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Résumé de l'article

Cet article examine les facteurs politiques et sociaux qui ont influé sur l'aménagement du réseau d'approvisionnement en eau de la municipalité de Paris (Ontario), entre 1882 et 1924. Même si le réseau, qui était financé par emprunts, fut payé par l'ensemble des contribuables, ce sont les secteurs commerciaux, industriels et résidentiels où vivaient les classes les plus aisées qui furent desservis les premiers. Cette façon de procéder reflète bien que l'objectif de l'aménagement de ce réseau était non pas d'améliorer la santé publique, mais bien de protéger les propriétés de grande valeur contre les incendies. Les règlements municipaux accordaient un pouvoir disproportionné aux propriétaires fonciers et permettaient à ces derniers d'imposer leurs volontés. On pourrait s'attendre à des conclusions semblables dans toutes les municipalités ontariennes car les règlements municipaux étaient fixés par une loi provinciale. On peut constater qu'historiquement, les riches ont été favorisés lors de l'aménagement des réseaux d'approvisionnement en eau.

The Political Geography of Water Provision in Paris, Ontario, 1882-1924

John Hagopian

Abstract

This article examines the social and political factors which influenced the development of the Paris, Ontario waterworks system from 1882 to 1924. Commercial, industrial and upper-class residential areas received prior service, even though the debt financing of the system was borne by taxpayers generally. This pattern reflects the purpose of the system, which was to protect valuable property from fire, rather than to improve public health. Municipal voting laws gave disproportionate power to owners of property and thus allowed their will to prevail. The findings could be expected in all Ontario municipalities, as municipal voting laws were provincially legislated. Historically, there has been a bias in water provision in favour of the affluent.

Introduction

Studies of the development of urban infrastructure are not of exclusive interest to engineers wishing to explore the technical aspects of these innovations. Urban infrastructure is a social issue as well as a technical device, since it is constructed when it is desired by a stratum of society, and it is implemented in ways which benefit this stratum. Since ancient Rome developed the Trajan aqueduct, the tradition of water services provision continues each time a municipality placates industries with subsidized waterworks construction and service. As human artefacts, waterworks developments have an important social dimension, as they reflect the nature of the societies which build them. Accepting these premises, this case study seeks to answer the following questions: who wanted waterworks, why did they want it, to what degree did it benefit them, to what degree did they pay for it, and how were they able to make their objectives prevail?

Paris, Ontario was chosen as the site of this case study because, as a small town, it affords an opportunity to do a comprehensive study into the early experience of waterworks development of a whole community. Published studies have focused on larger urban areas. Paris was among the first towns in Ontario to construct a municipally-financed waterworks system.[1] Most of the municipalities which built a system before 1882-84 when Paris did were cities.[2]

Most North American studies have shown that waterworks systems were developed not for reasons of public health, but rather for reasons of fire control. Ernest Griffith states that in the United States, "by 1870, all the cities needed a water supply for fire protection in the first place, and then for domestic use where wells were inadequate."[3] Alan Artibise found that in 1880 Winnipeg, "it was not the purity question that precipitated demands for a new system; rather, it was a concern over fire protection."[4] Taylor found that in Ottawa, "though 'general causes' were cited as requiring a waterworks," fire protection was the most central element to the scheme.[5] Studies of the pattern of development of North American waterworks systems are consistent with the pattern found in other places and times. Lewis Mumford notes that in Rome in 109 A.D., piped water from the Trajan aqueduct was provided to the rich, but not to the crowded tenements in which lived "the great mass of the proletariat."[6] In nineteenth-century Western nations, the same bias in favour of the rich was still evident, according to Mumford:

> The age of invention and mass production scarcely touched the worker's house or its utilities until the end of the nineteenth century. Iron piping came in; likewise the improved water closet; eventually the gas light and the gas stove, the stationary bathtub with attached water pipes and fixed outlets; a collective water system with running water available for every house, and a collective sewage system. All these improvements slowly became available to the middle and upper economic groups after 1830; within a generation of their introduction, they indeed became middle-class necessities. But at no point during the paleotechnic phase were these improvements made available to the mass of the population.[7]

Giedion found that Napoleon's water distribution system in Paris, France in 1812 also followed this pattern, as

> ... only the well-to-do districts such as the Faubourg St. Honore had water laid on. The popular quarters still had

Résumé

Cet article examine les facteurs politiques et sociaux qui ont influé sur l'aménagement du réseau d'approvisionnement en eau de la municipalité de Paris (Ontario), entre 1882 et 1924. Même si le réseau, qui était financé par emprunts, fut payé par l'ensemble des contribuables, ce sont les secteurs commerciaux, industriels et résidentiels où vivaient les classes les plus aisées qui furent desservis les premiers. Cette façon de procéder reflète bien que l'objectif de l'aménagement de ce réseau était non pas d'améliorer la santé publique, mais bien de protéger les propriétés de grande valeur contre les incendies. Les règlements municipaux accordaient un pouvoir disproportionné aux propriétaires fonciers et permettaient à ces derniers d'imposer leurs volontés. On pourrait s'attendre à des conclusions semblables dans toutes les municipalités ontariennes car les règlements municipaux étaient fixés par une loi provinciale. On peut constater qu'historiquement, les riches ont été favorisés lors de l'aménagement des réseaux d'approvisionnement en eau.

> to rely upon occasional street fountains, water sellers, and particularly upon water from the Seine. [8]

Artibise found that the same social bias was evident in Winnipeg in 1900. He noted that:

> ... the central portions of the city (wards 2, 3, and 4)—where most of the commercial elite lived and where most of their businesses were located—had adequate domestic supplies of water and at least elementary fire protection. It was in the North End (wards 5 and 6), where almost no water mains were laid, that the most severe problems were experienced. But since these districts included large numbers of foreigners and workingmen, few of whom had the vote or could influence the governing commercial elite in any way, Council could afford to take an inflexible stand. [9]

Studies by Arnold of Baltimore and Kleinburg of Pittsburg further confirm this bias.[10] The present study seeks to determine whether this pattern also developed in Paris, Ontario.

Methodology of This Study

This study compared spatial patterns by looking at land use, or functional zonation, of the entire town of Paris as determined from 1881 municipal tax assessment records, local history texts, maps and material from the Charles E. Goad fire insurance firm. Commercial, industrial and residential areas clearly emerge when mapped lot by lot.[11] The category of residential land use was further subdivided by defining those properties assessed at under $500 of value as lower class, and those assessed at over $1,500 as upper class. Upper- and lower-class residential areas again emerged when mapped lot by lot. These two patterns were then compared with the spatial pattern of the Paris watermain network at three time intervals: at the time of its construction in 1884, then again in 1913, and 1924. In the latter two years, accurate fire insurance maps from the Charles E. Goad firm served as the data source. Information concerning the extent of the system at its inception was derived from two early 1880s newspaper descriptions of the planned route. These descriptions are largely consistent with each other, but some uncertainty remains. Further details on the spatial evolution of the system were obtained from the minute books of the Paris waterworks committee, from later newspaper accounts, and from waterworks debenture bylaws. These patterns of land use, social geography, and water provision are compared to determine who benefitted from the way that the system was developed.

A financial examination of the waterworks system was also necessary in order to determine whether those who disproportionately benefitted from the system also paid for it. Data concerning municipal taxation in Paris were obtained from municipal assessment rolls, and from the annual Paris budget bylaws. Data concerning the revenues and expenses of the waterworks from 1882 to 1902 were obtained from a detailed article published in *Municipal World* in 1902. The waterworks service fee schedule applicable to residential and commercial users was found in a Paris bylaw. Industrial rates were more difficult to establish since they were determined on a case-by-case basis. Fortunately, Paris bylaws indicate which industrial enterprises were granted water service free of charge. Since construction of the system resulted in lower fire insurance costs for property owners in Paris, use was made of the 1882 Charles E. Goad reference book which accompanied an 1882 fire insurance plan. The plans themselves have unfortunately not survived, but the

reference book indicates which properties were considered special risks, the rates that were charged, and the identity of the owner and occupant. As for questions as to who controlled the development of the system, examination is made of relevant Ontario government statutes which established municipal voting rights and municipal council eligibility.

The Approach Used in This Study

Since the delineation of social classes is fundamental to this study, it is appropriate that the social class theory of Karl Marx has been used to inform it. The study of waterworks provision is part of the study of any class competition for the benefits of the social product. Thus, Marx's general observations as to the workings of class society can be applied to the particular issue of waterworks.

Marx believed that social classes struggled against each other and that the institution of government was created so as to assist the rich (the owners of the means of production) in their effort to exploit the poor in various ways:

> The State is the form in which the individuals of a ruling class assert their common interests ... [It] is nothing more than the form of organization which the bourgeois necessarily adopt ... for the mutual guarantee of their property and interests.[12]

The State is thus not the democratic institution it purports to be. The political arena is instead manipulated by those with economic power:

> Politics is in principle superior to the power of money, but in practice has become its bondsman.[13]

This function of the State of securing benefits for the wealthy would apply not only in the living space, but also, and especially, in the working space, wherein the wealthy own the means of production. Boyer has noted that:

> The other general conditions for production—necessary but not profitable ventures such as waterworks and roadways—were pushed onto the shoulders of the American city. Regardless of whether these services and infrastructure provisions were publicly or privately owned, they needed to be spatially organized and locationally distributed if they were to meet the needs of all manufacturing and retail sites in the city centre. Toward such disciplined spatial order the state began to plan and financially aid collective infrastructure and service needs.[14]

Marx's views of the function of the State are supported by Goldfield and Brownell. They assert that in the United States during the nineteenth century, local government vigorously reflected the view of local business, and in fact, "local government became another business institution."[15] Further, an examination of how local governments implemented urban services confirms "the total domination of economic objectives not only in the use of space, but in the determination of public policy as well."[16] Chudacoff confirms that the policy that emerged favoured the richer neighbourhoods and the industries.[17] Regarding the latter,

> Industrialists in every city tapped water from public supplies because it was the cheapest and handiest coolant and waste-carrying agent; they had little concern for pollution or future shortages. This short-sightedness and the elevation of private needs over public welfare began to block the potential of public water systems.[18]

Marx's own writings recognized the importance of the productive process, and of the means of production themselves. The process of material production is the basis of "the life-process of society", and has "mastery over man, instead of being controled by him."[19] The ultimate means of production—the machine—is, in capitalism, viewed as far more essential to the production process than the labourer. Marx writes:

> But, once adopted into the production process of capital, the means of labour passes through different metamorphoses, whose culmination is the machine, or rather, an automatic system of machinery ... so that the workers themselves are cast merely as its conscious linkages... . The individual worker's means of labour ... is posited in such a way that it merely transmits the machine's work, the machine's action, on to the raw material—supervises it and guards against interruptions ... it is the machine which possesses skill and strength in place of the worker, is itself a virtuoso, with a soul of its own in the mechanical laws acting through it; and it consumes coal, oil etc. (matières instrumentales), just as the worker consumes food, to keep up its perpetual motion.[20]

For these reasons, it is to be expected that a capitalist society would give fire protection priority to its means of production, especially its machinery. If water service also helps production proceed more profitably, then this is one further reason for extending watermains to these industrial areas. Support thus exists in Marx's theory for a pattern of urban service provision which favours the needs of the wealthy in their living space, and the needs in the realm of production where capital accumulation occurs. In Paris, this bias in service was not corrected by the financing of the system. All classes of property owners (except certain exempted manufacturers) were forced to pay at the same date the higher tax rates necessitated by the town's expenditure

on the system. This unfair scheme was facilitated by an unfair political structure which disenfranchised the poor, and by an intense propaganda campaign.[21] Before these matters can be discussed, though, it is essential to explain the context of the case of Paris.

The History and Social Geography of Paris

Paris was, in the 1880s, a mill town of 3,000 people, and grew to a population of 4,200 by 1924. Located at the forks of the Grand and Nith Rivers, water power was central to the town's development. In the early and mid-nineteenth century, the power derived from the dams and raceways was used to grind grain and gypsum (Plaster of Paris, the local deposits of which account for the settlement's name), saw logs, and operate simple machinery.[22] In the late nineteenth century and in the early twentieth century, both water and water power were used extensively in the town's burgeoning textile mills. John Penman was by then the most prominent industrialist, having purchased between 1887 and 1903 many of the best mills and mill sites in Paris and having incorporated some of them into his textile operation.[23]

Shortly after the town was settled in the 1820s, Paris assumed a distinct social geography and functional zonation. The Governor's Road (now known as Dundas Street), which connected London and Dundas, determined that "the economic and social centre of the village should at first lie" in Upper Town, which then comprised those areas later called Queens Ward and South Ward. (See Figure 1) But the dams and raceways in the Lower Town, particularly those constructed on the Grand River in 1854, shifted the focus of activity to those areas later called Kings Ward and North Ward. The construction, also in 1854, of the Great Western Railway and the Buffalo and

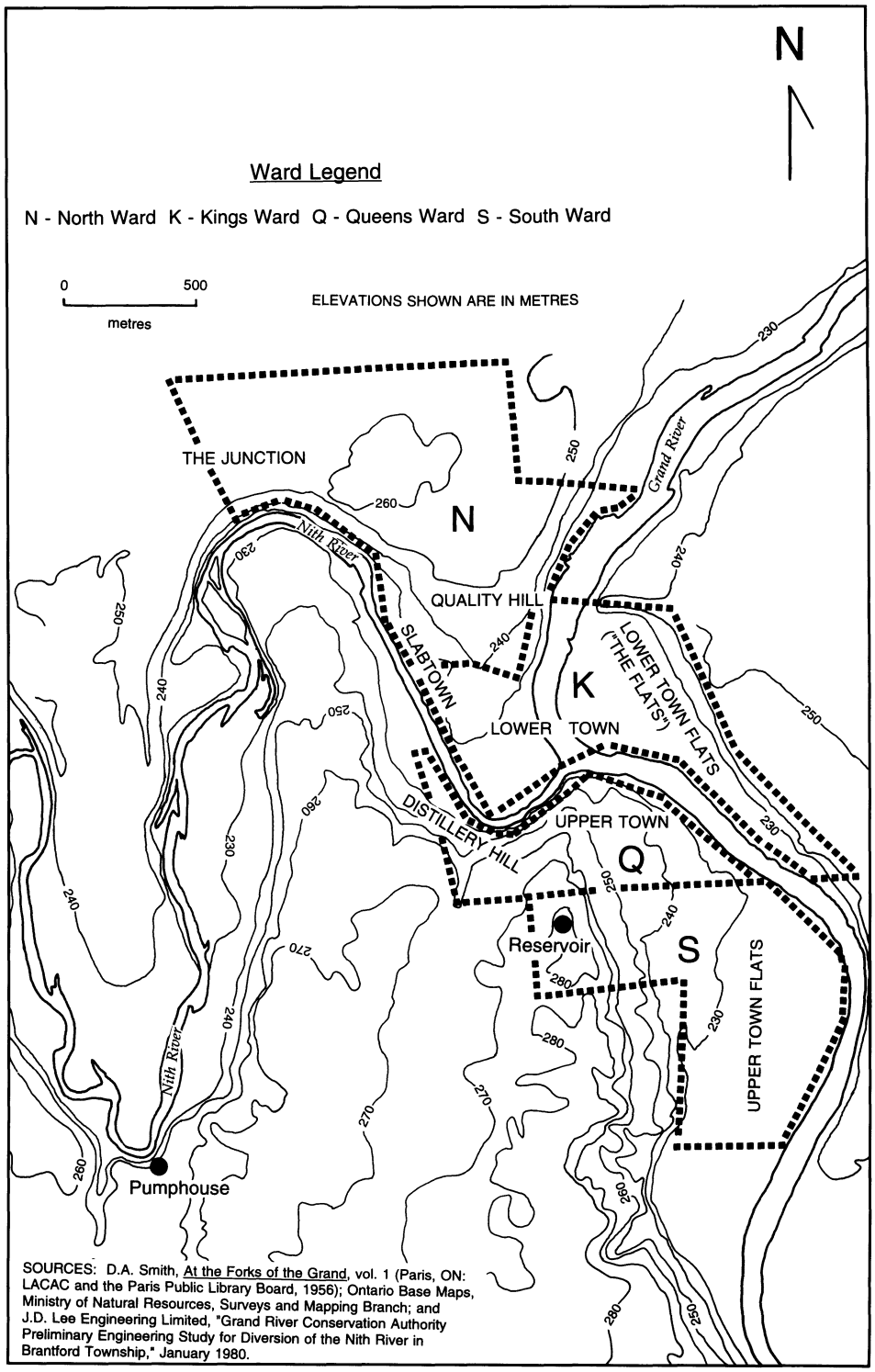

Figure 1: Elevation, Neighbourhoods, Wards, Pumphouse and Reservoir, Paris, ON

Lake Huron Railway (which met in Paris' North Ward "Junction") further accentuated this northward movement of merchants, innkeepers, and traffic.[24]

Of the Paris social geography, D.A. Smith has written:

> Before 1840, the majority of settlers in the Upper Town had come from England, Scotland, and Northern Ireland, and they were Protestants. The majority in the Lower Town, on the other hand, had come from the United States and Southern Ireland, and quite a few were Roman Catholics.[25]

The Upper Town and the Lower Town engaged in a political rivalry throughout much of the nineteenth century, with the Lower Town usually prevailing in the latter half of the century. For example, there were plans to build a raceway for industrial purposes in South Ward (on Race Street) in the 1850s, but the proponents of the Lower Town flats raceway succeeded with their plans, and attracted most of the town's industry to their Willow Street site. (See Figure 2.) Within the Upper Town, South Ward had lower status than Queens Ward. In South Ward (including the Upper Town flats), "most of the occupiers are owners of their little homesteads, and land obtains a very low value compared with what we see in similar situations in other localities."[26] The lower class also resided in neighbourhoods known as Distillery Hill (in Queens Ward), Slabtown (in Kings Ward), and the Junction (in North Ward). The affluent lived primarily in Quality Hill. (See Figure 3.)

Consistent patterns emerge from various statistical analyses of Paris' wards in 1881. Residences in South Ward were far less valuable than the residences in other wards, particularly the Lower Town wards of Kings and North. Table 1 compares, within each ward, the value of resi-

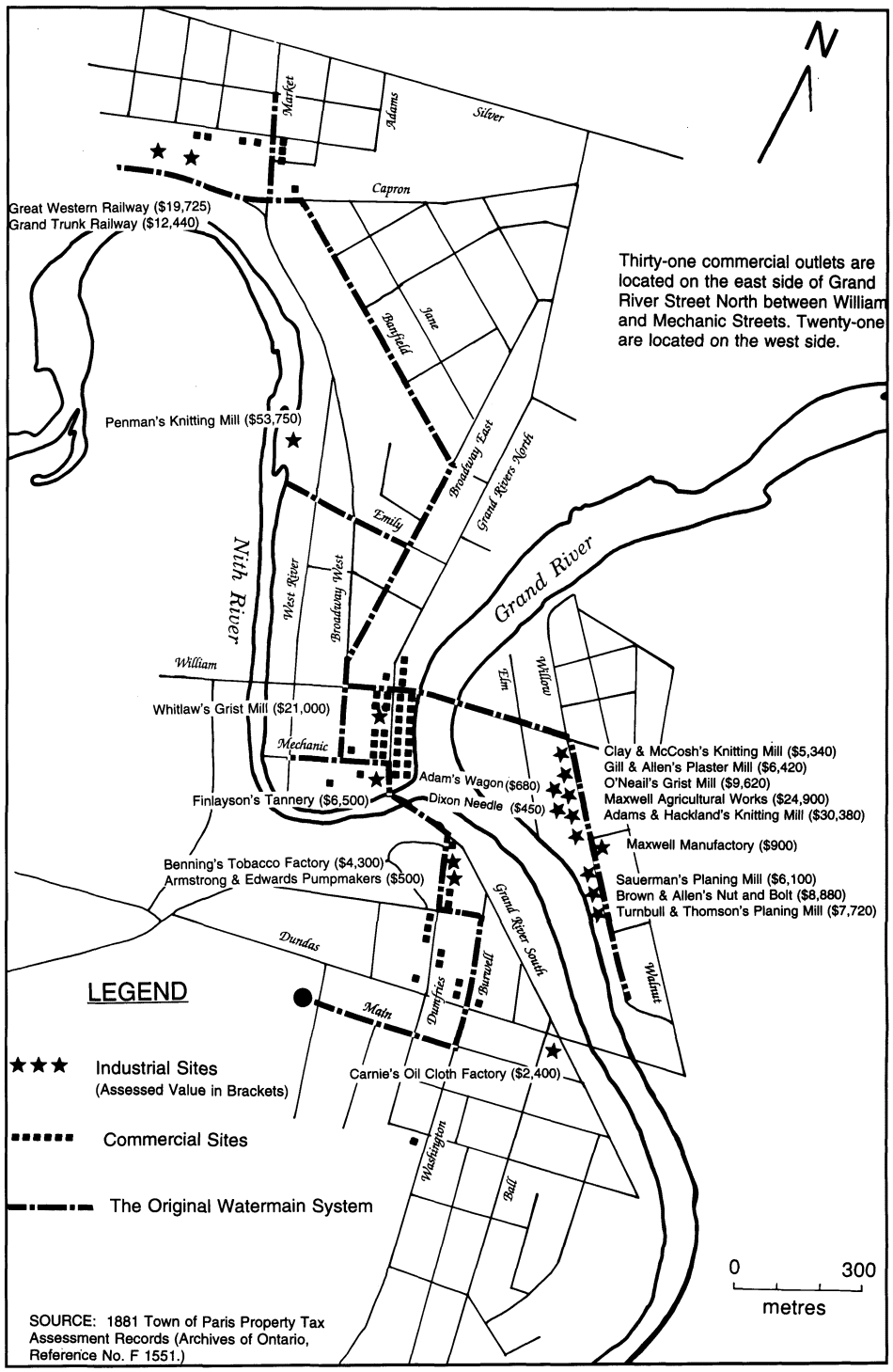

Figure 2: Industrial and Commercial Land uses in Paris, 1881

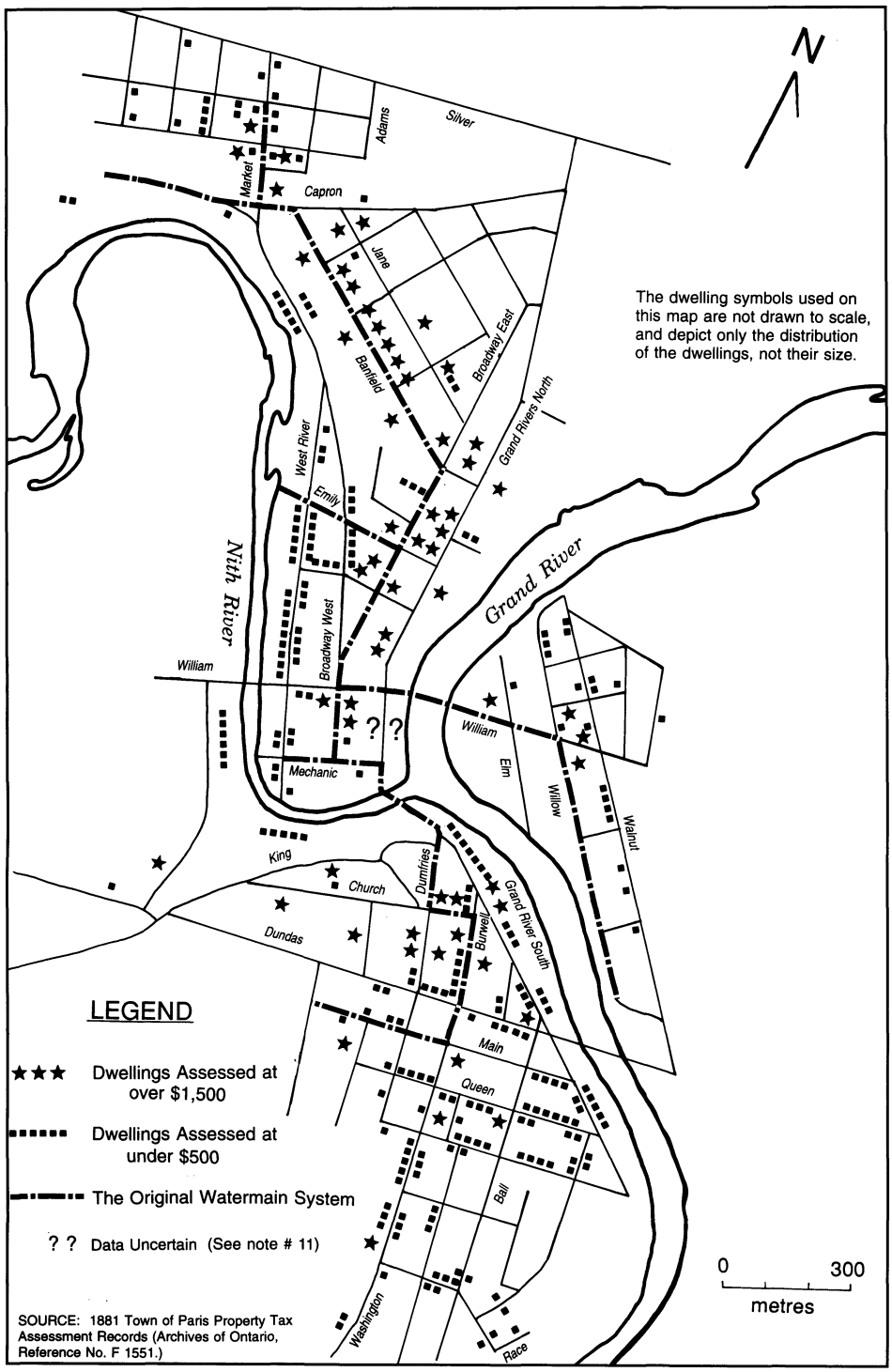

Figure 3: Upper and Lower-class Residences in Paris, 1881

dential real property with the value of non-residential real property. This indicates the degree to which commercial and industrial means of production are present in each ward. Provincial legislation defined real property as not only land, but also

> ... all buildings or other things erected upon or affixed to the land, and all machinery or other things so fixed to any building as to form in law part of the realty, and all trees or underwood growing upon the land, and all mines ... except mines belonging to Her Majesty.[27]

It was in the Lower Town wards that most of the commercial and industrial means of production were situated. Less than half of the real property by value in Kings Ward was residential, while in Queens Ward and South Ward, about 80 percent of the real property was residential.

Table 2 shows the value of all taxable property by ward in Paris in 1881. There were three categories of municipal taxation in Ontario at that time. In addition to real property, there were also the categories of personal property and taxable income. Personal property was defined as:

> ... all goods, chattels, shares in incorporated companies, interest on mortgages, dividends from bank stock, money, notes, accounts and debts at their actual value, income and all other property ... except property herein expressly excepted.[28]

Though the third category of property—taxable income—was defined as personal property, it was listed in a separate column in the tax assessments, and was subject to some special rules, such as exemptions. Generally, taxable income was defined as income "from any trade, calling, office, profession, or other source

Table 1: Assessed Value of Residential and Non-residential Property by Ward In Paris, 1881

Ward	Assessed Value of Residential Property In Dollars	Number of Dwellings	Mean Value of Dwellings in Dollars	Assessed Value of Non-Residential Real Property in Dollars	Percent of All Real Property that is Residential
North	158,750	165	962	114,938	58.0
Kings	154,025	163	944	212,950	42.0
Queens	94,700	108	876	21,335	81.6
South	84,700	146	580	21,745	79.6
TOTAL OF ALL WARDS	492,175	582	846	370,968	57.0

Source: Town of Paris Property Tax Assessment Records, Archives of Ontario, reference number F 1551.

Table 2: Assessed Value of Residential and Non-residential Property by Ward In Paris, 1881

Type of Property	South Ward	Queens Ward	Kings Ward	North Ward	Total Ward
Real Property	$106,445	$116,035	$366,975	$273,688	$ 863,143
Personal Property	1,852	11,260	89,000	29,590	131,702
Taxable Income	2,060	1,900	7,325	8,075	19,360
TOTAL	$110,357	$129,195	$463,300	$311,353	$1,014,205
Population	761	609	824	868	3,062

Source: Town of Paris Property Tax Asssessment Records, Archives of Ontario, reference number F 1551.

whatsoever, not declared exempt" by the Ontario Assessment Act.[29] While the Upper Town wards are somewhat less populous than the Lower Town wards, the differences in property value, especially in personal property value, are quite marked. Kings Ward alone was the location of $89,000 worth of the town's total taxable personal property of $131,702. The Lower Town wards are home not only to most of the businesses and industries, but also to most of the affluent.

The Purpose of the Paris Waterworks System

The earliest discussions of waterworks in Paris focussed on the issue of fire. In 1877, as Paris council deliberated the merits of buying 800 feet of fire hose and a mobile, steam-powered fire engine, some councillors proposed waterworks as an alternative fire-fighting device.[30] In 1881, when Paris council was evenly divided as to whether to construct a new fire engine house, a petition signed by 150 ratepayers demanding waterworks construction was presented to it by C.H. Roberts, a local druggist.[31]

In Paris, businessmen were the strongest advocates of fire protection through waterworks. D.A. Smith has written that many Paris merchants and industrialists argued that the cost of the waterworks "would be more than offset by a lowering of both insurance rates and losses by fire."[32] At a public meeting held on 12 May 1882 to discuss the merits of waterworks, Robert Montgomery, a Paris dry goods merchant, was reported to have said:

> He had taken the trouble to examine the town treasurer's books, and found that five large property holders will pay one-fourth of the whole assessment for waterworks, and all these men were heartily in favor of the By-law. One of these gentlemen, no longer than yesterday, had said that it was a grave consideration with him, seeing he must soon enlarge his premises, whether he ought not to remove to some other town where fire protection could be had.[33]

The affluent also sought waterworks for use in their living space. *The Brant Review*, a Paris newspaper, urged the local ratepayers to support waterworks in the upcoming bylaw vote, arguing that

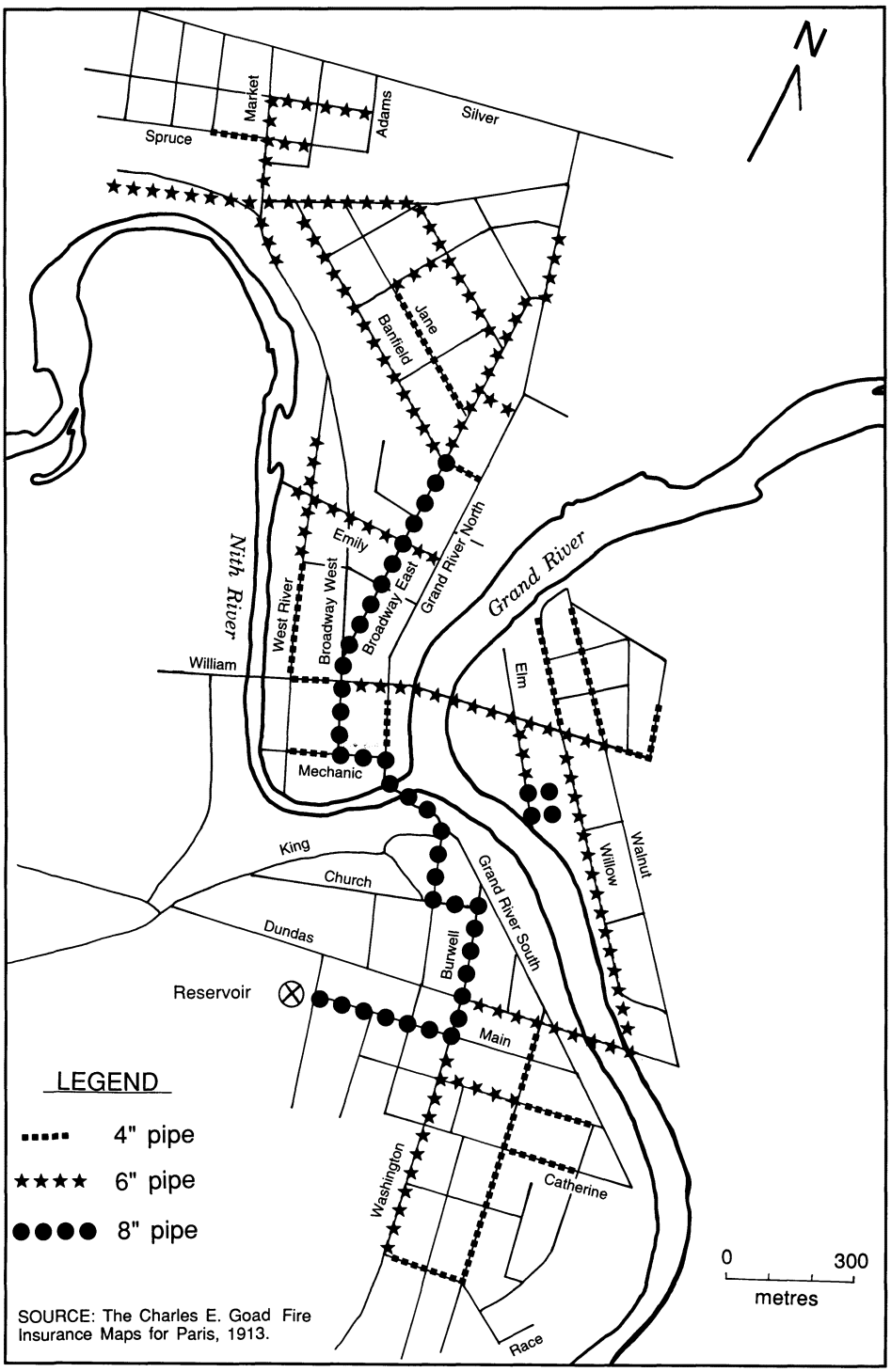

Figure 4: The Paris Water-works System, 1913

> Paris is a desirable location for men of means to reside in, one of the necessary requisites of a well appointed house is a bath-room and taps in every room. This cannot be had without waterworks. Vote for them and thus induce men of capital to reside with us.[34]

The Paris waterworks advocates did not place emphasis on the potential use of waterworks for industrial purposes, but it came to be used for those purposes also. Although a turn of the century commentator named W.A. McLean asserted that in Paris "very little of the town water [is] being used for manufacturing purposes, owing to the suitable character of the river water,"[35] he admitted that a sizeable quantity of water was not accounted for. He stated that the daily consumption per capita was estimated at 124 gallons. In 1883, *The Engineering News and American Contract Record* wrote that the average daily consumption in other towns was between sixteen and twenty gallons per head.[36] Although some Ontario towns at this time had placed water meters on the services provided to industries, in Paris none of the water services was metered.[37] McLean surmised that the high consumption in Paris resulted from waste due to the lack of meters, from leaks in the system, and from users leaving their taps running in winter to avoid freezing of the pipes. However, other evidence suggests that industries in Paris did use much water from the waterworks. The minutes of the Paris Waterworks Committee indicate that some manufacturers received water service for which they paid a flat annual fee. For example, on 14 September 1896, the Paris Wincey Mill Co. was granted "all the water they need at the same rate as is charged other like industries in town." Further, between 1885 and 1903, eight Paris industries successfully petitioned council for the passage of bylaws which exempted them from pay-

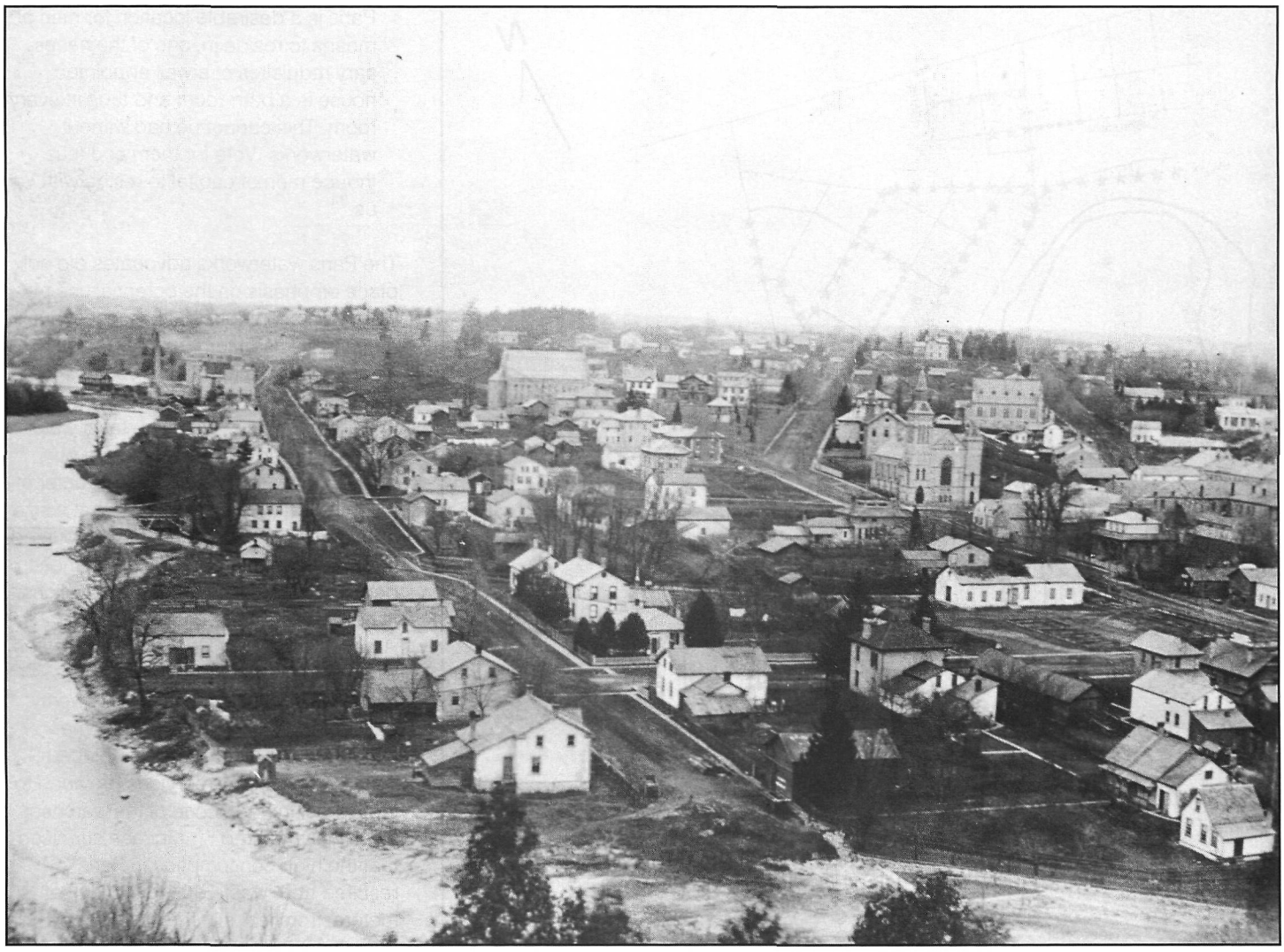

Figure 5: This is the western portion of Kings Ward in Lower Town as seen from Distillery Hill in Upper Town, circa 1885. The Nith River is on the left. The small, working-class houses on adjacent West River Street were not served by a watermain, but one was installed along Broadway Street East, which rises in the centre of the photo to upper-class Quality Hill.
Paris Museum and Historical Society

ing for water service.[38] One such bylaw passed in 1898 which provided Penman's mills with free water reads

> ... That the Municipal Council ... permit the said Company ... the free use of such water from the said Municipal waterworks system for scouring and other industrial purposes in all their mills whenever and so long as the water from the river or rivers shall be unsuitable for such scouring and other industrial purposes.[39]

"Scouring" was a process whereby detergents and steam were used to remove from wool the oil which had earlier been added to it to facilitate spinning.[40] Thus, in addition to, or in place of, leakage and waste, it would appear that water was in fact widely used by Paris industries.

The Pattern of Waterworks Development: Who Benefitted?

The planned location of the Paris waterworks system was described in two sepa-

Figure 6: ***Paris postmaster and militaryman Captain Cox built this luxury home on a large Quality Hill lot bordered by Boardway Street East, Banfield Street, and Grand River Street North During 1885-1886, just after the completion of the waterworks in 1884. The water main which served this property ran north along Broadway Street East to Banfield Street, where it branched west to the railroad 'Junction'. The mansions of Charles Whitlaw (across Banfield) and John Penman (across Grand River Street North) abutted this property.*** **William Kipp, Sr., Private collection.**

rate newspaper accounts.[41] These accounts are more or less consistent with each other, and with the inferences which can be drawn from the accurate Goad insurance maps of 1913 and 1924. It is clear that the reservoir was located on the hill of South Ward, which was the highest point in town by about twenty metres, as shown in Figure 1. It was also the part of the town closest to the "Devil's Cave" pumphouse, which was built on the south bank of the Nith River, about one and a quarter miles west of the reservoir.[42] The pumphouse drew water from a natural spring which had previously drained into the river.

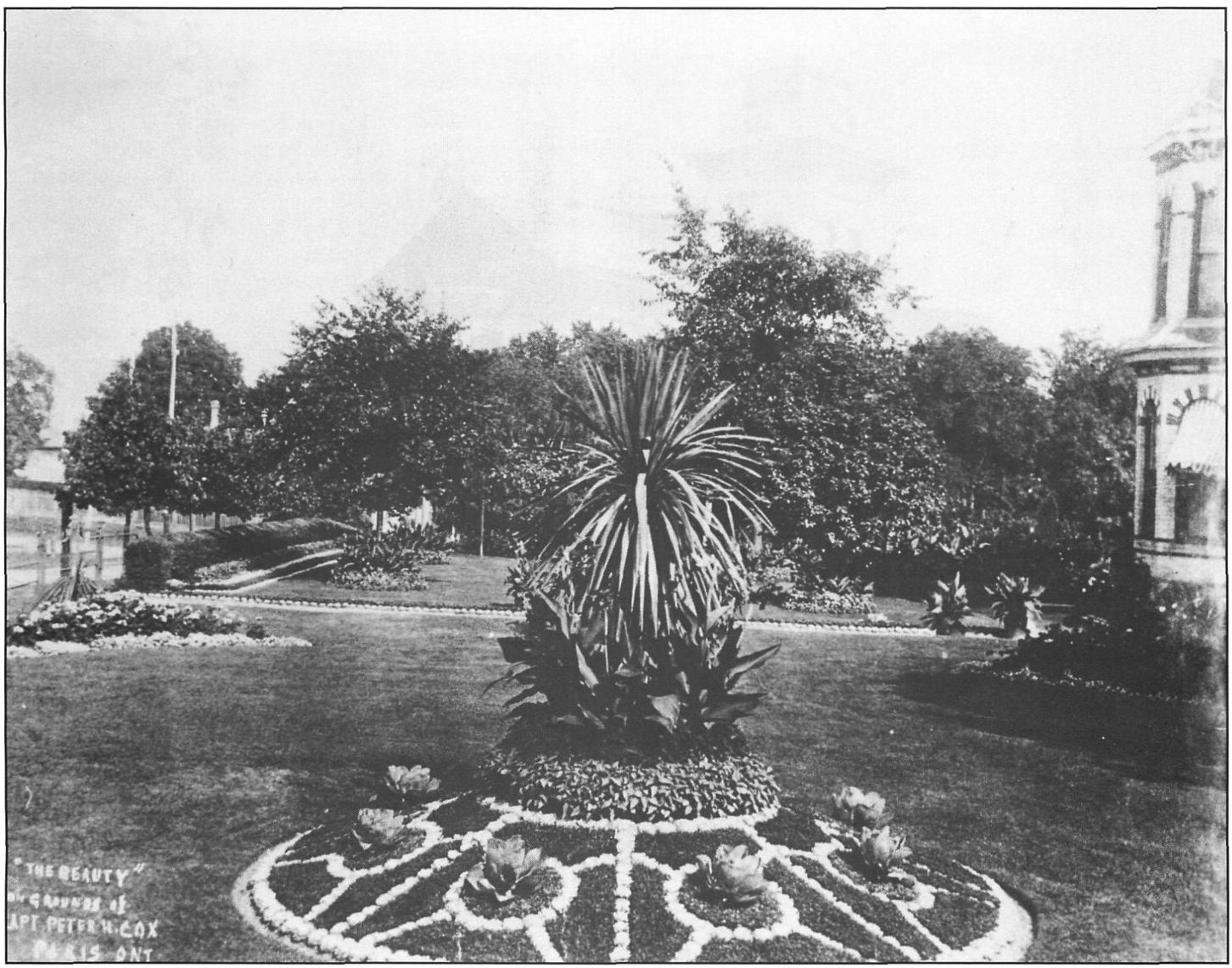

Figure 7: ***Captain Cox's home featured extensive lawns and gardens which were watered by an unmetered underground sprinkler system which tapped into the watermain. A pipe was laid across Banfield Street to provide water for a similar sprinkler system at Whitlaw's mansion.*** **William Kipp, Sr., Private collection.**

Figure 2 shows the location of the original waterworks system of 1884 together with the location of commercial and industrial enterprises. The end branches of the system all lead to some significant enterprise. The northern branch of the system serviced the railways at the Junction, together with several of the shops and warehouses located by the tracks. The eastern branch extended along a lengthy portion of the Willow Street raceway, where most of the mills were located. John Penman's knitting mill, one of the few mills that was not here, was serviced by a pipe branching to the west along Emily Street. Finlayson's tannery and Benning's tobacco manufactory were both served by the central portion of the main network. Whitlaw, Baird and Co.'s mill apparently did not receive service (but was located on a raceway), and

neither did the Carnie Oil Cloth factory, a small enterprise assessed at a value of only $2,500.

It is likely that the owners of mills located near rivers and raceways preferred waterworks to river water for fire fighting. The mobile steam fire engines which were often used in Paris and elsewhere to pump standing water used thinner hoses, needed time to reach operating temperature, frequently malfunctioned, and were prone to operator error.[43]

The commercial[44] areas of town had some degree of access to the watermains in 1884. In fact, one Paris councillor said that the pattern of watermains "showed the community of interest in protecting the factories and the business areas of town."[45] Mains traversed portions of Dumfries and Burwell Streets, which comprised most of the Upper Town's small "downtown". Some of the stores and inns at the Junction had access to the Market Street main. The commercial core of the Lower Town was bordered on three sides by mains, but none appears to have traversed the major commercial stretch of Grand River Street North between William and Mechanic Streets. Fifty-two of Paris' eighty commercial establishments were closely located here, and measures had been taken in 1880 to protect against fire by building water tanks and troughs along this stretch.[46] A waterworks plan of 1881 had called for a main location here.[47] The Goad fire insurance map indicates that by 1913 four-inch diameter pipes were in place, but it is unclear if they had been there in 1900, when a large fire destroyed half of this block.

As for domestic use, Paris historian D.A. Smith wrote, "Water was piped into homes almost as an afterthought—as something incidental to the need for fire protection and the development of fire-fighting techniques and equipment,"[48] and hence services were slowly added. Even as late as 1924, some residential streets did not have water mains on them. Most of affluent Quality Hill had access to water service. Most of South Ward, Slabtown, and Distillery Hill did not receive service initially, but as the system developed, service became available to those residing in less affluent neighbourhoods. Part of the reason for this pattern of development was that the Upper Town generally had plenty of well water available, while the Lower Town did not.[49] But this is not a complete explanation. The residents of poorer areas did seek water main installation both for fire protection and for household convenience, but they did not receive street mains until after the turn of the century.

Using the 1881 Paris property tax assessment records, it is possible to show where the most expensive and least expensive dwellings in town were located. Figure 3 shows the location of those dwellings assessed at over $1,500 and at under $500 in Paris in 1881. It can be seen that most of the expensive dwellings are located in Lower Town. The original waterworks system closely follows this trail of affluence. The wealthy live along the middle stretches of the system, as if the planners chose to traverse rich neighbourhoods while on their way to the industrial terminus points. Most of the dwellings assessed at under $500 are in Upper Town, especially in South Ward. Many live in Slabtown, in the western half of the peninsular portion of Kings Ward. (Figure 5, an 1885 photograph of this area, confirms the humble nature of the homes here.) Very few live along the Quality Hill streets of Banfield, Broadway Street East, and Grand River Street North. (Figures 6 and 7, photographs of a dwelling constructed in 1885, depict the lavish nature of some Quality Hill homes.) Accordingly, the waterworks' original line negatively corresponds with the distribution of the poor.

In later years, water was provided to less affluent areas of town. Figure 4 shows the extent of the system by 1913. The core of the system had been upgraded to eight-inch pipes from the six-inch pipes that were used throughout the 1884 system. This increased capacity reflected the modernization of the system by the conversion from steam power to electricity in 1903.[50] The 1913 map shows that new mains had been laid in several working-class districts in South Ward and Slabtown. The pipes in South Ward were in fact authorized by the same 1903 municipal bylaw (#460) which authorized electrical conversion. A pre-bylaw editorial in *The Paris-Star Transcript* concedes that the poor residents in South Ward deserved service, and that they had in fact wanted service for some time:

> The residents of this ward are to be given the fire protection and water supply for which they have so long been asking, and to which they are so well entitled. Ever since the installation of our waterworks system the residents of the southerly end of the town have freely paid year after year a generous share of the burden of taxation thereby imposed upon the ratepayers, and at the same time a great many of them have received no direct advantage from the system ... It may be contended that the property in this section is not particularly valuable, and that there are no large or important interests which would suffer in case of fire. However, the residents of this section of town are just as good citizens and just as important to the town as those of any other section. Their homes, although for the most part modest and unpretentious, are just as important, and even more so, to them than are

the expensive homes in other parts of the town to their various owners.[51]

Bylaw #460 of 1903 rolled many proposals into one package which had to be accepted or rejected in its entirety by the eligible voters. It authorized the expenditure of $5,000 for each of three different endeavours: the installation of an electric motor and the erection of poles and wires to connect the electric light station with the waterworks pumphouse; the upgrading of the six-inch pipes between the pumphouse and the reservoir to ten-inch pipes; and the extension of water mains into South Ward and the northern portion of North Ward. The primary impetus for these North Ward pipes was John Penman, who was eager to establish on the east side of Adams Street the Paris Plow Company,[52] a manufactory in which he held a large interest. In 1909 he held $46,300 of the $75,000 worth of preferred shares issued by the Company, and a smaller portion of the common shares.[53] Thus, the residents of working-class South Ward could receive water service only if authorization was concurrently given for expensive renovations to the system, and for another public subsidy, in the form of a water service main, for John Penman. In addition to the many concessions (such as tax reductions and free water service) which he received for his textile mills, he also petitioned council on behalf of the Paris Plow Company for a footbridge over the railway adjacent to the south of the site, sidewalks, a tile drain, fire hydrants, and free water service.[54] Penman's petition to council on 12 May 1902 for these benefits stated "we are not asking more than any other municipality would be glad to have the opportunity of granting."[55] Council was at this time composed largely of a slate of pro-industry members, including J.B. Henderson, the general manager of Penman's mills. Less than six month earlier, J.B. Henderson had denied that his slate of candidates had a hidden agenda of self interest, stating "We only desire to promote the best interests of the town, and do not want one copper from you."[56]

Thus, the affluent, both at home and at the site of their industrial means of production, received priority in water service. The poor residential districts received last priority.

Financing the Paris Waterworks System: Who Paid?

The Paris waterworks system was financed primarily by debentures which were repaid from the town treasury. The taxpayers of Paris paid for the system. Not surprisingly, the municipal tax mill rate increased sharply once the decision to build was made. However, some of the most affluent Paris entrepreneurs received special tax reductions for their mills in the years which followed. The least affluent, on the other hand, were denied service by virtue of a financing requirement which channeled extension pipes to more affluent neighbourhoods. The affluent also benefitted financially as the construction of the system lowered the rates of fire insurance. These rates were very progressive, as they were much higher for commercial and industrial uses, which were viewed as higher risks. The owners of the means of production thus saved as they paid less money into the progressive insurance premium system and more into the flat system of municipal taxation.

The Paris waterworks system was originally intended to be financed solely by a $30,000 debenture which was issued by the town in 1882. It was repayable over a thirty-year period, at 6 percent interest.[57] However, cost overruns necessitated that further debentures be issued in 1884 for $8,000.[58] The annual interest payable on the $30,000 debenture totalled $1,179, which when combined with the annual capital payment of $1,000, meant that Paris paid $2,179 annually for thirty years. It was not often mentioned by waterworks' supporters in 1882 that the $30,000 waterworks debenture would in fact cost the town's taxpayers $65,370. It was estimated in 1902 that in the twenty years since the Paris waterworks had been constructed, the cost of maintenance totalled $35,178.96, and the cost of construction and services had been $57,195.05.[59] Combined with the twenty annual interest payments of $1,179 which were made by this time, the total cost of the system was $115,954.01. The total revenue received from water subscribers was only $60,073.19. The difference was $55,880.82. Thus, by 1902 only 51.8 percent of the cost of the system was paid from water subscription rates. The rest was paid by taxpayers as a whole from the town's treasury.

The system of taxation in Paris was dictated by provincial legislation. The *Consolidated Municipal Act*, 1883, required that municipal taxes be "calculated at so much on the dollar upon the actual value of all the real and personal property liable to assessment therein."[60] Municipalities were thus required to assess all taxable property at the same rate of taxation, regardless of the nature of the property, and the nature of the taxpayer. This flat system of taxation was at times made regressive, as provincial legislation enabled municipalities to exempt individual manufacturers or railways from all or part of their tax assessments.[61] Paris council granted ten-year tax exemptions to several local enterprises after incurring the waterworks debt in 1882. Penman's Manufacturing Company, for example, received significant tax reductions from 1897 through to at least 1926.[62] In 1917, this reduction saved Penman's over $3,500, or 37 percent of its tax bill. From 1887 to 1903, at least eight other manufacturers received some form of bonus or tax reduction for ten years.[63] Thus, some of the most affluent Parisians

(those who owned the industries) did not pay their share of the taxes which paid for the waterworks system.

The rate of taxation in Paris increased greatly after the decision to build the waterworks was taken. In 1881, the mill rate was only 11, or 1.1 cents on the dollar of assessed property value. However, it rose in 1882 to 15, in 1884 to 17, and in 1886 to 20.[64] Between 1881 and 1886, this amounted to an 82 percent tax hike. For those who could not obtain water service even if they had wanted it—as was the case with most of the residents of South Ward—this was a large amount of money to pay for no benefit.

There was a mechanism in place which acted against the interests of residents of poorer streets in all of the wards. After the original waterworks' main system was installed in 1884, extensions into unserviced streets were constructed only if the revenue received by the town from residents on that street was sufficient to pay the interest (at 7 percent) on the town's cost of constructing that extension. This revenue received by the town was levied as a flat rate annual fee charged to each household which subscribed for water service. The amount of this fee ranged between $5.00 and $19.00, varying directly with the number of rooms and the number of residents in each household.[65] Thus, economic considerations determined the pattern of water main extensions. Only households which could afford to pay the annual water subscription fee in addition to their already increased tax bill were eligible for service.

Among those who could afford to pay this fee, the "7 percent" rule further limited street extensions to the most affluent of this group in two ways. First, since the fee charged increased with the number of rooms in the household, it was more likely that owners of larger houses would surpass the threshold of 7 percent of the town's cost. Owners of larger houses were more likely to have been richer than owners of smaller ones. Second, the chance was very slim that the 7 percent threshold would be reached if only one household on a street sought a water main. It was imperative that one's neighbours also seek service, and thereby contribute to the cost of the street's extension pipe. Thus, a neighbourhood of affluent households was more likely to receive service than a single, affluent household surrounded by lower-class dwellings. It is therefore not surprising that the chronology of water main extensions would reflect the town's social geography.

Not surprisingly, most of the petitions for waterworks extensions which were rejected by council related to property in the Upper Town. The reason given by council for rejection was usually the failure to meet the 7 percent rule. For example, in 1885, council accepted the waterworks committee's recommendation "that the petition from residents of South Ward for additional Fire Service Pipes be not entertained, our appropriation not allowing the additional expenditure."[66] And in 1897, William Hutton's petition for a street main was rejected, "the rate received not being sufficient for such service in accordance with resolution requiring 7% per annum on cost of putting in."[67] (Mr. Hutton was, in 1881 at any rate, a moulder owning a dwelling valued at $550, located on the south side of Main Street, near Grand River Street South, on part of lot C. In 1897, the closest water main to this lot was two blocks away, at the corner of Washington and Main Streets.)

Provincial legislation necessitated that some aspects of waterworks systems in Ontario be paid by individual subscribers, while others were to be paid by the municipality out of general tax revenues. In certain circumstances, however, this legislation permitted the municipality to pass on some of its capital expenses to individual water subscribers. The Municipal Waterworks Act, 1882, stated that the municipality constructing the waterworks would own, and by implication pay for, "all such waterworks, pipes, erections, and machinery requisite for the said undertaking."[68] The municipality would also assume the cost of constructing and repairing "all service pipes ... to the outer line of the street."[69] The cost of the portion of the service pipe running from the outer limit of the street allowance to a water subscriber's building was the responsibility of the owner.[70] However, in addition to having the power to levy water rates for the use of water,[71] the municipality could levy a "local improvement" tax for the capital cost of a "minor" waterworks. This was defined as a waterworks "for the benefit of a portion only of the municipality."[72] In such a case, the owners of the real property to be served by the proposed waterworks first had to successfully petition municipal council. Council could then levy upon their property:

> a special rate, sufficient to include a sinking fund for the repayment of debentures ... to provide funds for the construction of such water-works, and shall pass by-laws for so assessing and levying the same by an annual rate in the dollar on the said real property according to the frontage thereof, or according to the value thereof, exclusive of such improvements, as may be desired by the petitioners.[73]

Even though the initial Paris waterworks system did not service the whole town, this mechanism for directing waterworks costs only to those who benefitted from it was not employed in Paris. Neither was it employed in later years when water main extensions were constructed, preferring instead the 7 percent rule. Thus, there was latitude within the provincial legisla-

tion for a more equitable distribution of waterworks costs. However, Paris council chose instead to use a financing scheme which combined a few aspects of the "user pay" principle, along with the subsidy provided by increasing the town's tax rate generally.

The work of other researchers indicates that this blending of financing sources was not confined to Paris. For example, Joseph Arnold found that in Baltimore in the 1860s and 1870s, it was only the very rich who could afford to privately finance their own transportation, water, sewer, and fire protection needs. But, through subsidization, a way was found to make this lifestyle affordable to others:

> This way of urban and suburban life was beyond the reach of the rising middle classes. They created a complex system of jointly public and privately financed facilities in order to at least approach the high-quality private world of the rich.[74]

In Paris, water subscribers had to pay for the service pipes on their own property, in addition to an annual water subscription fee. All other costs of the system were paid from general tax revenues. This subsidy would have been great enough to make water service affordable to those who otherwise could not afford it. It may also have been true that the costs of subscription and installation were high enough to deter those lower-class Parisians who would otherwise have sought service, assuming there had been a main on their street.

The municipal rate of taxation in Paris increased after the decision was made to construct the waterworks system. This increase was less onerous on the wealthy than on the poor because the construction of the system was expected to reduce the cost of fire insurance. It was boasted that insurance rates in Guelph, for instance, had "been lowered over 25% by the various companies, on account of water-works."[75] Fire insurance rates were structured in such a way that they placed a higher burden on the wealthy. Isolated residential property could be insured at a rate of between 50 cents and 75 cents per $100 of assessed value.[76] However, merchants and industrialists paid at much higher rates. Isolated "mercantile" property was rated at between 75 cents and $1.50 per $100 of assessed value, for "non-hazardous occupations". Some merchants, presumably those in hazardous occupations, paid a rate as high as $3.00. Industrial property was assessed at even higher rates. Rarely was industrial property assessed at a rate of less than $2.00, while some, such as saw mills, was assessed as high as $5.00 per $100 of value.

Thus, any savings in insurance cost which resulted from the construction of the waterworks system would have disproportionately benefitted the owners of the means of production. To fully appreciate the significance of this insurance aspect, it must be recalled that the rate of municipal taxation in Paris at the time that the decision to build waterworks was made was only 11 mills, or $1.10 per $100 of assessed value.[77] The wealthy would have gladly paid more into this flat, moderate system of taxation in exchange for reductions in the progressive, expensive scheme of fire insurance ratings.

Who Controlled Municipal Decision-Making?

Until control over the Paris waterworks system was placed in a bureaucratic commission in 1902, waterworks issues were within the jurisdiction of municipal council. In order to understand the context of waterworks issues, such as whether the system was to be constructed and how it was to be managed, it is necessary to understand the structure of municipal government in nineteenth-century Ontario. Provincial legislation dictated the structure of municipal government, and also limited municipal political power to those who owned certain minimal levels of property. Municipal government was government by, of and for the affluent. When, in 1900, a council was elected which broke the comfortable alliance between the political and economic elite in the management of the waterworks, the economic elite soon successfully instigated the removal of waterworks management from the political arena. This ensured that waterworks would again be managed in a pro-business fashion.

Before a municipality could construct a waterworks system in Ontario in the 1880s, it had to pass on second reading a bylaw authorizing the incurrence of any debt used to finance it.[78] Any such debt bylaw, whether used to finance waterworks or otherwise, had to receive the assent of the electors in a referendum before it could become law.[79] Thus, before a waterworks system could be constructed, three groups of citizens would have had an influence on the decision: first, the electors who voted for municipal councillors; second, the municipal councillors; third, the more stringently-defined class of electors whose assent was required to authorize council's bylaw. In all three cases, provincial legislation prescribed the ownership of some level of property in order to become eligible for membership in these groups.

Municipal council membership was limited to those persons who were British subjects, male, at least 21 years old, and resident in (or within two miles thereof) the municipality which they wished to represent. In towns, members also had to own or rent real estate within the munici-

pality worth at least $800, if owned, or if rented, $1,600.[80] In townships and villages, the stipulated minimum property values were lower, while in cities they were higher. To put the minimum town property values in perspective, an examination of deeds in the County of Brant Land Registry Office indicates that in Paris in the 1880s, luxury dwellings sold for about $2,000 or more. The cheapest dwellings sold for about $300. Recall that in Table 1, the average assessed values of dwellings in Paris' four wards were $962, $944, $876, and $580. It can therefore be readily appreciated that the level of property interests required of council members was substantial, and not merely nominal. Table 3 lists the occupations of Paris Council members in 1882. The municipal tax assessment rolls confirm that all of these men owned real estate, and that some of them were landlords of much Paris property.

Table 3: Occupations Of Paris Council Members, 1882

Name	Council Position	Occupation
Thos. O'Neail	Mayor	Merchant Miller
Robert Thomson	Reeve	Planing Mill Owner
John Arnold	Deputy Reeve	Nurseryman
Peter Adams	North Ward Councillor	Blacksmith
A.H. Baird	North Ward Councillor	Merchant Miller
Joseph Schaffer	North Ward Councillor	Merchant
Jacob Ahrens	Kings Ward Councillor	Potter
James Hackland	Kings Ward Councillor	Knitting Mill Owner
Frank Mitchell	Kings Ward Councillor	Grocer
Charles Arnold	Queens Ward Councillor	Nurseryman
Hugh Finlayson	Queens Ward Councillor	Tannery Owner
William Patterson	Queens Ward Councillor	Dentist
John Baker	South Ward Councillor	Shoe Merchant
W.C. Jones	South Ward Councillor	Farmer
Ralph Tufford	South Ward Councillor	Gentleman

In his study of Winnipeg from 1874-1914, Alan Artibise describes a municipal political system which was similar to that existing in Paris at the same time. He found that "artisans and workingmen were grossly under-represented on municipal council."[81] Winnipeg's wealthy businessmen "were the most successful in gaining elective office."[82] In Winnipeg, too, electors had to be owners of real property, especially so if they were to be able to vote on debt bylaws. Electors of Winnipeg's councillors had to own property worth at least $100, or rent property worth at least $200.[83] In Paris, as in all Ontario towns in 1882, council electors had to own or rent property worth at least $300,[84] or have an annual income of at least $400, or be a farmer's son living on his parents' farm.[85] In both places, council voters had to be British subjects of at least 21 years of age. Unmarried females and widows were allowed to vote in municipal elections in Paris as early as 1884.[86]

Voters on Winnipeg debt bylaws had to own property worth at least $500 after 1884, or at least $400 after 1891.[87] In Paris, voters on debt bylaws had to own, or rent and pay taxes by virtue of their lease obligations on, property worth at least $300.[88] In both places, voters on money bylaws could vote in each ward in which they held sufficiently valuable property.[89] This meant that affluent Paris landlords could cast up to four votes, while in Winnipeg up to six could be cast. Artibise's conclusion regarding Winnipeg is equally applicable to Paris: "The aim of these qualifications was to represent property, not people."[90]

Most of the council members in Paris in 1882 were businessmen. Everyone who voted for these council members had an interest in at least $300 worth of real property. These electors who were eligible to vote in the waterworks referendum of 22 May 1882 paid taxes in respect of that property, which in most instances meant that they owned it. These seemingly moderate provisions actually disenfranchised most of the populace. In Paris in 1882, the population, including children, was 3,070. Only 413 voters were eligible to vote on the waterworks debt bylaw, counting each one of the plural votes of some landholders as a separate voter. Of the 413 voters, 98 did not live in Paris.[91] Thus, there was then something less than 315 eligible voters on the waterworks issue, or about 10 percent of the town's population. This 10 percent was

among the most affluent of all the people in town. It is not surprising that municipal decisions reflected the wishes of the economic elite in Paris. Due to provincial legislation, the economic elite were also the major political force. Artibise notes that in Winnipeg's municipal election of 1906, there were only 7,784 registered voters in a city whose population was over 100,000.[92] It would seem true that in Paris too, the elite "could pursue their growth ethic at public expense and with a minimum of argument."[93]

Predictably, the councils that were elected after 1882 governed the waterworks decidedly in favour of the local industrial elite. There was an intention on the part of some municipal officers and the managers of some local industries to deceive the populace as to the amount of water provided from the waterworks for industrial purposes. However, in 1898 the structure of Paris council changed, and in 1900, so did the disposition of several new office holders. Provincial legislation reduced the size of town councils from 15 members to 7,[94] presumably concentrating power. The mayor of Paris in 1900, Thomas Evans, and a councillor, John Baker, had both strongly opposed the waterworks development plan in 1882.[95] Another councillor, W.W. Patterson, was John Baker's son in law[96], and also chaired the Paris Waterworks Committee in 1900. On 19 March 1900, this committee reported to council that "water is being used in contravention of the By-law, and in violation of the conditions on which water has been granted to mills, users of motors, and others."[97] The committee proceeded to cancel water contracts with these mills that it viewed as illegal. Council instructed the town clerk to notify the managers of the mills using the waterworks to minimize their consumption, or else the Council would "enforce the law and shut off the supply altogether."[98] The committee also reiterated "that the waterworks system was inaugurated for the sole purpose of domestic use and fire protection."

Needless to say, none of this was acceptable to the local industrialists. On 25 November 1901, Council received a notice from D. Brown, secretary of the Board of Trade, advising that he and J.B. Henderson, the General Manager of Penman's mills, urged the Council to submit "a by-law to the ratepayers to elect Commissioners to manage Waterworks and Electric Light."[99] And on 11 December 1901, a notice appeared in *The Paris Star-Transcript*, signed by John Penman and supported by 149 others, asking David Brown to run for mayor of Paris. In a notice just below it, Mr. Brown announced his intention to run. Brown also ran a slate of councillors who were aligned with him. Brown and five of his six associates were elected to the council of 1902, though Brown's personal margin of victory over Evans was only nine votes.[100] During the campaign, Mayor Evans complained that "no mayor has been so maligned during his tenure of office as myself."[101] Brown's slate claimed that Evan's council had been wasteful and incompetent, and that Brown's slate of "good executive business men" could avoid tax increases.[102]

The ratepayers also supported the by-law creating the Waterworks Commission, by a vote of 227-185. J.B. Henderson was one of the councillors elected from Brown's slate, and he also served as the first Waterworks Commissioner. (He resigned in 1904 and died in 1905.[103])

From all of this, it is obvious that control over the Paris waterworks was critical to Paris industrialists, who became active in local politics largely due to the waterworks issue. Mayor Evans and his council of 1901 "were opposed to the question on principle" regarding the creation of the Waterworks Commission.[104] Brown criticised Evans' anti-business stance, and is reported to have said

> There was also, he was sorry to say, a feeling of antagonism to manufacturers getting abroad. Such will have its bad effects. We see it in the removal ["removal" often meant relocating out of town] of the Adams Works. They were subject to petty annoyances, such as the threat to cut their water supply off. Gentlemen, such will not do. You must meet your manufacturing element in a broad and friendly spirit. Manufacturers have been accused of bringing out a ticket. No such thing; my petition was signed by fully 40 working men. We are here for business.[105]

The Paris Star-Transcript lauded Brown's slate upon its election. On 8 January 1902, the paper wrote that the newly-elected councillors:

> are eminently qualified to work out and put into practice such a line of action as will bring to our town a share of the prosperity which is generally enjoyed throughout Ontario ... give them a free hand to undertake those schemes which they consider in the best interests of the town; restrain those premature criticisms which are too often suggested by timidity, lack of progressiveness, and a spirit of false economy; back them up loyally in all their undertakings, and when they meet with success and bring increased prosperity to our town, don't be backward about expressing your appreciation of their work.

This is just one example of the "boosterism" which was so often propagated by the Paris newspapers. This boosterism frequently equated debt incursion with progressiveness, and was based on the assumption that everyone in town had the same interests. At its root, boosterism

sought to replace the notion of class struggle with the notion of a spatial struggle among municipalities for investment, which could be attracted by infrastructural improvement. The last thing that the economic and political elite wanted was for critics to determine who was paying for these "progressive" utilities, and who was benefitting from them. Those who benefitted were not footing enough of the bill, and it was hoped that in the ballyhoo of boosterism, the disenfranchised Parisians would not notice.

Conclusion

The Paris waterworks system first provided water service and fire protection for the capitalists, both at home and in the workplace. Later, the system was extended to less affluent areas. The system itself was subsidized by general tax revenues paid by all property owners in town, not just those who subscribed for service. Control of the system was exercised initially by pro-business councils, and when that ceased to provide predictable results, then by pro-business commissions. As is commonly found, the benefits of and control over an undertaking can be traced to the rich, while the poor paid the costs. It would be surprising if, in Ontario, this pattern was unique to Paris. The most important matter—control through political empowerment—was dictated by provincial legislation. The Upper Canada Rebellion of 1837 may have been successful, eventually, in breaking the monopoly of the Family Compact. But it may be that all that resulted in the next 80 years was the creation of the Family Dispersed—the bestowing of powers by provincial legislators upon the propertied class, wherever it existed in Ontario. Perhaps, in Marx's terms, the broadening of the class of the elite resulted from the 1837 bourgeois uprising against the aristocracy. In any event, the form of municipal government that arose in Ontario after the rebellion could hardly have led to an egalitarian democracy. The Paris waterworks system probably developed in the only way it could, given the structural restraints inherent in nineteenth and early-twentieth century municipal government in Ontario.

Similar patterns of waterworks developments noted elsewhere by other researchers may also have resulted from political restraints. However, in spite of changes in municipal voting laws, councils remain strongly responsive to the wants of business, not so much in the fact of water provision as in the terms upon which service is provided. In 1988, for example, an agreement between the Province of Ontario, the Region of Waterloo, and the City of Cambridge freely provided the Toyota Motor Corporation with $23,507,311 worth of watermains, sewers, and roads. Some things never change.

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Notes

1. W.A. McLean, "Waterworks, Electric Lighting, Sewerage, etc., Town of Paris," supplement to *Municipal World* 12, no. 5 (May 1902).
2. See M.N. Baker, ed., *The Manual of American Waterworks*, fourth issue (New York: The Engineering News Publishing Co., 1897), 595-609.
3. Ernest S. Griffith, *A History of American City Government: The Conspicuous Failure, 1870-1900* (New York: Praeger Publishers, 1974), 179.
4. Alan F.J. Artibise, *Winnipeg: A Social History of Urban Growth, 1874-1914* (Montreal: McGill-Queens University Press, 1975), 208.
5. John H. Taylor, "Fire, Disease and Water in Ottawa: An Introduction," *Urban History Review* vol. VIII, no. 1 (June, 1979): 17. This issue of *Urban History Review*, on the theme of "Fire, Disease and Water in the Nineteenth Century City," is relevant to the present study in several respects, especially the finding of Chris Warfe, in "The Search for Pure Water in Ottawa: 1910-1915," that the Ottawa waterworks was later improved not as a result of major water-caused epidemics in 1911 and 1912, but as a result of the refusal of fire insurance companies in 1914 to issue any new insurance policies until their fire-fighting concerns were met.
6. Lewis Mumford, *The City in History* (New York: Harcourt, Brace, Jovanovich, 1961) 215-19.
7. Mumford, 465-66.
8. Siegfried Giedion, *Mechanization Takes Command: A Contribution to Anonymous History* (New York: Oxford University Press, 1948), 684.
9. Artibise, 214.
10. Joseph L. Arnold, "The Neighbourhood and City Hall: The Origin of Neighbourhood Associations in Baltimore, 1880-1911," *Journal of Urban History* 6, no. 1 (1979): 7; S.J. Kleinburg, *The Shadow of the Mills: Working-Class Families in Pittsburg, 1879-1907* (Pittsburg: University of Pittsburg Press, 1989), 85.
11. The Paris tax assessment records describe commercial properties in an ambiguous manner. Usually reliance can be placed on the absence of a figure in the column labeled "number of occupants" in order to determine that the property in question is not residential. However, the Paris records usually combine into a single entry properties which were commercial on the main floor, and residential above. To partially correct this error, use was made of the Charles E. Goad firm's Reference Book #14, which accompanied an 1882 fire insurance plan of Paris. This source distinguishes between specially rated commercial and residential portions of a single building. Unfortunately, as not all property in Paris was specially rated, this corrective measure is not completely satisfactory. For example, no property in the "Upper Town" portion of Paris was listed as specially rated. In order to compensate for the omission of these and other possible commercial properties, use was made of the "occupation" and "value of personal property" columns in the tax assessments. The occupation column often described a land use rather than a job activity eg., "confectionery" as opposed to "confec-

tioner", which indicates more clearly that the party not only was a confectioner, but that he conducted that activity at that location. In some cases, the use of a property as commercial was inferred from the indication that the party paid tax in respect of "taxable personal property" which, as is described in more detail in this paper, included machinery, equipment, stock in trade, and other items usually associated with a business. This inference was only made, though, when the listed occupation of the party suggested a commercial activity.

This ambiguity also affects the valuation of residential portions of buildings which have been assessed together with commercial portions. This problem is most notable in Paris' commercial core on Grand River Street North, between William and Mechanic Streets. For this reason, this block's residential pattern is not shown on Figure 3. The tax assessments indicate that there were sixteen dwelling/commercial units on the east side of this block, with five assessed at over $1,500, and six at under $500. There were four dwelling/commercial units on the west side, two assessed at over $1,500, and two at under $500.

12. Karl Marx (1846), *The German Ideology*, in *The Marx-Engels Reader*, 2d ed., ed. Robert C. Tucker (New York: W.W. Norton and Co., 1978), 187.
13. Karl Marx (1843), "On the Jewish Question," in Tucker, *The Marx-Engels Reader*, 50.
14. M. Christine Boyer, *Dreaming the Rational City: The Myth of American City Planning* (Cambridge, MA: MIT Press, 1983), 65.
15. David R. Goldfield and Blaine A. Brownell, *Urban America: From Downtown to No Town* (Boston: Houghton Mifflin Company, 1979), 169.
16. Goldfield and Brownell, *Urban America*, 170.
17. Howard P. Chudacoff, *The Evolution of American Society*, 2d. ed. (Englewood Cliffs, New Jersey: Prentice Hall, Inc., 1981), 42-43, 121-22.
18. Chudacoff, *The Evolution of American Society*, 43.
19. Karl Marx, (1867) *Capital, volume 1*, in Tucker, *The Marx-Engels Reader*, 327.
20. Karl Marx (1941), *The Grundrisse*, in Tucker, *The Marx-Engels Reader*, 278-79.
21. For further details about this propaganda campaign, see John S. Hagopian, "Would the Benefits Trickle Down? An Examination of the Paris, Ontario Waterworks Campaign of 1882," *Ontario History*, forthcoming.
22. D.A. Smith, *At the Forks of the Grand*, vol. 1, 88.
23. For more information on John Penman's industrial acquisitions, see Joy Parr, *The Gender of Breadwinners* (Toronto: University of Toronto Press, 1990), 15; also see *Penman Family Papers*, Archives of Ontario reference number MU 2312, box 1; also see *The Paris Star-Transcript*, 13 February 1907, available at the Paris Public Library.
24. D.A. Smith, *At the Forks of the Grand*, vol. 1, 90.
25. *Ibid.* 92.
26. Hiram Capron, quoted in F. Douglas Reville, *History of the County of Brant*, vol. 2 (Brantford, ON: Hurley, 1920) 409-10.
27. Assessment Act, *Revised States of Ontario*, 1877, c. 180, s. 2(7).
28. *Ibid.* s. 2(8).
29. *Ibid.* s. 28.
30. Minutes of the Town of Paris Council, 7 May 1877. A newspaper account dated 9 May 1877 describing the proceedings at this meeting is contained in a scrapbook of waterworks articles compiled by C.H. Roberts. This scrapbook is kept in the Paris Municipal Office, and is property of the Paris Historical Society.
31. Minutes of the Town of Paris Council, 25 July 1881; see also C.H. Roberts' scrapbook, 1.
32. D.A. Smith, *At the Forks of the Grand*, vol. 1, 125-26. See also John S. Hagopian, "Would the Benefits Trickle Down? ... "
33. *The Paris Transcript*, 19 May 1882, in C.H. Roberts scrapbook, 163.
34. *The Brant Review*, 18 May 1882, in C.H. Roberts scrapbook, 65.
35. W.A. McLean, "Waterworks, Electric Lighting, Sewerage, etc., Town of Paris."
36. *The Engineering News and American Contract Record*, 23 June 1883.
37. M.N. Baker, *The Manual of American Waterworks*, 595-609.
38. Paris Bylaws #272, 278, and 281 (1888); #331 (1893); #378 (1898); #404 (1900); #457 and 458 (1903); #503 (1906); and #618 (1916). Penman's mill received more than one such exemption.
39. Paris Bylaw #378, 10 October 1898.
40. *The Useful Arts and Manufactures of Great Britain* (London: Society for Promoting Christian Knowledge, 1846), 476.
41. *The Brant Review*, 11 August 1881; *The Paris Transcript*, 19 May 1882; see C.H. Roberts' scrapbook, pp. 3 and 163.
42. J. D. Lee Engineering Limited, "Grand River Conservation Authority Preliminary Engineering Study for Diversion of the Nith River in the Township of Brantford," January, 1980.
43. For details on the problems with steam fire engines in Paris before 1882, see D. A. Smith, *At the Forks of the Grand*, vol. 1, 122-25.
44. Commercial areas are here defined as retail shops, as well as insurance agencies, lawyers, inns, newspaper publishers, tailors, butchers, druggists, bakers and shoemakers. Excluded are doctors, dentists, blacksmiths, coopers, potters, and carpenters, who are more akin to professionals and trades.
45. *The Brant Review*, 18 July 1884, quoting Hugh Finlayson.
46. D.A. Smith, *At the Forks of the Grand*, vol. 1, 124.
47. *The Paris Transcript*, 1881; C.H. Roberts' scrapbook, 1.
48. D.A. Smith, *At the Forks of the Grand*, vol. 1 (Paris, ON: Local Architectural Conservation Advisory Committee and the Paris Public Library Board, 1956), 119.
49. D.A. Smith, *At the Forks of the Grand*, vol. 1, 126.
50. Paris Bylaw #460 (1903).
51. *The Paris Star-Transcript*, 20 May 1903.
52. Minutes of the Paris Council, 12 May 1902.
53. *Penman Family Papers*, Archives of Ontario, reference number MU 2312, box 1.
54. Minutes of the Paris Council, 12 May 1902.
55. *Ibid.*
56. *The Paris Star-Transcript*, 1 January 1902.
57. Paris Bylaw #208 (1882).
58. Paris Bylaw #229 (1884).
59. W.A. McLean, "Waterworks, Electric Lighting, Sewerage, etc.," 11.
60. Consolidated Municipal Act, 1883, *Statutes of Ontario*, 46 Vic., c. 18, s. 360.
61. Municipal Assessment and Exemption Act, 1880, *Statutes of Ontario*, 43 Vic., c. 27, s. 16; also see Consolidated Municipal Act, 1883, *Statutes of Ontario*, 46 Vic., c. 18, s. 368.
62. Paris Bylaws #368 (1897), #503 (1906), and #623 (1916).

63. Paris Bylaws #267 (1887); #272, 278, and 281 (1888); #331 (1893); #404 (1900); #457 and 458 (1903).
64. Paris Bylaws #201 (1881), #212 (1882), #230 (1884), and #252 (1886).
65. Paris Bylaw #297 (1889).
66. Minutes of the Paris Council, 4 May 1885.
67. Minutes of the Paris Waterworks Committee, 20 September 1897.
68. Municipal Waterworks Act, 1882, *Statutes of Ontario*, 45 Vic., c. 25, s. 14.
69. Ibid., s. 16.
70. Ibid., s. 16(3).
71. Ibid., s. 19.
72. Ibid., s. 46.
73. Ibid., s. 46.
74. Joseph L. Arnold, "The Neighbourhood and City Hall: The Origin of Neighbourhood Associations in Baltimore, 1880-1911," *Journal of Urban History* 6, no. 1 (November 1979): 8.
75. From an article which appeared in *The Paris Transcript* in May 1882, quoting a letter from E. Havory, Secretary of the Guelph Water Works Department. See C.H. Roberts' scrapbook, 63. A similar article, also quoting this letter, appeared in *The Brant Review* on 11 May 1882, but the letter is attributed to G. Harvey, who is also stated to be the Secretary of the Guelph Waterworks Department.
76. *No. 14 Reference Book to Accompany Insurance Plan of Paris, Ontario*, published by the Montreal firm of Charles E. Goad, July 1882 (Archives of Ontario, Direct RR, Paris Town Directory Insurance Plan).
77. Paris Bylaw #201 (1881).
78. Consolidated Municipal Act, 1883, *Statutes of Ontario*, 46 Vic., c. 18, s. 342. Most of the relevant provisions from this Act had been in effect since 1873.
79. Ibid., s. 346.
80. Ibid., s. 73.
81. Artibise, *Winnipeg*, 27.
82. *Ibid.*, 32.
83. *Ibid.*, 38.
84. Consolidated Municipal Act, 1883, *Statutes of Ontario*, 46 Vic., c. 18, s. 80.
85. *Ibid.* s. 79.
86. Municipal Amendment Act, 1884, *Statutes of Ontario*, 47 Vic., c. 32, s. 3.
87. Artibise, *Winnipeg*, 39.
88. Consolidated Municipal Act, 1883, *Statutes of Ontario*, 46 Vic., c. 18, ss. 309-311.
89. Consolidated Municipal Act, 1883, s. 136; Artibise, *Winnipeg*, 40.
90. Artibise, *Winnipeg*, 39.
91. *The Brant Review*, 25 May 1882; see also C.H. Roberts scrapbook, 75.
92. Artibise, *Winnipeg*, 38.
93. *Ibid.*, 42.
94. Municipal Amendment Act, 1898 *Statutes of Ontario*, 61 Vic., c. 23, s. 2.
95. *The Brant Review*, 18 May 1882.
96. *The Paris Review*, 8 February 1917.
97. Minutes of the Paris Council, 19 March 1900.
98. *Ibid.*
99. Minutes of the Paris Council, 25 November 1901.
100. *The Paris Star-Transcript*, 8 January 1902.
101. *The Paris Star-Transcript*, 1 January 1902.
102. *Ibid.*
103. Minutes of the Paris Council, 28 March 1904, and 24 January 1905.
104. *The Paris Star-Transcript*, 1 January 1902.
105. *Ibid.*