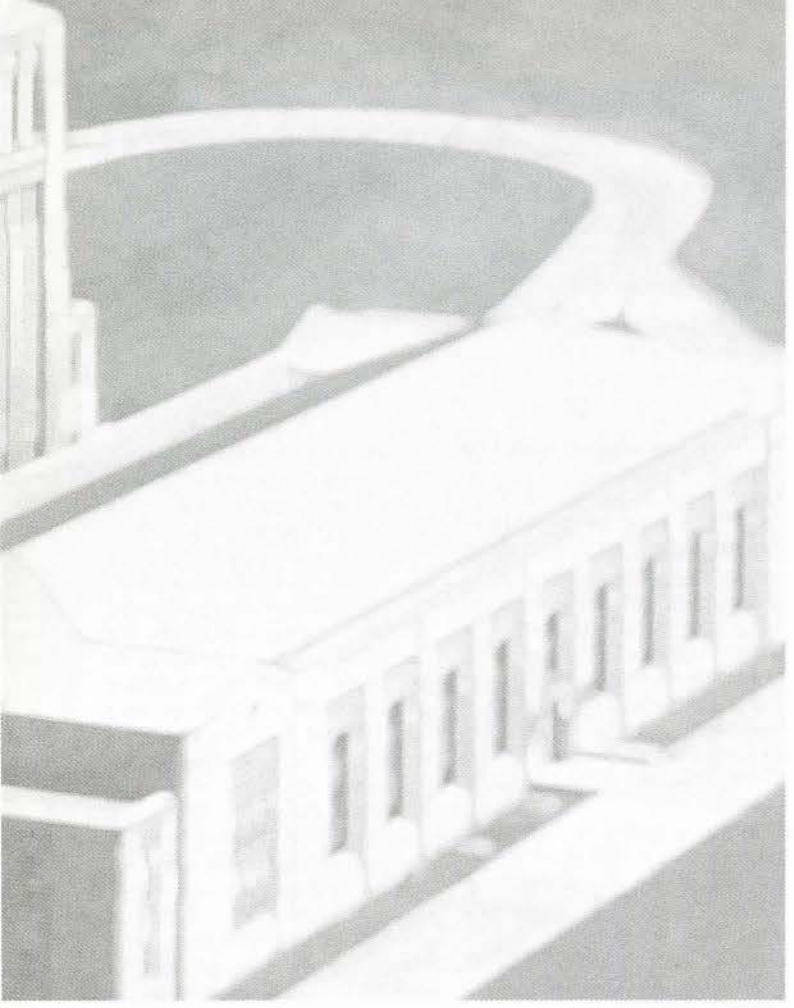

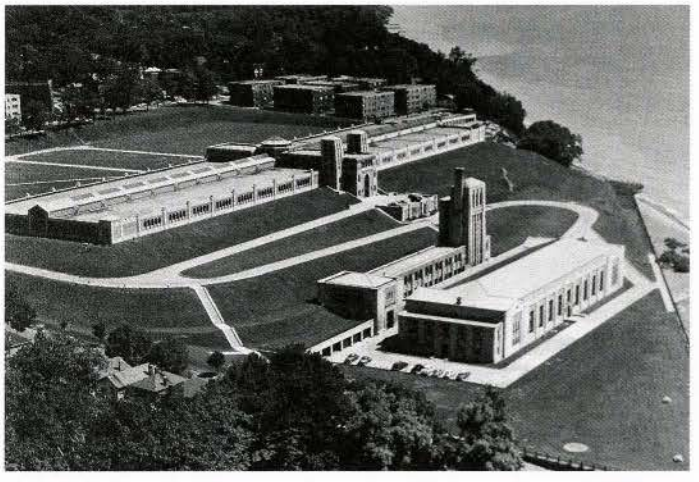

Fig. 1. R.C. Harris Filtration Plant from the west, after completion of the filter building east wing in the late 1950s. The filter building is at the top of the slope, with the administration block in the centre, between flanking towers. Downhill on the centre axis is the terrace and fountain. The service building is embedded in the slope, with buried garages at the west end and the alum tower at the east. The freestanding temple volume of the pump house faces Lake Ontario.
(City of Toronto Archives, Public Works Collection, series 160.)

Steven Mannell is associate professor in the Faculty of Architecture, DalTech, Dalhousie University, Halifax

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Steven Mannell

The Palace of Purification

The "Palace of Purification" of Michael Ondaatje's 1987 novel *In the Skin of a Lion*,[1] the R.C. Harris Filtration Plant was built on the former Victoria Park at the east end of Queen Street in the 1930s and expanded in the 1950s (Fig. 1). The plant remains the principal source of filtered, pressurized water supply for the Toronto region. The scale and ambition of its construction relate directly to the titanic figure of Commissioner of Works Roland Caldwell Harris; lurking in Harris's shadow is the sketchy figure of the architect Thomas Canfield Pomphrey. The heroic confidence of the architectural form and expression of the waterworks speaks of that moment in the 20th century when civil engineering and public works were taken to be great civic deeds, demanding a great civic architecture.

This paper describes the particular interweaving of architectural form and detail with the engineering of the water filtration process present at the Harris plant. It attempts to bypass the snares of specific stylistic analysis, looking instead at engineering process, building mass and detail, and landscape form as equally contributing to the final form of the plant, and equally subject to the will to civic architecture driving the design. The political and design history of the plant is sketched, emphasizing the will and vision of certain key agents in directing and realizing the works. The city-scaled civic vision of R.C. Harris, declared during the first years of his tenure as Commissioner of Works and jealously guarded through a long series of delays, is eventually given form by a most unlikely agent, the staff architect of a major civil engineering firm. Finally the work on the Victoria Park site is situated within both the larger civic vision of the Toronto Water Works Extension project (1913 through the late 1960s), and in relation to ambitious city planning initiatives in early 20th century Toronto.

The Palace

Located at the eastern terminus of Queen Street, the founding street of the eastern and western extension of Toronto, the scale and order of buildings and landscape at Victoria Park clearly set the complex apart from the city.[2] Though in detail there exists a close interplay between expressive built forms and the instrumental processes within, the massing and typology of forms do not attempt explicitly to reveal the operations of the water purification process. The waterworks is legible as a composition of pure architectural types, both figural and supporting, disposed on a fundamental landscape type, the terraced shore (see Fig. 1).

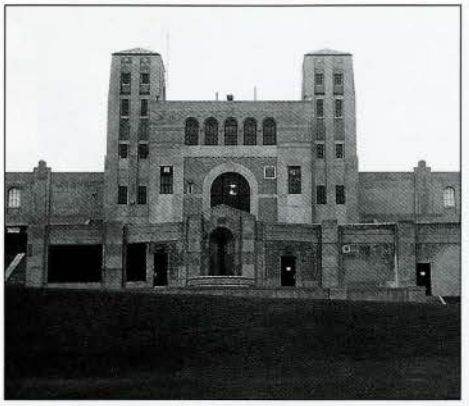

Fig. 2. View of the terrace and fountain, with the administration block beyond. (S. Mannell, 1999.)

Fig. 3. View of the complex from offshore on Lake Ontario. (*The Canadian Engineer*, 72 (February 9, 1937): 7.)

The figural types are: the palace or museum, with elaborated circulation giving on to suites of rooms (the filter building; Figs. 2, 16); the tower, with lookout belvedere (the alum tower; Fig. 10); and the temple or ballroom, a singular space of assembly (the pump house; Fig. 12). The supporting types: cryptoporticus or terrace buildings, open on one side, built into the slope (the garages; the service building); the zig zag path (the site stairs); and the meander (the 'S' curve of the drive; Fig. 1). The legibility of these fundamental types allows an architectonic reading of the complex, transcending the functional particulars.

The key published images of the plant are taken from offshore on Lake Ontario (Fig. 3), which speaks to the conscious urban myth making that underpins the project. The waterworks is meant to project a new face of the city outwards, an embodiment of a mature, self-conscious sense of the civic.[3] The image projected by the mask, its mythic associations, are more ambiguous, and wide ranging. Ondaatje offers a Byzantine city: "[Harris] pulled down Victoria Park Forest and the essential temple swept up in its place, built on a slope toward the lake. The architect Pomphrey modeled its entrance on a Byzantine city gate, and the inside of the building would be an image of the ideal city."[4] Temple and tower are placed outside the gate of the administration block, each topped by a hipped copper roof. The roof surfaces of the filter pools are suppressed, with the pilasters of the perimeter walls extending freely above the coping as merlons, enhancing the reading of these as city walls. The view from the lake offers other associations, equally exotic: the pump house as seaside casino or ballroom, with the main palace beyond and above, a composition that was a favoured subject of many late-19th century Beaux-Arts exercises.[5]

The combination of a great clarity of architectural types with a veiling of the operational specifics has allowed for the mythic availability of the waterworks, its susceptibility in local culture to apocryphal tales of gypsy pageants, secret balls and midnight prowling.[6] Historically, this myth-projection aspect of the waterworks was much enhanced by its very extended construction period (Fig. 4). Begun in 1930, the buildings and grounds were complete by 1937, but due to the installation of equipment and wartime austerity measures, the plant remained, in the public imagination, mysteriously empty and unused for a further four years.

De Luxe

The specifics of the architectural language follow the Beaux-Arts mode of the site planning. The buildings are executed in yellow

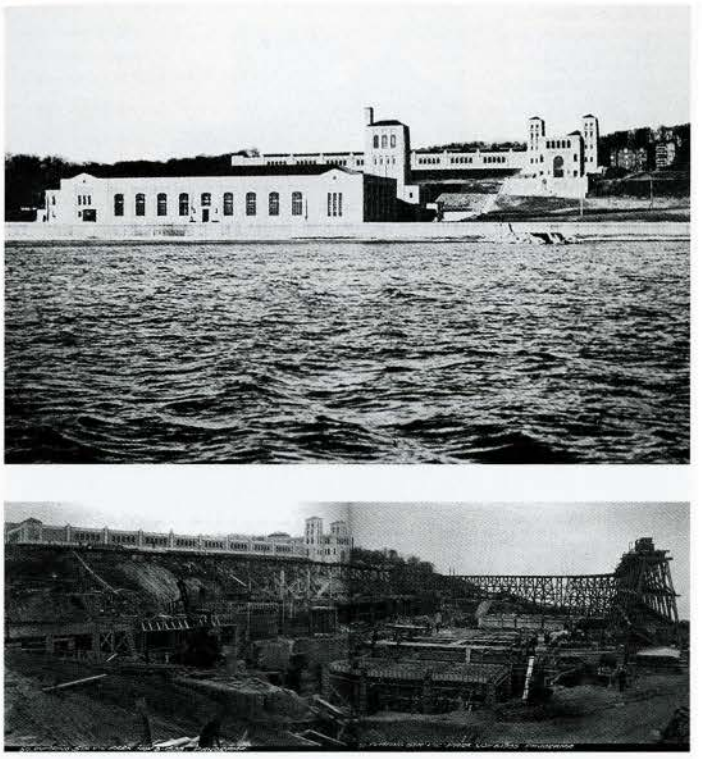

Fig. 4. Construction view, November 6, 1935 (Arthur Goss, photographer), with pump house and service building in the foreground, and filter building beyond. (City of Toronto Archives, Public Works Picture Collection, RG-8, series 77, negatives 50 & 51.)

brick and Queenston Limestone, with copper flashings and roofs, and black painted metal work, including considerable ornamental bronze work. Decorative relief carving provides an iconography of water process, for example in the turbine frieze of the pump house (Fig. 5). The figural buildings are all developed with modeled walls featuring expressed orders of pilasters and frieze in limestone; sloped copper roofs mark the edges of these buildings. The service buildings are given more simply expressed wall surfaces, though using the same materials and generally the same ordering rhythm of openings.

The richness of material and detail is not a thin veneer stretched across the external surfaces of an otherwise prosaic engineering building. The interior spaces of the buildings are given the same sort of stately classical ordering, and are worked out with a scale and proportion fully in keeping with the exterior. Finishes are equally rhetorical in their civic connotations. Terrazzo floors, herringbone tile wainscoting, black marble and limestone trim, bronze hardware, are deployed throughout the accessible spaces of the waterworks. The actual control and monitoring of the filtration and pumping process is given iconic status throughout the complex. Controls are placed upon custom designed pedestals in positions of architectural honour, and monitoring devices are enlarged to monumental scale, broadcasting the operations of the works from commanding, quasi-sacred locations.[7]

The Pump House is entered through a carefully detailed vestibule at the west end, centered on a drinking fountain niche which divides traffic through flanking symmetrical routes to the pump room. The pump hall is a singular monumental volume,

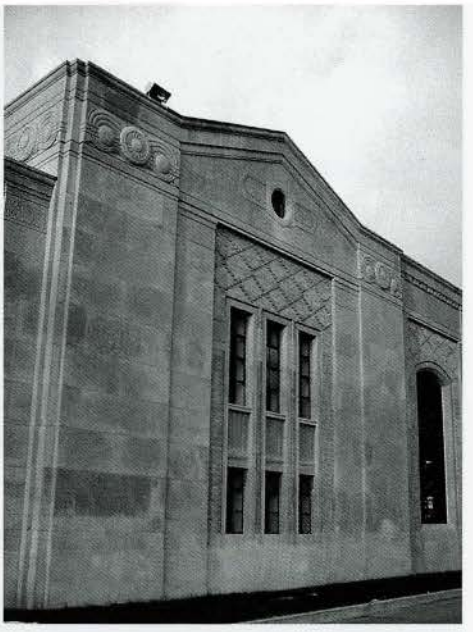

Fig. 5. Pump house ornament, with stylized turbines as pilaster capitals. (S. Mannell, 1998.)

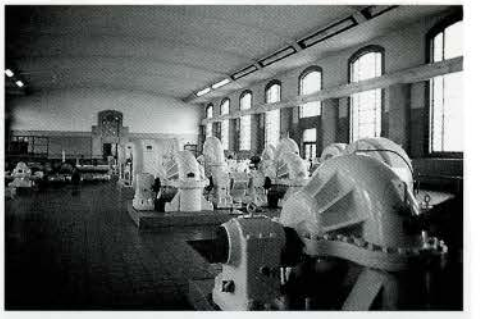

Fig. 6. View of the pump hall, showing the orderly arrangement of pumps below the vaulted plaster drop ceiling. (S. Mannell, 1997.)

with a large well at the east end for the low level pumps, all contained by the shallow vault of the plaster ceiling (Fig. 6).[8] Below the ceiling, the nautilus shells of the electric pumps are laid out in orderly ranks on the tile floor. A walk-out balcony off the mezzanine control room provides a central surveillance point, reached by a pair of flanking stairs. Opposite the viewing balcony is the pump monitoring panel, giving monumental architectural presence to the operation of the equipment.

At the top of the slope, the entry to the filter building occurs through a monumental triumphal arch flanked by battered towers (Fig. 2), leading to a grand stone stair to the main level. Clerestory-lit arches flank the concourse masking chemical rooms and offices on each side, the heavy pilasters giving expression to the weight of the wash water reservoirs above. The concourse in turn arrives at the filter rotunda (Fig. 7). This octagonal space leads to the filter galleries heading east and west, with small offices and laboratories occupying the diagonal corners. Opposite the concourse is a vast glazed bronze screen, allowing views to the ranks of chlorinators[9]; in front of the chlorine room are tucked open stairs, leading to the pipe gallery below. Centred in the rotunda is the signal pylon, a stone obelisk with monitoring lights and dials, giving at a glance readings of the time of day, rate of filtration in millions of gallons per day, and depth of water in the reservoirs. The rotunda is toplit through a milk glass skylight, giving a certain sub-aqueous feel to the atmosphere.

East and west are the filter galleries, marked out in bays by round-arched portals corresponding to the rhythm of the filter bays visible on both sides through huge glazed screens (Figs. 8, 9). The galleries are toplit by linear skylights with the same milky glass of the rotunda; the filter galleries have clear glazed exterior windows, so that direct daylight reflected up from the surface of the filter pools supplements the limpid light of the gallery. White plaster finishes all surfaces above the black stone wainscot cap; the centre of each filter bay is marked by a stone pedestal, surmounted by a bronze and glass filter control unit. Glazed screens also close the round arches at the extreme east and west ends of the galleries.

Both the pump house and the filter building were expressly designed to accommodate the public for tours;[10] the grand scale of their interior spaces also served to remind plant workers of the public nature of the operations. Between these two buildings are a pair of objects that are purely honorific. The tower at the east end of the services building is topped by a belvedere that provides one of the finest, most singular spaces in the complex, yet a space that is physically accessible only by navigating a labyrinth of stairs and corridors. The result is a mysterious, physically inaccessible eccentric room, one that is inhabited vicariously from the outside (Fig. 10). The terrace building, with its convex central swelling, marks out and sustains the central axis of the composition; on the down slope side, the niche and bronze fountain make explicit the line of the incoming raw water conduits below. This moment of pure symbolic form, perched above the huge concrete conduits below, is exceptional (Fig. 2).

Fig. 7. Filter rotunda showing the signal pylon. (S. Mannell, 1997.)

Purification

The water filtration process is fully subject to the ordering principles of the architecture, in both plan and section (Fig. 13). The intake tunnel intersects the seawall at the same point as the axis of symmetry of the site plan. After diversion to the west to the screen room and low lift pumps, occupying the lower well of the pump house, raw water passes below the alum tower where co-

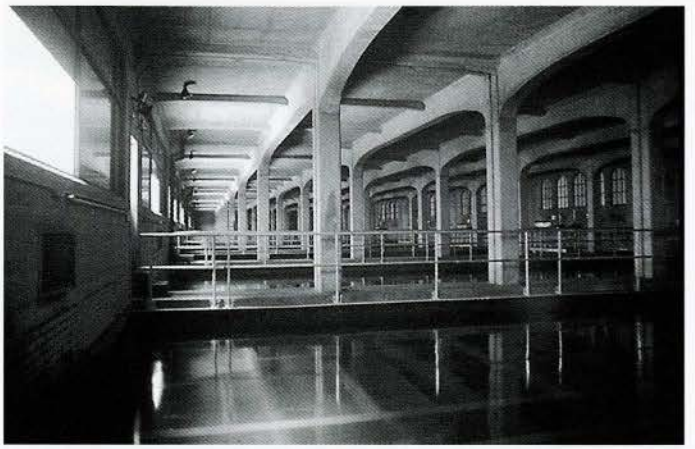

Fig. 8. Filter gallery looking towards the filter rotunda, with glazed screen to filter bed at left. (S. Mannell, 1998.)

agulant is injected, then returns to the central axis to proceed upslope, below the terrace and fountain and beneath the main stair and concourse of the filter building. Beyond the concourse, the raw water moves through mixing chambers flanking the axis below the north lawn, then spills over into subterranean settling chambers to the east and west, where the floc settles out. Clear upper water moves by gravity back south into the filter pools, which consist of sand and anthracite layers over gravel, then flows to the pipe gallery running below the filter gallery. The clean water again returns from east or west to the central axis, to be chlorinated in the space north of the rotunda. The prepared water then moves back away from the axis, into one of the two storage reservoirs below the filter pools. From the reservoirs, the water moves to one of two conduits at the west end of the filter building; either it returns to the pump house, this time to the upper level high lift pumps which distribute water to east end users, or it flows by gravity into the filtered water tunnel that runs 95 feet below lake level, along the waterfront to the John Street and Parkdale pumping stations, a distance of up to nine miles.

In its passage from raw to filtered, the lake water moves along paths and through spaces that are all composed with explicit reference to the architectural order of the complex; even the valves in the lawn above the settling basins are laid out to sustain the architectural rhythm. There is also a certain element of play in the relation of the above-grade architecture and human paths with the subterranean route of the water, and a good deal of architectural enjoyment of those moments where the paths are crossed: the pump room, the alum tower, the filter galleries, and the chlorine room in particular.[11]

The filter galleries have clear precedents in other contemporary waterworks, though the rotunda and concourse appear to be architectural inventions.[12] The development of the gravity feed tanks of the alum flocculant into a belvedere captures the architectural possibilities of an operational necessity (Figs. 10, 11). The

Fig. 9. View of filter bed, with glazed screen to filter gallery at right. (S. Mannell, 1998.)

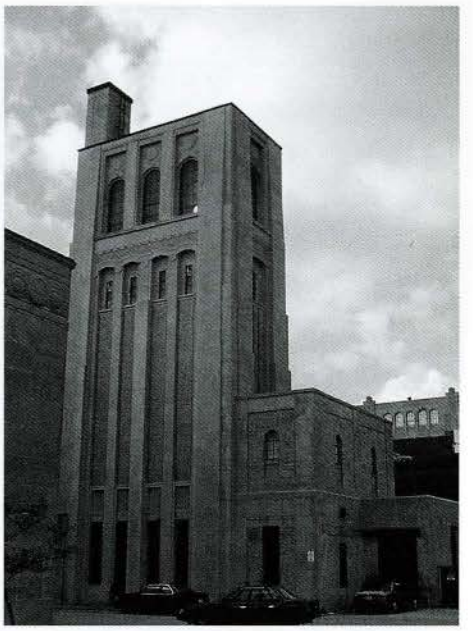

Fig. 10. Alum tower from the south. (S. Mannell, 1998.)

pump house, a building which is elsewhere an appendage, is here given a freestanding temple-like volume at the forefront of the composition (Fig. 12). This particular architectural freedom was enabled by the recent development of reliable hydroelectric power and electric pumps, which freed the Victoria Park works from the need to provide backup steam pumps and the associated coal bunkers, loading facilities and smokestacks.[13]

The immediate ancestor to the Victoria Park works is the Lemieux Island filtration plant in Ottawa, completed by the same design engineers in 1932, using the same filtration technology and the same major elements: filter building with monumental filter gallery, separate freestanding pump house, and alum tower. The architectural detailing is a rudimentary version of that deployed at Victoria Park, but at Ottawa the architectural order exerts minimal influence on the organization of the filtration process.[14]

The Commissioner

The driving force behind the civic vision embodied in the Victoria Park Water Works was Roland Caldwell Harris, who in 1912 became Toronto's Commissioner of Works for life. Harris's ascent to the Commissioner's office was unlikely, but in retrospect seems almost predestined. Harris first went to work at Toronto City Hall as an office boy at the age of 12. He worked his way up through the City Commissioner's Department, becoming chief clerk and finally was named Commissioner of the Property Department, at age 30 by far the youngest senior bureaucrat.[15]

In June 1912, Charles Rust resigned as Works Commissioner in the wake of numerous scandals related to the water supply, including typhus outbreaks and the pumping of polluted harbour water in the system. Shortly after beginning operations, the new Island plant supply proved inadequate, and raw lake water was mixed with filtered water to meet demand. Rust's resignation occurred just as the Board of Water Commissioners issued their report on the future of Toronto's water supply, which recommended the duplication of the Island intake and filtration facility, as well as the construction of a new facility at

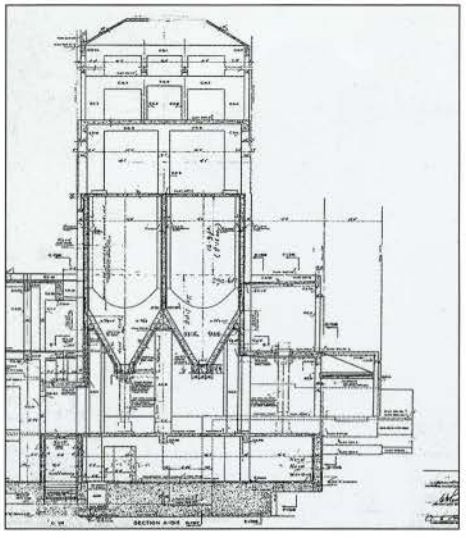

Fig. 11. West-east section of the alum tower showing gravity feed alum hoppers.
(H.G. Acres & Co. Ltd. and Gore, Nasmith & Storrie, *Water Works Extension: Victoria Park Pumping Station and Service Buildings Contract Drawings* [Toronto: City of Toronto Department of Works,] 1934, sheet P-1315.)

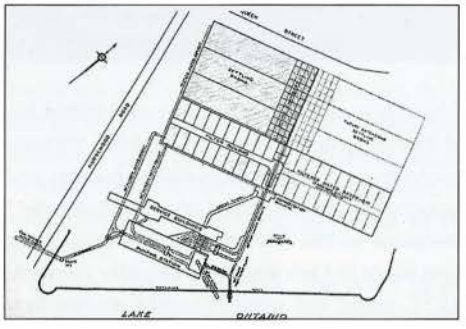

Fig. 13. Plan diagram showing the formal order of the water filtration process in relation to the architectural composition.
(*The Canadian Engineer*, 72 (February 9, 1937): 8.)

Scarborough Heights, well beyond the eastern boundary of the city.[16]

Harris was named Commissioner of Works and City Engineer, despite his lack of engineering credentials (in fact Harris never used his title of City Engineer). Mayor Hocken announced Harris's appointment as saviour: "In Mr. Harris we have a man of aggressive militant earnestness, whose appointment...is a source of gratification to every member of council and to the citizens generally."[17] Harris's identification with his civic work was complete. From 1902 until 1915 he lived with his family in a third-floor apartment at City Hall; in 1915 he moved to a house on Neville Park Boulevard, overlooking his chosen site for the new waterworks.[18]

Harris's first act as Works Commissioner was to reject the Board's report, and undertake a report of his own.[19] His chosen site was Victoria Park, just outside the eastern city limit (Fig. 14). Once the engineering advantages have been discussed, Harris goes on to argue the civic value of the location: "It is proposed to erect handsome buildings, which, in conjunction with the park section and the beach, will constitute one of the most beautiful areas in Toronto."[20] The site planning of this proposal is sketchy, but the will to civic presence is manifest in the offshore intake crib. A large octagonal structure fitted with navigation lights, it would have formed a commanding presence, day and night, offshore of the eastern beaches. Perhaps in an effort to gain favour with the Commissioner, The Midford Co., a Toronto contractor, commissioned a painting of this offshore crib by the noted marine artist Mr. Vivian Williams, and invited the Commissioner to view the painting at his leisure in their offices. Harris delegated his assistant James Milne, who on June 16, 1914 provided Harris a one-page report with written description, noting that "the picture is a pleasing one and is a very fair representation of what the crib may be," accompanied by a sketch.[21]

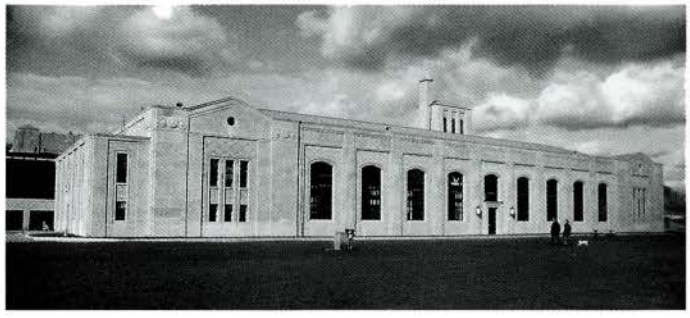

Fig. 12. The temple-like volume of the pump house viewed from the seawall, with the Alum Tower beyond.
(S. Mannell, 1998.)

Harris's report tied the new waterworks closely to his other early pet project, the Prince Edward Viaduct across the Don Ravine at Bloor Street, designed by Harris's staff in consultation with the architect Edmund Burke.[22] This design was under construction by 1915. The viaduct had long been promoted by the Civic Arts Guild, which published numerous projects involving City Beautiful ideals in the context of improvements to roads, parks and public utilities. The Guild's vision of a compact, dense city centre, with radial roads to a park-lined perimeter, was a major influence in the civic ambitions of Harris's projects as Works Commissioner.[23] His 1913 report envisioned a water system with three major new components, at Victoria Park, St. Clair Ravine, and Parkdale, respectively just east, north and west of the existing city limits. Each site was to be designed in the manner of "handsome buildings" set within public parks. Reservoirs were to be covered to provide grass park surfaces above, not conventional practice at the time.

The grand vision of Harris's waterworks was to remain on hold for considerable time, due to both the intervention of the war and the conservatism of city council, much enhanced by ongoing sniping from the former Board of Water Commissioners. City council approved the duplication of the Island works in 1913, a project for which Harris seemed to have little affection. The Victoria Park expropriation bylaw, passed in 1913, was repealed in 1915; Harris's move to the neighbourhood can be seen as his effort to stand guard over his project. With the threat of subdivision by the owner, the Victoria Park site was finally expropriated by the city in 1923, and in 1925 H.G. Acres and William Gore were commissioned to report on a duplicate waterworks.[24]

The 1926 report of Acres and Gore reads as the new testament to Harris's 1913 old testament.[25] "The scheme above described is substantially in harmony with the conception of the Commissioner of Works, as outlined in his 1913 report..."[26] All the major discussions and recommendations are keyed back to the 1913 report, and are presented as confirmations of Harris's previous conclusions: a new filtration and pumping works at Victoria Park; a new reservoir and monumental tower at St. Clair Ravine, and a new pumping station at Parkdale, all to be handsome civic buildings disposed in park settings. The site plan pub-

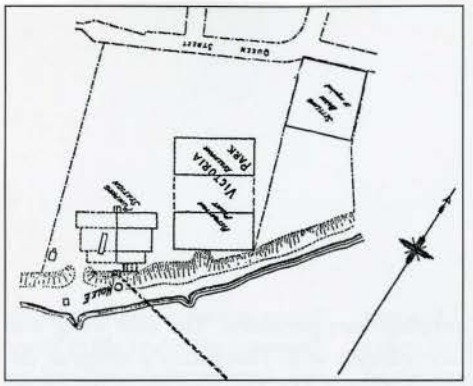

Fig. 14. Site plan of Victoria Park Water Works, 1913 Commissioner's Report.
(R.C. Harris, *Report of the Commissioner of Works on Additions and Extensions to the Toronto Waterworks Pumping and Distribution Plant* [Toronto,] 1913; plate no. 5.)

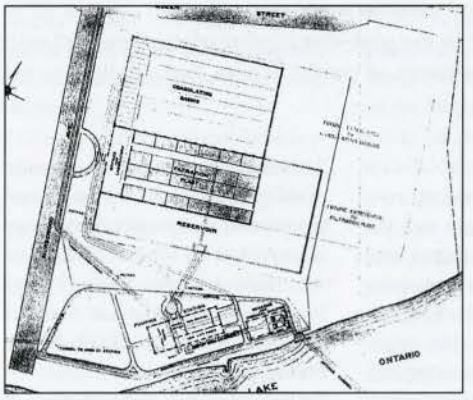

Fig. 15. Site plan of Victoria Park Water Works, 1926 Acres & Gore Report.
(H.G. Acres and William Gore, *Report on Proposed Extensions to the Water Works System* [Toronto,] 1926; plate no. 8.)

lished with the 1926 report is only marginally more refined than that of 1913 (Fig. 15). There are hints of architectural formality in the circular drive off Nursewood Avenue, and indications of a concrete seawall and quite extensive regrading of the site, but the general sense of the plan is scrappy. City council approved the Water Works Extension project in 1927, with work to proceed immediately on the Victoria Park and St. Clair Ravine components of the project.[27]

Harris's ambition for the civic qualities of the project became clear quite quickly. William Storrie provided a general plan and perspective sketch of the proposed Victoria Park complex to Harris in 1928; Harris shot back a memo demanding much greater attention to the architectural detailing.[28] By June 1929 some degree of satisfaction had been achieved. In the June 1929 issue of *Contract Record*, William Gore published a detailed description of the Water Works Extension, illustrated with a remarkable rendered plan and elevation of the proposed filter building at Victoria Park (Fig. 16). This drawing portrayed the architecture and landscape treatment of the Water Works in the full maturity of its order and detail, now conceived in wholly civic architectural terms.[29]

The Architect

The mechanism of this remarkable architectural transformation was Commissioner Harris's patronage of the architect Thomas Canfield Pomphrey. Pomphrey apprenticed in Scotland prior to emigrating to Toronto, where he worked for John Lyle, and for Darling and Pearson. He was severely wounded in the right shoulder in the war, and spent several years in convalescent hospitals in Europe, Britain and back in Toronto. A wounded veteran, in 1924 he and William Ferguson won the competition to

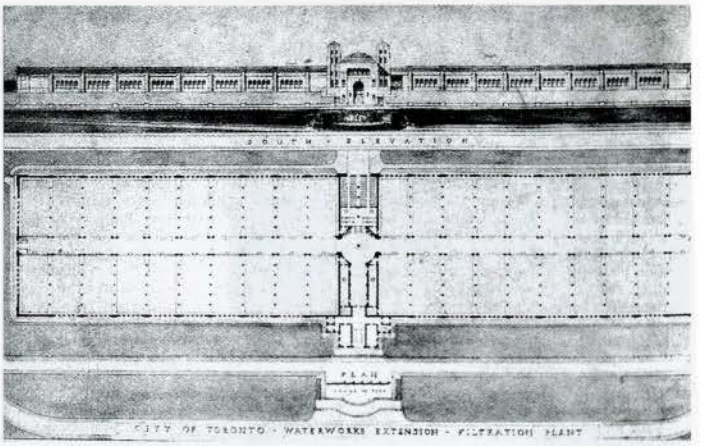

Fig. 16. Rendered plan and elevation of filter building, 1929. The wing to the right of the central administration block was not constructed until 1955.
(*Contract Record and Engineering Review*, 43 (June 19, 1929): 729.)

design the Great War Cenotaph, erected at the head of Bay Street in front of City Hall.[30] This fragment of civic improvement may have brought Pomphrey to the attention of Harris. Pomphrey had been staff architect for Gore, Nasmith, Storrie since late 1920, and had a hand in the detailing of the Lemieux Island Works in Ottawa and in the new high level pump building in Toronto; his name shows up in the Victoria Park billings from 1927.[31] Harris's assessment of Pomphrey's role in the project is encapsulated in a memo to Gore in 1931, insisting that Pomphrey's signature should appear on everything architectural in the contract documents.[32]

The St. Clair Ravine Reservoir was also completed as part of the first phase of the Water Works Extension. The small portal building at the base of the embankment and the valve house at the top are a miniature version of the architecture/ engineering interplay of Victoria Park.[33] The climax of the collaboration between architect Pomphrey and patron Harris is the St. Clair Overhead Tank, located at the southern "prow" of the reservoir (Figs. 17, 18). The steel water tank is encased with vertical limestone pilasters topped by copper finials. Continuous decorative copper panels are set between pilasters, flanked by yellow brick. The language of material and iconography of the Victoria Park buildings is carried forward in the tank, in an even more highly rhetorical manner.[34]

Elegy: the tower and the east filter gallery

The completion of the Victoria Park works marked a bittersweet moment in the career of R.C. Harris. In 1932 council officially named the works the "R.C. Harris Pumping and Filter Plant"[35], though Harris insisted that his staff continue to use "Victoria Park."[36] As the finishing work proceeded, and as the economic situation worsened, the high level of material quality and spatial ambition became a political liability. In 1933, council refused to grant funds to execute the ornamental overhead tank at the St. Clair Reservoir. The engineers responded with revised drawings of a prosaic steel tank; Harris canceled the tank altogether.[37]

In the summer of 1941 the mothballed plant was the centrepiece of the annual convention of the American Water Works Association, and given huge attention in the trade press.[38]

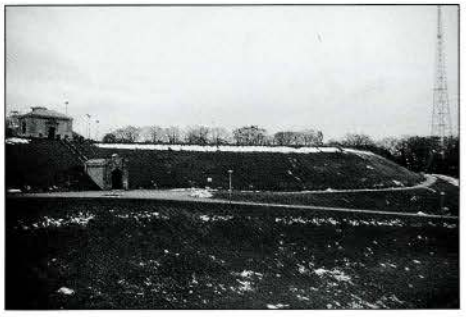

Fig. 17. St. Clair Reservoir, built 1929. The grass mound conceals the reservoir, with the tunnel portal at the bottom and valve house at the top of monumental public stairs. The top of the reservoir accommodates playing fields and tennis courts, part of a ravine park. St. Clair Overhead Tank was to be at the extreme right end of the mound, commanding the view down the ravine.
(S. Mannell, 1997.)

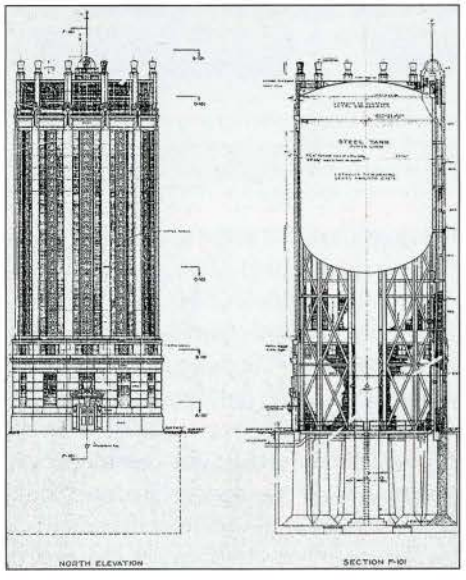

Fig. 18. St. Clair Overhead Tank, 1933, working drawing elevation, and section showing the steel tank concealed behind the masonry mask.
(H.G. Acres & Co. Ltd. and Gore, Nasmith & Storrie, *Water Works Extension: Overhead Tank District No. 3 Contract Drawings* [Toronto: City of Toronto Department of Works,] 1933, sheet R-101.)

Finally and without ceremony, the water began to flow through the plant on November 1, 1941. After Harris's death in 1945, the plant was again given his name.[39] The completion of the Water Works Extension continued in fragments. The Parkdale Pumping Station was built in the early 1950s,[40] on a workmanlike site plan in minimally detailed red brick, while the St. Clair Tank was never built.

The ultimate moment of truth for the Victoria Park works came in 1955, after the assumption by the new Metropolitan Toronto government of the water supply system. Demand had grown sufficient to justify completion of the east wing of the filter building. What Commissioner Harris understood as "Public Works" was by this time increasingly called "infrastructure," and its former visible civic role traded in for an aspiration to invisible omnipresence. Material and financial shortages of the post-war period combined with the production expediencies perfected during the war were largely to remove the aesthetic and civic dimensions of their work from the attention of the engineering profession, while the ascendancy of international style modernism and the post-fascist discomfort with overtly monumental forms left the Victoria Park works in an ambivalent relationship to the architectural profession.

In the end it was the engineers, many Harris's former staff members, who ensured the continuation of the Commissioner's civic vision. After much debate, the new Metropolitan Works Commissioner L.B. Allan finally came down on the side of public works; in 1955 he approved the use of decorative stone in the new wing.[41] Allen had been head of the Roads division under Harris from the late 1930s, and perhaps some shadow of the civic will of the former Commissioner persisted. The east wing was carefully detailed in accordance with Pomphrey's original design and contract drawings (Figs. 1, 16). This was much discussed in the engineering and utilities trade press, though unnoticed in architectural circles.[42] In the post-war climate of progress and utility, architectural treatment of public works had again become remarkable.[43]

Notes

1 Michael Ondaatje, *In the Skin of a Lion* (Toronto: Penguin Books, 1988). In Ondaatje's novel, the plant is an icon of an emerging bureaucratic order in the city and a projection of the will to civic order of the Commissioner of Works; during the course of construction the plant and grounds are invaded by gypsies, labour activists and others seeking to wrest public space from this captivity in the hands of responsible officials and to return it to the free use of the crowd.

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2 A very thorough documentation of the physical features, engineering process and project chronology is provided by Wayne C. Reeves, *R.C. Harris Filtration Plant: Heritage Inventory and Historical Analysis* (Toronto: Metro Works & Metro Planning, 1987).

3 The view from Lake Ontario is predominant in the early publications of the plant in the trade press: see "New Pumping Station and Service Buildings, Toronto, Ont.," *The Canadian Engineer*, February 9, 1937: 7-9, a progress report upon completion of the buildings; Norman J. Howard, "Trends of the Past Year in Water Purification," *Water & Sewage*, January 1941: 13-15, 46-53; the cover of *Water & Sewage*, March 1941; and "Toronto's Victoria Park Water-Purification Plant and Pumping Station," *Water & Sewage*, June 1941: 30-31, 104. In all three articles the lead image is the lake view. This lake view was also a favorite of suppliers and contractors in their congratulatory advertisements in the trade press at the time of commissioning: see advertisements for The Nichols Chemical Company, *Water & Sewage*, June 1941: 67; Chas. Warnock & Co., *Water & Sewage*, June 1941: 85.

4 Ondaatje, *In the Skin of a Lion*, 109.

5 Arthur Drexler, *The Architecture of the Ecole des Beaux-Arts*, (New York: Museum of Modern Art, 1977).

6 Ondaatje, *In the Skin of a Lion*, 115-121. Secret passageways and sub-

aqueous entrances feature prominently in the lore of the surrounding Beaches neighbourhood, and the guides employed by Toronto Works to lead the very popular public tours of the plant generally spend some time debunking these stories.

7 Great architectural care was lavished on these locations; see H.G. Acres & Co. Ltd., and Gore, Nasmith & Storrie, *Water Works Extension: Victoria Park Filtration Plant Contract Drawings* (Toronto: City of Toronto Department of Works, 1932), sheets F-605 (for filter control pedestals) and F-606 (for the control pylon in the rotunda); and H.G. Acres & Co. Ltd., and Gore, Nasmith & Storrie, *Water Works Extension: Victoria Park Pumping Station and Service Buildings Contract Drawings* (Toronto: City of Toronto Department of Works, 1934), sheet P-1344 (for the pump signal panel).

8 See Acres and Gore, Nasmith & Storrie, *Victoria Park Pumping Station and Service Buildings Contract Documents*, sheets P-1340, P-1344. Based on a preliminary review of contemporary waterworks projects in the trade journals *Water & Sewage* and *Water Works & Sewerage*, the Victoria Park plant is the first instance of a decorative suspended ceiling in a pump hall.

9 Photographs of the chlorinators are given prominence in several contemporary publications of the plant: see in particular the cover of *Water Works & Sewerage*, January 1941, showing "At Toronto, the World's Largest Super and Dechlorinating Plant [at the new Victoria Park Water Works]"; the lead article in that issue is Norman J. Howard, "Progress of the Year in Water Supply and Purification"; the author was president of the American Water Works Association and Director of Water Purification for the City of Toronto, and he discusses, among other developments, the new Victoria Park works in terms of its filtration and purification processes. This reflects the Toronto Works Department Water Supply Division's pride in its development of the widely-adopted "super-chlorination" technique, originally worked out as a retrofit at the Island Plant and becoming a fundamental operating principle behind the design of the Victoria Park plant. On super-chlorination: Rudolph E. Thompson, "Chlorination Improvements as Exemplified in the Toronto Water Purification Plants," *Water & Sewage* 79 (June 1941): 54.

10 The west entrance of the Pumping Station was designed as an assembly and service point for public tours; see Acres and Gore, Nasmith & Storrie, *Victoria Park Pumping Station and Service Buildings Contract Documents*, sheet P-1335 (for general layout) and P-1345 (for decorative stone details).

11 Filtration process description adapted from Metro Works, *Water Supply: R.C. Harris Filtration Plant* (Toronto, 1997).

12 Formal and operational precedents can be reviewed in the annual survey articles of developments in North American water purification practice and new purification facilities published in *Water & Sewage and Canadian Engineer* from 1929 through 1941, with ample photographs, usually featuring views of filter galleries and pumping halls.

13 The elimination of steam pumps was one of the few benefits of the otherwise frustrating delays in the project between Harris's 1913 Report (in his critical review of the 1912 Report, Harris states: "5. The proposal to instal electric pumps without steam reserve, is imprudent." 1913 Report, p. 13) and Acres and Gore's 1926 Report; reliable hydroelectric power from two separate sources (Niagara and Queenston) only became plausible in the mid-twenties. The involvement of H.G. Acres, design engineer of the Niagara hydroelectric installations, in the Water Works Extension project certainly contributed to this advanced (even risky) stand on back up power at a time when steam backup was seen as an unquestioned necessity.

14 For the Lemieux Island works, see William Gore, "Water Purification Problems at Ottawa," *The Canadian Engineer*, March 18, 1930: 119-121; W.E. MacDonald, "Water Purification Plant at Ottawa," *Contract Record and Engineering Review*, April 27, 1932: 439-459.

15 For an overview of the life and work of R.C. Harris, see The Market Gallery of the City of Toronto Archives, *The Architecture of Public Works: R.C. Harris Commissioner 1912-1945* (Toronto: City of Toronto Archives, 1982).

16 The Board of Water Commissioners, *Report upon the Existing Water Works System and Upon an Additional Water Supply* (Toronto, 1912); for an early history of Toronto's water supply, see Ellwood Jones, and Douglas McCalla, "Toronto Waterworks 1840-77: Continuity and Change in Nineteenth Century Toronto Politics," *Canadian Historical Review*, 60 (1979): 300-323; Board of Water Commissioners, "Part V., Historical and Descriptive Data", *Report upon the Existing Water Works System and Upon an Additional Water Supply*, 49-61; and R.C. Harris, "The Toronto Water Works System," *Journal of the American Water Works Association*, December 1929: 1609-1619.

17 Market Gallery, *The Architecture of Public Works*, 6.

18 Market Gallery, *The Architecture of Public Works*, 4.

19 R.C. Harris, *Report of the Commissioner of Works on Additions and Extensions to the Toronto Waterworks Pumping and Distribution Plant* (Toronto, 1913). The report was largely the work of Harris's staff engineer James Barr and Professor Robert W. Angus of the University of Toronto, but the extensive correspondence between Harris, Milne and Angus during the preparation leaves little doubt that the Commissioner provided the directing vision of the report. See Metro Toronto Archives and Records Centre (MTARC), series 13, files 208, 209 & 210.

20 Harris, *Report of the Commissioner of Works*, 15.

21 Harris, *Report of the Commissioner of Works*, plate 3. Milne's report and sketch: MTARC series 13, file 211. The painting itself has not been located.

22 While still Property Commissioner, Harris managed to have council reject Works Commissioner Rust's in-house design in favour of an international competition; upon his appointment as Works Commissioner, Harris then convinced council to reject the results of that competition, and give responsibility for the design back to the Works Department. See Hans Werner, *Bridging Politics: A Political History of the Bloor Street Viaduct* (Toronto: Hans Werner, 1989). For Burke's role in the bridge design, see Angela Carr, *Toronto Architect Edmund Burke: Redefining Canadian Architecture* (Montreal: McGill-Queen's University Press, 1995).

23 Toronto Guild of Civic Art, *Re-*

port on a Comprehensive Plan for Systematic Improvements in Toronto (Toronto, 1909). Diagrams by architect and Guild member John M. Lyle dated 1911 showing possible alignments of the viaduct and approaches are found loose among the Guild papers in The Baldwin Room, Toronto Reference Library.

24 As noted above, H.G. Acres was design engineer for the Niagara hydroelectric installations; for the Toronto Water Works Extension, his firm was principally responsible for the design of power supply, and water intake, pumping and distribution. Gore, Nasmith & Storrie were principally responsible for the design of the water filtration system; see "Personalities connected with the Ottawa, Ont. Filtration Plant," *Contract Record and Engineering Review*, April 27, 1932: 457-459.

25 H.G. Acres and William Gore, *Report on Proposed Extensions to the Water Works System* (Toronto, 1926).

26 Acres and Gore, *Report on Proposed Extensions*, 4.

27 *Toronto City Council Minutes 1927*, App. "A," 105-110, 365, and App. "B," 74 (cited in Reeves, *Heritage Inventory*, 39).

28 MTARC, series 13, file 310. The engineers' covering letter to Harris is filed, but the perspective drawing that raised Harris's concerns was filed separately, and has not been located.

29 This drawing was first published in William Gore, "Fourteen Million Dollar Extension to Toronto's Water Supply System," *Contract Record and Engineering Review* 43 (June 19, 1929): 729. The original drawing has not been located.

30 "Toronto Cenotaph Competition," *The Journal of the Royal Architectural Institute of Canada*, Jan.-Feb. 1925: 4; and for an overview of Pomphrey's life and work, see appendix A.

31 MTARC, series 13, file 666 (cited in Reeves, *Heritage Inventory*, 41).

32 MTARC, series 13, file 311. Pomphrey's signature appears on all architectural drawings associated with the various waterworks extensions except for the St. Clair Reservoir set of 1929 (issued prior to the memo). In a separate letter to the general contractor, Harris advised that Pomphrey was to be considered as his agent on site in all matters architectural; a remarkable delegation of power given that Harris did not delegate similar authority to act on his behalf to the principal consulting engineers, who were in fact Pomphrey's employers, MTARC, series 13, file 141.

33 H.G. Acres & Co. Ltd., and Gore, Nasmith & Storrie, *Water Works Extension: St. Clair Reservoir Contract Drawings* (Toronto: City of Toronto Department of Works, 1929).

34 The foundation for the tank (but not the tank itself) was part of the scope of the 1929 St. Clair Reservoir Contract; see Acres and Gore, Nasmith & Storrie, *St. Clair Reservoir Contract Drawings*, sheet R-28; for the tank, see H.G. Acres & Co. Ltd., and Gore, Nasmith & Storrie, *Water Works Extension: Overhead Tank District No. 3 Contract Drawings* (Toronto: City of Toronto Department of Works, 1933). MTARC, series 13, file 137 contains correspondence between Harris and Gore regarding the architectural details of the tank; one tantalizing letter dated January 20, 1932 from Gore to Harris promises to send Harris a set of "architectural sketches of the tower by Mr. Pomphrey," presumably alternate elevation studies; the covering letter is present, but the drawings again are filed elsewhere and have not been located.

35 *Toronto City Council Minutes 1932*, App. "A," 960-961 (cited in Reeves, *Heritage Inventory*, 42).

36 MTARC, series 13, file 311 (cited in Reeves, *Heritage Inventory*, 42).

37 MTARC, series 13, file 138. The foundations were however built, under the terms of the original reservoir contract. In 1947, in response to a complaint from the Ward 4 Committee of Women Voters, who considered the foundations to be both unsightly and unsafe and wished them removed, Harris ordered that the foundations be protected by hoardings. Evidently even at this late date the Commissioner had hopes of reviving the tank project (MTARC, series 13, file 138).

38 Extensive coverage of the plant and its operations is given in *Water & Sewage* issues of March 1941 and June 1941.

39 *Toronto City Council Minutes 1945*, App. "A," 1190 (cited in Reeves, *Heritage Inventory*, 49).

40 H.G. Acres & Co. Ltd. and Gore, Nasmith & Storrie, *Water Works Extension: Parkdale Pumping Station Contract Drawings* (Toronto: City of Toronto Department of Works, 1945?).

41 Metro Works, file 904.01 (cited in Reeves, *Heritage Inventory*, 51).

42 Ronald Harrison, and Paul M. Emery, "Architectural Treatment for Waterworks Structures," *Canadian Municipal Utilities* 98 (March 1960): 19.

43 The R.C. Harris Filtration Plant is at present fully operational, and remains the principal component of the water supply system of the City of Toronto, capable of supplying all the water needs (apart from summer lawn watering) of a population of 2.5 million. The plant was recently designated under the Ontario Heritage Act, and is also subject to a Heritage Conservation Plan monitored by the R.C. Harris Public Advisory Committee. Over the last several years this PAC has worked closely with sympathetic plant management to restore numerous architectural features and finishes of the plant.