FROM INDIFFERENT SHELL TO TOTAL ENVIRONMENT
The Design Evolution of Toronto's Victoria Park Water Works, 1913-1936

> STEVEN MANNELL[1]

STEVEN MANNELL, NSAA, MRAIC, is a professor in the School of Architecture and director of the College of Sustainability at Dalhousie University, principal of Steven Mannell Architect in Halifax, and founding chair of Docomomo–Canada Atlantic. His research and publications include studies of regional modern heritage in Canada, spatial improvisation in lightweight construction techniques, and the architecture and engineering of twentieth-century public works.

FIG. 1. TORONTO WATER WORKS EXTENSION - VICTORIA PARK WATER WORKS (NOW THE R.C. HARRIS WATER TREATMENT PLANT), AERIAL VIEW FROM THE SOUTHWEST. THE ADMINISTRATION AND FILTER BUILDING IS AT THE TOP OF THE SLOPE, WITH THE ADMINISTRATION WING IN THE CENTRE BETWEEN THE PAIRED TOWERS, AND THE TERRACE AND FOUNTAIN IN FRONT. THE SERVICE BUILDING IS EMBEDDED IN THE SLOPE, WITH THE ALUM TOWER EMERGING AT THE EAST END, PROVIDING A BACKDROP TO THE FREESTANDING TEMPLE VOLUME OF THE PUMPING STATION. | CITY OF TORONTO ARCHIVES (CTA), PUBLIC WORKS COLLECTION, SERIES 160.

This paper traces shifts in the conception and design development of the Victoria Park Filtration Plant and Pumping Station (now known as the R.C. Harris Water Treatment Plant) over the period 1913 to 1935. My 1999 article on the complex provides a detailed description of the architecture and treatment process of the waterworks, an overview of the political history of the project, and an outline of the stages of development.[2] That earlier study showed that the Victoria Park Water Works embodies an intertwining of architectural form and engineering process, in which the engineering process is in fact ordered and composed in neoclassical manner, driven by the demands of the architectural expression. The present study considers the concept, design evolution, final design, and execution of the Harris plant through the lens of decoration and cultural symbols, and the relation of the key personalities to these expressive dimensions of the design. It also indicates the influence of Progressive Era ideals for the bureaucratic organization of civic life, and of Toronto's architectural milieu in that period.

A series of computer-aided design (CAD) models present hypothetical reconstructions of several stages in the design process, complemented by contemporary photographs and drawings. The design history of the waterworks at Victoria Park begins with a 1913 design that saw architecture as a simple housing for an engineering process, expressed in a modest language typical of public works buildings of the era. In 1926, a new design took greater care in

FIG. 2. INTERIOR VIEW OF THE PUMPING STATION, VICTORIA PARK WATER WORKS, SHOWING THE VAULTED PLASTER CEILING AND COVE LIGHTING AT THE EAVES, ALONG WITH THE TILE FLOORS, TILE WAINSCOTING TRIMMED WITH QUEENSTON LIMESTONE, AND THE VIEWING BALCONY IN FRONT OF GLAZED SCREENS GIVING ON TO THE PUMPING CONTROL ROOM. THE SUSPENDED PLASTER CEILING IS UNIQUE AMONG WATERWORKS PUMPING STATIONS. | STEVEN MANNELL, 2008.

FIG. 3. INTERIOR VIEWS OF THE COMPLETED ADMINISTRATION AND FILTER BUILDING AT VICTORIA PARK, JANUARY 18, 1935, SHOWING THE WEST FILTER GALLERY LOOKING TOWARD THE FILTER ROTUNDA (LEFT), AND THE FILTER ROTUNDA (RIGHT) SHOWING THE MARBLE SIGNAL PYLON THAT BROADCASTS INFORMATION ABOUT THE PURIFICATION PROCESS. | ARTHUR GOSS. TORONTO WATER.

developing a decorative language, but like contemporaneous waterworks built by the same design team in Ottawa and Calgary, it essentially wrapped an architectural "skin" around an uninflected engineering process. Finally, a decisive shift in 1928-1929 resulted in a design in which architectural principles of composition were extended to include not just decorative elements and finishes, but also the overall design of building masses, site planning, and even the water purification process itself. This culminating design was unique in contemporary waterworks practice for its high level of architectural ambition and execution. The composition, material, decoration, and symbolic gestures give rich and potent expression to the cultural role of the waterworks in Toronto's civic image.

THE PALACE OF PURIFICATION

The composition of buildings and landforms that constitute the waterworks at Victoria Park is the most wilful and deliberate in its space-making for its time in Toronto, an accomplished example of beaux arts classicism carried out with extensive carved limestone, buff brick with decorative coursing, copper roofs, and ornamental bronze work (fig. 1). Inside, a sequence of major public spaces accommodates tours that trace the water treatment process. Terrazzo, tile, marble, and plaster dress the surfaces, trimmed with bronze and brass. Signal lights, dials and indicators, and controls are carried out consistent with the architectural expression. The two high points of the interior route are the Pump Hall (fig. 2), with its monumental suspended plaster vault ceiling, and the Filter Rotunda, with its octagonal vault and skylight above the marble signal pylon (fig. 3). The architectural vision extends to the organization of public roads and pathways, and even to the purification process itself, all organized in strict accordance with the compositional order of the architecture. Despite a number of changes to the water treatment process over the years, the plant today remains fundamentally intact in organization, design, and detail.[3]

Report of the Commissioner of Works, 1913

Victoria Park, on the shore of Lake Ontario just east of the Toronto city limit at the southeast corner of Queen Street East and Victoria Park Boulevard, was first identified as a potential waterworks site in a 1913 city document, the *Report of the Commissioner of Works on Additions and Extensions to the Toronto Waterworks Pumping and Distribution Plant*.[4] This report was among the first major projects of the city's new Department of Works, created in 1912. Roland Caldwell [R.C.] Harris, then the property commissioner and head of street cleaning, was promoted to become the city's first commissioner of Works on the basis of his proven capacity for organization and getting things done, and, in the words of Mayor Horatio Clarence Hocken, his "aggressive, militant earnestness."[5]

R.C. Harris was a career bureaucrat at a time when the word bureaucrat was a term of approval and status; his ascent is a signal of the rise of Progressive thinking

in Toronto. The Progressive movement, at its height from the 1890s through the 1920s, was an influential effort in the cities of the United States and Canada. Progressives worked to "purify" governments (especially city governments) by abolishing the political machines that ruled many cities, and eliminate the accompanying cronyism of private water, hydroelectric, transit, and other city services.[6] Progressives also sought to "purify" human behaviour through public health education, provision of playgrounds and recreation activities, and alcohol prohibition; the challenge of pure water for cities was another central issue of concern. Scientific analysis and rational organization were the core tools of the Progressive effort. Bureaucrats (a term coined by Progressive city officials to describe themselves in positive light) worked to apply Progressive approaches to the challenges of the growing cities. Professional journals such as *The American City* enabled bureaucrats to share best practices on a continental scale; their articles advocated a visible symbolic form for the new civic works, as a way to show citizens the results of the new bureaucratic approach, and to convince them of the benefits resulting from the newly-introduced taxes and levies required to finance them.[7]

FIG. 4. "THE 'CADI' RINGS FOR HIS SECRETARY & ORDERS THE FISH WEIGHED," A CARICATURE OF COMMISSIONER OF WORKS R.C. HARRIS INCLUDED IN THE PROGRAM FOR THE FIRST "WATER SUPPLY SECTION BANQUET" OF 1913. HARRIS IS PRESENTED AS THE CADI, WITH HIS MINIONS DANCING ATTENDANCE, A GENTLE MOCKING OF THE BUREAUCRATIC NETWORK OF DELEGATION AND REPORTING INTRODUCED BY HARRIS IN THE NEW DEPARTMENT OF WORKS. | CTA, SERIES 372, SUBSERIES 41, ITEM 7.

Harris organized his new Department of Works along orderly bureaucratic lines. The authority formerly vested in the individual figure of the city engineer was now placed in custody of a bureaucratic department. Duties were delegated to specific employee roles in a network of communication, reporting, and oversight, with all lines ultimately leading to the commissioner of Works (fig. 4). When subordinates issued memoranda and instructions, these were also signed "Commissioner of Works"; the responsible official was indicated in a note in the upper right corner: "Reply to: Mr. Sanderson." All in the chain of authority spoke on behalf of the whole Department.

Though it was published under Harris's name and new title, the 1913 commissioner's report was the work of Robert Angus, a professor of engineering at the University of Toronto, and James Barr, a Works Department employee. Angus and Barr undertook extensive fieldwork, visiting recently constructed waterworks in a number of major North American cities, as well as a review of contemporary water purification literature.[8] Their 1913 report proposed a new waterworks on a site just east of the city limit at Victoria Park. Water supply was to be drawn from a shallow, minimally contaminated source in Lake Ontario, and purified by mechanical drifting-sand filtration. The report envisioned a water supply network that would integrate the new Victoria Park Water Works with the existing water supply system of the filtration plant at Centre Island (to be doubled in capacity), Rosehill Reservoir, and pumping stations at John Street and Cottingham Street.

The unrealized 1913 design for waterworks at Victoria Park is represented by a schematic site plan consisting of several rectangles clustered along the shore, with no other detail (fig. 5). To get a sense of the likely architectural development, we can look to the filter plant built to fulfill the report proposal to double capacity at the Island. This plant was in design at the time the report was in preparation, and used the same mechanical drifting-sand filters as proposed for Victoria Park.

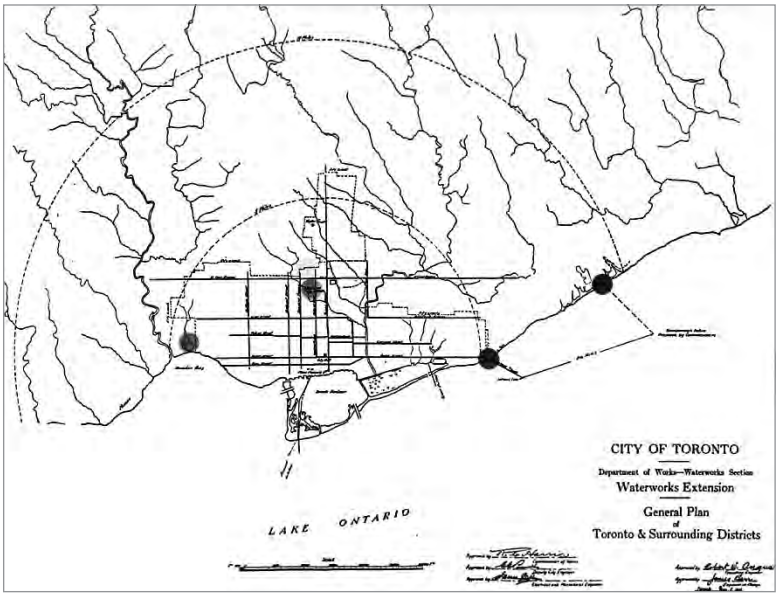

FIG. 5. OVERALL PLAN OF THE EXTENSIONS TO TORONTO'S WATER SUPPLY SHOWN IN THE 1913 COMMISSIONER'S REPORT. VICTORIA PARK IS AT THE LOWER RIGHT, AT THE END OF THE INNER SEMICIRCLE. | HARRIS, R.C., 1913, *REPORT OF THE COMMISSIONER OF WORKS ON ADDITIONS AND EXTENSIONS TO THE TORONTO WATERWORKS PUMPING AND DISTRIBUTION PLANT*, TORONTO, CITY OF TORONTO, PLATE NO. 1.

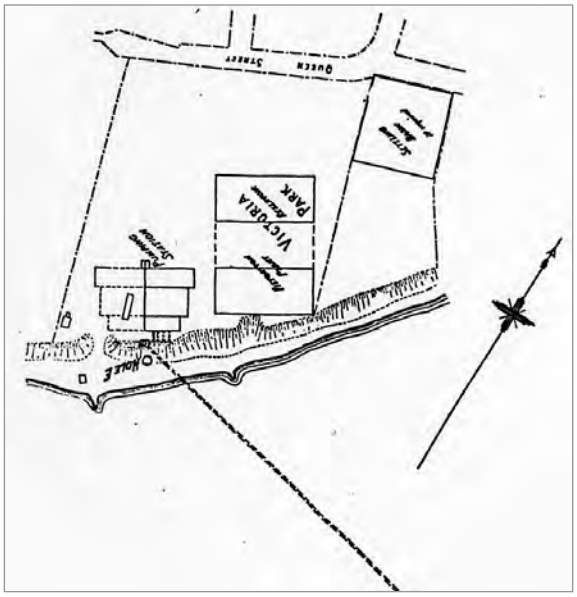

FIG. 6. SITE PLAN OF THE VICTORIA PARK WATER WORKS SHOWN IN THE 1913 COMMISSIONER'S REPORT. | HARRIS, R.C., 1913, *REPORT OF THE COMMISSIONER OF WORKS ON ADDITIONS AND EXTENSIONS TO THE TORONTO WATERWORKS PUMPING AND DISTRIBUTION PLANT*, TORONTO, CITY OF TORONTO, PLATE NO. 5.

The Toronto Island Drifting-Sand Filtration Plant (figs. 6-7), designed by the John Ver Mehr Engineering Co. of Toronto and built between 1914 and 1918, utilized the new patent "Gore-Ransome Filter." Large riveted steel plate cylinders housed the filters; multiple cylinders were arrayed each side of a long elevated Filter Gallery in the main Filter Building, with controls and monitoring gauges on pedestals in front of each filter (fig. 8).[9] Below the Filter Gallery was a Pipe Gallery, giving access to the clear water outlet pipes and the sand washers. The basic cross-section anticipates the filter galleries in the classic rapid-sand plants of the 1920s and 1930s, discussed below. The drifting-sand filters did not provide antibacterial action, so chlorine was required after filtration; the process also required the addition of an alum flocculant prior to filtration. The Chemical Building, for storage and handling of the alum and chlorine, was placed beyond the Pumping Station, which housed electric motor pumps and a power-generating apparatus of boilers and dynamos, adjacent to a tall smokestack. Wharf frontage was flanked by a railway track, for delivery of coal, sand, and chemicals to the Island by the Works Department's fleet of barges, tugboats, and ferries.

The architecture of the drifting-sand plant is unassuming. Buildings of conventional, rectangular forms are developed in a language of round-arch windows in massive brick walls, with tiled hip roofs and (often bracketed) overhanging eaves. Unconventional forms required by new treatment processes are awkwardly resolved: for example, the Chemical Building, a flat-topped, truncated cylinder rendered in stucco on the exterior housing the chemical feed. Supplementary equipment, including the backwash water tower and supply cranes, are left exposed, with no architectural adornment.

The design and construction of the drifting-sand plant introduce two key figures to the story: William Gore, engineer and co-designer of the patent filter, and William Storrie, previously the resident engineer for the original Island filter plant construction. Both were employees of the John Ver Mehr Company; with bacteriologist Colonel George Gallie Nasmith, at the time head of Toronto's Municipal Laboratories, they founded the engineering and bacteriological consultancy Gore, Nasmith, Storrie in 1919. The success of the Island Drifting-Sand Plant provided an important credential for the new firm, which would go on to become the preeminent water and sewage design consultancy in Canada.[10]

RECONSTRUCTION MODEL – VICTORIA PARK WATER WORKS, 1913

The reconstruction model elaborates the site plan of the 1913 report using the forms and details of the Island Drifting-Sand Plant: a simplified Romanesque language of round-arch openings in walls of flat red brick, relieved by occasional

FIG. 7. OVERALL VIEW OF THE DRIFTING-SAND FILTRATION PLANT AT CENTRE ISLAND, AUGUST 27, 1918. THE STUCCO CYLINDER HOUSES CHEMICAL STORAGE, WITH A FAN OF CHEMICAL FEED BASINS IN THE LOW ROUND BUILDING AT ITS BASE. BEYOND ARE THE PUMPING STATION, THEN THE SMOKESTACK FOR ITS COAL-FIRED POWER GENERATORS FOR THE PUMPS, AND FINALLY THE LONG FILTER BUILDING. | ARTHUR GOSS. CTA, SERIES 372, SUBSERIES 72, ITEM 897.

FIG. 8. VIEW OF THE FILTER GALLERY OF THE DRIFTING-SAND FILTRATION PLANT AT CENTRE ISLAND, AUGUST 27, 1918. THE CENTRAL SKYLIT ACCESS PLATFORM IS FLANKED BY RANKS OF CYLINDRICAL RIVETED STEEL GORE-RANSOME FILTERS; THE PLATFORM WIDENS TO HOUSE THE FILTER OPERATING CONTROLS. THE STRUCTURE IS LEFT ENTIRELY EXPOSED, WITH NO DECORATIVE FINISHES OR MATERIALS. | ARTHUR GOSS. CTA, SERIES 372, SUBSERIES 72, ITEM 896.

brick quoins or stone sills and keystones (fig. 9). Hipped roofs are clay tile, with overhangs all around and slight expression of rafter timbers. Interior roof and gallery structures are trusses made of small steel members, triangulated for roofs and latticed for the gallery floors. There are no suspended ceilings or plaster walls outside of the laboratory and offices, leaving exposed the concrete structure and walls of industrial brick and tile. The resulting appearance is familiar and unremarkable in the context of 1910s Toronto, typical of railway yard structures such as the switch tower at John Street, car barns, and other utilitarian structures around the city.

Like the Island buildings, the 1913 Victoria Park design clusters all facilities at the shore, close to a presumed wharf that would take advantage of the Works Department's existing supply fleet. There is no indication of a rail line for coal supply, though one is mentioned in the text; as the design provides steam power for pumping, significant quantities of coal would be required on an ongoing basis, along with the chemicals and personnel. The site planning offers no formal approach to the waterworks, from either the city or the lake. The buildings are placed in conformity to the internal workings of the filtration process, and the landscape design shows only necessary links and paths between the parts. Public tours and public spectacle are not part of the design ambition, at least in respect of the water filtration process itself. Development of the remainder of the site is not shown in the plates, but the text promises "handsome buildings, which, in conjunction with the park section and the beach, will constitute one of the most beautiful areas in Toronto."[11] As shown by the prosaic qualities of the reconstruction model, achieving this promise awaited significant future development of the building and landscape design. The high point of public expression in the 1913 report is the offshore intake crib, which is shown in the plates in some detail. The reconstruction model demonstrates the monumental character of the crib (fig. 10); fitted with navigational lights, it would have provided a day and night public spectacle of water supply to viewers on the boardwalk and in the amusement parks of the eastern beaches.

Report on Proposed Extensions, 1926

The outbreak of war in 1914 combined with fiscal conservatism led Toronto's Board of Control to cancel the proposed Victoria Park Water Works, relying on the doubled capacity at the Island to meet the city's needs; in 1915, the bylaw to expropriate the site was rescinded. Harris remained convinced of the importance of Victoria Park in Toronto's water future, and the site returned to prominence after the war, with the 1926 publication of the *Report on Proposed Extensions to the Water Works System, Toronto*, by Henry Girdlestone Acres and

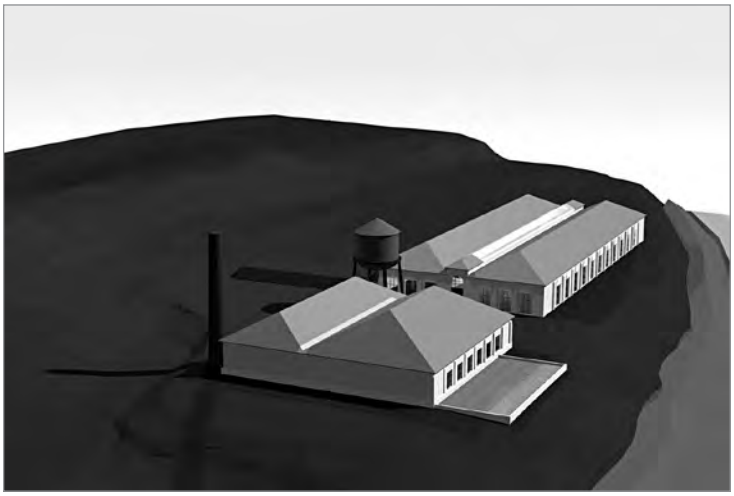

FIG. 9. RECONSTRUCTION OF THE 1913 DESIGN FOR THE VICTORIA PARKS WATER WORKS, WITH THE PUMPING STATION IN THE FOREGROUND AND THE FILTER BUILDING BEYOND. THE LAKE IS TO THE RIGHT. | DIGITAL MODEL AND RENDERING BY STEVEN MANNELL AND CHAD JAMIESON, 2003.

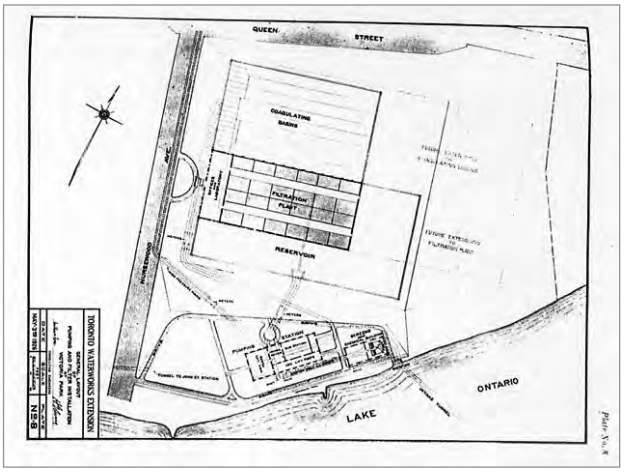

FIG. 11. SITE PLAN OF THE VICTORIA PARK WATER WORKS, FROM THE 1926 ACRES AND GORE REPORT. | ACRES, H.G. AND W. GORE, 1926, *REPORT ON PROPOSED EXTENSIONS TO THE WATER WORKS SYSTEM*, TORONTO, CITY OF TORONTO, PLATE NO. 8.

FIG. 10. RECONSTRUCTION OF THE OFFSHORE INTAKE CRIB OF THE 1913 DESIGN FOR THE VICTORIA PARKS WATER WORKS SHOWING THE EXTERIOR AT NIGHT (LEFT), AND THE INTERIOR WITH THE UPPER LEVEL ACCESS GALLERY TO CREW'S QUARTERS (RIGHT). | DIGITAL MODELS AND RENDERINGS BY STEVEN MANNELL AND CHAD JAMIESON, 2003.

FIG. 12. GLENMORE WATER WORKS, CALGARY, 1934. VIEW OF THE DAM AND BRIDGE, WITH THE WATERWORKS BUILDINGS BEYOND. | STEVEN MANNELL, 2001.

William Gore, consulting engineers. This report forms a "new testament" to the 1913 commissioner's report, proposing a water supply network design "substantially in harmony with the conception of the Commissioner of Works, as outlined in his 1913 report..."[12]

Acres and Gore's text repeats the 1913 promise of handsome civic buildings disposed in park settings, and the buildings remain clustered by the shore of Lake Ontario (fig. 11). A rudimentary formal public front is presented to Nursewood Road, in a semicircular drive arriving at the central front door of the Administration and Filter Building, with Filter Gallery beyond in a "head-and-tail" arrangement. Organizing the major entry axis to serve Nursewood Road, a modest residential street, sets a low level of public ambition for the design. A lake wall and adjoining walkway along the lakeshore offer the waterworks site as a public park extending the beach and boardwalk system to the west. The Pumping Station and the Service Building sit along the walkway, creating an ensemble oriented toward Lake Ontario, but disconnected from the entry drive/administration/filter axis above. The design uses a submerged water intake, replacing the offshore spectacle of 1913 with a shore-based spectacle in which the waterside buildings provide a monumental destination at the east end of the beach and boardwalk system, highlighted by the enclosure of the alum feed tanks within a tall beacon tower.

Beyond the schematic site plan, no architectural detail is provided in the plates or in contemporary descriptions in the professional press. At the time of that report, both authors and their consulting

FIG. 13. GLENMORE WATER WORKS. THE MAIN FAÇADE OF THE ADMINISTRATION WING FACING THE RESERVOIR, SHOWING THE CLASSICAL ORDER OF THE PAVILION VOLUME AND THE PROJECTING STONE VESTIBULE AT THE MAIN ENTRANCE, CREATING A VIEWING TERRACE ABOVE. | STEVEN MANNELL, 2001.

FIG. 14. GLENMORE WATER WORKS. DETAIL OF THE MAIN ENTRY DOOR SHOWING THE ORNAMENTAL BRONZE WORK, AND THE WAVE-FORM FRIEZE BRACKETING THE HEXAGONAL MEDALLION CARVED WITH THE "CWW" MONOGRAM. | STEVEN MANNELL, 2001.

firms were active in the design of waterworks facilities in other cities, and the vocabulary of form and organization proposed for the Victoria Park Water Works in 1926 is consistent with these. All are predicated on a major shift in filtration technology. By the 1920s, the state-of-the-art technique was rapid-sand filtration, as worked out at Cincinnati (Ohio) and St. Louis (Missouri). Ranks of cylindrical riveted plate steel Gore-Ransome filters deployed in the Toronto designs of the early teens are replaced by an *in situ* construction of perforated clay tiles for pure water collection, with layers of anthracite, gravel, and ever-finer sand above. Rapid-sand beds offered several significant advantages over drifting-sand systems. Construction was simple: rather than a specialized piece of manufactured equipment, the rapid-sand bed was an *in situ* assembly within the fabric of the building.[13] Like the Gore-Ransome method, rapid-sand filtration required the use of an alum flocculant to gather and remove large particles before filtration, and the use of chlorine as a bacterial disinfectant. Early experiments with this filter type were carried out by Gore, Nasmith, Storrie in the 1920s, in a test filter bed constructed on Lemieux Island in the Ottawa River.[14]

Rapid-sand filter beds were used in all of Gore, Nasmith, Storrie's major waterworks projects in the 1920s and 1930s, including Ottawa's Lemieux Island works, Calgary's Glenmore works, and the Hamilton works, and at the Niagara Falls works designed by H.G. Acres & Co. In these and other contemporary waterworks across Canada and the United States, filtration process components quickly became standardized, and architectural enclosures came to have characteristic forms. The predominant published images of filtration plants in that era are views of the filter galleries, typically developed as a tall linear space, toplit by skylights or clerestory windows, and flanked by visible ranks of filter beds.[15] For clues to the appearance of the 1926 design for Victoria Park, the best sources are two projects completed in the early 1930s by Gore, Nasmith, Storrie, with Thomas C. Pomphrey as responsible staff architect.

GLENMORE WATER WORKS, CALGARY, 1929-1934

A massive dam and heroic reinforced concrete arches carrying a causeway above dominate the image of the Glenmore Water Works in Calgary, completed in 1934 (fig. 12).[16] The water treatment buildings are placed casually along the shore of the resulting Glenmore Reservoir. The Administration and Filter Building is organized in the same "head-and-tail" arrangement shown in the 1926 site plan for Victoria Park, and deployed at numerous rapid-sand plants of the era, including the Lemieux Island Plant in Ottawa by Gore, Nasmith, Storrie; H.G. Acres'

FIG. 15. GLENMORE WATER WORKS. VIEW OF THE FILTER GALLERY SHOWING THE ABSENCE OF GLAZED SCREENS TO THE FILTER BEDS, AND THE TERRAZZO, TILE AND PLASTER FINISH PALETTE. THE DECORATION OF THE CEILING IS ONLY LOOSELY RELATED TO THE ORDER OF THE WALL SURFACES. | STEVEN MANNELL, 2001.

FIG. 16. GLENMORE WATER WORKS. VIEW OF THE FILTER GALLERY SHOWING THE FILTER OPERATING TABLES INTEGRATED WITH THE DECORATIVE SCHEME. | STEVEN MANNELL, 2001.

Niagara Falls waterworks; and a preponderance of the rapid-sand filtration plants constructed in many North American cities in the era. The Administration wing is expressed as an almost freestanding temple-like pavilion volume, presenting itself toward the reservoir with a three-part classical arrangement of rustic base, a tall main volume with grey Tyndall stone pilasters, and crowning cornice band of red brick, on the front and flanking walls (fig. 13). Red brick panels between the pilasters are relieved by tall unframed window openings at the main level, and limestone-encased roundels in square panels above. The entrance vestibule projects from the rustic base, offering a terrace above with view to the water source (anticipating the terrace at Victoria Park). The stone doorframe is topped by a wave-form frieze and mouldings, with the central keystone location occupied by a hexagonal stone medallion containing a stylized "CWW" logo designed by Pomphrey (fig. 14). Other ornamental devices are simple geometric shapes and wave-forms. In contrast to the developed modern classicism of the Administration pavilion, the façades of the Filter wing "tail" are flat, with stone pilasters delineating the filter bays. The Service Building and Alum Tower are remote from the Administration and Filter Building, and are composed of simple rectangular red brick volumes with grey stone stringcourses.

The Administration wing houses a monumental stone stair that leads to a typical Filter Gallery, with the tall central space flanked by a range of lower rapid-sand filter beds down each side (fig. 15). High-level daylight enters the gallery through clerestory windows. Surfaces are mostly tile and terrazzo, with limited use of marble for the top of the control consoles. Double pilasters in plaster divide the openings to the filter bays, each with upper level stone medallions echoing the round windows of the Administration wing façade. The pilasters continue in shallow plaster bent beams across the gallery ceiling. Filter beds are open to the gallery, with no glazed screens, resulting in noticeable cooling and elevated humidity levels in the gallery (fig. 16). Indicator dials and lights are located in a simple rectangular tile panel above the doors to the Administration wing, giving information about rates of flow and operation of the filters.

LEMIEUX ISLAND WATER WORKS, OTTAWA, 1928-1932

Clerestories are also used to daylight the Filter Gallery at the Lemieux Island Water Works in Ottawa, completed in 1932 (fig. 17).[17] Double pilasters in stone and plaster again divide the filter bays. Refinements over the Glenmore design include a more steeply-sloped ceiling profile, while the pilaster faces continue

FIG. 17. LEMIEUX ISLAND WATER WORKS, OTTAWA, 1932. VIEW OF THE FILTER GALLERY SHOWING GLAZED SCREENS ENCLOSING THE FILTER BEDS. THE PILASTERS EXTEND THROUGH THE ROUND ARCHES AT THE PORTAL FRAMES TO CREATE AN INTEGRATED RHYTHM. FLOORS AND WAINSCOT ARE MARBLE AND TRAVERTINE. | STEVEN MANNELL, 2001.

FIG. 18. LEMIEUX ISLAND WATER WORKS. VIEW OF THE FILTER GALLERY SIGNAL PANEL, ABOVE THE DOORS TO THE ADMINISTRATION WING. | STEVEN MANNELL, 2001.

through round arches to create a series of portals amplifying the overhead rhythm of the long gallery. Glazed screens allow a view of the filter beds while confining their coolness and humidity. Surfaces are terrazzo and stone, with the central filter operating tables rendered as an extension of the continuous surface of the low walls between. As at Glenmore, prominent indicator dials and lights are placed above the Administration wing doors, here in a shapely round-top panel of mosaic tile (fig. 18).

A "head-and-tail" arrangement of Administration and Filter Building is deployed, though here the Administration block is mostly embedded in the volume of the filters, and the stone base is held flat, with no projecting vestibule at the front door. The Administration volume presents a schematic triumphal arch rather than Glenmore's temple form: two massive flat stone pilasters frame a two-storey bronze and glass door panel, surmounted by a flat stone cornice (fig. 19). Two further stone corner pilasters, recessed from the façade and dropped down from the cornice, bracket the main arch figure. Minimal red brick surfaces delineate the stone elements. The stone base projects at each flank to create two small terraces, framed in turn by grass embankments leading up to the low Filter wing volume, where grey stone pilasters mark the filter bed divisions on the red brick walls. The Alum Tower is drawn into the main composition, placed opposite the Administration wing to frame the main driveway and entrance; the stone pilasters on the tall red brick surfaces emphasize this tower's skyward reach.

HIERARCHIES OF ARCHITECTURAL EXPRESSION

In a 1934 article on the design for the Glenmore Water Works, William Gore notes that "special attention was given to the general layout of the plant and its architectural treatment."

> The structure of the Dam is suggestive of strength and security and the design of the bridge gives a sense of scale to its sturdy proportions... The [combined] Chemical and Heating Building is logically placed and has been treated in a simple manner as a service unit built of reinforced concrete and faced with brick and stone trim... As the Administration and Filter Building has more of a public character the treatment of brick and stone has been elaborated accordingly... At the entrance hall and main staircase the floors are of travertine and the walls of Notre Dame marble. The floors of the filter gallery are terrazzo and the lower walls of the gallery and filter operating tables are tiled in mottled green.[18]

Gore's commentary lays out a hierarchy of architectural expression for the various components of the waterworks. Nobility

FIG. 19. LEMIEUX ISLAND WATER WORKS. VIEW OF THE MAIN DRIVEWAY, FRAMED BY THE ADMINISTRATION AND FILTER BUILDING TO THE RIGHT, AND THE ALUM TOWER TO THE LEFT. | STEVEN MANNELL, 2001.

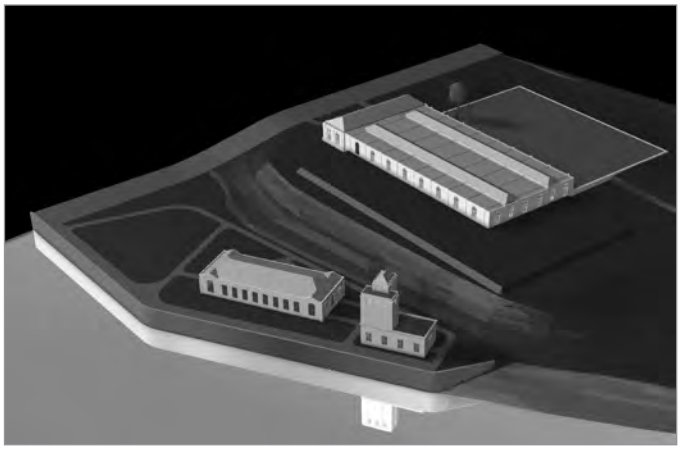

FIG. 20. RECONSTRUCTION OF THE 1926 DESIGN FOR THE VICTORIA PARKS WATER WORKS, AERIAL VIEW FROM THE SOUTHEAST, WITH THE PUMPING STATION, ALUM TOWER, AND SERVICE BUILDING IN THE FOREGROUND, ADJACENT TO THE LAKE WALL, AND THE ADMINISTRATION AND FILTER BUILDING UP THE SLOPE TO THE NORTH. | DIGITAL MODEL AND RENDERING BY STEVEN MANNELL AND CHAD JAMIESON, 2003.

of materials and quantity of architectural decoration indicate the place in the hierarchy. On the exteriors, the greater the proportion of stone elements to brick surfaces, the more public is the component. On the interior, travertine floors, marble walls, coffered plaster ceilings, and bronze railings define the major public spaces; terrazzo floors, ceramic tile and plaster walls, and simple plaster ceilings denote secondary public spaces; and a lack of finish materials altogether indicates a non-public process space. Gore concludes by noting what would become a signature decorative theme of his firm's waterworks designs: "The bronze instrument cases on the tables and the recording dials and signals are also designed as part of the architectural scheme."[19]

Application of this material "chain of being" varies between the designs. At Glenmore, highly carved decorative stone is confined to the main volume of the Administration wing, while the Filter wing is given a smooth stone base and double pilasters at the filter divisions, supporting a continuous stone cornice with two deeply-incised shadow lines. The distant Alum Tower has minimal stone stringcourses, while the Pumping Station (tucked in the base of the dam) has a light classical order inscribed in the concrete exterior surfaces. Decoded according to Gore's comments, the Administration is the prime public focus; the Filter wing provides a semi-public backdrop; the Alum Tower and Pumping Station are non-public functions, intended for view at a distance. Internally, the same hierarchy prevails: travertine, marble, bronze in the main staircase of the Administration wing lobby give way to terrazzo and tile in the Filter Gallery (where the absence of glazed screens to the filters creates an uncomfortably cool and humid atmosphere); the Alum Tower and Pumping Station interiors are unpainted concrete and industrial steel railings.

Lemieux Island deploys a quantity of stone and decoration on the Administration wing comparable to that at Glenmore. The tall stone pilasters of Alum Tower are augmented by keystones on the round windows, while stone cornices and pilasters frame the lower service volumes. The Filter wing recedes atop grass berms from the main public entry ensemble, and is given a restrained treatment of stone base and wide fluted stone pilasters. The exterior hierarchy presents the Administration wing as the main public feature, with Alum Tower playing a secondary and supporting public role, and Filter wing as repressed. This hierarchy is sustained within by the travertine, marble and bronze finishes of the Administration lobby staircase, then is overturned by the public elaboration of the Filter Gallery with terrazzo floors, stone walls, highly-developed plaster ceilings and arches, and extensive bronzework. The glazed screens provide a comfortable interior environment for visitors, supported by the prominent composition of signal dials over the door to the Administration wing, which offer public legibility of the water treatment process.

Both designs conceive of waterworks buildings as public only in certain important places, with the administration being the most important. At Glenmore, the Administration wing is presented as the fully only public space. Lemieux Island extends the public realm to include the interior of Filter Gallery, making the filtration process itself part of the public image of water supply.

Red brick and light grey stone dominate the exterior expression of both waterworks, the brick being used as a neutral backdrop for the lighter-coloured and carved stone. The lack of special handling emphasizes the mundanity of the red brick, which is given no decorative bond patterns to suggest a higher cultural status. From a distance, the light grey stone provides a strong outline to the building volumes, and a subdividing rhythm to the long flank walls of the Filter wing. The stone speaks in a simplified classical architectural language, with emphasis on expressing fundamental architectonic elements including lintels and sills, pilasters and cornices, and keystones; stone surrounds frame the main entrances. Details of the carved stone decoration reveal the ambition of these waterworks to surpass their everyday role as provider of a functional necessity to symbolize higher civic values. The specific motifs used in the stone carving are fairly ordinary for their time. These incorporate simplified classical motifs—fluted pilasters, flattened mouldings, and stepped cornices—similar to those found in the work of modern classicists such as Paul Phillipe Cret, intermingled with motifs drawn from contemporary Art Deco, including wave-form carvings on the door surrounds and zigzag shell forms on the cornice at Lemieux Island. Polygonal medallions bearing a stylized monogram are the high point of the exterior decoration, eloquently framed by the custom stone door surrounds; Pomphrey designed a special variant medallion for each waterworks.

RECONSTRUCTION MODEL – VICTORIA PARK WATER WORKS, 1926

The reconstruction model applies the massing and architectural expression of the Glenmore and Lemieux Island waterworks to the site plan of the 1926 Acres and Gore report. The result is a Victoria Park Water Works presenting an ad hoc assemblage of nicely detailed brick and stone buildings, clustered at the southwest corner of an otherwise mostly untouched site (fig. 20). The modesty of the formal approach is demonstrated in the backwash water tank, a simple manufactured water tower without architectural dressing. The façades of the Service Building and Pumping Station, set above the seawall and backed by the flanks of the Filter wing, offer a public presence to the waterworks seen from Lake Ontario, and the Alum Tower offers a notable landmark beacon from the beaches and boardwalk to the west (fig. 21). Viewed from a distance, the 1926 design for the Victoria Park is a low-key complex, consistent in its architectural qualities with the waterworks at Calgary and Ottawa.[20]

HARRIS'S VISION AND POMPHREY'S VISUALIZATION – FILTRATION PLANT AT VICTORIA PARK, 1929

Thomas C. Pomphrey was the staff architect for Gore, Nasmith, Storrie on all three projects, and seems to have carried out his work with care, but within a very limited scope, restricted to dressing the surfaces and devising the decoration for layouts and massing largely developed by the engineers responsible for the purification process. The resulting modest expression at Calgary and Ottawa and shown in the reconstruction of the 1926 Victoria Park design indicates that the remarkable architectural qualities of the Victoria Park Water Works we see today are not a straightforward result of a skilled architect at work. Much more than the internal logic of the design process was required to transform the workmanlike design from the mundane project of 1926 into the extraordinary "Palace of Purification" visible today.

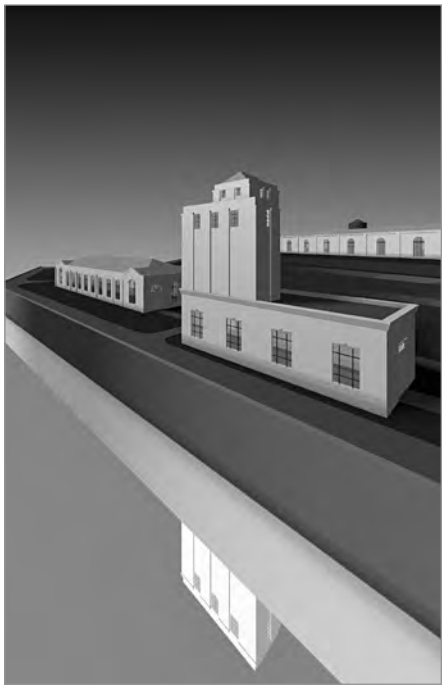

FIG. 21. RECONSTRUCTION OF THE 1926 VICTORIA PARKS WATER WORKS, VIEW FROM THE LAKE SHORE. | DIGITAL MODEL AND RENDERING BY STEVEN MANNELL AND CHAD JAMIESON, 2003.

In February 1928, with detailed design work well underway in the engineers' offices in Niagara Falls and Toronto, Harris received copies of the preliminary drawings for the first component, the Filtration Plant at Victoria Park. Fifteen years after his original report, his response to the drawings was neither relief nor satisfaction, but instead a restless concern that the proposed realization did not measure up to his vision. He composed a firm letter to William Storrie: "The buildings as shown on the perspective sketch appear to me to be plain and unattractive."[21]

Storrie's reply sent two days later, after meetings with Harris's staff, was backpedaling and contrite: "We note what you have to say regarding the buildings shown on the perspective sketch but this was only got out in order to give a better idea of the relative location of the various

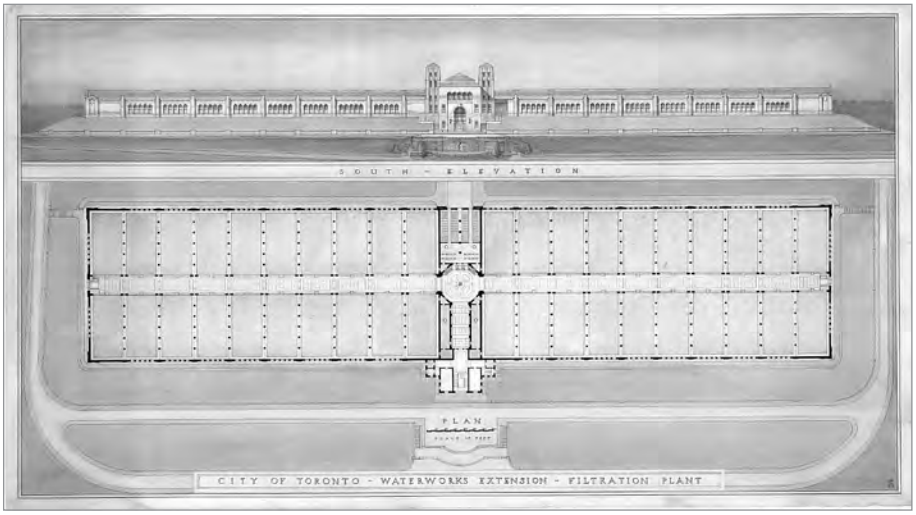

FIG. 22. THOMAS C. POMPHREY'S INK-AND-WASH RENDERING OF THE SOUTH ELEVATION AND GROUND FLOOR PLAN OF THE VICTORIA PARK FILTER AND ADMINISTRATION BUILDING, 1929. | DRAWING: THOMAS POMPHREY, 1929. TORONTO WATER.

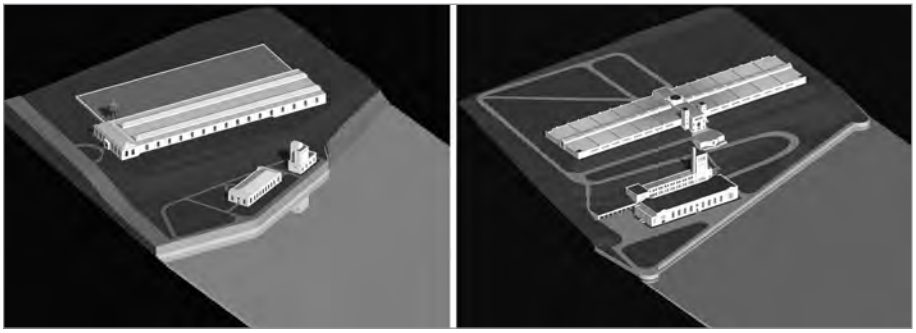

FIG. 23. COMPARATIVE VIEWS SHOWING THE MASSING, COMPOSITION, AND SITE DEVELOPMENT OF THE VICTORIA PARK WATER WORKS DESIGN, WITH THE RECONSTRUCTION OF THE 1926 DESIGN (LEFT) AND POMPHREY'S REDESIGN OF 1929 (RIGHT). | DIGITAL MODELS AND RENDERINGS BY STEVEN MANNELL AND CHAD JAMIESON, 2003.

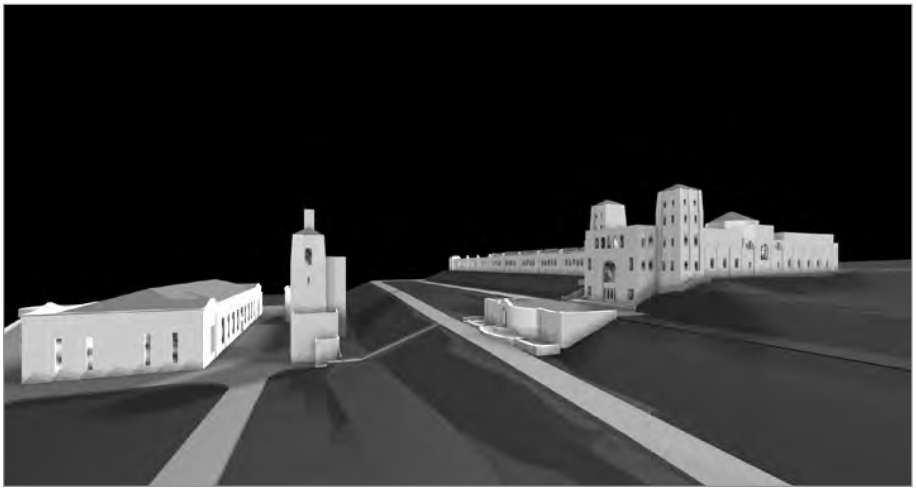

FIG. 24. RECONSTRUCTION OF THE 1929 DESIGN FOR THE VICTORIA PARK WATER WORKS, VIEWED FROM THE HAIRPIN TURN ON THE DRIVEWAY AT MIDLEVEL BETWEEN THE ADMINISTRATION AND FILTER BUILDING AND THE PUMPING STATION. THE VIEW SHOWS THE PROJECT BEFORE THE 1957 CONSTRUCTION OF THE EAST FILTER GALLERY. | DIGITAL MODEL AND RENDERING BY STEVEN MANNELL AND CHAD JAMIESON, 2003.

structures without any attempt being made to indicate thereon the architectural features of the various buildings."[22] A further letter from the engineers to Harris in May attempted to downplay the implications of the preliminary drawings of the filter plant, claiming: "We have not shown any details of these structures..."[23]

During this exchange of memoranda, Pomphrey spent substantial time on the design, culminating by June 1929 in a five-foot-wide ink-and-wash rendering of the filtration plant, showing the Administration and Filter Building (fig. 22). The monogram in the lower right corner of the drawing—"TCP 29"—indicates that the drawing is by Pomphrey's hand. The large size of the drawing, the layout of the sheet with principal elevation above the ground plan, and above all the media—ink line, with watercolour wash and pencil details—typify the renderings used in beaux arts classicism to portray the design of major public buildings. In creating this drawing to show the design, Pomphrey and his employers signalled the seriousness with which they took Harris's concerns about the quality of the architectural form and detail.[24]

No direct evidence remains of Harris's reaction to the rendering, but his hectoring letters on the topic of architectural detail at Victoria Park ceased. Numerous articles on the design of the Victoria Park Water Works appeared in engineering journals in the late 1920s and 1930s, some written by Harris, others by Gore, with water filtration, pumping, and distribution as their principal focus. Architectural expression is touched upon only lightly in the texts, but a large reproduction of the 1929 rendering accompanies all these articles, unequivocally declaring the central role of monumental architectural expression in the project.[25] In the absence of the crucial drawing of the "Plain and unattractive"

buildings that disappointed Harris,[26] the extent of the design transformation that occurred between the memo and the first appearance of Pomphrey's ink-and-wash vision is uncertain. The time lag is substantial, a year or more from Harris's letter to Pomphrey's drawing, evidence that the work carried out in the engineers' offices went far beyond the addition of decorative details to an already resolved design, to entail a significant redesign of the entire site plan and process layout.

If the 1926 design had been in force until Harris's memo, then the transformation brought about by the commissioner's intervention was dramatic and total. Pomphrey's rendering of the Victoria Park Administration and Filter Building replaces the former "head-and-tail" organization of administration and filters with a new arrangement, a cross-axial basilica plan type familiar from churches. Administration is shifted from the Nursewood Road flank to occupy a central south-north axis between two wings of east-west oriented filter galleries. A central Filter Rotunda occupies the crossing of axes, housing a signal pylon in obelisk form, while the apse at the northern terminus of the entry axis houses the chlorinators, visible through a glazed screen.

Pomphrey shows the waterworks dressed in yellow-grey brick and grey limestone, providing surfaces of subtle tonal shifts rather than the contrasting grey outline on a dark red brick mass provided at Glenmore and Lemieux Island. In Toronto architectural practice of the 1910s and 1920s, this light yellow-grey or "buff" brick was referred to as "stone." In that era, red brick was for service, industrial, and ordinary residential construction; buff brick was a token of cultural aspiration. Prominent projects of the decade used buff brick with Queenston limestone trim to create a sense of unity to buildings and their urban contexts, including the Canadian National Exhibition buildings, prestigious office skyscrapers like the Commodore Building, the adjacent Royal York Hotel, and the King Edward Hotel.[27] Pomphrey's watercolour and ink delineation combines the two materials to provide a sustained surface design for the waterworks. Limestone provides smooth continuity and sharp edge detail, bringing subtle emphasis to important volumes. The buff brick is given added value through the use of special coursings: sequentially recessed brick courses provide a sharp shadow line to the round-arch lintels over window openings; elaborate diagonal diapering animates larger brick surfaces; and other special coursings provide localized interest. The rich interplay of brick patterns, incised stone surfaces, and carved devices is punctuated by bronze grilles, railings, glazing bars, fascias and panels, and lanterns, while copper roofing elements provide a green-patina accent. Pomphrey forgoes the strong hierarchical distinctions of materials and decoration of the Glenmore and Lemieux Island designs, creating instead a material and decorative scheme that is more integral, and applied in a gradated fashion to all buildings. While the central ensemble of Administration wing and Terrace is the more intensely decorated, the flanking façades of the Filter wings speak a language only slightly less eloquent, with an order of limestone pilasters topped by triglyph merlons projecting skyward beyond the stone cornice, framing buff brick panels with round arch windows corresponding to each filter bay, and firmly terminated by corner bastions topped by green-patina copper pyramids.

COMPOSITION

Pomphrey's handling of material and decoration sustains beaux arts classical notions of *caractère* and propriety; the level of detail and material attention is a clue to understanding a building's cultural status and role, both as an individual entity and as a part of an ensemble or urban context. These notions are extended more deeply in the compositional approach to the site as a whole. Much more than a "skin" of architecture applied to an engineering carcass, Pomphrey's drawing embodies a reconfiguration of the entire site and water purification process along beaux arts architectural principles of symmetry, proportion, and eurhythmy (fig. 23). The redesigned Administration and Filter Building stretches nearly the full width of the site, presenting its principal façade toward the lake, elevated and framed by a series of terraced landforms. The several localized organizational schemes of the 1926 design are replaced by a single compositional order, founded on the central axis of the site, set perpendicular to the Queen Street frontage. Principal forms—Administration and Filter Building, and Terrace—are located on this main axis, while the major process elements—the raw and filtered water conduits—occupy the axis below grade. Secondary components, not shown in the rendering—Pumping Station, Service Building, and Alum Tower—are placed on perpendicular cross-axes, all located to the west of the main axis. While they share a cross-axial orientation, their relative symbolic value is revealed by their different engagement with the ground plane. The Service Building is partly embedded in the slope, serving as a landscape backdrop for the temple-like form of the Pumping Station, viewable fully in the round. Only a single shift of axis occurs in the overall design, at the crucial point where the central land-based axis meets the shoreline, which coincides with the landing point of the incoming water tunnel leading inshore from the sunken offshore intake. At this potent intersection, the central axis shifts to follow the intake tunnel offshore.

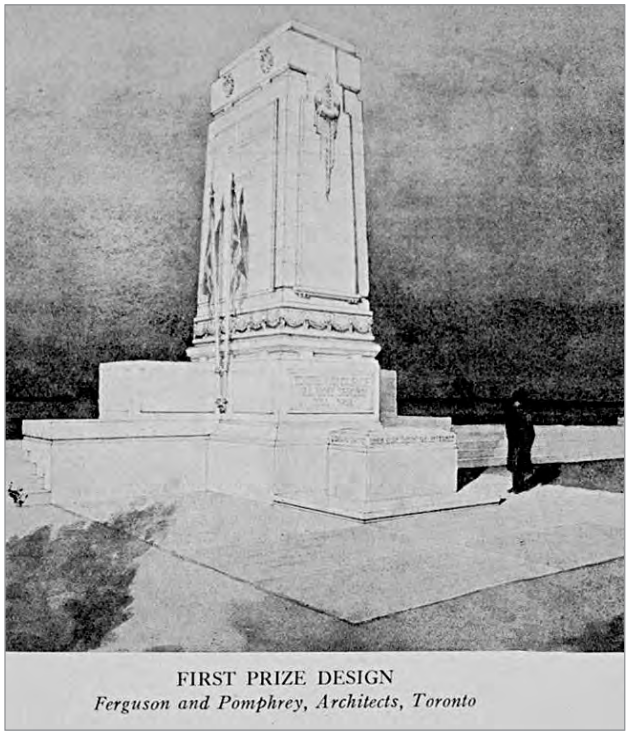

FIG. 25. GREAT WAR CENOTAPH, TORONTO, 1925. PERSPECTIVE RENDERING OF THE WINNING DESIGN BY FERGUSON AND POMPHREY SHOWING THE OVERALL FORM AND GEOMETRY. | *JOURNAL OF THE ROYAL ARCHITECTURAL INSTITUTE OF CANADA,* JANUARY-FEBRUARY 1925, P. 4.

FIG. 27. BANK OF NOVA SCOTIA, CALGARY, 1930, JOHN M. LYLE, ARCHITECT. VIEW OF ONE OF A SERIES OF DECORATIVE PANELS SHOWING THE ECONMIC PILLARS OF THE CALGARY REGION, HERE THE OIL INDUSTRY. | PHOTO: GLENN MCARTHUR, FROM MCARTHUR, GLENN, 2009, *A PROGRESSIVE TRADITIONALIST: JOHN M. LYLE,* TORONTO, COACH HOUSE BOOKS, P. 136.

FIG. 26. GREAT WAR CENOTAPH, DETAIL OF THE DECORATIVE CARVING, INCLUDING MEDALLIONS, RIBBONS, AND GARLANDS. | STEVEN MANNELL, 2005.

FIG. 28. RECONSTRUCTION OF THE 1929 DESIGN FOR THE VICTORIA PARK WATER WORKS. VIEW OF THE EAST FAÇADE OF THE ADMINISTRATION AND FILTER BUILDING CONCOURSE AND ROTUNDA, WHICH WAS CONCEALED BY THE 1957 CONSTRUCTION OF THE EAST FILTER GALLERY. THIS FAÇADE CONTAINS MANY OF THE DECORATIVE MOTIFS USED IN ALL PARTS OF THE SITE, INCLUDING THE STONE TRIGLYPH MERLONS, MEDALLIONS, AND PILASTERS; THE STONE FRIEZE WITH DOUBLE INCISED SHADOW LINE; RECESSED BRICK COURSES AT THE WINDOW ARCHES; AND DIAGONAL DIAPER COURSING ON LARGE BRICK SURFACES. | DIGITAL MODEL AND RENDERING BY STEVEN MANNELL AND CHAD JAMIESON, 2003.

The mundane access from Nursewood Road of the 1926 design gives way to a symbolically rich entry from Queen Street (the original east-west extension of the founding York grid), leading to a system of on-site roadways that offers a scenic interpretive experience of the site, buildings, and water treatment process moving from city grid (and water destination) to lakeshore (and water source). The hairpin turn of the driveway midway between the upper (filtration) and lower (pumping) levels of the site offers the most comprehensive image of the ensemble, revealing the cross-section of the process from intake to fountain (fig. 24). Walking paths and stairways intersect the roadways, with the movement system as a whole

FIG. 29. VICTORIA PARK WATER WORKS. DETAIL OF CORNER PILASTER AT THE ADMINISTRATION WING SHOWING THE FOLDED SCALLOP SHELL CAPITALS CROWNING THE STONE PILASTERS. | STEVEN MANNELL, 1998.

FIG. 30. VICTORIA PARK WATER WORKS. VIEW FROM THE SOUTH OF THE TERRACE SHOWING THE GROTTO AND FOUNTAIN AS BUILT; BEYOND IS THE TRIUMPHAL ARCH FORM OF THE ADMINISTRATION AND FILTER BUILDING ENTRANCE, FLANKED BY PAIRED TOWERS. THE ROUND ARCHES OF THE GROTTO AND THE ENTRY SHARE A CONSOLE KEYSTONE PROFILE. | STEVEN MANNELL, 2008.

recalling the path systems of Italian Renaissance gardens, providing multiple routes and viewpoints organized by a narrative of site development.

POMPHREY'S DECORATIVE LANGUAGE AND "CANADIAN DECORATIVE FORMS"

Glenmore and Lemieux Island show Pomphrey's facility with a decorative language of Art Deco-influenced modern classicism, deployed in a fairly limited scope. Pomphrey's other major public project in Toronto is the War Memorial Cenotaph, designed in partnership with William Ferguson in 1924 (fig. 25).[28] Their competition panel features another beautiful ink-and-wash rendering, likely by Pomphrey; this illustration and the eventual execution demonstrate his accomplished hand at a monumental classical expression of deeply-carved garlands, wreaths, and mouldings (fig. 26). The 1929 Victoria Park rendering displays kindred architectural spirit and ambition to the Cenotaph, far exceeding the expression of Pomphrey's other waterworks designs. Detail and decoration are applied to all surfaces of the architecture and we are given only hints of the specific decorative devices in the rendering. As ultimately carried out, the decorative scheme at Victoria Park shows the influence of the polemical writings of John M. Lyle, an influential Toronto architect during the period before the Second World War. Lyle was a proponent of classicism for the times and the place, advocating in his work and polemical writings a classical language for twentieth-century Canada that would draw its vitality and relevance from a living ornamental expression (fig. 27). Writing in 1932, Lyle argues:

> We must not forget... that without symbolism in the form of fresh, vital contemporary decoration, the public's interest in architecture is bound to wane if not to die altogether... Why have we in the United States and Canada always borrowed our ornament from Europe?... Simply because we have been in a rut for years and as architects have not had the enterprise to search for new decorative forms, nor the courage to use them... If Canadian architecture is to be a living, vital force, it must satisfy the spirit of our people and the times in which we live.[29]

Pomphrey worked several years in Lyle's office before the Great War, and appears to have maintained contact with Lyle in subsequent years. Decorative development of the 1929 Victoria Park design shows Pomphrey's application of Lyle's approach to ornament. The subtle gradations of brick and stone surfaces resonate in the specific details of the decorative scheme. A consistent set of carved stone devices is used throughout the site: triglyph merlons, blank round medallions, double-hexagonal lozenges, all connected horizontally by a three-band cornice and frieze (fig. 28). These offer a richer iteration of the Art Deco approach to ornament used at Calgary and Ottawa, as do the bronze waveform friezes and medallions at the doorways.

At the two points of public entry, Pomphrey draws explicitly on water symbols and the machinery of the water treatment process in the creation of decorative form, answering Lyle's call for a more time- and place-responsive approach. Decorative devices at the Administration wing include a folded scallop shell motif on the abutments bracketing a round

FIG. 31. VICTORIA PARK WATER WORKS. VIEW OF CORNER PILASTER AT THE PUMPING STATION SHOWING THE TURBINE CAPITAL. | LAUREEN VAN LIEROP, 2010.

FIG. 32. VICTORIA PARK WATER WORKS. VIEW OF THE SIGNAL PYLON, WITH MARBLE OPERATING TABLES AND GLAZED SCREENS TO THE FILTER BEDS. | STEVEN MANNELL, 2010.

FIG. 33. VICTORIA PARK WATER WORKS. VIEW OF THE SIGNAL PANEL IN THE PUMPING STATION. THE LIGHTS INDICATE WHICH FILTERS ARE IN OPERATION, WHILE THE DIAL INDICATES WATER FLOW. | STEVEN MANNELL, 2010.

FIG. 34. VICTORIA PARK WATER WORKS, VIEW FROM OFFSHORE ON LAKE ONTARIO. DECEMBER 17, 1936. | VICTORIA PARK WATER WORKS, VIEW FROM OFFSHORE ON LAKE ONTARIO. DECEMBER 17, 1936.

medallion inscribed with the "TWW" monogram, set in a field of stylized zig-zag waves (fig. 29). Matched projecting keystones at the round arches over the Administration entrance and the fountain niche in the Terrace share a console profile with surface carving to evoke a spilling flow of water (fig. 30). At the Pumping Station, massive stone corner pilasters are surmounted by stone capitals carved with a stylized turbine flanked by twin spirals of water flow, an Ionic capital form in

Art Deco rendering with subtle influence of the technological sublime (fig. 31). Finally, in the marble and bronze obelisk of the signal pylon at the Filter Rotunda (fig. 32), in the operating tables in the filter galleries, and in the signal board in the Pumping Station (fig. 33), Pomphrey's decorative moves beyond Lyle's representational approach to present the water treatment process itself in an iconic manner, while expanding the formal range of the signature decorative process monitors from the initial examples at Lemieux Island and Glenmore.

ARTHUR GOSS: THE VIEW FROM THE LAKE

Arthur Goss's 1936 photograph of the completed Victoria Park Water Works from offshore in Lake Ontario (fig. 34) is a key document for understanding the civic intentions of the complex. Bisected horizontally by the shoreline, the image frame contains in equal parts the gently rippled surface of the lake, and in the background the highly developed landscape and buildings of the waterworks, both halves presented in sharp focus due to the extreme depth of field of the photograph. The architecture is presented as a sequence of frontal surfaces receding in depth—lake wall, then the Pumping Station, next the Alum Tower, then the Terrace, and finally the Administration wing, flanked by its twin towers and the completed west Filter wing. The waterworks occupy a narrow band between lake and sky, situated by the framing in its intermediate place in the hydrological cycle. The low camera viewpoint accentuates the skyward thrust of the Alum Tower and the flanking towers of the Administration wing. The lake wall provides a thick, mute, horizontal band through the middle of the image, emphasizing the meeting point (and dividing line) between land and water. Deep shadows on the eastern flanks of the Pumping Station and Alum Tower combine with the almost overlit south faces of the buildings to create a strong visual drive along the main central axis from the shore back to the centre of the site, emphasizing the strong architectural and engineering process connection between the lake and the city.

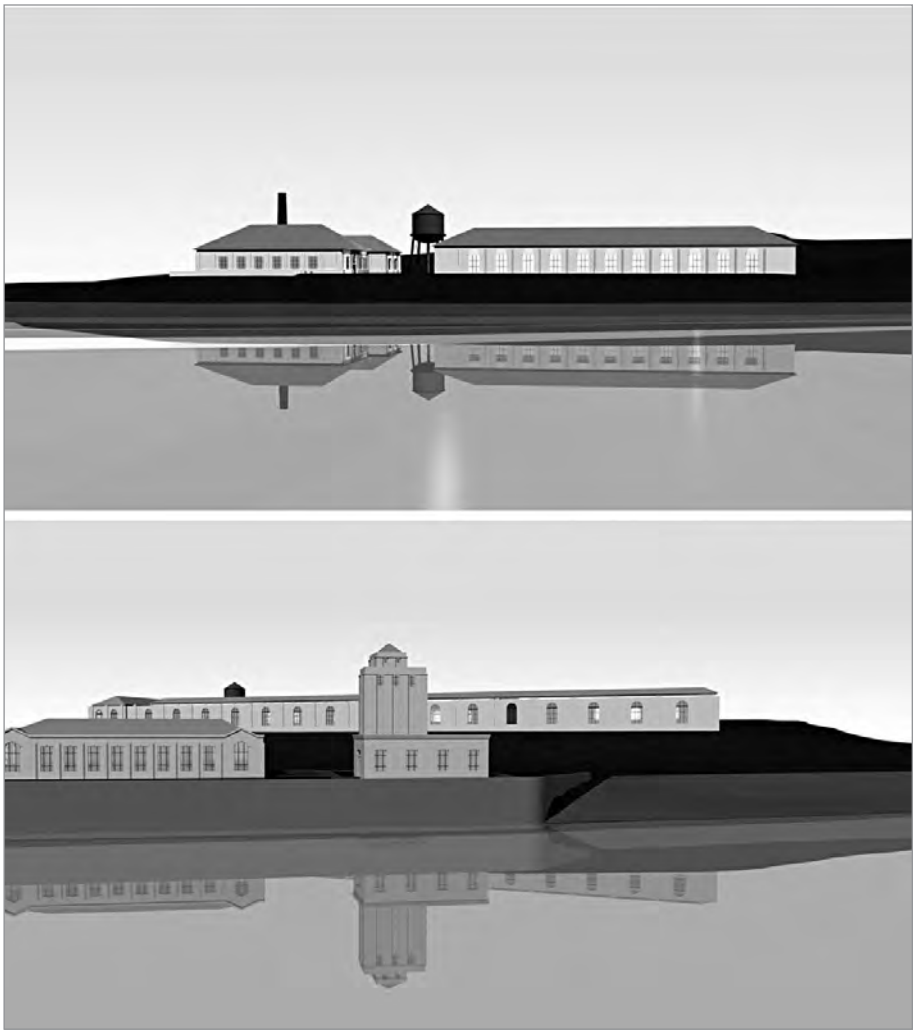

FIG. 35. RECONSTRUCTIONS OF THE 1913 (ABOVE) AND 1926 (BELOW) DESIGNS FOR THE VICTORIA PARKS WATER WORKS, VIEWED FROM OFFSHORE ON LAKE ONTARIO TO APPROXIMATE THE VIEW SHOWN IN THE 1936 ARTHUR GOSS PHOTOGRAPH. | DIGITAL MODELS BY STEVEN MANNELL AND CHAD JAMIESON, 2003; RENDERINGS BY STEVEN MANNELL AND JONATHAN CASTRO, 2011.

Goss's photograph expands the foreground of Pomphrey's 1929 rendering, while reiterating Pomphrey's orientation of the Victoria Park Water Works toward an imaginary viewer on the lake, or toward Lake Ontario itself; a design made to be understood at the scale of epic consciousness, relating city to water source, hydrology to public works. Looking at the reconstructed prior designs for the site from Goss's camera viewpoint, we can see the abrupt emergence of this ambition in 1929 (fig. 35). Goss's photo and Pomphrey's drawing offer strong connections between the composition of the waterworks and the geology, hydrology, and geography of the site and process,

FIG. 36. VICTORIA PARK WATER WORKS. DETAIL OF ARCH, KEYSTONE, AND BRONZE FOUNTAIN AT THE SOUTH FAÇADE OF THE TERRACE. | STEVEN MANNELL, 1998.

FIG. 37. VICTORIA PARK WATER WORKS. DRINKING FOUNTAIN ON THE TOP OF THE TERRACE LOOKING TOWARD THE ALUM TOWER AND THE LAKE. | STEVEN MANNELL, 1998.

showing the waterworks as a connector of citizen to water cycle, and of city to lake. This image replaced Pomphrey's rendering as the preferred architectural representation of the Toronto waterworks; Harris's controlling hand and eye must have found it a clear expression of his civic intentions.[30]

HIGH SYMBOLISM

All lines in Goss's photograph converge at the central figure of Administration wing and Terrace. Visible details are reduced to the dark shadows of the two successive round arch openings, the Terrace fountain in front and below, and the Administration wing entrance behind and above, framed by the paired towers and a line of small dark attic windows. This ensemble speaks in a more highly symbolic architectural language than the rest of the composition. Such symbolic expression was familiar to Pomphrey, evidenced by his and Ferguson's competition-winning design for Toronto's Great War Cenotaph (fig. 25). The cenotaph geometry manifests the *axis mundi* connecting the centre of the earth to the dome of the sky, with the entasis of the monolith sides converging at a point in the sky one thousand feet overhead, and steps and stringcourses following an arc centred nine hundred feet below the earth's surface.[31] In the case of the cenotaph geometry and language, the imperative to give presence to the vast number of absent bodies of the war dead led to a symbolic language and geometry at the scale of the entire globe. Harris was closely associated with the cenotaph project, serving on a task force of city commissioners charged with finding a site, and overseeing the cenotaph design competition.[32]

The Terrace presents a shallow, round plan, and round arched grotto on its lakeward face, containing a fountain flowing continuously with pure filtered water (fig. 36). The fountain sits above the major underground water conduits, its grotto form evoking the sacred points of connection between the subterranean and surface worlds. The drinking fountain above is a simple rounded stone mass, though given a shell-formed carving for its bowl (fig. 37). Its potency is underscored by its exterior placement, offering its pure water to all visitors to its prominent public site, and above all by its orientation. A sip from this fountain begins and ends with a view of Lake Ontario, the (impure) source, framed and surrounded by the various stations of the purification process that delivers the lake water, filtered and purified, to the fountain. The intimate sip of the citizen on the terrace, facing the lake, is a brief moment that symbolizes the monumental bureaucratic undertaking of bringing pure, healthy water to the city.

Placed outside the main entrance, the Terrace drinking fountain recalls the holy water stoups at a church doorway, a water source that prepares a visitor for entry into a space of transformation. In a church, the water is for external anointing, sanctified by appeal to supernatural powers. In the case of the waterworks, the ritual process employs rational human technology, and the initiatory water is a Progressive-era offering of water to drink, purified by science and bureaucratic organization.

Framed by the Terrace, the Administration wing presents a triumphal arch form to the lake, a cubic mass penetrated by a dark round-arch opening containing the main door (fig. 38). This triumphal arch is without explicit dedication; it might connote the triumph of technology and bureaucracy in providing healthy water to the city, or it might evoke the recent triumph of the Great War, an echo of

the cenotaph. Framed by twin towers set back from the main façade, the arch gives entry to a sequence of spaces resonant of a basilican church plan (figs. 39-40).[33] The main axis south-north processes through four strongly-marked bays of the concourse to the central Filter Rotunda at the crossing with the Filter Gallery axes (figs. 41-42). The marble and bronze signal pylon occupies the altar position, giving high symbolic presence to the purification process. Beyond the crossing, in what corresponds to the apse space of a church, a rank of chlorinators is presented to the Filter Rotunda through a glazed screen, reflecting the pride of the Toronto waterworks system in its "superchlorination" process, developed at the Island plants in the 1920s.[34]

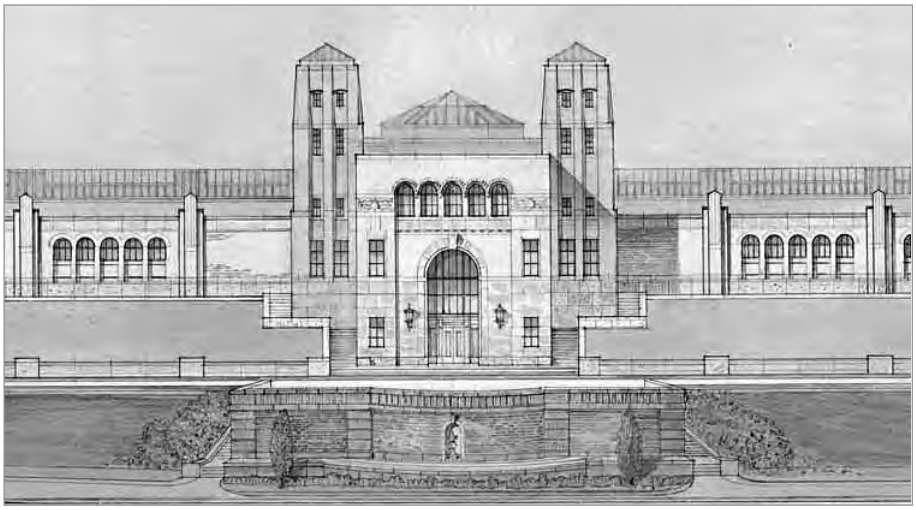

FIG. 38. DETAIL OF THE CENTRAL SECTION OF POMPHREY'S 1929 RENDERING OF THE SOUTH ELEVATION, SHOWING THE TRIUMPHAL ARCH AND TOWERS OF THE ADMINISTRATION WING, ABOVE THE TERRACE WITH ITS GROTTO AND FOUNTAIN PRESENTING PURE WATER BACK TO LAKE ONTARIO. | DRAWING: THOMAS POMPHREY, 1929. TORONTO WATER.

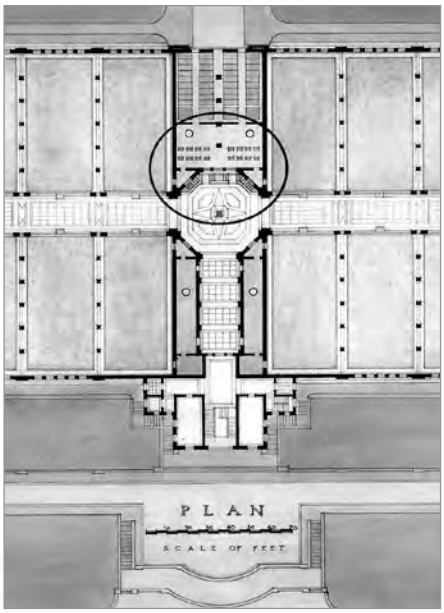

FIG. 39. DETAIL OF THE CENTRAL SECTION OF POMPHREY'S 1929 RENDERING OF THE PLAN OF THE ADMINISTRATION AND FILTER BUILDING SHOWING THE BASILICAN FORM AND THE PROCESSION FROM TERRACE AT THE SOUTH, THROUGH THE CONCOURSE TO THE FILTER ROTUNDA. THE CIRCLE INDICATES THE APSIDAL CHLORINE ROOM. | DRAWING: THOMAS POMPHREY, 1929. TORONTO WATER.

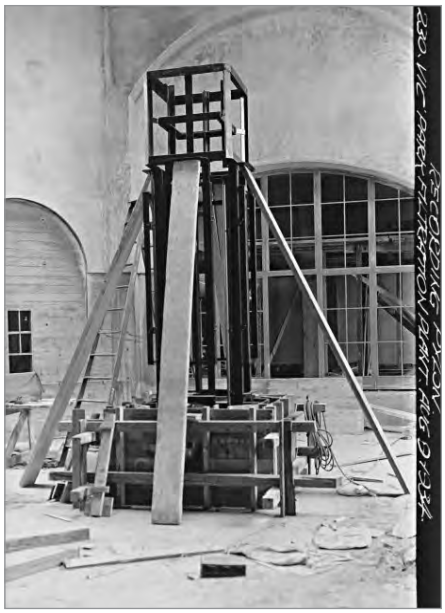

FIG. 40. CONSTRUCTION VIEW OF THE FILTER ROTUNDA, LOOKING PAST THE SIGNAL PYLON TO THE GLAZED SCREEN OF THE APSIDAL CHLORINE ROOM, 1932. | ARTHUR GOSS. TORONTO WATER.

A deeper historical and cultural symbolism is likely also at work here, influenced by the wartime experience of another member of the project team. Bacteriologist G.G. Nasmith was like Pomphrey a veteran of the Western Front. His service was in the Canadian Medical Group, where he oversaw the water supply and sanitation arrangements for the British Imperial Forces.[35] In 1909, Nasmith developed a method for field treatment of contaminated water with chloride of lime; in the field, he developed a system of water carts, chlorine distribution, sanitary stations, and laboratories that embodied the same bureaucratic impulse as Harris's organization of the Department of Works. His organization directly oversaw the health of eighty thousand men and indirectly preserved the health of five million British soldiers over the course of the war. During the Boer War of 1899-1902, British Forces lost more men to typhoid than fell in battle; using Nasmith's methods, typhoid deaths among British Forces in the Great War were negligible. An inspection tour of the water supply arrangements near Ypres on April 22, 1915, placed Nasmith among the first officers on the scene after the German Forces carried out the first poison gas attack, which brought the horrors of trench warfare to an entirely new level. Nasmith identified the gas as chlorine, advised a set of immediate countermeasures, and set his medical group to work on longer-term responses.[36]

FIG. 41. RECONSTRUCTION OF THE 1929 DESIGN FOR THE VICTORIA PARK WATER WORKS. VIEW OF THE FILTER ROTUNDA TOWARD THE GLAZED SCREEN OF THE APSIDAL CHLORINE ROOM. | DIGITAL MODEL AND RENDERING BY STEVEN MANNELL AND JONATHAN CASTRO, 2011.

FIG. 42. RECONSTRUCTION OF THE 1929 DESIGN FOR THE VICTORIA PARK WATER WORKS. SECTION PERSPECTIVE VIEW OF THE CENTRAL PROCESSION, FROM THE TERRACE AND FOUNTAIN, THROUGH THE CONCOURSE AND FILTER ROTUNDA, TO THE APSIDAL CHLORINE ROOM. THE MAIN WATER CONDUITS AND THE FILTERED WATER RESERVOIR ARE VISIBLE BELOW, ALSO ALIGNED WITH THE CENTRAL AXIS. | DIGITAL MODEL AND RENDERING BY STEVEN MANNELL AND JONATHAN CASTRO, 2011.

Nasmith's work in water supply gave him a strong sense of the life-conserving powers of chemistry and chlorine, while his experience after Ypres introduced an ambivalence: chlorine tablets preserved soldiers from typhoid in order to subject them to the horrible disabling effects of chlorine gas. Pomphrey, serving nearby at Mount Sorrel, would have drunk Nasmith's chlorinated water, and also seen the effects of the gas war first-hand. Though there is no documentary proof of such intention, the apsidal placement of the chlorinators at the culmination of the processional route gives them great iconic power, and the wartime associations would certainly resonate strongly for veterans of the Great War, speaking to their wartime experiences of the ambivalent effects of chlorine in specific, and rational human technologies in general.[37]

NOTES

1. The author acknowledges the generous financial support of the Social Sciences and Humanities Research Council, which enabled the creation of the reconstruction models as well as archival research and fieldwork. The work has benefited from generous assistance from the Water Supply Division of the City of Toronto Works and Emergency Services Department (especially R.C. Harris plant manager Ron Brilliant), the City of Toronto Archives (notably Lawrence Lee, John Huczil, Sally Gibson, and Mark Cuddy), Ken Mains of CH2M Hill (successor firm to Gore, Nasmith, Storrie), Wayne Reeves, John Lorinc, and the members of the R.C. Harris Public Advisory Committee, who stand watch over Harris and Pomphrey's masterpiece. Site visits to the precedent waterworks and access to their on-site archives were generously hosted by Tom Patterson in Ottawa and Doug Jamieson in Calgary. This paper is another instalment in a very extended research project. Laureen van Lierop has been a patient supporter and sometime prodder of the project; for this paper, her editorial and organizational help were essential.

2. Mannell, Steven, 1999, "The Palace of Purification," *Journal of the Society for the Study of Architecture in Canada*, vol. 24, no. 3, p. 18-26. See also Mannell, Steven, 2006, "Toronto's Tower of Pure Water," *JSSAC*, vol. 31, no. 1, p. 23-34; Mannell, Steven, 2008, "A Civic Vision for Water Supply: The Toronto Water Works Extension Project," in Wayne Reeves and Christina Palassio (eds.), *HTO: Toronto's Water from Lake Iroquois to Lost Rivers to Low-flow Toilets*, Toronto, Coach House Books, p. 102-113.

3. For expanded discussion and references, see Mannell, "The Palace of Purification," *op. cit.* For a complete documentation of the present state and changes over time at the plant, see Reeves, Wayne C., 2012, *Waterworks Legacy: The Heritage of the R.C. Harris Water Treatment Plant*, Toronto, City of Toronto.

4. Harris, Roland Caldwell, 1913, *Report of the Commissioner of Works on Additions and Extensions to the Toronto Waterworks Pumping and Distribution Plant*, Toronto, City of Toronto.

5. The Market Gallery of the City of Toronto Archives, 1982, *The Architecture of Public Works: R.C. Harris Commissioner 1912-1945*, Toronto, City of Toronto Archives, p. 6.

6. Diner, Stephen J., 1998, *A Very Different Age: Americans of the Progressive Era*, New York, Hill & Wang.

7. For example: E.L. Neubling (1912, "Utilization of the Grounds Surrounding the Plant of Reading's [PA] Water Works System," *The American City*, September, p. 249-252) presents a scheme for floral gardens, picnic grounds, and a skating rink; Donald H., Maxwell (1912, "Architectural Treatment of a Water Tower," *The American City*, October, p. 345-347) argues for the value of a classically ordered stone cladding applied to a water tower in Gary, Indiana.

8. City of Toronto Archives (CTA), series 13, *Water Supply Section Correspondence*, files 208-210.

9. Harris, Roland Caldwell, 1929, "History of the Toronto Waterworks," *Contract Record and Engineering Review*, June 19, vol. 43, no. 25, p. 719-721.

10. "Personalities Connected with the Ottawa Ont. Filtration Plant," *Contract Record and Engineering Review*, April 27, 1932, vol. 44, no. 16, p. 457-459.

11. Harris, 1913, *Report of the Commissioner...*, *op. cit.* : 15.

12. Acres, Henry Girdlestone and William Gore, 1926, *Report on Proposed Extensions to the Water Works System*, Toronto, City of Toronto, p. 4.

13. Baker, Moses Nelson, 1949, *The Quest for Pure Water: The History of Water Purification from the Earliest Records to the Twentieth Century*, New York, American Water Works Association, p. 227-247.

14. Gore, William, 1930, "Water Purification Problems at Ottawa," *The Canadian Engineer*, March 18, p. 119-121.

15. See the annual surveys of developments in North American water purification practice printed between 1929 and 1941 in *Water and Sewage*, a journal published as a supplement to *The Canadian Engineer*.

16. Gore, William, 1934, "Glenmore Dam and Water Purification Plant, Calgary, Alta.," *The Canadian Engineer*, September 11, p. 9-20.

17. MacDonald, William E., 1932, "Water Purification Plant at Ottawa," *Contract Record and Engineering Review*, April 27, vol. 46, no. 17, p. 439-459.

18. Gore, William, 1934, "Calgary's New Water Works System," *Journal of the American Water Works Association*, vol. 26, no. 8, p. 1008.

19. Gore, "Calgary's New Water Works System," *op. cit.* : 1008. The rhetorical stance of the designers toward material use shifted dramatically upon completion of these waterworks, which coincided with the mid-1930s depths of economic depression. Marble and bronze became easy targets for popular critique of excess in public works spending; in testimony at a judicial inquiry in Calgary, and in interviews with the press in Toronto, Storrie would defend the choices of stone, tile, and bronze not in terms of public legibility and expression, but entirely in respect of their durability and ease of maintenance in the challenging environment of a water treatment plant.

20. The model as shown uses buff brick with grey limestone for the exterior, projecting backward from the material choice of the final project. Further reflection suggests that red brick was more likely the choice at that point in the project. The designs for the John Street surge tank and the alterations to the High Level Pumping Station at Cottingham Street were underway at the same time as the 1926 report, and both used red brick with light stone trim. Red brick and grey stone would be more consistent with Glenmore, Lemieux Island, and several other waterworks designed by Gore, Nasmith, Storrie in the era.

21. CTA, series 13, *Water Supply Section Correspondence*, file 310.

22. *Id*.

23. *Id*.

24. Long thought to be lost, in early 2008 the drawing was returned to the Toronto office of CH2M Hill, successor firm to Gore, Nasmith, Storrie. Apart from dirt stains and edge tears, the drawing was in remarkably good condition; now restored, the drawing hangs in the plant.

25. For example: Gore, William, 1929, "Fourteen Million Dollar Extension to Toronto's Water Supply System," *Contract Record and Engineering Review*, June 19, vol. 43, no. 25, p. 729.

26. CTA, series 13, file 310, contains the cover letter from Storrie, annotated to indicate that the drawing was placed in the "Commissioner's Plan Fyle." A copy of the drawing has not been located, despite searches at the CTA and the Works Department Drawing Archives.

27. Richardson, Douglas (ed.), 1973, *Beaux-Arts Toronto: Permanence and Change in Early 20th Century Architecture*, Toronto, City of Toronto.

28. "Toronto Cenotaph Competition," *The Journal of the Royal Architectural Institute of Canada*, January-February 1925, p. 4.

29. Lyle, John M., 1932, "Canadian Decorative Forms," *The Journal of the Royal Architectural Institute of Canada*, March, p. 70.

30. Harris was himself an accomplished amateur photographer, and always attentive to the power of image. Goss was staff photographer for the Toronto Works Department, creating hundreds of record photographs of road works and sewer installations, as well as more ambitious images of major projects. Here he has made significant effort, presumably commandeering one of the Water Supply tugboats, to capture an otherwise unavailable view of the plant.

31. "Toronto Cenotaph Competition"; the geometric scheme of the Toronto Cenotaph follows that of Edwin Landseer Lutyens's prototype cenotaph design for London completed in 1920; see Mannell, "Toronto's Tower of Pure Water," *op. cit.* : 30; Crompton, Andrew, 1997, "The Secret of the Cenotaph," *AA* [Architectural Association] *Files*, no. 34, p. 64-67.

32. CTA, series 487, *Toronto Parks and Recreation Department*, file 64.

33. The triumphal arch form has been used for the entry façades of churches for half a millennium, since Leon Battista Alberti's Sant' Andrea in Mantua; for Torontonians more accustomed to Gothic-inspired church profiles, Pomphrey provides two flanking towers suggestive of bell towers.

34. A photograph of the Victoria Park chlorinators was the cover image for the January 1941 issue of *Water Works and Sewerage* featuring Toronto's water system and highlighting Toronto's leadership in "superchlorination and de-chlorination."

35. Nasmith, Col. George Gallie, CMG, 1917, *On the Fringe of the Great Fight*, Toronto, McClelland, Goodchild and Stewart.

36. *Id.* : 93-94, 107; Cook, Tim, 1999, *No Place to Run: The Canadian Corps and Gas Warfare in the First World War*, Vancouver, University of British Colombia Press, p. 25.

37. The correspondence related to the waterworks makes reference neither to a war memorial intention, nor to any other specific dedication, but dedication of civic buildings as war memorials was commonplace. If a war memorial dedication was intended, the long delay between the completion of construction in 1935 and the official opening and commencement of operations at the plant in 1941, two years into another world war (and one that at the time was not going well for the Allied Forces), would have been decisive against a dedication to "the war to end all wars."