

S E C T I O N

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Reading Cities

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“The Urbanization of Nature: Water Networks and Green Spaces in Montreal”

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The Urbanization of Nature: Water Networks and Green Spaces in Montreal

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Urban environments and natural environments: two worlds generally considered fundamentally opposed to one another. Made of concrete, asphalt, stone, bricks, and mortar; organized according to plans drawn toward economic, political, and town-planning ends; shaped by human and social relations—cities seem to exemplify the very antithesis of nature. And yet, cities have always developed and transformed themselves in close and constant interaction with natural milieus. Depending on the period, this relationship between cities and nature has taken very different forms. Indeed, if the transformation of cities stems primarily from changes made to the urban fabric and to the built environment—in sum, to their material layout—these processes could not occur without corresponding modifications to cities’ relationship to their surrounding natural environment.

This chapter reflects on the historical importance of cities in the transformation of natural environments in Canada, and explores how this urban development itself relied on certain aspects of nature. While the relationship with nature may appear less direct in urban areas, constructed and transformed as they are, than in rural settings, it is nonetheless of fundamental importance. Because cities are built by human beings, they are perceived as “artificial” environments, but this does not preclude them from being connected to the natural world. The city is a hybrid space (See Figure 12.1). As with all types of environments, cities are the product of the interweaving of natural and social processes that have marked the human occupation and transformation of the landscape. (Joanna Dean’s chapter, which follows this one, reinforces this point by looking at urban forests in Toronto.)

By examining stages in the creation of water networks and green spaces in Montreal from the 1850s to the 1910s, we will see changes in how natural elements were used in people's surroundings, and, ultimately, in how people and nature related. By underscoring the relationship between people and their environment, this chapter seeks to shed light on the role played by the physical and natural context in the configuration of social and power relations, as well as on the fact that these relations were rooted in the material reality of the urban environment. We will see that Montrealers' relationship with the world today is still profoundly influenced by the way the physical environment was restructured during the period under study.

Figure 12.1 JAMES DUNCAN, MONTREAL SEEN FROM SAINTE-HÉLÈNE ISLAND, 1852



Montreal, painted in greys, is framed here in richly coloured pastoral scenery. This is a painting of the city, but a celebration of nature.

Source: City of Montreal. Records Management and Archives.

Understanding the History of the Urban Environment

Studies of cities have long shown that their histories cannot be understood without accounting for their hinterlands. So much urban development has been based on close interaction with the countryside, both for the purpose of feeding urbanites, and for the numerous resources—such as wood, earth, water, plants—that served in the construction and heating of buildings or in the production of goods. Studying cities, then, requires that we also consider this broader environment.

It is precisely by considering the relationship between cities and their natural surroundings that environmental history has come to focus on urban areas. But unlike the more classic urban studies undertaken by historians, geographers, or economists, an environmental approach is not concerned solely with examining how human beings have used or exploited the resources found around cities. Critical of an instrumentalist conception of nature that is simply committed to uncovering its uses, environmental approaches to urban research also focus on the diverse milieus themselves, as well as on the relationships that form among them. As historian Geneviève Massard-Guilbaud explains, environmental history

refutes the paradigm according to which human beings are outside of nature, and accepts the idea that they are integrated into the biosphere, from societies to ecosystems. Such a perception requires that not only the constraints of natural milieus be accounted for (something historians have done, at least in part, for a long time), but also the upheavals brought (even inflicted) by human beings unto their environment (which has essentially been forgotten).¹

Studying the history of cities from an environmental perspective thus requires a questioning of the relationship between human beings and natural elements, with the objective of uncovering the ways in which both sides of this equation evolve, and of viewing them in a dynamic way.

In environmental history, however, cities constitute a rather marginal object of study. North American environmental historians in particular have focused on spaces considered to be more “natural,” such as forests, waterways, northern and rural settings—in other words, areas that are not urbanized.² Because researchers who first began to take interest in the environment during the 1960s and 1970s hoped to end the degradation of natural milieus and sought to denounce the intensive exploitation of resources for the needs of the market economy, they perceived cities as the cause of such problems. For these activist researchers, cities represented nature’s enemy and were seen only as places that harmed the environment. As many of these scholars were primarily interested in natural ecosystems rather than human environments, cities did not strike them as valid subjects of inquiry. Since then, ideas about the relationship between society and natural milieus have deepened, moving beyond their activist and political origins. Historians in particular have demonstrated that there exists no place on the planet that has not been shaped by humans in one way or another. While the relationship between social and natural milieus is now at the heart of environmental historians’ preoccupations, cities remain relatively neglected. What has been written has focused on the impact of industrialization on cities (notably through pollution), urban catastrophes and the way they are managed, environmental justice, waste and recycling, animals in the city, and the formation of urban technical networks (water, electricity, gas, telegraph, telephone) and their role in shaping the layout of cities.³

To study such matters, historians work with sources widely used in urban history. Many of these are found in municipal archives. Cities, especially larger ones, have generally preserved documents that allow historians to see the way they were managed and organized. Municipal departments of public works, fire prevention, and public health have left numerous traces of the activities and works undertaken to build communication networks in the city, clean up public spaces, limit the presence of polluting smoke, and improve the living conditions of urban populations. Reports by bureaucrats, debates between elected officials, letters from citizens demanding improvements to their living environment, as well as maps and plans all constitute sources from which it is possible to observe how populations viewed their environment in the past, and understand the way they shaped it in response to the problems and needs of their time. Historians of the urban environment also rely on photographs taken at inauguration ceremonies for parks, boulevards, public baths, waterworks stations, or garbage incinerators. Although these accomplishments may not seem spectacular today, they were a source of pride for municipal councillors and bureaucrats who, for this reason, wished to immortalize them on film. Disasters such as fires, storms, or floods were especially prominent subjects for photography, the results often published in newspapers of the day. Finally, cities still contain physical traces of their past. Simply by strolling through the streets of Montreal and paying close attention to the landscape, one can see evidence of the urban planning projects undertaken during the industrial period and discussed in this chapter.

Ordering and Sanitizing the Industrial City

The rise of industrial cities in Canada in the mid-19th century would drastically change the organization of urban areas. Until then, the boundaries between the places in which people lived, worked, and socialized were not well defined, and were intermingled throughout urban space. Similarly, city and countryside were more intimately connected. Indeed, the countryside was more readily accessible, as cities were smaller and less widespread. This situation would change when, through the development of public transit and—above all—the increased use of the automobile, vast suburbs began to develop around urban cores. The growing concentration of the Canadian population and the increasing development of industrial activity radically transformed cities and modified the ways in which they were conceived. Coming about simultaneously, urbanization and industrialization caused the disintegration of older frameworks and a widening of city boundaries. The construction of factories in cities, the increase of traffic, and the mixing of people resulting from international immigration and the arrival of residents from the surrounding countryside all took place in urban areas that were not adapted to these new activities. This resulted in a deterioration of living spaces and conditions characterized by a high rate of mortality, overcrowding in insalubrious homes, and neighbourhoods polluted by industrial activities.

There is no shortage of accounts of these conditions, which, in the manner of reformer Sir H. B. Ames's famous 1897 investigative report about Montreal, *The City Below the Hill*,⁴ dramatically depict the degradation of urban areas and the dangers, real or imagined, associated with it. The alarmist tone and apocalyptic images used to describe 19th-century cities and their difficult living conditions attest to the extent of the changes caused by the arrival of an urban and industrial society. The unyielding criticisms formulated by observers during this period were also intended to pressure municipal authorities into bringing order to these ravaged areas.

Historians must critique the validity of such comments in the process of research. They must become familiar with those who offered these opinions, and ask why the remarks were made and to whom. This allows historians to distinguish between how much of what an individual said reflected reality, and how much was a rhetorical strategy, perhaps intended to sensitize public opinion and bring about improvements to a particular situation. Historians must also keep in mind that such discourses projected the values of the historical actors who produced them, values that must also be determined. It is the same critical approach we must adopt to all the discourses that surround us today, with the difference that in the case of discourses from the past, special attention must be paid to the context of the period, as it is far less directly perceptible than that of our own time. All discourses are revealing in terms of what they say not only about reality, but also about their author's way of representing the world. *The City Below the Hill*, for example, may say as much about a particular conception of the world at the end of the 19th century as it does about Montreal's material condition. For this reason, my objective in this chapter is to not only document Montreal's real situation, but also shed light on how this reality was interpreted and conveyed. I am interested in what is revealed accordingly of the climate of disorder and anxiety that reigned in Canadian cities during this era. The rupture of city boundaries, the broadening of their activities, and the growth of their populations gave rise to problems of a new scale that called for original solutions to resolve them. An analysis of the debates provoked by urbanization, as well as of the plans and means put forth to

Figure 12.2 E. L. GIROUX, MARKET DAY, CHAMPS-DE-MARS, 1920



Market days were ideal opportunities for obtaining food. They attest to the close interdependence of city and countryside.

Source: City of Montreal. Records Management and Archives.

what belonged to each world. To be sure, the actual distinctions were never as sharply drawn as in the discourses defining them (Figure 12.2). But these discourses nonetheless served to structure ways of thinking about and experimenting with the world.

There also emerged in the 19th century a generalized separation between people, their activities (especially those connected with the production of food and waste), and their repercussions on the environment. This reorganization of the relationship between physical and social milieus took its “purest” form in the increasingly rigid organization of spaces reserved for human waste and its disposal, far from places destined for production, commerce, sociability, and family life. However, as we will see, while this reconfiguration was founded on principles of separation and order, it instead resulted in new forms of interaction between natural elements and society. The discourse advocating this separation must be understood as a means of making sense of the development of this world, and of structuring social and political relations.

The desire to bring about this new order, moreover, was accompanied by an obsession for public hygiene. Whether it came from the thick, black smoke erupting from the new factories, the trash produced by an ever-growing population, or effluents accumulating in stagnant waters, this “dirtiness” (as it was called) provoked serious anxieties and was perceived as a major scourge with which municipal authorities had to contend. Coupled to this crusade for the sanitization of urban areas was the pursuit of order. Dirtiness was often perceived in this period as a sign of disorder. Measures geared at sanitizing the city were thus tied to the efforts deployed to facilitate circulation and trade, as well as improve urban security. Between the 1850s and the 1910s, plans were adopted to organize the roads, allowing for rapid movement of people and goods; to restructure the markets in order to supply consumers and businesses; and to develop firefighting and police services to

attempt to resolve these problems, offers an indication of the extent of these challenges, and elucidates the ways in which individuals conceived of the world surrounding them.

The solutions devised in attempting to resolve these problems were grounded primarily in a functional conception of space. Accordingly, efforts were geared toward organizing the various parts of the city in relation to their specific uses. This stemmed from a desire for order, aimed at assigning each set of activities—industrial, commercial, or residential—to a specific place. This philosophy of spatial separation affected not only the city but also the lands beyond it. The city developed and defined itself against the countryside, clearly distinguishing

ensure security. A new relationship between cities and nature was elaborated. At the same time as the discourses of the day conveyed the fears provoked by the changes underway and the problems that resulted from them, they also attested to a belief in the superiority of humans over nature, and celebrated the capacity to profit from nature in order to improve living conditions.

Urbanizing Water and Green Spaces in Montreal

Montreal serves as an apt case study for examining attempts to shape nature during this period, in particular by looking at the networks developed for its drinking and wastewater, as well as its green spaces. As the economic metropolis of Canada, it was the largest and most industrialized city in the country. Often portrayed as the “city of wealth and death,” Montreal was characterized by the striking contrast between the enviable living conditions of its economic elites, primarily of British origin, and the particularly difficult conditions in which its large working-class population lived. Reputed to be a dangerous city, Montreal was infamous in the 19th century for its high rate of infant mortality, particularly among the Francophone population. The ethnic and social cleavages in the population were also reflected in the city’s municipal politics.⁵ As per the mandate conferred upon them at their inception in the 1840s and 1850s, municipal institutions were entrusted with the physical organization and security of the areas under their control. It was through such institutions that Montreal was initially transformed and nature urbanized. To reconstruct this process, I consulted the minutes of the municipal council; reports and memos by professionals employed in the departments of public works, health, and parks; correspondence between citizens and the Montreal administration; and newspapers, which followed local developments closely. These documents outline the series of operations undertaken to resolve the problems associated with supplying water in Montreal, as well as with the growing presence of wastewater in the city. They also show the steps leading to the creation of a network of green spaces aimed at sanitizing both the city and its residents’ lifestyles.

These transformations took place over a 60-year span, itself divided into two relatively distinct periods corresponding to different conceptions of the city and characterized by specific modes of intervention. During the first period, from the 1850s to the 1880s, the defining metaphor for the city was an organic one. Montreal was said to function like a natural system—and a sickly one at that, which had to be treated. Many diseases were believed to be caused by miasmas, noxious vapours in the air, so priorities included sanitizing the air and improving its circulation. But as much as the city was represented discursively as a sick body, at a practical level municipal authorities had difficulty treating the city as a whole—all the more so because the city’s boundaries were continually expanding in this era. Modifications to the urban fabric were undertaken with irregularity and in a piecemeal fashion. Stretch of road by stretch of road, length of piping by length of piping, park after park, the city was reorganized and furnished with infrastructures designed to sanitize it. During the second period, stretching from the 1890s to the end of the 1910s, perception of the city became more comprehensive. Following the renovations of the previous decades, it was possible to think of the city as a whole not only conceptually, but also materially. As a result, works undertaken on green spaces and water circulation stemmed from a greater, integrated concern for rationalization. Once the city was seen in its entirety, modifications were brought to it with the aim of reforming and modernizing it, rather than healing it, as had previously been the case.

“Safeguarding Against the Dangers of Fire, Encouraging the Construction of New Buildings [. . .] Assisting with the Establishment and Functioning of Manufactories”⁶

Water has been a fundamental preoccupation in all periods of history and in all places. As Montreal is situated in the heart of a rich hydrographical basin, its water supply is abundant. Nevertheless, as the city continued to develop into the 19th century, maintaining the drinking-water supply became increasingly complicated. Indeed, the supply point, in the city’s harbour, was also a place of intense activity, causing the deterioration of water quality in the area (Figure 12.3). In the face of steady population growth, and especially of the increasing needs of Montreal’s industries, the quality of this reserve left more and more to be desired. It was in this context that the creation of a new system of supplying drinking water began.

In 1801, a private venture, the *Compagnie des propriétaires de l’eau de Montréal*, sought to supply the city by collecting water on Mount Royal. But the amount of water available was insufficient, and a new supply point had to be found quickly. In 1816, another company decided to supply its clients by drawing from the vast basin of water surrounding Montreal, especially on its southern side. The company installed pumps in the harbour that transferred the water into cisterns, from where it was transported and sold in various parts of the city. In 1845, the City of Montreal acquired this system and set about to improve it.⁷ However, the water in the port, already of dubious quality, continued to deteriorate, leading the city to push the supply point further up the St. Lawrence, near the Lachine rapids. For much of the second half of the 19th century, the heavy flow of these waters seemed in itself sufficient to ensure the quality of the resource.⁸ To

this day, water is drawn from these rapids—situated several dozen metres above the river’s level in the port of Montreal—stored in a canal, and carried to filtration and treatment plants. The water is then pumped into reservoirs on the slopes of Mount Royal from where it is distributed to the various parts of the city.⁹

In the middle of the 19th century, the distribution of water in the city was carried out by *fontainiers*—“fountain men” or “hydrant men”—who walked the streets opening and closing the water valves located on the outside of buildings as directed.¹⁰ As plumbing fixtures were not yet fully developed, it was not possible to connect all the

Figure 12.3 JOHN HENRY BARTON, MONTREAL HARBOUR, CA. 1864



Montreal’s freshwater supply source, the St. Lawrence River, was also heavily used as a navigation route.

Source: City of Montreal. Records Management and Archives.

individual homes directly to the aqueduct. This method also reflected the way in which the water supply was conceived: it was built to supply the city itself and to meet, above all, the water needs of industrial and commercial interests. It was also designed to protect buildings from frequent fire risks, as a majority of them were still built of wood. Thus the priority was not citizens' well-being, but rather the city's economic activities and security. In keeping with liberal thought, elected officials did not address the problems posed by the city's physical layout or its management from a social angle but rather from an economic one. Water was essentially conceived as being for the city rather than for its inhabitants, and so it seemed perfectly logical to make households obtain water from city taps rather than have homes actually be connected to the system itself.¹¹

However, once the water began to flow, the problem of its increasing circulation and the need to evacuate it quickly arose. The rising consumption of water, and the refuse it brought with it, aggravated the problems caused by vast quantities of wastewater stagnating in the city's streets. Montreal had always relied on the many streams flowing through it to carry accumulations of waste and rainwater to the St. Lawrence.¹² Use of these waterways as evacuation channels had the effect of transforming them into nothing short of sewer mains. As long as the amount of water in circulation remained relatively limited, this "natural" system of drainage sufficed. But once water began to circulate in greater quantities, this equilibrium collapsed. Montreal's administrators responded gradually by installing pipes to drain this wastewater. As these works were funded in part by landowners, their neighbourhoods were the first to be equipped with sewers, before those communities inhabited by the working class and by tenants. These secondary sewers were connected to the natural watercourses, which then drained into the St. Lawrence. As of the 1860s, however, these natural streams no longer sufficed, and the municipal administration began construction of three sewer mains leading to the river.¹³ While these piecemeal solutions awkwardly allowed some wastewater drainage, they were unable to liberate the city of the refuse it produced in ever-increasing quantities. Meanwhile, the population of Montreal continued to grow, and with it increased both the consumption of water and the amount of waste generated, along with the accumulation of trash, the spread of epidemics, and problems of public health. There was little indication that the city was prepared to deal with these conditions.

Beautifying the City: The First Parks

Partly because living conditions were deteriorating, and partly because of the growing density of the urban fabric, a desire was increasingly expressed for the creation of spaces that favoured both a greater proximity to nature and its enhancement. While this desire was not new, it acquired an unprecedented importance in the 19th century, in a context in which cities were heavily criticized for being unsightly and unhealthy. Nourishing the Romantic ideal, nature was also glorified, associated as it was with well-being, purity, and beauty. Nature began to be conceived as a means to heal the sickly urban body. In keeping with the prevailing organic vision of the city, the creation of green spaces was advocated as a way to restore the city's lungs, to help it breathe. Such thinking corresponded to improving the city's circulation, by improving the water

system. This was best expressed by the mayor Charles-Joseph Coursol as he took office in the early 1870s:

By the side of the great utilitarian necessities and vast undertakings of which I have just spoken, I place the establishment of ornamental public grounds, where the workman and the laborer may daily send his children to shake off the dust of the factories and the streets, and to restore to their lungs new vigour—where, too, the entire family may go with him to repose from the fatigues of the day's work, and to recover strength for the struggle of the morrow. You understand me gentlemen, to speak of one or more public parks, whose plans have been so often discussed before you, but whose adoption has been always deferred. Nature herself seems to have placed at our doors fine sites adapted for this purpose, especially that which crowns them all—Mount Royal. The vaster that these works appear to be, the more we should labour to effect their construction, on conditions, nevertheless, of a well regulated economy.¹⁴

Although the first green spaces had started to appear in Montreal as of the early 19th century, enthusiasm for them began in earnest during the second half of the century. Squares, public plazas, and large parks came onto the scene here and there in the city, including Dalhousie, Chaboillez, Viger, and Saint-Louis squares, and Mount Royal, La Fontaine, and Île Sainte-Hélène parks.¹⁵ Although parks were natural spaces, with their trees, lawns, flowers, and water, they were also, and perhaps above all, cultural spaces in the way they expressed a number of values and responded to myriad ideals. Created with the intention of beautifying cities and promoting their image, parks were milestones that bore witness to the economic progress of the locality in which they were found, as well as to its financial health and its sound management. The elites who lobbied in favour of their development further believed that the improvement of the appearance of cities, by means of the construction of aesthetically pleasing places, would favour a harmonious social order and the moral and spiritual betterment of urban dwellers.¹⁶ The landscaping of green spaces was thus undertaken with the objective of transforming them into pleasant and restful places, designed for strolls, rest, and contemplation. Trees were planted, lawns were sowed, ponds were dug, benches and lights were installed; all of these elements were intended to turn these presumably wild sites into spaces of culture and civilization.¹⁷

To this process of urbanizing nature, there corresponded a desire to urbanize the new residents of the city, to instill in them the behavioural norms of urban sociability, in particular as applied to public space. Hence all of the prohibitions inscribed into the municipal bylaws and aimed at park users. Parks were to be ordered, controlled, and watched over by the municipal administration. They could be visited at specific hours, as long as both nature and the facilities were respected. Consuming alcoholic beverages, making use of firearms, setting off firecrackers, harming animals, posting bills, soothsaying, yelling or swearing, sleeping, disposing of animal carcasses and garbage, etc., were all prohibited. Walking on the lawns was also forbidden along with riding horses, vehicles, or bicycles outside designated roads or paths.¹⁸ These rules are interesting in and of themselves, as they inform us about some of the presumably common practices of urban dwellers. The declaration

of the rules helped affirm municipal power in these places. Through both the creation of these green spaces and their regulation, Montreal's authorities appropriated not just sections of urban space, but of nature as well. The project of urbanizing nature took shape and was materialized through the physical layout of parks and the elaboration of norms and regulations for their users.

The Networking of Water

Totalling fewer than 60,000 inhabitants in 1852, the population of Montreal nearly quintupled over the following 50 years to reach 268,000 by 1901. During this period, the city's boundaries were bursting at the seams, and the population rise resulted in the formation of numerous smaller municipalities around Montreal. Sooner or later, each of them was faced with the need to urbanize its territory and offer residents services that were increasingly considered essential. At different paces and with varying means, these suburban municipalities established water distribution services and found ways to eliminate wastewater. The rapid growth in the number of consumers increased tenfold the problems relating to water distribution and drainage in Montreal and its suburbs.

Although the structuring of drinking and wastewater networks within city limits was influenced above all by technical constraints and the paths of natural watercourses, this was not the case in the suburbs located throughout the Island of Montreal. Here, power relations played a significant role in the way that water was managed. The western part of the island, primarily comprising wealthy suburbs populated by Anglophone majorities, was able to maintain its autonomy from the central city and the metropolitan region in the management of drinking water. But in the eastern part of the island, home to the less well off, largely francophone suburb of Pointe-aux-Trembles, polluted wastewater from the city accumulated. (This relationship between wealth and topography was not coincidental: uphill and upstream land was more valuable in part precisely because it offloaded such problems.) As a result, the eastern part of the island was forced to connect itself to the Montreal aqueduct, in a position of increased subordination to the central city.¹⁹

In Montreal, the system connecting homes to the municipal aqueduct was replaced by the connection of individual housing units, made possible through recent technological innovations. This development was also spurred by financial considerations. Over the years, Montreal's administration had taken note of the economic shortfall resulting from the distribution of water by building rather than by individual unit:

This state of affairs deprives the municipality of part of the revenue it should receive from the water tax. Indeed, in most cases where this arrangement of one pipe common to several units exists, the tenants agree to pay a contribution so that the tax is only applied to one of them . . . To end this abuse and to recover a significant proportion of the treasury's revenues, it would be necessary to establish . . . separate faucets in each apartment.²⁰

Every housing unit would henceforth be connected to the municipal distribution network. The rates for the service were calculated either in function of the property value of each house or as a fixed

amount for each unit, rather than according to the quantity of water consumed.²¹ This type of connection significantly changed the way in which the water service was conceived, and especially the way responsibility for it was shared. Through this systematic and generalized connection of the private sphere to the public sphere, the municipality gave both meaning and content to the idea of collective responsibility for water: since everyone would from now on benefit from this system, each would have to contribute to its costs. This connection would also result in an increase of the municipality's power over its residents. As it offered a public service and strived to do it as cost effectively as possible, the municipality also gave itself the right to regulate plumbing works both inside and outside the home. It thus granted itself the power to manage certain aspects of people's private lives.

In sum, while the establishment of a public water distribution network in Montreal had tremendous practical consequences, allowing for the development of the uses of water and constituting a central factor in the improvement of living conditions, it also had a major political impact. It contributed to the emergence of the idea of a specific political space within Montreal, resting not only on the discourse or desires of elected officials but rather on the actual physical network that connected individuals to one another. Moreover, the municipality linked this public service to suffrage: only the taxpayers who paid their water tax each year were granted the right to vote in municipal elections.²²

But with the growing availability of water, resulting from residents' new connection to the aqueduct, the amount of wastewater in the city and on its shores also increased. The *Bulletin sanitaire*, a journal founded in this period for the purpose of discussing public health matters, as well as the numerous inspection reports of the Board of Hygiene of the Province of Quebec, overflowed with articles minutely detailing the problems related to water consumption and drainage. It used an alarmist tone, published startling images, and evoked unspeakable afflictions in its efforts to sensitize public opinion and convince the political authorities to furnish the means with which to sanitize urban areas. Public health problems did exist and major rectifications were indeed wanting. The hundreds of lives lost to typhoid were definitely very real,²³ as were the problems caused by the clogging and overflowing of inadequate sewage systems and the frequent flooding of neighbourhoods bordering the St. Lawrence. Too many studies, however, have taken these doom-laden commentaries at face value, seeing them as an accurate rendition of the realities of the day. There is cause to wonder about the ways in which the problems and their solutions were presented and constructed. A look beyond the caricatured nature of this language reveals the contours of a specific reading of reality that must be analyzed as such.²⁴ Although the bacteriological discoveries of the late 19th century allowed for significant advances in comprehending the factors causing the transmission of diseases, many scientists still believed in the theory of miasmas. They thought that diseases spread through the emanations in the air, called miasmas, generated by decomposing matter. Swamps, ponds, and places where trash accumulated were thus considered to be centres of infection and of propagation of disease:

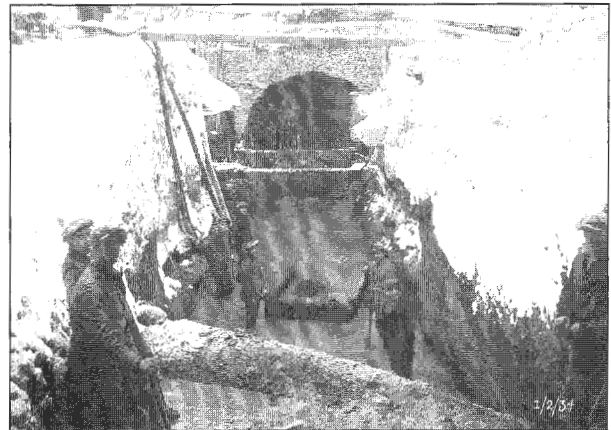
In many places [. . . there are] pits filled with liquid and putrid substances. Most of these pits have no draining and are almost never cleaned. The liquids and substances they contain . . . remain stagnant, forming ponds that are veritable cesspits. [. . .] Aside from these pits, there are ponds of stagnant water here and there in various parts of the territory [. . .] they are further centres of infection.²⁵

The proposed solution consisted of simply making these sources of infection “disappear” by concealing them or by extending the sewage network, the only tool considered suitable for bringing waste “outside the city”: “there is no other way to provide for the sanitization of the territory and to maintain it in a constant state of salubrity than to establish a drainage system built according to the norms and concepts of modern hygiene,”²⁶ wrote one inspector (Figure 12.4). A system of *tout à l’égout* was advocated, one “comprised of various sections: the drainage of houses, including water closets, general or municipal drainage, and the destination of wastewater.”²⁷ From the turn of the 1890s, Montreal’s administration began encouraging the installation of private sanitary facilities within houses, and proceeded to systematically connect them to the municipal sewer system, the various branches of which were gradually spreading through the entire city.²⁸

This solution amounted to isolating the waste produced by human beings from their living environment and concealing it as much as possible, while at the same time connecting housing units to one another by means of sewers. Although this system indeed allowed for the sanitization of the city, it nonetheless failed to resolve the problem of wastewater drainage. The problem was simply shifted along the shores of the island of Montreal, where waste was accumulating—and from where the water supply, fundamental to meeting the population’s needs, originated. Obviously, draining wastewater into basins that also supplied drinking water engendered problems of contamination of the resource. For a long period, however, Montreal’s authorities continued to believe that it was impossible to pollute such a vast body of water as the St. Lawrence, “one of the largest and purest rivers.”²⁹ To avoid contact between drinking water and wastewater, they would simply draw water destined for human consumption somewhat further away from the shore. At the time, pride in the St. Lawrence River, celebrated for its capacity to sweep waste away, was immense, as was confidence in its enormous power of dilution.

However, the continually rising number of typhoid deaths beginning at the end of the 19th century, the anxieties of the population, the pressure brought to bear by engineers, as well as the expert reports based on progressively more reliable bacteriological tests to evaluate water quality, gradually changed opinions. The typhoid epidemic of 1909–10 quelled any remaining objections, such that Montreal’s elected officials decided to proceed with the chlorination of water and adopted plans to construct the Atwater filtration plant, functional as of 1918. From then on, filtration became the

Figure 12.4 SEWER CONDUIT, MONTREAL, 1934



The installation of conduits for water and sewage demanded the systematic linking of the private spaces of homes to the public space of the city.

Source: City of Montreal. Records Management and Archives.

most widely adopted solution to ensure that water was safe for drinking.³⁰ The idea of treating wastewater before releasing it into the St. Lawrence, a course of action envisaged for a time as a public health protection measure, was abandoned. During this period, the problem was considered to be more the contamination of sources of drinking water than the pollution of rivers, and it was not thought that these needed to be protected. In fact, it was only after the Second World War, when the pollution of bodies of water in urban areas became an acute problem, that correctives were implemented in this matter. In the meantime, this process of integrating water to the urban environment allowed Montreal to become a cleaner place, healthy and more secure in terms of hygiene.

Structuring the Territory through Green Spaces

Montrealers' relationship with nature, then, was elaborated through the creation of networks that allowed it to be used, commercialized, and consumed, as illustrated above by the case of water. It was also through the development of a network that the relationship with nature was structured in the case of parks and public leisure spaces. The desire in the 19th century to establish green spaces gave way to a more systematic planning policy, such that over the course of only a few decades, Montreal acquired a whole network of green spaces throughout its territory. Nature served the interests of municipal authorities, who used it to increase their presence in the expanding city by means of the dozens of parks and playgrounds they established. In a city that was constantly developing and growing, green spaces were a way for municipal leaders to brand their presence on the territory and to literally extend the municipal sphere.³¹

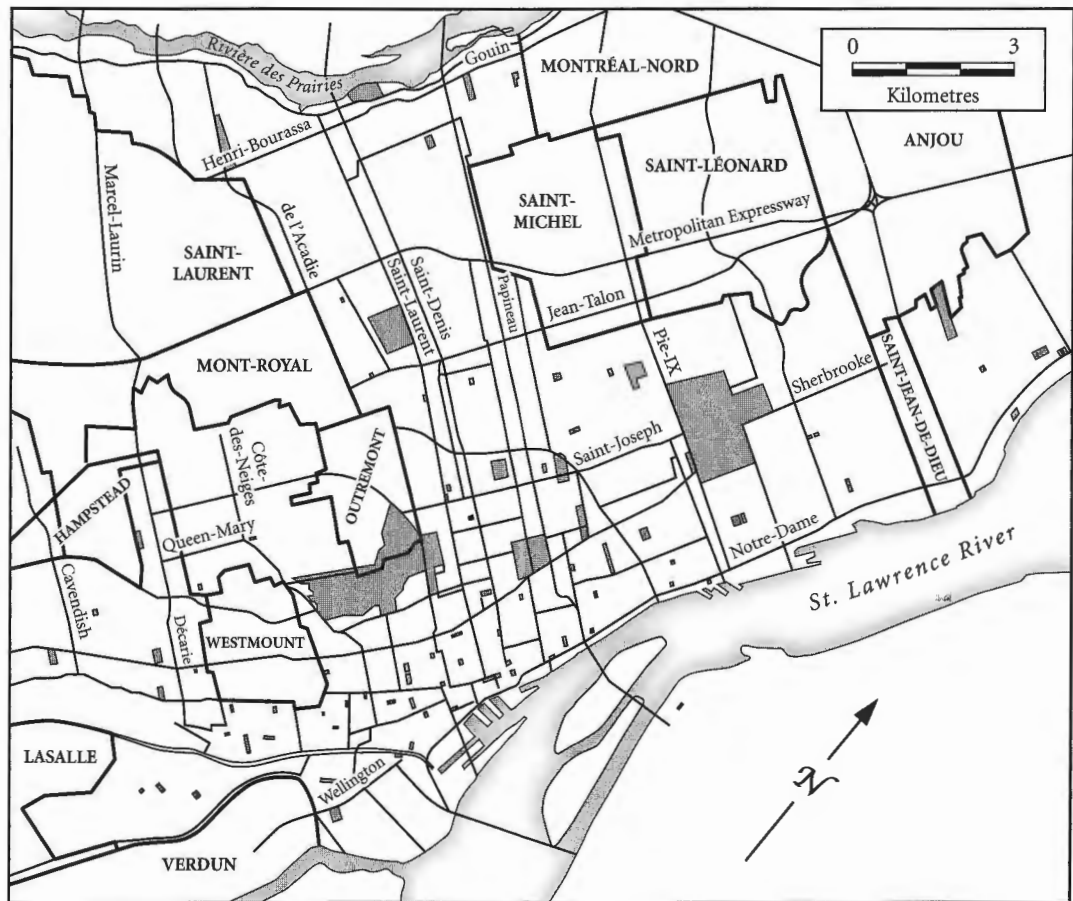
In the 1890s and especially the first decade of the 1900s, public debates in favour of the development of parks and green spaces intensified. Conceived in earlier decades in terms of the ornamentation of the city, the question of parks now evolved into a social issue. Without completely leaving aside the willingness to beautify urban areas, requests for the creation of parks addressed to the municipality were more and more aimed at widening access to green spaces and leisure grounds. This coincided with the rise of an urban reform movement across the western world pre-occupied by the quality of life in industrial cities. This movement placed sustained pressure on municipal administrations, in Montreal as in other cities, to continue developing networks of leisure spaces, particularly in working-class neighbourhoods.³² Parks were considered vectors of virtue, so the strategy of spreading green spaces systematically throughout the urban landscape was intended to extend their benefits everywhere. It must be admitted, of course, that creating more parks within reach of poor communities also meant that the residents of richer communities would not be troubled by the poor's presence in their local parks.

The very notion of green spaces also evolved during these years. Initially conceived in terms of essentially aesthetic considerations and designed for predominantly passive uses, such as promenades and contemplation, parks were more and more thought of in terms of varied leisure activities and practices, and geared to more diverse groups of users. Montreal's authorities began furnishing parks with more cultural elements—playground apparatuses, picnic tables, pavilions, etc.—to augment the natural ones. Greater emphasis was henceforth placed on this recreational equipment and its uses than on the parks' formal character and the natural elements they contained, revealing the adoption of a more functional conception of urban space.

The increasingly systematic implantation of green spaces in the city also attested to the fact that Montreal's authorities were now more able to think of the urban territory in a comprehensive way. The organic vision of the city and the concomitant ways of organizing the urban fabric, characterized by piecemeal and fragmented interventions, would gradually be replaced by a more rational and abstract conception, one that saw the city as a whole, constituted of several parts embodied by the different neighbourhoods. The gradual stabilizing of Montreal's boundaries after the annexation of several surrounding suburbs also contributed to this.³³ This new representation of the city allowed the complexities of its realities to be addressed from a certain distance. Urban space therefore became a totality on which more systematic interventions were carried out in the name of reform and rationality.

The progressively more coherent method of distributing parks throughout each Montreal neighbourhood at the beginning of the 20th century reveals the extent of this comprehensive vision of urban space. As the map of parks and playgrounds in Montreal illustrates (see Figure 12.5), their

Figure 12.5 MAP OF PARKS AND PLAYGROUNDS IN MONTREAL, 1940



Greyed areas indicate the prevalence of leisure spaces in Montreal by 1940.

Source: Map adapted from one by Julie Benoit, 2002.

presence in each neighbourhood offers a balanced view of the city, in which each neighbourhood came to life, from the perspective of the municipal authorities, through the presence of municipal green spaces. These parks also allowed the administration to increase its visibility and to make more tangible the authority it wished to exercise.

In sum, it was through the networking of nature, through the creation of green spaces on the entire urban territory, that the authorities of Montreal increasingly came to conceive of the city's layout. We can say that Montreal managed to municipalize its territory by resorting directly to nature, which took the shape, in this instance, of green spaces designed for leisure activities. As in the case of water, parks were used as an instrument to urbanize not only space, but also the population.

Conclusion

The laying out of cities like Montreal in the second half of the 19th century—profoundly affected by industrialization and the growing concentrations of people on their territory—implied the transformation of natural milieus, leading to a redefinition of their relationship with social milieus. People's capacity to tame nature, to use all of its potential to promote progress and the advancement of civilization, contributed to these efforts of establishing a modern and urban Canadian society (Figure 12.6). The ordering of urban space, through the construction and paving of streets, the development of infrastructures such as water networks and other public services, or the construction of parks, was hailed as a testament to mastery over the physical environment and to the ability to profit from elements of nature in

order to favour economic growth. The urbanization of nature, as this chapter has illustrated, took different paths according to the problems posed by this process and the specific characteristics of the elements in question. Although sanitization was the priority when it came to water and parks, the issues were not quite the same in the two cases. The problems posed by the need to provide drinking water and drain wastewater proved to be complex. They raised the question of the population's very survival and required the construction of sophisticated technical networks. In comparison, the debates surrounding the creation of parks, and the stages in their implementation, were simpler. And despite all of the benefits

Figure 12.6 RACHEL STREET AND LA FONTAINE PARK, 1930S



The layout of this park and street offer a fine example of urbanized nature, with natural elements well ordered, having been placed firmly under control.

Source: City of Montreal. Records Management and Archives.

attributed to them by their promoters, their presence was never framed in terms of people's basic survival.

More numerous and significant are the parallels that can be traced between the building of water and green space networks that illustrate the way nature was utilized in the process of urbanization. In both cases, the urbanization of nature occurred through the separation of milieus and elements, by means of conduits and pipes for water, fenced-in space for parks. It must nevertheless be noted that this separation did not lead to a complete disconnect between natural elements and living environments. Rather, it led to a new interconnection, embodied by the redefinition of the links between the public and private spheres. In the case of water, its networking gave rise to the systematic and physical joining of the private space of the home to the public space of the city, on both the supply and drainage ends of the network. In so doing, the municipality was able to impose its own hygienic norms, if only insofar as the new plumbing system implied a new way of using water.

In the case of green spaces, the impact, though perhaps less obvious, was no less real. Their presence contributed to the development of leisure activities for the urban population, a matter until then primarily tied to personal or family life. Parks allowed for the protection of certain spaces dedicated to nature and to free time, henceforth associating the activities undertaken in these places to the public sphere, even to political power. Behavioural norms, also intended to urbanize city dwellers' conduct, were spread through these spaces. As in the case of water, these norms, set forth through discourses, were communicated through the materiality in which they were grounded. In terms of parks, it was not only the well-kept lawns, the gardens, and lanes, but also the specialization of uses, with the advent of playgrounds, that constituted the media through which these norms were communicated. The transformation and urbanization of natural elements thus reached individuals by leading them to change their practices.

In both cases, the urbanization of nature also favoured the growing presence of municipal authority within the city, and contributed to structuring social relations. Urbanization created a certain distance from nature, even while making it more accessible. Water was made available in all of the city's homes, while green spaces were present in every neighbourhood, but this rapport to nature was constructed on a new basis, in relation to more elaborate modes of regulation. It was in this way that the remodelling of the conditions of collective life, and through it the relationship with nature, also transformed political relations.

DISCUSSION QUESTIONS

1. In what ways do cities constitute an interesting object of study from the point of view of environmental history? Can you make an argument that they are less natural than their hinterlands? Would you want to?
2. How did the advent of industrialization transform the relationships between cities and their hinterlands, between cities and nature? Compare the two conceptions of the city that followed one another from the 1850s to the 1910s.

3. How did Montreal's municipal administration intervene in the organization of its territory in order to adapt to the new context surrounding the advent of the industrial city? Why did political elites perceive unhealthy conditions as a threat?
4. Why can we say that parks were spaces of culture? Are there landscapes that are not spaces of culture?
5. What were the social and political consequences of the development of drinking water and wastewater networks in Montreal?
6. What does the expression "urbanization of nature" mean? What about "municipalization"? In what ways did the urbanization of nature lead to the municipalization of the Montreal territory?

AUTHOR'S NOTE

This text benefited from the rigorous reading of Christian Laville, to whom I am grateful. Many thanks to Nicolas Kenny, who translated the text from French to English. The research on which this chapter is based was carried out with the support of the Fonds québécois de la recherche sur la société la culture and the Social Sciences and Humanities Research Council of Canada.

NOTES

1. Environmental history "suppose [...] de renoncer au paradigme selon lequel l'homme se trouve en situation d'extériorité par rapport à la nature, et d'accepter l'idée de l'intégration de l'homme à la biosphère, des sociétés aux écosystèmes. Une telle vision nécessite la prise en compte des contraintes du milieu naturel (ce que les historiens ont fait, au moins en partie, depuis longtemps), mais aussi des bouleversements apportés (voire infligés) par l'homme à son environnement (ce qu'ils ont, pour l'essentiel, oublié)." Geneviève Massard-Guilbaud, "De la 'part du milieu' à l'histoire de l'environnement," *Le mouvement social* 200 (July–September 2000): pp. 64–72.

2. Sverker Sörlin and Paul Warde, "The Problem of the Problem of Environmental History: A Re-reading of the Field," *Environmental History* 12 no. 1 (January 2007): pp. 107–30. For an overview of recent studies in urban environmental history in Canada, see Stephen Bocking, "The Nature of Cities: Perspectives in Canadian Urban Environmental History," *Urban History Review/Revue d'histoire urbaine* xxxiv no. 1 (Fall 2005): pp. 3–8. For Quebec, see Claire Poitras, "L'histoire urbaine environnementale au Québec. Un domaine de recherche en émergence," *Globe, Revue internationale d'études québécoises* 9 no. 1 (Fall 2006): pp. 93–111.

3. Geneviève Massard-Guilbaud, "Pour une histoire environnementale de l'urbain," *Histoire urbaine* 18 (April 2007): pp. 5–21; Stéphane Castonguay, "Faire du Québec un objet d'histoire environnementale," *Globe, Revue internationale d'études québécoises* 9 no. 1 (Fall 2006): pp. 33–37.

4. Herbert Brown Ames, *The City Below the Hill: A Sociological Study of a Portion of the City of Montreal, Canada* (Montreal: The Bishop Engraving and Printing Company, 1897).

5. Paul-André Linteau, *Histoire de Montréal depuis la Confédération* (Montreal: Boréal, 1992), Chapter 10.

6. Petition submitted to the municipal council of the town of Pointe-Claire, September 13, 1900, Archives of the City of Pointe-Claire.

7. For further information on this period see the detailed monograph by Dany Fougères, *L'approvisionnement en eau à Montréal. Du privé au public, 1796–1865* (Quebec City: Éditions du Septentrion, 2004).

8. Water, especially running water, has long been counted upon for the disposal of waste. Its power to dilute human waste has long been believed in.

9. Over the years, this system has undergone numerous transformations, including the construction of jetties at the entrance of the aqueduct canal in order to prevent the accumulation of ice in the winter, the deepening of this canal, the installation of ever-more powerful pumps, the construction of new reservoirs in other parts of the city, etc. These major improvements all resulted from investigations undertaken to analyze recurring problems with the city's water supply. Among these was the difficulty of maintaining a constant supply due to the variations in the river's level caused by the change of seasons. For additional details, see Michèle Dagenais and Claire Poitras, "Une ressource abondante et inépuisable? Urbanisation et gestion de l'eau dans le Montréal métropolitain aux 19e et 20e siècles," *Histoire urbaine* 18 (April 2007): pp. 97–123.

10. "The idea was first to supply the city, as a collective entity, rather than each resident's home or other non-residential establishments," Dany Fougères, *L'approvisionnement en eau*, p. 93.

11. During this period, "the number of pipes was thus equal to the number of connections, rather than to the number of consumers," *ibid*, p. 89.

12. Louise Pothier, "Réseaux d'eau potable et d'eaux usées: l'hygiène publique dans la société montréalaise (1642–1910)," in Louise Pothier, ed., *L'eau, l'hygiène publique et les infrastructures* (Montreal: Groupe PGV—Diffusion de l'archéologie, 1996): pp. 25–46.

13. Robert Gagnon, *Questions d'égouts. Santé publique, infrastructures et urbanisation à Montréal au XIXe siècle* (Montreal: Boréal, 2006), Chapter 4.

14. Inaugural speech of mayor Charles-Joseph Coursol, 1871, City of Montreal, Division de la gestion de documents et des archives (DGDA).

15. Jean-Claude Marsan, *Montreal in Evolution: Historical Analysis of the Development of Montreal's Architecture and Urban Environment* (Montreal & Kingston: McGill-Queen's University Press, 1990).

16. Michèle Dagenais, *Faire et fuir la ville. Espaces publics de culture et de loisirs à Montréal et Toronto aux XIXe et XXe siècles*, Lévis, (Quebec City: Presses de l'Université Laval, 2006), Chapter 2.

17. A parks superintendent in Toronto—in a passage that could easily have been written by his Montreal equal, so similar were the motivations for and conceptions of urban green spaces in the two cities—enumerated the improvements carried out to urbanize a recently acquired property: "Bellevue Square . . . has been transformed from a wild state to one of the prettiest places in the City. Work was only commenced in May, and before the expiration of six weeks the place was graded, levelled and nicely sodded throughout, flower beds were planted and a post and iron fence erected around the square. A number of young trees were also planted which, in addition of the old forest trees, make this Park a pleasant resort for the citizens living in that vicinity." City Council Minutes, January 12, 1888, Appendix 1887, Report No. 267, Final Report for the year 1887, Superintendent of Parks, City of Toronto Archives (CTA), pp. 1629–30.

18. Bylaw no. 275 "Règlement pour l'administration des parcs et des squares," April 24, 1902, DGDA. See also the rules governing parks in Toronto: Bylaw no. 2460 "A By-Law for the Management of the Parks and Exhibition Grounds and Buildings," 1890, CTA.

19. Michèle Dagenais and Claire Poitras, “Une ressource abondante et inépuisable?”
20. “Cet état de choses prive d’une partie du revenu qu’elle (la municipalité) devrait recevoir par la taxe d’eau. En effet, dans la plupart des cas où existe cette disposition d’un tuyau commun à plusieurs logements, les locataires s’entendent et se cotisent ensemble afin de faire payer seulement la taxe imposée à un seul d’entre eux . . . Pour faire cesser cet abus et recouvrer au trésor une importante portion de son revenu, il serait nécessaire d’établir . . . des services et des robinets d’arrêt distincts pour chaque logement,” *Rapport annuel du surintendant de l’aqueduc de Montréal pour l’année finissant le 31 décembre 1897* (Montreal: The Montreal Printing and Publishing Company, 1899), DGDA, pp. XXII–III.
21. Dany Fougères, *L’approvisionnement en eau à Montréal*, p. 98 onward.
22. Jean-Pierre Collin and Michèle Dagenais, “Évolution des enjeux politiques locaux et des pratiques municipales dans l’île de Montréal, 1840–1950,” D. Menjot and J.-L. Pinol, eds., *Enjeux et expressions de la politique municipale (XIIe–XXe siècles)* (Paris: L’Harmattan, 1997): pp. 202–3.
23. Dozens of lives were claimed by typhoid each year. Although the number of typhoid cases began to decrease as of 1890–91, there were nevertheless three periods of particularly marked increases: 1900–01 (684 cases), 1906–1907 (738 cases), and 1909–10 (1,473 cases); Ginette Gagnon, “L’aqueduc de Montréal au tournant du siècle (1890–1914): l’établissement de la purification de l’eau potable,” M.A. thesis, Department of History, Université de Montréal, 1988, p. 144.
24. As Ted Steinberg explains it, “When urban issues are discussed—such as water pollution and toxic waste—the tendency among most environmental historians is to embrace ‘the stance of engineers and managers contemplating a problem to be solved.’ In other words, rather than exploring how power has shaped the approach taken toward pollution and waste, many environmental historians are simply replicating the interpretive frameworks and skewed assumptions of their subjects.” Steinberg, “Down to Earth: Nature, Agency, and Power in History,” *American Historical Review* (June 2002): p. 804.
25. “En beaucoup d’endroits [. . .] des fossés remplis de liquides et de matières putrides. La plupart des fossés n’ont pas d’écoulement et ils ne sont presque jamais nettoyés. Les liquides et les matières qu’ils contiennent . . . restent toujours en stagnation, formant des mares qui sont de véritables cloaques. [. . .] Outre ces fossés [. . .] il y a çà et là en divers endroits du territoire, des mares d’eau stagnante [. . .] elles sont encore comme autant de foyers d’infection.” “Rapport d’inspection au sujet d’une éclosion de fièvre à la Pointe St. Charles,” August 31, 1889, *Conseil d’hygiène de la Province de Québec, Rapports d’inspections, 1887–1922*, fonds E 88, Archives nationales du Québec (ANQ).
26. “Rapport d’inspection au sujet d’une nuisance causée par des égouts privés,” February 16, 1907, fonds E 88, ANQ.
27. “Le système du ‘tout à l’égout’” *Bulletin sanitaire* 5 no. 3 (March 1905): pp. 19–24.
28. Robert Gagnon, *Questions d’égouts*, p. 195 onward.
29. Louis Lesage, *Discussion sur le plan d’agrandissement de l’aqueduc de Montréal, Rapport sur l’agrandissement proposé de l’aqueduc de Montréal*, (Montreal: J. Starke and Co., 1873): p. 6.
30. Michèle Dagenais and Caroline Durand, “Cleansing, Draining and Sanitizing the City: Conceptions and Uses of Water in the Montreal Region,” *Canadian Historical Review* 87 no. 4 (December 2006): pp. 644–48.
31. For a detailed analysis of the creation of a network of parks in Montreal during this period, see Michèle Dagenais, *Faire et fuir la ville*, Chapter 2.

32. Jeanne M. Wolfe and Grace Stachan, "Practical Idealism: Women in Urban Reform, Julia Drummond and the Montreal Parks and Playgrounds Association," Caroline Andrew and Beth Moore Milroy, eds., *Life Spaces: Gender, Household, Employment* (Vancouver: University of British Columbia Press, 1988): pp. 65–80.
33. On the process of annexation, see Paul-André Linteau, *Histoire de Montréal*, Chapter 8.

FURTHER READING

- Ball, Norman R. *Building Canada. A History of Public Works*. Toronto: University of Toronto Press, 1988.
- Bocking, Stephen. "The Nature of Cities: Perspectives in Canadian Urban Environmental History." *Urban History Review/Revue d'histoire urbaine* 39 no. 1 (Autumn 2005): pp. 3–8.
- Cronon, William. *Nature's Metropolis: Chicago and the Great West*. New York: W. W. Norton, 1991.
- Dagenais, Michèle. *Faire et fuir la ville. Espaces publics de culture et de loisirs à Montréal et Toronto aux XIXe et XXe siècles*. Lévis: Presses de l'Université Laval, 2006.
- Dagenais, Michèle and Caroline Durand. "Cleansing, Draining and Sanitizing the City: Conceptions and Uses of Water in the Montreal Region." *Canadian Historical Review* 87 no. 4 (December 2006): pp. 621–51.
- Gagnon, Robert. *Questions d'égouts. Santé publique, infrastructures et urbanisation à Montréal au XIXe siècle*. Montréal: Boréal, 2006.
- Gunn, Simon. "Urbanization." C. Williams, ed. *A Companion to Nineteenth-Century Britain*. Oxford: Blackwell, 2004, pp. 238–52.
- Keeling, Arn. "Urban Waste Sinks as a Natural Resource: The Case of the Fraser River." *Urban History Review/Revue d'histoire urbaine* 39 no. 1 (Autumn 2005): pp. 58–70.
- Linteau, Paul-André. *Histoire de Montréal depuis la Confédération*. Montréal: Boréal, 2000.
- Massard-Guilbaud, Geneviève. "Pour une histoire environnementale de l'urbain." *Histoire urbaine* 18 (April 2007): pp. 5–21.
- Poitras, Claire. "L'histoire urbaine environnementale. Un domaine de recherche en émergence." *Globe, Revue internationale d'études québécoises* 9 no. 1 (Autumn 2006): pp. 93–111.