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The Search for Pure Water in Ottawa: 1910-1915

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Résumé de l'article

Dans la seconde décennie du vingtième siècle, Ottawa touché par le problème de l'épuration des eaux, intensifié par une série d'épidémies de typhoïde, a conduit une certaine élite sociale à joindre ses efforts pour apporter une solution de rechange. Aucune ne s'avéra satisfaisante. Mais, quand le problème de l'eau potable s'ajouta à celui de l'approvisionnement en eau, diminuant la capacité de combattre les incendies et faisant ainsi augmenter les primes d'assurance, les hommes d'affaires se sentirent tout à coup impliqués. On découvrit immédiatement une solution. L'approvisionnement en eau potable à Ottawa fut donc, en effet, le résultat d'impératifs économiques et non de besoins sanitaires.

THE SEARCH FOR PURE WATER IN OTTAWA: 1910 - 1915

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Chris Warfe

ABSTRACT/RESUME

In the second decade of the twentieth century, concern over the purity of Ottawa's water supply, heightened by a series of typhoid epidemics, led to protracted efforts by certain social elites to provide alternatives. None were successful. But when the pure water question intersected with a problem of supply that impaired the capacity to fight fires and consequently drove up insurance rates, the business community became engaged. An immediate solution was found. The provision of pure water in Ottawa was, in effect, a product of economic imperatives, not health needs.

Dans la seconde décennie du vingtième siècle, Ottawa touché par le problème de l'épuration des eaux, intensifié par une série d'epidémies de typhoide, a conduit une certaine élite sociale à joindre ses efforts pour apporter une solution de rechange. Aucune ne s'avéra satisfaisante. Mais, quand le problème de l'eau potable s'ajouta à celui de l'approvisionnement en eau, diminerant la capacité de combattre les incendies et faisant ainsi augmenter les primes d'assurance, les hommes d'affaires se sentirent tout à coup impliqués. On découvrit immédiatement une solution. L'approvisionnement en eau potable à Ottawa fut donc, en effet, le résultat d'impératifs économiques et non de besoins sanitaires.

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Turn-of-the-century Ottawa took its water unfiltered from the Ottawa River and had few problems except for the complaint that the water was highly coloured and had a bad taste. Expansion in the

population up-river, however, brought with it the threat of future contamination and a water works engineer, Allan Hazen of New York City, was contracted to do a study to determine how Ottawa might acquire a better supply of water. Hazen's report was received by Council in October, 1910.[1] In the report, he suggested that Ottawa could secure a supply of pure water from a mechanical filtration plant on Lemieux Island, in the Ottawa River at the west end of the city. But on the recommendation of the Water Works Committee, he had also investigated a source of supply from McGregor Lake, in Quebec's Gatineau Hills, that would not require filtration or the addition of chemicals. Although he noted that the McGregor Lake Scheme would be more expensive ($2.4 million as compared to $700,000) he reasoned that the cost was not prohibitive with regard to the need and compared to what other cities had paid. He recommended that land and water rights be bought to McGregor Lake and failing this, Ottawa build a mechanical filtration plant. Pending the establishment of a permanent supply of water, Hazen also recommended that hypochlorite of lime be added to Ottawa's water. These recommendations were accepted and a further analysis of McGregor Lake was ordered along with the treatment of water from the Ottawa River with hypochlorite under the supervision of the Medical Officer of Health.[2]

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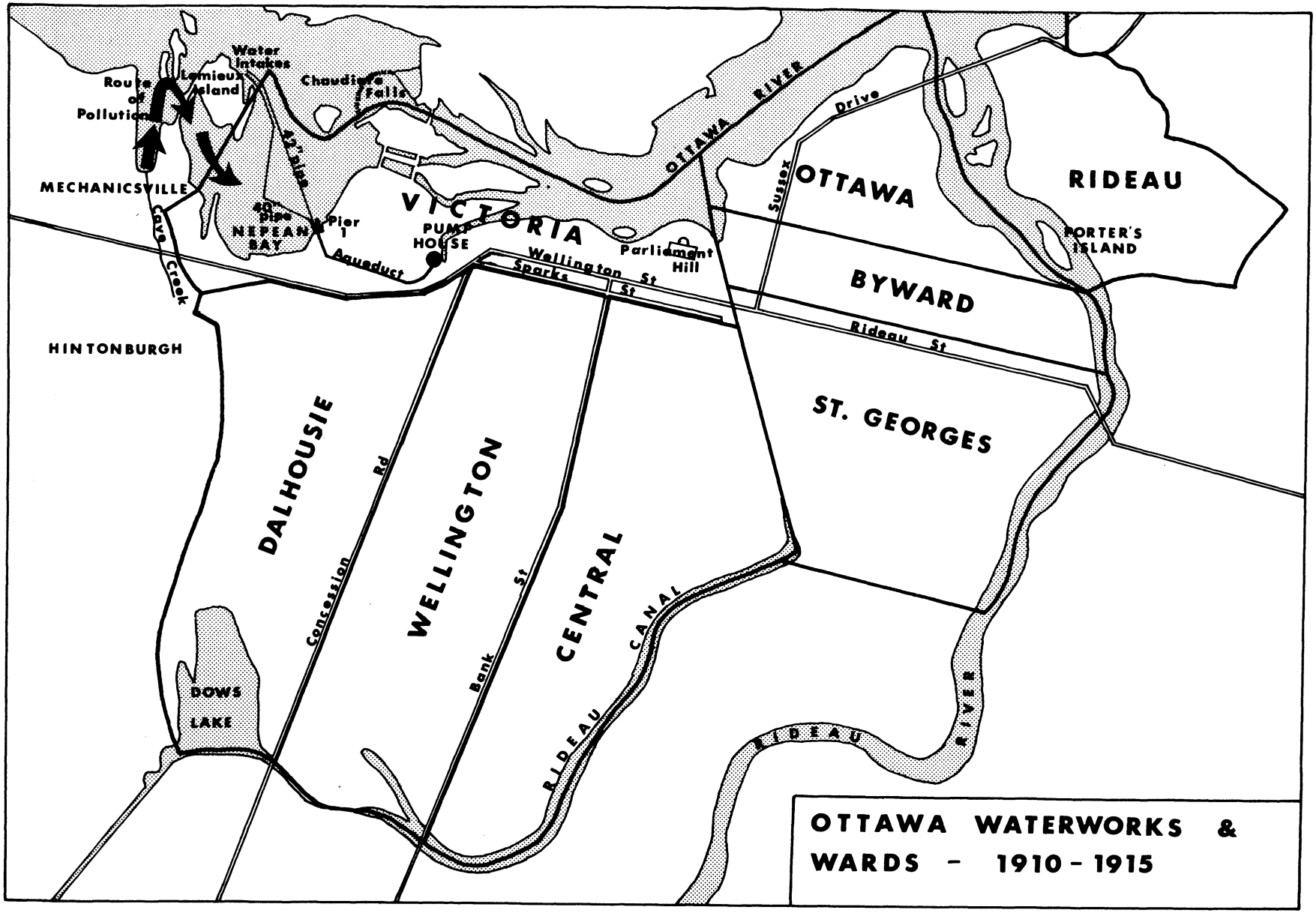
[1] A. Hazen, "Report on Improvement of the Ottawa Water Supply," Minutes of the Council of the Corporation of the City of Ottawa, 1911, p. 705.

[2] Ibid., p. 658.


Water Intakes
Lemieux Island
Route of Pollution
Chaudiere Falls
OTTAWA RIVER
Sussex Drive
MECHANICSVILLE
42" Pipe
NEPEAN BAY
Pier 1
VICTORIA
PUMP HOUSE
Aqueduct
Parliament Hill
OTTAWA
RIDEAU
PORTER'S ISLAND
Wellington St
Sparks St
BYWARD
Rideau St
Cave Creek
HINTONBURGH
DALHOUSIE
Concession Rd
WELLINGTON
Bank St
CENTRAL
ST. GEORGES
RIDEAU CANAL
RIDEAU RIVER
DOWS LAKE
OTTAWA WATERWORKS & WARDS - 1910 - 1915

By December of 1910, a delegation consisting of John Grant (the chairman of the Water Works Committee), the City Treasurer and the City Engineer had gone to Toronto to consult with their counterparts as Toronto had just built a new filtration system and was experimenting with hypochlorite treatment. As a result of this trip, John Grant stated in his report that since Toronto had problems with hypochlorite with regard to taste and smell, "I am now convinced that it will be a practical impossibility to treat the water at the Pumping Station as recommended by Mr. Hazen."[3] This led to the recommendation that "pending successful results in Toronto, with the system of water purification by hypochlorite of lime, your Committee recommends that said system not be installed in Ottawa."[4] The report was adopted by Council. Seemingly, the marketable qualities of the water overrode any possible health considerations.

With the new year came the results of the civic election, and Mayor Hopewell and the Board of Control returned unchanged. 1911 also brought a typhoid epidemic, which lasted from January until the first of March, with a total of 987 cases and 83 deaths. The typhoid epidemic was followed immediately by a smallpox epidemic which infected 126 people and caused one death.[5] In April Dr. Robert Law, the Medical Officer of Health, resigned due to stress, and Dr. William Shirreff was appointed as his replacement.[6]

The typhoid epidemic prompted two independent investigations, one by the provincial government and one by the federal government. In the report of the Chief Health Officer of Ontario, John McCullough, the blame

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[3] Ibid., p. 682.

[4] Ibid., p. 681.

[5] Dr. W. Shirreff, "Report of the Medical Officer of Health," Departmental Reports - 1911, pp. 125-157.

[6] Ibid., p. 125.

was laid on a local source of pollution, Nepean Bay, since there had been no typhoid cases further up river.[7] The source of the pollution was mainly attributed to Cave Creek in Hintonburg, a newly annexed part of the city. Hintonburg had no complete sewer system and so the creek, running behind many water closets, became an open sewer running into the Bay. Ottawa, however, did not get its water supply from the Bay, but from the middle of the river on Lemieux Island. The Ottawa water supply became infected when a water intake valve located on the Bay, normally closed, was opened during the low-water period, December to January, to increase the pressure in case of fires. In summing up, Dr. McCullough stated that, "in view of the present conditions and of the oft-repeated warning of the Provincial Board of Health, I have no hesitation in affirming that the responsibility for the present epidemic is upon the authorities of Ottawa," and "I trust this experience will be of value to your authorities and that they will not repeat the folly of further neglecting the precautions necessary for the health of the City."[8] He instructed that the valve that had been opened be permanently closed and that treatment of the river water with hypochlorite be used until a better system could be established, and that without a day's delay, a proper sewage system be supplied to Hintonburg. The investigation by Dr. Charles Hodgetts of the federal Commission of Conservation came up with the same findings but added that the typhoid epidemic could have been avoided if Hazen's recommendation of hypochlorite treatment had been adopted.[9]

During these events City Hall did not sit still. By the end of January, hypochlorite was being added to the water. Also, a delegation consisting of the City Engineer, the Medical Health Officer, and Aldermen Brown and Pinard, was sent in January to Montreal to study that city's waterworks. Their recommendation, adopted by Council, was to install a

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[7] John McCullough, "Report of Chief Health Officer of Ontario," Minutes of the Council of the Corporation of the City of Ottawa, 1911, p. 95.

[8] Ibid., p. 97.

[9] Ottawa Journal, Dec. 15, 1911.

mechanical filtration plant at a cost of $1.8 million, and the City Engineer was to begin the necessary preparations for such a plant.[10] At the same time, the City was still committed to investigating McGregor Lake as a source of supply, and acquired the services of the Director of the Meteorological Service in Toronto to make observations for them.[11]

In March, a commission consisting of Dr. Hodgetts, Allan Hazen, Dr. McCullough and Charles Keefer was struck to determine the best solution to the water question -- McGregor Lake or the Ottawa River. Their report, submitted in November of 1911, divided on the issue. Hazen, Hodgetts and McCullough favoured McGregor Lake as it would not cost much more than the Ottawa River plan, and would provide superior water that would cause no red water problem. Keefer, on the other hand, supported the use of the Ottawa River filtered either mechanically or by slow sand filters. He did not think that McGregor Lake would be able to supply a sufficient amount of water to meet the city's needs. It was also Keefer's contention that the old 40-inch pipe carrying water under Nepean Bay from Lemieux Island to the city was damaged, allowing the polluted waters of the Bay to seep in. This problem could be rectified by a new 42-inch pipe -- already under construction to ensure adequate fire pressure -- now that the intake valves on the Bay had been permanently sealed by order of Dr. McCullough.[12]

The implications of the epidemics and Council's inability to cope, together with a statement in the Dominion Parliament that Ottawa had the highest mortality rate among infants in the world, were not lost on civic politicians. A group called the Civic Improvement League was formed near the end of 1911 to run a slate of candidates for the coming elections. Originally the members of the Civic Improvement League represented all sectors of Ottawa society; anglophone, francophone, labour, business and the professions. Although competition was fierce among the three Ottawa English

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[10] Minutes, 1911, p. 61.

[11] Ibid., p. 215.

[12] Ibid., Report of Pure Water Commission, p. 781.

dailies, the owners of the Journal, Citizen and Free Press were all involved in the early organization of the League.[13] The main plank of their platform was a more businesslike attitude towards managing city affairs; they saw the main issues as municipal tax reform and a resolution of the health and sanitation problems.[14]

The forging of so many disparate interests into a unified political force is every politician's dream, and without any comparable force to oppose it the Civic Improvement League stood a good chance of controlling the 1912 Council. However, the Civic Improvement League was not to remain united for long. On November 20th the League met to nominate candidates for mayor and board of control. At that meeting Philip Dansken Ross, editor and owner of the Journal, became the League's candidate for mayor.[15] This was too much for Wilson Southam, publisher of the Citizen, and in December his paper set out to defeat the League, associating Ross and the organization with compulsory vaccination and elitism.[16] An example of what it meant to be associated with compulsory vaccination can be illustrated by a letter to the Citizen shortly before polling day from the Rev. F. G. Robinson, a Methodist minister from Kingston, who objected to anything "that forces any citizen to have this impurity injected into a healthy system." He went on to tell the story of a family of six, "the five who were vaccinated developed consumption and died," and "I know a brother minister who was vaccinated whose arm turned black and got almost as thick as a stove pipe and was in danger of losing his arm and even his life from blood poisoning."[17] While

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[13] Ottawa Journal, Dec. 16, 1911 and Dec. 20, 1911.

[14] Ibid., Dec. 30, 1911, p. 2.

[15] Ottawa Citizen, Nov. 21, 1911, pp. 1-2.

[16] Ibid., Nov. 22, 1911, p. 6; Dec. 9, p. 6.

[17] Ibid., Dec. 12, 1911, p. 6.

Ross protested against this treatment in his own paper and in letters to the Citizen, the Citizen editorialized "on the manner in which the Ross boom was worked under the guise of the Civic Improvement League."[18]

The voters sided with the Citizen and Ross and the Journal and the Civic Improvement League were roundly defeated. The mayor and board of control were returned unchanged and a majority of the old council was re-elected. A by-law on the McGregor Lake scheme which Ross had favoured was also defeated.

If the 1912 election was a vindication for some members of council it was short lived. In the spring of 1912 there was a small-pox epidemic with 224 cases and 2 deaths, followed by a typhoid epidemic lasting from June to August, with 1378 cases and 91 deaths.[19] At the time of the typhoid outbreak, Ottawa was receiving its water through the new intake pipe running, like the old one, under Nepean Bay. The new pipe, thought to be leaky, was abandoned in the last week in July with the result that there was a sharp decrease in infection. At the same time the hypochlorite treatment was stepped up. In September, Council was notified that Dr. Shirreff, in his turn, had suffered a nervous breakdown, due to hard work and worry, and his position as Medical Health Officer was being filled temporarily by Dr. Hodgetts on leave from the Commission of Conservation.[20]

As for City Council and the pure water question, with the defeat of the McGregor Lake scheme, Council ordered the City Engineer to prepare plans for a sand filtration system for the Ottawa River. These plans were submitted in July to Dr. McCullough and the Provincial Board of Health. In his reply, Dr. McCullough suggested instead a mechanical filtration plant on Lemieux Island because the site was ample, it was immediately available,

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[18] Ibid., Dec. 27, p. 6.

[19] Dr. Shirreff, "Medical Officers Report," Departmental Reports - 1912, p. 143.

[20] Minutes, 1912, p. 622.

and much of the preliminary work had already been completed.[21] In response, Council hired Allan Hazen to prepare the plan and to supervise the building of a mechanical filtration plant, so long as it was approved by by-law and the Provincial Board of Health.[22] Council also moved for a judicial investigation of the Engineering and the Health Departments regarding the typhoid epidemics.[23] As a result of an investigation by Judge Gunn, the Board of Control asked for and received the resignations of Newton J. Ker (the City Engineer) and the incapacitated Dr. Shirreff.[24] During this investigation the City Solicitor, Taylor McVeity, had attempted to turn the proceedings towards a consideration of the joint real estate ventures of the Mayor and the City Engineer.[25] This somewhat surprising approach brought universal derision, and when McVeity was unable to prove his allegations his dismissal was also obtained.[26]

As Ottawa faced another election without resolving its water problem, much space was given over in the press to debating various proposals. With the defeat of the McGregor Lake scheme the previous year the Journal found itself without a proposal it could support and so printed a variety of opinions. The Journal printed the letter of the Rev. D. N. Morden, pastor of Erskine Presbyterian Church. Morden objected to drinking any "doped water," especially since it was felt pure water was available further up the Ottawa. Charles Keefer, the dissenting member of the Pure Water Commission of 1912, wrote in favour of slow sand filtration as used

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[21] Ibid., p. 497.

[22] Ibid., p. 540.

[23] Ibid., p. 540.

[24] Ibid., p. 972.

[25] Investigations re Ottawa Waterworks and Health Depts. by His Honour Judge R. D. Gunn (City of Ottawa Archives), p. 1561.

[26] Minutes, 1912, p. 1001.

in England and against mechanical filtration, which he labeled as being American.[27] The Journal also gave the better part of two pages to Allan Hazen to explain the relative benefits of the various pure water schemes. He noted that while a scheme like McGregor Lake was superficially more costly, water which was chemically treated would aggravate the red water problem caused by rust in iron or poorly galvanized pipes dissolving in the water. This could only be corrected by the installation of expensive copper boilers and brass pipes. Hazen concluded that if Ottawa wanted water that was just free from infection then it could go on doing what it had been doing, treating its water with hypochlorite, but:

> ...on the other hand, clean water, and by that I mean a water approaching very closely to mountain spring water, a water free from turbidity and colour, so that it sparkles in the glass, a water with no taste and with no odor, a water thoroughly clean and free from all injurious elements, is worth an incalculable amount to a thriving, growing city. [28]

In the 1912 election the voters would have a chance to approve a by-law recommending a mechanical filtration plant for the Ottawa River. In the month before the election Southam's Citizen daily ran front page articles and editorials in support of mechanical filtration. As far as supporting a candidate for mayor the Citizen found itself at a loss. Mayor Hopewell, whom it had supported so stridently against the interests of P. D. Ross, declined to run. In what was a characteristic move for the Citizen, the vitriol of the previous campaign was forgotten and Ross was proposed as a candidate:

> The Citizen believes that the time for requisitioning Mr. Ross' services on behalf of the city has come. In the whole range of possible candidates it knows of no one who is better fitted to occupy the mayor's chair during the next year.[29]

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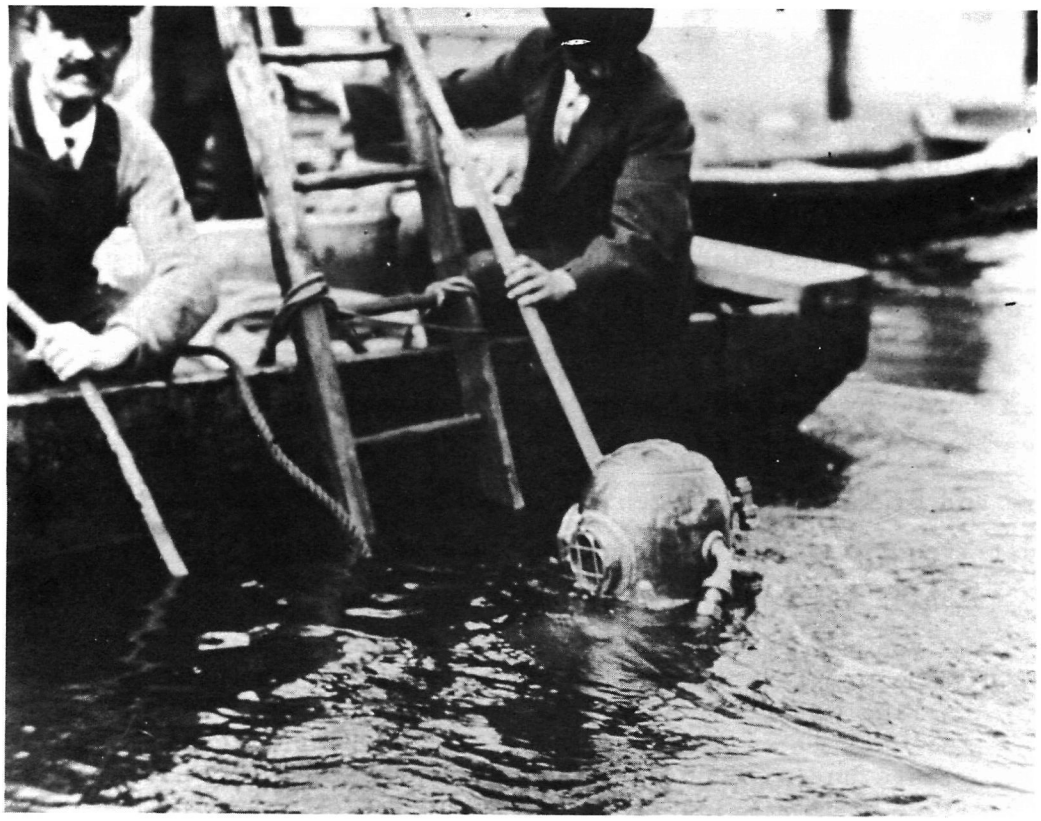
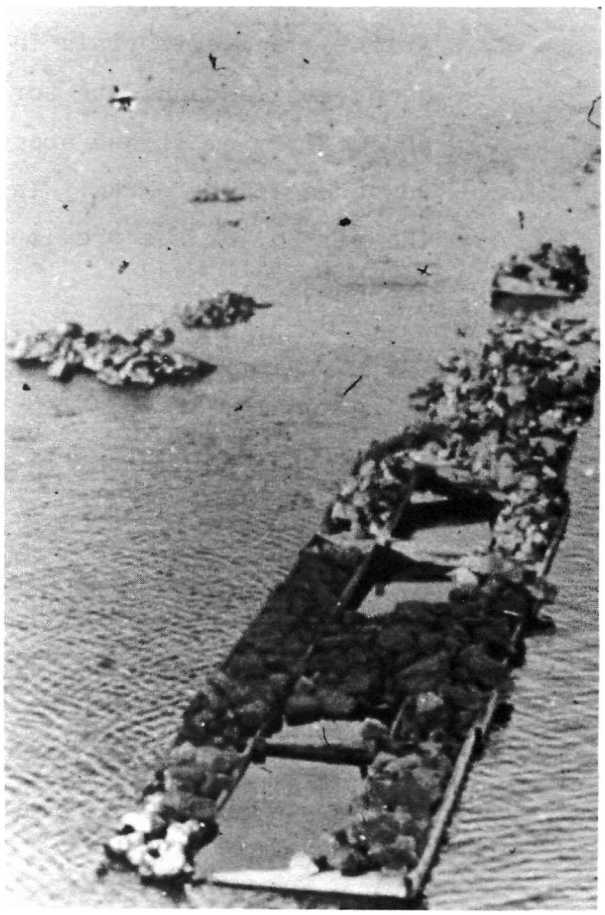
[27] Rev. D. N. Morden, C. H. Keefer, Ottawa Journal, Dec. 13, p. 1.

[28] Allan Hazen, "Letter to the Journal," Ibid., Dec. 23, 1912, pp. 10-11.

[29] Ottawa Citizen, Dec. 18, 1912, p. 6.



Diver on inspection of clear water pipe, Ottawa City Water Works, c. 1911. (Courtesy: Ottawa City Archives).



Ottawa City Water Works Pier. Location of emergency and clear water intake pipes. n.d. (Courtesy: Ottawa City Archives).

In the same editorial the Citizen down-played the candidacy of James Ellis, proposed by lumber baron, J. R. Booth, reasoning that Ellis should not be distracted from the fine work he was doing as a Conservative M.L.A. and permanent member of the Ottawa Hydro-Electric Commission. However, when Ross nominated Ellis for mayor the Citizen changed its tune and added its support to the Journal's.[30]

Ellis had pledged that if the mechanical filtration by-law was defeated he would apply to the Dominion Government to name an expert English engineer to formulate a new scheme and have it sanctioned by the provincial legislature without further consulting the voters.[31] The Citizen felt confident in this approach, since McGregor Lake and slow sand filtration of the Ottawa River had been eliminated, the only possible alternative would be a revised scheme for mechanical filtration of the Ottawa River.[32]

Ellis became mayor in 1913 and the mechanical filtration by-law was defeated. As promised the Governor-General, Lord Strathcona, was contacted and he arranged through the British Government for the services of Sir Alexander Binnie, Chief Engineer for London County, and Dr. Houston, Adviser to the London Metropolitan Water Works.[33]

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[30] Ibid., Dec. 21, 1912, p. 6; Jan. 4, 1913, p. 6. J. R. Booth was one of the largest lumber magnates in the country. His pulp and paper mills were located on the Ottawa River just downstream from Lemieux Island. See William E. Greening, The Ottawa (Toronto: McClelland and Stewart, 1961); and P. D. Ross, Retrospects of a Newspaper Person (Toronto: Oxford University Press, 1931), p. 76. The other permanent member of the Hydro Commission besides Ellis was Ross.

[31] Ottawa Journal, Dec. 27, 1912, p. 2.

[32] Ottawa Citizen, Dec. 23, 1912, p. 6; Dec. 28, p. 7.

[33] Minutes of the Council of the Corporation of the City of Ottawa, 1913, p. 3.

Binnie and Houston had a preliminary report ready and delivered to Council one month after the mayor's inaugural address. In this report the two English engineers noted their awareness of the fact that chemical treatment was repugnant to a large portion of the citizens of Ottawa. The Ottawa River was further ruled out as a source because moving the intake above the present source of pollution was no guarantee for the future with the expected expansion in population. Binnie and Houston concluded that the best source of pure water would be from one of the lakes in Quebec.[34]

While Council was waiting for the final report of Binnie and Houston, it installed better facilities on Lemieux Island to mix hypochlorite into the water taken from the Ottawa River.[35] At the same time, in March of 1913, Council saw the need to under-cut any action against it in the courts resulting from the investigations into the typhoid epidemics and submitted a plebiscite for the next election asking for approval of a special tax, that the city without admitting any legal liability whatever, could use to pay portions of claims from the epidemics "of 1911 and 1912 for medical attendance, hospital services, nurses, medicine and funerals."[36] In April, Council entered into an agreement with the Ottawa Dairy Company for the use of the water in its well, which it would distribute using city sprinkling carts, to people who did not wish to use water from the Ottawa River even though treated. This programme was extended with the sinking of many wells around the city.[37]

The final report of Binnie and Houston was received in October and was immediately approved by City Council and the Provincial Board of Health. The Binnie plan was basically a more grandiose McGregor Lake scheme. Instead of an aqueduct travelling 15 miles to Ottawa through the Gatineau's, it would travel approximately 45 miles from a new source, Lake Pemichangan. A much larger lake, Thirty-One Mile Lake, was to be

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[34] Ibid., p. 71.

[35] Ibid., p. 114.

[36] Ibid., p. 141.

[37] Ibid., p. 167.

artificially linked to Lake Pemichangan to ensure that the reservoir would be large enough to supply Ottawa's future needs. In order to achieve this the city would have to come to an agreement with the Quebec government over the water rights and purchase all the land surrounding the lakes from private interests to ensure against future development polluting them. Binnie estimated the cost of this project to be around $8 million.[38] Acting on his promise not to go back to the ratepayers for their approval, Mayor Ellis succeeded in getting Council to approve a by-law to issue $5 million dollars in city bonds to finance this plan.[39]

The legality of this by-law was challenged in the courts by former city solicitor, Taylor McVeity, acting as council for Thomas Clarey, a contractor and former city alderman. On December 1st Judge Lennox quashed the by-law as being illegal for the reason that under provincial statute any money by-law needed to be ratified by the ratepayers, and that in any case the amount of money asked for was not enough to accomplish that for which it was meant.[40] In reply to this Dr. McCullough of the Provincial Board of Health ordered the City Council to pass another by-law immediately, for the full $8 million.[41] This new by-law was again challenged by Thomas Clarey whose lawyer, McVeity, was now a candidate for mayor. 1913 ended on a positive note for the Binnie supporters with the passage of the Ottawa Water Act by the Quebec legislature.[42]

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[38] Ibid., see index.

[39] Ibid., p. 413.

[40] Ibid.

[41] Ibid.

[42] Ottawa Journal, Dec. 19, 1913, p. 7; Dec. 20, p. 1.

For the second year in a row the pure water question dominated the election campaign. In favour of the Thirty-One Mile Lake plan of Sir Alexander Binnie were Mayor Ellis, the Board of Control, and the Ottawa Journal. Opposed to the plan were the Ottawa Citizen and Taylor McVeity. McVeity had been suing the Citizen for libeling him upon his dismissal as city solicitor. He dropped the suit and immediately received the Citizen's endorsement for mayor.[43]

Much to the probable amusement of Southam and the Citizen, McVeity defeated Ellis for the mayoralty. The Thirty-One Mile Lake plan also received another setback at the beginning of 1914 when Judge Lennox quashed the $8 million by-law.[44] But the quashing of the by-law and the election of McVeity did not finish the Binnie plan, for although the citizens of Ottawa had elected a mayor opposed to the scheme, they had also sent back the same Board of Control and almost the same Council that had been so committed to the scheme under Mayor Ellis.

1914 was a year of continuous political turmoil on City Council. Although defeated as mayor, Ellis won a by-election for alderman and returned to City Council in February, becoming Chairman of the Water Works Committee.[45] The mayor was sick during February and Ellis and the Binnie supporters took advantage of his absence to approve a by-law for a plebiscite on the water question and to issue a petition to the Ontario Legislature asking it to validate the $8 million by-law.[46] Ellis who was also an M.L.A. for the governing Conservatives was to use his influence in gaining favourable legislation.

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[43] Ibid., Dec. 31, 1913, p.6.

[44] Ontario Weekly Notes, Vol. 5 (1914), pp. 370, 673.

[45] Minutes of the Council of the Corporation of the City of Ottawa, 1914, pp. 29-30.

[46] Ibid., p. 48.

For their part, the McVeity supporters did not sit quietly. In March they obtained an injunction against the plebiscite on the water question. In the same month a special meeting of council was called to discuss the accusation of one alderman that another alderman had tried to bribe him in order to get his support on the Thirty-One Mile Lake scheme.[47] In June, as a result of a court action by McVeity's friend Thomas Clarey, the entire Board of Control was unseated due to the inadequacy of accommodations for polling.[48] The resulting by-election saw three new controllers elected, including Thomas Clarey. As a final act against his detractors McVeity barred all Journal reporters from City Hall before the civic election.[49]

With all the political turmoil over the pure water issue in 1914 came a new scheme, or, rather, a new Ottawa River scheme. Council ordered the City Engineer, Archibald Currie, to supply it with another Ottawa River scheme so that it might be placed on a plebiscite giving the voters a choice between it and the Binnie plan. Although an injunction was granted against this plebiscite the Provincial Legislature ordered it held. The result of the voting was 6,236 for the Binnie plan and 7,544 for the new Ottawa River plan.[50] The Currie-McVeity scheme, as the new plan was labelled, called for overland pipes from the Little Chaudiere Rapids (upstream from Lemieux Island and Nepean Bay) to a mechanical filtration plant somewhere on the mainland.[51] With the result of the plebiscite, Allan Hazen was once again slated to be consulting engineer and construction supervisor if the plan was accepted by the Provincial Board of Health.

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[47] Ibid., pp. 83, 123.

[48] Ibid.,p. 251.

[49] Ottawa Journal, Dec. 8, 1914, p. 1.

[50] Ibid., p. 125.

[51] Ibid., p. 136.

The Board of Health, however, refused to look at these new plans on the grounds that it had already authorized the Thirty-One Mile Lake plan as the one capable of supplying Ottawa's needs. The Ontario Legislature, acting on the results of the plebiscite, ordered the Provincial Board of Health to look at the plans and rule as to whether they would supply Ottawa with pure water. If they were rejected, the by-law authorizing $8 million for the Binnie plan would become law and Ottawa would proceed immediately with that scheme.

On September 21st, Dr. McCullough handed down his judgement on the Currie-McVeity plan.

> The Ottawa River is beyond any question a polluted source of supply at all points in the vicinity of the City of Ottawa. The fact that it is an interprovincial stream renders the control of its pollution all the more difficult. The Board understands it to be a fact that the people of Ottawa have been led to believe that treatment of the Ottawa River water by mechanical filtration will relieve them of the further use of hypochlorite of lime.[52]

McCullough claimed the last statement was untrue -- hypochlorite would be used. He noted that while chlorination was useful in an emergency situation, it was not adequate for a permanent supply, especially when a source of pure untreated water was available. For these reasons the Board ruled against the new filtration plans. This ruling by McCullough reversed his own position of 1912 when he recommended that Ottawa build a mechanical filtration plant, and by stating that the Ottawa River was polluted at all points around Ottawa, he contradicted the findings of his own investigation into the 1911 typhoid epidemic.

The search for Ottawa's source of pure water had seemingly ended for according to the Legislature the $8 million by-law was now valid. But yet another shock to the body politic was to come from a rather unexpected direction. On November 3rd Mayor McVeity tabled a letter and a report from the Canadian Fire Underwriter's Association. The report of Inspector Norman R. Wilson for the Fire Underwriters found that the water available to Ottawa

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[52] *Ibid.*, p. 354.

in case of fire was insufficient. The old 40-inch pipe which was then in use could only supply enough water when three of its intake valves located in Nepean Bay were opened, "thereby lessening the friction of the pipe and giving additional supplies for fire purposes, but these have been removed for health reasons." It was the opening of one of these valves for fire purposes that was blamed as the cause of the epidemic of 1911. Wilson thought that the new 42-inch pipe that was laid under Nepean Bay would be able to supply enough water except it was out of order due to leaking joints. Wilson's solution to the fire problem was the construction of an overland intake pipe of sufficient capacity and in the meantime the purchase of three steam fire engines. The other, perhaps more portentous, communication that Mayor McVeity had to make to Council was that as a result of the report there would be a surtax placed on Ottawa's fire insurance, and in addition agents were being advised to write no more policies until the situation was remedied.[53]

The pure water question and the fire pressure problem became linked. The solution to both would have to be found quickly, thus ruling out the Binnie plan. Since the Currie-McVeity plan and the Wilson report both recommended overland pipes, Council applied for a mandamus requesting the Provincial Board of Health to reconsider the plan it had rejected.[54] In the meantime Council ordered all work being done on the Binnie scheme stopped.

With the emergence of the water pressure problem, the Binnie faction disappeared. Ellis did not run for mayor in 1915, and the contest was between McVeity and Nelson Porter, a real estate agent. Since both candidates supported the Ottawa River as the solution for the fire and pure water questions the Citizen felt safe in withdrawing its support from McVeity. After three years of factions fighting one another to a standstill

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[53] Minutes, 1914, pp. 460-462.

[54] Ibid., p. 470.

a change was needed. Porter campaigned for a more business-like attitude in managing civic affairs. The appeal was irresistible and he was elected Mayor.

It was not long, however, before Mayor Porter had problems. The mandamus requesting a reconsideration of the Currie-McVeity plan had been granted on December 28, 1914, by Justice Middleton. The Provincial Board of Health had looked at the plans again and refused to approve them. It looked as if Ottawa would be left in a bind -- unable to come up with a proposal that would satisfy both the Provincial Board of Health and the Fire Underwriters. However the Ottawa Board of Trade decided it was time for it to intervene. The situation regarding the insurance surtax and boycott could not be allowed to continue, and it hired its own engineer to draw up a set of plans that would satisfy the insurance companies. The Board of Trade proposed to keep the intake of water at Lemieux Island, new pumps would be added and the existing system of hypochlorite treatment would be maintained, but the water would be transferred over Nepean Bay by a bridge in two 51-inch pipes.[55] This would allow for water capacity to spare, as well as getting around the problem of polluted water leaking into the pipes from the Bay. This plan received the approval of both Council and the insurance companies. But to be put into effect it still needed the approval of the Provincial Board of Health. Surprisingly enough on May 25, 1915, the plan was approved by the Board, thus eliminating the necessity of the Binnie scheme.[56] Work began immediately on the plan but, probably due to the war, progress was slow. By November 1917 one of the 51-inch pipes was connected by a bridge from Lemieux Island and was in use, but it was not until December 1919 that the second pipe was connected and

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[55] Minutes of the Council of the Corporation of the City of Ottawa, 1915, pp. 25, 155.

[56] Annual Departmental Reports of the Corporation of the City of Ottawa for the Year 1915, p. 56.

all other construction completed.[57]

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By the time pure water became a prominent issue in Ottawa, much engineering and scientific experience was available to serve either an aqueduct or a river/filtration system. Nearby American cities, including Boston and New York, where Hazen worked, had long experience with aqueducts. Toronto, Cincinatti, Philadelphia, and London, England, among many others, could offer tested models for treated river supplies. The city had two largely untrammelled options when it came to a supply of pure water. Either the Ottawa River or the Gatineau Lakes, given the state of engineering at the time, would serve well. Each option had much to recommend it. The Gatineau would provide a limpid product without high operating expenses since the water would require little treatment or pumping. Initial outlays would be considerable, but not entirely objectionable since the general perception was that the underwriting of public utilities and services by municipalities, as well as subsidies and tax exemptions, were necessary to induce growth and industrial expansion.[58] A big scheme could be a boost for local business, despite tax increases. Similarly, a treated supply from the Ottawa River, even though it would require much pumping and much

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[57] Annual Departmental Reports of the Corporation of the City of Ottawa for the Year 1917, pp. 147-148; and Minutes of the Council of the Corporation of the City of Ottawa for the Year 1919, p. 560. A mechanical filtration plant was finally installed March 1st, 1932. See Lucien Brault, Ottawa Old and New (Ottawa: Ottawa Historical Information Institute, 1946), p. 117.

[58] John Weaver, "Tomorrow's Metropolis Revisited: A Critical Assessment of Urban Reform in Canada 1890-1920," in Gilbert A. Stelter and Alan F.J. Artibise, eds., The Canadian City: Essays in Urban History (Toronto: McClelland and Stewart, 1977), p. 394. See also W. J. A. Donald, The Canadian Iron and Steel Industry (Boston and New York: Houghton Mifflin, 1915), p. 170.

treatment was based on a technology in place and one that the city had much familiarity with. Such a supply could be made available quickly and cheaply, a matter of some import when the insurance underwriters made their feelings known.

Finally, though concerns over the health of Ottawans was central to the general search for pure water, it was not central to the choice of a particular supply. Water from either the Gatineau or the River would have to be conveyed across the Ottawa for all or some of its width. Either way, there would have to be an alternative to the leaky pipes in the bottom of polluted Nepean Bay, which everyone agreed were the source of the epidemics. Fear that future development would pollute the entire Ottawa River had started the search for pure water in 1910. A public lack of confidence in the means of controlling diseases, against "the injection of foreign substances" and drinking of "doped water" prolonged and intensified the debate even after the threat of epidemic had been ended in 1912 with the addition of hypochlorite. The Gatineau Lake proposals appealed to this feeling by offering a source of water supply that would be forever free from the threat of development and pollution, a policy that was not practical with Ottawa River water.[59]

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[59]Locating a source of pure water other than the Ottawa River would have left the river free for unlimited exploitation for such industrial purposes as the generation of electricity, the provision of coolants, and the repository of industrial wastes. Putting this in perspective, Laurier had made a speech to Ottawa's Board of Trade promoting Ottawa as the 'Pittsburg of the North'. Laurier felt that progress in the smelting of iron ore by electricity, combined with Ottawa's close proximity to iron ore deposits and rivers capable of producing large quantities of hydro-electricity, made Ottawa a likely candidate to become a centre of heavy industry. This was also a period of rapid expansion in the iron and steel industry in Canada. For a report on Laurier's speech see the Ottawa Journal, Dec. 30, 1909, p. 3. For a history of the iron and steel industry in Canada up to 1915, containing mention of previous attempts to establish the industry in Ottawa, see Donald, The Canadian Iron and Steel Industry. The Ottawa Journal, Dec. 15, 1911, p. 1 carried an article on the establishment of a new $150,000 industry -- the Ottawa Iron and Steel Company.

The antagonists in this debate were drawn on both sides from a rather homogeneous elite of businessmen and professionals. Despite the fact that the epidemics posed a common threat, and the expenditure of large amounts of civic funds offered an uncommon opportunity for exploitation, the masses and larger entrepreneurial interests remained largely outside the issue. Indeed it would be hard to claim that concrete interests played a role at all. The split amongst the civic politicians seemed to be more characteristic of the natural antagonism that occurs between progressive elements and proponents of the status quo in what was otherwise a largely uniform group.[60]

The advocates of the Gatineau supply represented the new municipal reform. They idealized growth, which they equated with progress and prosperity. Boards of control and commission government were the means by which these people sought to reform municipal politics and institute a more business-like attitude. Allied with them was the new journalism of the "people's press."[61] For Ross and the Journal this meant devoting space to local business and politics, sports and the funny pages. Compared to this, the Citizen was generally more concerned with the affairs of the wider world.

The new reform movement united people under a common ideal; the conservative reform -- although it also sought to apply the business approach -- saw reform embodied in individuals not ideas. For this reason it could never hope to form a political force that would rival either the Civic Improvement League or the "Ellis party." The proponents of the status quo, the Ottawa River, had to rely on action in the courts and the initiatives

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[60]For example Ross, Southam, Ellis and Booth opposed one another on the pure water question but otherwise were friends and business partners. See Ross, Retrospects of a Newspaper Person.

[61]Paul Rutherford, "Tomorrow's Metropolis: The Urban Reform Movement in Canada 1880-1920," in Stelter and Artibise, The Canadian City, pp. 368-392.

of mavericks such as McVeity and novice politicians like Nelson Porter.[62]

Whether the antagonism between these two styles of civic management is sufficient to explain the intensity and length of the debate over pure water is questionable. What is not questionable is that these perceptions and attitudes quickly disappeared when vested interests were finally brought into play. The business community, threatened by increased costs due to higher insurance rates, and by loss of protection due to the moratorium on issuing policies, demanded from the politicians fast, energetic action. As usual in that period, it got what it wanted. But until the debate over pure water threatened to strike at their property, they tended to stand on the sidelines.[63]

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[62]For biographical information on McVeity see the Ottawa Journal, March 22, 23, 1951. For the same on Nelson Porter, see ibid., February 13, 1961.

[63]Ottawa was not alone in its complicated attempt to solve the water problem. See, for example, Alan F. J. Artibise, Winnipeg: A Social History of Urban Growth, 1874-1914 (Montreal: McGill-Queen's University Press, 1975), pp. 207-223; and Louis P. Cain, "Water and Sanitation Services in Vancouver: An Historical Perspective," BC Studies, No. 30 (1976), pp. 27-43.