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The London Waterworks Controversy
The Great Debate of 1875-1877

Marvin L. Simner

By the mid-1870s it was widely recognized that if London were to grow and prosper, a search for a dependable water source to meet its needs was vital for several reasons. The first was to provide London with a constant supply of fresh drinkable water as stated in a brief submitted by the London Medical Association to the London City Council on February 15, 1875.

> …a supply of pure water is necessary to the sanitary condition of the city, and that the present supply of water from wells is, in very many localities dangerous to health, in consequence of the soil being porous and becoming gradually saturated with impurities from privies, cess-pools, stables, &c., thereby poisoning the water…[1]

Indeed, the Medical Association had concluded "that a considerable portion of the sickness and mortality that have occurred in the city during the past year is traceable to impurities in the (well) water." To rectify this problem, City Council was made aware of three fresh water springs adjacent to a woolen mill on the Thames owned by Charles Coombs. William Saunders, a chemist and local pharmacist, reported that the water from these springs was "entirely free from organic matter, nitrates of lead, iron and other unnatural impurities, and when submitted to the highly magnifying power of a microscope, there is no appearance whatever of microscopic organisms."[2] Not only was this water said to be superior "to the water from wells in various (other) parts of the city," the amount produced by the streams on a daily basis (2,065,207 gallons) was also said to be sufficient to supply a city twice the size of London. Hence, of the many sites in and around London where water was available, this site was considered the best.

The second reason for seeking a dependable supply of water was the constant fear of fire. Between 1852 (which is the earliest year for which records are available) and 1875 London experienced 484 fires leading to a total financial loss of $1,167,700.[3] Although many of the fires were minor, typically one major fire occurred nearly every year in and around the downtown area. In 1870, for example, many downtown commercial structures were lost.

> The tinshop of I.W.C. Baker was burned January 5, 1870, entailing a loss of $2,500. The other property destroyed (on January 5) was A. Johnston's building, $1,400; Hiscox's Hotel, $1,600; T. Powell's furniture, $500; Mrs. Trebilcock's stock, about $600; Goldner & Hooper's, about $300; Dr. Westland's furniture, $300;

> and Benj. Higgin's building, $300 –in all, $7,500. The O'Callagnan and Elson frame building, which stood on Richmond Street, opposite the City Hall, was burned January 21….The fire on Duke and Cartwright Street, of February 22, destroyed property valued at $2,000. The grocery store of Michael Gleeson, on Richmond and Bathurst Streets, was destroyed by fire, February 27….The petroleum works of Englehart & Company on Adelaide Street, were destroyed by fire, February 24….A second explosion at Englehart's on April 9, entailed a loss of $2,000; and a third on May 23, 1870, damaged property valued at $6,000. Macmillan & Latham's oil still exploded August 11.[4]

While London's property owners were clearly concerned over their personal losses as the result of fire, it was also widely recognized that if London did not develop an effective firefighting system, this could severely hamper the city's competitive edge in fostering future growth. By 1875 Hamilton, Windsor, Toronto, and Ottawa all had established effective waterworks systems for extinguishing fires, which meant that each of these cities would have a major advantage over London in attracting businesses and manufacturing enterprises. The London city engineer, arguing in favour of developing a similar system for London, addressed this matter in the following way.

> …if large stocks of valuable goods may be held as safe from the ravages of fire as elsewhere, and at the lowest rates of insurance, London may become the depot for many a new establishment which otherwise would go elsewhere.[5]

The system he recommended was similar to that found in many neighbouring communities, i.e., water from a natural flowing source would be delivered through a pumphouse to a reservoir located at or close to the top of a nearby hill. The water stored in the reservoir would then be released through a gravity flow system to hydrants located throughout the downtown area. According to a report by the city engineer, Hungerfort Hill (also known as Chestnut Hill and today as Reservoir Park), was directly opposite the springs on Coombs' property, and was 270 feet (82.29 metres) above the surface of the Thames River. Because this elevation exceeded by more than 150 feet (45.72 metres) the highest elevation in and around the downtown area, it was anticipated that water from the reservoir would reach the city under sufficient pressure to activate fire hoses attached to the hydrants. In short, the springs on Coombs' property were said to satisfy both the needs of the citizens for a drinkable source of water and the needs of the city to provide adequate fire protection to the downtown stores, shops and hotels, and even to some of London's private residences. What was required before this proposal could be enacted, however, was approval from the residents in the form of a bylaw to endorse the necessary financing.

Despite the reasonable nature of this proposal, it took three referenda for the bylaw to pass. Meanwhile, London continued to burn.

The First Referendum

On February 22, 1875 the City Council approved a bylaw that contained the following main provisions.[6]

1) That water-works for the city of London shall…be constructed, managed and maintained by and through the agency of Commissioners.
2) That for the purpose of construction…the mayor (shall) raise by way of loan…the sum of four hundred thousand dollars…though debentures…that shall bear interest of seven percent per annum…payable half yearly in each and every year.
3) (In order to retire this debt) an annual special rate of five mills and seven-tenths of a mill on the dollar shall be levied and collected, in addition to all other rates in each year from the first issue of the debentures…upon all rateable property in the said city.

In the weeks leading up to the referendum all of the arguments in favour of the need for clean water and effective fire protection appeared in a four page broadside which was widely distributed by the London City Council. Although both the *London Free Press* and the *Daily Advertiser* were strongly in support of some form of waterworks scheme, the debate that ensued was acrimonious and highly divisive.

Prior to the referendum held on March 29, 1875, and in addition to the broadside, City Council ordered the complete bylaw to be published in the city papers for one month. City Council also held open meetings in each of the seven wards to fully inform the citizens about the nature of the undertaking. For the majority of citizens the major issue was the overall expense versus the overall benefit of fire and health protection. Throughout the month, summaries of the meetings appeared in both newspapers along with letters, largely from irate citizens who expressed considerable anger over the need for this undertaking.

The major points raised in opposition to the bylaw surfaced during the first open meeting which was held on March 4th. Since the city debt was already $1, 150, 787 [6] many voiced the opinion that this proposed expense of $400,000 would increase the debt by nearly 35%. In addition, the proposed increase in property taxes was also said to be excessive since it was doubtful if home owners in all of the wards would benefit equally from the proposed fire protection scheme because of the distances of their homes from the downtown core. Closely related to these two points was a disbelief in the lack of purity of well water. Because of this disbelief, it was also argued that since the major need was for water to extinguish fires, river water would suffice and could be obtained at a far lower cost. The following letter from W.Y. Brunton is one example of the arguments that frequently appeared in the *Advertiser*.

> My taxes are now fifteen dollars per foot per annum, frontage. Should the by-law…receive a majority of votes in its favour instead of fifteen dollars they will be twenty-one. I am not opposed to waterworks, quite the contrary; but I am thoroughly opposed to the present scheme. I have no hesitation in saying that we can get a full supply of water for fire and household purposes, drinking water excepted, for less money than is required by "Coombs Pond," by adopting the same system that the Great Western Railway has, viz, pumping it from the river.[7]

Indeed, Fred S. Wilkes from Branford, Ontario had submitted the following proposal that relied on water from the Thames River at Dundas Street.

> We estimate for two engines, two boilers, two pumps… fifty double anti-freezing fire hydrants…(along with a) building suitable for machinery and an engineer to reside in, all set up and put in complete operation and warranted capable of throwing eight good efficient fire streams for $55,000.[8]

Despite the positive response that was initially anticipated by Council, in an address before Council on March 11, the mayor summarized the negative experiences that he encountered when he addressed the Ward 2 rate payers during a meeting held the night before.

> His Worship said that during the whole of the time he had filled the civic chair, he had never been so abused as he had been at that meeting; he felt that men who ought to have known better, had grossly insulted the board over which he presided. The entire burden had been thrown on his shoulders; and he now wished the council to say what action they would take in the matter—whether it would be advisable or not to withdraw the by-law for the present.[9]

The reason for suggesting that the bylaw be withdrawn was that if the bylaw were defeated, it could not be brought up again for one year. In spite of the risk of defeat Council allowed the referendum to stand. Given the level of opposition, however, it is not surprising that when the referendum was held on March 29th, an overwhelming majority voted against the bylaw. Across all seven wards, 699 votes were cast against while only 243 votes were cast in favour.[10] In commenting on this matter the *Free Press* summarized the outcome in the following way. "…so many of the voters seem to have thought that, as they have wells in their back-yards, there is no need of water-works…Many have said (however) that they are in favor of such works as might do duty in case of fire…but such works can be had for far

less than $400,000, and if they can, why ask us to vote so large a sum?...the feeling behind this (claim) is that if the money is once voted, it will be spent, no matter what."[11]

As mentioned above, with the defeat of the bylaw the city was prevented from issuing another for at least one year. What occurred during this interval? Not unexpectedly, and beginning in April, throughout the first four months following the defeat, London experienced a number of fires. On April 16 Andrews' Brush Factory located on Richmond Street south of Kent was destroyed. "Mr. Andrews' stock, tools and furniture were totally destroyed, entailing a loss of at least two thousand dollars, upon which there is an insurance of one-half that amount."[12] The next morning a fire occurred in a grocery store at the corner of Horton and Ridout where "the stock of groceries and furniture is almost (a) total loss…(Although) valued at nine hundred dollars, (they were only) partially covered by an insurance of five hundred dollars."[13] Then on April 26 a building in Victoria Park that previously had served as officer's quarters when the regiment was stationed in London and now housed ten families, burnt to the ground.[14]

And so it went: in May there were eight fires, including one in the third story of the Bank of British North America and in the Ramsey and Sleightholm planning mill and sash factory near the Grand Trunk Station. Then in June there were 12 more, and in July 11 others. In fact the situation had become so bad that *The London Evening Advertiser*, in an editorial at the end of May, stated that "London is now being visited by an epidemic of fire, and the question of how long it is going to last is one which, though full of interest, is more easily asked than answered."[15] Clearly, London was in a desperate situation.

How did the city cope with this situation? Up to this point London relied on water placed in brick tanks that measured two by five meters sunk three meters in the ground at various locations throughout the city. In total there were approximately 64 water tanks in London but only about 40 per cent were said to be in good condition. Because the covers were made of wood, many had rotted, were in danger of caving in when driven over by teams of heavy horses, and were condemned as unreliable.[16]

Water from the tanks was delivered through hoses attached to pumps mounted on fire engines that were brought to the scene of a fire. The major drawback with this procedure was that, since the tanks were not water tight, they "had to be filled regularly as the level could drop by as much as one meter in a day." If the tanks ran dry and nearby wells were not available before the fires were exting-uished the buildings would burn to the ground. Thus, the major protection against loss was to remove all of the flammable contents before the buildings were engulfed in flames.

> Upon the occasion of a fire, no cry can be more afflictive or suggestive than that of 'no water,' yet upon the recurrence of every fire in this city the same cry is repeated until a fatal apathy as to results seems to have set in….The precarious supply provided by

> (the tanks), the pumps and the wells only suggests the necessity of more adequate provision, and beyond these puny resources, none whatever exists.[17]

The Second Referendum

Needless to say, all of the members of City Council were very aware of the need to secure a more dependable supply of water that could be delivered under constant pressure. Given the urgency associated with this need, it is quite surprising that Council did not address this matter as soon as possible, which would have been one year following the first referendum. Instead two years were allowed to pass before the issue was once again brought to the fore. Thus, on June 4, 1877, it was moved and carried:

> …that this Council being of the opinion that the time has arrived when water-works should be introduced for general purposes and that the matter be referred back to the Fire, Water and Gas Committee for the purpose of bringing in a detailed statement of the different schemes that may be submitted to them, giving the number of hydrants, location of the same, and number of miles of piping in the city, for the approval of this Council.[18]

After giving careful consideration to all of the arguments advanced by those who opposed the 1875 bylaw, on July 9, the committee submitted a full report to council that began with the following information.

> Your Committee were authorized by resolution of Council to prepare a cheap and efficient scheme for water works, that would meet present necessities and be acceptable to the ratepayers…For this the works at Hamilton, Brantford, St. Catharines, Sarnia, Port Huron, Detroit and Windsor were visited…and thoroughly investigated…(It was therefore concluded that) the engine house and pumping apparatus be built at the west end of Dundas street and water supply to be taken from the north branch of the River Thames sufficiently far north to get the sole supply from that branch…and that further delay on the part of Council in this matter would be esteemed by all concerned in the welfare and protection of the city as little else than criminal.[19]

The final bylaw that went to the public for approval on August 22 contained the following main provision: "That the amount of the debt intended to be created by the construction of the said Waterworks is the sum of one hundred and fifty thousand dollars…to be raised by the issue of Waterworks Debentures…paid for through general taxation."

As was the case with the previous bylaw, this provision and the new recommendation were both printed in the newspapers during the month preceding the referendum and public meetings were also held throughout the city to discuss the referendum. Although

once more City Council felt that it had addressed the needs of the citizens, the following letter that appeared in the *Advertiser* on August 10 summarized the major arguments voiced by many who opposed this second bylaw.

> To me and to many others as well, judging from the expressions of opinion of those around me, the arguments and assertions in support of the scheme were far from satisfactory. It was admitted from the outset that the proposed plan was for a temporary supply for fire and manufacturing purposes only, and that at some future time it would of necessity have to be extended so as to meet the demand for domestic consumption. This partial, temporary scheme, however, which will benefit only the centre of the city where the manufacturers are located and the greatest danger from fire exists, (why) must (the cost) be shouldered by the entire community.[20]

The writer also drew attention to the fact that the water level in the Thames does not remain constant throughout the year, "…as anyone will admit who will take the trouble to look at the dry, stony bed of the river at this season of the year, when an ample supply of water is most needed…the water is under the stones and is hidden from view." In other words, if the Thames could only be depended on to supply an ample amount of water during certain seasons, the city would be no better off than when it relied on brick tanks to provide the necessary water.

The *Free Press* also condemned the present scheme and, along with the ratepayers in Ward 6 together with many others, called for the withdrawal of the bylaw. "It would be far better to do that than to throw the whole idea over for (still) another year. No one denies that water-works are badly needed, imperatively required, but the contention is that the present scheme submitted by the Council is an ill-advised one."[21]

On August 20, Council received a resolution from Ward 6 together with a petition from "James Rogers and over 200 others, asking the Council to withdraw the waterworks bylaw and substitute the Coombs' scheme instead."[22] During the course of the meeting many of the counsellors spoke on behalf of the petition. At the end of the discussion, the petition was approved and the second bylaw was withdrawn. Although the *Advertiser* was also strongly in favour of the move to withdraw, the next day in a lead editorial the *Advertiser* published an extremely caustic assessment of Council's overall role in first promoting this venture, then supporting its demise.

> The exhibition last night at the Council Board was the culmination of municipal imbecility…we have now seen a real Mayor and Council displaying a helplessness and incompetency unparalleled, and that upon a subject as well understood by men of ordinary education as the erection of a house or the building of a bridge. We did not enter largely into the

> discussion of the waterworks question, nor did we fill our columns with matter relating to it. It was a good opportunity to let the people display their superiority to the men who are ambitious to govern them.[23]

Needless to say, City Council was extremely upset over the editorial and during its next regular session (August 27) stated that the editorial writer "with his characteristic meanness, fairly outrivals himself in deliberate falsehood and low, scurrilous abuse…" With these thoughts in mind, Council resolved that:

> …to maintain its dignity as a corporation, and assert their individuality and independence as public men and as citizens, and resent the false aspersions and mean insinuations levelled at the Council generally and the Chairman of the Fire, Water and Gas Committee in particular, and that we demand a full and ample apology from the writer; and if this reasonable demand be not complied with the Editor of said *Daily Advertiser* will forfeit the confidence of this Council, as a public journalist and as an honorable man, and that we cease to have any communication with him in a business capacity, or otherwise as a corporation.[24]

The motion was carried, with only one exception. Since the *Advertiser* did not comply with Council's request, this marked the beginning of a bitter feud between Council and the *Advertiser* that lasted throughout the next referendum.

The Third Referendum and the feud between City Council and the *Advertiser*

Because the motion approved by Council on August 20 called for a bylaw that included the Coombs' scheme, the Chair of the Fire, Water and Gas Committee once again submitted to the public and Council all of the elements in the original bylaw, with one main exception. In the 1875 bylaw it was estimated that the overall cost of the waterworks would be $400,000 whereas now it was estimated that the overall cost would be $325,000.[25] This $75,000 difference resulted from a drop in the price of materials and a drop in the cost of labour between 1875 and 1877.[26] Despite the lower cost in this third bylaw, water would still be pumped from Coombs' springs to a reservoir at the top of Hungerfort Hill where it would be stored. When needed, the water would be fed through pipes to the city where it could be accessed through hydrants for fire protection and in homes for domestic use. The referendum was scheduled to be held on December 14, 1877.

In the 1870s notices of public meetings to be held by the City were placed in local papers in the form of paid advertisements. Since Council had refused to have any communication with the editor of the *Advertiser* in a "business capacity," this meant that Council would no longer insert paid advertisements in the *Advertiser* but instead would confine these to the *Free Press*. The *Advertiser* resented this position by Council and addressed the matter in several editorials that were obviously written in considerable anger.

A meeting to discuss the waterworks scheme will be held tonight in the Colborne Street School House in No. 5 Ward. We give this notice gratuitously that the ratepayers may know that the meeting is to take place. It might be well for someone to explain why the numerous property owners and tax-payers who read only the *Advertiser* should be slighted and insulted by being kept in the dark as to meetings related to important additions to the city debt—meetings advertised in other papers at the expense of the very ratepayers so slighted and insulted.[27]

We would have the small-potato majority of the present Council know that the *Advertiser* has the right to the (paid) advertisement and a right to ask for it, and to demand the reason for its refusal. We ask no favors at (Council's) hands. In a week or two (when the next election is called many of the current members) will disappear from the scene, unwept, unhonoured and unsung. Because the *Advertiser* chooses to oppose their absurd and trumpery scheme, got up as much as anything to create places for one or two of their number, it is to be punished, forsooth, by being refused the official announcement which is to tell electors where to record their votes, and what they are to vote on![28]

The *Advertiser* then chose to further retaliate by opposing the bylaw itself. To fully appreciate the nature of the *Advertiser's* opposition to this third bylaw it may be helpful to review the *Advertiser's* extremely positive reactions when the same bylaw was introduced in 1875. The following examples are typical of the laudatory comments that appeared in the *Advertiser* prior to the first referendum held in March, 1875.

> We have the most positive assurances of the promoters of the scheme that the entire cost will fall short of the $400,000 asked for in the by-law...[29]

> There are sound and substantial arguments in favor of the conclusions of the Council and nothing to sustain the opposite contention except an illusory and shadowy pretense of economy which would vanish with the adoption of the scheme. All who inhabit, or whose daily employment forces them to spend the major part of the day in the centre of the city must admit that pure water for drinking and cooking, is as much a necessity in its way in the locality referred to, as water for fire and other public purposes.[30]

> We hear names mentioned in connection with the Commissionerships that should satisfy the public that no extravagance or jobbery will mark the construction of the works, and

> that the wishes of those who elect them will be scrupulously attended to.[31]

In sum, throughout the period leading up to the first referendum, the *Advertiser* never requested any information on the origin or the accuracy of Council's initial cost estimate. It was also willing to trust Council's original claim that the final cost would be less than the estimated cost, and that the Commissioners who would be charged with making the final decisions were all trustworthy and dependable individuals.

In sharp contrast to their overall approval in 1875 of the first bylaw, when addressing this third bylaw in 1877, the *Advertiser* now found considerable reason to question what was, in reality, the same information presented by Council in 1875. As the following examples illustrate, It now disputed the trustworthy nature of the people who would serve as Commissioners, the accuracy of the tax burden that would result from the new estimated expense, and the nature of the expense itself.

> (Council) should call for actual tenders from responsible parties for the necessary supplies of material and the due performance of the work required. These, with the sums necessary for purchase of site, right of way, etc., would give reliable data upon which an estimate of the cost could be based. People would then know what they are called upon to vote in the way of additional taxes—a thing that is now a mere matter of guess-work. [32]

> We want the insertion of the names of the Commissioners who are to handle and spend the people's money. The persons who are currently named as probable Commissioners are not to be trusted. The insertion of the names as Commissioners of persons in whose honesty the taxpayers can have confidence would add enormously to the strength of the scheme and its likelihood of being carried.[33]

> We learn from the Hamilton Spectator that Hamilton expended originally $850,000 for waterworks. This sum paid for a complete system, including engines, filtering basin, reservoir, &, with about seventeen miles of pipes. And yet the people of London are told that they can build a system of waterworks, with thirty miles of pipes, for (only) $325,000.[34]

> There is no mistaking public sentiment on the above points. It is safe to say that three-fourths of the ratepayers are determined by one or other of the reasons quoted to vote down the present by-law, and all that is necessary to ensure its overwhelming defeat is that all opposed to it make it a point to cast their ballots at the polls tomorrow. The only hope the schemers have of carrying the by-law is that the opposition will not be sufficiently aroused to turn out and vote.[35]

With these key points in mind the *Advertiser* then urged its readers to vote against the bylaw. It is obvious that this advice, which appeared in a number of editorials throughout the period leading up to the third referendum, had little to do with the bylaw itself but instead merely reflected the *Advertiser's* anger over Council's refusal to deal with the *Advertiser* in a "business capacity" unless the *Advertiser* apologized for its intemperate remarks following the second referendum. In contrast to the way the *Advertiser* addressed the third bylaw, it is important to mention that The *Free Press* in its editorials not only encouraged its readers to vote in favour of the bylaw, as the following examples show, but also took issue with much of the advice that appeared in the *Advertiser*.

> The largest property holders in the city—those who pay the major portion of the taxes—and the electors who desire to see London prosper, are strong advocates of the scheme submitted. The manufactures are, with two exceptions, in its favour, and in a word, the men who have made London what it is, and who have been foremost in enterprises having for their object the advancement of the city's interests, are the men who ask their fellow-electors at this time to assist in the passage of a measure which is calculated to enhance the property of every ratepayer in the city.[36]

> We may economize by refusing to expend the sum mentioned in the by-law, and before a year is over we may have occasion to curse such short-sighted economy and regret that we followed the advice of such counsellors when it is too late…Every man who respects himself will regret the abuse that has been heaped upon the members of the Council, the insults that have been offered them, and the insinuations that have been indulged in respecting this scheme, when every elector ought to know that as the Board of Aldermen are unanimously of the opinion that water-works are a necessity, and that the present is the very best scheme in their power to offer… It may seem strange to call upon those qualified to vote today to think for and of others as well as themselves…Anyone who contemplates the amount of human suffering that would be entailed upon the people of this city by a great fire, would shrink from incurring the responsibility involved in voting against this scheme…In a question of this breadth and importance, all should think of the city and its interests as well as of their individual interests.[37]

In view of these strongly opposing views, how did the people vote? Despite the onslaught of criticism leveled by the *Advertiser* at City Council and the bylaw, the arguments advanced by the *Free Press* did win the day, but only marginally. On December 14, 1877, 718 or 54 per cent voted in favour of the bylaw, while 612 or 46 per cent voted against. [38]

Conclusion

With such a slim a margin of victory it is certainly possible that the outcome of this third referendum could easily have turned out quite differently. Because Council had put forward the only two options that were feasible at the time (Coombs' springs vs the river), if the bylaw had been defeated what might have happened next is impossible to know since no further waterworks bylaws were introduced until 1906, 1907, and 1908, and all of these were defeated. In fact, it wasn't until 1909 that a waterworks bylaw was finally ratified.[39]

In essence, without proper fire protection, and through the continued use of antiquated firefighting procedures, it goes without saying that over the years considerable harm could have been inflicted on London's fledging manufacturing and business core. If this had happened, it is not inconceivable that a number of companies that subsequently located here might have refused to move to London and gone elsewhere instead. Hence, the long term impact of this rather petty controversy between London City Council and the *London Daily Advertiser* could have seriously hampered the city's growth and led to a smaller and a far less prosperous London than the one we know today.

Postscript

Several months after the third bylaw was ratified, Council passed a further bylaw to cover the cost of construction. It agreed to issue a series of waterworks debentures in the amount of $325,033.00 at an annual interest rate of 6 per cent, all of which were purchased at a discount of nearly 3 per cent by F. A. Fitzgerald, a local businessman who was president and managing director of the Imperial Oil Company.[40] With the necessary funds now in hand, there was a growing sense of optimism among Council members. On May 6, 1878, Council unanimously approved a motion to establish a "special committee to take into consideration the advisability of offering some inducements to a certain class of manufacturers that we have not in this city (in order to encourage them to locate here)."[41] Needless to say, given the assurance that London would soon have a fire protection system comparable to those in Hamilton, Toronto, Ottawa, etc. the future prospects for the city finally began to look very bright, indeed.

The first step in the development of the waterworks system was to acquire the necessary land. Forty-eight acres surrounding Coombs' springs were obtained for the pumphouse along with approximately 23 acres that included the top of Hungerfort Hill for the reservoir. In addition, approximately three acres were obtained on the north side of the Thames for access to the pumphouse "from that side."[42] The 1878 map reproduced on page 34 shows the location of this property at the bend in the river along with the proposed pumphouse, reservoir, and pipeline from the reservoir to the city.

The next step involved construction. Work on the pumphouse began in 1878 and was finished in January, 1879. Made of stone, and in the shape of an Ontario Cottage,[43] the building measured 36 by 36 feet (10.9 by 10.9 metres), had an iron roof and floor girders of sufficient strength to hold machinery capable of pumping three million gallons of water per day to

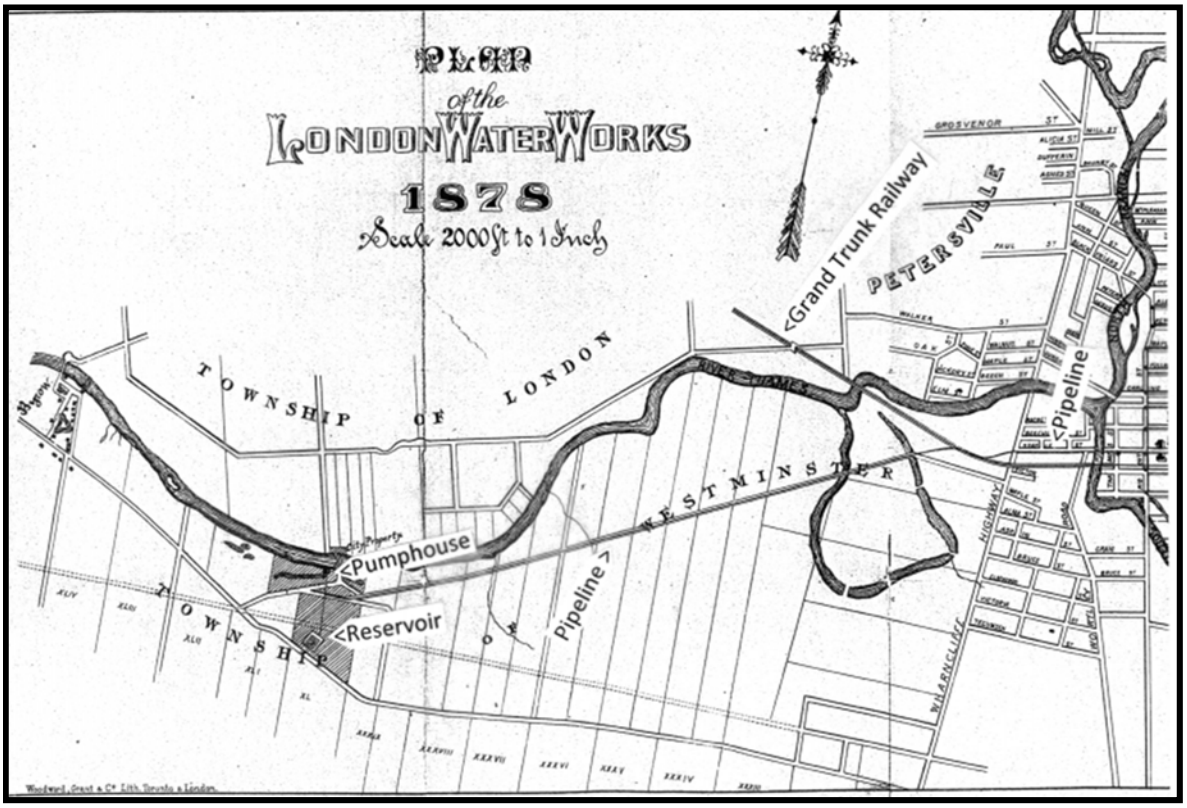
the reservoir. Because the machinery required water power to operate, a 350 foot (106 metre) "crib dam" was also built across the river adjacent to the pumphouse. The dam was "constructed of piles framed together with timber filled in with stone and planked over…" The reservoir, completed around November 1, 1878, measured nearly 300 square feet (nearly 30 square metres) and, when filled to a depth of 14 feet (4.26 metres), held over 6,000,000 gallons (20,000,000 litres) of water.[44]

The photograph that also appears on page 34 shows the pumphouse and the adjacent crib dam. The building to the far right of the pumphouse is a second pumphouse built in 1881, and the only one still remaining on this site in Springbank Park.[45]

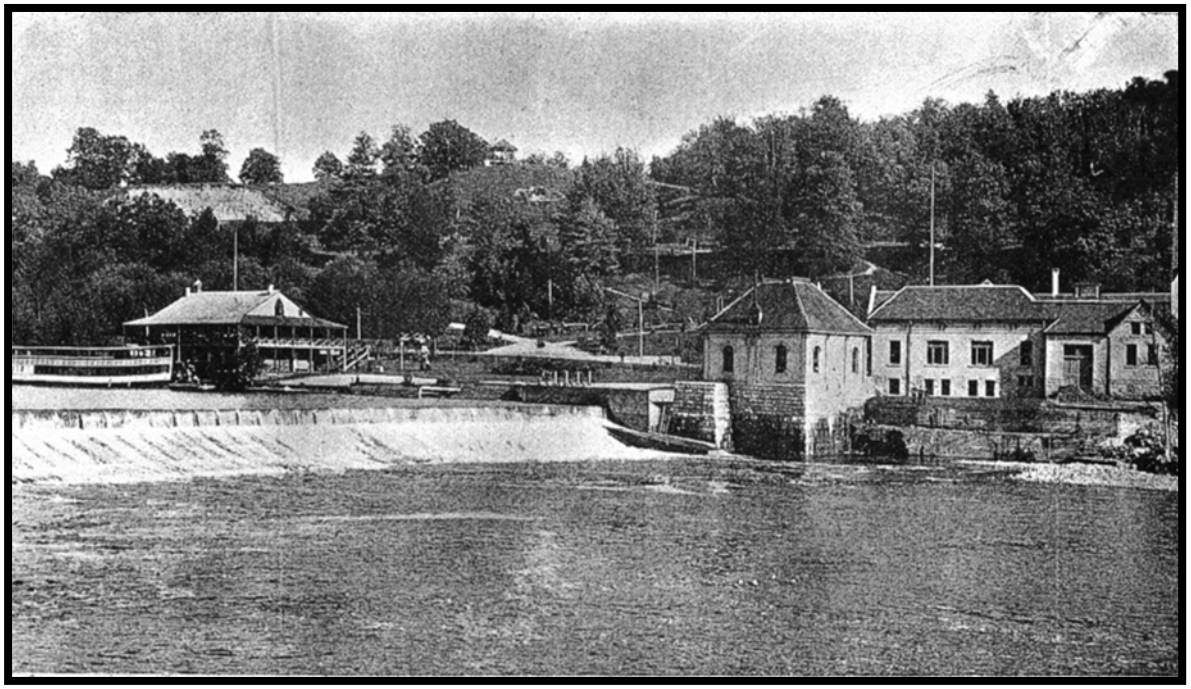
The map on page 35, which is a continuation of the previous 1878 map, shows that the proposed hydrants (depicted as black dots) were to be placed on almost every street corner in an area that stretched from Grosvenor Street in the north to Hill Street in the south, and from Thames Street in the west to Adelaide Street in the east. While the 1878 plan called for 180 hydrants, with installation to be complete by January, 1879, it was possible for private firms that required greater fire protection, to have further hydrants placed closer to their premises by paying a yearly rental fee of $37.50 for each additional hydrant.[46] Over time, and as the need arose, more hydrants were added. By 1888, for example, 298 hydrants had been installed and by 1890, 59 additional hydrants were installed. It is also worth recalling that prior to 1878 the city only had about 64 water tanks for use in extinguishing fires (see page 23). Hence, by initially planning to install 180 fire hydrants, the city would have achieved a nearly three-fold increase in its firefighting capacity.

Based on the scale used to construct the 1878 map, it would appear that for water from the reservoir to reach the most distant hydrants, the water needed to travel approximately five to six kilometers and arrive at its final destination under sufficient pressure to extinguish a fire in a building at least two to three stories in height. Indeed, measurements made at the time revealed a water pressure of 76 to 92 pounds per square inch at the point of exiting the hydrants.[47] How was this feat accomplished? First, the water in Coombs' springs was transferred to several nearby collecting ponds. From there it was pumped uphill through an 18 inch (42 centimetre) pipeline to the reservoir. The water was then fed when needed via gravity, from the reservoir through a series of progressively smaller pipes to the hydrants. Needless to say, the successful completion of this complex task must have represented a substantial engineering accomplishment in the late 1870s.

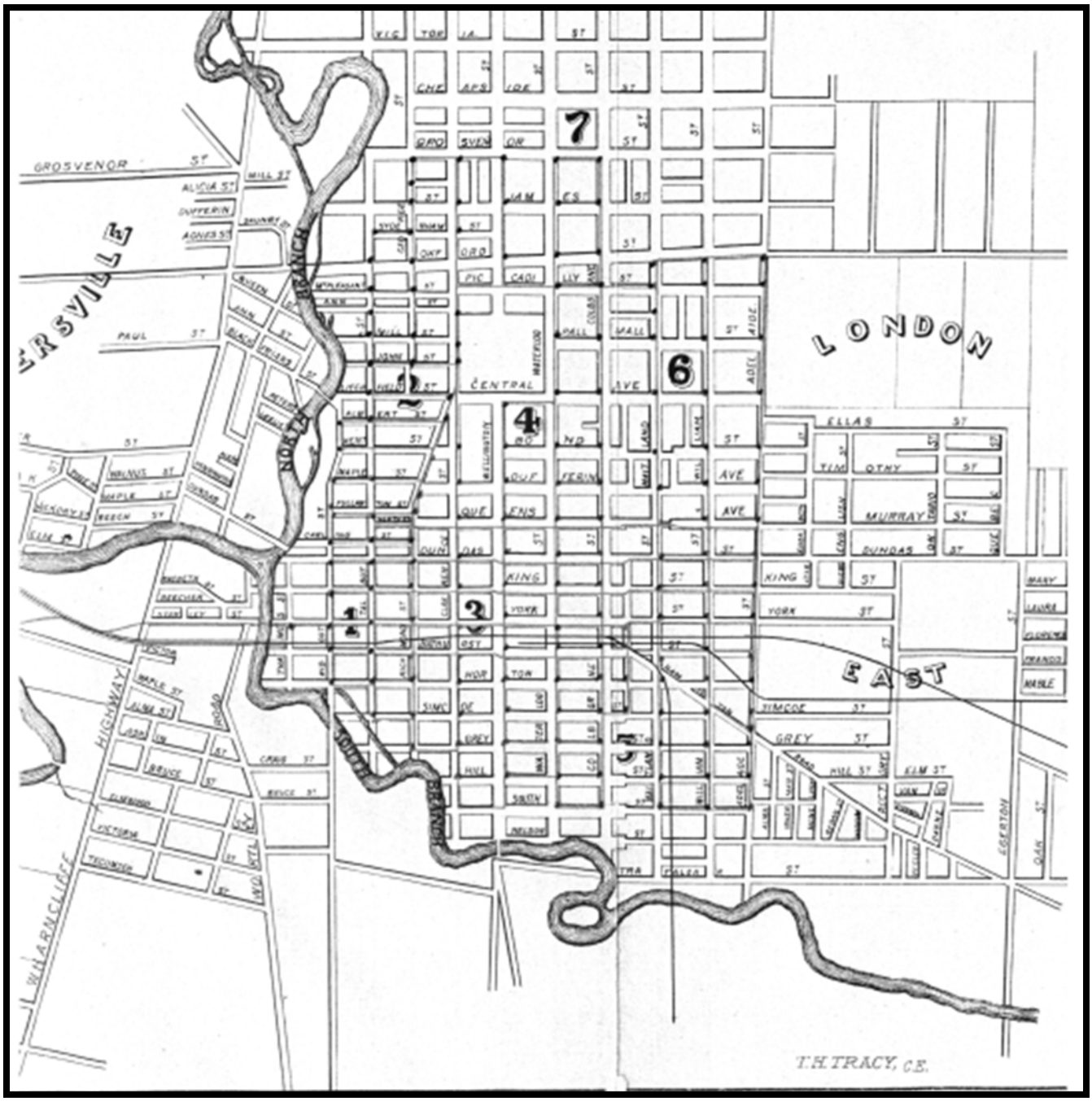
One question that immediately comes to mind, though, is how successful was the resulting system? The residents of London did not have long to wait for an answer. Recall that construction of all of the major components in the system was to be completed by January, 1879. Less than one month following this completion date Carling's Brewery near Piccadilly, Ann and Talbot streets experienced a major fire. Fortunately, the firemen who arrived at the scene were able



Plan of the London Water Works 1878. From the first annual report of the Board of Water Commissioners 1879. Courtesy of the London Room, London Public Library.



Photograph of pump house and crib dam. Courtesy of the London Room, London Public Library.



Continuation of the Plan of the London Water Works 1878 (the black dots show the locations of the proposed fire hydrants; the numbers refer to city wards). Courtesy of the London Room, London Public Library.

to attach hoses to several nearby hydrants which were in good working order. As a result of this action, even though the building could not be saved, the blaze was extinguished.[48]

Clearly, if water from the hydrants had not been available, the firemen would have been forced to rely on water from the nearby water tanks which could easily have run dry given the size of the fire. Moreover, since that February was an extremely cold month, the water in these tanks would have been at least partially frozen, which would have delayed its use. Thus, without the hydrants it is quite possible that the flames from Carling's Brewery could easily have spread to the surrounding neighbourhoods leading, not only to the loss of other buildings, but also to the loss of lives. The *Free Press* had the following to say about this matter:

> …happily, the supply from the waterworks was continuous, the pressure strong, and the stream poured upon the smoldering grain (inside the building) were heavy and effective in the highest degree. The reservoir system so frequently spoken of as being among the best for extinguishing fires, proved to be all that had been claimed for it on this occasion…[49]

Finally, in addition to fire protection and in order to encourage the domestic use of the water delivered through the pipelines, Council also installed connections from the main pipeline to individual residences, businesses, churches, hotels, offices, schools, etc. throughout the area covered by the fire hydrants at a cost to the city of $10,409.93, but at no cost to the owners. The reason given for this expense was the expectation that the city would subsequently realize more than what was needed to cover this initial cost from a series of annual water rates such as the following which were charged to the property owners (see the Water Commissioners report on June 30, 1879).

private dwellings not exceeding 3 rooms…..$5
each additional room……....$0.75
urinals in private dwellings…….….$4.00
water-closets in private dwellings……..$3.50
lawn watering (2000 feet and under)…...$4.00
boarding houses per room……....$1.50
barber shops, per chair…….$2.50
churches……..$5.00 to $10.00
eating houses……$15.00 to $30.00
saloons.....$15.00 to $25.00
schools, per bed….....$1.50

Although Council had estimated that the annual revenue from these rates would be about $10,000, in actual fact the city earned substantially more on a yearly basis. By 1889 the annual income from the domestic use of this water had risen to $42,813.41 and a mere six years later the city enjoyed a windfall profit of $61, 133.49. While it is unknown if this use led to a decline in illness, as predicted, it is very clear from these figures that City Council had made a very wise decision indeed when it elected to connect the main pipeline to residences, business, etc. free of charge in order to encourage the use of pure, wholesome spring water in place of what was often said to be contaminated well water (see the City Council minutes from December 1, 1880 through November 30, 1881, and Council's revenue and expense reports for 1889 and 1895).

Endnotes

[1] City Council Proceedings, Feb. 15, 1875

[2] E.V. Buchanan, London's Water Supply: A History. London, ON: 1968, The London Public Utilities Commission, p. 15.

[3] *London Free Press*, Feb. 7, 1879, p. 4, col. 3

[4] The London Fire Brigade History (1928). Published under the auspices of the London Firemen's Benefits and Pension Fund.

[5] W. Robinson & T.C. Keefer, The London Water Works, The Proposed Scheme, 1875, p. (Western Archives, Western University, TD227.L65 R62, 1875).

[6] City Council Proceedings, Feb. 22, 1875

[7] *London Evening Advertiser*, March 1, 1875, p. 1, col. 5.

[8] *London Evening Advertiser*, March 15, 1875, p. 1, col. 5

[9] City Council Proceedings, March 11, 1875

[10] *London Free Press*, Mar. 30, 1875, p. 4, col. 2

[11] *London Free Press*, Mar. 30, 1875, p. 2, col. 3

[12] *London Evening Advertiser*, April 16, 1875, p. 1, col. 6

[13] *London Evening Advertiser*, April 17, 1875, p. 1, col. 6

[14] *London Evening Advertiser*, April 26, 1875, p. 1, col. 6

[15] *London Evening Advertiser*, May 3, 1875, p. 1, col. 6

[16] *London Free Press*, Feb. 7, 1879, p. 4, col. 3; Council Proceedings, Feb. 24, 1879, p. 549.

[17] B. Adams, The History of the London Fire Department. London,ON: 2002, Published by the London Fire Department, p. 18

[18] City Council Proceedings, June 4, 1877

[19] City Council Proceedings, July 9, 1877

[20] *London Evening Advertiser*, August 10, 1877, p. 4, col. 4

[21] *London Free Press*, August 18, 1877, p. 2, col. 1

[22] City Council Proceedings, Aug. 20,1877

[23] *London Daily Advertiser*, August 21, 1877, p. 1, col. 4

[24] City Council Proceedings, Aug. 27,1877

[25] *London Daily Advertiser*, October 30, 1877, p. 3, col. 2

[26] *London Daily Advertiser*, November 13, 1877, p. 1, col. 5

[27] *London Daily Advertiser*, December 6, 1877, p. 1, col. 4

[28] *London Daily Advertiser*, December 11, 1877, p. 1, col. 4

[29] *London Evening Advertiser*, March 2, 1875, p. 1, col. 3

[30] *London Evening Advertiser*, March 5, 1875, p. 1, col. 1

[31] *London Evening Advertiser*, March 27, 1875, p. 1, col. 3

[32] *London Daily Advertiser*, November 10, 1877, p. 2, col. 2

[33] *London Daily Advertiser*, December 1, 1877, p. 1, col. 4

[34] *London Daily Advertiser*, December 5, 1877, p. 2, col. 1

[35] *London Daily Advertiser*, December 13, 1877, p. 1, col. 4

[36] *London Free Press*, December 12, 1877, p. 3, col. 5

[37] *London Free Press*, December 14, 1877, p. 2, col. 1

[38] *London Daily Advertiser*, December 15, 1877, p. 1, col. 6

[39] E.V. Buchanan, London's Water Supply: A History. London, ON: 1968, London Public Utilities Commission. P. 25-28.

[40] E.V. Buchanan, London's Water Supply: A History. London, ON: 1968, London Public Utilities Commission. P. 16.

[41] Council Proceedings, May 6, 1878, p. 910.

[42] E.V. Buchanan, London's Water Supply: A History. London, ON: 1968, London Public Utilities Commission. p. 16-17.

[43] Nancy Z. Tausky, Historical Sketches of London. Peterborough, ON: 1993, Broadview Press. p. 88.

[44] E.V. Buchanan, London's Water Supply: A History. London, ON: 1968, London Public Utilities Commission. p. 20-21.

[45] In 1880 tenders were issued for the construction of a second pumphouse to serve as a backup facility in the event the first pumphouse was unable to function properly. Indeed, during the summer months the river often "lacked sufficient water to supply motive power for pumping…" and in 1883, as the result of a flash flood, one whole end of the first pumphouse was destroyed, though it was subsequently replaced (see Historical Series Scrapbook Vol. 1, p. 70, available in the London Room, London Public Library). When catastrophes such as these occurred, the second pumphouse was designed to operate on steam power through coal fired furnaces rather than through water power and could deliver nearly two million gallons (eight million litres) of water in 24 hours when needed. It is also worth mentioning that the first pumphouse was demolished in 1938.

[46] Council Proceedings, April 21, 1879, p. 563.

[47] E.V. Buchanan, London's Water Supply: A History. London, ON: 1968, London Public Utilities Commission. p. 20-21.

[48] *London Free Press*, February 13, 1879, p. 4, col. 3.