity for increased supervision of these works, and more frequent inspection of the outlying territory than could be given by the Superintendent, the Commissioners appointed Mr. J. Harrison Pew, as Assistant Superintendent on 1st May, 1906, with special jurisdiction over all works of improvement and maintenance of the grounds, at Queenston Heights, Niagara Glen and Fort Erie and the protection and widening of the Boulevard along the Niagara River between Chippawa and Bridgeburg.

Last year's report contained a full reference to the surfacing and planting of the new and extensive additions which had been made to the Dufferin Islands and to the restoration of the long reach of park surface which had been so greatly disturbed by the construction of the Ontario Power Company's pipe line works. The grounds so restored and resurfaced have largely assumed a normal appearance and another season will suffice to complete the protection of the new surface soil by a heavy growth of sod, and allow the extensive plantation of nursery stock to become thoroughly established.

Unfortunately the season of 1906 was a particularly hard one on newly transplanted stock, several periods of severe drouth occurring in the hot months before the roots had taken firm hold of the ground and hand watering was required, which taxed the energies of the staff to the utmost; notwithstanding the expenditure of a great deal of labor upon this work some of the best and most matured specimen deciduous shade trees in the transplanting of which great care and skill had been exercised, and which were depended on to give immediate sylvan effects at critical points, were lost. Fortunately the newly planted shrubs and vines, whose roots do not require such deep soil, did not suffer so much from the severe climatic conditions and were nearly all pulled through.

The thickly wooded portions of the original group forming the Dufferin Islands stood the test of having the water entirely shut off for a third season remarkably well, only a few of the evergreens along the margin of the main stream having perished. It was hoped at the beginning of the year that the works of the Electrical Development Company's forebay would be sufficiently advanced by spring to permit of the flooding of the island channels before the dry season commenced. This, however, was not accomplished, and the season of growth was over before the water was permanently admitted.

During the past year the important works at the Spillway building, the terminal safety valve of the Ontario Company's 18-foot hydraulic supply pipe, near the Refectory, were taken in hand, and the heavy construction operations required in adapting this lofty and massive concrete structure to the aesthetic conditions demanded by its location have now been practically completed.

In accordance with the design approved by the Board, there will be two promenades constructed around the Spillway, the lower one being on a terrace ten or twelve feet above the general park surface in front and merging into the bank at the rear.

It is proposed to screen the face of the terrace with perennials and dwarf flowering shrubbery planted in masses and interspersed with large boulders and rockeries of creepers. The shrubbery gradually becoming more robust towards the rear so as to blend in with the foliage along the base of the side hill. Behind the terraced walk referred to a random jointed stone retaining wall capped with a substantial dressed lime stone parapet provides a second promenade on a much higher level. This broad and elevated promenade encircles the Spillway building proper, the principal access to it being by a broad flight of steps in front leading to a landing thence by steps on either hand to the proper level; while at the rear the promenade will form a junction with the existing walk along the foot of the slope from the rear of the refectory building on the north, and with a new walk proposed to be terraced along the side hill from the Spillway southwards as far as Table Rock House, from which ever changing panoramic views of the Horse-shoe Fall may be had.

Sufficient soil will be placed at the base of the retaining wall for the upper promenade to sustain a vigorous growth of vines and creepers, whose drapery will in a year or two effectually screen off the stonework from view. The copper roof and cornice of the main building will project several feet over the main promenade, supported on massive ornamental iron brackets.

Without question this roomy and commanding outlook will be very much appreciated by visitors to the Park as owing to its location it will be comparatively free from spray, while its elevation and proximity to the river will afford most charming prospects in every direction.

Immediately to the south of the Spillway Terrace is the small portal building, which has been designed to harmonize with, and form part of the picturesque development of the Spillway. The structure is ornate and well proportioned, constructed of Indiana limestone, and roofed with copper.

The doorway is protected by a deep canopy of glass and ornamental iron work, and the interior will be handsomely fitted up and furnished. A semi-circular carriage way connects the front entrance with the main park driveway.

From the portal building a short brick lined tunnel into the side hill leads to an electric elevator descending in a shaft to the power house level, where a second brick lined and well lighted tunnel has been cut through the rock to connect with the gallery floor of the power house on the lower river bank.

The tunnel from the portal building to the lower elevator is continued on into the side hill several hundred feet to a point immediately underneath the centre of the general offices of the Ontario Power Company and from this point a vertical elevator ascends directly up to the several office floors above.

The construction of this upper tunnel and shaft proved to be an exceedingly difficult and costly undertaking, the unsuspected presence of a large body of water and quicksand near the junction of the two necessitating a resort to the use of compressed air, with its accompanying air locks and other devices for working under pressure, and much time was spent in overcoming the difficulty. The outer casing of the tunnel is of the usual cast iron ring type, made in segments bolted together—the interior lining is concrete, finished to a uniform color. The casing of the shaft is similarly of circular

cast iron section but is not lined with concrete save near its junction with the tunnel.

Much levelling and cleaning up has been done about the power house of the Canadian Niagara Company during the year, and, with the exception of the top dressing of good soil over the disturbed areas, practically the whole of the works of this Company have been completed. A few of the temporary wooden buildings used by the contractors during the construction of the plant have yet to be taken away but these will all be removed before the opening of spring.

Notwithstanding the comparative mildness of the winter of 1905-6 and the protection works devised by this company to keep floating ice out of the forebay, it was with great difficulty that the ice and frazil could be prevented from interfering with the operation of the works; additional protection has therefore been made by sheeting the face of the outer rack with heavy iron plates which will act as a solid barrier to the surface floating ice passing down the stream at the intake. In addition to this precaution the company have adopted a very ingenious method for preventing ice which may pass through the rack below the barrier from forming into a solid mass. A very substantial screw-driven ice boat has been constructed to ply about the forebay between the bridge and the power house, the motive power being electricity supplied through a trolley carried on feed wires suspended high above the surface of the water. This trolley boat can traverse the whole area of the forebay without difficulty, and is expected to keep the ice broken up and force it into the ice weir to be carried hence back into the river well below the intake. So far the weather has been too mild to permit of a proper test of its efficiency being made.

The Electrical Development Company's surface works have made good progress during the year; the heavy excavations of the forebay and the construction of the southern extremity of the forebay wall were brought to a conclusion by mid-summer, and active work upon the removal of the massive cofferdam was begun shortly after. The underground conduits through which the cables to convey the electricity generated in the power house are carried, have been completed.

On account of having to cross over the present and prospective pipe lines of the Ontario Power Company, it was necessary to build part of the conduit a little above the ordinary park level, but as the Company had a large quantity of stone and clay in the coffer dam which had to be disposed of, this material was utilized to form a mound over the raised part of the conduit. This work is very well advanced, and when finished will be made to form an attractive feature in the layout of this portion of the Park.

All the grounds about the power house have been roughly graded to the approved contours, but owing to the very extended space required for storing the materials needed in the work it has been found impossible to complete the levelling or surfacing of any of this area. All the temporary structures put up by the Company's contractors in connection with the tunnel work, and which occupied a great deal of space near the International Railway intake have been removed, and the mouth of the shaft has been substantially floored over at the ground level with only a manhole left for future access should that be required. The manhole will have an iron cover plate similar to those in use on the conduit lines in the park.

The building of the walls of the power house were begun in the spring, and sufficiently completed to permit of the permanent roof being put on the greater part of the building before winter set in. Should mild weather continue, the whole of this imposing structure will be finished by the be-

ginning of February, with the exception of the interior finishing and the placing of the windows and doors.

The removal of the cofferdam and the consequent restoration of the waters of the river to the portion of the original river bed taken for the forebay has made a very marked improvement in the appearance of the shore line from every point of view, and already the wild rush of waters which caused this portion of the rapids to be known as Tempest Point prior to the works being undertaken, have reasserted their power with only a slight change in the direction but none in the volume of the cascade which was the chief charm of this portion of the Park.

The wings of the cofferdam which connected with the works of the Ontario Power Company have yet to be taken away, when the permanent effect of all the power works upon the water views of the park from every vantage point will be made clear.

Many permanent improvements have been made in the park at Niagara Falls the past season.

The Mowat Gate, the principal entrance to the park, and which was constructed of cedar work when the park was established in 1887, was greatly in need of renewal.

It was also found desirable to change the location to a point much nearer to the water front, and to make the driveway considerably wider than before, owing to the increased number of vehicles entering the park. The change in the location involved constructing a new driveway connecting the new entrance with the original roadway near the superintendent's office by an easy alignment and with very light grades.

The new gateway consists of two main pillars of Stanstead granite, four feet square and fourteen feet in height, surmounted with the park arms cut in granite in full relief. On either side, and leaving a clear space of nine feet for a walk in each case there is a smaller pillar of similar design but without the arms on top. These side posts are three and a half feet square and eleven feet in height,

The four gate pillars are set back seventeen feet from the line of Ferry Street, and the roadway curbstone as well as the new ornamental fence sweeps in to the gateway with a suitable curve.

The former iron post and stranded wire fence which extended along Ferry Street has been removed, and a new and handsome rock faced granite and ornamental iron panelled fence has been constructed. Owing to the steep grade on Ferry Street this fence has been built in steps, each panel above the gateway having an elevation of from three to eighteen inches above the one immediately next to it on the east. Opposite to the Ferry Street entrance to the Clifton House a pathway entrance has been made, and another near the western limit of the park for the convenience of visitors. When this work is fully completed it will add materially to the dignity and character of the northern or principal entrance to the park. The old driveway, where abandoned, has been made into a walk for the convenience of Clifton House visitors, and the spring water fountain which stands a short distance from the former entrance will be changed to conform to the new conditions.

At the picnic grounds, it was found necessary to provide much greater accommodation for picnic parties, and shelter in case of rain or heavy spray. This was accomplished by constructing an additional shelter building of permanent materials similar in its general characteristics to the one described in the last annual report excepting that the hot water apparatus has been installed on the floor level instead of underneath, and the length is about

sixty feet instead of one hundred and twenty. In connection with this shelter suitable lavatory conveniences for men and women have been provided. Reference has been made in former reports to the recession of the waters of the river from the vicinity of Table Rock owing to the cutting away of the apex of the Horseshoe Falls, and to the filling up of the river bed to the general park level, which was done from the surplus materials excavated from the works of one of the power companies. Who were also obliged to build a heavy revetment wall along near the edge of the cliff in order to protect the filling and form a foundation for a suitable parapet wall. This parapet has been constructed after the same general design as the one built by the Ontario Power Company overlooking the power house. The copings and piers are of rock-faced Queenston limestone, with ornamental panels of iron work. The alignment follows the general direction of the cliff and as close to it as was considered prudent, and curved recesses have been made at either end where seats will be placed for the convenience of visitors desiring to rest while enjoying the unrivalled views of the river and surroundings here afforded.

Ultimately, when the filled in portion has been properly protected by riprap, it may be found desirable to extend this parapet as far south as the intake of the International Railway Company as the character of the work is entirely suitable, and the protection which it would afford to visitors at this much crowded point would be very great.

Advantage was taken of the grounds which the Power Companies had levelled off and surfaced by early spring, to plant out a large consignment of imported stock, much of it of a half hardy nature, which added materially to the aesthetic restoration of these portions of the park. Some very choice specimen bay trees and evergreens of various kinds were also planted out for the summer in the grounds about the refectory building, making a very fine display at this central point from early summer to the close of autumn.

As all the half hardy stock requires to be put into shelter for the winter, an addition was made to the storage capacity of the building specially designed three years ago by the chief gardener for this particular purpose. This most useful adjunct of the greenhouse is a simple underground construction with concrete walls and steep roof of double glass, the roof only showing above the surface. A space below the roof is left for packing in straw protection against cold, and provision is made for regulating the admission of sunlight. By the adoption of these measures the gardener has wintered safely, and had in perfect order in the spring, all the semitropical plants which have been so far procured for the park.

As has been noted on several previous occasions, the greenhouse accommodation in the park is altogether too small for the valuable stock of plants now on hand, the consequence being that not only have the plants insufficient room for normal development but additional stock cannot be housed. An entirely new conservatory of generous proportions is most urgently needed.

As an indication of the very favourable conditions for the growth of plants which obtains at the Queen Victoria Niagara Falls Park, it may be instanced that on the 21st of January, 1906, the gardener picked from the perennial bed near the Jolly Cut entrance to the park, a bouquet of flowers growing freely in the open, and on the 10th of January, 1907, about a dozen full blown specimens of the *Heleborus niger* or Christmas Rose were gathered to make into a funeral wreath.

As the Mowat Gate, to which reference has already been made, was not required in connection with the handsome new stone entrance to the park,

it was removed from the front on Ferry Street and set up at the base of the hill near the cricket grounds, the sections being re-arranged so as to make a convenient shelter and dressing rooms for the citizens frequenting the cricket and lawn tennis grounds. Although constructed of wood, the enclosed parts of the gateway building had stood the test of the years remarkably well and but little outlay was required to adapt it to its new purpose; the numbers who took advantage of the provisions which have been made for outdoor recreation in the park are increasing from year to year and the addition of two more lawn tennis courts and a bowling green would be greatly appreciated.

The rustic shelters built at Inspiration Point and "Ramblers' Rest" are greatly in need of renewal, these light structures of open cedar work roofed with elm bark have served a good purpose for eighteen years, and as they are located at two of the most desirable view points on the margin of the cliff, the present structures, which will in any case have to be removed in the spring, should be replaced by suitable erections of a permanent character and of ornate design and construction.

The two small wooden buildings now used as shelters for the park constables, one located at the Dufferin Gate entrance and the other near the International Railway power house, are unsuited for the purpose and should be replaced by neat little structures of stone or brick to harmonize with the permanent character of all the new erections in the park. The cost of these shelters would be great, while the annual outlay for repairs would be much less than at present.

Notwithstanding the very large number of excursionists and picnic parties who visited the park in the summer months, good order has been maintained throughout. The decrease in the number of workmen employed in the power development works, who were largely foreigners, has made the task of preserving the peace less onerous than for the past four years.

The very important work of protecting the shore line of the river between Chippawa and Fort Erie from erosion has been carried on during the past season, and a further reach of one and four-tenths miles has been rip-rapped and made secure against the cutting action of the water. Up to the present time fully three and two-thirds miles of the worse points on the river have been attended to, and as the erosion is actively going on at various points, aggregating a total of about two miles more, the protection work already put in has on several recent occasions been subject to very severe tests by reason of extremely high water accompanied by a strong wave action; at many points the water rose above the level of the rip-rap and threatened the clay banks above, but only at two or three places where the protection had not been carried to its full height was any damage occasioned, and even there it was but slight, and will be easily repaired. On the whole, the method adopted has accomplished the purpose for which it was designed, and will prove a permanent barrier against further erosion. The work should be continued in 1907, until the remaining two miles are likewise protected.

No additional lands to widen the highway were purchased during the past year. At several points, however, where land had been acquired previous to 1906, a new roadway was constructed and the travelled way removed from too close proximity to the steep bank of the river. Up to the present time the reserve has been widened for an aggregate distance of three miles only, and as many points remain where the road is too narrow to permit of carriages passing each other, the necessity for continuing the widening will be apparent.

The establishment of the shipbuilding works on the river three miles below the Village of Bridgeburg, and the prospect of a blast furnace and iron works in connection therewith at an early date will doubtless increase the travel between these two points.

At Fort Erie Park a large stock of hardy deciduous trees and flowering shrubs were planted out in the spring, but owing to the very severe droughts already referred to, the trees did not have a favourable opportunity to secure a proper root growth before the hot season and a great many perished. The shrubs, however, took much better hold and nearly all of them survived. They will add very greatly to the appearance of the park when they attain a year or two of growth.

The broken and uneven ground in rear of the earthworks was ploughed and harrowed in order to secure a better and more even sod. The drainage of some low ground was also attended to, the front fence newly painted, and all the grounds kept in good order throughout the year. A shelter for the public is badly wanted at this park as there is now no place where visitors can get under cover in case of storms, the place is very much exposed and the facilities for reaching shelter are at present inadequate.

Queenston Heights Park has been kept in good condition throughout and many improvements have been made during the year. New paths have been constructed to the site of the Redan battery which was visited by Major-General Brock on the morning of the famous battle on 13th October, 1812, and a cairn of granite boulders has been erected to mark the spot, upon which the Lundy's Lane Historical Society have obtained permission to place a suitable memorial tablet.

On the crest of the Heights, a short distance west of the monument, a new rustic shelter has been built with paths leading thereto; as this small structure occupies a commanding view point and is at the same time well sheltered by foliage it has been very much appreciated by visitors. A new path has also been constructed along the face of the heights a short distance below the crest level, with resting places at frequent intervals. This walk is shaded from the sun and several prospects of the Niagara river and valley have been opened out.

As numerous picnic parties now visit Queenston Heights, some of them being large Sabbath School and Church excursions, it would be advisable to provide additional shelter accommodation. This should be constructed of permanent materials in order to avoid yearly repairs in maintenance.

Niagara Glen continues to attract visitors in increasing numbers. All the paths and stairways have been maintained in good condition and some new paths made to facilitate access to points of interest. A new cedar work shelter was built at the entrance to the Glen to provide cover in case of storms, and the picnic pavilion near the river was provided with rustic seats and tables. A cyclone which struck across the Glen in August did considerable damage to the foliage, but as its force was confined to narrow limits, and the undergrowth was vigorous, the resultant effect will not be observable in the course of another year.

The heavy storms and high water have greatly damaged the path along the water's edge near the spring. This will require general renewal in the early part of next season.

All of which is respectfully submitted.

JAMES WILSON,
Superintendent.

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