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*Questions d'égouts. Santé publique, infrastructures et urbanisation à Montréal au 19<sup>e</sup> siècle.* Par Robert Gagnon.  
(Montréal : Boréal, 2006. 263 p., ill., maps, notes, bibl., index.  
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Jamie Benidickson

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Canada. Rien sur le monde, lui aussi bien agité par la Seconde Guerre mondiale. Cela est un peu décevant, surtout quand on sait les vastes intérêts de Marie-Victorin et son engagement social et politique. Peut-être, le botaniste voyait-il dans sa collaboration purement scientifique avec le Frère Léon et ses fréquents voyages à Cuba une occasion d'échapper aussi au personnage public qu'il était finalement devenu au Québec? Quoi qu'il en soit, il faut savoir gré à André Bouchard, lui-même associé depuis longtemps à des institutions liées à Marie-Victorin, comme le département de biologie de l'Université de Montréal, l'Institut de recherche en biologie végétale et le Jardin botanique de Montréal, de nous avoir donné cette correspondance annotée.

RAYMOND DUCHESNE

*Télé-université / Université du Québec à Montréal*

## Technology / Technologie

***Questions d'égouts. Santé publique, infrastructures et urbanisation à Montréal au 19<sup>e</sup> siècle.*** Par Robert Gagnon. (Montréal : Boréal, 2006. 263 p., ill., maps, notes, bibl., index. ISBN 2-7646-0449-1 25,95 \$)

To a considerable degree modern civic life rests upon subterranean foundations whose significance—in several respects—is not fully appreciated. Sewerage is not fully appreciated in the sense that its history and operations are not generally recognized. Nor is this fundamental aspect of municipal infrastructure properly appreciated for its contribution to the well-being of urban residents or in relation to the enormous environmental impacts of wastewater discharges. This is a fascinating story at the historical and contemporary intersection of science, medicine, engineering, municipal governance, public finance, and law. Most appropriately, therefore, Robert Gagnon refers to the history of sewerage in Montreal as: “Une histoire dans laquelle, en effet, la science, la technologie, la place des experts, l’industrialisation et la prise de conscience des effets néfastes de la pollution jouent, comme aujourd’hui, des rôles-clés.”

Gagnon’s history of the nineteenth century development of Montreal’s collector sewers makes a valuable contribution to our understanding of a more or less universal phenomenon while emphasizing certain distinctive features. He quite properly highlights the fact that in the Confederation era, Montreal became the first Canadian city to accomplish the installation of collector sewers, the large diameter waste water removal pipes that gathered the outflow of hundreds or thousands of smaller conduits to facilitate the removal of their contents. By comparison, Toronto achieved this goal four decades later.

The mid-nineteenth century installation of sewerage for major cities is often associated with the catalytic vision, expertise, and determination of a leading engineer or planner. Joseph Bazellgette sewered London; Eugène Belgrand (with Haussmann) left his mark underneath Paris; Chicago's challenging drainage issues were resolved (at least temporarily) under the leadership of Ellis Sylvester Chesbrough. Gagnon certainly acknowledges the contribution of the individual engineering advisors who formulated plans for Montreal, but of these there were several. Design decisions and actual construction were frequently delayed during the 19<sup>th</sup> century until city residents themselves insisted on implementation of more suitable arrangements.

Citizen demands were expressed in a variety of forms. Residents "s'en mêlent et poussent les élus à investir dans cette infrastructure." Or, "la voix des simples citoyens réclame la construction d'un égout en invoquant des motifs autant économiques que sanitaires." Additional forms of citizen pressure included litigation by those who were inadequately served. Vast numbers of petitions arrived at city hall from citizens calling upon the authorities to provide sewerage. Indeed, it is Gagnon's ultimate assertion that "c'est l'action de ces simples citoyens qui, en fin de compte, obligera les élus à remplir leur promesse de faire de Montréal une ville saine."

In addition to highlighting the contribution of residents to the adoption of sewerage on a grand scale, *Questions d'égouts* is particularly informative with regard to multiple alternative plans (fully described and well-illustrated in a number of maps accompanying the text) and in relation to evolving financing arrangements. The manner in which costs were allocated between homeowners and the municipality is carefully reported, along with the evolving responsibilities of civic officials and property owners. As in many communities, homeowners in Montreal were initially responsible for connecting domestic drains to public sewers, but the municipality eventually took over supervision and control of the actual connections between domestic conduits and public sewers.

To recount these developments, of course, Gagnon must also convey an understanding of the manner in which the city of Montreal evolved at an institutional level to develop what we would now call "capacity" to implement technological advances. These organizational changes are also effectively integrated into the narrative. Thus we observe the evolution of municipal governance from an era of administration under the authority of local justices to the formation of the municipal corporation in 1840, and shortly thereafter the establishment of a waterworks committee, in 1845. A local board of health, modeled after comparable British initiatives was constituted around mid-century, and such bodies were soon encouraged

from the provincial perspective as well. As of 1860, the municipal corporation's power to borrow was confirmed—a necessary condition for the construction of collector sewers. Commercial institutions, notably the Montreal Board of Trade and the *Chambre de commerce de Montréal* (1887), as well as professional organizations such as the Montreal Sanitary Association (1866), also played their parts. Such institutions contributed directly to the transmission of new understandings of medical and engineering knowledge throughout the community and to the incorporation of that knowledge into the decision-making priorities of the community. The most influential example of that process revolves around the impact of bacteriological insights replacing earlier theories of disease associated with foul vapors and miasmas.

In referring to Montréal's sewerage infrastructure as “ces grandes autoroutes souterraines,” the author elevates the importance of sewerage with an appropriate metaphor. Railways, most recently commemorated through the ballads of Gordon Lightfoot, along with transcontinental highway connections are justifiably celebrated. But the invisible civic accomplishment of sewerage is equally worthy of recognition even if troubadours are unlikely to appear soon.

It took some time to appreciate that sewers were not only mechanisms for civic cleansing, but also sources of pollution threatening public health. Unfortunately it must be said that Montreal, having installed sewerage ahead of other Canadian communities, was a prominent laggard in relation to waste water treatment. While Montreal spokesmen encouraged communities upstream from their metropolis to install wastewater treatment, they resisted the investment as unnecessary in their own circumstances. The *Sanitary Review* aptly referred to Montreal in the early twentieth century as “a hygienic disgrace to civilization.”

In a recent article on the environmental legacy of urban development in Montreal and Baltimore, Sherry Olson highlights several other dimensions of the story. The introduction of impervious materials such as asphalt and tar to the municipal environment was transforming run-off and stream flow patterns, occasioning more frequent flash-flooding and perhaps in consequence stimulating demand for the sewerage infrastructure whose construction is so thoroughly described in Gagnon's informative volume. *Questions d'égouts* thus makes an important community-based contribution to the study of urban infrastructure and the technology of sanitation whose broader evolution has been so effectively presented in Martin Melosi's *Sanitary City*.

JAMIE BENIDICKSON  
*University of Ottawa*